BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN ZONE BENCH PUNE

ORIGINAL APPLICATION NO. 125 OF 2023 (WZ)

(LETTER PETITION)

Praful N. Mahajan ….. Applicant

Versus.

Chief Officer, Achalpur Municipal Council & Ors. ….. Respondents

REPLY TO THE JOINT COMMITTEE REPORT CONSTITUTED BY THIS HON'BLE TRIBUNAL VIDE ITS ORDER DATED 09.10.2023, ON BEHALF OF THE RESPONDENT NO. 1, ACHALPUR MUNICIPAL COUNCIL.

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Place: Pune
Date: 06.08.2024

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REPLY TO THE JOINT COMMITTEE REPORT CONSTITUTED BY THIS HON'BLE TRIBUNAL VIDE ITS ORDER DATED 09.10.2023, ON BEHALF OF THE RESPONDENT NO. 1, ACHALPUR MUNICIPAL COUNCIL.

TO,

THE HON'BLE CHAIRMAN,

AND HIS COMPANION MEMBERS

OF THE HON'BLE NATIONAL GREEN TRIBUNAL,

THE HUMBLE REPLY OF THE RESPONDENT NO. 1 ABOVE NAMED

MOST RESPECTFULLY SHOWETH-

1. The Complainant in the present Original Application had made a complaint (Letter Petition) to this Hon'ble Tribunal raising a grievance with regards to the dumping of solid waste and its burning, having an adverse impact on the agricultural land of the Complainant. The Complaint (Letter Petition) was taken up in chambers by this Hon'ble Tribunal and vide its order dated 03.07.2023, the Hon'ble Tribunal was pleased to direct the Regional Office of the Maharashtra Pollution Control Board, Amravati to submit an Action Taken Report on the Complaint made by the Complainant. By an email dated 22.08.2023, the Action Taken Report of the Maharashtra Pollution Control Board was submitted to this Hon'ble Tribunal. In the said Report, it was made clear that, the Respondent No. 1 was generating municipal solid waste of 37.5 Metric Ton per day. The said waste was being treated and disposed by the Respondent No. 1 at a site located at Survey No. 83/3, 117, Mouje Raipura, Taluka- Achalpur, District- Amravati. The Hon'ble Tribunal on perusing the Report was pleased to observe that, no steps as such were undertaken by the Respondent No. 1 and the fact that, 37.5 metric tons per day was being generated and the quantity of Legacy Waste not being disclosed and admittedly the Agricultural Land being adjacent to the existing SWM site of the Complainant, this Hon'ble Tribunal was pleased to admit the Complaint (Letter Petition) and accordingly directed the Registry to treat the Complaint (Letter Petition) as an Original Application and register the same. In pursuance thereof, the Registry of this Hon'ble Tribunal was pleased to register the Complaint (Letter Petition) as Original Application No. 125 of 2023 (WZ) (Letter Petition). The Hon'ble Tribunal vide its order dated 09.10.2023 was pleased to direct the Registry to issue Notice to the Respondents, wherein Achalpur Municipal Council was arrayed as Respondent No. 1, returnable within four weeks, enclosing therewith a copy of the Complaint along with the Report. Vide the order dated 09.10.2023, this Hon'ble Tribunal was also pleased to constitute a Joint Committee, comprising of the Respondent No. 1 to

Respondent No. 3 to visit the aforementioned site and to submit a report on the following points:

1. *"Whether the Solid Waste which is being generated per day, is being taken care of by the existing SWM Plant/Facility or not? And if there is a gap, then what proposal is made at their end to meet this requirement?*
2. *What is the quantity of legacy waste which needs to be cleared through bio-remediation and what steps are being taken for the same?*
3. *The Report shall also be filing regarding its impact on nearby agricultural fields and health of the people residing in the nearby area/vicinity?*
4. *Time-bound action plan shall be submitted to us for implementing the Solid Waste Rules, 2016 in respect of solid waste and legacy waste?*
5. *Since the SWM Plant was required to be set up by 07.04.2021 as per the judgment of this Hon'ble Tribunal passed in Original Application No. 606 of 2018, the Committee shall also ascertain the amount of environment damage compensation to be levied on the Achalpur Municipal Council for the violation till date?"*

6. The Joint Committee constituted by this Hon'ble Tribunal submitted its Report in terms of order dated 09.10.2023 before this Hon'ble Tribunal. Vide the said Report, the Committee observed that,

i. Processing of day-to-day of Municipal Solid Waste.

34 TPD of Municipal Solid Waste was being generated daily within the jurisdiction of the Respondent No. 1. Out of the 34 TPD of MSW generated, 12 TPD was approximately wet waste and 22 TPD was dry waste. As per the information submitted by the Respondent No. 1, the wet waste is treated by pit composting and dry waste is segregated in the MRF Centre and is further sent for disposal through appropriate channels. It was observed that, the existing

Solid Waste Processing Facility processes the entire solid waste collected daily from the area of the Respondent No. 1. It is therefore, submitted that, the 34 TPD of MSW being generated on day-to-day basis is processed by the Respondent No. 1 in accordance with law.

ii. Bio-remediation of Legacy Waste.

As far as bio-mining of Legacy Waste is concerned, 5279 metric ton of bio-remediation of Legacy Waste had been carried out by the Respondent No. 1 in the year 2020. 42,000 MT of Legacy Waste exists at the site. the Respondent No. 1 has made an agreement with an agency M/s Supreme Gold Irrigation Ltd. for bio-mining of 22,000 MT of Legacy Waste. During visit, it was observed that, bio-mining activity was in operation. The Agency has installed a segregation machine of a capacity of 500 TPD for bio-mining. The Committee observed that, the Respondent No. 1 in the new DPR for Solid Waste Management has taken a proposal for bio-mining of the balance Legacy Waste.

iii. Environmental Compensation:

In terms of the Order dated 24.01.2020 passed by the Principal Bench of this Hon'ble Tribunal in O. A. No. 606 of 2018, the Committee has come to a conclusion that, the Respondent No. 1 are liable to pay an Environmental Compensation of Rs. 86 Lakhs towards non-compliance of Rule 22(2) and Rules 22(10) of the Solid Waste Management Rules, 2016 and non-compliance of the bio-remediation of Legacy Waste.

7. Being aggrieved by the levying of the Environmental Compensation by the Joint Committee, the Advocate appearing on behalf of the Respondent No. 1-Council sought time to file objections to the Joint Committee Report. The Respondent No.1

if need be, reserves it right to file a Reply to the Complaint (Letter Petition) i.e. Original Application No. 125 of 2023 (WZ). This Hon'ble Tribunal was pleased to grant the time as sought for vide its order dated 03.05.2024. Therefore, in compliance of the order dated 03.05.2024, the Respondent No. 1 is filing the present Affidavit, thereby explaining in detail the ground position of the Solid Waste Management within the jurisdiction of Respondent No. 1-Council and the steps taken by the Respondent No. 1-Council in compliance of the Solid Waste Management Rule, 2016.

8. At the outset, all the contentions, allegations and statements made in the Joint Committee Report in the present case are denied and nothing therein shall be deemed to be admitted by the Respondent No. 1 herein, by reason of non-traverse or otherwise, unless specifically admitted herein. It is submitted that the Joint Committee Report filed by the Joint Committee is false, frivolous and far-fetched from the factual reality in the present case.

9. Pertinently, the issue in the present Original Application revolves around following following aspects:

I. <u>Disposal of Daily Municipal Solid Waste generated within the jurisdiction of the Respondent No. 1-Council:</u>

II. <u>Scientific Disposal of Legacy Waste accumulated within the jurisdiction of the Respondent No. 1- Council:</u>

III. <u>Environment Damage Compensation to be levied on the Respondent No. 1 Council for failure to set up the Solid Municipal Waste Management Plant/Facility by the Respondent No. 1 before 07.04.2021:</u>

I. <u>Disposal of Daily Municipal Solid Waste generated within the jurisdiction of the Respondent No. 1-Council:</u>

A. The Respondent No. 1- Council is an A-Class Municipal Council in the Amravati District of the State of Maharashtra having a population of approximately 1.25 lakhs. The Respondent No. 1- Council has a jurisdiction over the city of Achalpur and Paratwada. Therefore, the Respondent No. 1-Council is a Local Body for the city of Achalpur and Paratwada in terms of Rule 3(30) of the Solid Waste Management Rules, 2016 (hereinafter referred to as ***"SWM Rules"***). It is admitted that the Respondent No. 1-Council is bound to comply with its obligations under SWM Rules, more specifically, with Rule 15 of the SWM Rules.

B. The Rule 15 of the SWM Rules demonstrates duties and responsibilities of the Local Authorities with regard to Solid Waste Management. It is submitted that, the Respondent No. 1- Council being a small Local Body, is making its best endeavor to comply with the SWM Rules. The daily municipal solid waste generation within the jurisdiction of the Respondent No.1- Council is about 34 TPD, out of which an approximately 10 to 12 tons of waste is wet waste and approximately 20 to 22 tons of waste is dry waste.

C. The Respondent No. 1- Council, in terms of Rule 15(b) of the SWM Rules has an arrangement for door-to-door collection of MSW generated from residential as well as commercial complexes. A total of 22 four Wheelers with a capacity of 1.7 cum each, 15 three Wheelers with a capacity of 1.33 cum each and 14 tractors with a capacity of 3 cum each have been taken on lease from one Mr. Dipak Uttaradhi for the collection and transport of the waste of generated within the city limits of Achalpur and Paratwada.

Subsequent to the Agreement dated 21.06.2024, the Respondent No. 1 Council issued a Work Order dated 27.06.2024 in favor of Mr. Dipak Uttaradhi for the collection and transport of the waste of generated within the city limits of Achalpur and Paratwada.

A copy of the Collection and Transportation Agreement entered into between the Respondent No. 1- Council and Mr. Dipak Uttaradhi dated 21.06.2024 is enclosed herewith and is marked as **ANNEXURE R-1.**

A copy of the Work Order dated 27.06.2024 issued by the Respondent No. 1- Council in favour of Mr. Dipak Uttaradhi is enclosed herewith and is marked as **ANNEXURE R-2**.

D. Further, the Respondent No. 1- Council has appointed the waste pickers who are trained to segregate the MSW as stipulated under the Rules. The daily MSW generated within the jurisdiction of the Respondent No. 1- Council gets segregated in two categories- wet waste and dry waste. As stated above, the wet waste generated within the jurisdiction of the Respondent No. 1- Council is approximately 12 TPD. The Respondent No. 1- Council follows the pit composting technology for disposal of the wet waste. In terms of Rules 15(v) of the SWM Rules, the Local Bodies have to undertake the facility adopting suitable technology by adhering to the guidelines issued by the Ministry of Housing and Urban Affairs from time to time and standards prescribed by the Central Pollution Control Board. The Ministry of Housing and Urban Affairs, in 2016 has published a Municipal Solid Waste Management Manual which explains in detail the process of composting. It is submitted that, the Respondent No. 1 is undertaking the processing of the day-to-day MSW in accordance with Rule 15(v) of the SMW Rules and the

Municipal Solid Waste Management Manual published by the Ministry of Housing and Urban Affairs.

E. Fertilizers produced as a result of the composting of the wet waste is then sold to various desiring Purchasers. The Government of Maharashtra, Department of Soil Science did a scientific study of the fertilizer produced as a result of composting of the wet waste of the Respondent No. 1. The Report issued by the Government of Maharashtra, Department of Soil Science dated 19.12.2023 stipulates that the fertilizer produced as a result of composting is within the Fertilizer Control Order Standards. Further, the State of Maharashtra has granted permission to the Respondent No. 1- Council to sell such fertilizer under the Government Brand "Harit- Mahacity Compost". In terms thereof, the Respondent No. 1- Council is selling the fertilizer produced by composting. Therefore, in such circumstances, an inference can be drawn that out of 12 TPD of wet MSW generated within the jurisdiction of the Respondent No.1- Council is being processed scientifically and more so, is being further used for a good cause.

A copy of the relevant extract of the Municipal Solid Waste Management Manual published by the Ministry of Housing and Urban Affairs depicting the process of composting is enclosed herewith as **ANNEXURE R-3**.

A copy of the Report issued by the Government of Maharashtra, Department of Soil Science dated 19.12.2023 to the Respondent No.1- Council is enclosed herewith and is marked as **ANNEXURE R-4.**

A copy of the letter issued by the Government of Maharashtra dated 27.12.2023 to the Respondent No.1- Council, allowing the use of the Government Brand "Harit- Mahacity Compost is enclosed herewith and is marked as **ANNEXURE R-5.**

The copies of the receipts issued by the Respondent No. 1- Council to the purchasers of the fertilizer produced out of compost is enclosed herewith and marked as **ANNEXURE R-6 (COLLY).**

A copy of the photographs depicting the compost pits of the Respondent No.1- Council are enclosed herewith and marked as **ANNEXURE R-7 (COLLY).**

F. With regards to the Dry Waste of 22 TPD generated within the local limits of the Respondent No. 1 Council, it is submitted that, the dry waste generated on a daily basis consists of plastic, paper, cardboard, metal objects, leather, wooden parts and electrical parts etc. The Respondent No. 1 through its Contractor segregates the dry waste and the ragpickers take away the plastic and paper like objects to sell in the market for their personal income. Further, the Contractor collects the remaining dry waste such as single use plastic and process the same to make it into a compact box of about 20-25 Kgs each and the same is further sold to the Industrial Units for cement production. Thus, a total amount of dry waste of approximately 22 TPD gets lifted for further process and sent for disposal through appropriate channels.

A copy of the photos depicting the segregation of the dry waste by the Contractor of the Respondent No. 1- Council are enclosed herewith and marked as **ANNEXURE R-8 (COLLY).**

G. On perusing the Report of the Joint Committee, the Committee has categorically observed that, the day-to-day MSW generated within the jurisdiction of the Respondent No. 1, the existing Solid Waste Processing Facility, processes the entire solid waste collected within the area of the

Respondent No. 1. The Site where the MSW Plant of the Respondent No. 1 is set up is 1.16 Ha, which according to the Committee seems to be inadequate. In this context, it is submitted that:

a) While following the procedure mentioned hereinabove for disposal of MSW, the Respondent No. 1- Council is also looking out for an alternative place for establishing MSW Processing Facility at Village Khelghumat, Taluka Achalpur, S/No. 27, E Class having area of 9.16 ha. The District Collector is duty bound to facilitate the identification and allocation of suitable land as per Rule 11(f) for setting up Solid Waste Processing and Disposal Facility in terms of Rule 12(a) of the SWM Rules. The Sub-Divisional Officer, Achalpur, after due perusal and compliances vide a Letter dated 04.12.2023, wrote to the District Collector its No Objection for allotting the land for establishing MSW Processing Facility of the Respondent No.1- Council.

   A copy of the Letter dated 04.12.2023 issued by Sub-Divisional Officer, Achalpur to the Respondent No. 3- District Collector is enclosed herewith as **ANNEXURE R-9.**

b) In terms of the Circular dated 14.02.2023 issued by the State of Maharashtra, the Respondent No. 1- Council proceeded to prepare a Detailed Project Report (DPR), from one of the Project Management Consultancies (PMCs). In terms thereof, the Respondent No. 1- Council issued Letters to all three PMCs to come forward to enter into Agreement to prepare said DPR for disposal of MSW generated within the Respondent No. 1- Council.

A copy of the Circular dated 14.02.2023 issued by the State of Maharashtra bearing No. SWA.M.A./PRA.KRA.6(Shi.Ka.Na)/N.VI-34 is enclosed herewith as **ANNEXURE A-R-10**.

c) In terms thereof "All India Institute of Local Self-Government" came forward to enter into Agreement with the Respondent No. 1- Council and to prepare DPR for MSW Management. The said subject was put before the Administrator of the Respondent No. 1- Council as Proposal No. 1 on 10.03.2023 for Empanelment of Firms for Detailed Project Report (DPR) under "Swachh Bharat Abhiyaan 2.0", to enter into Agreement with Third Party Institution. The said Proposal No. 1 was accepted by the Administrator of the Respondent No.1- Council and further, the Respondent No. 1- Council was directed to enter into Agreement with the selected PMC. A copy of the Resolution dated 10.03.2023 passed by the Administrator of the Respondent No. 1- Council for Empanelment of Firms for Detailed Project Report (DPR) under "Swachh Bharat Abhiyaan 2.0" along with the Letter dated 17.07.2023 issued by the Respondent No. 1 Council to the All India Institute of Local Self-Government is enclosed herewith and marked as **ANNEXURE R-11 (COLLY).**

d) The Respondent No. 1- Council entered into the Agreement with the PMC viz. All India Institute of Local Self-Government to prepare a DPR. All India Institute of Local Self-Government was appointed as PMC and was directed to prepare a DPR for Management of MSW generated within the jurisdiction of the Respondent No. 1- Council.

A copy of the Agreement entered into the Respondent No. 1- Council and All India Institute of Local Self-Government- PMC dated 21.03.2023 is enclosed herewith and marked as **ANNEXURE R-12.**

e) The All India Institute of Local Self-Government undertook survey and inspection of relevant documents and after extensive study, prepared a Detailed Project Report of January, 2024 for Integrated Solid Waste Management for Achalpur Municipal Council and submitted the same with the Respondent No.1 - Council.

DETAILS OF DETAILED PROJECT REPORT OF JANUARY, 2024 FOR SOLID WASTE MANAGEMENT:

i. Compost Plant:

Current capacity of the temporary composting pits is insufficient to satisfy the 41.355 TPD forecasted wet waste generation in 2026. Therefore, a total area of 3504 Sq. M was proposed for a Windrow Platform with Shed, Tipping Area and Leachate Tank, at a total proposed cost (including machinery) at Rs.1,34,13,517.86/-.

ii. MRF Plant:

A Pre-sorting Shed having area of 1200 Sq. M was proposed along with a presorting trommel machine having a capacity of 50 TPD. The total proposed cost for the same was Rs. 2,41,15,456.66/-.

iii. Sanitary Landfill:

A Sanitary Landfill having an area of 5070 Sq. M was proposed at an estimated cost of Rs. 95,03,850.89/- along with a Leachate Collection Sump having an area of 4 Sq. M at a proposed cost of Rs.

1,79,749.95/-. The total cost for the Sanitary Landfill along with Plant and Machinery was estimated at Rs. 96,83,600.84/-.

iv. Total Cost of Solid Waste Management Project:
The total cost including allied civil works and machinery and also including taxes and PMC fees is estimated at Rs. 5,70,20,043.73/-.

A copy of the Detailed Project Report of January, 2024 prepared by All India Institute of Local Self-Government is enclosed herewith and marked as **ANNEXURE R-13.**

f) The Respondent No. 1- Council, after perusing the DPR, vide a Letter dated 03.01.2024 sent the same to the Executive Engineer of Maharashtra Jeevan Pradhikaran, Water Supply and Sanitation Department of Maharashtra, Amravati for technical approval. In pursuance of the Technical Approval sought by the Respondent No. 1, the Representatives of the relevant Department, the Representatives of the PMC and Officers of the Respondent No. 1 conducted multiple meetings and the work of corrections in the DPR of January, 2024 is being undertaken in accordance with the SWM Rules.
A copy of the letter dated 03.01.2024 issued by the Respondent No. 1-Council to Executive Engineer of Maharashtra Jeevan Pradhikaran, Water Supply and Sanitation Department of Maharashtra, Amravati is enclosed herewith and marked as **ANNEXURE R-14.**

g) Till the Respondent No. 1- Council establishes the MSW Processing Facility as stipulated under the DPR, the Respondent No. 1- Council

is processing the daily MSW as enumerated hereinabove. Thus, it is submitted that daily MSW as generated within the jurisdiction of the Respondent No. 1- Council is being processed scientifically on a daily basis. Further, the Respondent No. 1- Council undertakes to comply with statutory provisions in future. Thus, it is most respectfully submitted that the Respondent No. 1- Council is compliant with respect to processing of daily MSW generated within the jurisdiction of the Respondent No. 1- Council.

II. <u>Scientific Disposal of Legacy Waste through bio-remediation accumulated within the jurisdiction of the Respondent No. 1- Council:</u>

A. It is submitted that, the Respondent No. 1 Council has been using the Raipura Dump site to dispose of the Municipal Solid Waste generated within the jurisdiction of the Respondent No. 1 Council since the year 2003. Previously, the Respondent No. 1 Council was undertaking the operations of disposal of the Municipal Solid Waste at two locations viz. Wadura and Raipura Paratwada, Taluka- Amravati, District- Amravati. However, subsequently the Respondent No. 1 Council had to shut down the dumping site at Wadura as the same was to be converted into a Park for the citizens of Achalpur.

B. It is submitted that, since the year 2007, the waste collected at Achalpur as well as Paratwada cities has been dumped at the Raipura Dumping Site. Since there was no allocated Budget towards the work of processing the collected Solid Waste in the Category of Solid Waste Management Work by the State Government of Maharashtra, the solid waste collected was being dumped at the Raipura Dumping Site. Thus, due to such

circumstances, there has been an accumulation of solid waste at the Raipura Dumping Site since the year 2003.

C. Subsequently, in compliance of Rule 22 of the SWM Rules, the Respondent No. 1 Council decided to undertake the bio-remediation of Legacy Waste at the said Site in the year 2017. In terms thereof, the Respondent No. 1-Council prepared a Detailed Project Report. The said Detailed Project Report of 2017 was subsequently approved by the State Government. On basis of the approval granted by the State Government, Respondent No. 1 proceeded to undertake process of biding for the appointment of an Agency to allot the work of Bio-Remediation of Legacy Waste to the tune of 5279 MT. After completing the due procedure of law, the Respondent No. 1 appointed one VijayLaxmi Organic Compost and Agro Amravati to undertake the bio-mining of Legacy Waste at the said Site vide a Work Order dated 07.03.2019.

   A copy of the Estimate prepared by the Respondent No. 1 of the Detailed Project Report of 2017 for the bio-remediation of Legacy Waste is enclosed herewith as **ANNEXURE R-15**.

   A copy of the Work Order dated 07.03.2019 issued by the Respondent No. 1 to VijayLaxmi Organic Compost and Agro Amravati for the work of bio-remediation of Legacy Waste is enclosed herewith as **ANNEXURE R-16**.

D. In pursuance thereof, VijayLaxmi Organic Compost and Agro Amravati completed the work of bio-remediation of Legacy Waste at the said Site in terms of the Work Order dated 07.03.2019 on 25.08.2020. Thus, the Respondent No. 1 carried out the bio-remediation of 5,279 MT of Legacy Waste in the year 2020 itself. A copy of the Final Report/Completion

Certification dated 30.12.2020 issued by the Respondent No. 1 to VijayLaxmi Organic Compost and Agro Amravati is enclosed herewith as **ANNEXURE R-17**.

E. Further, the Respondent No. 1 intended to undertake the bio-remediation of the remaining Legacy Waste at the Raipura Dumping Site. However, due to the then on going COVID-19 Pandemic, the Officers of the Respondent No. 1 were working to control the spread of COVID-19 in terms of the directions issued by the State as well as the Central Government. However, the situation of COVID-19 Pandemic in the city of Achalpur remained severe in the year 2021 also and as consequence thereof, there was further accumulation of Legacy Waste.

F. Further, the State of Maharashtra under 'Swachh Bharat Mission- Urban 2.0' issued an Administrative Approval for processing the Legacy Waste through bio-mining at the Raipura Dumping Site vide an Order dated 10.08.2022 bearing No. SwaMA/2022/PRA-KRA 93/NVI-34 to the Respondent No. 1. Vide the said order, the approval was granted by the State Government for processing an amount of 22,000 CUM of Legacy Waste.
A copy of the Order 10.08.2022 bearing No. SwaMA/2022/PRA-KRA 93/NVI-34 issued by the State of Maharashtra to the Respondent No. 1 is enclosed herewith as **ANNEXURE R-18**.

G. The State of Maharashtra through Maharashtra Jeevan Pradikaran granted their Technical Approval for the processing of 22,000 CUM Legacy Waste through bio-mining at the Raipura Dumping Site vide its order dated 05.04.2023 bearing No. JA.KRA.MUA/MAJAPRA/ RECHISHA/TAMM/

1016. A copy of the Order dated 05.04.2023 issued by the State of Maharashtra (Department) granting Technical Approval for the processing of 22,000 CUM Legacy Waste through bio-mining at the Raipura Dumping Site is enclosed herewith as **ANNEXURE R-19**.

H. In pursuance of the Administrative as well as Technical Approval for the Project of Bio-remediation of 22,000 CUM of Legacy Waste by the State of Maharashtra, the Respondent No. 1 on 07.07.2023 floated a Tender calling upon the Institutions for undertaking the work of the processing of 22,000 CUM Legacy Waste through bio-mining at the Raipura Dumping Site. A copy of the Tender dated 07.07.2023 published by the Respondent No. 1 in the Local Newspaper is enclosed herewith as **ANNEXURE R-20**.

I. In furtherance of the Tender dated 08.07.2023, the Respondent No. 1 received 3 number of bids. The bid of M/s Supreme Gold Irrigation, Nanded dated 17.07.2023 being the lowest bid was accepted by the Respondent No. 1 Council. In pursuance thereof, the Respondent No. 1 Council issued an Order No. 23 dated 07.09.2023 approving the bid of M/s Supreme Gold Irrigation Ltd. and awarded the work of Bio-remediation of Legacy Waste for 22,000 CUM.

A copy of the Order No. 23 dated 07.09.2023 issued by the Respondent No. 1- Council approving the bid of M/s Supreme Gold Irrigation is enclosed herewith as **ANNEXURE R-21**.

J. The Respondent No. 1 entered into the Agreement with M/s Supreme Gold Irrigation Ltd. for undertaking the work of bio-remediation of Legacy Waste. Vide the said Agreement dated 26.09.2023, M/s Supreme Gold

Irrigation Ltd. was directed to complete the bio-remediation of 22,000 CUM of Legacy Waste out of 42000 CUM of Legacy Waste. Further, it was strictly informed to the Contractor that, work has to be completed within the stipulated time and failure to do so would entail a liability of fine on the Contractor. A copy of the Agreement dated 26.09.2023 entered into between the Respondent No. 1 and the M/s Supreme Gold Irrigation Ltd. is enclosed herewith as **ANNEXURE R-22**.

K. On 06.10.2023, the Respondent No. 1 Council issued a Work Order bearing No. AMC/AA.VI./MU.A/3484 of 2023 to M/s Supreme Gold Irrigation Ltd. in pursuance of the Tender Procedure and Agreement dated 26.09.2023 for undertaking the work of bio-remediation of Legacy Waste. A copy of the Work Order dated 06.10.2023 bearing No. AMC/AA.VI./MU.A/3484 of 2023 issued by the Respondent No. 1 to the M/s Supreme Gold Irrigation Ltd. is enclosed herewith as **ANNEXURE R-23**.

L. M/s Supreme Gold Irrigation Ltd. undertook the Contour Survey after receiving the Work Order dated 06.10.2023. It was found out by the said Contour Survey of October, 2023 that, a total amount of 52,209.21 CUM of Legacy Waste has been accumulated at the said Site. Therefore, the Respondent No. 1 Council earmarked the quantity of 22,000 CUM to be remediated by M/s Supreme Gold Irrigation Ltd.

A copy of the Contour Survey of October, 2023 prepared by M/s Supreme Gold Irrigation Ltd. on behalf of the Respondent No. 1- Council is enclosed herewith as **ANNEXURE R-24**.

M. In terms of the Work Order dated 06.10.2023, M/s Supreme Gold Irrigation Ltd. has commenced the work of bio-remediation of Legacy Waste. The Contractor has installed a required machinery, at site and is undertaking the remediation of Legacy Waste scientifically.

A copy of the photographs depicting the machinery installed by M/s Supreme Gold Irrigation Ltd. for bio-mining of Legacy Waste and photographs depicting the on-going work of bio-remediation are enclosed herewith as **ANNEXURE R-25**.

N. The Respondent No. 1 has also directed the Contractor to maintain a record of Legacy Waste bio-remediated by M/s Supreme Gold Irrigation Ltd. periodically. In terms thereof, M/s Supreme Gold Irrigation Ltd. is maintaining the records and submitting a Report to the Respondent No. 1 periodically. M/s Supreme Gold Irrigation Ltd. submitted one such Report in March, 2024 wherein it was noted that, a total quantity of 45,668.277 CUM was accumulated at site as on March, 2024. Thus, on comparison of the Contour Survey/Report it can be seen that, a quantity of 6,540.933 CUM (52,209.21 CUM – 45,668.277 CUM) was remediated by M/s Supreme Gold Irrigation Ltd. till March, 2024.

A copy of the Contour Survey/Report of March, 2024 submitted by M/s Supreme Gold Irrigation Ltd. is enclosed herewith as **ANNEXURE R-26**.

O. M/s Supreme Gold Irrigation Ltd. submitted another such Report in June, 2024 wherein it was noted that, a total quantity of 35,071.110 CUM was accumulated at site as on June, 2024. Thus, on comparison of the Contour Survey/Report it can be seen that, a quantity of 17,138.1 CUM (52,209.21

CUM – 35,071.110 CUM) was remediated by M/s Supreme Gold Irrigation Ltd. till June, 2024.

A copy of the Contour Survey/Report of June, 2024 submitted by M/s Supreme Gold Irrigation Ltd. is enclosed herewith as **ANNEXURE R-27**.

P. It is therefore submitted that, M/s Supreme Gold Irrigation Ltd. is yet to clear an amount of 4,861.9 CUM of Legacy Waste in terms of the Work Order dated 06.10.2023, which the Respondent No. 1-Council is undertaking to clear by the end of December, 2024. The Respondent No. 1-Council reserves its rights to provide a copy of the Report/Contour Survey submitted by M/s Supreme Gold Irrigation Ltd. depicting the quantity of 17,300 CUM being cleared through bio-remediation of Legacy Waste, as and when necessary.

Q. Further, for the remaining work of bio-remediation of approximately 30,000 CUM of Legacy Waste, the Respondent No. 1 would initiate a new Tender procedure and shall take necessary steps to adhere to the statutory time lines to remediate the Legacy Waste at Raipura Dumping Site. it is further submitted that, if the Respondent No. 1 Council doesn't receive financial approval from the State Government, the Respondent No. 1- Council shall allot funds for bio-remediation of the remaining Legacy Waste from the Funds of the Municipal Council and from other State Government Funds.

III. Environment Damage Compensation to be levied on the Respondent No. 1 Council for failure to set up the Solid Municipal Waste Management Plant/Facility by the Respondent No. 1 before 07.04.2021:

A. Vide the Joint Committee Report, the Respondent No. 2 has calculated the Environmental Compensation to the tune of Rs. 86 lakhs which would be payable by the Respondent No. 1 for non-compliance of time-lines as stipulated under Rule 22 of the SWM Rules, 2016. The Respondent No. 2 has relied upon the Orders passed by the Principal Bench of this Hon'ble Tribunal in O. A. No. 606 of 2018, more particularly, an order dated 24.01.2020.

B. Out of a total Environmental Compensation of Rs. 86 lakhs, an amount of Rs. 43 lakhs was levied as an Environmental Compensation for non-compliance of time-lines as per Rule 22(2) and Rule 22(10) of the SWM Rules, 2016. Rule 22(2) and Rule 22(10) deals with setting up of Sanitary Landfills Facilities (SLF) by the Local Bodies. Vide the said Rules, the time line for identification of SLF by the Local Bodies was 1 year and for setting up of SLF the time-limit was 3 years from the date of notification of Rules. However, the Principal Bench of this Hon'ble Tribunal vide Order dated 10.01.2020 in O. A. No. 606 of 2018 was pleased to reset the time lines in its wisdom and it was directed by the Principal Bench of this Hon'ble Tribunal that any failure to comply with Rule 22 (1) to 22 (10), after 31.03.2023 will result in liability to pay compensation from 01.04.2020 as stipulated in Para 36 (a) of the Order dated 10.01.2020 in O. A. No. 606 of 2018. Therefore, any Local Body who fails to identify and set up SLF on or before 01.04.2020 would be liable to pay compensation as stipulated in Para 36 (a) of the Order dated 10.01.2020 in O. A. No. 606 of 2018. A copy of the Order dated 10.01.2020 passed by the Principal Bench of this Hon'ble Tribunal in O. A. No. 606 of 2018 is enclosed herewith as **ANNEXURE R-28**.

C. However, it is most respectfully stated that, the guidelines/directions in Order dated 10.01.2020 would not be applicable to the Respondent No. 1 Council in the facts and circumstances of the present case. Sanitary Land Filling has been defined under Rule 3(40) of the SWM Rules which in short means the final and safe disposal of residual solid waste and inert waste. The Residual solid waste and inert waste would only be generated if and only if, the Local Body is processing the MSW by using Machinery. On the contrary, the Respondent No. 1- Council is processing 12 TPD of wet waste by composting and converting the same into fertilizers. Further, remaining 22 TPD of dry waste is being sent through appropriate channels. Thus, there is no possibility of any inert material getting produced which has to be dumped into SLF. Therefore, the Respondent No. 1 Council is not in need of SLF as on date and therefore, the Compensation as levied to the tune of Rs. 43 lakhs is bad in law.

D. Also, the Principal Bench of this Hon'ble Court is still considering the issue of Solid Waste Management by all the States periodically. Vide order dated 08.09.2022 in O. A. No. 606 of 2018, the Principal Bench of this Hon'ble Tribunal was pleased to consider the compliance of MSW Rules, 2016 and other environmental issues in respect of the State of Maharashtra. Vide the said order, the Hon'ble Tribunal considered a presentation filed by the Chief Secretary, Maharashtra dated 07.09.2022. The Summary of the status of the State of Maharashtra was reproduced in Para 27 of the Order dated 08.09.2022 which is as follows.

SUMMARY OF STATUS

A: Solid Waste Management					
Quantity of waste generation in the State (in TPD)	*Waste Processed (In TPD)*	*Gap in generation and Processing (in TPD)*	*Quantity of waste being disposed in landfills (in TPD)*	*Quantity of Legacy waste in the State (Tonnes)*	*Status of Bio-Mining*
24,951 *(403 ULBs)*	*20,294*	*1776*	*2881*	*3,94,19,287*	*189 out of 273 dump sites cleared*

B): Sewage Management					
Quantity of sewage generation in the State (in MLD)	*Utilized capacity (in MLD)*	*Current Gap in treatment (in MLD)*	*Utilization of treated sewage in*		
			Agriculture/ Horticulture purpose	*Industrial Purpose*	*Any other Purpose*
9758.53	*4338.2*	*5420.33*	*320 MLD*		

On perusal of the said data, it can be observed that, total quantity of Legacy Waste in the State was notified to be 3,94,19,287 tons, in a total of 403 Urban Local Bodies (ULBs). It is not disputed that, the Legacy Waste at the site of the Respondent No. 1- Council also forms a part of 3,94,19,287 tons of Legacy Waste. Considering such submission, the Hon'ble Tribunal vide Para 46 of the Order dated 08.09.2022 was pleased to impose an Environmental Compensation of a total of Rs. 12,000 Crores, out of which a compensation of Rs. 1,200 Crores was specifically imposed for un-

remediated Legacy Waste to the extent of the 3,94,19,287 tons of pending Legacy Waste. Therefore, the State of Maharashtra being a Parent Entity of the Respondent No. 1 has already been levied compensation for un-remediated Legacy Waste to the extent of 3,94,19,287 tons (which also included un-remediated Legacy Waste within the jurisdiction of the Respondent No. 1). Therefore, the Respondent No. 1 cannot be again held liable to pay compensation for un-remediated Legacy Waste which would otherwise lead to double jeopardy. A copy of the Order dated 08.09.2022 passed by the Principal Bench of this Hon'ble Tribunal in O. A. No. 606 of 2018 is enclosed herewith as **ANNEXURE R-29**.

E. Furthermore, on perusal of Para 36(a) and 36(b) of the Order dated 10.01.2020 passed by the Principal Bench of this Hon'ble Tribunal in O. A. No. 606 of 2018, it was made clear that, if the Local Bodies are unable to pay compensation or bare the financial burden, the liability will be of the State Government with liberty to take remedial action against the erring Local Bodies.

F. Therefore, firstly the State Government is liable to pay the Environmental Compensation and secondly, if the Respondent No. 1 fails to comply with SWM Rules, the State Government would be at liberty to recover the compensation. Thus, especially in circumstances when, the State Government has been imposed with a fine of Rs. 12,000 Crores for un-remediated Legacy Waste, the Respondent No. 1 shall not be held liable for any compensation.

G. It is also pertinent to note that, the order dated 08.09.2022 in O. A. No. 606 of 2018, was challenged by the State of Maharashtra before the Hon'ble Supreme Court of India in Civil Appeal (Diary) No. 44889 of 2023. The Hon'ble Court vide Order dated 28.11.2023, was pleased to stay the direction issued by this Hon'ble Tribunal requiring the State of Maharashtra to deposit an amount of Rs. 12, 000 Crores as compensation in a 'Separate Ring-Fenced Account'. In such circumstances, the issue of Environmental Compensation for un-remediated Legacy Waste accumulated with the State of Maharashtra, is sub judice before the Hon'ble Supreme Court and therefore, this Hon'ble Tribunal may hold its hands with regards to the imposition of Environmental Compensation on the Respondent No. 1 for un-remediation of Legacy Waste. The Respondent No. 1 makes it clear that, the Respondent No. 1 Council is conscious of its duties and liabilities under the SWM Rules, 2016 and would comply with the same. A copy of the Order 28.11.2023 passed by the Hon'ble Supreme Court in Civil Appeal (Diary) No. 44889 of 2023 is enclosed herewith as **ANNEXURE R-30**.

H. Thus, in terms of the contentions raised hereinabove, the Compensation as calculated in the Joint Committee Report does not stand the test of law and therefore, the Joint Committee Report to that extent, may be set aside.

10. From the above facts and circumstances, it is most respectfully submitted that, the Respondent No. 1 Council is comply with the provisions of the SWM Rules, 2016 and is disposing of the Municipal Solid Waste generated within the jurisdiction of the Respondent No. 1- Council in accordance with law. Also, it is clear that, the Respondent No. 1 Council is undertaking all such steps to positively use the reclaim

land after bio-remediation of the accumulated Legacy Waste. Thus, in such circumstances, the Respondent No.1- Council reserves its right to file an Additional Affidavit as well as produce Additional Documents in the facts of the present case in order to assist this Hon'ble Tribunal in the proper adjudication of the present case.

Place: Pune
Date: 06.08.2024



Sangramsingh R. Bhonsle,
Nrupal A. Dingankar, Pushkara A. Bhonsle,
Naman Sherstra & Mahesh Jadhav
Advocates for the Respondent No. 1
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BEFORE THE NATIONAL GREEN TRIBUNAL,

WESTERN ZONE BENCH PUNE

ORIGINAL APPLICATION NO. 125 OF 2023 (WZ)

(LETTER PETITION)

Praful N. Mahajan ..... Applicant

Versus.

Chief Officer, Achalpur Municipal Council & Ors. ..... Respondents

AFFIDAVIT

I, Mr. Dhiraj Vijayrao Gohad, Age: about 43 years, Occ: Government Service, having Office at: Nagar Parishad Achalpur, Municiapl Council Main Building, Paratwada, Amravati- 444805, Maharashtra do hereby solemnly affirm and state as under:

1. That I am the Chief Officer of the Respondent No. 1 Council in the abovementioned Reply in the Original Application and as such I am conversant with the facts and circumstances of the case and am competent to swear to this affidavit.
2. That I have read the contents of the accompanying Reply, the same being drafted by my Counsel under my instructions and that the contents of Paras 1 to 3 of the above-mentioned Reply are facts and submissions which are true to my knowledge and that I have not suppressed any material fact.
3. That the Annexures filed along with the Above-mentioned Reply are true copies of their respective originals.

मुख्याधिकारी
नगर परिषद,अचलपूर
DEPONENT

N. R. S. No 347/2024
5/8/2024
TI... PAGES

VERIFICATION

Verified at Achalpur on this 5 day of August 2024 that the contents of the present affidavit are true and correct and nothing material has been concealed therefrom.

NOTARY
GOVT. OF INDIA

मुख्याधिकारी
नगर परिषद,अचलपूर
DEPONENT

AFFIDAVIT
Solemnly ... before me.
By shri Dhiraj Vijaysing Gohad.
R/o..... Achalpur Camp
Tal..... Achalpur
Who is personally known.
to whom ... is personally known

NITIN M. CHAUDHARI
Advocate & Notary
(Govt. Of India)
Swami Vivekanand Housing Colony
Anjangaon step, Paratwada
Dist. Amravati 444805 (M.S.)
Reg. No. 21500

NOTARIAL NOTARIAL CANCELLED



महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ CM 915375

8363
29/06/2024

प्रेमचंद टि दंते
ला.नं.६१०२००३
तहसिल कार्यालय अचलपूर
7507904491,9422914016

दिपक लोचाराम उत्तराधी
रा. अमरावती

SUB-TREASURY OFFICE
ACHALPUR
03 JUN 2024
Sub-Treasury Officer
Achalpur

करारनामा

संविदेचा परस्पर मान्य करारनामा रोजी दि. 21 जुन 2024 अचलपूर मुक्कामी करण्यात येत आहे.दरम्यान अचलपूर नगर परिषद तर्फे मुख्याधिकारी नगर परिषद अचलपूर ता.अचलपूर जि.अमरावती संविदा प्राधिकरण पार्टी नं.1

व

श्री.दिपक लोचाराम उत्तराधी ,रा. 42 द्वारका नाथ कॉलोनी, दस्तुर नगर अमरावती संविदा प्राधिकरण यांनी पात्र आणी निवडलेल्या संविदा अभिकर्त्या म्हणुन पार्टी.नं.2

दि.19 जुन 2024 रोजी रू.62000/- चे भारतिय स्टेट बँकेचे चलान क्रं.MH003797455202425M व रू.5000/- मुल्याचे मुद्रांक व या कागदासोबत जोडण्यात आलेले संपुर्ण कागदपत्र हे ह्याच करारनाम्याचा भाग आहे.ज्या अर्थी नागरीकांना साफ सफाईची सेवा खाली नमुद केलेल्या कामाच्या स्वरूपाने पुरविण्याची जबाबदारी अचलपूर नगर परिषदेची आहे.संविधा प्राधिकरण यांनी पात्र आणी निवडलेल्या संविदा अभिकर्त्या म्हणुन पार्टी नं.2 या रू.67000/- रूपयाचे मुल्याचे मुद्रांकित कागदासोबत जोडण्यात आलेले संपुर्ण कागदपत्र हे ह्याच करारनाम्याचा भाग आहे.

ज्या अर्थी नागरीकांना साफसफाईची सेवा खालील नमूद केलेल्या कामाच्या स्वरूपाने पुरविण्याची जबाबदारी अचलपूर नगर परिषदेची आहे.व ज्याअर्थी न.प.ची ज़बाबदारी पार पाडण्यासाठी अभिकर्त्याची नियुक्ती करीता निवीदा आमंत्रीत केल्या आहेत व ज्याअर्थी पार्टी.नं.2 यांची निवीदा आवश्यक दस्तएवजांची पुर्तता

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करून सर्वात कमी दराचे असल्यामुळे मा.प्रशासक नगर परिषद अचलपूर यांच्या दि.15/03/2024 रोजीच्या ठरावा अन्वये मंजुर करण्यात आले आहे.
त्याअर्थी खालीलप्रमाणे करारनामा करण्यात येत आहे.

कामाचे स्वरूप : -

घनकचरा व्यवस्थापन अंतर्गत अचलपूरशहरातीलप्रभागक्र.१ते २० मधील घरोघरी जाऊन वाहनाद्वारेस्वतंत्रओला व सुका कचरा संकलित करून नियोजित ठिकानी टाकने, शहरातील सर्व नाल्यातून काढलेला कचरा/ गाळ तसेच शहरातील सर्व व्यावसायिक आस्थापने कडून निघालेला कचरा वाहनाद्वारे घनकचरा प्रक्रिया केंद्रा पर्यंत वाहतूक करणे व या सर्व घनकच-यावर प्रक्रिया करणे यामध्ये खालील प्रमाणे कामाचा समावेशराहील.

(1) प्रभाग क्रमांक १ ते २० मधील प्रत्येक ठिकाणावरून किंवा आस्थापनेतुन निघणारा कचरा हा नचुकता नगरपरिषदेचे उपलब्ध 17 तीन चाकी वाहन, 25 चार चाकी वाहन , 01 रिफ्युज कॉम्पॅक्टर व भाड्याचे 14 ट्रॅक्टर याद्वारे हदिद्तयेणा-या घर,दुकान, रेस्टारेंट,खानावळ, मटन, चीकन, मासे शॉप, शासकीय निमशासकीय कार्यालय, संस्था , मंगलकार्यालय, बाजार ईत्यादी ठिकानावरील कचरा स्वतंत्र संकलीत करून संकलन केंद्र येथे दररोज वाहतुक करावी लागेल व त्याकच-यावर घनकचरा अधिनियम २०१६ नुसार शास्त्रोक्त पध्दतीने प्रक्रिया करावी लागेल.

(2) कचरासंकलीत करतांना ओला ,सुका व घातक कचरा 100%वर्गीकृत रीत्या 100%संकलीत करून वाहतुक करावी लागेल.कोणत्याही परिस्थीतीत कचरा मिसळणार नाही, याची दक्षता घ्यावी लागेल.

(3)कंत्राटदारास कोरोना व कोरोना सारख्या इतर माहामारीच्या काळात सुद्दा अतिरीक्त व नियमीत सेवा देवून शहरातील घनकचरा व्यवस्थापनाचे काम करणे बंधनकारक राहील.कोणत्याही स्वरूपात कंत्राटदारास एकतर्फी काम बंद करता येणार नाही.

अ. ओला कचरा

ओला कचरा म्हणजे भाजीपाला,फळे वेस्टज, शिळे अन्न पदार्थ, पालापाचोळा, अंड्याचे कवच, केस, नखे निर्माल्य असे सर्व कुजणारे पदार्थ.

ब. सुका कचरा (न.कुजणारा) सुका कचरा म्हणजे

1. प्लास्टिक वस्तु ,पिशव्या ,कॅरीबॅग, बाटल्या
2. कागद व पुठ्ठा
3. काच- ग्लास, बाटल्या.
4. धातू- खिळे, तार, भांडी, पत्रीडबे, चमचे.
5. लेदर – रेग्झीन, फोम, रबर, बॅगा, चपला, बूट, टेबलक्लॉथ, मॅटींग, सोफा, चेअर, सीट, सीट कव्हर.
6. कापड- कपडे, गाद्या, उश्या, चादर,ब्लॅकेट, कापूस, ड्रेस, ड्रेस मटेरीयल व साड्या

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क. घरघुती घातक कचरा म्हणजे

1. सॅनीटरी नॅपकिन, डायपर
2. ट्युब लाईट, बल्ब, इलेक्ट्रॉनीक व इलेक्ट्रीकल साहित्य, बॅटरीज वगैरे. ई वेस्ट

वरील प्रमाणे सर्व कचरा वर्गीकृतरित्या संकलीत करण्यात यावा.याव्यतिरिक्त घनकचरा अधिनियम २०१६ नुसार व वेळोवेळी अस्तित्वात असलेल्या नियमांचे पालन करणे आवश्यक राहील.

(3) कचऱ्याची वाहतुक करतांना वाहना मधुन कचरा रस्त्यावर पडणार नाही किंवा पसरणार नाही याची दक्षता घ्यावी लागेल.

(4) वाहतुक केलेल्या ओल्या कच-यावर खत प्रक्रिया करावी लागेल.तसेच संकलीत सुका कचरा वेगवेगळा करून महाराष्ट्र प्रदुषण नियंत्रण मंडळयांच्या मान्यता प्राप्त प्रक्रिया केंद्रावर पोहचता करावा लागेल व घनकचरा व्यवस्थापन अधिनियम २०१६च्या निकषानुसार सर्व कार्यवाही करावी लागेल.

(5) कचरा संकलन करण्या करीता वापरण्यात येणा-या न.प.च्या उपलब्ध ऑटो मध्ये ओला सुका व घातक कचरा वेगवेगळा संकलीत करण्यात यावा व भाड्याच्या 14 ट्रॅक्टर द्वारे प्रभाग क्रमांक १ ते २० मधील विविध आस्थापनेतुन दैनंदिन निघणारा कचरा व् नाल्या मधून व रस्ता साफसफाई मधून निघणारा,कचरा कुंडी मधील संकलीत करून न.प.च्या उपलब्ध संकलन केंद्रावर वाहतुक करावा व त्यावर प्रक्रिया करावी लागेल.

(6) प्रभागातील प्रत्येक घरातुन निघणारा कचरा दैनंदीन संकलीत करणे अनिवार्य राहील व कंचरा संकलीत करीत असतांना कामगांरास गमबुट, फेसमास्क,फ्लोरोसन जॅकेट , हॅन्डग्लोज,सेफ्टी हेल्मेट; हॅन्ड वॉश इत्यादी सुरक्षा साधनांचा पुरवठा करावा लागेल.

(7) वरील सर्व कामे करण्याकरीता नगर परिषदेच्या स्वच्छता मोहीमेत कंत्राटदाराचा संपुर्ण सहभाग राहील.तसेच कार्यालय कडुन प्राप्तनिर्देशानुसार त्वरीत कार्यवाही करावी लागेल. तसेच स्वच्छता ॲपनुसार प्राप्त तक्रारींचे १२ तासांच्या आत निवारण करणे अनिवार्य राहील.

(8) घनकचरा व्यवस्थापन अंतर्गत शासनाने वेळोवेळी निर्गमीत केलेल्या नियमांचे पालन करणे कंत्राटदारास बंधनकारक राहील.

(9) प्रत्येक कचरा संकलनाच्या व वाहतूकीच्या वाहनावर GPS यंत्रना न.प मार्फत बसविण्यात आलेलीं असुन. सदर GPS यंत्रनेची देखभाल दुरूस्ती करण्याची पूर्ण जवाबदारी कंत्राटदाराची असेल. सदर GPS यंत्रनेत बिघाड झाल्यास तिन दिवसाच्या आत नवीन यंत्रणा स्वखर्चाने बसविण्याची तसेच दुरूस्ती ची जवाबदारी कंत्राटदाराची असेल.

(10) प्रत्येक गाडीवर लाउडस्पीकर कंत्राटदारा मार्फत लावावे लागेल व त्याची देखभाल दुरूस्ती कंत्राटदारास करावी लागेल, लाउस्पीकर नादुरूस्त असल्यास/ ज्या ठिकाणी घंटागाडी जात नसेल अश्या ठिकाणी कामगारांने सिटी वाजवुन सर्वनागरीकांना सुचित करावे लागेल व लाउडस्पीकर 3 दिवसाचे आत दुरूस्त करावे लागेल.

(11) संकलीत करण्यात आलेल्या कच-यावर शास्त्रोक्त पध्दतीने प्रक्रिया करावी लागेल.

(12) प्रक्रिया करण्या करीता लागणारे कंम्पोस्टींग पावडर/लीक्वीड चा पुरवठा कंत्राटदाराला करावा लागेल तसेच

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कंम्पोस्टींग पावडर/लीक्वीड साठा प्रक्रिया केंद्रावर पुरविण्याप्रमाणात असणे बंधनकारक राहील.सुक्याकच-यावर प्रक्रिया करण्याकरीता लागणारी यंत्रणा(बेलींग मशीन,स्क्रीनींग मशीन इ.) कंत्राटदाराला नप मार्फ़त भाडेतत्वावर उपलब्धकरून देण्यात येइल. न.प.कळे प्रक्रिया करण्याकरीता लागणारी मशनरी उपलब्ध न झाल्यास कंत्राटदारास स्वतः उपलब्ध करून घ्यावे लागेल.

(13) न.प.मार्फत पुरविण्यात आलेले यंत्राच्या देखभाल व दुरूस्तीची जबाबदारी कंत्राटदाराची राहील.त्याचे वेगळे देयक अदा केले जाणार नाही.

(14)मांस विक्रेत्यांकडून दैनंदिन निघणारा कचरा दररोज संकलीत करून वाहतुक करावा लागेल.

(15)ओल्या कच-यामधुन निर्माण झालेले खत कंत्राटदाराला योग्य रित्या पॅकिंग करून ठेवावी लागेल.

(16)घनकचरा व्यवस्थापनाच्या प्रक्रिया कामाशी संबंधीत सर्व मजुरांना सुरक्षेचे संपुर्ण साहित्य जसे गमबुट, फेसमास्क,फ्लोरोसनजॅकेट ,हॅन्डग्लोज,सेफ्टीहेल्मेट, हॅन्डवॉश इत्यादी वेळोवेळी कंत्राटदाराला पुरवठा करावा लागेल.अंदाजपत्रकाप्रमाणे वरील साहित्य पुरवठा करावा लागेल तेव्हाच मंजुर दराप्रमाणे देयक अदा करण्यात येईल.

(17)सदर काम करतेवेळी लागणारेसर्व साहित्य जसे फावडे, घमेले, टोपलें, झाडू इत्यादी कंत्राटदाराला स्वतःपुरवठा करावा लागेल.

(18) सदर घनकचरा व्यवस्थापनाचे काम करतांना न.प. चे लेखी परवानगी नुसार वआवश्यकतेनुसारच जे.सी.बी वापरावा लागेल.

(19) घनकचरा व्यवस्थापनाच्या कामा करीता प्रशिक्षीत सुपरवाईजरी स्टाफ ठेवण्याची जबाबदारी कंत्राटदाराची राहील.

(20) कंत्राटदाराने कोणत्याही परिस्थितीत कोणत्याही प्रकारचेUser Charges/Tip/ बक्षिस नागरिकाकडून घेऊ नये याची खबरदारी घेण्यात यावी.

(21) घनकचरा व्यवस्थापनाच्या कामात वापरण्यातयेणा-या साहीत्याची नोंदवही (मालपुस्तीका) ठेवणे आवश्यक आहे तसेच घनकचरा संकलनाबाबतचे दैनिक नागरीकांचे सहीचे नोंदवही ठेवावी लागेल.

(22)घनकचरा व्यवस्थापनातील कामगारांना गणवेश,ओळखपत्र कंत्राटदाराला स्वतः देणे बंधनकारक असेल.

(23) घनकचरा व्यवस्थापनाचे कामात संकलीत ओल्या कच-यावर प्रति बॅच 15 दिवसाचा कालावधी असेल ओल्या कच-यावर प्रक्रिया करणे करीता लागणारे कंम्पोस्ट बॅगची किंवा इतर सर्व साहित्याची व्यवस्था कंत्राटदाराला स्वतः करावी लागेल.

(24) संबंधीत काम करतांना कामावरील कामगारांचे कोणतेही जिवीत हानी किंवा वित्तहानी झाल्यास त्यासाठी नगर परिषद जबाबदार राहणार नाही, यास पूर्णतःकंत्राटदार जबाबदार राहील.

(25) किमान वेतन कायद्यानुसार संबंधीत कंत्राटदाराने त्यांच्या कामा वरील व्यक्तिना मासीक वेतन देण्याची जबाबदारी राहील.

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(26)घनकचरा व्यवस्थापन प्रकल्पावर कोणत्याही कारणास्तव आग लागल्यास आग विझवण्याची जबाबदारी कंत्राटदाराची राहिल.तसेच कोणतेही नुकसान झाल्यास त्याची नुकसान भरपाई कंत्राटदारास करावी लागेल.

(27)भविष्य काळात सदर कामाबाबत लेखापरिक्षणात अगर कार्यालयीन तपासणीमध्ये काही आक्षेप आलेस आक्षेपाची पुर्तता करणेची जबाबदारी कंत्राटदारावर राहील. तसेच त्यामध्ये काही वसुल पात्र रक्कम निघालेस ती कंत्राटदारा कडून वसुल केली जाईल.

(28) न.प. च्या कचरा संकलन डेपो वर वजन काटा (वेट ब्रीज) द्वारे प्रत्येक गाडीचे वजन करून येण्या-या कच-याचे नोंदी ठेवावे लागतील.

(29) गोळा केलेल्या घनकच-यामधील प्लास्टीक कच-याची विल्हेवाट लावण्यासाठी स्थानिक प्लास्टिक वेचक/भंगार खरेदीदार संस्था/वा व्यक्ती यांना सामावुनघेणे अपेक्षितआहे.

(30) कचरा संकलीत करतांना ज्या ठिकाणी घंटागाडी जावू शकत नाही,अशा ठिकाणचा कचरा ढक्कलगाडीद्वारे संकलीत करून घंटागाडीत टाकावा लागेल व ढक्कल गाडीची व्यवस्था कंत्राटदारास स्वतःकरावी लागेल.

(31) काम करते वेळी कामाबाबतचे नियोजना बाबत कृती आराखडा सादर करावा लागेल.

(32) कामाच्या दर्जा बाबत मुख्याधिकारी नगर परिषद अचलपूर यांचे समाधान न झाल्यास ३० दिवसांची पुर्व सुचना देउन सदर कंत्राट रद्दकरण्याचा अधिकार मुख्याधिकारी नगर परिषद अचलपूर यांना राहील.

(33) सदर कामे कोणत्याही परिस्थीतीत परस्पर दुस-या कंत्राटदारास हस्तांतरीत करता येणार नाही.

(34) अचलपूर नगर परिषद हद्दीत घनकचरा संकलना करीता मालमत्तेवर बारकोड बसविण्याचे काम प्रगती पथावर असुन काम पुर्ण झाल्यावर बारकोड नुसार दैनंदीन कचरा संकलनाचे काम करावे लागेल.

ङ अचलपूर नगर परिषदे अंतर्गत बायोगॅस प्रकल्पाचे काम सुरू असुन प्रकल्प कार्यान्वीत झाल्यानंतर कंत्राटदारास ओला कचरा योग्य रित्या संकलीत करून बायोगॅस प्रकल्पावर दैनंदीन वाहतुक करावी लागेल.

ई. कंत्राटदाराला रस्ते झडाई करीता पुरविण्यात येणाऱ्या मजुरां मार्फत दैनंदीन शहरातील मुख्य रस्ते व दुभाजके झडाई करून कचरा उचलणे चे काम नियमीत करावे लागेल.

1. <u>घनकचरा व्यवस्थापना अंतर्गत घनकचरा प्रक्रिया कामाबाबत : -</u>

1. ओल्या कच-यावर शास्त्रोक्त पध्दतीने प्रक्रिया करून खत निर्माण करणे निर्माण झालेले खत पोत्यांमध्ये योग्य रीत्या पॅकिंग करून ठेवावे लागेल.सदर खताची विक्री योग्य दराने नगर परिषद मार्फ़त कंत्राट दारास करावी लागेल.

2. सुक्याकच-याचे विलगीकरण करून जसे (कागद, पुस्टे, रबर, प्लास्टिक,रबर,कॉच, प्लास्टिक पिशवी ईत्यादी.)वेगवेगले करावे लागेल व त्याची प्रक्रिया करीता महाराष्ट्र प्रदुषण नियंत्रण मंडळयांच्या मान्यता प्राप्त कंपनीकडे पाठवणे / विकणे कंत्राटदारास स्वतः करावा लागेल.

3.उर्वरीत इनर्ट मटेरीयल, C&D Waste इत्यादी Landfill करीता ठेवावे लागेल.

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2. मृत जनावरा बाबत

प्रभाग क्रमांक 1 ते 20 मधील दैनंदिन होणा-या लहान माठ्या मृत जनावरांच्या तक्रारींचे निवारण तात्काळ/2 तासांचे आत करावे लागेल. सदर तक्रारी कार्यालयातुन प्राप्त करून किंवा मोबाईलद्वारे / नागरीकांकडून Swachhta App वरून प्राप्त झालेल्या तक्रारींचे निवारण करणे बंधनकारक राहील.सदर कामाची वेळ सकाळी6 ते सायंकाळी 6 वाजेपर्यंत राहील. एखाद्या वेळी अत्यावश्यक असतांना वेळसंपल्यानंतर ही मृत जनावरांची विल्हेवाट (DEEP BURNEL METHOD) पध्दतीने करावी लागेल तसेच विल्हेवाट करण्यातकरीता लागणारी सर्व कार्यवाही कंत्राटदाराला करावी लागेल.सदर कामा करिता स्वतंत्र वाहनाची व्यवस्था उपलब्ध वाहनातुन करण्यात यावी

3. Construction & Demolution Waste(C & D Waste) बाबत

1. शहरात निर्माण होणारे जुने बांधकामाचा राडा रोडा (Construction & Demolution Waste)उपलब्ध वाहनातुन स्वतंत्र वाहना द्वारे उचलून न.प.सुचविलेल्या जागेवर पोहच करावालागेल.
2. Construction & Demolution Waste उचलल्या बाबतची सर्व नोंद कंत्राटदाराला ठेवावी लागेल.

4. कामाच्या वेळेबाबत

1. सदर काम रोज सकाळी 7 ला सुरू करून दुपारी 3 वाजे पर्यंत राहील. तसेच विविध व्यवसायाच्या स्वरूपानुसार वेळ ठरवून सदरचे काम करावे लागेल. एखाद्यावेळी काम अपुर्ण राहिल्यास कामाची वेळ वाढविण्यात येईल.
2. मार्केट मधील रात्री झडाई करून जमा करण्यात आलेला कचरा घंटागाडीद्वारे उचलण्याचे नियोजन वेगळे करण्यात यावे.
3. सदर काम हे अखंडीत राहील कोणत्याही दिवशी सदर काम बंद ठेवता येणार नाही.

5. तक्रार निवारण कक्ष

1. नगर परिषदेने सुचविलेल्या ठिकाणी सकाळी 7 तेसंध्याकाळी६पर्यंत तक्रार निवारण कक्ष स्थापन करून या ठिकाणी पूर्ण वेळ कर्मचारी नेमणूक करावा व सर्व प्राप्त तक्रारी यांचे झालेले निरसन दैनंदीन रित्या केलेले काम यांची संपुर्ण नोंद ठेवावी व दैनंदीन रित्या आरोग्य विभागास सादर करावी.
2. तक्रार निवारण कक्षात एक पुर्णवेळ चालेल असा संपर्क क्रमांक उपलब्ध करून द्यावा. हा संपर्क क्रं. आपल्या सर्व वाहनांवर स्वच्छतेच्या सूचनां सह प्रदर्शीत करण्यात यावा.जेणे करून सर्व नागरिकांना तक्रार निवारण कामी संपर्क साधता येईल.

6 . घनकचरा व्यवसथापनाच्या कामात वापरण्यात येणा-या वाहनांबाबत.

(1) घनकचरा व्यवस्थापनाच्या कामा करीता नगर परिषदे मार्फत 17 तिन चाकि वाहन, 25 चार चाकि वाहन, 01 रिफ्युज कॉम्पॅक्टर व 14 ट्रॅक्टर ट्रॉली वाहन भाडयाने कंत्राटदाराचे असे एकूण 49 वाहनांकडुन घनकचरा व्यवस्थानाचे काम करावे लागतील.

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(2) भाड्याचे वाहने आवश्यकतेनुसार कामाचे स्वरूप पाहुन कमी किंवा जास्त करण्यात येतील.तसेच स्वच्छ सर्वेक्षणाच्या काळात स्वच्छतेच्या कामा करीता अतिरीक्त मनुष्यबळ व वाहने लागल्यास कंत्राटदाराला पुरवठा करावा लागेल त्याकरीता वेगळे देयक प्रदान करण्यात येणार नाही.

(3) वापरण्यात येणा-या सर्व वाहनांची स्वच्छता राखणे व देखभाल दुरूस्तीची जबाबदारी कंत्राटदाराची राहील.

(4) वाहन नादुरूस्त झाल्यास त्याचे जागेवर दुसरे वाहन त्वरीत उपलब्ध करुन देण्याची व लावण्याची जबाबदारी कंत्राटदाराची राहील.दुसऱ्या वाहना बाबतचा तपशील कार्यालयात सादर करावा लागेल.

(5) कंत्राटदारास प्रत्येक गाडीचे Log Book दररोज ठेवावे लागेल.तसेच प्रभागातील कचरा संकलन केल्या बाबतचे नागरीकांचे स्वाक्षरीचे नोंदी ठेवावी लागेल.

(6) कंत्राटदारास न.प. ने दिलेले नियोजित ठिकाणी वाहने ठेवणे बंधनकारक राहील. तसेच न.प.च्या सर्व वाहनांची जबाबदारी कंत्राटदाराची राहील.तसेच वाहनांचा अपघात झाल्यास त्याची नुकसान भरपाई न.प. ठरवेल त्याप्रमाने कंत्राटदारच्या देयकातुन कपात करण्यात येईल.

(7) वाहनचालक – घंटागाडी व ट्रॅक्टरवर लावण्यात आलेल्या चालकांजवळ चालक परवाना असणे गरजेचे आहे. तसेच कंत्राटदारास घंटागाडी व ट्रॅक्टरवर लावण्यात येणारे ड्रायवरव मजुर यांची यादी न.प. कडे काम सुरू होण्या पुर्वी द्यावी लागेल व तसेच कामावर लावलेल्या कामगारांची चारीत्र पडताळणी आपण आपल्या स्तरावर स्वत: करून अहवाल सादर करावा.

(8) न.प. च्या अंदाजपत्रका प्रमाणे वाहनांवर योग्य ते मजुर वर्ग नेमुन दिलेल्या संख्येत लावावे लागतील..

(9) कंत्राटदाराने सर्व वाहने कुठल्या परिस्थितीत सुस्थितीत ठेवावे लागेल,गाड्या सुस्थितीत असल्याबाबतचे त्रेमासीक अहवाल सादर करावा लागेल.

(10) घनकचरा व्यवस्थापनाकरीता भाड्याने लावण्यात आलेले ट्रॅक्टर नियमानुसार RTO पासींग केलेले असावे व दोन वर्षापेक्षा जास्त जुने असु नये व ट्रॅक्टर ट्रॉलीला हायड्रोलीक असणे आवश्यक आहे.

(11)काम संपल्यानंतर सर्व वाहने सुस्थितीत परत करण्याची जबाबदारी कंत्राटदाराची राहील.

(12) एखाद्या वेळेस कचरा संकलन वाहनात बिघाड झाल्यास कंत्राटदाराला स्वत: दुस-या वाहनाची व्यवस्था करावी लागेल व लवकरात लवकन कचरा संकलन वाहन दुरूस्त करून घ्यावे लागेल.

7. घनकच-या व्यवस्थापना अंतर्गत नगर परिषदेकडून पुरविण्यात येणा-या यंत्र सामुग्रीचे भाडे बाबत.

1. घनकचरा व्यवस्थापनाच्या कामा करीता नगर परिषदेकडून कंत्राटदारास खालील यंत्र सामुग्री उपलब्ध करून दिल्यास मासीक भाडे खालील प्रमाणे असेल.

अ.क्रं	यंत्र सामुग्रीचे नांव	मासीक भाडे
1.	स्क्रीनींग मशीन	15000 रू.
2.	वेट ब्रिज	5000 रू.
3.	बेलींग मशीन	5000 रू.
4.	श्रेडर मशीन	5000 रू.

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2. नगर परिषदेकडून यंत्र सामुग्री उपलब्ध न झाल्यास कंत्राटदाराला स्वतः यंत्र सामुग्रीची व्यवस्था करावी लागेल.
3. यंत्र सामुग्रीची देखभाल दुरूस्ती कंत्राटदाराला स्वतः करावी लागेल नगर परिषदे कडून यावाबतचे कोणतेही देयक अदा करण्यात येणार नाही.

8. देयकाचे प्रदानाबाबत.

1) कंत्राटदारास कंत्राटदारांनी केलेल्या कामाचे देयकाची मागणी दर महा लेखी स्वरूपात सादर करावी लागेल.

2) कामाच्या देयकाचे भुगतान मा.संचालक न.प.प्रशासन संचालनालय मुंबई यांचे कडील स्थायी निर्देश क्रमांक ३६दि.२९/१२/२००५ चे परिशिष्ठ क (१) मधिल तरतुदीनुसार प्रत्यक्ष सेवा निष्पती आधारानुसार राहील त्यामुळे एकुण अंदाजपत्रकीय रकमेचे १२ मासीक किश्तनुसार सेवा निष्पती मुल्यमापन अहवाल व दंड कपाती यांच्या आधारे करण्यात येईल.

3) प्रत्येक महिन्याचे देयक प्रदान करण्यापुर्वी ईपीएफ चे चालानसोबत ईसीआर ची कॉपी जोडणे अनिवार्य राहील.

4) देयकाचे प्रदान कंत्राटदाराला स्थायी निर्देश क्रमांक ३६ मधिल तरतुदीनुसार करण्यात येईल. नगर पषिदेची आर्थिक परिस्थिती लक्षात घेता देयकाचे शोधन करण्यास विलंब होईल, अशा विलंबासाठी कंत्राटदाराला व्याजासह देयकांची मागणी करता येणार नाही.

5) कामावर अनुज्ञेय असलेले आयकर, GST,लेबर वेल्फेअर सेस, EPF कपात करण्याचे तसेच शासनाकडून वेळोवेळी आकारण्यात येणार कर (सेस) कपात करण्याचे अधिकार नगर परिषदेला राहील.

6) विमा संचालक मुंबई यांचे पत्र क्रं.प्रविवि/२३०२/सहविमा/१/१०/२००० दि.०८/०५/२००१ अन्वये कंत्राटदाराने त्याचे कामावर असलेले मजुरांचा विमा निवीदा रकमेप्रमाणे काढणे आवश्यक आहे. कंत्राटदाराने विमा न काढल्यास त्याचे देयकातुन १% विम्याची रक्कम कपात करून विमा संचालक मुंबई यांचेकडे जमा करण्यात येईल.

7) कंत्राटदाराला देयकाचे शोधन आरोग्य विभागातील संबंधीत अधिकाऱ्याचे अभिप्राय शिवाय केल्या जाणार नाही.

8) सदर काम संकलन करणे , वाहतुक करणे व त्यावर प्रक्रीया करणे बाबतचे असल्याने कच-यावर शास्त्रोक्त पध्दतीने प्रक्रीया झाल्या शिवाय सदर महिण्याचे मासीक देयक अदा केल्या जाणार नाही.

9) प्रत्यक्ष कामा करीता पुरविण्यात आलेल्या मजुरांची संख्येनुसार मजुरांचे देयक तयार करण्यात येईल.

10) जे.सी.बी बाबतचे देयक त्याचे वापराच्या प्रमाणात अदा करण्यात येईल.

11) कंपोस्टिग पावडर बाबतचे देयक त्याचे वापराच्या प्रमाणात अदा करण्यात येईल.

12) ईतर साहीत्य पुरवठा बाबतचे देयक त्याचे वापराच्या प्रमाणात अदा करण्यात येईल.

13) सदर कामा करीता अंदाजपत्रकीय दरा प्रमाणे प्रति टन बेसीस प्रमाणे देयक प्रदान करण्यात येईल या व्यतीरीक्त कोणत्याही प्रकारची भाव वाढ देण्यात येणार नाही.

14) नगर परिषदेच्या कंम्पोस्ट डेपो येथे वेटब्रिज बसविण्याचे काम सुरू असुन कंत्राटदारास सदर वेटब्रिज वर संकलीत केलेल्या कचऱ्याचे वजन करून दैनंदीन नोंद ठेवणे इत्यादी कामे स्वतः करावी लागेल तसेच एखादे वेळी न.प.चे वेटब्रिज बसविण्याचे कामास विलंब झाल्यास किंवा वेटब्रिज मध्ये काहि कारणास्तव बिघाड झाल्यास त्याची दुरुस्ती कंत्राटदारास

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स्वत: स्वखर्चाने करावी लागेल तसेच वेटब्रिज दुरूस्ती होई पर्यंत अथवा वेटब्रिज बसे पर्यंत बाहेरील यंत्रणेकडून न.प.कर्मचाऱ्याच्या देखरेखीत कचऱ्याचे वजन करून नोंदी ठेव्या लागेल त्या करीता लागणारा खर्च कंत्राटदारास स्वत: करावा लागेल कुठल्याही परिस्थीतत कंत्राटदारास प्रति टन बेसीस व्यतिरीक्त देयक प्रदान केले जाणार नाही.

15) सदर कामा करीता असलेले मजुरांचे देयक कंत्राटदाराने शासन निर्णय क्र.संकिर्ण-2019/प्र.क्र.13/कामगार- 8 दि.22 फेब्रुवारी 2019 रोजीचे या नुसार बैंके द्वारे करणे बंधनकारक राहील.

16) दैनंदिन कचरा संकलन करतांना 50% ओला कचरा, 40% सुका कचरा, 10% घातक व बांधकाम मटेरीयल य प्रमाणात करणे बंधनकारक राहिल तसेच संकलीत केलेल्या कच-याचे घनकचरा प्रकल्प येथे वजन करून न.प.च्या आराखड्याप्रमाणे नोंद घेवून सदरचे रेकॉर्ड दररोज आरोग्य निरीक्षक तसेच दर 15 दिवसाने अरोग्य विभाग प्रमुख व दर महिन्यातुन एकदा मुख्याधिकारी न.प.अचलपूर यांच्या कडून प्रमाणीत करून घेणे बंधनकारक राहील.

17) वरील प्रमाणे कमी किंवा जास्त प्रमाणात कचरा आल्यास त्याचे योग्य कारण दाखवणे आवश्यक राहील.जर दिलेले कारण आरोग्य विभाग प्रमुख व मुख्याधिकारी यांना योग्य वाटल्यास देयक प्रदान करण्यात येईल.

18) संकलीत करण्यात आलेल्या ओल्या कच-यावर योग्य प्रक्रिया करून CPHEEO Norms SWM Rule 2016 मधील 3.2.8.2 प्रमाणे एकुण प्रक्रिया करण्यात आलेल्या ओल्या कच-याच्या 18 ते 20% खत निर्मीती करणे गरजेचे आहे. तसेच निर्माण झालेले खताचे मोजमाप करून रेकॉर्ड न.प.ला वेळोवेळी सादर करणे बंधनकारक राहील.

19) शासना मार्फत वेळोवेळी GST संबंधी येणारे निर्देषाप्रमाणे निर्णय घेण्यात येईल व त्याचे पालन कंत्राटदारास करणे बंधनकारक राहील.

20) **C & D Waste** उचलणे बाबतचे देयक प्रति रू.500 ट्रिप प्रमाणे नागरीकांकडून वसुल करून देण्यात येईल.कंत्राटदारास **C & D Waste** उचलणे बाबतचे देयक प्रति टन प्रमाणे दिले जाणार नाही.

21) कंत्राटदारास न.प.हद्दीतील संकलीत व उचलण्यात येणाऱ्या ओला व सुका कचऱ्याचे देयक प्रदान करण्यात येईल इतरत्र ठिकाणचे कचरा उचलल्याचे निदर्शनास आल्यास त्याचे देयक प्रदान करण्यात येणार नाही.

22) तिन चाकि व चार चाकि वाहनाद्वारे उचलण्यात येणाऱ्या कचऱ्याच्या अंदाजपत्रकिय दरामध्ये वाहन दुरूस्ती व मेन्टेनेंन्स चा खर्च समाविष्ट असुन त्याचे कोणतेहि वेगळे देयक प्रदान केले जाणार नाही.

23) सदर कामा करीता लागणारे ट्रॅक्टर कंत्राटदाराचे असल्याने ट्रॅक्टर दुरूस्ती व मेन्टेनेंन्स चा खर्चाचे वेगळे देयक प्रदान केले जाणार नाही.

24) कचरा संकलीत करण्याचे व वाहतुक करण्याचे काम हे प्रति टन बेसीस असल्याने कंत्राटदाराने सदर काम करणे करीता वाहनावर मजुर लावणे, डिझल वापरणे, इत्यादी बाबि कंत्राटदाराच्या अधिकारात असल्या तरी कंत्राटदाराने शहरातील दैनंदीन निघणारा कचरा नियमीत 100% उचलले जाईल याची जबाबदारी कंत्राटदाराची राहील.तसेच शहरातील प्रत्येक घरोघरी जावून 100% वर्गीकृत कचरा संकलीत करणे बंधनकारक राहील.कोणत्याही परिस्थीतीत कचरा संकलनाचे काम विलंबाने होणार नही याची जबाबदारी कंत्राटदाराची राहील कामात विलंब झाल्यास दंडात्मक कार्यवाही करण्यात येईल.

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25) अंदाजपत्रका मध्ये दर्शविलेले मजुरांचे दर, डिझेलचे दर, मजुरांची संख्या ,गाड्यांची संख्या, इत्यादी हे फक्त प्रति मेट्रिक टन Rate Analysis करणे करीता घेण्यात आलेले आहे.त्यानुसार प्रति मेट्रीक टन दर काढण्यात आले आहे.कंत्राटदारास कामाचे देयक फक्त प्रति टन बेसीस प्रमाणेच प्रदान करण्यात येईल.

26)अंदाजपत्रकामधील Part C, Part D मधील दर्शविण्यात आलेली GST ची रक्कम साहित्य पुरवण्यिात आल्यानंतर व GST चे बिल सादर केल्यानंतरच प्रदान करण्यात येईल.

27) अंदाजपत्रकामधील Part C, Part D मधील दर्शविण्यात आलेली साहित्य व कामे ज्याप्रमाणात केल्या जाईल त्याचे देयक अंदाजपत्रकाप्रमाणे प्रदान करण्यात येइल.

28) कंत्राटदाराच्या चार चाकि व तिन चाकि वाहना द्वारे कचरा संकलीत व वाहतुकिच्या देयकातुन नियमानुसार घसारा रकमेची कपात करण्यात येईल.

29) घनकचरा व्यवस्थापनाची जागा मौजा खेल घुमट सर्वे नं. 27 नगर परिषदेला मिळणार असल्याने तेथे संकलीत करण्यात आलेला कचरा आवश्यकतेनुसार वाहतुक करावा लागेल.

30) सदर टन बेसीस दरामध्ये contingency add केली आहे जेव्हा केव्हाही contingency च्या निगडीत किंवा इतर कामे होतील तेव्हाच contingency दिल्या जाईल अन्यथा प्रत्येक देयकातुन contingency चे रक्कम वजा करण्यात येईल.

31) सदरच्या कामा करीता कंत्राटदारा मार्फत लावण्यात येणाऱ्या सर्व कामागारांचे ईपीएफ भरण्याची जबाबदारी कंत्राटदाराची राहील.याबाबत कोणताही मुद्दा उपस्थीत झाल्यास कंत्राटदाराला स्वत: सोडवावा लागेल.सदर बाबीं करीता न.प.अचलपूर जबाबदार राहणार नाही.

32) कचरा संकलनाचे कांम अचलपूर नगर परिषद हद्दीतले असुन इतरत्र कचरा उचलणे, कचऱ्यामध्ये वजनवाढी करीता दगड टाकणे, कचरा ओला करणे, माती टाकणे इत्यादी प्रकार आढळल्यास त्या गाडीचे त्या दिवसाचे देयक अदा करण्यात येणार नाही.

9. कामाबाबतचे दंड :

कंत्राटदार ज्या अटी व शर्तीचे उल्लंघन करेल त्या अटी व शर्तीमध्ये नमुद केल्या प्रमाणे दंड आकारण्यात येईल आणि ती दंडाची रक्कम कंत्राटदाराचे मासीक देयकातुन कपात करणात येईल.

1. ओला व सुका कचरा मिसळलेला आढळल्यास रूपये रू १०००/- दंड आकारण्यात येईल.(प्रत्येक घटनेकरीता)
2. स्वच्छता ॲप द्वारे अथवा इतर माध्यमाने प्राप्त तक्रारींचे नीवारण १२ तासांच्या आत झाले नसल्यास प्रती तक्रारीनुसार रू १०००/- दंड आकारण्यात येईल.(प्रत्येक घटनेकरीता)
3. रूटमॅप नुसार घंटागाडी न पोचल्यास रू १०००/- दंड आकारण्यात येईल.(प्रत्येक घटनेकरीता)
4. नियोजित ठिकाणी ऐवजी इतरत्र ठिकाणी कचरा टाकल्यास दंड रुपये १५००/- दंड आकारण्यात येईल. (प्रत्येक घटनेकरीता)

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5. वाहनांवरील GPS प्रणाली आपल्याला मागच्या कामाच्या कालावधीत बसवून देण्यात आली होती तरी सदर GPS रिचार्ज करणे, बंद पडले असल्यास अथवा खराब झाले असल्यास स्वखर्चाने कंत्राटदारास बसवीणे बंधनकारक राहील. कोणत्याही कारणास्तव GPS बंद असल्यास प्रति वाहन रू १०००/- दंड आकारण्यात येईल.(प्रणाली तांत्रीक बिघाड असल्याच्या स्थितीतदुरूस्ती करीता 3 दिवसाची मुदत वगळून) यास्थीतीत त्याभागातील कचरा संकलन करतेवेळीचे मोबाईल व्हिडीओ सादर करावा लागेल.सदरची बाब महिन्यातुन फक्त एकदा एका वाहना करीता राहील.

6. मृत जनावरांची विल्हेवाट विहीत वेळेच्या आंत न केल्यास प्रति तक्रार रू १०००/- व जास्तीत जास्त रू ५०००/-प्रमाणे दंड आकारण्यात येईल.

7. कचरा संकलीत करतांना प्रभागातील काही घरे/आस्थापना सुटल्यास प्रत्येक घटनेकरीता रू १०००/- दंड आकारण्यात येईल.

8. कचराकुंड्यांमधील कचरा न उचलल्यास रू १०००/- दंड आकारण्यात येईल.(प्रत्येक घटनेकरीता)

9. प्रभागात घंटागाडी न आल्यास रू ५०००/- दंड आकारण्यात येईल.(प्रत्येक घटनेकरीता)

10.घंटागाडीवरील साऊंड बंद असल्यास तीन दिवसाच्या आंत दुरूस्त करण्यात यावा अन्यथा प्रत्येक गाडी करीता रू ५००/- दंड आकारण्यात येईल.

10. कामाचा कालावधीः-

1. सदर कामाचे कालावधी हे आदेशा पासुन एक वर्षा करीता राहील काम समाधान कारक असल्याची खातरजमा झाल्यानंतर कामाचा कालावधी सर्वसाधारण सभेच्या मंजुरातीने वेळोवेळी मुदतवाढ ठरलेल्या दरात करून देण्यात येईल.

2. कोणत्याही परिस्थीतीत कंत्राटदाराला एकतर्फी काम बंद करता येणार नाही तसेच कामाचा कालावधी संपल्यानंतर पर्यायी व्यवस्था होई पर्यंत कंत्राटदारास काम करणे बंधन कारक राहील कंत्राटदाराने काम एकतर्फी बंद केल्यास, मुदत पुर्व काम सोडून गेल्यास, किंवा पर्यायी व्यवस्था होणेपुर्वी काम बंद केल्यास कंत्राटदारास काळया यादीत टाकण्यात येईल अथवा योग्यती कार्यवाही करण्यात येईल.

11. कामाचे ठिकाणः- अचलपूर नगर परिषद हद्दीतील व मालकिचे सर्व क्षेत्र.

12. सुरक्षाठेव रककमः -

सुरक्षाठेव रक्कम मासीक देयकाच्या वेळी मासीक देय रकमेच्या 9% प्रमाणे कपात करण्यात येईल.सदर कामाच्या कालावधीत Serious Default झाल्यास सुरक्षा ठेव रक्कम Forfeit करण्यात येईल.

13. अनामत रक्कम व सुरक्षा रक्कम परत करणे बाबतः-

1. कंत्राटदारास काम समाधानकारकरित्या संपल्यानंतर EMD ची रक्कम सहा महिन्याच्या कालावधी नंतर परत करण्यात येईल.
2. ज्या निवीदाधारकाची निवीदा अमान्य झालेली आहे त्याची EMD ची रक्कम कामाचा कार्यादेश दिल्यापासुन 7 दिवसानंतर परत करण्यात येईल.

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3. करारातील अटी व शर्तीनुसार कंत्राटदाराने कामे पूर्ण केले असल्यास व कंत्राटदाराकडून त्यांनी केलेल्या कामाबाबत कोणतीही रक्कम नगर परिषदेने येणे नसल्यास तसेच लेखा परिक्षणामध्ये कंत्राटदाराकडून निघालेल्या वसुल पात्र रक्कम जमा असलेली सुरक्षा अनामत रकमेतुन वसुल करून सुरक्षा अनामत रक्कम नियमा नुसार परत करण्यात येईल.

14. कायद्याची पुर्तता :

1) कंत्राटदारांनी कामावर ठेवलेले कामगारास इजर अथवा दुखापत झाल्यास कंत्राटदारास त्या कामगाराला वर्कमॅन कॉम्पेन्सेशन ॲक्ट १९२३ च्या तरतुदीनुसार नुकसान भरपाई देण्याची जवाबदारी कंत्राटदाराची राहील जर अशा प्रकारची नुकसान भरपाई देणे आवश्यक असेल ती कंत्राटदारांनी न दिल्यास सदर नुकसान भरपाई उक्त अधिनियमाचे कलम १२ उपकलम (१) मधिल तरतुदीनुसार नगर परिषद कंत्राटदारा कडुन वसुल करेल.

2) कंत्राटदार वयाच्या १८ व्या वर्षाखालील कोणत्याही कामगाराची नेमणुक करणार नाही तसेच बाल कामगार कायद्याची पुर्तताकरण्याची सर्वस्वी जबाबदारी ही कंत्राटदाराची राहील.

3) कंत्राटदार हे कामावर नेमण्यात आलेल्या कामगारांना उचित, रास्त आणी वाजवी वेतन येईल. कंत्रटदारांनी कामगारास उचित वेतन न दिल्यास मिनीमम वेजेस ॲक्टखाली कंत्राटदारावर कोणत्याही विभागाने कार्यवाही केल्यास त्याची जबाबदारी नगर परिषदेची राहणार नाही.

4) मनुष्यबाळाबाबत असलेल्या निरनिराळ्या कायद्याचे पालन करण्याची जबाबदारी कंत्राटदारची १९५२ कामगार भरपाई अधिनीयम कामगार विमा योजना, कर्मचारी भ.नि.नि.कायदा इत्यादीची पुर्तता करावी लागेल.या तरतुदीचे पालन करण्याची जबाबदारी कंत्राटदाराची राहील.

5) काम करीत असतांना कामगाराचा अपघात झाल्यास त्याची सर्वस्वी जबाबदारी कंत्राटदाराची राहील.नगर परिषद त्याबद्दल कोणतीही जबाबदारी स्विकारणार नाही. त्याकरीता कंत्राटदाराने त्याचे अधिनिस्त असलेल्या मजुरांचा विमा काढणे आवश्यक असुन याबाबत दस्ताऐवज या कार्यालयात सादर करावा लागेल.तसे न केल्यास देयकातुन १% रक्कम कपात करण्यात येईल.

6) कंत्राटदारास मजुरांच्यासुरक्षेकरीता असलेल्या माहाराष्ट्र शासनाचे ॲक्ट व नियम तसेच भारत सरकारचे ॲक्ट व नियम लागु असेल. त्यानियमाचे उल्लंघन केल्यास त्याची सर्वस्वी जबाबदारी कंत्राटदाराची राहील व त्यामुळे कंत्राटदाराचे आर्थीक नुकसान झाल्यास त्यास नगर परिषद जबाबदार राहणार नाही.

7) कंत्राटदाराला शिकाऊ उमेदवार म्हणूनकामावर कामगार नेमता येणार नाही.

8) महाराष्ट्र नगर परिषद औद्योगीक नागरी अधिनीयम 1965 चे कलम व पोट कलमांचे पालन करणे कंत्राटदारास बंधनकारक राहील.

9) कंत्राटदारास घनकचरा व्यवस्थापन कायदा 2016व इतर अनुशांगीक नियमा नुसार कार्यवाही करावी लागेल.

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15. वाद आणी लवाद प्रक्रिया:-

एजन्सी आणि अचलपूर नगर परिषद यांच्यात कोणत्याही प्रकारचा वाद उद्भवलेल्यास मुख्याधिकारी अचलपूर नगर परिषद निर्णयाचे पुर्णावलोकन आणि निर्णय घेण्यात येईल व त्या करीता नोटीस मिळाल्यापासुन 21 दिवसाच्या आंत निर्णय देईल असे नमुद आहे त्यामध्ये परत कोणत्याही प्रकारचा वाद उद्भवल्यास हि प्रक्रिया पुर्ण केल्या शिवाय किंवा वादाचे निरासन मुख्याधिकारी कडे केल्याशीवाय त्याला वाद लवादा कडे देता येणार नाही.

16.करारांचे समाप्तीकरण : कोणत्याही परिस्थितीमध्ये नगर परिषदेला मध्ये करार संपविण्याचा अधिकार राहील.अशा कालावधी परिस्थितीनुरूप कामाचे मुल्यांकन व किती कालावधी नंतर काम सुरू करता येईल किंवा करार पुढे चालू ठेवावयाचा किंवा नाही याबाबत निर्णय नगर परिषदेला घेण्याचा अधिकार राहील.

वरील अट क्रं.1 ते अट क्रं.16 मध्ये काही त्रुटी राहिल्यास त्या करारनाम्याच्या वैधतेवर परिणाम होणार नाही परंतु करारनाम्यातील कोणतीही अट रद्द किंवा वाढ करण्याचे तसेच फेरबदल किंवा शिथील करण्याचे अधिकार मुख्याधिकारी यांना राहील.हे कंत्राटदाराला बंधन कारक राहील.

येणेप्रमाणे हा करारनामा मी पार्टी नं.2 करारमाम्यातिल अट क्रं.1 ते 16 व त्याचे उपमुद्दे (अटी) पान क्रं. 1 ते 13 वाचुन यामधील सर्व अटी व शर्ती मला मान्य असुन सदर कामा बाबतचा करारनामा मी स्वसंतोषाने व अक्कलहुशारीने पुर्ण शुध्दीत कोणत्याही दडपणाखाली न येता खालील साक्षीदारा समक्ष मी पार्टी नं.2(दिपक लोचाराम उत्तराधी) पार्टी.नं.1(मुख्याधिकारी, नगर परिषद अचलपूर) सोबत करारनाम्यावर आज दि:21 जुन 2024 रोजी 5.00 वाजता अचलपूर न.प.कार्यालय मुक्कामी मि स्वतः स्वाक्षरी केली आहे. हा करारनामा व करारनाम्यातील अटी व शर्ती मला व माझे इस्टेट व आप्त वारसास लागू राहील हे मला मान्य आहे.

करीता करारनामा करून देण्यात येत आहे.

करारनामा लिहून देणार

Dipak L. Uttaradhi

Declared

श्री.दिपक लोचाराम उत्तराधी Proprietor

रा. 42 द्वारका नाथ कॉलोनी, दस्तुर नगर अमरावती

(पार्टी.नं.2)

दिनांक :- / /

साक्षीदार:-

1. M.N. Wankhade

2. P.S. Wankhade

करारनामा लिहून घेणार

मुख्याधिकारी

अचलपुर नगर परिषद

(पार्टी.नं.1)

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कार्यालय अचलपूर नगर परिषद
जिल्हा - अमरावती
पिन कोड - 444805

ANNEXURE R-2
O/o The Achalpur Municipal Council
Dist:- Amravati (M.S)
Pin No:- 444805

Tel-Office- +07223-220372, President-Office-+07223-220370, Chief Officer Office -+07223-222448
Fax - +07223-222494 E-mail: mcachalpur@gmail.com, comcach@rediffmail.com

क्रं.अनपा/आवि/मुअ/ 9068 /२४ दि.26/06/२०२४

कामाचा आदेश,

प्रति,
श्री. दिपक लोचाराम उत्तराधी,
रा. 42 द्वारका नाथ कॉलोनी,
दस्तुर नगर अमरावती.

विषयः- अचलपूर नगर परिषद 15 वा वित्त आयोग निधी अंतर्गत घनकचरा व्यवस्थापन अंतर्गत ऑटोद्वारे घरोघरी जावून ओला व सुका कचरा संकलीत करून नियोजीत ठिकाणी टाकणे व नालीतुन काढलेला गाळ तसेच विविध आस्थापनेकडून निघालेला कचरा ट्रॅक्टरद्वारे क्षेपन भूमी पर्यंत वाहतुक करणे व त्यावर प्रक्रिया करणे. बाबतचे काम सुरू करणे बाबत आदेश.

संदर्भः- 1. मा.प्रशासक यांचे आदेश दि.07/11/2023.
2. तांत्रीक मजुरात आदेश .जा.क्र.मुअ/माजीप्रा/रेचिशा/तांमं/37/2024 दि.05/01/2024.
3. प्रशासकिय मंजुरी आदेश .क्रं.कक्ष-20/नविशा/पा.पु.स्व.अभी./कावि/130/2024 दि.12/02/2024.
4. आपण सादर केलेली निवीदा दि.05/03/2024.
5. निवीदा दर मंजुरी प्रशासक यांचे ठराव क्रं.01 दि.15/03/2024.
6. आपण केलेला करारनामा दि.21/06/2024.

वरील विषयाच्या अनुपंगाने आपणांस आदेशीत करण्यात येते कि, आपण भरलेली वरील संदर्भीय कामाची निवीदा मा.प्रशासक यांचे संदर्भीय क्रं.5 च्या ठरावान्वये आपले दर मंजुर करण्यात आले असुन सदर कामा करीता आपण दि.21/06/2024 करारनामा लिहून दिलेला आहे. तरी आपण केलेल्या करारनाम्यातिल अटि व शर्तीचे अधिन राहुन कार्यादेश मिळाल्यापासुन सात दिवसाचे आंत काम सुरू करावे.

योजनेचे नांवः- 15 वा वित्त आयोग
प्रशासकिय मंजुरीः- मा.जिल्हाधीकारी,अमरावती यांचे आदेश दि.12/02/2024
कामाची अंदाजीत रक्कमः- रू.6,72,11,945/-
मंजुर निवीदेचे दरः- अंदाजपत्रकिय दरापेक्षा 0.250% कमी दराने.
करारनामाः- दि.21/06/2024
कामाची मुदतः- काम सुरू केल्यापासुन एक वर्षा करीता

मुख्याधिकारी
नगर परिषद अचलपूर

Deelan 27/06/2024

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ANNEXURE R-3

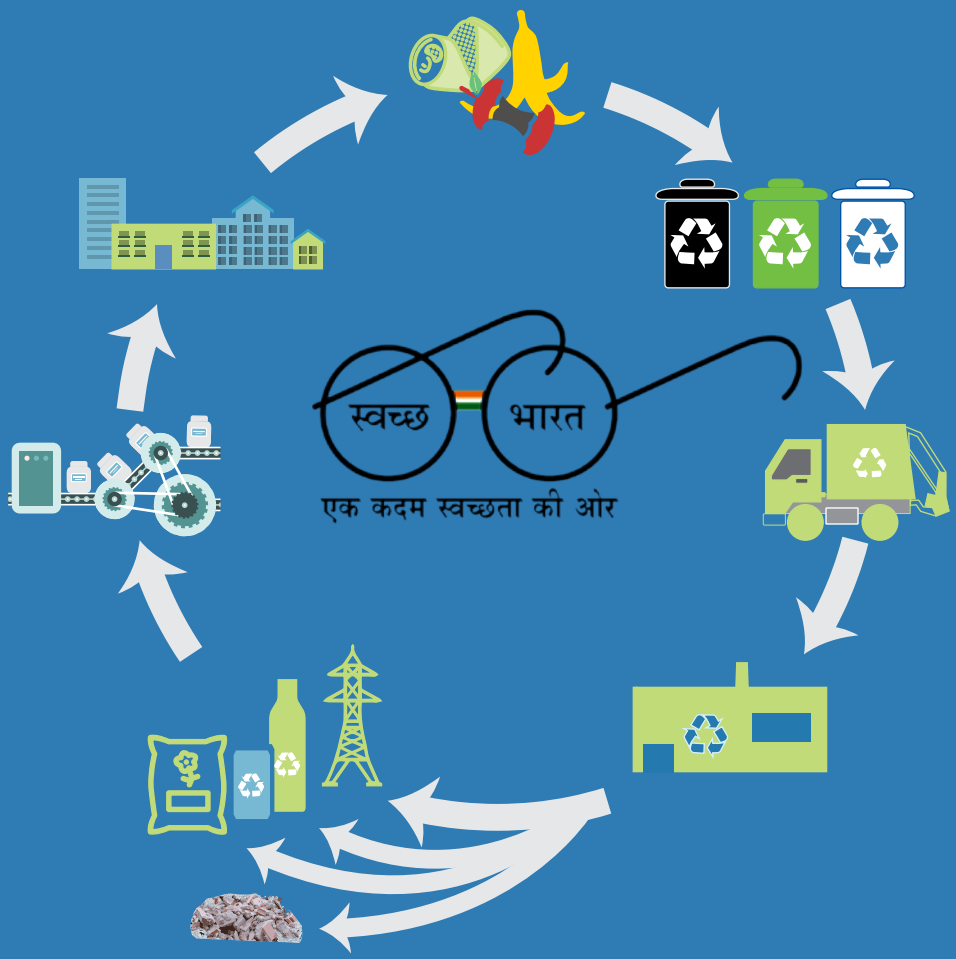
सत्यमेव जयते

GOVERNMENT OF INDIA

SWACHH BHARAT MISSION

MUNICIPAL SOLID WASTE MANAGEMENT MANUAL

PART II: THE MANUAL



Central Public Health and Environmental Engineering Organisation (CPHEEO)

MINISTRY OF URBAN DEVELOPMENT

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2016

120

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF URBAN DEVELOPMENT
http://moud.gov.in

MUNICIPAL SOLID WASTE MANAGEMENT MANUAL

Central Public Health and Environmental Engineering Organisation (CPHEEO)

IN COLLABORATION WITH

german cooperation
DEUTSCHE ZUSAMMENARBEIT

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

German International Cooperation

2016

PART II:
Manual on Municipal Solid Waste Management

3

Technical Aspects of Processing and Treatment of Municipal Solid Waste

IN THIS SECTION

3.1	Recycling and Recovery	210
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3.8	Action Points for Awareness Generation Through Information, Education, and Communication Activities for Technical Aspects of Processing and Treatment of Municipal Solid Waste	247

3. TECHNICAL ASPECTS OF PROCESSING AND TREATMENT OF MUNICIPAL SOLID WASTE

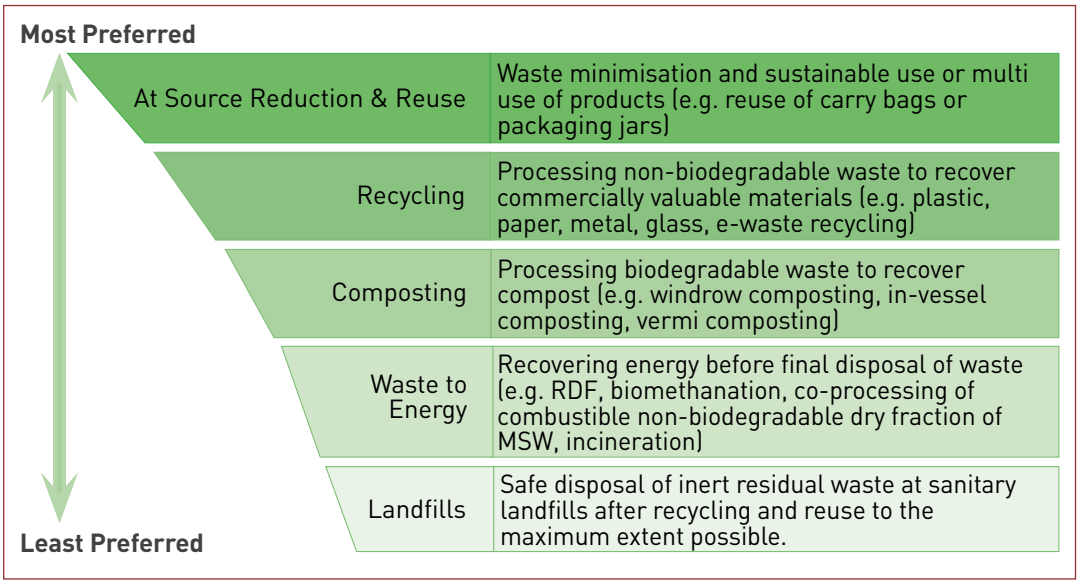
Municipal solid waste management (MSWM) and adoption of processing technologies depend largely on the quantity and characteristics of the total waste generated in an urban local body (ULB). A prerequisite for overall project implementation is the availability of the financial resources and in-house capacity of local authorities.

Integrated solid waste management (ISWM), as discussed Section 1.2 of Part II, is a strategic approach to manage municipal solid waste (MSW) in a sustainable manner by considering all aspects of MSWM, namely generation, segregation, transfer, sorting, treatment, recovery, and disposal in an integrated manner, with an emphasis on maximising resource use efficiency.

The least preferred option of ISWM is disposal of waste in landfills, where no landfill gas capture is planned. Normally, landfills that integrate the capture and use of methane are preferred over landfills that flare landfill gas.

However, Indian laws and rules do not permit disposal of organic matter into sanitary landfills and mandate that only inert rejects (residual waste) from processing facilities, inert street sweepings, etc. can be landfilled. In cases where old dumps are to be closed, there is a possibility of capturing methane gas for further use, which may be explored. However, repeated burning of the waste significantly decreases the potential of capturing methane.

Figure 3.1: Integrated Solid Waste Management Hierarchy[1]



The ISWM hierarchy ranks waste management strategies according to their environmental benefits

1 Developed by the Expert Committee for revision of MSWM manual (2013-15).

The sections below elaborate on MSWM processing technologies and disposal options in the order as specified by the ISWM hierarchy. And as mentioned, waste minimisation should be the prime objective of any waste management system in ULBs.

3.1 RECYCLING AND RECOVERY

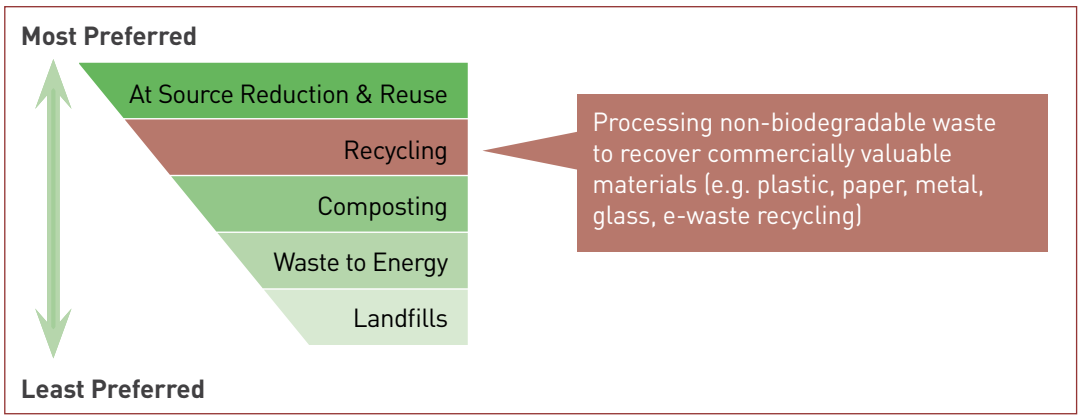
Preferential order of waste management options as per the ISWM hierarchy:

- At Source Reduction and Reuse
- Recycling
- Composting
- Waste to Energy
- Landfills

Solid Waste Management (SWM) Rules, 2016 defines recycling as "the process of transforming segregated solid waste into a new product or a raw material for producing new products." Further, it also states that "arrangement shall be made to provide segregated recyclable material to the recycling industry through waste pickers or any other agency engaged or authorised by the urban local body for the purpose."

According to the ISWM hierarchy, recycling is a preferred waste management strategy after source reduction and reuse. Recycling systems should be adopted before planning for any waste processing or treatment facilities. Figure 3.2 indicates the importance of recycling in the ISWM hierarchy.

Figure 3.2: Recycling in Integrated Solid Waste Management Hierarchy[2]



3.1.1 ADVANTAGES OF RECYCLING

Recycling diverts a significant fraction of municipal, institutional and bulk waste from being dumped or disposed in landfills. This results in saving of scarce resources as well as reducing environmental impacts and the burden of waste management on public authorities. If appropriate market mechanisms are established, recycling can generate revenues, contributing to the overall cost recovery for municipal solid waste service provision

- For the ULB:
  - Reduces waste volume.
  - Cost savings in collection, transportation and disposal.

2 Developed by the Expert Committee for revision of MSWM manual (2013-15).

- Longer life span for landfills.
- Reduced environmental management efforts.

- For the economy:
  - Reduction of imports of raw materials, fertilisers etc. and hence foreign currency required.
  - Livelihood opportunities for recyclers in the recycling industry.
- For the environment:
  - Sustainable use of resources
  - Reduced amount of waste going to storage sites and reduced requirement of land.
  - Reduced environmental impacts including impacts of climate change.

Recycling plays a vital role in reducing the quantity of waste, increasing resource recovery and minimising the financial and environmental burden of MSWM

3.1.2 ASSESSMENT OF RECYCLABLES - CHARACTERISATION AND QUANTIFICATION

As per data received from CPCB, it is estimated that urban India generated 1,43,449 metric tonnes of municipal solid waste per day in 2014-15. Of this waste 40-60% is organic and 10-20% is recyclables. This indicates there is a clear waste minimisation potential of 14,344 – 28,689 metric tonnes per day through recycling and recovery. Figure 3.3 is indicative of the typical waste fractions in municipal solid waste generated in India.

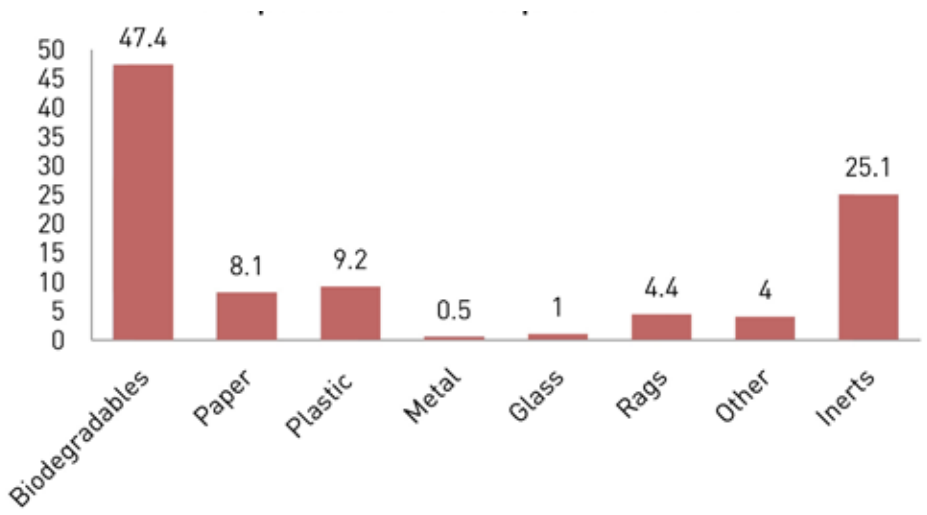
According to the Central Pollution Control Board (CPCB), urban India generates about 51 million metric tonnes of solid waste per year with a per capita waste generation rate of 0.2–0.6 kilogram per day (2014–2015).

This India-wide assessment underlines the importance of recycling. However, this information is not adequate when designing material recycling strategies for a specific municipality

Recyclables mainly paper, plastic, metal, and glass can be retrieved from the waste stream for further recycling. Table 3.1 gives an overview of typical recycling material and their recycling potential.

Every strategy for recycling (as also for other steps of municipal solid waste management) should be based on a thorough waste analysis or characterisation in the respective city. Only based on this composition and quantification of municipal solid waste, a detailed estimation of the potential for recycling of different materials is possible. Methods for waste characterisation are described in Chapter 1 of Part II.

Figure 3.3: Municipal Solid Waste Characterisation in India[3]



Study conducted by CPCB & NEERI (2005)

The composition of MSW depends on a large number of factors like food habit, culture, tradition, lifestyle, climate, and income. As depicted above, biodegradables make up 47.4% of the MSW stream. Metals and glass make up only about 1% each of the MSW stream because of their high potential for recycling. The inerts—street sweepings, drain silt, and construction and demolition (C&D) debris—make up 25% of the MSW stream as the street sweepings, drain silt, and construction and demolition debris eventually find their way into municipal solid waste.

Table 3.1: Important Recycling Material: Recycling Potential and Special Conditions

MATERIAL	RECYCLING POTENTIAL	SPECIAL CONDITIONS
Aluminium	• It has a high market value. • It can be recycled easily by shredding and melting. • It can be recycled indefinitely because it does not deteriorate through reprocessing. • It requires significantly less energy than producing aluminium ore.	• Separate collection is important
Batteries	• It recovers valuable metals. • It protects environment from heavy metals such as lead, cadmium, and mercury.	• There is a large variety in types and sizes of batteries. • Only some types allow adequate material recovery.

3 'Improving Solid Waste Management in India,' D. Zhu, et al., (2008). Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/6916/425660PUB0Wast127326010FFICIAL0USE1.pdf?sequence=1)

Table 3.1: Important Recycling Material: Recycling Potential and Special Conditions [contd.]

MATERIAL	RECYCLING POTENTIAL	SPECIAL CONDITIONS
Construction and demolition waste*	• Demolition waste can be sorted, crushed and reused for production of pavement material, flooring tiles, road construction, landscaping and other purposes. • Due to the amounts of demolition waste, its recycling allows significant reduction of otherwise required disposal capacities.	• Standards for recycled products are yet to be stipulated.
Glass	• It has a moderate market value. • It can be melted and sorted into colours. • Recycling glass saves energy compared with processing raw material. • It can be recycled indefinitely because it does not deteriorate through reprocessing.	• Broken glass can contaminate and eliminate opportunities for recycling of other material such as paper.
Paper and cardboard	• It is easily recycled. • Paper or cardboard from recycled paper requires less energy during production and helps protect the forests.	• Recycling potential is reduced with each recycling cycle through deterioration of fibres.
Polyethylene terephthalate (PET)**	• It can be recycled if segregated from other waste.	• Quality of recycled product decreases with every processing cycle. • Recycled products have specific designated uses and cannot be used for other purposes.
Other plastics	• Other plastics, such as polyethylene or polyvinyl chloride, can be recycled but have less value in the market than PET. The value depends on recycling and manufacturing options in the vicinity.	• Clean segregated plastics, are subjected to mechanical recycling into the same plastic type. • Where recycling is not possible due to mixed plastics, they are then co-processed for energy recovery or used as aggregates in road material.
Electronic waste	• It contains high value metals. • Electronic items can be dismantled and its components reused or recycled.	• If recycling is not carried out under controlled conditions, metal is often covered with polyvinyl chloride or resins, which are often smelted or burned, causing toxic emissions. • Disaggregation of electronic waste for recycling can be costly.
Metal (steel, copper, nickel, zinc, silver, etc.)	• Scrap metal has a high market value, especially steel, copper, and silver. • It can be recycled indefinitely because it does not deteriorate through reprocessing.	• High value metals, such as copper and silver, are incorporated in electronic devices, but extraction can cause severe environmental impacts, if uncontrolled.

Table 3.1: Important Recycling Material: Recycling Potential and Special Conditions [contd.]

MATERIAL	RECYCLING POTENTIAL	SPECIAL CONDITIONS
Thermocol or Styrofoam	• It can be processed to recover fuel and other by-products • It can be re-ground with new expanded polystyrene for further use. • It can be powdered and made into sheets, which can be used to make furniture.	• Fuel production is through pyrolysis, gasification, and hydrocracking. • Regulated facilities with appropriate environmental controls are required for handling thermocol recycling
* For further detailed information refer Section 3.7 of Part II ** For further detailed information refer Section 7.4 of Part II		

3.1.3 STAGES OF MATERIAL RECOVERY

The SWM Rules, 2016 defines "Materials Recovery Facility" (MRF) means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity mentioned in rule 2 or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity mentioned in rule 2 for the purpose before the waste is delivered or taken up for its processing or disposal; Material recovery starts at the primary level, by households who segregate recyclables like newspapers, cardboard, plastics, bottles, etc. from waste to sell such material to local recyclers, scrap dealers or haulers. The item that cannot be sold to the kabadi system is discarded and becomes part of the MSW. Waste pickers pick up parts of this waste to earn their living. Well-segregated recyclables can directly be transferred to a processing site or to the recyclable market depending on local conditions.

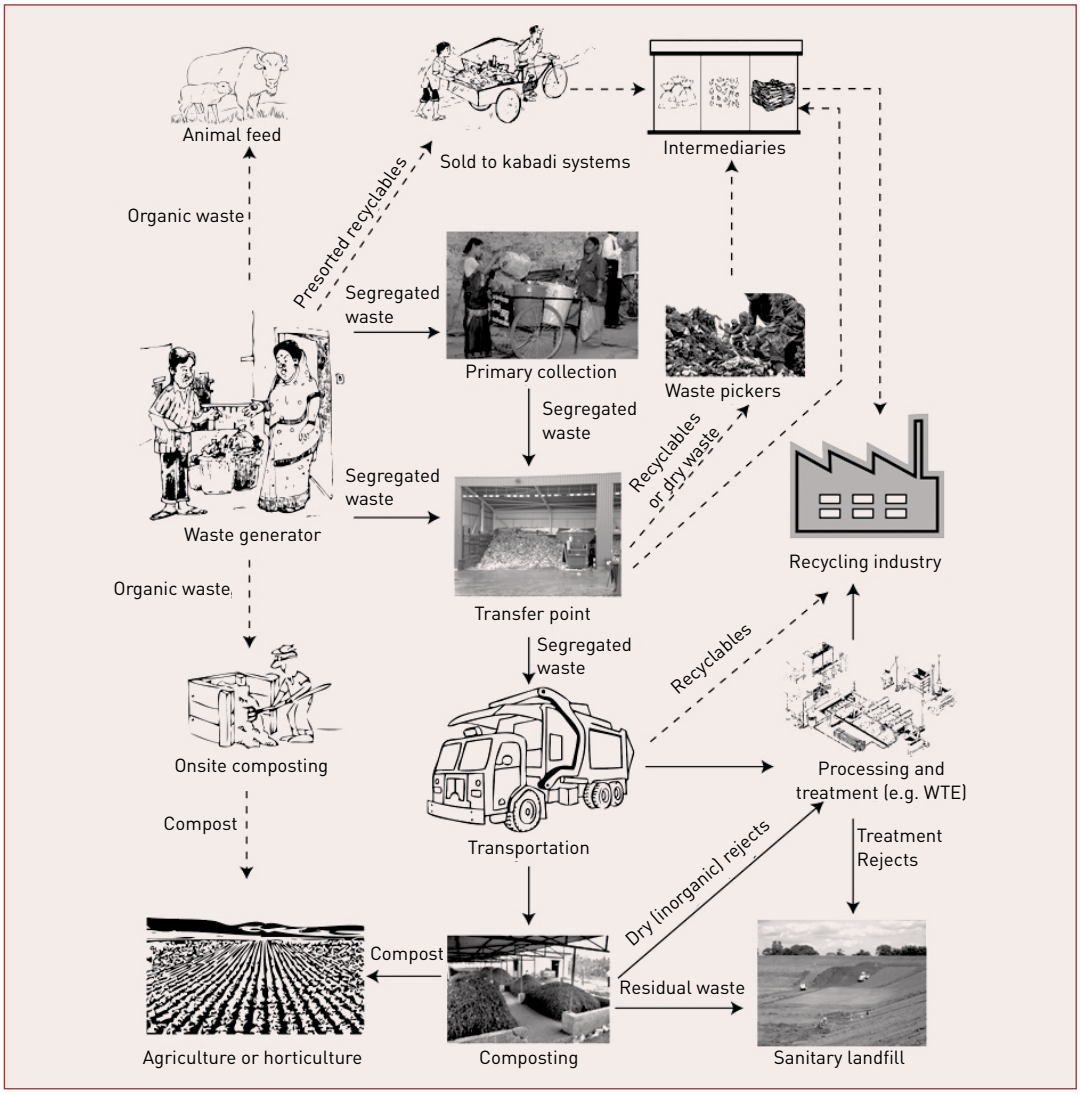
The dry fraction of the segregated waste may be further segregated locally, at the transfer station or at the processing plant:

- The dry waste fraction can be segregated at the ward level, where waste from one or more wards is collected and segregated. Different recyclables are either sent directly to locally available recycling facilities or sold to wholesale dealers. The residual waste, depending on the composition, is sent for processing or disposal—compost, refuse derived fuel (RDF), landfilling. Where decentralised compost facilities are available, the wet waste fraction is processed locally.
- The dry waste fraction may also be transported to the waste transfer station, where it is further segregated. Municipal corporations can also appoint informal waste pickers for manual sorting of waste at the transfer station. Segregation at the transfer station is through manual or mechanised segregation.

- Where the dry waste fraction reaches the processing site (compost or RDF) directly, manual or mechanical pre-sorting should be carried out to recover recyclable material. This also ensures good quality process output.
- In case regional processing or disposal facilities exist, transfer of recyclables to the regional facility should be avoided. The dry waste fraction should be sorted out either at the ward level or transfer station level. If this is not possible, appropriate sorting facilities should be available at the regional facility. Figure 3.4 illustrates the different stages of materials recovery along the SWM chain.

Special waste including domestic hazardous waste that is collected either along with the dry waste fraction or separately is also to be segregated at the material recovery facility (MRF) and disposed according to the nature of the waste. Recyclable waste should be sent to the recycling industry, and hazardous waste should be disposed at the nearest treatment, storage, and disposal facility (TSDF) or as specified by the SPCB or PCC.

Figure 3.4: Stages of Material Recovery in Municipal Solid Waste Management Chain[4]



4 Adapted from: 'Improving Solid Waste Management in India,' D. Zhu, et al., (2008). Available at: https://openknowledge.worldbank.org/bitstream/handle/10986/6916/425660PUB0Wast12732601OFFICIAL0USE1.pdf?sequence=1

3.1.4 MATERIAL RECOVERY FACILITY

As per SWM Rules, 2016:

Clause 15: Duties and responsibilities of local authorities:-

(h) Setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities; Bins for storage of bio-degradable wastes shall be painted green, those for storage of recyclable wastes shall be printed white and those for storage of other wastes shall be printed black;

(r) transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility;

Configuration of a MRF depends upon factors such as type and quantities of material to be processed, quality and quantity of incoming waste, processing rates and desired quality of end products

A material recovery facility (MRF) accepts mixtures of waste fractions—e.g., selected materials collected in the dry waste bin (see specifications in Section 2.3 of Part II)—separates and diverts recyclable materials, and transfers the remaining waste for disposal. ULBs should identify and earmark land for recycling facilities while preparing a master plan for the city to encourage recovery of valuable resources from waste in a systematic and formalized manner. Such sorting facilities should be so designed that the solid waste stored is not exposed to open atmosphere and should be user friendly[5].ULBs should also look into possibilities for establishing recycling centres at ward level to enhance maximum materials recovery.

The configuration of a MRF processing line is critical to the overall quality of the materials segregated by the line. It depends on numerous factors including the type and quantity of materials to be processed, quality and quantity of incoming waste, desired processing rates, and required specifications for the end products. While no two MRFs are identical, they generally employ common design principles and sequencing in the configuration of equipment and labour.

3.1.4.1 TYPES OF MATERIAL RECOVERY FACILITY

Depending on the scale of operations and the level of mechanisation in the facility, MRFs may be classified as manual or mechanised. Usually small-scale units, manual MRFs largely employ manual sorting practices and are typically owned, managed, and operated by the informal sector. Material is segregated based on the types of waste (paper, plastic, metal, glass etc.) and gradation of material within each waste type (e.g., paper segregated into news print, office paper, packaging paper, printed books, etc.). Segregated material is then sold to intermediaries, who supply material in bulk to the recycling industry. Mechanised MRFs are large facilities with sophisticated systems and

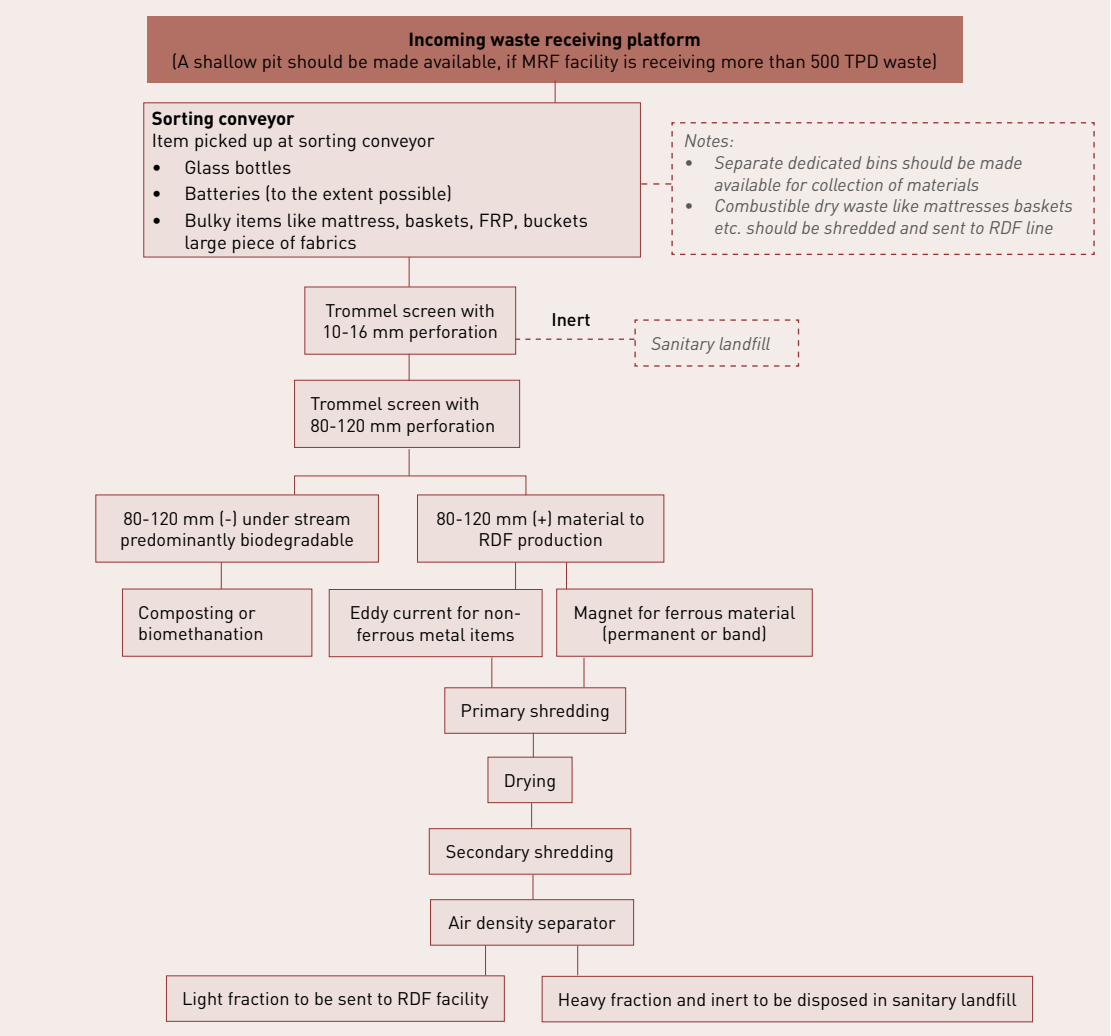
5 Materials Recovery Facility Technology Review, 2009. Available at: http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGYear9/finalreport/Pinellas_IG8-06_Technology_Review.pdf

equipment that enable efficient separation of large quantity of material into different fractions. Mechanised MRFs are operating in some industrialised nations; such facilities do not exist yet in India.

Configuration of the MRF processing line will vary depending on how material is received:

- **Mixed stream:** Unsegregated waste mixed with biodegradable and non-biodegradable material is collected and sent to the processing facility. At the processing facility, the mixed waste stream may be segregated manually or mechanically to separate recyclable material from compostable and inert waste (Figure 3.5). Compostable matter and recyclable materials may then be processed separately, and residual inert wastes should be sent to the landfill.

Figure 3.5: Indicative Material Recovery Facility and Pre-sorting Facility for Mixed Waste[6]



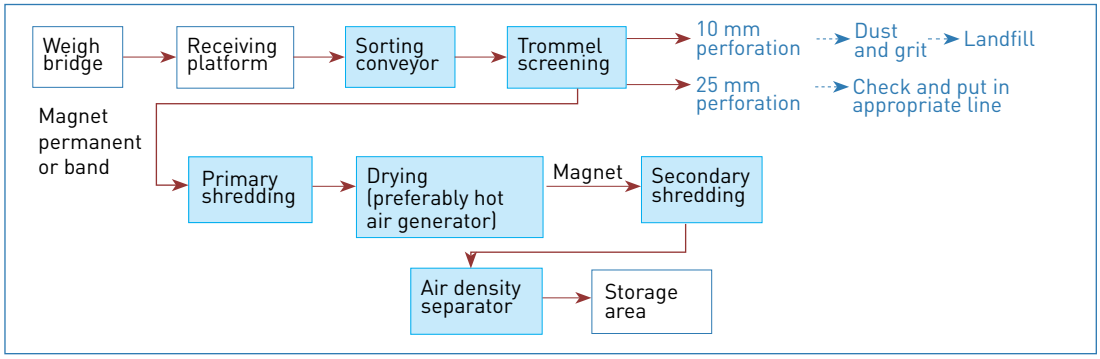
- **Source separated:** MSW is segregated into biodegradable and recyclables at the point of generation before it is collected. Further, incoming recyclables are sorted at the point of collection. Some processing might be needed for further sorting of material, such as steel cans from aluminium cans, glass by colour, paper by quality, etc.,

6 Developed by the Expert Committee for revision of MSWM manual (2013-15).

but the primary purpose of the facility is to remove contaminants and prepare the material for marketing, often by baling, flattening, or crushing.

- **Dry waste stream:** Dry segregated material is received in a mixed form consisting of a combination of fibres (paper, card board, mixed paper, magazines, etc.) and commingled containers (plastic, glass, metal, etc.), among other materials. The first stage of processing typically uses manual labour or equipment that separate material into various streams (fibre, paper, plastic, containers, etc.). These recyclables are also sorted by using automated machines when quantities to be handled are large. Below is a flowchart (Figure 3.6) depicting the indicative MRF and pre-sorting facility dedicated to dry waste.

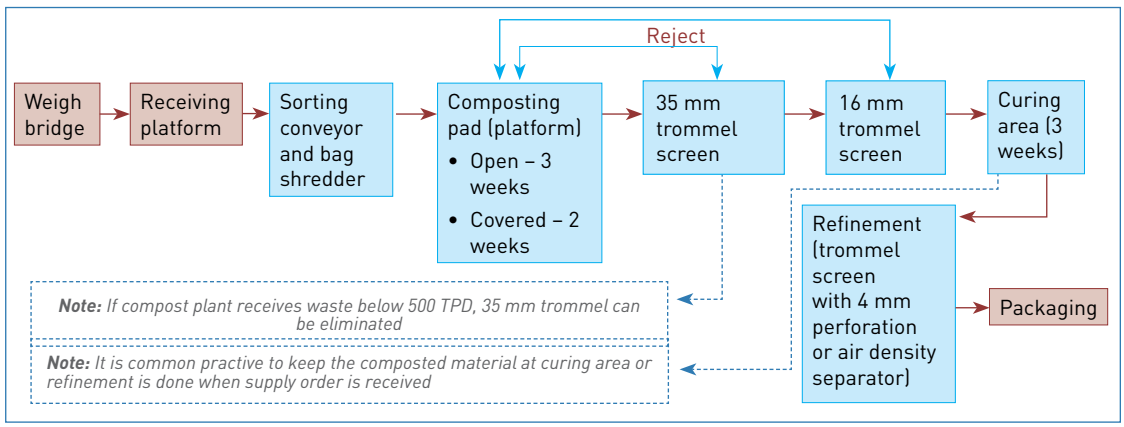
Figure 3.6: Indicative Material Recovery Facility and Pre-sorting Facility Dedicated to Dry Waste



Configuration of MRF also depends on the types of incoming waste; whether the incoming waste is source separated, dry waste stream or mixed waste stream

- **Wet waste stream:** If the ULB intends to compost biodegradable or wet waste, the wet waste that is segregated either at the source or at the mixed waste receiving MRF facility should be further pre-processed before being placed in windrows or sent for biomethanation. The pre-processing is carried out at the composting facility. Figure 3.7 outlines the pre-processing and processing at a windrow composting facility.

Figure 3.7: Indicative Material Recovery Facility and Pre-sorting Facility Dedicated to Wet Waste



3.1.4.1.1 UNIT PROCESSES IN MATERIAL RECOVERY FACILITY

MRF units employ varying combinations of manual and mechanical processes, based on the type of facility, availability of equipment, labour availability, and associated cost implications. MRF units employing manual labour for sorting operations have relatively lower costs, but may also operate at lower efficiencies compared with mechanical sorting facilities.

An MRF unit, depending on the level of complexity, will consist of a combination of units in varying degrees of mechanisation (as shown in above figures):

- **Pre-sorting:** Bulky and contaminated wastes hamper further sorting or processing in the facility; mechanical or manual pre-sorting is essential to separate out these wastes. Manual sorting results in higher labour costs and lower processing rates. Manual sorters remove bulky waste as the waste passes along a conveyor belt, which carries the pre-sorted waste to the mechanised sorting unit of the facility.
- **Mechanical sorting:** Mechanical processes based on principles of electromagnetics, fluid mechanics, pneumatics, etc. are used to segregate the different waste streams in the pre-sorted waste. Mechanical processes require specialised equipment for segregation of commingled municipal waste. Mechanical sorting typically employs the following processes:
  - **Screening:** Screening achieves an efficient separation of particles into two or more size distributions. Two types of screens are used in MRF centres disc screens and trommels.
  - **Ferrous metal separation:** In the second stage, electromagnets are used for separating heavy ferrous metals from mixed waste.
  - **Air classification:** The residual waste stream is passed through an air stream with sufficient velocity to separate light materials from heavy material, specifically for separating out lightweight plastics and paper from the mixed stream. Three types of air classifiers may be employed: (i) horizontal air classifier, (ii) vibrating incline air classifier, and (iii) incline air classifier. Heavy or bulky plastics are sorted out either in the pre-processing line (manually) or in the "detect and routing" systems, employed at later stages of material recovery.
  - **Non-ferrous metal separation:** The non-ferrous metal separator segregates zinc, aluminium, copper, lead, nickel, and other precious metal from commingled waste. An eddy current separator removes non-ferrous items from the commingled waste based on their electrical conductivity.
  - **Detect and route system:** This system separates various grades of paper, plastics, and glass, which are not sorted out in the air classifier. This system works in two stages. The first stage employs

programmed optical sensors to determine the nature of different materials. In the second stage, based on information received from the sensor, sorted material is routed to appropriate bins by directional air jets.

- **Size reduction:** Sorted materials after segregation are usually too large for further use or processing; they should be reduced to smaller sizes.
- **Baling:** Sorted and sized material is baled for further processing or use.

Table 3.2: Different Processes or Stages and Equipment Employed in a Material Recovery Facility

PROCESS OR STAGES	EQUIPMENT
Pre-sorting material handling equipment	• Belt conveyor • Screw conveyor • Apron conveyor • Bucket elevator • Drag conveyor • Pneumatic conveyor • Vibrating conveyor • Debagger
Ferrous metal separation	• Magnetic separator and screening
Screening	• Disc Screening • Trommels
Air classification	• Horizontal air classifier • Vibrating inclined air classifier • Inclined air classifier
Non-ferrous metal separation	• Rotating disk separator • Eddy current separator
Size reduction	• Can densifier • Can flattener • Glass crusher • Plastic granulator • Plastic perforator • Baler
Pollution control	• Dust collection system • Noise suppression devices • Odour control system • Heating, ventilating, and air conditioning (hvac)
Other fixed equipment	• Fixed storage bin • Live-bottom storage bin • Floor scale for pallet or bin loads • Truck scale • Belt scale

Recyclables separated from mixed waste usually have the lowest quality and might be contaminated by residual waste. In India, the segregation of recyclables from the mixed waste stream is often practiced, not through formal collection systems, but through informal workers (waste pickers).

Options for optimising this system through better inclusion of informal workers are explained in Section 2.3.7 of Part II.

3.1.5 NEED FOR ESTABLISHING MARKET LINKAGES AND EXTENDED PRODUCER RESPONSIBILITY

Any recycling programme depends on two crucial factors: community awareness and willingness to cooperate, and access to markets for segregated materials with acceptable and reliable conditions.

Market development for recyclables involves an assessment of the supply as well as the demand. The supply of recyclable materials should meet the requirements of recycling industries, both in terms of quality and quantity.

Products made from recyclable materials should meet market requirements as well. Unless a community has an established market for materials it collects, it may end up temporarily storing some materials and later landfilling some or all of them.

Market establishment for recyclables might take place with or without intervention of the ULB, the latter in the framework of extended producer responsibility (EPR) discussed in Section 1.2.2 of Part II.

Various voluntary industrial initiatives have started recently where industries have set up their own collection and recycling systems. Mineral water suppliers voluntarily take back mineral water containers and refund the customer for the returned containers. Breweries buy back beer bottles from the kabadi system. There are also examples of different breweries using a bottle design to facilitate reuse of these bottles, which are collected by the informal system. "Go Green with Tetrapak" initiative launched by Tetrapak in 2010 along with a retail chain encourages customers to deposit their used, empty Tetrapak cartons (tetrapaks) at the store for recycling. More than 6,00,000 tetrapaks have been collected at 130 collection points in Mumbai since the initiative's inception. The recycling of 6,00,000 empty tetrapaks so far has saved over 75 trees.[7]

EPR initiatives also benefit industries through saved production costs. Manufacturers and suppliers are ideal partners for municipal public private partnerships (PPPs) for development of drop off sites and take back facilities. Companies manufacturing durables (e.g., Nokia, LG, and Samsung) are in the process of establishing drop-off points for used electronics and components at various points of sale in the larger Indian cities. Such initiatives may be strengthened through appropriate municipal guidelines and bye-laws.

The type of materials in demand in the recycling market determines the level of segregation and segregated collection

It is necessary for decision makers to assess and establish market linkages prior to bringing recycling programmes into operation

Local governments should encourage businesses to adopt and promote recycling initiatives, e.g., take-back of large mineral water containers

7 Tetra Pak. 2014. *Go Green with Tetra Pack Recycling now reaches Mumbaikars through nearly 130 carton collections points.* 16 February. http://www.tetrapak.com/in/about-tetra-pak/press-room/news/go-green-mumbai

3.1.6 INFORMAL SECTOR INVOLVEMENT IN RECYCLING

Informal sector contributes significantly to improving resource efficiency, thereby enhancing environmental and climate protection

In India, recyclable material is either purchased by the kabadi system from the source of waste generation or picked up by waste pickers. Municipal authorities can promote recycling by educating the citizens and training them in segregating waste at source into dry, wet and domestic hazardous categories and handing over segregated wastes to waste collectors. Recyclable material is sold to the recycling industry though a chain of intermediaries. Waste collected by the kabadi system is sorted and sold to intermediaries who further clean, sort and store the waste. Waste pickers pick up discarded recyclable materials from primary and secondary collection points including dumpsites or landfills, and sell such material to the appropriate recycling industry. It has been estimated that the informal sector alone recovers as much as 56% of recyclable material.[8] All such activities should be compliant with environment, safety, health, and hygiene norms.

The informal recycling sector:

- supplements the formal system;
- manages all types of waste through the informal network;
- provides employment to a large number of people;
- operates competitively and with high levels of efficiency;
- establishes linkages with the formal economy at some point in the recycling chain; and
- offsets carbon emissions by making recycling possible and thus reducing the extraction and use of virgin raw materials.

Involvement of child labour, littering on street, exploitation by middle men are some of the issues that need immediate attention from local governments

However, there are some potential points of conflict between formal municipal solid waste management (MSWM) services and informal recycling activities that need to be recognized and addressed while attempting integration of the two systems. The current informal practice of materials recovery and recycling by individual waste pickers who leave behind unwanted waste leads to some litter remaining on the streets. Targeted as the sole cause of litter on the streets, the waste pickers are frequently banned from residential areas. These areas are the best places to retrieve recyclable waste, but harassment of waste pickers forces them to collect recyclables from landfill sites, a practice that leads to even higher health threats and environmental pollution. The presence of waste pickers or scavengers at transfer stations and landfill sites can interfere with vehicle movement, which is dangerous, increasing vehicle turnaround and thus reducing efficiency. The waste pickers work under unacceptable working conditions and many of them are exposed to health issues. In most cases, waste pickers are women and children from low-income groups, the most vulnerable groups in the Indian society. They are often exploited by middlemen or waste merchants because of their low social status. Child labour is also a matter of great concern.

8 Promoting Recycling in Municipal Solid Waste Management through Sustainable Business Models. Janya, S. 2014. RETA 7450 Project Preparation Support for Livable Cities.

As long as the door-to-door collection system is not operationalised and segregated waste is not collected from the doorstep, waste pickers would continue to earn their living from rag picking at the cost of their health and well-being. The solution lies in organizing and training waste pickers to enable access to upgraded livelihoods, e.g., waste pickers as source waste collectors through self-help groups (SHGs), resident welfare associations (RWAs), community-based organisations (CBOs), non-government organisations (NGOs), cooperatives, or the private sector, and thereby improving their quality of life.

These welfare activities can be undertaken through social development programmes in collaboration with local NGOs which provide schools, health care facilities, etc., to waste pickers. Children should be kept away from these activities. Provision of a valid identity card to waste pickers through local NGOs or CBOs, and creation of health schemes, access to medical facilities, and regular medical checks can help in improving the lives of waste pickers. The ULB should identify a specific agency to conduct this activity periodically, at least once every 2 years. This would help identify waste pickers and facilitate their easy integration into formal waste management systems.

Refer to Section 1.2.4 of Part II for further details on informal sector integration into conventional solid waste management services.

3.1.7 RECYCLING OF PLASTICS

Recycling of one plastic bottle would save enough energy to power a 60 watt bulb for 3 hours

It is estimated that approximately 4,000 to 5,000 TPD of plastic waste is generated in India; that is roughly 4%–5% by weight of MSW. The major problems in plastic waste management are collection, segregation and disposal. At present, plastic waste collection is done through the informal sectors such as the kabadi system and waste-pickers[9] (refer Section 7.4.4 of Part II.

3.1.8 THERMOCOL RECYCLING

Thermocol or Styrofoam, scientifically known as expanded polystyrene, is produced from a mixture of about 90%–95% polystyrene and 5%–10% gaseous blowing agent (pentane gas or carbon dioxide). Thermocol is an excellent material for packaging goods (especially electronic goods) and for the construction and decorating industry because it is light and has good insulating properties. Environmentally sound recycling of thermocol still remains to be commercially established in India, and thermocol recycling regulation is yet to be notified.

Different methodologies are available for recycling thermocol, e.g., grinding and mixing it with new beads, shredding it into fine powder, reducing

9 Available at: http://cpcbenvis.nic.in/newsletter/URBAN%20WASTE%20PROFILE_LV.pdf CPCB (2010).

its volume using solvents (Bhabha Atomic Research Centre [BARC] process), etc.

Pune's Science and Technology Park has set up a plant at Ranjangaon to recycle discarded thermocol into cheap furniture items. The furniture manufactured from recycled thermocol is relatively cheap, durable, and fireproof. A hub of electronic industries, Ranjangaon produces 10 TPD of thermocol waste.

A thermocol compactor may also be used to reduce the bulk of thermocol waste generated within a ULB. This compacted thermocol is then sold to the recycling market for further processing or recycling.

Initiative of Corporation of Panaji for Managing Thermocol Waste

Corporation of Panjim has installed a styropactor in the MRF for dealing with the large quantities of thermocol that are generated in the city. The thermocol compactor compresses the thermocol which is then auctioned to bulk recyclers on a regular basis.

3.1.9 RECYCLING PAPER AND BOARD

In India, the informal sector mainly performs the collection of waste paper through door-to-door collectors, kabadi system, and waste pickers. The informal sector carries out as much as 95% of the collection of waste paper in the country. The value chain comprises direct collection from various source points and small shops, where primary sorting of waste into different categories takes place; (ii) zonal segregation centres owned by wholesalers, where the waste material gets collected from small shops and baled; and (iii) finally dispatched to end users, which are usually paper mills.

Paper recyclers are developing new technologies for handling, identifying and separating paper grades for recycling. One such technology allows segregation of paper fibres during the recycling process according to fibre length, coarseness, and stiffness through a sequential centrifuging and screening process.

Relevance of paper and cardboard in the waste stream

The growth in the paper industry has mirrored the growth in gross domestic product (GDP) of the country; an annual average growth of 6%–7% has been observed over the last decade. Globally, India is the fastest growing market for paper. Economic projections even assume that growth in paper consumption would exceed GDP growth, with an annual growth close to 9%. Consequently, the import of pulp and paper products is likely to show a growing trend. These figures demonstrate the high relevance of paper and cardboard as a fraction of the MSW.[8]

'Wealth Out of Waste (WOW) in South India

ITC Paperboards and Specialty Papers Division launched the wastepaper collection programme called Wealth Out of Waste (WOW) in 2011 in select areas in Hyderabad, Bengaluru, and Coimbatore. WOW is expanding to more areas in South India. In Chennai, the division has tied up with 30–40 information technology (IT) companies, including Infosys, IBM, and Wipro, which would sell their wastepaper to ITC for recycling. ITC also plans to tie up with residential welfare associations (RWAs), non-government organisations (NGOs), and urban local bodies (ULBs) to expand WOW.[9]

Making of Handmade Paper

The Indian handmade paper industry produces a variety of paper and paper products mainly by using wastepaper collected from various sources (e.g., schools and colleges) and other materials such as cotton rags, tailor cuttings, hosiery cuttings, etc. Other agro-based fibres available in the North Eastern region like jute, sabai grass, ramie, banana, straw, angelie grass, elephant grass, etc. are also used to blend with the primary fibres for mottling effects and to manufacture special varieties of thin paper.

The basic steps of recycled handmade paper making process are the following:

A. CHOPPING AND DUSTING

The paper raw material and waste cotton rags are sorted manually to remove unwanted materials like plastics, iron and dust etc. that could contaminate pulp. Once the material is sorted, it is put through a rag chopper that cuts the rags into small uniform sized pieces. While the wastepaper is directly sent to the beater after being dipped in the water for 3 to 4 hours, 2 to 3 people could be engaged in this phase depending upon the amount of raw material.

B. BEATING

The chopped rags are converted into a fine pulp in a Hollander Beater. Pulping of the raw materials is done using non-polluting chemicals or agents such as lime, soda ash, caustic soda, oxalates, oxygen, and peroxides. It is not necessary to use harmful chemicals like alkali sulphide and sulphite, and chlorine and chlorine compounds for the delignification processes. Rosin soap and alum are added to give the paper the desired physical properties and the required consistency. When making coloured or textured paper, colour dyes, straw, hemp, grass etc. are added in this phase. The resulting pulp is now ready for sheet formation.

C. SHEET FORMATION

There are two methods of sheet formation which are being used in India:

i. **Lifting:** Lifting is a modern method done with the help of Univat. Lifting employs the use of a steel water tank fitted with an apparatus to lift the mould. The mould is clamped between two wooden frames in a water tank. A measured quantity of the pulp, depending on the thickness of the paper required, is poured evenly into the mould.

10 Effective Recycling of Waste Paper for Production of Good Quality Newsprint. Tyagi S., V. Mohan, Roy Choudhary, K et. al. (2013), Available: http://www.ipptaonline.org/July-Sept,%202013/2013_Issue_3_IPPTA_Article_02.pdf



Univat being used for sheet formation



Rag-chopper



Hollander beater

This mould is then shaken side to side horizontally and raised mechanically to drain excess water. A sheet of pulp is formed over the mould which is taken out after unclamping the frame.

ii. **Dipping:** Dipping is a traditional method where the pulp is transferred from the beater into a masonry trough or vat. Depending on the thickness of the paper required, the pulp is diluted by mixing it with water. The mould made of a wooden frame with a wire mesh or a bamboo stick mat is dipped by hand into the pulp. The frame is then shaken side to side and lifted out of the vat. A sheet of pulp is formed over the mould. Out of the two processes, lifting is favoured more as dipping requires constructing masonry trough or vat.

D. PRESSING AND DRYING

A manual or hydraulic press is used for squeezing out the excess water from the sheets. This compresses the pulp adding strength to the fibre and facilitating the drying process.

E. CALENDARING

The calendaring machine is fitted with two chilled cylinders rotating in opposite direction to give a smooth finish to the sheets of paper passed through them. Calendaring also tends to enhance the gloss of the paper.

F. SHEET CUTTING

At this phase, the calendered sheet still has a deckle edge. The sheets are cut to standard size of 22''x 30" or to desired sizes as required by the customers.

G. PAPER PRODUCTS

While it is possible to manufacture several handmade recycled paper products, there is a consistent market demand for select products such as papier-mâché, notebooks and diaries, stationeries, lampshades, invitation cards, and office paper.

The municipal authorities should promote recycling of paper to save trees and other natural resources. This will provide employment to skilled and unskilled labor and correspondingly reduce the municipal authority's waste management costs.



Paper Products

3.1.10 RECYCLING OF GARDEN WASTE OR YARD WASTE

Yard waste consists of grass, leaves, and tree and bush trimmings. The horticulture waste from parks and gardens should be composted at the site or at a decentralised facility, thereby reducing the amount of yard waste entering the solid waste stream. Additionally, grass clippings, leaves, and woody yard wastes can also be used as mulch in gardens and around shrubs to keep the soil moist, control weed growth, and add nutrients. Organic material, e.g., straw, dried stems, etc., containing higher percentage of lingocellulosic material takes much longer time for composting process to complete (for details refer Section 3.2 of Part II). These can be readily converted into mulch in shorter period of time.

3.1.11 CONSTRUCTION AND DEMOLITION WASTE

Construction and demolition (C&D) waste generally constitutes about 10%–20% of total urban solid waste.[11]

The report of the Supreme Court's expert committee in 1999 and the SWM Rules, 2016 recommend that ULBs shall facilitate the separate collection and transportation of C&D waste. Due to the challenges associated with processing and disposal of C&D waste, separate rules have been established namely Construction and Demolition Waste Management Rules, 2016 that describes the management of C&D waste and roles and responsibilities of various stakeholders.

C&D and other inert waste may be utilised for making bricks, pavement blocks, construction materials such as aggregates etc. Ward level debris deposit sites should be created. Containers could be provided at such locations, and a small collection charge could be levied for receiving such waste and transporting it for disposal. Rates may be prescribed for such collection by the ULB, and contracts could be given for managing such sites. Helplines should be created to ensure prompt clearance of C&D waste.

ULBs must make serious efforts to utilise C&D waste and should motivate the private sector to set up processing plants. There are several plants of various capacities in India to make bricks, paver blocks, aggregates, etc. out of such waste material. Profitable use of C&D waste will minimise the cost of managing such waste and requirement for valuable landfill space, besides giving employment opportunities to unemployed youth. It will also save natural resources and reduce the use of virgin soil.

11 "Rebuilding C&D Waste Recycling Efforts in India", Ghosh,G.,Ghosh, S. & Aich, A., (n.d.), Waste Management World. Available at: http://www.waste-management-world.com/articles/print/volume-12/issue-5/features/rebuilding-c-d-waste-recycling-efforts-in-india.html

Section 3.7 of Part II provides details on C&D waste collection and transportation. The potential and appropriate processes for recycling C&D waste are also discussed in detail.

3.1.12 E-WASTE

E-waste or waste electrical and electronic equipment (WEEE) includes surplus, obsolete, or broken electrical or electronic devices. Its quantum is increasing yearly, and disposal of e-waste is becoming a global environmental and public health issue.

According to a study,[12] India generates annually about 3,80,000 tonnes of e-waste, which is expected to increase manifold. The study also reveals that only about 6% of e-waste is recycled, of which 95% is operated through the informal sector. While mainly interested in precious metals (such as copper, silver, and platinum), recyclers are also interested in glass, plastic, and batteries within these devices. Currently applied processes for recycling WEEE are largely unscientific and environmentally unsound, hence posing serious health threats. It will be a challenge to reorganise the recycling of WEEE to establish recycling methods that protect both workers and the environment. One option would be the introduction of the extended producer responsibility (EPR) concept, where the producer of an electrical or electronic device guarantees product redemption after use through recycling or disposing it in an environmentally friendly way (for details refer to Section 7.7 of Part II).

3.1.13 GREENHOUSE GAS MITIGATION POTENTIAL FROM RECYCLING AND REUSE

Waste handling and disposal generates greenhouse gases (GHG) both directly and indirectly. The most efficient way to reduce direct and indirect GHG emissions in waste management is to reduce waste generation at source, followed by material recycling. Direct emissions are decreased when waste is not disposed at landfills nor treated in any other way (e.g. combustion). Indirect emissions can be cut down by decreasing the energy consumption both in acquiring and producing raw material and also in manufacturing the product itself. It is possible to substitute virgin material with recovered material. In most cases, the replacement of virgin material by recycled material decreases the use of net energy and thus the GHG emissions. For example, recycling 1 tonne of paper reduces 1 metric tonne of carbon dioxide (CO_2) equivalent emissions. Similarly, recycling 1 tonne of aluminium avoids approximately 9 tonnes of CO_2 equivalent emissions. As a result, use of recycled material in place of fresh material could lead to reduction in GHG emissions. On the other hand, recycling practise can also result

12 Carried out by MAIT and GIZ in 2007

in GHG emissions either from transportation of material or from the recycling process itself.

3.2 COMPOSTING

Municipal solid waste (MSW) primarily consists of organic, inorganic, and inert fractions. Under natural conditions, the organic fraction of waste continually decomposes, accompanied by a strong foul odour and production of gases, which are predominantly methane or CO_2 depending on the aerobic condition of the decomposing mass. Vector infestation during the natural decomposition is a common phenomenon.

Composting is a biological process in which microorganisms convert organic matter into compost

Composting is a process of controlled decomposition of the organic waste, typically in aerobic conditions, resulting in the production of stable humus-like product, i.e., compost.

Considering the typical composition of wastes and the climatic conditions, composting is highly relevant in India and should be considered in all municipal solid waste management (MSWM) concepts. Composting of the segregated wet fraction of waste (see Section 2.2 of Part II) is preferred. Mixed waste composting, with effective and appropriate pre-treatment of feedstock, may be considered as an interim solution; in such cases, stringent monitoring of the compost quality is essential.

3.2.1 SOLID WASTE MANAGEMENT RULES, 2016: GUIDANCE ON COMPOSTING

As per SWM Rules, 2016:

Clause 4 Duties of waste generator:-

(6) All resident welfare and market associations shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or biomethanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(7) All gated communities and institutions with more than 5,000 sqm area shall, within one year from the date of notification of these rules and in partnership with the local body, ensure segregation of waste at source by the generators as prescribed in these rules, facilitate collection of segregated waste in separate

streams, handover recyclable material to either the authorised waste pickers or the authorizsd recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or biomethanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

(8) All hotels and restaurants shall, within one year from the date of notification of these rules and in partnership with the local body ensure segregation of waste at source as prescribed in these rules, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorised waste pickers or the authorised recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or biomethanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.



Clause 15 Duties and responsibilities of local authorities:

(m) collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or biomethanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;

(q) transport segregated bio-degradable waste to the processing facilities like compost plant, biomethanation plant or any such facility. Preference shall be given for on site processing of such waste;

(u) phase out the use of chemical fertilizer in two years and use compost in all parks, gardens maintained by the local body and wherever possible in other places under its jurisdiction. Incentives may be provided to recycling initiatives by informal waste recycling sector.

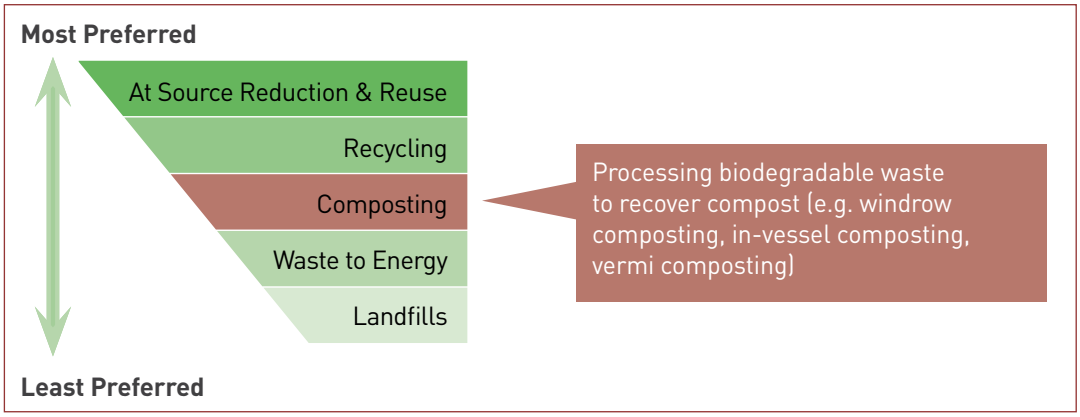
(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

a) biomethanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

3.2.2 COMPOSTING IN THE INTEGRATED SOLID WASTE MANAGEMENT FRAMEWORK

The third preferred choice in the ISWM strategy, i.e., adoption of resource recovery strategies and composting, ensures that waste is processed appropriately to facilitate further use of the material. Composting is a biological process of stabilising biomass either in the presence or absence of free oxygen, carried out by a host of microbes. Aerobic composting, which is carried out in the presence of air, is far more popular because it is much faster compared with the "trench" composting where direct access to air is denied. Processing of MSW by this process yields humus rich compost (organic manure) along with macronutrients and micronutrients for plants.

Figure 3.8: Composting in the Integrated Solid Waste Management Hierarchy



Composting is the third preferred choice in the ISWM hierarchy. It ensures that waste is processed appropriately to facilitate material recovery

Given the propensity of organic waste to contribute to environmental pollution in more ways than one, composting and other biological stabilisation processes, which would mitigate the impact of uncontrolled decomposition of organic MSW should be adopted by urban areas. Composting is an environmentally beneficial waste recycling mechanism and not a waste disposal mechanism.

3.2.3 BENEFITS OF COMPOSTING

- The real economic benefits of compost use include improved soil quality, enhanced water retention capacity of soil, increased biological activity, micronutrient content, and improved pest resistance of crops.
- Composting minimises or avoids GHG emissions from anaerobic decomposition of organic waste (such as in a large unturned heap).
- Composting increases the design life of other waste management facilities.
- Stringent design requirements and associated costs for catering to management of leachate from organic waste decomposition may be reduced in those landfills that do not receive organic waste.

Compost, because of its high organic matter content, is used as a valuable soil amendment thereby reducing dependence on chemical fertilisers

- Compost is particularly useful as organic manure; it contains macronutrients (nitrogen, phosphorous, and potassium) as well as micronutrients. When used in conjunction with chemical fertilisers, optimum results are obtained.
- The use of compost reduces the dependency on chemical fertilisers for agricultural operations. When used as a soil amendment, compost reduces the need for water, fertilisers, and pesticides. Compost acts as a soil conditioner, therefore supporting the long-term fertility of soil.
- Compost may be used to revitalise vegetation habitats and add life to marginal, impoverished soils and waste lands.
- Compost may also be used as a bio matrix in remediation of chemical contaminants and as a remediated soil in contaminated sites; compost helps in binding heavy metals and other contaminants, reducing leachate and bio-absorption.

3.2.4 NEED FOR MARKET IDENTIFICATION AND ANALYSIS



SWM Rules, 2016 lays emphasis has been on market development through appropriate mechanism.

Clause 7: Duties of Department of Fertilisers, Ministry of Chemicals and Fertilisers:-

(1) The Department of Fertilisers through appropriate mechanisms shall-

(a) provide market development assistance on city compost; and

(b) ensure promotion of co-marketing of compost with chemical fertilisers in the ratio of 3 to 4 bags: 6 to 7 bags by the fertiliser companies to the extent compost is made availablefor marketing to the companies.

Clause 8: Duties of Ministry of Agriculture, Government of India.- The Ministry of Agriculture through appropriate mechanisms shall-

(c) set up laboratories to test quality of compost produced by local authorities or their authorised agencies; and

(d) issue suitable guidelines for maintaining the quality of compost and ratio of use of compost visa-a-vis chemical fertilizers while applying compost to farmland.

The financial viability of compost plants is primarily dependent on the marketability of the compost at a reasonable price. For the low carbon soil (soil organic carbon) prevalent in India, there is a huge requirement of good quality compost for agriculture. Yet the present

demand for compost is very low. An analysis of the available markets and potential demand for compost is essential to decide the required size of the compost plant. An assessment of end user requirements of compost quality, as defined by the final use, is essential to arrive at the final design of the compost plant.

Market development for compost and proper quality monitoring are crucial. The following strategies can be applied for market development:

- The pricing mechanism for sale of compost should be assessed. Each state government should fix a minimum retail price for compost, which meets Fertiliser Control Order (FCO) 2009 standards, to ensure economic viability of these plants.
- All state and local government departments should be encouraged to promote the use of compost in parks, gardens, nurseries, and urban forestry projects.
- Apart from FCO compliant compost, a line of value-added compost may be developed by adding additional nutrients. One such example is phosphate rich organic manure (PROM), which may be used as replacement of chemical phosphatic fertilisers such as di-ammonium phosphate (DAP) and single superphosphate (SSP).
- Co-marketing of compost made from city garbage with chemical fertilisers in the ratio of 3–4 bags: 6–7 bags is suggested by the SWM Rules, 2016 and the Inter-Ministerial Task Force on Integrated Plant Nutrient Management (IPNM), vetted by the Supreme Court of India in 2006.
- The benefits of compost should be informed to farmers, who should be encouraged to partially substitute inorganic fertilisers with organic compost, as appropriate for their crop and specific soil.
- Opportunities for involving agricultural officers to generate awareness of compost usage among farmers should be looked into.

Both physical and chemical properties of the finished compost are to be considered. Decisions on pricing of the compost should be based on the size and location of markets. The distance to which the finished product may be transported will have a strong bearing on the landed price of compost.

An assessment of competing compost suppliers is also essential, especially in cases where it is estimated that the compost will need to be marketed beyond the vicinity of the plant.

An analysis of market demand for compost and its potential end-use determines the design, capacity and hence the financial viability of compost plants

Co-marketing of compost with chemical fertilizers by the fertiliser companies as a "Basket Approach" was recommended by Inter-Ministerial Task Force on IPNM (2005)

Successful market for compost depends on two major factors:

- producing consistent quality and quantity of compost
- identification of potential users

Pre-sorting and segregation of MSW is a pre-requisite for maintaining the quality of the compost produced

Analysis for Marketing Compost

- How much compost will your plant produce?
- Where will the compost be used and for what?
- Do you realize the importance of consistent quality control for building and maintaining the brand image of your compost?
- Does your plant have the necessary process flow and equipment to produce compost which is compliant with the relevant rules (e.g., FCO 2009, 2013)?
- Who are your potential customers? Consider the number of compost plants and quantity of compost produced in the state, while assessing the size of the potential compost market.
- What is the typical quality of compost required by the different categories of consumers?
- How much are your consumers willing to pay for the compost?
- Identify competing products for identified consumer uses and their prices.
- Identify compost transportation requirements and costs.
- Develop a marketing strategy.
- Relook at the size of the proposed compost plant and the size of the potential compost market.

3.2.4.1 CONSTRAINTS FACED BY THE COMPOSTING SECTOR IN INDIA

Composting of MSW started in the late 1970s when some mechanical compost plants were set up across the country. The concerned ULBs were the owner and operator of the compost plants. These facilities were replica of plants from the industrial countries without the necessary adaptation exercise; consequently, these capital-intensive facilities were heavily mechanised and faced maintenance problems. An evaluation of the mechanical compost plants was carried out by the National Environmental Engineering Research Institute (NEERI) during 1980–1982. Since the input garbage was mixed and the design was not adequate for removal of non-compostable fractions quality of the final product was poor, leading to lukewarm response from the market and poor unviable price.

The scenario changed in the early 1990s with the entry of the private sector—equipment fabricators, plant operators, etc. Mechanisation was reduced by almost eliminating the pre-processing stages (for e.g., the mechanical compost plant of the Municipal Corporation of Delhi, established in 1981). The machinery and equipment manufacturers introduced equipment at the post-screening stages, such as trommels with finer screen, air density separator (de-stoner), etc. to improve the quality of compost by better removal of small contraries, such as pieces

of glass and plastics, grit, coarse sand, etc. Bio-inoculum was sprayed over the windrows for suppressing bad odour. In the initial years, there were reports of good price of compost, leading to reported commercial viability. In the later years, the euphoria was replaced by the realisation that the good price belonged to the niche market of plantations and some cash crops. And with more and more operating plants, the bulk of the compost had to be sold to the farmers, who could not afford it.

The sector at present faces the following constraints:

i. compost quality standards (SWM Rules, 2016 and FCO series) are becoming increasingly stringent;

ii. majority of the collection of MSW is in the form of mixed waste;

iii. making quality compliant compost from mixed waste requires some equipment for refinement and quality control and higher production cost, but the yield is reduced as the quality standards are higher (10%–15%);

iv. all compost sold for application to food crops is mandated to be FCO compliant;

v. percentage of process rejects increases proportionally (30%–40%) unless the processing facility produces compost as well as refuse derived fuel (RDF);

vi. lack of knowledge and practical experience among the various stakeholders responsible for planning, execution, operation and maintenance (O&M), and marketing leads to inadequately designed plants, inefficient equipment, improper operation, and shortcuts from equipment design to operational protocol;

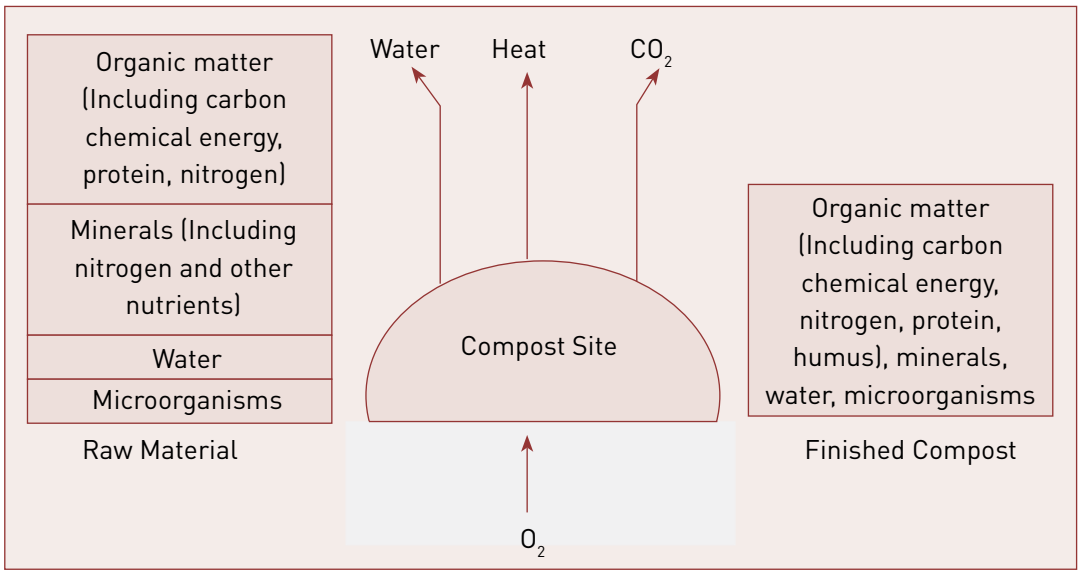
vii. after the product is ready (called "finished compost"), cost is incurred for bagging, transport, marketing (commission of the chemical fertiliser company, dealers, etc.). The final cost to the farmer is normally almost twice the price received by the compost plant operator;

viii. as of 2015, the total cost to the farmer is about Rs.4,000–Rs.5,000 per ton of finished compost (distance being the main price variant). This price is too high for the average farmer;

ix. the long-term benefits of soil conditioning properties of compost are not adequately appreciated by the farmers and other stakeholders.

3.2.5 THE COMPOSTING PROCESS – PHASES AND CRITICAL PARAMETERS

Figure 3.9: Process of Aerobic Composting[13]



During aerobic composting, microorganisms oxidize organic compounds to carbon dioxide (CO_2), nitrite, and nitrate. Carbon from organic compounds is used as a source of energy while nitrogen is recycled. Due to chemical reactions producing heat, temperature of the mass rises.

Several biological, chemical, and physical processes contribute to the success of the aerobic composting (Figure 3.9). Understanding these processes is necessary for making informed decisions when developing and operating a composting plant.

3.2.5.1 BIOLOGICAL PROCESSES

The process of aerobic composting passes through two distinct stages of high significance: thermophilic stage (sanitisation) and mesophilic stage (decomposition).

The two distinct biological process stages observed during composting are:
- thermophilic stage
- mesophilic stage

Different organisms are known to play a predominant role in breaking down biodegradable constituents of MSW. The majority of microorganisms responsible for composting are already present in MSW. A succession of microbial growth and activity among the bacteria, fungi, actinomycetes, yeasts, etc. takes place during the process, whereby the environment created by one community of microorganisms encourages the activity of a successor group. Different types of microorganisms are therefore active at different times and locations within the windrow depending upon the availability of substrate, oxygen supply, and moisture content of the organic matter.

13 *On-Farm Composting Handbook*. Rynk, R., et al. 1992. Ithaca, New York: PALS Publishing Cooperative Extension.

(i) **Thermophilic Stage (Sanitisation)**

This is the first phase of composting wherein microorganisms decompose the easily degradable organic substances producing heat as a result of intense metabolic activity. In most cases with moisture content of 55%–60% and air voids of 20%–30% in the windrow, a temperature rise from 35°C to 55°C–65°C is achieved within 2–3 days.

- typically, thermotolerant fungi, thermophilic bacteria, and actinomycetes are the predominantly active microorganisms at this stage.
- windrows are turned at regular intervals to expose the material in the inner core to air so that temperature in these fresh sections rise again, and gradually the whole windrow is sanitised from pathogens.

Thermophilic Stage:
Moisture: 55%–60%
Temperature: 55°C– 65°C
Air voids: 20%–30%
Microorganisms: thermotolerant fungi, thermophilic bacteria, actinomycetes

(ii) **Mesophilic Stage**

- in the second stage, due to reduction in available nutrients and readily available carbon, the microbial activity reduces, causing a decline in the temperature of the heap. There is a shift in the type of active microbial species in the compost heaps.
- the composted material becomes dark brown during this stage due to humus synthesis and starts to stabilise

Mesophilic stage:
- temperature: moderate
- stabilisation of compost material

(iii) **Curing Stage**

- Curing of compost is done after the material from the windrow is screened. The screened material is then allowed to mature in the curing stage. This is a very important phase in the composting process. Microbial species degrading complex polymers, such as cellulose, lignin, and hemicelluloses, increase drastically during this phase.
- Bacteria represent 80% of this population. Free living nitrogen-fixing bacteria, denitrifiers, sulphate reducers and sulphur oxidizers are important constituents of the total microbial population.

Curing:
- Maturation Stage
- Lasts for 3-4 weeks
- Microbial species population increases drastically

3.2.5.2 CHEMICAL PARAMETERS

(i) **Moisture:** Moisture is a critical factor in establishing stable conditions conducive for composting because the microbes need moisture for survival and growth. Moisture tends to occupy the free air space between the decomposing particles. Hence, when the moisture content is very high, anaerobic conditions set in.

(ii) **Aeration:** The composting process requires adequate supply of oxygen for biodegradation by microorganisms. Under aerobic conditions, decomposition rate is 10–20 times faster than under limited oxygen supply or anaerobic conditions.

Compost pile should have enough void space to allow free movement of air as aerobic conditions fasten the composting process by 10–20 times and reduce generation of foul smell

High oxygen levels in air voids are maintained within waste piles or windrows through turning and mixing at regular intervals. In static piles, anaerobic conditions may be created due to the utilisation of available oxygen by microorganisms and production of CO_2 during decomposition of the waste. This could result in a buildup of anaerobic microorganisms, resulting in foul smell.

(iii) Carbon-to-Nitrogen Ratio

- MSW in India has an initial carbon-to-nitrogen (C/N) ratio of around 30:1, which is ideal for decomposition. The organisms involved in stabilisation of organic matter utilise about 30 parts of carbon for each part of nitrogen. C/N ratio below 25:1 results in production of foul smell and a higher C/N ratio will result in impeding the decomposition process.
- Whenever the C/N ratio is less than the optimum, carbon source such as straw, sawdust, paper are added.
- Higher C/N ratios may be reduced by adding biodegradable material having high nitrogen content, such as non-edible oil cakes, green biomass, etc. It is not preferable to add slaughter house waste to MSW waste piles, as they require specific closed systems or in-vessel systems.

C/N ratio of 30:1 is ideal for decomposition. C/N ratio below 25:1 results in foul smell while higher C/N ratio impedes decomposition

3.2.5.3 PHYSICAL PROCESSES

(i) Temperature: Under properly controlled conditions, temperatures are known to rise beyond 70°C in aerobic composting. This increased temperature results in increased rate of biological activity, resulting in faster stabilisation of the material. However, if the temperature rise is very high, due to inactivation of the organisms and enzymes, the rate of activity may decrease.

Temperature plays a critical role in composting by increasing rate of biological activity resulting in faster stabilisation

High temperature also helps in destruction of some common pathogens and parasites. Ambient air temperatures have little effect on the composting process, provided the mass of the material being composted can retain the heat generated by the microorganisms under aerobic condition. If the process is so controlled that the temperature is kept at 55°C or above for at least 3 days, destruction of pathogens and parasites can be ensured.

(ii) Particle Size: The optimum particle size should have enough surface area for rapid microbial activity, but also enough void space to allow air to circulate for microbial respiration. The feedstock composition can be manipulated to create the desired mix of particle size and void space.

3.2.6 MUNICIPAL SOLID WASTE FEEDSTOCK FOR COMPOSTING

The segregated wet fraction of MSW (comprising mainly biodegradable waste), vegetable market waste, and yard waste is the preferred feedstock for compost plants. However, where door-to-door segregation of dry and wet fractions is not practiced, it is possible that mixed MSW reaches the plant. In such instances, pre-sorting and segregation of the organic fraction from the mixed fraction is a critical step in ensuring adequate quality of the processed compost. Presence of contaminants hampers the activity of the microbes and reduces the final quality of compost; it is essential to keep street sweepings and drain cleaning material out of the feedstock, which is a major source of contaminants. This can be done through organisational arrangements in the ULB. Street sweepers should not mix their waste with MSW collected from households and establishments.

MSW feedstock for composting should essentially include the segregated wet fraction of waste. Vegetable market waste and yard waste, being rich in organic content, are a preferred feedstock

MSW feedstock should be delivered at a well-defined area within the plant. This area is essential for overall smooth functioning and regulated flow of MSW feedstock into the processing area. The tipping area should have adequately sized shed (sides open) to receive predetermined quantities of waste daily. Unregulated storage of waste should be avoided. Garland drains leading to a leachate collection tank connected to the leachate treatment system are essential at the tipping floor. Bulky items like bed mattress, tires, large pieces of fabric (e.g., sarees) and thin plastic film, large toys, pieces of asbestos, fibre reinforced plastic (FRP), branches of tree, etc. have to be pulled out before the waste moves on to the pre-sorting section.

Storage area should be large enough to handle daily and weekly variations in waste quantity and should be provided with sheds to cater to wet weather conditions

In large plants receiving above 300 TPD of MSW, some designers prefer to provide a shallow pit to increase the volumetric capacity within the same footprint. However, in warm countries, pits may cause odour problem if it is not emptied regularly and if leachate is not pumped out every day and the pit is not thoroughly cleaned occasionally.

Under certain conditions, buffer storage may be required:

- High floating population—places of tourism and religious importance
- Festive occasions or large gatherings—rallies, meetings, etc.
- No uniform collection and transportation on a daily basis, clearing of a backlog, etc.

However, such buffers should be planned very carefully mainly because holding raw waste for more than a day attracts vectors, causes odour nuisance, and leachate. Therefore, such buffer areas should be planned only if it is essential due to the above conditions and should not normally be more than one day. Instead, it would be more convenient to build additional capacity in pre-sorting line and compost pad area.

The compost pad and the curing area for semi-finished compost are the most convenient buffer areas.

3.2.7 PRE-PROCESSING OF MIXED MUNICIPAL SOLID WASTE

MSW segregation and pre-processing are essential for composting

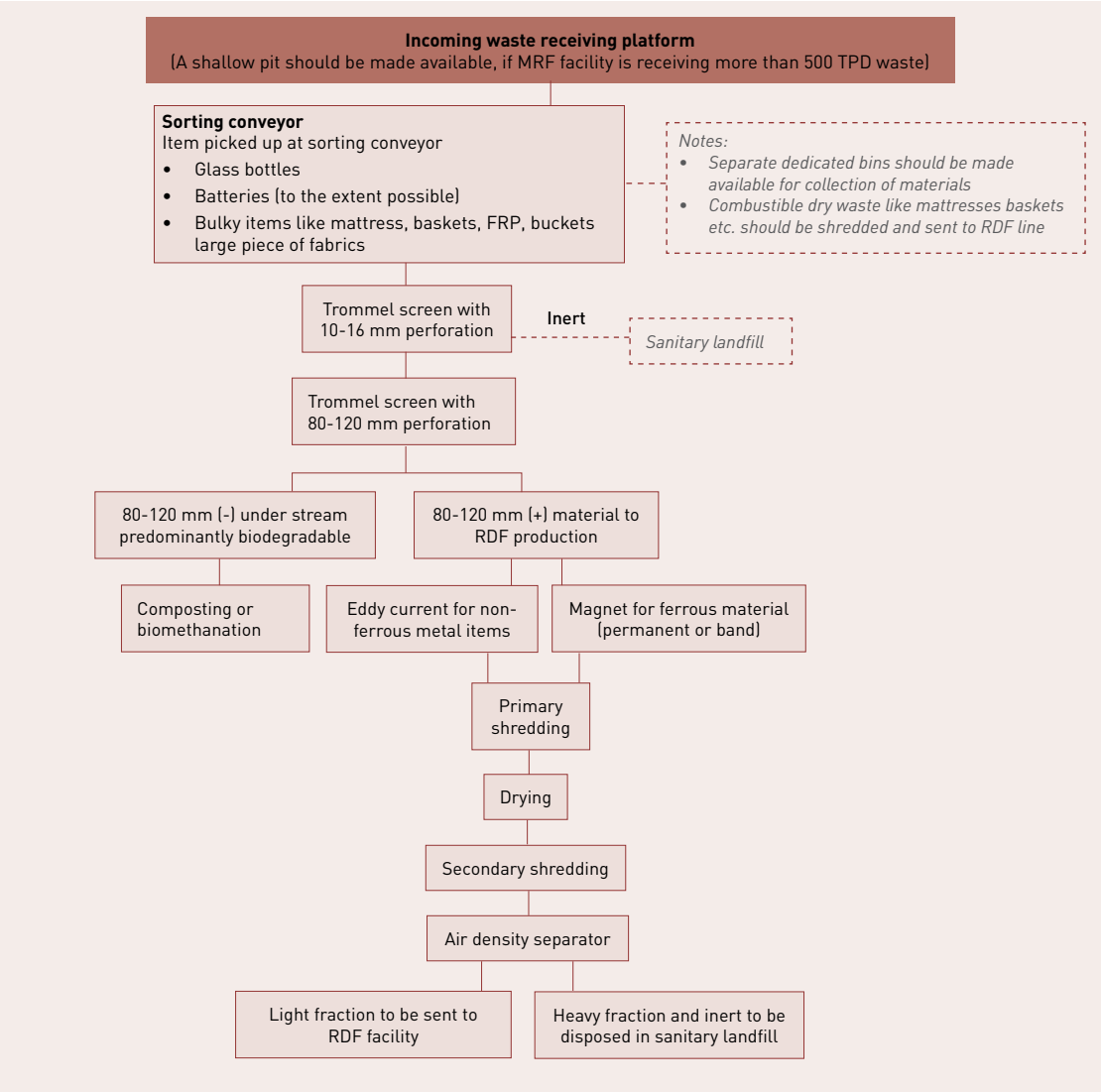
Typically, mixed MSW received at the compost plant consists of 40%–50% non-biodegradable material. Pre-processing of mixed MSW is crucial for preparing FCO-compliant compost. In case source segregated waste or dedicated waste from fruit and vegetable market is received, pre-sorting can accordingly be minimal and therefore the capital and O&M cost are less and the yield of compost is higher than in the case of mixed waste. Pre-processing serves the following purposes:

- separation of the mixed material into different streams, which are suitable for specific products—biodegradable for composting, combustible dry material for RDF, separation of recyclable material on sorting belt (glass, metal, etc.); and
- reduction of cross-contamination of the material to make different products.

Pre-processing has a high economic value as it recovers recyclables, reduces contaminants, lowers processing costs and also ensures quality of compost

The pre-processing section is designed on the basis of average composition of the incoming waste, quantity, space available for pre-sorting, and whether only composting or a combination of compost and RDF is targeted. Following Figure 3.10 illustrates the various steps involved in pre-processing of mixed MSW.

Figure 3.10: Pre-processing of Mixed Municipal Solid Waste[14]



Sorting: The level of sorting feedstock depends on several factors including the source of feedstock, the end use of the product, and the operations and technology involved. Sorting in a well-designed compost or RDF plant consists of hand sorting on a sorting belt, followed by mechanical sorting in one or more trommels. Mixed waste is fed onto a slow-moving (5 m per minute) conveyor belt. Items not suitable for the trommel, such as glass bottle, metal container, any hazardous material like containers of paint, etc. are taken out by hand and put in appropriate bins. The workers should be provided with gloves to avoid injury. The thickness of the moving waste pile on the conveyor belt should be less than 15 cm (for better manual sorting) and the removed material stored in segregated vats or large containers. This is usually recyclable material or material with high calorific value, which can be further processed to recover the energy content. Metals are then removed from the waste by either a suspended magnet system or a magnetic pulley.

Sorting results in recovery of recyclable material with high calorific value

14 Developed by the Expert Committee for revision of MSWM manual (2013-15).

Remaining mixed waste is subjected to mechanical separating devices such as a segregating trommel, where material passing through the screen (80–100 mm) is utilised for compost production. An additional trommel of 200 mm screen may be required as an add-on for plants with a capacity of over 500 TPD of waste, which is placed before the trommel with 80–100 mm apertures.

The purpose of a trommel is to segregate materials on the basis of size through cascading action. For effective segregation, it is necessary that the material undergoes sufficient number of turns inside the trommel and, at the same time, gets sufficient fall depth for good cascading action. Therefore, the length and the diameter of the trommel are very important. Normally for MSW, a trommel with a length of 10 m and a diameter of 2.5 m and above would be desirable. At the same time, there should be no axle passing through the trommel in the middle; the drive for the trommel has to be external.

Table 3.3 outlines mechanical separation technologies that are currently used in MSW composting. Details of these processes are discussed below.[15]

Pre-processing technologies:

- Screening- controls the size of feedstock
- Magnetic separation- removes ferrous metals
- Eddy-current machines- separates aluminium and other non-ferrous metals
- Air classifiers- removes heavier fractions like glass and ceramics

Table 3.3: Pre-processing: Sorting of Mixed Municipal Solid Waste Feedstock

TECHNOLOGY	MATERIALS TARGETED
Screening	Plastics, paper, cardboard, metal
Magnetic separation	Ferrous metal
Eddy current separation	Nonferrous metal
Ballistic separation	Plastic, paper, glass, gravel

Screening: Screens are used to control the size of feedstock. They separate small dense material such as food scrap, glass, and plastics from the bulky light fraction of the feedstock. Trommel screens are commonly used for initial material processing at MSW facilities.

Magnetic separation: Magnetic separators create magnetic fields that help in removing ferrous metals from the feedstock as it travels along conveyors. The efficiency of magnetic separators depends primarily on the quantity of materials processed and the speed at which they pass through the magnetic field.

Eddy current separation: Eddy current machines separate aluminium and other non-ferrous metals from MSW. These machines generate a high energy electromagnetic field that induces an electrical charge in non-ferrous metals and forces these materials to be repelled from non-charged fractions of the feedstock material. The feedstock should be conveyed to eddy current machines after magnetic separation to

15 *Composting Yard Trimmings and Municipal Solid Waste*. United States Environmental Protection Agency, 1994 Washington, DC.

minimise contamination by metals. Eddy current machines are not usually used in India, since metals are not usually found in waste.

Air Classifiers: Air classifiers separate feedstock material based on density differences, i.e., the heavier fractions (metals, glass, ceramics, etc.) are removed from the lighter materials. The heart of an air classification system is an air column or throat into which the materials stream is fed at a specified rate. A large blower sucks air up through the throat, carrying light materials such as paper and plastic or fine dry compost, which then enter a cyclone separator where they lose velocity and drop out of the air stream. Heavy materials fall directly out of the throat or column.

Ballistic separation: Ballistic or inertial separation separates constituents based on density and elasticity differences. This can be applied for segregating materials on compost stream or RDF stream. However, it is more suitable for RDF stream for separating grit and other heavy inert material. Compost feedstock is dropped on a rotating drum or spinning cone, and the resulting trajectories of glass, metal, and stone, which depend on density and elasticity, bounce the material away from the compost feedstock at different lengths.

Additional inoculum: Inoculum (bacterial culture) is also added to the feedstock to improve efficacy of the process.

Adding inoculum may be an issue because of its cost implications. However, inoculum enhances composting process and also helps in suppressing foul odour

Indicative Equipment Required for Pre-Processing

- **Loader:** Tractor mounted front-end loaders or pay loaders are used to deliver the raw feedstock to conveyors. These vehicles have a shovel-like attachment at the front of the machine which can be raised by a hydraulic mechanism to lift feedstock material and release material onto the conveyors or into piles.
- **Conveyors:** Conveyors are mechanical systems with belts that slowly pass over rotating wheels. Conveyor belts are used in the sorting or separation phase of composting to facilitate manual removal of non-compostable material. The width of the conveyor belt should be narrow enough for workers to reach its centre.
- **Screens:** Screens are primarily used for separating large material from the feedstock. Different screens used are the following:
  - **Trommel screens:** Long, cylindrical screens are placed at an angle to facilitate material movement through the perforated screen. Material smaller than the grate fall through and material with larger diameters than the grate pass through the trommel. As the trommel screens rotate, a brush is passed over the top of the screen to remove lodged materials and prevent clogging of the screen.
  - **Rotary screens:** Feedstock is loaded onto spinning, perforated discs in this system. Oversized material are scattered from the screen because of the

spinning action. Undersized material fall through the perforations in the discs. However, trommels are preferred for better performance and cleanliness.

- **Magnetic recovery systems:** With these systems, a magnetic field removes ferrous metals from the rest of the feedstock material. The following types of magnetic separators are commonly used:
  - **Overhead belt magnets:** Cylindrical magnets are installed over a conveyor belt which carries feedstock and separates out ferrous materials.
  - **Drum magnets:** Drum magnets are placed over a conveyor belt; ferrous metals in the feedstock that pass under the rotating drum are attracted to the magnet and stick to the drum.

3.2.8 COMPOSTING TECHNOLOGIES

Technologies for composting can be classified into the following general categories:

- windrow composting;
- aerated static pile composting;
- in-vessel composting;
- decentralised composting (bin and box composting); and
- vermicomposting.

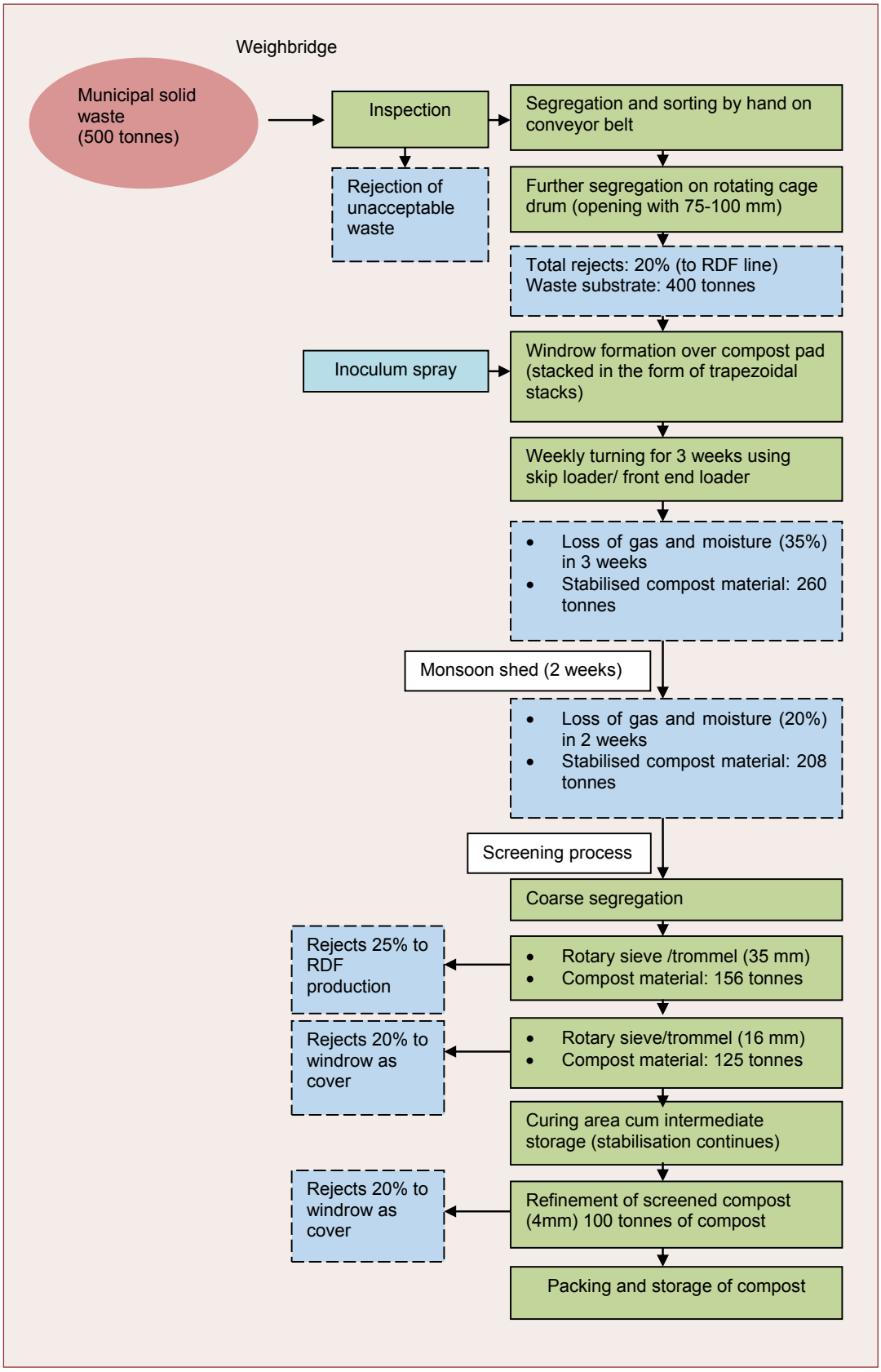
3.2.8.1 WINDROW COMPOSTING

Windrow composting process consists of placing the pre-sorted feedstock in long narrow piles called windrows that are turned on a regular basis for boosting passive aeration. The turning operation mixes the composting materials and enhances passive aeration. Figure 3.11 gives an overview of the windrow composting process although the figures presented may vary with the characteristics of the waste, design of the plant, and the rigorousness with which the standard operating process is followed. Compost yield of 10-15% is more common from mixed municipal solid waste.

3.2.8.2 KEY PERFORMANCE INDICATORS FOR WINDROW COMPOST PRODUCTION

Figure 3.11 depicts a process flowchart for a 500 TPD plant, indicating 20% process efficiency. While 20% efficiency is possible under good operational conditions, the typical efficiency of a windrow compost plant receiving segregated organic solid waste is around 18%–20%, i.e., for an input feedstock of 100 TPD of segregated waste, it should be able to produce 18–20 tonnes of finished compost. Where mixed waste is received as input feedstock, compost yield of 10%–15% is expected.

Figure 3.11: Process Flowchart and Mass Balance for Aerobic Windrow Composting of 500 Tonnes Per Day of Waste[16]



16 "Composting Municipal Solid Waste: the Indian Scenario", Mazumdar, N. (2007), International Journal of Environment Technology and Management. 7 (3–4).

3.2.8.3 UNIT OPERATIONS IN WINDROW COMPOSTING

Compost pad should be impervious, have a drainage system to collect leachate for treatment and have an appropriate gradient to route the leachate to the collection point

Compost pad (platform): The pre-processed MSW (Section 3.2.7 of Part II) is transferred onto the compost pad into windrows. The compost pad is an area where the windrows are stacked. The compost pad must be stable, durable, and impervious, so it is constructed with an appropriately designed combination of reinforced cement concrete (RCC) and plain cement concrete (PCC). The compost pad shall have a slope of about 1% to drain the excess water (storm water or leachate) from the windrows into a leachate collection tank. The leachate tank is placed in the lowest corner of the compost pad area. This leachate should be reused for recirculation of nutrients and for maintaining the moisture content of windrows. Figure 3.11 describes unit operations in windrow composting.

The following factors have to be considered in the location and design of the composting pad:

- The base has to provide a barrier to prevent the percolation of leachate and nutrients to the subsoil and groundwater.
- The surface has to facilitate equipment movement even during wet weather conditions.
- The surface area has to accommodate waste for 5 weeks, with sufficient room for equipment to maneuver and an area to establish a static pile for curing compost.

Windrow composting is the most economical and widely accepted composting process

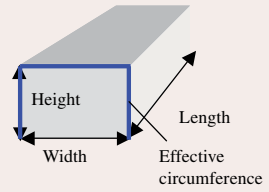
The height to base width ratio of the windrow depends basically on the angle of repose of the material. Windrows are typically trapezoidal in cross section.

The space between windrows should be sufficient for movement of the windrow turning machine. Normally, it is 1–3 metres. Figure 3.12 below illustrates calculation of windrows sizes. Detailed designing and area required for compost pad is given in Annexure 4.



In general, as the average windrow shape is between an oval and trapezoid, a factor of 0.66 is assumed to estimate windrow volumes. Therefore, the equation for volume of the windrow is: Volume = height x width x length x 0.66.

Figure 3.12: Windrow Sizing Calculations[17]

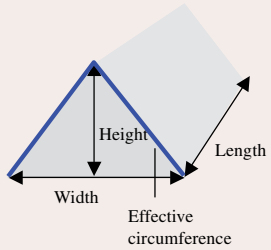


Rectangle

Volume = Height x Width x Length

Effective circumference= 2 x height + width

Mass = Volume x Bulk Density

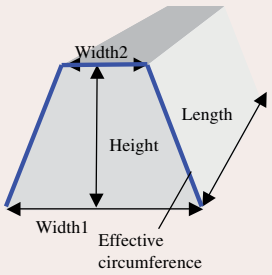


Triangle

Volume = Height x Width x Length x 0.5

Effective circumference= $2x\sqrt{height^2 + (width/2)^2}$

Mass = Volume x Bulk Density



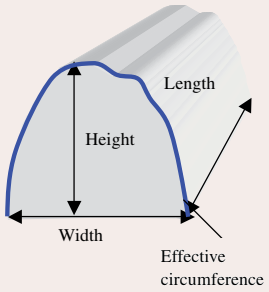
Trapezoid

Volume= Height x (Width1+Width2) x Length x 0.5 *

Effective circumference =

$2 \times \left(\sqrt{((width2-width1)/2))^2 + height^2}\right) + width2$

Mass = Volume x Bulk Density



Oval

Approximations:

Volume = Height x Width x Length x 0.75 *

Effective circumference= $2.3 \times \sqrt{height^2 + (width/2)^2}$

Mass = Volume x Bulk Density

** In general, as the average windrow shape is between an oval and trapezoid, a factor 0.66 is assumed to estimate windrow volumes and so the equation for volume becomes:*

Volume = Height x Width x Length x 0.66

Size, shape and spacing of windrows depend on turning practices:

- Bucket loaders: high windrows
- Turning machines: low and wide windrows
- Manual labour: small scale windrows

Windrow Formation: The size, shape, and spacing of windrows depend on the equipment used for turning. For example, bucket loaders are used to build high windrows, whereas turning machines create low and wide windrows. Manual labour is also used for windrows of a smaller scale, where additional equipment costs and use of machinery are not feasible.

Windrow Turning: Windrows are turned frequently to maintain aerobic conditions inside the pile. Windrow turning is a mechanised operation. Generally, pay loaders (wheel or tracked) or tractors with hydraulic

Windrow dimensions should allow conservation of heat generated during composting process while also maintaining diffusion of air to the deeper portions of the windrow

17 Compost Facility Operator Manual; Available at: http://www.transformcompostsystems.com/pdfs/Transform%20Compost%20Operator%20Manual%20teaser.pdf

Windrows should be turned frequently, once a week over 5 weeks, to maintain aeration and porosity to enhance degradation

attachments are used to scoop the material from one windrow to make a new pile in an adjacent location on the compost pad, while placing and mixing the material. Other equipment such as front-end loaders or windrows re-shifters may also be used for turning windrows. Windrow turning ensures that outer layers of piles are moved to inner layers. This process is repeated once every week for 5 weeks; high temperatures within the windrow (55°C–65°C) sanitise the material. During the rainy season where the interstitial spaces are filled with water, more frequent turning is necessary (interval of 3–4 days).

Regular turning of the windrows helps oxygenate the pile; breaks up particles to increase surface area; improves the porosity to prevent settling and compaction; and allows trapped heat, water vapour, and gases to escape. In general, the more frequently a pile is tuned, the more quickly the composting process is completed. However, too frequent turning has two disadvantages: (i) formation of heated pile in the core area being hampered (necessary for pathogen kill), and (ii) additional costs resulting from equipment and associated energy use. A balance is therefore to be achieved between number of turnings and cost of production.

A turning schedule should be established based on the rate of decomposition, moisture content, porosity of the material, and the desired composting time (often a function of land availability). Normally, once a week turning is done but more frequent during rainy season (once in 3–4 days).

In general, each windrow should be allowed to stay on the compost pad for 35 days; at the end of the 35th day, the compost is ready for use. Each windrow should have a flag board depicting the age of the waste. Fresh incoming waste is always depicted as "Age 1." The numbering on the windrow changes from Age 1 to Age 2 on the second day, Age 2 to Age 3 on the third day, and so on. Each windrow may be turned manually or mechanically. This turning process has to be done every 7th day. Hence, only those windrows having a flag board showing Age 7, 14, 21, and 28 should be turned.

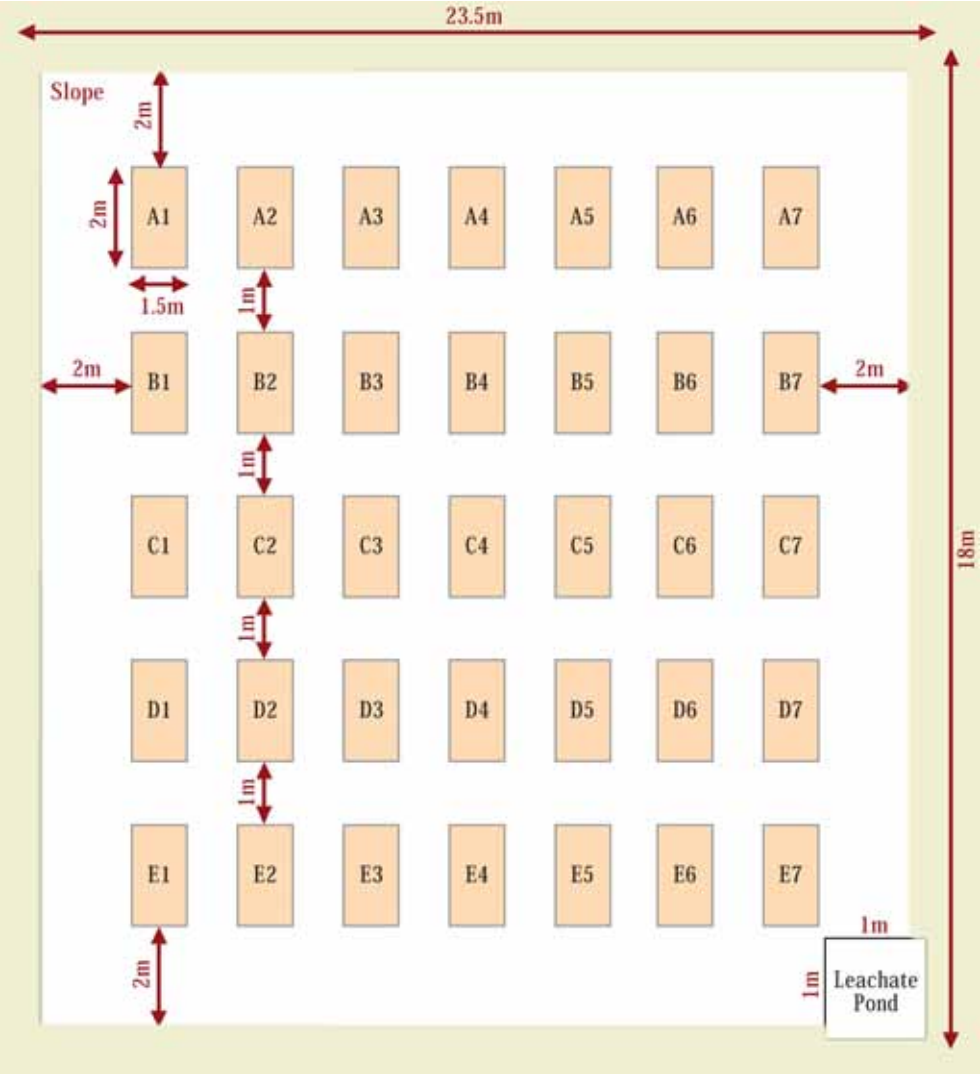
Frequency of turning depends on:

- moisture content,
- porosity of material,
- rate of microbial activity, and
- desired composting time

Figure 3.13 below illustrates an indicative arrangement of windrows. Incoming waste on day 1 is placed in pile A1. Waste that comes in on day 2 is placed in pile A2, waste on day 3 in pile A3, and so on. On the 7th day after receiving the first batch of waste A1, the pile or windrow is turned or mixed, and the pile is moved to location B1. On the 14th day, pile B1 is turned or mixed and moved to C1, and so on. Pile D1 will therefore be moved to E1 on the 28th day. On the 35th day, the compost pile from E1 should be screened for further refinement. Each of the piles or windrows A2 to A7 are managed similarly. Waste that is received on 8th day is placed in the initial location of pile A1, since this pile would

already move to B1 on the 7th day, hence this location would be free to receive a new pile or windrow.

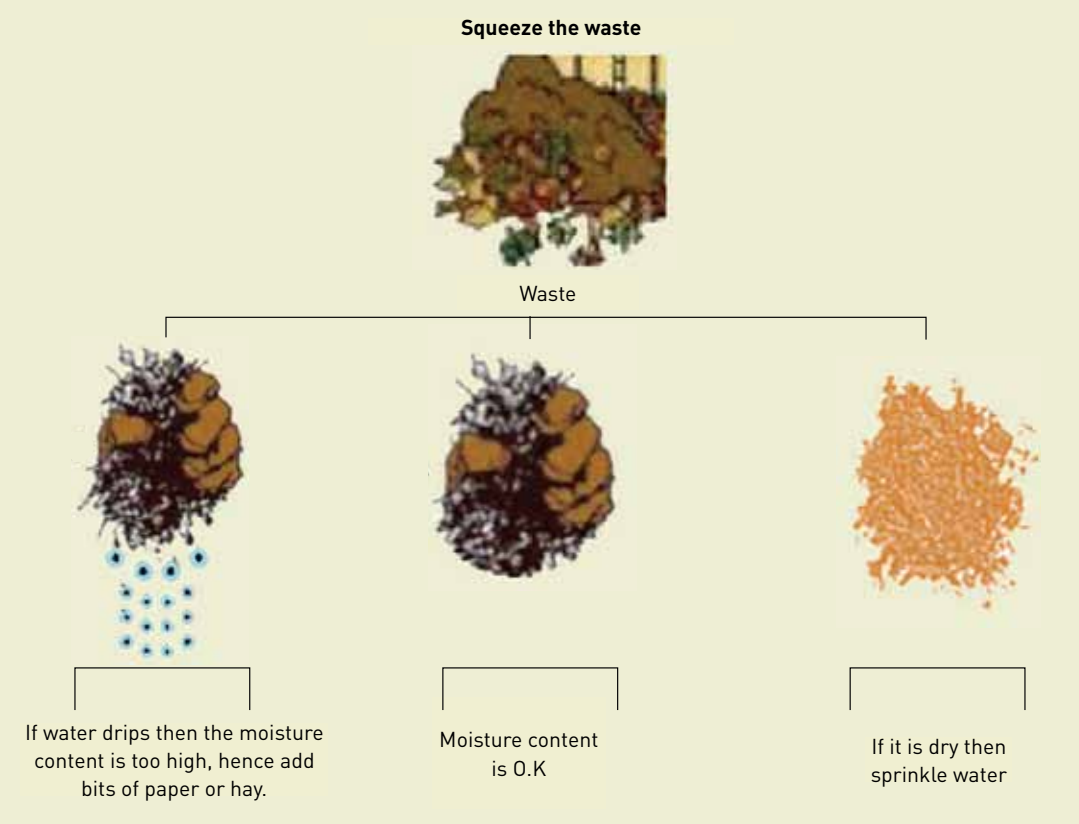
Figure 3.13: Arrangements and Turning of Windrows[18]



Fresh water or leachate stored in the leachate tank should be sprinkled during the turning process to maintain the moisture content of the waste. Figure 3.14 depicts a quick and simple method to test moisture content.

18 IEC brochure for windrow composting, GIZ (2012).

Figure 3.14: Squeeze Test to Estimate Moisture Content[19]



Temperature should also be monitored and maintained within 55°C–60°C. This is important because low or high moisture and variation in temperature can slow down the composting process.

On the 35th day, the compost is successively sieved through two stage screening system of 35 mm followed by 16 mm. Screened material coming out of this section is uniform in texture but contains semi-solid organic compost, which requires further stabilisation. The rejects from the 35 mm screen are sent to the RDF and the screened material is sent to the 16 mm screen. The rejects from the 16 mm (16 mm+) screen are to be put back on the windrow as protective covering from bird menace and vermin, and for odour control, as illustrated in Figure 3.11.

Curing of screened material for at least 3 weeks in a covered area ensures complete maturation of compost

Curing: Screened material coming out of the coarse segregation section requires further maturation and moisture control for producing a product that is beneficial for plants and soil. The degree of maturity is determined through either oxygen uptake or CO_2 production rate.

Maturity may also be determined through a simple test, wherein the material is placed in a plastic bag and moistened to 60% water content, the mouth of the bag is then closed. The plastic bag containing the moist material is allowed to sit for 24–48 hours at room temperature (30°–35°C). If foul odours are released when the bag is opened at the end of

19 IEC brochure for windrow composting, GIZ (2012).

24–48 hours, it indicates that the material is not fully matured and needs to undergo further decomposition.

The cured material does not release odours because of carbon stabilisation during aerobic decomposition of biodegradable material in the windrow. Microbial activity continues during the curing phase also, but at a lower rate compared to the main composting phase.

Nevertheless, also during curing, the supply of adequate oxygen is ensured through passive movement of air through the pile and moisture content is maintained within 25%–30%. The curing piles are placed either in a storage area or covered area for a minimum duration of 2 weeks. In general, the area needed for the curing process is one quarter of the size needed for the windrow or composting process. The completely cured well-composted material does not release foul odour and is ready for final screening and for the preparation of the finished product for marketing.

Mature and high quality compost should have a C/N ratio of around 20. Compost with either higher or lower C/N ratio is not beneficial to the soil

Compost Refinement: At the end of composting phase, the material usually contains 30%–35% moisture. The composting is normally taken to be complete when the active decomposition stage is over and the carbon-to-nitrogen (C/N) ratio is around 20.

The refinement section also consists of a feeder conveyer and a trommel with 4 mm perforations. The screened product less than 4 mm is passed through air density separator (ADS) or de-stoner to remove sand and grit. Then the compost can be put in bags and stored for sale. The remaining material greater than 4 mm should be put on top of the fresh incoming waste heap to speed up the process of composting and for absorbing excess leachate. The residue material from the ADS is inert laced with fine organic material. This should be kept out of the composting stream. This material can be used for landscaping.

Final compost product should be less than 4 mm. Remaining material should be put on the incoming waste heap to hasten the composting process

The finished product is dark brown with an earthy smell, fragile, and rich in organic matter content and nutrients.

Value-added product can be produced depending on the market demand by enriching compost with beneficial microorganisms and nutrient sources such as rock phosphate, pyrite, etc. The product is bagged and dispatched for marketing to be used on farmer's fields.

Based on the desired end use, the compost should comply with specifications of the Fertiliser Control Order (FCO), 2009 & 2013 and SWM Rules, 2016.

Bruhat Bengaluru Mahanagara Palike (BBMP) has proactively set up 7 new processing plants producing compost and crude RDF at several locations through State Government funding and nodal agency KUIDFC. The complete construction has been done by the BBMP and then handed over to private operators for O&M through competitive bidding.

Figure 3.15: Unit operations in windrow composting[20]



Incoming waste at compost yard



Rain shed



Primary screening



Bagging machine

Leachate produced should be collected and used for moistening the waste heap

Leachate Management: Leachate is generated during composting as the biodegradable matter is fermented. It is a thick liquid with strong odour with very high biochemical oxygen demand (BOD) and chemical oxygen demand (COD). However, it has moisture and nutrients, which can be put to good use. Leachate can be treated biologically. Control of leachate is a very important part of operating a compost plant safely. But design of an effective treatment for leachate is tricky.

For open aerobic composting windrows, leachate formation is low during non-rainy season, and it can be rolled back into the windrows by placing partially composted relatively dry material around the windrows every day and pushing the absorbed leachate back to the windrows. With a good standard operating procedure (SOP), this is possible and beneficial for composting, as this step puts back some of the nutrients and microbes back into the composting windrows.

During rainy season, depending on the rainfall, the leachate gets diluted with rain water and significant volume is generated, which is beyond the capacity of a leachate treatment plant designed for fair weather. If the design is done for rainy season, the facility is completely under utilised during rest of the year and its cost is very high. For strong

20 Taken from Nashik Waste Processing Facility, Nashik Municipal Corporation.

leachate, single step treatment may be inadequate. Dilution with fresh water followed by treatment in a stabilisation pond requires large space and is not suitable for places near habitation (possible vector breeding).

In high rainfall areas, it is necessary to cover the windrows either temporarily (using water proof cover) or permanently using sheds which have side cladding at the top with the roof and low wall at ground level but otherwise open from the sides. Great care has to be taken to design the height of the shed because adequate ventilation is necessary. The design has to balance the higher cost of a heavy structure needed for high wind load and the need for adequate ventilation. Due to low height, fully covered windrows in high rainfall areas suffer from slower process and higher moisture leading to difficulty in screening.

Multilayered patented fabric covers are available, which allow moisture to go out (causing odour) but the larger molecules are held back. Such covers can be made a permanent feature, either in the form of direct cover over the windrows or in tent-like formations, within which the compostable material is stacked.

Another efficient way of controlling moisture is by using aerated static pile technology, where there is direct control over aeration and consequently on leachate generation.

Typical Equipment Required for Windrow Composting[21]

- **Loader:** Tractor mounted front-end loaders or pay loaders are used to deliver the pre-processed feedstock to form windrows. Loaders are multifunctional and can be used for some other purposes, such as maintaining the site, piling the cured compost, and loading the finished compost product into trucks or trailers for sale.
- **Windrow turner:** Loaders can be used to turn the compost windrows; however, specialised compost windrow turners are much faster and do a better job of mixing the entire windrow. If space is limited at a compost facility site, a loader is a preferred option to make windrows higher and wider. Windrow size need not be limited to suit the specialised compost turners. There are numerous turners available that are dependent on the desired windrow height and width; production capacity; and desired means of operation (self-propelled, loader mounted or pull type, and power take-off driven). Typically, windrows vary from 2 to 3 metres in height and 5 to 8 meters in base width for plants receiving 100 tonnes per day (TPD) or more of waste.
- **Screener:** A trommel screen is desired at the end of the curing process to screen the finished compost for a suitable particle size. This will remove any larger undesirable items and will fluff up the finished product to ensure a suitable compost quality.
- **Bagging:** Bulk supply of compost is usually put in 50 kg bags.

21 Operation Manual for the Establishment of a Commercial Composting Facility, Prepared by Brent Hansen Environmental in co-operation with the City of Brandon, USA; Available at: http://www.composting.ca/files/op_manual.pdf

3.2.8.4 AERATED STATIC PILE COMPOSTING

Aerated static pile technology requires mechanical aeration of composting piles

In the case of aerated static pile composting, forced aeration is used to spread excess air through the windrows unlike the aerobic windrow composting, where aeration is achieved by turning the windrows so that new cut sections are exposed to air. The composting piles are placed over a network of pipes connected to a blower, which supplies the air for composting. Air can be supplied under positive or negative pressure. When the composting process is nearly complete, the piles are broken up for the first time since their construction. The compost is then taken through a series of post-processing steps.

Unlike aerobic windrow composting, the aerated static pile has direct control over aeration. This is the strength of this system, which can be used to reduce the fermentation time and also save precious fuel (diesel) used by the turning equipment. It has also been noted that leachate generation is significantly reduced in case of aerated static pile system.

As compost piles are not turned frequently, feedstock should be mixed with bulking agents like rejects from trommels, straw and wood chips to ensure air circulation

Preparation of Feedstock: As the aerated static pile does not receive periodic turnings, the selection and initial mixing of raw materials is critical to avoid poor air distribution and uneven composting. It should be ensured that the feedstock is mixed with a stiff bulking agent such as straw or wood chips. Other possible bulking agents and amendments for static pile composting could include rejects from the 16/14 mm pore size trommels, peat moss, crop residues, bark, leaves, etc.

Pre-processing ensures porosity by removing thin plastics in the raw materials and hence facilitates efficient air circulation

Pre-processing: Aerated static piles can produce excellent compost, provided two basic operating conditions are met:

- The pile of raw material has adequate porosity.
- The airflow system is efficient and provides adequate air flows during the active composting period.

Pre-processing of raw MSW for composting in aerated static pile involves:

- separation and removal of oversize, non-compostable inert materials;
- size reduction through chipping, grinding, or shredding if necessary; and
- blending with composting trommel rejects, wood chips, and other bulking agents to allow proper air distribution.

Detailed pre-processing requirements are discussed in detail in Section 3.2.7 of this chapter.

Process: The blended material is placed in stationary or static piles. The piles are constructed above an air source, such as perforated plastic pipes, aeration cones, or a perforated floor. Aeration is accomplished

either by forcing or drawing air through the compost pile. It is very important that the pile should be placed after the floors are first covered with a layer of decay-resisting bulking agents such as wood chips or rejects from the 16 mm trommel.

The size of the pile depends on the material to be composted, air flow capabilities, and the type of handling equipment. The initial height of the piles should be about 1.5–2.5 m high, depending on material porosity, weather conditions, and the reach of the equipment used to build the pile. Extra height is advantageous in lower temperatures as it helps retain heat.

It may be necessary to top off the pile with 15 cm of finished compost or bulking agent to provide insulation. This layer protects the surface of the pile from drying, insulates it from heat loss, discourages flies, and filters ammonia and potential odours generated within the pile.

The air supply blower either forces air into the pile or draws air out of it. Forcing air into the pile generates a positive pressure system, while drawing air out of the pile creates negative pressure. The blowers are controlled by a timer or a temperature feedback system similar to a home thermostat. Air circulation in the compost piles provides the needed oxygen for the composting microbes and also prevents excessive heat buildup in the pile. Removing excess heat and water vapour cools the pile to maintain optimum temperatures for microbial activity. A controlled air supply enables construction of large piles, which decreases the need for land.

Blowers used for aeration serve not only to provide oxygen, but also to provide cooling. Blowers can be run continuously or at intervals. When operated at intervals, the blowers are activated either at set time intervals or based on compost temperature. Temperature-set blowers are turned off when the compost cools below a particular temperature. Blower aeration with temperature control allows for greater process control than windrow turning.

In well-designed and operated aerated static pile composting system, odour is much less than the aerobic windrow composting system. Even then odours from the exhaust air could be controlled by filters. The suction method of aeration allows better odour control than positive pressure aeration, particularly if the air is directed through an odour filter. An odour filter is essentially a pile of finished compost that has an affinity for odour causing molecules. The disadvantage of using suction is that not as much air can be pulled through the pile as can be pushed through using positive pressure. Figure 3.16 illustrates composting in an aerated static pile.

Pre-processing involves:

- Segregation
- Size reduction
- Blending with bulking agents

Controlled mechanical aeration enables construction of large piles, thus reducing the demand for land

It is suggested to cover the top of the pile with finished compost or bulking agent to ensure insulation, destruction of pathogens and suppression of odours

A top layer of matured compost could also act as an odour filter

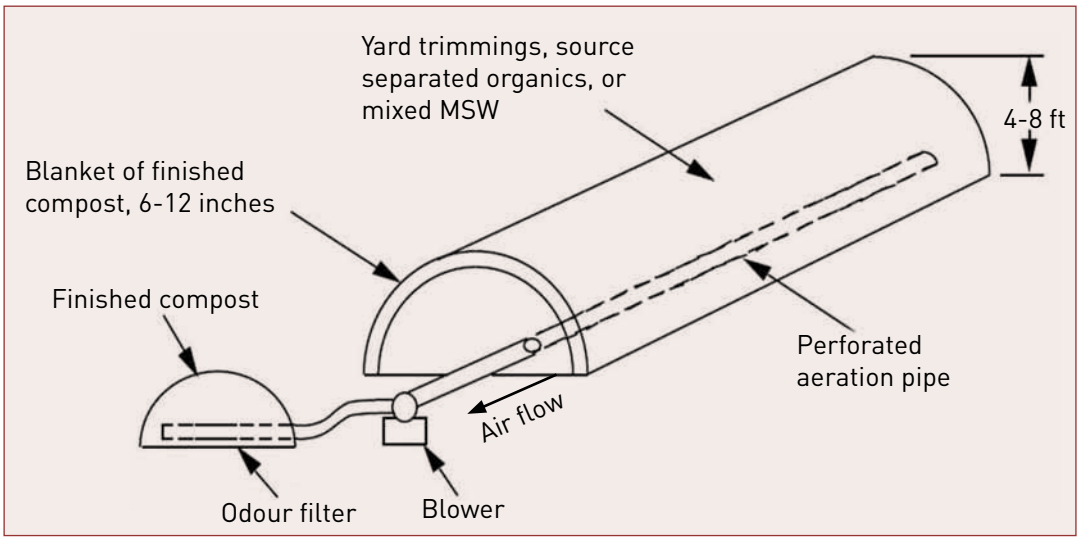
Height of pile helps in retaining heat and should be ideally at least 1.5 m to 2.5 m

Aerated static pile technology usually takes 6-12 weeks for producing mature compost

Post processing of compost involves separation of wood chips from the finished products through trommel screen

Composting takes place in single or multi-compartment vessels that provide mixing, aeration and moisture to waste feed

Figure 3.16: Aerated Static Pile[22]



The temperatures in the inner portions of a pile are usually adequate to destroy a significant number of pathogens and weed seeds. The surface of piles, however, may not reach the desired temperatures for destruction of pathogens because piles are not turned in the aerated static pile technology. This problem can be overcome by placing a layer of finished compost 6–12 inches thick over the compost pile.

Producing compost using this technology usually takes 6–12 weeks depending on pre-processing of feedstock, air movement, and temperature control.

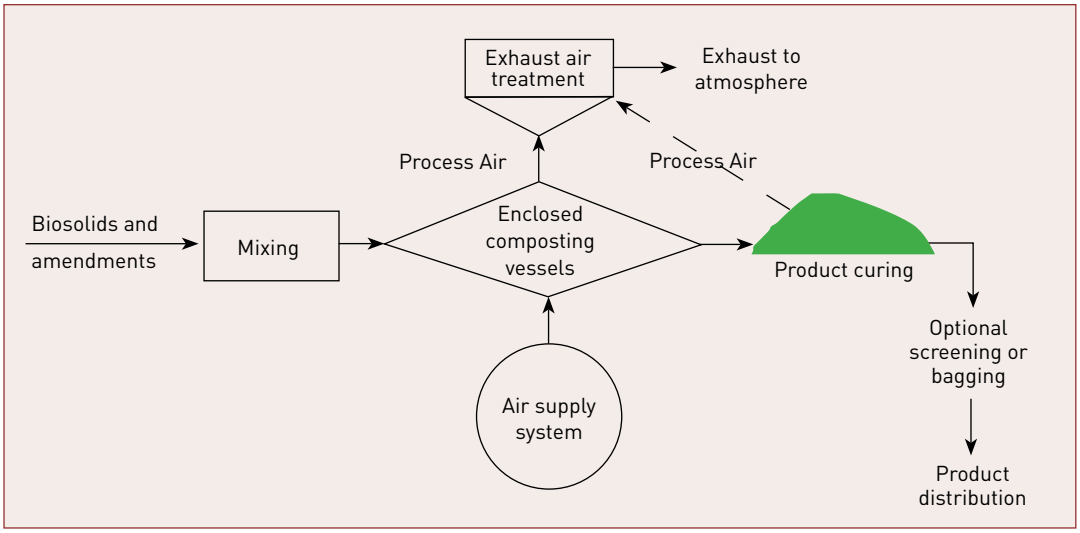
Post processing: The compost produced needs to undergo post-processing as it is mixed with bulking agents like wood chips. A trommel screen is used to separate the bulking agent from the finished product, which is fine-grained and uniform compost. The size of the compost particles depends on the usage, and the quality should comply with the specifications of FCO, 2009 and 2013 and SWM Rules, 2016.

3.2.8.5 IN-VESSEL COMPOSTING

In-vessel composting systems enclose the feedstock in a chamber or vessel that provides adequate mixing, aeration, and moisture. There are several types of in-vessel systems available: drums, silos, digester bins, and tunnels. These vessels can be single or multi-compartment units. In some cases, the vessel rotates; in others, the vessel is stationary and a mixing or agitating mechanism moves the material around. Most in-vessel systems are continuous-feed systems, although some operate in a batch mode. Figure 3.12 below is a depiction of the in-vessel composting process.

22 Decision Maker's Guide to Solid Waste Management- Vol I, USEPA (1995). Available at: http://www.epa.gov/osw/nonhaz/municipal/dmg2/chapter7.pdf.

Figure 3.17: Composting Process in In-Vessel Composting[23]



In-Vessel composting is recommended especially for kitchen and canteen food waste

MSW Feedstock: The ideal feedstock for in-vessel composting will be organic MSW commingled with food waste, which is highly biodegradable. In fact, in-vessel composting is recommended especially for kitchen and canteen food waste and even slaughterhouse wastes.

Pre-processing: In-vessel systems vary in their requirements for pre-processing materials: some require minimal pre-processing (e.g., food waste), while others require extensive pre-processing (mixed waste). All in-vessel systems require further curing after the material has been discharged from the vessel.

Types of In-vessel reactors:

- Vertical plug flow and horizontal plug flow: feedstock is loaded on a periodic basis
- Agitated bin: feedstock is loaded and agitated continuously

Process: In-vessel composting is accomplished inside an enclosed container or vessel. Mechanical systems are designed to minimise odour and process time by controlling environmental conditions such as airflow, temperature, and oxygen concentration.

There are several types of in-vessel composting reactors: vertical plug flow, horizontal plug flow, inclined rotary drum type, and agitated bed.

In vertical plug flow systems, the feedstock is introduced into the top of the reactor vessel, and compost is discharged out at the bottom by a horizontally rotating screw auger. Air is introduced in these systems either from the bottom and travels up through the composting mass where it is collected for treatment, or through lances hanging from the top of the reactor.

In horizontal plug flow systems, the compost feedstock and bulking agent mixture are loaded into one end of the reactor. A steel ram pushes the mixture through the reactor. Air is introduced and exhausted

23 Biosolids Technology Fact Sheet – In Vessel Composting of Biosolids (2000), USEPA. Available at: http://water.epa.gov/scitech/wastetech/upload/2002_06_28_mtb_invessel.pdf).

through slots in the floor of the reactor. Compost is discharged from the end of the reactor opposite the ram.

Since composting takes place in an enclosed vessel, all environmental conditions can be controlled to enhance composting. Minimal odour and leachate generation are observed

In the rotary drum type, the composting mass is introduced through a hopper from the higher end. The material gets stabilised fast due to the cascading process and the air flow introduced in the drum. The material goes out in 5–7 days and cured further for 2 weeks followed by screening.

The agitated bed reactors are typically open topped; the feedstock is loaded from above. The composting mass is periodically agitated using a mechanical device, and air is introduced through the floors of the reactors. The vessel is emptied when the feedstock processing is complete.

The detention time in the vessel varies from 3–10 days. Curing period of 2–3 weeks is required after the active composting period. Since in-vessel facilities are highly rated and highly capital-intensive, the design involves a shorter residence period inside the vessel followed by a relatively longer curing period outside the vessel.

In vessel composting requires at least 12-14 weeks to produce mature compost

A major advantage of in-vessel systems is that all environmental conditions can be carefully controlled to allow rapid composting. These systems, if properly operated, produce minimal odours with little or no leachate. In addition, the air supply can be precisely controlled. Some units are equipped with oxygen sensors, and air is preferentially supplied to the oxygen deficient portion of the vessel. In-vessel systems enable exhaust gases from the vessel to be captured for odour control and treatment.

3.2.8.6 DECENTRALISED COMPOSTING

As per SWM Rules, 2016:



Clause 15: Duties of local authorities

(m)collect waste from vegetable, fruit, flower, meat, poultry and fish market on day to day basis and promote setting up of decentralised compost plant or biomethanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;

(t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or

with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

a) biomethanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

Colony level and ward level decentralised composting should be promoted by ULBs for source separated organic household waste from very small quantities (upto 20 TPD)

Transportation of MSW through cities is a big issue. Decentralised composting is one of the options to reduce the burden of transportation of MSW in the urban local body (ULB).

Decentralised composting is the composting of source separated organic waste in limited quantities from households, apartments, neighbourhoods, markets, gardens, or the entire ward. The decentralised composting approach reduces transportation costs and makes use of low-cost technologies based mainly on manual labour.

Decentralised composting can be practiced in either box or bin depending on the quantity of waste feed and cost implications

Decentralised composting facilities generally handle waste from very small quantities up to 20 TPD depending on the size of the community and volume of compostable waste material in the waste stream.



Bruhat Bengaluru Mahanagara Palike (BBMP) has clearly specified in its Solid Waste Management Plan that urban local bodies (ULBs) should give directions for installing composting units in every apartment to process wet waste.

Municipal Solid Waste Feedstock: The feedstock for decentralised composting should include kitchen waste like food, fruit, and vegetable leftovers (rich in nitrogen content); and yard waste like leaves, twigs, straw, and paper (rich in carbon content).

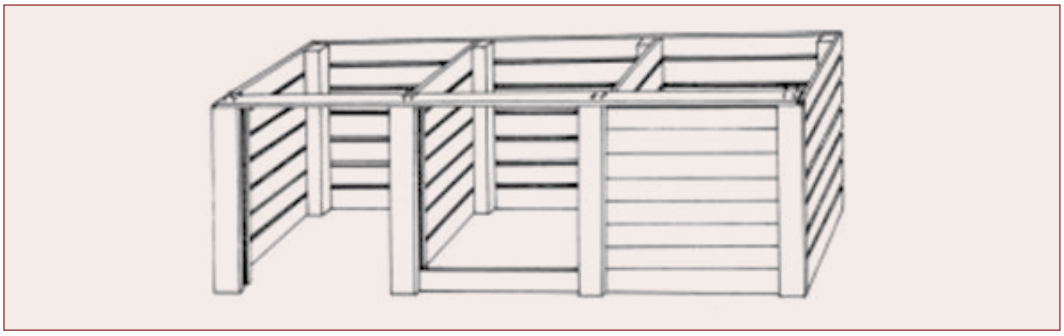
Pre-processing: The waste that reaches the decentralised composting facility should be segregated at source so that only minimal sorting at the facility is required.

Processing: Decentralised composting can be practiced using box or bin composting. Box composting is typically carried out at the community level, whereas bin composting may be practiced at individual household level as well.

3.2.8.6.1 Bin Composting

Depending on the quantum of input material, the size of the bin may be decided. A series of bins may be used to accommodate all incoming waste, as shown in Figure 3.18. The bottom of the bin should be covered with a thick layer (15 cm) of coarse material, such as twigs, broken pieces of stone, or mulch, if available. Over this drainage layer, the feedstock is to be placed in layers. The feedstock should ideally contain a mix of garden or yard waste, kitchen waste, dried leaves, and paper. Water may be sprinkled to keep the heap moist. Care should be taken not to add excess water; the heap should not be wet. Excessively wet conditions can be prevented by placing more dried waste like dried leaves, twigs, and paper. Finished compost may be sprinkled on top to provide the required inoculum and to contain odour. This waste should be turned regularly to hasten the composting process. High temperatures are produced upon turning once every 5–10 days. This also helps to kill larvae and weed seeds, and provides a conducive environment for decomposer organisms. The composting process may take between 45 days and 6 months, depending on the feedstock and turning condition.

Figure 3.18: Bin Composting[24]



3.2.8.6.2 Box Composting

Box composting is practiced at the local community level and can cater to wastes up to 3–5 tonnes. The total space requirements for box are lower than for the windrow technology. The slab on which the boxes are built should be sealed and sloped towards one side. Leachate collection channels should be constructed, leading the leachate away from the boxes toward a central collection point. To improve oxygen supply to the pile within the boxes, the box wall contains gaps between the bricks. The base of the box should be perforated and resistant to corrosion to ensure aeration and drainage of excessive water from the pile. The base should be equipped with small polyvinyl chloride (PVC) pipes or a coated metal grid to facilitate aeration and drainage of excessive water

24 Composting Methods, Ministry of Agriculture, Food and Fisheries, British Columbia (2004).

from the pile. Perforated PVC pipes placed vertically inside the box provide additional oxygen exchange within the composting material.

Indicative cross sections for a 3-tonne compost box with shed, a composting box, and drainage and aeration for box composting are shown in Figure 3.19, Figure 3.20, and Figure 3.21.

The sorted organic waste is loosely spread in layers of 20 cm into the box, around the vertical aeration pipes. If one box is not sufficient, the remaining waste has to be spread in a second box. Assuming an input load of 3 TPD of organic waste, two boxes are filled within 5–6 days. The boxes receive one layer of waste per day. Every time a layer is added, it is loosely mixed with the previous layer using a fork or shovel. When the box is full, the waste is left for 40 days to go through a thermophilic-mesophyllic composting process similar to the windrow system.

Temperature and moisture are frequently monitored. If the material is too dry, water is to be sprayed over the compost and the material is leveled again. Since the waste is thoroughly mixed with coarse material like straw, passive aeration takes place and there is no need to turn the waste. After 40 days, one side of the box is opened and the fresh compost is removed from the box and stored as a pile for further maturation.

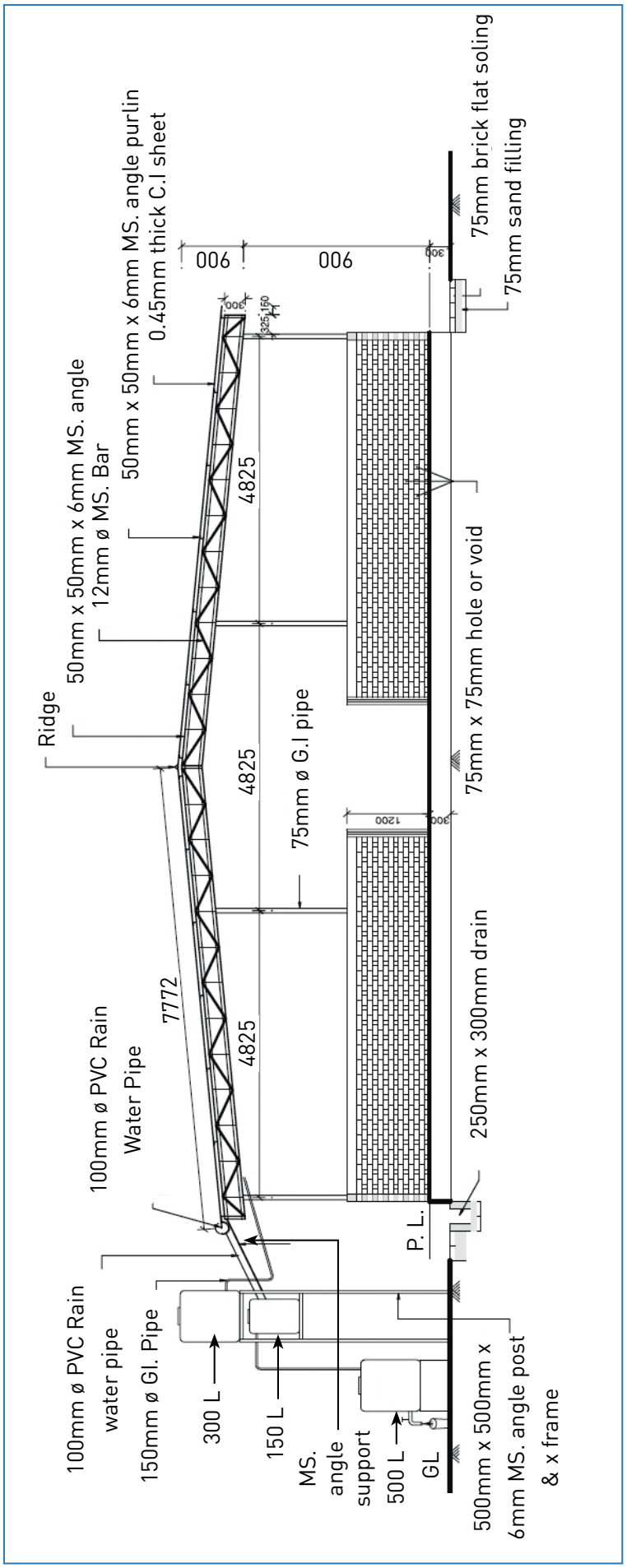


Figure 3.19: Cross Section of Typical 3 Tonne Composting Box[25]

25 Decentralised composting for cities of low and middle income countries – a user's manual; Available at: http://www.ircwash.org/resources/decentralised-composting-cities-low-and-middle-income-countries-users-manual

Figure 3.20: Typical Cross Section of Composting Box[26]

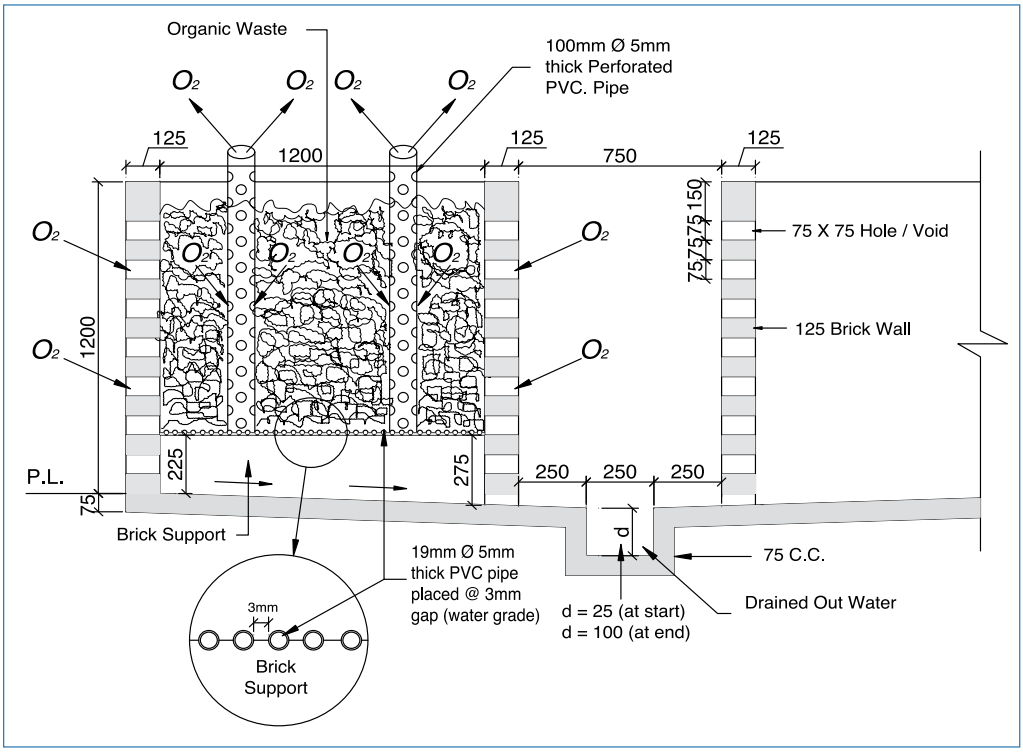
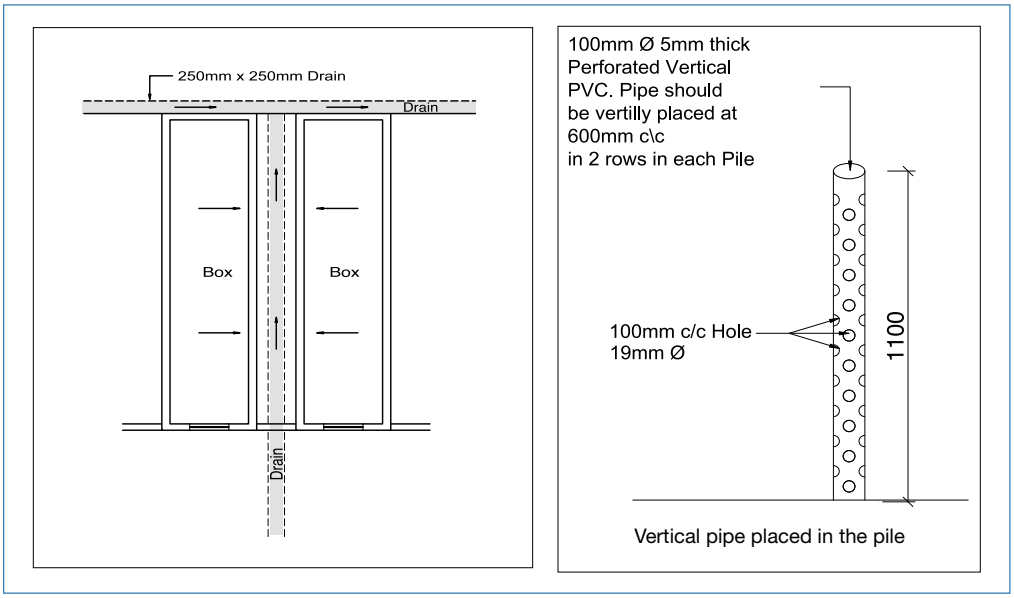


Figure 3.21: Cross Section of Drainage Channels and Vertical Pipes[27]



Screening: The mature compost has a rather coarse texture. The particle size of the compost strongly depends on the size and composition of input material. Further screening is required to produce finer compost. A flat frame sieve or a rotating drum sieve is used for screening. Each size and type of sieve with its particular mesh size is suited for a particular throughput and application. Selection of screen sizes is dependent on the desired final compost characteristics.

26 Ibid.

27 Ibid.

Decentralised Composting in a Residential Colony

At General Pool Residential Accommodation (GPRA) Complex, New Moti Bagh, New Delhi, a novel model of decentralised solid waste management facility has been established with the support from the Ministry of Urban Development and National Buildings Construction Corporation. The decentralised facility receives around 1.5 tonnes of household waste from 1,100 households and 1 tonne of garden and horticultural waste on average. The waste is collected and segregated at the site where wet organics is processed in a shredder prior to its treatment in the organic waste converter (OWC) unit (patented equipment). The shredded organic waste is processed in the OWC for 20–30 minutes and is converted into homogeneous odour-free material. After treatment in OWC, the homogeneous waste is stored in curing trays for 15 days. The trays are equipped with water sprinklers that are automatically timed for sprinkling twice a day. At the end of 15 days cycle, the organics are ready to be used as compost and is used as organic fertilizer for the gardens inside the complex. Garden and horticultural waste is pelletized and sold as biofuel. Plastics from waste are converted into mixture of liquid fuel, which is close to light diesel oil. Other types of recyclables like glass, paper, etc. are sold to recyclers. It is estimated that about 15–20 tonnes of output (compost and pellets) are produced per month yielding about Rs.2,00,000–Rs.2,50,000 lakhs.

This model may be replicated for large gated community with necessary financial support. More information is available at http://gpwm.strikingly.com/#new-moti-bagh.

Biomechanical Composting Technology for Processing 0.5 to 3.0 Tonnes Per Day of Waste

A typical batch aerobic digester shreds, cuts, and homogenizes segregated organic waste. The segregated organic waste along with coarse waste such as garden pruning, bones, etc., are shredded in shredding machine prior to feeding into the digester. The organic waste is homogenized with appropriate bio-culture and organic absorbent (e.g., dry leaves, and grasses) media. The process involves mixing and initiation of aerobic digestion of organic waste with inoculants in the machine chamber. Then the material is taken out and stacked in a rack for composting for about 3 weeks, where arrangement for periodic water drip is made. Temperature achieved during the process ensures control of pathogens. Raw compost is formed, having uniform colour and soil with structured coarse material free of bad odour.

The end product is recommended for urban agriculture, terrace gardens, parks, and urban forests.

The batch aerobic digester system requires a three-phase power supply for running the shredder and the aerobic digestion chamber. Periodic maintenance of the machine is essential for continuous operations.

Critical operating factors influencing the performance of a batch aerobic digestion chamber include presence of adequate moisture and absorbent media to ensure sufficient structural space within the material to facilitate continuous aerobic conditions. Temperature and moisture control are critical factors to be monitored continuously.

An Institutional Model for Decentralised Waste Management: Miranda House, University of Delhi

Miranda House, University of Delhi has had a paper recycling plant since 2004. However, an effort of the college towards creating a zero-waste campus was started in 2013 by the initiative of MH Vatavaran, the Environment Society, with encouragement and active support from the Principal. Under this initiative, the college has set up a composting unit in addition to the paper recycling unit. The handmade paper unit is managed by operating staff specially employed by the college, while the operation of the composting unit has been contracted out to GreenBandhu—the firm which installed the plant—for 1 year.

The composting facility manages about 150 kg of organic waste on a daily basis including waste from the hostel kitchen and canteen, as well as horticultural waste. The segregated kitchen waste that is received at the plant sometimes needs further segregation. This segregated waste is pulverized and dewatered, mixed with horticulture waste and cured compost, and put in covered containers for composting. The final product is utilized for the college garden, and the surplus manure is bought by the service provider at the rate of Rs. 5 per kg.

The handmade paper unit consisting of a shredder, beater, univat, screw press, and calendering machine handles the paper waste from the college. On average, approximately 12–15 sheets are produced per day. Initially, file folders, gift envelopes, and carry bags were being produced. The college is now experimenting with producing printing quality handmade paper for internal use.

The overall cost for the installation of the composting facility was Rs. 4,00,000, and the college pays Rs. 5,000 and Rs. 1,200 per month to the service provider as salary for an operator and a helper respectively. Approximately 50 kg of compost is produced on average every day. The cost for installation of the currently functional handmade paper unit is approximately Rs. 4,50,000.

Section 1.4.5.8 of Part II contain case studies of successful decentralised SWM initiatives.

3.2.8.7 VERMICOMPOSTING

As per SWM Rules, 2016:

Clause 15: Duties and responsibilities of local authorities:-

(t) involve communities in waste management and promotion of home composting, bio-gas generation, decentralised processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facility;

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or

with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

a) biomethanation, microbial composting, vermi-composting, anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes;

Vermicomposting is the process of using earthworms and micro-organisms to turn kitchen waste into black and nutrient rich humus

Vermicompost is the castings of earthworms. In the present context, vermicomposting is the process of composting the biodegradable fraction of MSW with the help of earthworms, resulting in the production of vermicompost which can be used in agricultural fields as a soil conditioner and nutrient supplier. Vermicompost is richer in plant nutrients compared with normal compost prepared from similar material; it has some cocoons which develop into worms when put in the soil and continues to do their work of conversion. Vermicompost draws better market price as compared with compost and, in addition, sale of worms can bring in additional revenue. The worms can be further utilised for initiating a fresh vermicomposting process and also as bait for fishing. The efficiency of vermicomposting process depends on selection of proper species of earthworms and their optimal growth.

Commonly used earthworms:

- Pheretima elongata
- Lampito mauritii
- Eisenia fetida
- Perionyx excavatus
- Eudrilus eugeniae

Vermicomposting is typically suited for managing smaller waste quantities. It is an ideal technology for towns that generate up to 50 TPD of MSW which is thoroughly segregated either at source or in the plant. The worm species that are considered efficient for conversion of waste are *Eisenia fetida, Perionyx excavatus, Lampito mauritii, Eudrilus eugeniae, Lumbricus rubellus, Pheretima elongata*, etc.

Municipal Solid Waste Feedstock: Kitchen waste is the preferred feedstock for vermicomposting; however, some materials like meat waste, greasy and oily food, and dairy products tend to foul the bed and cause bad odour. Other suitable feedstock are vegetable market waste, garden waste, cow dung, and agricultural waste. In fact, stabilised cattle manure is very useful in preparing the bed and initiating the vermicomposting process.

Vermi bed or pit: A vermicompost pit of any convenient dimension can be constructed in the backyard or garden, field, or shed. It may be a single pit, two or four interconnected pits, or preferably above ground chambers with proper water outlets. However, the depth or height should not be more than 0.75 m so that the bottom part also gets some aeration and the earthworms are not put under a heavy moist load. Two

important points to keep in consideration while vermicomposting are the protection of the worms from predators (ants, birds, snakes, etc.) and maintenance of high temperature (above 40°C) and dry environment (low moisture below 40%). Temperature of 20°C–30°C and moisture of about 70% is ideal for most of the earthworm species employed for vermicomposting. This means that the climatic conditions should be conducive unless the whole process is carried out in a carefully controlled climate. Carbon-to-nitrogen (C/N) ratio of 15–35: 1 is suitable. Typical density of earthworms should be 1–4 kg per m^2 on average.

Vermicomposting takes place at 20-30°C which is the most favourable temperature for ensuring survival of earthworms

The vermin bed is a multilayered chamber lined with coarse sand or gunny bags, or straw and stalks at the bottom, above which a 15–20 cm layer of lightly moist composted cattle manure is placed. Some operators prefer to mix loamy soil with the composted manure. Suitable number of earthworms are introduced in this layer. After 1–2 days, segregated biodegradable waste is introduced. In small operations, the waste can be directly put over the cattle manure in thin layers. The worms move up to reach the waste material which is their food. The bed is covered loosely with wet gunny bags or palm fronds or any available material, serving two purposes: (i) moisture is retained, and (ii) darkness is maintained as the worms usually want to stay away from light. One has to take care that any material containing toxic matter or heavy metals does not get into the vermin bed.

Worm casting or vermicast should be stored in sacks for at least a month to ensure complete maturation before being applied to soil

For large operations, it is necessary to pre-compost the input material so that the heat generated during the initial phase gets dissipated and the material cools down to ambient conditions. Pre-composting is best done in aerobic windrows or aerated static piles for faster results. Building up a large workforce of worms is essential for processing large quantity of waste.

Since earthworms are very sensitive towards heavy metals, it is very important to ensure that waste feed is not contaminated

Under Indian conditions, the entire cycle of vermicomposting takes about 10 weeks. In case of pre-composted material, about 7-8 weeks is required. For harvesting, great care is required to ensure that the worms are not injured. Coning of the vermicompost is done when the worms move downwards to the bottom. The vermicompost is carefully scooped out from the top. As the pit progressively gets emptied, the last 15–20 cm layer which retains the worms is used for next load of waste to be treated. Commonly encountered problems, as well as possible causes and solutions are tabulated below in Table 3.4

Table 3.4: Vermicomposting- Problems, Possible Causes and Solutions[28]

PROBLEMS	POSSIBLE CAUSES	SOLUTIONS
Foul odour	Overfeeding	Remove the excess food, remove meat or dairy products if any
	Not enough air circulation or anaerobic conditions	Fluff up or loosen bedding
	Bed too wet	Add bedding to absorb moisture
Flies	Waste exposed	Bury the waste completely
Ant infestation		Immerse the base or feet of the vermi bed in water
		A barrier of chalk or petroleum jelly may repel the ants
		If bedding seems dry, add water
Mite infestation		Avoid adding foods with high moisture content
Worms are dying or crawling away	Bed too wet	Do not water till it reaches appropriate moisture
	Bed too dry	Sprinkle water till it turns moist
	Excess temperature, not enough air, not enough food	Sprinkle water till it turns moist and temperature drops, add waste appropriately
	Bed packed tightly	Turn bed and make it fluffy

3.2.9 YARD WASTE COMPOSTING



As per SWM Rules, 2016:

Clause 15: Duties and responsibilities of local authorities:-

(p) collect horticulture, parks and garden waste separately and process in the parks and gardens, as far as possible.

ULBs should ensure that horticulture waste in parks and gardens should be used in the most optimum ways to minimise the cost of collection and transportation of such waste. Yard waste such as leaves, grass clippings, straw, and nonwoody plant trimmings can be composted on site, thereby reducing the amount of waste to be handled by ULBs. However, some of these contain higher percentage of lignocellulosic material which takes much longer time for composting process to complete, e.g., straw, dried stems, etc. These can be readily converted into mulch in shorter time.

In places where large quantities of horticultural waste are generated, e.g., leaves and pruning, especially during rainy, autumn, and spring seasons, it may be a good idea to convert such leftover material into mulch which could not be composted.

28 IEC brochure for Vermicomposting, GIZ (2012).

Feedstock: Leaves, grass clippings, and weeds make good compost. Additionally, fruit and vegetable scraps can also be composted. Woody brown materials such as autumn leaves are high in carbon while green, moist material such as grass clippings are high in nitrogen.

- high nitrogen 'green' ingredients include grass clippings, weeds, fruit and vegetables, coffee grounds, tea bags, eggshells, manure, alfalfa hay or meal.
- high carbon 'brown' ingredients include autumn leaves, straw, cornstalks, wood chips, saw dust, pine needles.

Using approximately three parts of 'brown' material to one part 'green' material optimises the composting process and prevents odours from developing.

Process: Barrel or drum composter can be used for composting to save space and hasten decomposition. Bins made of wire, wood, or even garbage cans with drainage holes can be used for the purpose. It should be ensured that the bins are rodent resistant and have a secure cover. The bottom of the pile should consist of coarse material like corn stalks to build in air passages. Alternating layers of 'brown' and 'green' material with shovel full of compost or farmyard manure on top of each layer should be added. Shredding of leaves and twigs will shorten the composting time. A nitrogen source like manure should be placed on top of this layer to increase microbial activity and hasten the process. Water should be added to the pile to keep it moist; however, care should be taken to prevent waterlogging. The pile should be turned every few days to provide aeration and prevent odours. A properly mixed and adequately turned compost pile does not produce odour.

If only leaves are to be composted, layering is not required. Fallen leaves can be added as they are collected and should be moistened. However, addition of manure will be required to hasten decomposition.

Generally, the compost from a well-managed pile made up of shredded material under warm conditions will be ready in about 2 months. When the compost is ready, the pile will be reduced to half of its original size and will have an earthy smell to it. Table 3.5 lists some of the common problems encountered during yard waste composting and their solutions.

Table 3.5: Yard Composting-Problems and Solutions[29]

PROBLEMS	POSSIBLE CAUSES	SOLUTION
Material in the bin not decomposing or not heating up at all	• Not enough nitrogen • Not enough oxygen • Not enough moisture	• Add enough nitrogen-rich sources like manure, grass clippings, or food scraps • Mix the material regularly • Add water to moist the pile
Matted leaves or grass clippings are not decomposing	• Poor aeration due to self compaction, especially when wet • Lack of moisture	• Loosen material with rake • Avoid adding thick layers of same material. • Shred material before mixing
Stinks like rancid butter, vinegar, or rotten eggs	• Lack of oxygen • Bin is too wet or compacted • Presence of cooked food	• Turn the material to provide aeration • Add coarse dry material like straw, hay, or leaves to soak excess moisture and mix well
Vermin problem or fly larvae	• Inappropriate material (meat, dairy products) • Bin is too wet • Poor aeration	• Adjust the moisture by adding dry material or ash. • Place the bin where there is sun so that heat can destroy fly larvae, weed seeds, and other pathogens. • Change to fly-proof closed bin with enough aeration.
Odour like ammonia	• Not enough carbon	• Add brown material like dried leaves, straw, hay, shredded paper, etc.
Attracts rodents, flies, or other animals	• Inappropriate material (meat, oil, bones) • Material like fresh food scrap is too close to the surface of the bin	• Remove inappropriate materials from compost bin. • Switch to a rodent-proof safe bin.

29 Practical Action, "Home Composting Bins". Available at: http://practicalaction.org/media/preview/12742/lng:en.

3.2.10 SUMMARY: CRITERIA FOR SELECTION OF COMPOSTING TECHNOLOGIES

The choice of composting technology depends on a number of criteria which include quantity of waste to be processed, land requirement, climatic conditions, stability, energy requirements, financial implications, monitoring requirements, and aesthetic issues. Table 3.6 gives a brief overview of different composting technologies.

Table 3.6: Summary of Different Composting Technologies[30]

PARAMETERS	WINDROW	AERATED STATIC PILE	IN-VESSEL	VERMICOMPOSTING
General	Simple technology for large scale application	Effective for farm and municipal use	Large-scale systems for commercial applications	Small scale
Amount of input waste per day to be treated	1–500 tonnes	1–500 tonnes	1–300 tonnes	upto 50 tonnes
Land requirement	8 ha for 500 TPD including buffer zones	5 ha for 500 TPD (Less land required given faster rates and effective pile volumes)	4 ha for 500 TPD (Limited land due to rapid rates)	2 ha for 50 TPD
Time	8 weeks	5 weeks	4 weeks (3–5 days in vessel; 3 weeks to mature)	8 -10 weeks
Ambient temperature	Not temperature sensitive	Not temperature sensitive	Not temperature sensitive	Temperature sensitive (20°C–40°C ideal range, maximum 40°C)
Energy input	Moderate	Moderate (2-3 hours aeration)	High	Low
Financial implications	Moderate	Costly	Very costly	Moderate but purchase of exotic earthworms suitable for MSW vermicomposting are expensive
Odour and aesthetic issues	Odour is an issue if turning is inadequate	Moderate but controls can be used such as pile insulation and filters on air system	Minimum due to equipment failure or system design failure	None

30 Expert Committee for the revision of MSWM Manual (2014).

3.2.11 MONITORING OF COMPOST PLANTS

Routine testing and monitoring is an essential part of any composting operation. Monitoring the composting process provides information necessary to maintain a high-quality operation. At least the following parameters should be monitored:

- windrow temperature (daily);
- oxygen concentrations in the compost mass (daily);
- moisture content (daily); and
- full analysis as per FCO, 2009 and 2013 for each batch after preparation of finished compost.

Compost should meet standards set by FCO, 2009 and its amendments before being used as soil conditioner

Compost quality should be monitored by the operator of the compost facility per batch of compost being sold to the market. If the facility does not have sufficient laboratory capacity to perform all the tests, National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited laboratories should be contracted to perform these tests on a regular basis. Compost that does not meet specified standards should be put to uses other than for application to food crops. A standard operating procedure for windrow composting is given in Annexure 5.

3.2.11.1 QUALITY PARAMETERS FOR COMPOST PRODUCTION

Standards for PROM are included in the FCO, 2013

The compost which is to be used as fertiliser for food crops should abide by the more stringent FCO, 2009, while compost used as a soil conditioner and for other purposes should at least meet the requirements of SWM Rules, 2016. Phosphatic fertiliser is in short supply in the country. The use of phosphate rich organic manure (PROM) can reduce the use of phosphatic fertilisers to some extent; PROM is formed by the mixing of rock phosphate with MSW derived compost. The FCO, 2013 specified quality standards for PROM, while retaining the standards specified in FCO, 2009 for organic compost.



As per SWM Rules, 2016, Table 3.7 specifies the compost quality standards. Table 3.8 presents the standards for vermicompost quality as specified by the FCO, 2009.



Prevention of cross contamination of organic material with inerts and street sweeping coupled with appropriate pre-sorting and segregation of raw material for composting will, to a large extent, ensure that heavy metal contamination is minimised in the finished compost.

Table 3.7: Compost Quality Standards as per Solid Waste Management Rules, 2016; Fertiliser Control Order, 2009; and Fertiliser Control Order, 2013

PARAMETERS	ORGANIC COMPOST	PHOSPHATE RICH ORGANIC MANURE (PROM)
	FCO 2009	FCO (PROM) 2013
Arsenic (mg/kg)	10.00	10.00
Cadmium (mg/kg)	5.00	5.00
Chromium (mg/kg)	50.00	50.00
Copper (mg/kg)	300.00	300.00
Lead (mg/kg)	100.00	100.00
Mercury (mg/kg)	0.15	0.15
Nickel (mg/kg)	50.00	50.00
Zinc (mg/kg)	1000.00	1000.00
C/N ratio	<20	less than 20:1
pH	6.5 - 7.5	(1:5 solution) maximum 6.7
Moisture, % by weight, maximum	15.0-25.0	25.0
Bulk density (g/cm^3)	<1.0	Less than 1.6
Total organic carbon, % by weight, minimum	12.0	7.9
Total nitrogen (N), % by weight, minimum	0.8	0.4
Total phosphate (P_2O_5), % by weight, minimum	0.4	10.4
Total potassium (K_2O), % by weight, minimum	0.4	_
Colour	Dark brown to black	_
Odour	Absence of foul odour	_
Particle size	Minimum 90% material should pass through 4.0 mm IS sieve	Minimum 90% material should pass through 4.0 mm IS sieve
Conductivity (as dsm^{-1}), not more than	4.0	8.2

Note:

- Tolerance limits as per FCO:
  i. For compost- A sum total of nitrogen, phosphorus and potassium nutrients shall not be less than 1.5% in compost
  ii. For PROM- No such directive
- "–" Not applicable

Table 3.8: Vermicompost Standards as per Fertilizer Control Order, 2009

S.NO	CRITERIA	VALUE
1.	Moisture % by weight	15.0–25.0
2.	Colour	Dark brown to black
3.	Odour	Absence of foul odour
4.	Particle size	Minimum 90% material should pass through 4.0 mm IS sieve
5.	Bulk density	0.7–0.9
6.	Total organic carbon, % by weight, minimum	18.0
7.	Total nitrogen (N), % by weight, minimum	1.0
8.	Total phosphates (P_2O_5), % by weight, minimum	0.8
9.	Total potash (K_2O), % by weight, minimum	0.8
10.	Heavy metal content (mg/kg) by weight, maximum	
	a. Cadmium (Cd)	5.00
	b. Chromium (Cr)	50.0
	c. Nickel (Ni)	50.0
	d. Lead (Pb)	100.0
Note: Tolerance Limit for vermicompost: The sum total of Nitrogen, Phosphorus and Potassium nutrients should not be less than 2.5 % in the case of vermicompost.		

3.2.12 INTEGRATION OF THE INFORMAL SECTOR

Composting plants can provide livelihood opportunities to the informal sector

Integrating waste pickers into organised or formal waste management programmes can improve the quality of their working conditions and their earning . Waste pickers could be trained and employed in the pre-processing facility at the compost plant. Since they are already used to work with waste material, they have good acumen and aptitude for such work. Refer to Section 3.1.6 and Section 1.4.5.9 of Part II for further details on integrating the waste pickers into formal systems.

3.2.13 HUMAN RESOURCE REQUIREMENT

Training and capacity building of all staff in waste management plants is essential

Compost plant operators shall ensure that all personnel assigned to the operation shall be trained in subjects pertinent to operation and maintenance (O&M), physical contaminants, and hazardous material recognition and screening, with emphasis on odour impact management and emergency procedures. A record of such training shall be maintained on the site.

The level and nature of staffing and training should be adequate for environmentally responsible and safe management of the composting facility. Staffing levels should be high enough to ensure that the facility can comply at all times with provisions of the SWM Rules, 2016 and other applicable guidance or consent.

Staff training should be effective enough to ensure the following:

- all operators of the plant and its equipment are skilled at undertaking all the tasks required of them;
- all personnel who inspect incoming waste are skilled at identifying unacceptable waste and recording data accurately;
- laboratory staff is well informed of sampling practices and requisite analysis. They should be conversant with the impacts of different parameters to be able to suggest process modifications based on an analysis of the results. Constant communication with plant operating staff on related matters is crucial;
- compost quality should be regularly checked through NABL accredited laboratories, at least once a month or as per direction of the State Pollution Control Board (SPCB).

Staffing requirements will vary as a function of the size of the facility, the type of waste input, and the diversity and complexity of site operations.

Indicative staff requirement for a 300 TPD windrow composting plant is given in Table 3.9:

Table 3.9: Indicative Staff Requirement for a 300 TPD Compost Plant (Windrow)[31]

S. NO.	GRADE	QUALIFICATION	EXPERIENCE	NUMBER
1.	General manager	Bachelor of Engineering (BE)	2-3 years	1
2.	Shift in-charge	Diploma	1 to 2 years	2
3.	Mechanic	Industrial Training Institute (ITI)	3 years	2
4.	Plant operator	Higher Secondary School	1-2 years	3
5.	Chemist	Bachelor of Science	3 years	2
6.	Accounts officer	Bachelor of Commerce	3 years	1
7.	Skilled worker	-	2-3 years	4
8.	Semi-skilled workers	-	-	6
9.	Unskilled worker	-	-	12
10.	Drivers	-	3-4 years	20
11.	Contractual labour	-	-	24

3.2.14 GREENHOUSE GAS EMISSION AVOIDANCE THROUGH COMPOSTING

MSW contains large fractions of organic waste, which is a potential source of methane and other greenhouse gas (GHG) emissions. Methane is a highly polluting GHG with a global warming potential 21 times more than that of carbon dioxide. Composting, an aerobic process, transforms a

31 Inter-Ministerial Task Force on Integrated Plant Nutrient Management Using City Compost (2005).

range of organic substrates into stable humus like material through microbial decomposition. In the process, methane emissions to the atmosphere are avoided, which would otherwise result from anaerobic decay of waste in a disposal site, e.g., open waste disposal site or landfills.

Composting is acknowledged by the United Nations Framework Convention on Climate Change (UNFCCC) as one of the emission reduction methodologies in waste management. However, the potential for realising financial gain through sale of carbon credits is rather limited in the current global climate regime.

3.3 WASTE TO ENERGY

Waste to energy (WtE) refers to the process of generating energy in the form of heat or electricity from MSW. Energy from MSW can be achieved through:

1. thermal processes like incineration or combustion of refuse derived fuel (RDF); and
2. biological processes like biomethanation and further conversion into electrical power or automotive fuel (compressed biogas).

3.3.1 SOLID WASTE MANAGEMENT RULES, 2016: GUIDANCE ON WASTE TO ENERGY



As per SWM Rules, 2016:

Clause 15: Duties and responsibilities of local authorities:-

(v) facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology including the following technologies and adhering to the guidelines issued by the Ministry of Urban Development from time to time and standards prescribed by the Central Pollution Control Board. Preference shall be given to decentralised processing to minimize transportation cost and environmental impacts such as-

b) waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns;

It is assumed that at least 65 to 80% of energy content of waste can be recovered as heat energy through waste to energy technologies

Clause 18: Duties of the industrial units located within one hundred km from the refused derived fuel and waste to energy plants based on solid waste- All industrial units using fuel and located within one hundred km from a solid waste based refused derived fuel plant shall make arrangements within six months from the date of notification of these rules to replace at least five percent of their fuel requirement by refused derived fuel so produced.

TRUE COPY

ANNEXURE R-4

अन्न वहु कुर्वीत तद् व्रतम्

सत्यमेव जयते

Government of Maharashtra

Office- Department of Soil Science

Mahatma PhuleKrishiVidyapeeth, Rahuri

Phone No. : 02426-243209

Email : headssacmpkv@gmail.com
hod.ssac@gov.in

Address : Central Campus, Post Graduate Institute Building, Mahatma Phule Krishi Vidyapeeth, Rahuri, Tal. Rahuri, Dist. Ahmednagar PIN 413 722

No. HOD/Soil Sci./STCR/HMC/ 2132 /2023 Date- 19/12/2023

To,

Chief Officer
Achalpur Nagarprishad,
Tal. Achalpur Dist. Amravati

" मिट्टी जीवन है अपना,
उसे बचाना है मेरा सपना "

Subject: Harit Mahacity Compost analysis report…

Ref.: Your application dated:-24.11.2023

Sr. No.	Parameters (Lab No.431)	Sample Value	As per FCO standards
1	pH (1:10)	7.75	6.0-8.5
2	EC (dSm^{-1}) (1:10)	0.75	<4.0
3	Moisture (%)	20.80	15-25
4	Total organic carbon (%)	14	>14
5	Ash (%)	75.60	-
6	C:N ratio	11.11	<20
7	Total N (%)	1.26	0.80
8	Total P (%)	0.37	0.40
9	Total K (%)	1.98	0.40
10	Fe ($mg\ kg^{-1}$)	1221	-
11	Mn ($mg\ kg^{-1}$)	519	-
12	Zn ($mg\ kg^{-1}$)	210	1000
13	Cu ($mg\ kg^{-1}$)	60	300
14	Cr ($mg\ kg^{-1}$)	22.4	50
15	Cd ($mg\ kg^{-1}$)	2.3	5
16	Ni ($mg\ kg^{-1}$)	28.5	50
17	Pb ($mg\ kg^{-1}$)	43.5	100

Note: This report is not valid for any legal matter.

Head
Department of Soil Science
M.P.K.V., Rahuri

TRUE COPY

ANNEXURE R-5

एकच लक्ष्य शहरे स्वच्छ

स्वच्छ भारत
एक कदम स्वच्छता की ओर

महाराष्ट्र शासन
महाराष्ट्र नागरी विकास अभियान संचालनालय
स्वच्छ महाराष्ट्र अभियान (नागरी) २.०

४ था मजला, एपीजे हाऊस, ३ दिनशॉ वाच्छा रोड, के.सी. कॉलेज जवळ, चर्चगेट, मुंबई- ४०००२०
ई-मेल: director.smau@gmail.com

पत्र क्र./राअस/हरित/१०५६ /२०२३-२४ दिनांक: २७/१२/२०२३

प्रति,
मुख्याधिकारी,
अचलपूर नगर परिषद

विषय : स्वच्छ महाराष्ट्र अभियान (नागरी) २.० अंतर्गत
"हरित - महासिटी कंपोस्ट" ब्रॅंड वापरणेस परवानगी देणेबाबत.

संदर्भ: १) शासननिर्णय क्र. स्वमअ – २०१७/प्र.क्र. ५३/नवि – ३४, दिनांक: २९/०४/२०१७
२) आपल्यातर्फे सादर प्रस्ताव क्रमांक 4270, दिनांक 21.12.2023

स्वच्छ महाराष्ट्र (नागरी) अंतर्गत संदर्भीय क्र. १ मधील शासन निर्णयान्वये राज्यातील शहरांमध्ये घनकचरा व्यवस्थापन करताना, शहरात निर्माण होणाऱ्या *विघटनशील (ओला कचरा व सुका पालापाचोळा)* कचऱ्यावर प्रक्रिया करून तयार होणाऱ्या सेंद्रिय खताची विपणन व विक्री (Marketing & Sales) करण्यासाठी "हरित - महासिटी कंपोस्ट" हा शासनाचा नोंदणीकृत ब्रॅंड वापरण्याची परवानगी देण्यात येते. त्या अनुषंगाने संदर्भीय क्र. २ च्या पत्रान्वये हरित ब्रॅंड वापरण्यास परवानगी मिळण्याबाबत आपल्या नगर परिषद मार्फत अर्ज व खत तपासणी अहवाल या कार्यालयास प्राप्त झाला आहे.

सदर प्रस्तावाची छाननी करण्यात अली असून, खत तपासणी अहवाल FCO मानकांनुसार असल्याचे दिसून आल्याने, स्वच्छ महाराष्ट्र अभियान, नागरी विकास अभियान संचालनालय, महाराष्ट्र शासन यांचेतर्फे आपणास आपल्या नागरी स्थानिक स्वराज्य संस्थेच्या घनकचरा व्यवस्थापन प्रकल्पाअंतर्गत निर्मित कंपोस्ट खताच्या विक्री व विपणनासाठी या पत्रासोबत असलेल्या जोडपत्र-१ मधील अटी व शर्तींच्या अधिन राहून **"हरित - महासिटी कंपोस्ट"** हा शासनाचा नोंदणीकृत ब्रॅंड वापरण्याची परवानगी देण्यात येत आहे. **"हरित - महासिटी कंपोस्ट"** ब्रॅंड आपणांस प्रदान केल्याचे प्रमाणपत्र या पत्रासोबत आपल्याला मेल द्वारे पाठविण्यात येत आहे. सदर प्रमाणपत्राची वैधता १ वर्षे इतकी राहील.

आपले अभिनंदन!

सोबत : जोडपत्र १,२, ३ व प्रमाणपत्र.

(नवनाथ वाठ)
राज्य अभियान संचालक
स्वच्छ महाराष्ट्र अभियान (नागरी)

सत्यमेव जयते

HARIT™
MAHA City Compost

स्वच्छ महाराष्ट्र अभियान (नागरी) अंतर्गत,

अचलपूर नगर परिषद विलगीकृत केलेल्या विघटनशील घनकचऱ्यापासून कंपोस्ट तयार करीत आहे. सदर कंपोस्ट एफसीओ मानकानुसार असल्याचे मान्यताप्राप्त प्रयोगशाळेने प्रमाणित केले आहे.

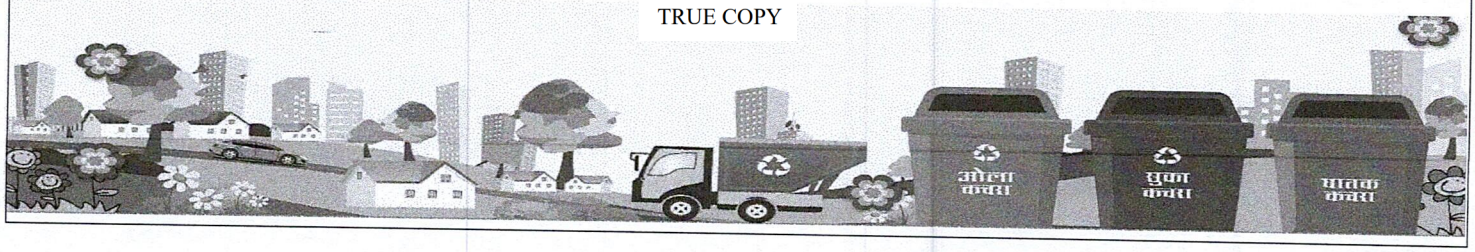
अचलपूर नगर परिषद यांना कंपोस्ट खताच्या विपणन व विक्रीसाठी राज्य शासनाचा "हरित - महा सिटी कंपोस्ट" हा ब्रँन्ड वापरण्यास जोडपत्र १ मधील अटी व शर्तींच्या अधीन राहून परवानगी देण्यात येत आहे.

(नवनाथ वाठ)
उपसचिव तथा राज्य अभियान संचालक
स्वच्छ महाराष्ट्र अभियान (नागरी)

दिनांक: २७/१२/२०२३

जा.क्र. २७३/ई/२३-२४,
प्रमाणपत्र क्र.: - २७३
वैधता: १ वर्ष

TRUE COPY



ANNEXURE R-6 (COLLY)

कार्यालय अचलपूर नगर परिषद स्थायी समिती सभा दि.11/08/2021 रोजी दुपारी 12.00 वा. Video Conferencing द्वारे आयोजित

ठराव प्र.क्र.28 ची सत्यप्रत

अ.क्र.	प्र.क्र.	प्रस्तावाचा विषय
14	28	घनकचरा व्यवस्थापना अंतर्गत ओल्या कच-यावर प्रक्रिया करुन निर्माण झालेले खताचे विक्री साठी दर ठरविणे व संमती देण्याबाबत.

सुचक :- श्री. गोवर्धन लक्ष्मनरावजी मेहरे.
अनुमोदकः-श्री. संजय नामदेवराव तट्टे

ठराव क्र.28:- घनकचरा व्यवस्थापना अंतर्गत अचलपूर नगर परिषद हद्दीतील प्रभाग क्रं.१ ते १९ मधील घरोघरी जाऊन स्वतंत्र वाहनाद्वारे ओला व सुका कचरा संकलीत करून रायपुरा कंपोस्ट डेपो येथे वाहतुक करण्यात येते घनकचरा व्यवस्थापन नियम २०१६ अन्वये शहरातील निघणाऱ्या ओल्या कचऱ्यावर प्रक्रिया करुन खत निर्मिती करणे हे बंधनकारक करण्यात आलेले आहे. अचलपुर न.प. ने घनकचऱ्यावर शास्त्रोक्त पध्दतीने प्रक्रिया करुन खत निर्मिती करणे करीता वार्षिक कंत्राट दिलेला आहे. सदर प्रक्रिया केंद्रावर खत निर्मिती झालेली आहे, तयार करण्यात आलेले खत विक्री करणे हे आवश्यक असुन सभे मध्ये सदर विषयावर सविस्तर चर्चा करण्यात आलेली आहे, या पुर्वी सदर खत ५००/- रू प्रती ट्रॉली प्रमाणे विकण्यात येत होते, तरी त्यांचे दर १०००/- रू प्रती ट्रॉली ठेऊन विक्री करण्यात यावे,जेणे करुन शेतकऱ्यांना त्यावावतचा लाभ घेता येईल, असे सभेत ठरविण्यात आलेले आहे.

ठराव सर्वानुमते मंजूर

सहमतः-08 तटस्थः- 00 विरोधः- 00

सत्यप्रत

सत्यप्रत
मुख्याधिकारी
नगर परिषद, अचलपूर

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

Office of Municipal Council Achalpur

तक क्र. 531 पावती क्र. 1911

मो. सफदर वी. अजिज

च्या कडून फरमानपुरा

दोन ट्रॉली रचना दाबा

ल १,०००/- रुपये

दोन हजार रु. अक्षरी मिळाले.

ांक 06/04/21

ीकांची सही अधिकृत अधिकाऱ्याची सही

203 रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

Office of Municipal Council Achalpur

क्र. 531 पावती क्र. 2022

मो. सफदर से. अजिज, फरमानपुरा

कडून दोन ओली खत बाबत

1000/-

रुपये

एक हजार रु. फक्त अक्षरी मिळाले.

25/05/2024

ांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 003

श्री मो. सफदर से. अजिज, फरमानपूरा

यांच्या कडून कम्पोस्ट डेपो वरिल उठाली बत पिलपा बाबत

बद्दल १५००/- रुपये

पंधराशे रु. फक्त अक्षरी मिळाले.

दिनांक 28/05/21

लिपीकाची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Office of Mun... Achalpur

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 094

मी मो. सफदर शे. अनिज, फरमानपुरा

यांच्या कडून 2 ट्रॉली खत बाबत

एकूण रक्कम 1000/- रुपये

अक्षरी एक हजार रु. फक्त मिळाले.

दिनांक 28/05/2021

करदात्याची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Office of Municipal Council * Achalpur *

Scanned with CamScanner

नमुना २
नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा
सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 859

श्री श्री. विजय श्रीवास्तव

यांच्या कडून रा. मल्हारा, पो. अचलपूर

१० ट्राली कंपोस्ट खरील रक्कम

बद्दल 10,000/- रुपये

दहा हजार रु- फक्त. अक्षरी मिळाले.

दिनांक 7/9/22

लिपीकांची सही अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 011

श्री श्री. मनोज पवार

यांच्या कडून रा. कवठा, ता. अचलपूर

१० ट्रॉली कंम्पोस्ट वरील रक्कम विक्री पोटी.

बद्दल १०,०००/- रुपये

दहा हजार रू फक्त अक्षरी मिळाले.

दिनांक 9/8/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

Office of Municipal Council Achalpur

पुस्तक क्र. 531 पावती क्र. 013

श्री श्री. बबलु राठोर

यांच्या कडून रा. वहिम, ता. अचलपूर

१० ट्रॉली कंम्पोस्ट खरेल खत पिंडी वाघाय

बद्दल ९०,०००/- रुपये

दहा हजार रु. फक्त अक्षरी मिळाले.

दिनांक १८/१/२२

अधिकृत अधिकाऱ्याची सही

लिपीकांची सही

२७२ रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 014

श्री हेमंत गणपतराव नागे

श्री. सुकेश पेवेकर

यांच्या कडून रा. रासेगांव

१७ टोपी डंम्पोस्ट वरील खत विक्री बाबत.

बद्दल ९०,०००/- रुपये

दहा हजार रु फक्त अक्षरी मिळाले.

दि. तांक १८/१/२२

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

२७३ रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा.

सर्वसाधारण पावती

नगरपालिका अचलपूर

531 — 915

पुस्तक क्र. — पावती क्र.

श्री — श्री. अंकुश चेवानकर

यांच्या कडून — श्री. रासेगाव

05 टिपी कम्पोस्ट खत विक्री व्यवसाय

बद्दल — 5,000/-

रुपये — पाच हजार रु.

अक्षरी मिळाले.

दिनांक 18/9/22

अधिकृत अधिकाऱ्याची सही

लिपीकांची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 017

श्री व्यवस्थापकीय संचालक, इंडोफार्म अॅग्रो

यांच्या कडून प्रॉडक्टस, अचलपूर

२ ट्रॉली कंपोस्ट खत विक्री पोटी

बद्दल ६०००/- रुपये

निन हजार रु. फक्त. अक्षरी मिळाले.

दिनांक 4/6/22

अधिकृत अधिकाऱ्याची सही

लिपीकांची सही

२५३ रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि १४७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 018

श्री मनोज पवार, २१. कवीठा ता. अचलपूर

यांच्या कडून वि. अमरावती

5 ट्रॉली रबल विक्री बाबत.

बद्दल ~~5000/-~~ 5000/- रुपये

पाच हजार रु. फक्त. अक्षरी मिळाले.

दिनांक 28/9/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि १३० (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

019

पुस्तक क्र. 531 पावती क्र.

श्री नितीन शिंदे रा. बोरखेडी

यांच्या कडून तालुका अचलपूर

5 हेक्टी रक्त विक्री बाबत

बद्दल 5000/- रुपये

पांच हजार रु. मात्र अक्षरी मिळाले.

दिनांक 28/9/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११०(२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा.

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 820

श्री उमेश बंडूजी . रा . सावली .

यांच्याकडून ता. अचलपूर

10 हॉर्सी खत विक्री परवाना .

बद्दल 10,000/- रुपये

दहा हजार रु. फक्त . अक्षरी मिळाले.

दिनांक 28/9/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २
नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा
सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 021

श्री राकेश भोंगळे रा. कविठा

यांच्या कडून न. प. अचलपूर

5 हेमी रक्कम पिवळी बाजार

बद्दल पाच हजार रु. फक्त रुपये

5000/- अक्षरी मिळाले.

दिनांक 17/10/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा.

सर्वसाधारण पावती

नगरपालिका अचलपूर

022

पुस्तक क्र. 531 पावती क्र.

श्री अशोक खडके रा. कुरळपाट

यांच्या कडून नगरपालिका अचलपूर

ड्रेनेज खत विक्री बाबत

बद्दल 5000/- रुपये

पाच हजार रु. फक्त अक्षरी मिळाले.

दिनांक 17/10/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 073

श्री रोशन हुसेन अचलपुर

यांच्या कडून अचलपुर

5 क्रोर्ड रुपये फिक्स डिपॉजिट जावत.

बद्दल 5000/-

पाँच हजार रु. मात्र अक्षरी मिळाले.

दिनांक 17/10/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 914

श्री शेख वहीद शेख मेहबूब

यांच्या कडून अचलपूर

5 हॉर्सी बल पंप विजय

बद्दल ५०००/- रुपये

पाच हजार रु- अक्षरी मिळाले.

दिनांक 17/10/22

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 027

श्री व्यवस्थापकीय संचालक, इंडो फ्रामे अँग्रो

यांच्या कडून पॉडक्ट्स अचलपूर.

5 ट्रॉली कंम्पोस्ट खत विक्री बाबत

बद्दल 5000/- रुपये

पाच हजार रु फक्त अक्षरी मिळाले.

दिनांक 13/12/2022

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (३) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 030

श्री सुमन जगदीश कोठले

यांच्या कडून दोन डॉली. कम्पोस्ट, २७ विक्री बाबत

बद्दल 2000/- रुपये

दोन हजार रु. फक्त अक्षरी मिळाले.

दिनांक 18/01/2023

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 031

श्री दिलीप मुरकुट.

यांच्या कडून रा. कोसगाव, पुरवाडा ता. अचलपूर

दोन हेक्टर क्षेत्र विक्री केलेबद्दल

बद्दल 2000/- रुपये

दोन हजार रु फक्त अक्षरी मिळाले.

दिनांक 21/2/23

लेपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

032

पुस्तक क्र. 531 पावती क्र.

श्री नंदलाल चौधरी रा. हनवतखेडा

यांच्या कडून 5 म्हैशी खत विक्री बद्दल

बद्दल 5000/- रुपये

पाच हजार रुपये फक्त अक्षरी मिळाले.

दिनांक 17/03/2023

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि १९ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 033

श्री शे. हमीद शे. आरीफ, धोतरखेड

यांच्या कडून 5 डॉली घत विक्री केल्या

बद्दल 5000/-

वदल रुपये

पाच हजार रुपये अक्षरी मिळाले.

दिनांक 20/03/2023

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 036

श्री जितेंद्र रोडे. परतवाडा

यांच्या कडून 5 ट्रॉली खत विक्री केल्या

बद्दल वर्गणी 5000 रु. फक्त.

रुपये

पांच हजार रु. फक्त. अक्षरी मिळाले.

दिनांक 17/08/23

लेपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) व ११७ (१) (२) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 031

श्री मनोज पवार, रा. कवीठा

यांच्या कडून 5 ट्रॉली खत विक्री केल्या

बद्दल उधार 5000 रु. फक्त.

रुपये पांच हजार रु. फक्त अक्षरी मिळाले.

दिनांक 17/08/23

लेपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

Scanned with CamScanner

नमुना २

नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (३) व (३) पहा

सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 531 पावती क्र. 051

श्री संतोष राजस्व रा. अचलपुर

यांच्या कडून 10 इंची खत विक्री केल्या बाबत

10.000/- रु. फक्त

बद्दल रुपये

दहा हजार रु. फक्त अक्षरी मिळाले.

दिनांक 31/10/2023

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

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नमुना २
नियम १२, ११० (२) ११४, ११६ (२) आणि ११७ (१) (२) व (३) पहा
सर्वसाधारण पावती

नगरपालिका अचलपूर

पुस्तक क्र. 899 पावती क्र. 01

श्री जगदीशगिरावजी माधोराव परिसे

यांच्या कडून पांच हजार रु. Cheque

बद्दल ५/- रुपये (रुपये) रक्कम मिळाली

अक्षरी मिळाले.

दिनांक 3/4/24

लिपीकांची सही

अधिकृत अधिकाऱ्याची सही

रोकड वहीत नोंद केलेली पृष्ठ क्रमांक

लेखापाल/ रोखपाल

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ANNEXURE R-7 (COLLY)



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Scanned by CamScanner



Scanned by CamScanner



Scanned by CamScanner


GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246928°
Long 77.496531°
02/04/24 11:32 AM GMT +05:30
Google


GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246928°
Long 77.496531°
02/04/24 11:31 AM GMT +05:30
Google

TRUE COPY

ANNEXURE R-8 (COLLY)




प्लॉस्टिक
बंग
GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246676°
Long 77.496062°
02/04/24 11:02 AM GMT +05:30
Google


नगर परिषद अचलपूर
Material Recovery Facility
(MRF)
GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246676°
Long 77.496062°
02/04/24 11:01 AM GMT +05:30
Google


GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246676°
Long 77.496062°
02/04/24 11:00 AM GMT +05:30
Google


प्लॉस्टिक
बॉटल
GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246676°
Long 77.496062°
02/04/24 11:00 AM GMT +05:30
Google


परिषद अचलपूर
Recovery Facility
(MRF)
GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246674°
Long 77.496064°
02/04/24 10:58 AM GMT +05:30
Google


GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246932°
Long 77.496536°
02/04/24 11:39 AM GMT +05:30
Google


GPS Map Camera
Achalpur, Maharashtra, India
6FWX+W6J, Achalpur, Maharashtra 444806, India
Lat 21.246932°
Long 77.496536°
02/04/24 11:39 AM GMT +05:30
Google

TRUE COPY

ANNEXURE R-9

स्वातंत्र्याचा अमृत महोत्सव

सत्यमेव जयते
महाराष्ट्र शासन

उपविभागीय अधिकारी, अचलपूर यांचे कार्यालय

फोन नं.07223-227200 फॅक्स नं.07223-227311 ई-मेल sdo.achalpur@gmail.com

क्रमांक/प्रस्तु-1/अका/कावि-3484 /2023, दिनांक 04 / 12 /2023.

अचलपूर नगर परिषद (कॅम्प)
आवक क्र. 9142
दि. 7/12/23

प्रति,

मा.जिल्हाधिकारी,
अमरावती (महसूल शाखा).

विषय :- घनकचरा व्यवस्थापन अंतर्गत प्रकल्प उभारणे करीता जागा उपलब्ध करुन देणेबाबत.
मौजे खेलघुमट येथील सर्वे नं.27, क्षेत्र 9.16 हे.आर.

संदर्भ :- 1) तहसीलदार, अचलपूर यांचे पत्र क्र.प्रस्तु-1/कावी-1706/2022, दि.10/05/2022.
2) या कार्यालयाचे पत्र क्र.प्रस्तु-1/अका/कावी-1627/2022, दि. 05/07/2022.
3) मा.जिल्हाधिकारी, अमरावती यांचे कार्यालयीन पत्र क्र.कक्ष-26/अका/महसूल/कावी-460/2022, दिनांक 18/10/2022.
4) या कार्यालयाचे पत्र क्र.प्रस्तु-1/अका/कावी-2548/2022, दि. 14/11/2022.
5) तहसीलदार, अचलपूर यांचे पत्र क्र.प्रस्तु-2/म.सहा/कावी-824/2023, दिनांक 30/12/2023.

महोदय,

उपरोक्त संदर्भीय विषयान्वये सादर करण्यात येते की, मौजा खुलघुमंट ता.अचलपूर जि.अमरावती येथील शेत सर्वे नं.27, क्षेत्र 9.16 हे.आर ई-क्लास जमीन घनकचरा व्यवस्थापनाअंतर्गत प्रकल्प उभारणे करीता उपलब्ध करुन देण्याबाबत या कार्यालयाचे संदर्भीय पत्र क्र.2 अन्वये आपले कार्यालयास सादर करण्यात आला होता. तथापि, आपले कार्यालयीन संदर्भीय पत्र क्र.3 नुसार 1 ते 12 मुद्यांची त्रृटी पुर्तता करुन परिपुर्ण प्रस्ताव सादर करणेबाबत या कार्यालयास कळविण्यात आले होते.

त्याअनुषंगाने 1 ते 12 मुद्यांची त्रृटी पुर्तता करुन खालील प्रमाणे प्रस्ताव मान्यतेकरीता यासोबत पुनश्चः सादर करण्यात येत आहे.

अ.क्र.	त्रृटी	पुर्तता
1.	शासन पत्र महसूल व वनविभाग क्र.जमीन-01/2008/प्र.क्र.1758/ज-1, दिनांक 09/02/2010 तरतुदीमध्ये नमूद केल्याप्रमाणे अ प्रपत्रावर आवेदक सक्षम अधिकारी यांची माहितीसह स्वाक्षरी व प्रपत्र ब,क,ड (तहसीलदार, उपविभागीय अधिकारी यांचे माहिती स्वाक्षरीसह) यांचे स्वाक्षरीसह प्रपत्र सादर करावे.	प्रपत्र-अ वर आवेदक मुख्याधिकारी, न.प.अचलपूर यांची स्वाक्षरी घेण्यात आली आहे. तसेच प्रपत्र-ब, क, ड वर तहसीलदार यांची स्वाक्षरी व प्रपत्र-ड वर उपविभागीय अधिकारी यांची स्वाक्षरी आहे.

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2.	प्रस्तावित जागेवर तलाठी अचलपूर यांच्या अहवालामध्ये राम शिवलाल गौर यांचे अंदाजे 4 ते 5 एकर जागेवर अतिक्रमण आहे. तसेच ई-क्लासचे इतर शेतकऱ्यांचे कमी अधिक प्रमाणात अतिक्रमण असु शकते असे नमूद केले आहे. त्यामुळे सदरचे अतिक्रमण निष्कासन करण्याची नियमानुसार कार्यवाही करावी.	तहसीलदार अचलपूर यांचे त्यांचे पत्र दिनांक 21/11/2023 नुसार सदर जागेवरील अतिक्रमण निष्काषीत करण्याची कार्यवाही तात्काळ करणेबाबत मुख्याधिकारी, नगर परिषद अचलपूर यांना सुचित करण्यात आले आहे.
3.	ग्राम पंचायत कार्यालय, सावळी दातुरा यांचे दि.08/10/2021 चे पत्रानुसार उक्त जागा न.प. अचलपूर कचरा (घनकचरा) डेपो करीता देण्यात येवू नये, असे ग्रा.पं. सभासदांनी ठरविले असल्याचे दिसून येत आहे. याबाबत सविस्तर अहवाल सादर करावा.	तलाठी खेलत्र्यंबक यांचे दिनांक 02/11/2023 रोजीच्या अहवाला नुसार मौजे खेलघुमट येथील सर्वे नं.27, क्षेत्र 9.16 हे.आर ही मागणी केलेली जागा कोणत्याही ग्राम पंचायत हद्दीमध्ये येत नसून सदरहू खेलघुमट हे गाव अचलपूर नगर परिषद हद्दीमध्ये समाविष्ट असल्याचे कळविले आहे.
4.	मुख्यकार्यकारी अधिकारी, जि.प. अमरावती यांचे ग्रा.पं. मासीक सभा व ग्रामसभेला ठराव मान्यतेस्तव अहवाल सादर केलेला नाही.	सदर मागणी केलेली जागा ही नगर परिषद हद्दीमध्ये येत असल्यामुळे लागू पडत नाही.
5.	उपअधिक्षक, भुमीअभिलेख यांची मोजणीची क प्रत सादर करावी.	उपअधिक्षक, भुमी अभिलेख यांची मोजणीची क प्रत संलग्नीत केलेली आहे.
6	कार्यकारी अभियंता, म.रा.वि.वि.कं. यांचा अहवाल सादर करावा.	कार्यकारी अभियंता, म.रा.वि.वि.कं. यांचा अहवाल संलग्नीत केलेला आहे.
7.	मंडळ अधिकारी यांचा अहवाल सादर करावा.	मंडळ अधिकारी यांचा अहवाल यांचा अहवाल संलग्नीत केलेला आहे.
8.	जाहीरनामा प्रसिध्दी अहवाल सादर केलेला नाही.	जाहीरनामा प्रसिध्दी अहवाल संलग्नीत केलेला आहे.
9.	सन 2022-2023 चे मुल्यांकन अहवाल सादर करावे.	सन 2022-2023 चे मुल्यांकन अहवाल संलग्नीत केलेला आहे.
10.	प्रस्तावित जागा न्यायप्रविष्ट आहे किंवा कसे?	तलाठी खेलत्र्यंबक नारायण यांचे दिनांक 23/12/2022 च्या अहवाला नुसार सदर जागा न्यायप्रविष्ट नाही.
11.	सदर जागेवर मौल्यवान झाडे आहे किंवा कसे ?	तलाठी खेलत्र्यंबक नारायण यांचे दिनांक 23/12/2022 च्या अहवाला नुसार सदर जागेवर मौल्यवान झाडे नाहीत.
12.	पोच रस्ता आहे किंवा कसे ?	तलाठी खेलत्र्यंबक नारायण यांचे दि। 23/12/2022 च्या अहवाला नुसार सदर जागेवर पोच रस्ता नाही.

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E-mail: mcachalpur@

स्वातंत्र्याचा अमृत महोत्सव

सत्यमेव जयते
महाराष्ट्र शासन

सबब, मौजा खुलघुमंट ता.अचलपूर जि.अमरावती येथील शेत सर्वे नं.27, क्षेत्र 9.16 हे.आर ई-क्लास जमीन घनकचरा व्यवस्थापनाअंतर्गत प्रकल्प उभारणे करीता, मुख्याधिकारी, नगर परिषद अचलपूर यांना महाराष्ट्र जमीन महसूल अधिनियम, 1966 चे कलम 20 व 40 तसेच, महराष्ट्र जमीन महसूल (सरकारी जमीनीची विल्वेवाट लावणे) नियम, 1971 चे नियम 3, 5 व 6 मधील तरतुदीचे अधिन राहून मंजूर करण्यास हरकत नसावी.

सहपत्र :- मुळ प्रस्ताव.

(श्रीकांत उंबरकर)
उपविभागीय अधिकारी,
अचलपूर

प्रतिलिपी :-

1) तहसीलदार, अचलपूर जि.अमरावती यांना माहितीकरीता.
2) मुख्याधिकारी, नगर परिषद, अचलपूर जि.अमरावती यांना माहिती करीता.

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अहवाल दिनांक : १३/०८/२०२१

महाराष्ट्र शासन

गावनमुना सात (अधिकार अभिलेख पत्रक)

[महाराष्ट्र जमीन महसूल अधिकार अभिलेख आणि नोंदवह्या (तयार करणे व सुस्थितीत ठेवणे) नियम, १९७१ यातील नियम ३,५,६ आणि ७]

गाव :- खेल घुमंट तालुका :- अचलपूर जिल्हा :- अमरावती

भूमापन क्रमांक व उपविभाग : २७

भू-धारणा पध्दती : सरकार शेताचे स्थानिक नाव :

क्षेत्र, एकक व आकारणी	खाते क्र.	भोगवटादाराचे नांव	क्षेत्र आकार	पो.ख.	फे.फा.	कुळ, खंड व इतर अधिकार
क्षेत्राचे एकक हे.आर.चौ.मी	८१	ई क्लास घराईकरीता	9.16.00	(20032)		कुळाचे नाव व खंड
अ) लागवड योग्य क्षेत्र						इतर अधिकार
जिरायत -						प्रलंबित फेरफार : नाही.
बागायत -						
ब) पोट-खराब क्षेत्र (लागवड अयोग्य)						शेवटचा फेरफार क्रमांक : --- व दिनांक : ---
वर्ग (अ) ९.१६.००						
वर्ग (ब) -						
एकुण पो.ख. ९.१६.००						
एकुण क्षेत्र ९.१६.०० (अ+ब)						
आकारणी ०.००						
जुडी किंवा -						
देशोध						
इ. कार -						
जुने फेरफार क्र.						सीमा आणि भुमापन चिन्हे :

गाव नमुना बारा (पिकांची नोंदवही)

[महाराष्ट्र जमीन महसूल अधिकार अभिलेख आणि नोंदवह्या (तयार करणे व सुस्थितीत ठेवणे) नियम,१९७१ यातील नियम २९]

गाव :- खेल घुमंट तालुका :- अचलपूर जिल्हा :- अमरावती

भूमापन क्रमांक व उपविभाग : २७

			पिकाखालील क्षेत्राचा तपशील								लागवडीसाठी उपलब्ध नसलेली जमीन		जल सिंचनाचे साधन	शेरा
			मिश्र पिकाखालील क्षेत्र					निर्भेळ पिकाखालील क्षेत्र						
						घटक पिके व प्रत्येकाखालील क्षेत्र								
वर्ष	हंगाम	खाता क्रमांक				पिकाचे नाव	जल सिंचित	अजल सिंचित	पिकाचे नाव	जल सिंचित	अजल सिंचित	स्वरूप	क्षेत्र		
(१)	(२)	(३)	४	५	६	(७)	(८)	(९)	(१०)	(११)	(१२)	(१३)	(१४)	(१५)	(१६)
							हे.आर. चौ.मी	हे.आर. चौ.मी		हे.आर. चौ.मी	हे.आर. चौ.मी		हे.आर. चौ.मी		
२०२०-२१	खरीप											गवत पड	९.१६००		

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महाराष्ट्र शासन
नगर विकास विभाग
शासन परिपत्रक क्रमांक:- स्वमअ-२०२२/प्र.क्र ६(शिकाना)/नवि-३४
हुतात्मा राजगुरू चौक, मादाम कामा मार्ग,
मंत्रालय, मुंबई ४०००३२
दिनांक :- १४ फेब्रुवारी, २०२३

संदर्भ:

१) शहर व नगर विकास मंत्रालय, भारत सरकार यांच्या स्वच्छ भारत अभियान-२.० योजनेच्या मार्गदर्शक सूचना.
२) नगर विकास विभाग, शासन निर्णय क्र:- स्वमअ-२०२२/प्र.क्र ७३/नवि-३४ दि. १५ जुलै २०२२
३) महाराष्ट्र जीवन प्राधिकरणाचे पत्र क्र.जा.क्र.मजीप्रा/सस/तांशा- ४/४७९, दि.८ एप्रिल २०२१
४) पाणी पुरवठा व स्वच्छता विभागाचा शासन निर्णय क्र.ग्रापाधो-२०२१/प्र.क्र.१२२/पापु-७, दि. २९ जून २०२२
५) महाराष्ट्र जीवन प्राधिकरणाचे पत्र क्र. जा.क्र. मजीप्रा/सस/तांशा-१/९९७, दि. २६ जुलै २०२२.
६) शासन परिपत्रक क्र. अमृत-२०२२/प्र.क्र.२०३/नवि-३३, दिनांक १६ सप्टेंबर, २०२२.

परिपत्रक

"स्वच्छ भारत अभियानात" सातत्य राखण्याच्या दृष्टीने व संपूर्ण नागरी भारत कचरा मुक्त करण्याच्या दृष्टीने वैयक्तिक, सामुदायिक व सार्वजनिक शौचालयांकरिताच्या गुंतवणूकीमध्ये सातत्य राखणे, वापरलेले पाणी व मैला यांची प्रक्रिया, विल्हेवाट, व पुनर्वापर करणे, सर्व प्रकारच्या घनकचऱ्याचे व्यवस्थापन करणे व जुना साठलेला कचरा, प्लास्टिक कचरा, बांधकाम व पाडकाम कचरा इत्यादींची विल्हेवाट लावणे व व्यवस्थापन करणे व याकरिता आर्थिक मदत करणे इत्यादी गरजा विचारात घेऊन केंद्र शासनाच्या गृहनिर्माण तथा नागरी कार्य मंत्रालयाद्वारे "स्वच्छ भारत अभियान नागरी २.०" चा प्रारंभ करण्यात आला आहे. सदर अभियान दिनांक २ ऑक्टोबर, २०२१ ते दिनांक १ ऑक्टोबर, २०२६ पर्यंत राबविले जाणार आहे.

२. सर्व नागरी स्थानिक स्वराज्य संस्थानी स्वच्छ भारत अभियान-२.० अभियानांतर्गत सर्व मंजूर प्रकल्पांसाठी घनकचरा व्यवस्थापन आणि मलनिस्सारण संबंधित सर्व प्रकल्प विहित कालमर्यादेत व योग्य प्रकारे पूर्ण करणे गरजेचे आहे. यासाठी या प्रकल्पांची कामे वेगाने व सक्षमपणे अंमलबजावणी करण्यासाठी नागरी स्थानिक स्वराज्य संस्थांकरीता या मार्गदर्शक सूचना निर्गमित करण्यात येत आहेत.

३. **घनकचरा व्यवस्थापन प्रकल्प-** या अभियानांतर्गत मंजूर झालेल्या प्रकल्पांचे सविस्तर प्रकल्प अहवाल तयार करणे, निविदा प्रक्रिया राबविणे व प्रकल्प व्यवस्थापन सल्लागार म्हणून काम करण्यासाठी संस्थांची विभागनिहाय नामिकासूची (empanelment) तयार करण्यात आली आहे (परिशिष्ट-१). नागरी स्थानिक स्वराज्य संस्थांनी सदर नामिकासूचीतील संस्थांकडून घनकचरा व्यवस्थापनाचा सविस्तर प्रकल्प अहवाल तयार करून घेण्यात यावा. सदर सविस्तर प्रकल्प अहवालांना तांत्रिक मान्यता देण्यासाठी महाराष्ट्र जीवन प्राधिकरणास प्राधिकृत करण्यात येत असून त्याकरिता प्रकल्प किंमतीच्या १% तांत्रिक मंजुरी शुल्क महाराष्ट्र जीवन प्राधिकरणास अदा करावे, तसेच सदर १% तांत्रिक मंजुरी शुल्काच्या रक्कमेचा प्रकल्प किंमतीमध्ये समावेश करावा. तांत्रिक मान्यता प्राप्त झाल्यावर सविस्तर प्रकल्प अहवाल तात्काळ राज्य स्तरीय तांत्रिक समितीकडे मान्यतेकरीता सादर करण्यात यावा. सदर मान्यता प्राप्त झाल्यानंतरच निविदा प्रक्रिया राबविण्यात यावी.

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मलनिस्सारण प्रकल्प-

४.१ नागरी स्थानिक स्वराज्य संस्थानी या अभियानांतर्गत मंजूर मलनिस्सारण प्रकल्पांसाठी प्रकल्प व्यवस्थापन सल्लागारांची (PMC) मार्फत सविस्तर प्रकल्प अहवाल तयार करावा.

४.२ प्रकल्प व्यवस्थापन सल्लागार (PMC) नेमण्यासाठी नागरी स्थानिक स्वराज्य संस्थांना पुढील ३ पर्यायापैकी एक पर्याय निवडण्याची मुभा राहील.

अ. महाराष्ट्र जीवन प्राधिकरणास प्रकल्प व्यवस्थापन सल्लागार म्हणून नेमता येईल.

आ. संदर्भ क्र. ३ येथील पत्रान्वये महाराष्ट्र जीवन प्राधिकरणाने प्रकल्प व्यवस्थापन सल्लागारांची (PMC) एकूण १६ संस्थांची सूची (empanelment) तयार केली असून त्यापैकी कोणत्याही एका संस्थेची प्रकल्प व्यवस्थापन सल्लागार म्हणून नेमणूक करता येईल.

इ. नागरी स्थानिक स्वराज्य संस्थांना महाराष्ट्र जीवन प्राधिकरणाने विहित केलेल्या मॉडेल RFP नुसार निविदा प्रक्रिया करून प्रकल्प व्यवस्थापन सल्लागाराची (PMC) नेमणूक करण्याची मुभा राहील.

४.३ मलनिस्सारण प्रकल्पांच्या सविस्तर प्रकल्प अहवालांना तांत्रिक मान्यता देण्यासाठी महाराष्ट्र जीवन प्राधिकरणास प्राधिकृत करण्यात येत असून त्याकरिता प्रकल्प किंमतीच्या १% तांत्रिक मंजुरी शुल्क महाराष्ट्र जीवन प्राधिकरणास अदा करावे, तसेच सदर १% तांत्रिक मंजुरी शुल्काच्या रक्कमेचा प्रकल्प किंमतीमध्ये समावेश करावा. तांत्रिक मान्यता प्राप्त झाल्यावर सविस्तर प्रकल्प अहवाल तात्काळ राज्य स्तरीय तांत्रिक समितीकडे मान्यतेकरीता सादर करण्यात यावा. सदर मान्यता प्राप्त झाल्यानंतरच निविदा प्रक्रिया राबविण्यात यावी.

४.४ महाराष्ट्र जीवन प्राधिकरण यांनी प्रकाशित केलेल्या मलनिस्सारण प्रक्रियेच्या आदर्श निविदा पुस्तिकेच्या आधार घेऊन निविदा प्रक्रिया राबविणे बंधनकारक राहील. तसेच, सदर आदर्श निविदा पुस्तिकेतील तरतुदीपेक्षा कोणतीही वेगळी तरतूद विहित करावयाची झाल्यास त्यास मुख्य अभियंता, महाराष्ट्र जीवन प्राधिकरणाची पूर्व मान्यता घेणे बंधनकारक राहील.

४.५ संदर्भ क्र. ३ येथील पत्रान्वये महाराष्ट्र जीवन प्राधिकरणाने प्रकल्प किंमत निहाय वर्गवारी करून प्रत्येक वर्गवारीकरिता विहित केल्यानुसार प्रकल्प व्यवस्थापन सल्लागार संस्थेस शुल्क अदा करावे. तथापि, संदर्भ क्र. ६ येथील परिपत्रकात नमूद केल्याप्रमाणे रु. ५ कोटी प्रकल्प किंमतीपर्यंत ३.२० % प्रकल्प व्यवस्थापन सल्लागार संस्थेस शुल्क विहित केले आहे, त्याऐवजी सदर वर्गवारीतील प्रकल्पांना कमाल ३% मर्यादेतच प्रकल्प व्यवस्थापन सल्लागार संस्थेस शुल्क अदा करावे.

४.६ या अभियानंतर्गत मंजूर प्रकल्पांची निविदा प्रक्रिया नागरी स्थानिक स्वराज्य संस्थेच्या पातळीवर शासनाने विहित केलेल्या कार्यपद्धती नुसार निविदा प्रक्रिया राबविण्यात यावी व पात्र निविदा धारकाची निवड करून त्यास कार्यादेश देण्यात यावेत. निविदा प्रक्रियेस वेगळ्याने शासनाच्या मान्यतेची आवश्यकता राहणार नाही.

४.७ प्रकल्पासाठी निविदा प्रक्रियेद्वारे निवडलेल्या कंत्राटदारास आगाऊ अग्रिम (Mobilisation Advance) देण्यात येऊ नये.

४.८ निविदा चालू दर सूचीनुसार प्रसिद्ध केली असल्यास सामान्यतः अधिक दराची निविदा स्वीकारू नये. तथापि, अधिक दराची निविदा स्वीकारल्यास सदर अतिरिक्त खर्चाचा भार संबंधीत नागरी स्थानिक स्वराज्य संस्थेने स्वीकारणे बंधनकारक राहील.

४.९ या अभियानंतर्गत मंजूर प्रकल्पांसाठी पाणी पुरवठा व स्वच्छता विभागाच्या संदर्भाकित शासन निर्णय दि. २९ जून २०२२ मधील तरतुदी लागू राहतील.

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महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने, ANIRUDDHA V JEWLIKAR

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DN: c=IN, o=GOVERNMENT OF MAHARASHTRA, ou=HOME DEPARTMENT, postalCode=400032, st=Maharashtra, 2.5.4.20=27b6c42b58c13a7b61ec37ace3251e7d13edfc1f1fc6a1d66e66c46d, pseudonym=A2901D764F36FC94ABB99A5B1177F755E1AB1AD1D3, serialNumber=8d9605d7e2f5f2f0e2f8f5d5a1f0f0f5f5e61c8497a0f3118d0f2fca86a1726fc4c, cn=ANIRUDDHA V JEWLIKAR
Date: 2023.02.15 11:27:27 +05'30'

(अनिरूध्द व्यं. जेवळीकर)
उप सचिव, महाराष्ट्र शासन

ति,

१) मा. मुख्यमंत्री, महाराष्ट्र राज्य.
२) प्रधान सचिव (न.वि. २), नगर विकास विभाग, मंत्रालय, मुंबई
३) प्रधान सचिव (पाणी पुरवठा व स्वच्छता), पाणी पुरवठा व स्वच्छता विभाग, मंत्रालय, मुंबई
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५) आयुक्त तथा संचालक, नगरपरिषद प्रशासन संचालनालय, मुंबई.
६) सदस्य सचिव, महाराष्ट्र जीवन प्राधिकरण, मुंबई
७) आयुक्त, महानगरपालिका (सर्व).
८) जिल्हाधिकारी (सर्व).
९) सर्व मुख्य अभियंता, महाराष्ट्र जीवन प्राधिकरण
१०) जिल्हा प्रशासन अधिकारी (सर्व).
११) मुख्याधिकारी, नगरपरिषद / नगरपंचायत (सर्व).
१२) निवडनस्ती, नवि-३४.

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नगर परिषद अचलपूर मिनिटबुक भाग 2

मा. प्रशासक, अचलपूर नगर परिषद यांचे दि.10/03/2023 रोजी चे आदेश

स्थळ-: नगर परिषद अचलपुर

सभेची तारीख व वेळ	प्रस्तावाचा विषय	प्रस्तावाचा मजकुर	प्रस्ताव सुचविणा-याचे व त्याला अनुमोदन देणाराचे नांव	ठराव X दिलेल्या मतांची संख्या			सुधारणा वरील मतदाना नंतरचा अंतिम ठराव	अनुक्रमांक
				विरुध्द	बाजुने	विरुध्द	मजकुर	
1	2	3	4	6	7	8	9	10
दि. 10/03/2023	प्रस्ताव क्र.01 स्वच्छ भारत अभियान 2.0 अंतर्गत Empanelment of Firms for Detailed Project Report (DPR) करीता त्रयस्थ संस्थांशी करारनामा करून घेणे बाबत.						ठराव क्रं.01 केंद्र शासनाच्या गृहनिर्माण तथा नागरी मंत्रालयाद्वारे स्वच्छ भारत अभियान नागरी 2.0 अंतर्गत घनकचरा व्यवस्थान प्रकल्प या अभियाना अंतर्गत मंजुर झालेल्या प्रकल्पांचे सविस्तर प्रकल्प अहवाल तयार करणे,निविदा प्रक्रिया राबविणे व प्रकल्प व्यवस्थापन सल्लागार म्हणुन काम करण्यासाठी संस्थांची विभाग निहाय नामिकासूची तयार करण्यात आली आहे.नागरी स्थानीक स्वरज्य संस्थांनी सदर नामिकासूचीतील संस्थाकडून घनकचरा व्यवस्थापनाचा सविस्तर प्रकल्प अहवाल तयार करून घेणे करीता महाराष्ट्र शासन नगर विकास विभाग शासन परिपत्रक क्रमांक- स्वमअ-2022/प्र.क्र 6 (शिकाना)/ नवि-34 दि.14 फेब्रुवारी 2023 अन्वये अमरावती विभागा करीता खालील संस्थांची नियुक्ती केली आहे. 1. **MaRS Planning and Engineering Services Pvt Ltd** 2. **All India Institute of Local Self-Government** 3. **MITCON CONSULTANCY AND ENGINEERING SERVICES LIMITED** उपरोक्त नियुक्त करण्यात आलेल्या संस्थेपैकि कोणत्याही एक संस्थेची प्रकल्प व्यवस्थापन सल्लागार म्हणुन नेमणुक करणे बाबत निर्देशीत केले आहे.सबब उपरोक्त तिनही संस्थांना करारनामा करणे बाबत पत्र.क्र.895 दि.10/03/2023 अन्वये कळविण्यात आले होते सदर पत्रानुसार विहित मुदतीत All India Institute of Local Self-Government हि संस्था करारनामा करणे करीता पत्रा द्वारे कळविले असुन घनकचरा व्यवस्थापनाचा सविस्तर प्रकल्प अहवाल लवकरात लवकर तयार करून घेणे आवश्यक असल्याने **All India Institute of Local Self-Government** या संस्थे सोबत करारनामा करून घेणे करीता मंजुरी प्रदान करण्यात येत आहे. (संदीपकुमार अपार) प्रशासक,नगर परिषद अचलपुर, तथा उपविभागीय अधिकारी, अचलपूर.		

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कार्यालय अचलपूर नगर परिषद
जिल्हा - अमरावती
पिन कोड - 444805

O/o The Achalpur Municipal Council
Dist:- Amravati (M.S)
Pin No:- 444805

Tel-Office- +07223-220372, President-Office-+07223-220370, Chief Officer Office -+07223-222448
Fax - +07223-222494 E-mail: mcachalpur@gmail.com, comcach@rediffmail.com

क्रं./अनपा/आवि/मुआ/2384/२०२३ दि. 9/6/2023/२०२३

प्रति,
President,
All India Institute of Local Self-Government,
Nagpur.

विषय :- स्वच्छ भारत अभियान 2.0 अंतर्गत Empanelment of firms for Detailed Project Report (DPR) तयार करणे बाबत.

संदर्भ:- 1. RFP No.: SMM-2022/179/UD 34. Tender ID: 2023 UDDMH 864695 1 issued by theMaharashtra Urban Development Mission Directorate Swachh Maharashtra Mission (U) 2.0 dated 2nd January 2023
2. Government of Maharashtra, Urban Development Department Government Resolution. Number 9431-702/6(shikana)/navi-34 Dated 14th February 2023.
3. मा.प्रशासक यांचे मंजुरी आदेश दि.10/03/2023.
4. आपण केलेला करारनामा दि.23/03/2023.

उपरोक्त विषयान्वये संदर्भीय शासन निर्णय व संचालनालयाचे पत्रानुसार, राज्यातील नागरी स्थानिक स्वराज्य संस्थांमध्ये स्वच्छ भारत अभियान २.० अंतर्गत Empanelment of firms for Detailed Project Report (DPR) करीता आपण संदर्भ क्रं.4 अन्वये नगर परिषदे सोबत घनकचरा व्यवस्थापन प्रकल्पा करीता सविस्तर प्रकल्प अहवाल तयार करणे बाबत करारनामा केलेला आहे.तरी आपणांस आदेशीत करण्यात येते कि,अचलपूर नगर परिषदेचे घनकचरा व्यवस्थापन प्रकल्प करीता सविस्तर प्रकल्प अहवाल बनविण्याचे काम त्वरीत सुरू करण्यात यावे.

कार्यालय नगर परिषद अचलपूर

मुख्याधिकारी
नगर परिषद अचलपूर

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महाराष्ट्र MAHARASHTRA ◐ 2022 ◐ BW 115069

29.3.2023

एस. जे. गुप्ता
मुद्रांक विक्रेता, तहसिल
अमरावती L/2/91

21 MAR 2023

CONTRACT AGREEMENT

Contract No.

AGREEMENT FOR Preparation of Detailed Project Report (DPR), Transaction Advisory Including Bid Process Management and Provision of Supervision & Monitoring Services for Implementation of Integrated Solid Waste Management Projects under the provisions of Letter of Empanelment (LOE) Sr. No MUDM/SMM/ 1410/2022-23 dated 24/02/2023 for RFP notification SMM-2022/179/UD 34 dated 02/01/2023. For "Selection and Empanelment of firms for Preparation of Detailed Project Report (DPR), Transaction Advisory and Provide Supervision & Monitoring Services for Implementation of Solid Waste Management Projects for ULBs in the State of Maharashtra"

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Between

Chief Officer Municipal Council Achalpur, Dis:- Amravati

And

All India Institute of Local Self-Government

Dated.....

This Agreement for Preparation of Detailed Project Report (DPR), Transaction Advisory Including Bid Process Management and Provision of Supervision & Monitoring Services for Implementation of Integrated Solid Waste Management Projects (hereinafter called the "Agreement/Contract Agreement") is made on the day of the month of ..... 20...

BETWEEN

Chief Officer, Municipal Council Achalpur represented by its chief Municipal Officer (CMO) having its principal office at Municipal Council Achalpur, Dis. Amravati (here in after referred to as the "NODAL AUTHORITY", which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) of the FIRST PART;

AND

All India Institute of Local Self-Government, with its registered office at **M. N. Roy Human Development Campus, Plot No 6, F-Block, Opp. Government Colony, Bldg. No 326, T.P.S. Road No. No 12, Bandra (East), Mumbai – 400051** and its regional office at **Pinnac Memories, L Building, Nr. Karve Statue (Putala), Kothrud, Pune, 411038** and represented by its **Regional Director** (hereinafter referred to as the "CONSULTANT/EMPANELLED CONSULTANT", which expression shall unless repugnant to the context or meaning thereof include its successors and permitted assigns) of the SECOND PART.

The Nodal Authority, the "Consultant/ Empaneled Consultant" shall collectively be referred to as the Parties and individually as a Party.

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WHEREAS

The Nodal Authority wish to appoint an "Consultant" for Preparation of Detailed Project Report (DPR), Transaction Advisory Including Bid Process Management and Provision of Supervision & Monitoring Services for Implementation of Integrated Solid Waste Management Projects hereinafter referred to as the "PROJECT".

The Authority had invited Request for Proposal (RFP) from prospective bidders vide RFP Notification SMM-2022/179/UD 34 dated 02/01/2023.

Pursuant to the terms of the RFP, All India Institute of Local Self-Government submitted its technicaland financial proposals to implement the Project on (the Bid).

Following a process of evaluation of technical and financial proposals submitted by the bidders including All India Institute of Local Self-Government, the Authority accepted the Bid on 14/02/2023. The Authority issued the letter of award on to All India Institute of Local Self-Government (the LOA).

All India Institute of Local Self-Government accepted the LOA and has agreed to undertake the Letter ofEmpanelment (LOE)

All India Institute of Local Self-Government has submitted Performance Guarantee to the Authority on 21/02/2023 and executed Letter of Empanelment (LOE),

And based on the Letter of Empanelment (LOE) Sr. No MUDM/SMM/1410/2022-23 dated 24/02/2023 for RFP notification SMM-2022/179/UD 34 dated 02/01/2023. The Nodal Authority and Empaneled Consultant now wish to enter into this Contract Agreement (CA) to implement the Project, subject to and onthe terms and conditions set out in this Contract Agreement (CA).

NOW THIS AGREEMENT WITNESSED as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred' to and they shall be deemed to form and be read and construed as part of this Agreement.
2. The following documents shall be deemed to form and be ready and

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construed as part of this Contract Agreement viz.

I. Letter of Empanelment (LOE)
II. Letter of Acceptance (LoA)
III. Contractor's Bid
IV. RFP Document including any Addendum, Corrigendum
V. Any other documents listed in the RFP as forming part of the Contract Agreement.

3. **Additional Performance Bank Guarantee-** The Consultant is furnishing Additional Performance Bank Guarantee as a Performance Security equal to at the rate of 3% of contract value for each Assignment at the time of signing of this Contract Agreement.

4. **Services:** The work to be performed by the Consultant under the Contract Agreement (such work being hereinafter called the Services) is more particularly described in the Scope of work (TOR) set forth as part of RFP which contains the other terms and conditions with regard to the performance of obligations and entitlements of the Parties.

For more clarity, major scope of works for this Project are presented here below: Part-1: Preparation of Detailed Project Report (DPR) / Feasibility Study Report (FSR) Part-2: Tender preparation, assistance in evaluation and awarding of work Contract

Part-3: Project Management Consultancy (PMC) services of Supervision and Monitoring required during implementation of the project.

Personnel:

(a) The Services shall be carried out by the Personnel of the Consultant and the Consultant shall be responsible for the payment of salary and other employee benefits to the Personnel. The Client shall not be responsible for any payment to the personnel of the Consultant.

(b) The Consultant shall, at all times, ensure that there is a Team Leader to supervise and coordinate the operations of the personnel in the field as well as such other personnel as may be required for the satisfactory performance of the Services and the Team Leader shall be responsible for

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liaison between the Consultant and the Nodal Authority. The list of Personnel shall be in line with the Letter of Empanelment (LOE) issued by the Authority for the Empanelment of the Consultant.

(c) The Consultant shall inform in writing to the Nodal Authority on the authorized signatory of the Consultant who shall sign the reports and invoices from the Consultant side.

5. **Commencement/Effective Date:** The Effective Date shall be the date of Signing the Contract Agreement.

6. **Maximum payment to the consultant:** The Consultancy fees payable to the Consultant by the Nodal Authority is subject to services availed as per clause no. 3.0 of Contract Agreement and to be released as per Deliverable & Payment Schedule as specified in theLetter of Empanelment (LOE).
Note: Consultancy fee shall be payable as per clause 1.5 of the RFP. Accounts for Payment: All payments under this Contract shall be made to the following account(s) of the Consultant
Account Name: - All India Institute of Local Self Government
Bank Name: - Axis Bank Ltd
Bank Address: - Pune Camp
Bank Account No.: - 305010100028097
IFSC Code: - UTIB0000305

7. **Partial Invalidity / Severability:** If for whatever reason, any provision of this Agreement is or become invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentally to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected inany manner, and the Parties will negotiate in good faith with a view to agreeing upon one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable. Provided failure to agree upon any such provisions shall not be subject to dispute resolution under this Agreement or otherwise.

8. **Relationship between the Parties:** Nothing contained in this Agreement shall be construed or interpreted as constituting a partnership between the

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Parties. Neither Party shall have any authority to bind over the other in any manner whatsoever and this Agreement is entered as between principal-to-principal basis.

9. **Non-Assignability:** The Agreement is not assignable.

10. **Counterparts and Registration:** This Agreement shall be executed in two counterparts and when executed and delivered shall constitute an original of this Agreement.

11. In consideration of the payments to be made by the Nodal Authority to the Consultant as hereinafter mentioned, the Consultant hereby covenants with the Nodal Authority to complete the Scope of Work and remedy any defects therein inconformity in all aspects with the provisions of the contract agreement.

12. The Nodal Authority hereby covenants to pay the Consultant in consideration of completion of the Scope of Work and the remedying the defects wherein Consultancy fees or such other sum as may become payable under the provisions of the Contract Agreement at the times and in the manner prescribed by the Contract Agreement.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written. The Common Seal of was hereunto affixed in the presence of:

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SIGNED, SEALED AND DELIVERED

For and on behalf of Nodal Authority

[Rajendra B. Fatale]
Chief Officer
Municipal Council Achalpur

मुख्याधिकारी
नगर परिषद, अचलपूर

For and on behalf of consultant

Soham D. Kulkarni
Program Officer
All India Institute of Local Self-Government

In the presence of:

1.

2.

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ANNEXURE R-13

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DETAILED PROJECT REPORT



Prepared by

PREPARATION OF DETAILED PROJECT REPORT

for

INTEGRATED SOLID WASTE MANAGEMENT OF ACHALPUR MUNICIPAL COUNCIL

SWACHH BHARAT MISSION – URBAN 2.0

1. RECAP SHEET OF UMARKHED SWM SITE

Achalpur Municipal Council, Achalpur
Name of Scheme: Municipal Solid Waste Management of Achalpur Municipal Council Tal- Achalpur, District- Amravati, {Under SBM (U) 2.0}
RECAPITULATION SHEET

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
Solid Waste Management					
A	**Compost Plant (including leachate management)**	**TPD**			
1	**Civil Works**				
a	Windrow Platform with Shed	SQ. M.		2600	1,12,00,097.24
b	Tipping Area	SQ. M.		900.00	20,78,610.26
c	Leachate Tank	SQ. M.		4.00	1,34,810.36
2	**Plant & Machinery**				
	Sub- Total of A (A1+A2)				**1,34,13,517.86**
B	**MRF Plant**	**TPD**			
1	Presorting shed-Civil Works	SQ. M.		1200	1,72,15,456.66
2	**Plant & Machinery**				
a	Machinery cost - Presorting Trommel	TPD		50	69,00,000.00
	Sub Total of B (B1+B2)				**2,41,15,456.66**
C	**Sanitary Landfill (SLF)**	**TPD**			
1	**Civil Works**				
a	Sanitary landfill	SQ. M.		5070	95,03,850.89
b	Leachate collection Sump	SQ. M.		4	1,79,749.95
2	**Plant & Machinery**				-
	Sub Total of C (C1+C2)				**96,83,600.84**
D	**Total Project Basic Cost (A+B+C)**				**4,72,12,575.35**
E	**MJP Fees (1% of D, inclusive of GST)**				
F	**PMC Fees of (2.35% of D)**				11,09,495.52
G	**GST**				
1	Civil Works - 18% of (A1+B1+C1)				72,56,263.56
2	Plant & Machinery - 18% of (A2+B2+C2)				12,42,000.00
3	PMC Fees (18% on F)				1,99,709.19
H	**Total GST (G1+G2+G3)**				86,97,972.76
TC-1	**Total Project Cost of Solid Waste Management (D+E+F+H)**				**5,70,20,043.63**
C&D Waste Management		**TPD**	**Existing Capacity available**	**Proposed Capacity in SBM 2.0**	**Amount in Rs.**

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
a	C&D Waste Management - Shed	SQ. M		120	21,82,832.68
	Machinery cost-Jaw Crusher	NOS		1	5,25,000.00
I	**C&D Waste Management - Total**				27,07,832.68
J	**MJP Fees (1% of I, inclusive of GST)**				
K	**PMC Fees of (2.35% of I)**				63,634.07
L	**GST**				
1	C&D Waste Management (18% of I)				4,87,409.88
2	PMC Fees (18% of K)				11,454.13
M	**Total GST (L1+L2)**				4,98,864.01
N	**Other Charges if any (add row for individual charges)**				-
TC-2	**Total Project Cost of C and D Shed (I+J+K+M+N)**				32,70,330.76
Other Items (Site Development, Vehicles, Incinerator, etc.)		**Unit**		**Qty**	**Amount in Rs.**
O	**Other Items (Item-1,2, 3…. add the items in row)**				
1	Machinery cost - Animal Disposal Machine	TPD		1	46,00,000.00
2	3.5 m wide road	R. M.		225	28,89,579.25
3	5.5 m wide road	R. M.		255	32,74,855.21
4	Compound wall	R. M.		800	1,14,95,813.79
5	Weigh Bridge Room	SQ. M		9	4,45,153.46
6	Weigh Bridge Platform	SQ. M		36	5,26,414.54
7	Leachate Drainage Line	R. M.		360.00	16,70,627.39
P	**Total Basic Cost (O1+O2+O3…….)**				2,49,02,443.64
Q	**MJP Fees (1% of P, inclusive of GST)**				-
R	**PMC Fees of (2.35% of P)**				5,85,207.43
S	**GST**				
1	Other Items (18% on P)				44,82,439.86
2	PMC Fees of (18% on R)				1,05,337.34
T	**Total GST (S1+S2)**				45,87,777.19
TC-3	**Total Cost for Other Items (P+Q+R+T)**				3,00,75,428.26
TPC	**Total Project Cost (Sum of TC-1, TC-2, TC-3)**				**9,03,65,802.65**
					Cost Summery
1				Total Net Cost =	7,48,22,851.67

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
3	Total PMC 2.35 % Charges =				17,58,337.01
4	Total GST (Civil and Mechanical Works) =				1,37,84,613.96
5	Total Cost=				**9,03,65,802.65**
6	Total MJP 1% TS Charges =				9,03,658.03
7	**TOTAL COST OF PROJECT =**				**9,12,69,460.67**

	Prepared By		NP Engineer		Chief Offier
	All India Institute of Local Self Government				

CSWAP Baseline Template

Census Population 2011	112311	% Waste Distribution base for 2026	ULB Code (Enter the ULB Code>>)	802685
Current Population 2022	144230		ULB Name	ACHALPUR (802685)
Estimated Population 2026 (2.3% Decadal Growth)	157964		Division	AMRAVATI
Total Waste Generation @ 2022 (TPD)	35.47		**Total Waste Generation** @ 2026 (TPD)	48.55
Total **Wet Waste Generation** @ 2022 (TPD)	9.53	26.87%	Total **Wet Waste** Generation @ 2026 (TPD)	13.05
Total **Dry Waste Generation** @ 2022 (TPD)	24.81	69.95%	Total **Dry Waste** Generation @ 2026	33.97
Total **Domestic Hzardous** @ 2022 (TPD)	0.61	1.72%	Total **Domestic Hzardous Waste** Generation @ 2026	0.84
Total **Sanitary Waste Generation** @ 2022 (TPD)	0.00	0.00%	Total **Sanitary Waste** Generation @ 2026	0.00
Total **Other Waste Generation** @ 2022 (TPD)	0.52	1.45%	Total **Other Waste** Generation @ 2026	0.71
Per Capita Generation @ 2022 (grams)	245.90	100.00%	**Per Capita Generation @ 2026 (grams)**	307.38
Current Waste Analysis				
Temporary **Wet Waste** Processing Arrangement	9.60		Temporary **Dry Waste** Processing Arrangements Capacity	25.00
Operational Compost Plant Capacity (TPD)	0.00		**Operational MRF Plant** Capacity (TPD)	0.00
Non Operation Compost Plant Capacity (TPD)	14.54		**Non Operational MRF Plant** Capacity (TPD)	21.10
Operational Biogas Plant Capacity (TPD)	0.00	Bio Gas	**Operational WtE/RDF (>10L) Plant** Capacity (TPD)	0.00
Non Operation Biogas Plant Capacity (TPD)	5.00	Approved	**Non Operational WtE/RDF (>10L) Plant** Capacity (TPD)	0.00
Total Available Wet Waste Processing Capacity in TPD	19.54	5	**Total Available Dry Waste Processing Capacity in TPD**	21.10
2026 Waste Analysis/GAP Analysis				
Wet Waste % of 2026	26.87%		Dry Waste % of 2026	69.95%
Total Wet Waste Generation @ 2026 (TPD)	13.05		Total Dry Waste Generation @ 2026 (TPD)	33.97
Gap In Wet Waste Processing (TPD) (+ surplus/ -Gap)	6.49		Gap In Dry Waste Processing (TPD) (+ surplus/ -Gap)	-12.87
Required Wet Waste Processing Plan Capacity (TPD)	0.00		Proposed Dry Waste Processing Plan Capacity (TPD)	12.87
Is ULB has land Issue	0.00		Dry Waste Plant Capacity - MRF	12.87
Proposed Wet Waste Plant Capacity - Compost	0.00		Dry Waste Plant Capacity - MRF Cum RDF	0
Proposed Wet Waste Plant Capacity - Bio Gas	0.00		Dry Waste Plant Capacity - WtE (>10L)	0

Fund Analysis

SN	Category	Required Quantity (TPD)	Unit Rate(INR)		Total Cost in Cr	Central Share in Cr
M-1	**Solid Waste Management**					
1	Wet Waste Plant Capacity - Compost	10.00		1150000.00	1.15	0.38
2	Wet Waste Plant Capacity - Bio Gas	0.00		1800000.00	0.00	0.00
3	Dry Waste Plant Capacity - MRF	15.00		850000.00	1.28	0.42
4	Dry Waste Plant Capacity - MRF Cum RDF	0.00		850000.00	0.00	0.00
5	Dry Waste Plant Capacity - WtE (>10L)	0.00		1800000.00	0.00	0.00
6	TS Station (>5L)	0.00	Not Eligible	450000.00	0.00	0.00
7	SLF	10.68		650000.00	0.69	0.23
M-2	**Legacy Waste**	33600.00		420.00	1.85	0.61
M-3	**Construction and Demolition**	0.00		600000.00	0.00	0.00
M-4	**Mechnical Road Sweeper**	0.00		5500000.00	0.00	0.00
A	Total Estimated Cost				4.97	1.64

Fund Status

		Population 2026		Elligible/Available Fund in Cr	Fund Required in Cr
B	**SWM Fund Allocation @ 605 INR / Capita @2026**	157964		9.56	4.97

NGT Default Category:	#N/A

In case of Legacy Default, please recheck the claim.

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DETAILED PROJECT REPORT

VOLUME I



PREPARATION OF DETAILED PROJECT REPORT

for

INTEGRATED SOLID WASTE MANAGEMENT OF ACHALPUR MUNICIPAL COUNCIL

SWACHH BHARAT MISSION – URBAN 2.0

Prepared by

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NOTE-SHEET

The Achalpur Municipal Council is classified as an A-class council with a population of 123,048 as of the year 2023. The All India Institute of Local Self Government (AIILSG) has been officially appointed as our agency for the formulation of the Solid Waste Management Detailed Project Report under the Swachh Bharat Mission 2.0 (Urban). The agency conducted comprehensive data collection and site visits during the month of July 2023.

At the existing Solid Waste Management (SWM) dumping site in Achalpur, a temporary facility for Pit composting is currently in place, with a capacity of 10 Tons Per Day (TPD) for processing wet waste. Additionally, a Material Recovery Facility (MRF) Plant with a capacity of 25 TPD is operational for the processing of dry waste. In November 2023, the government approved another SWM dumping site covering an area of 91,658 square meters. **Consequently, the Urban Local Body (ULB) officials decided to relocate all proposed SWM infrastructure to the new site.**

Following discussions with the agency, it was decided to propose the installation of a Weight Bridge machine and platform at the entrance of the new site, equipped with a monitoring room. A Tipping platform, covering an area of 900 square meters, has been proposed for the unloading of solid waste. Additionally, a Pre-sorting shed of 1,000 square meters, incorporating a Pre-sorting Trommel machine with a capacity of 50 TPD, has been included in the DPR. A Windrow platform, spanning 2,600 square meters, has been designated for accommodating 41 TPD of wet waste for composting. A C and D (Construction and Demolition) shed with a Jaw crusher has also been incorporated into the Detailed Project Report (DPR) for C and D waste management.

Furthermore, a scientific landfill with a capacity to accommodate inerts and rejects totalling 16,000 Metric Tons has been proposed for the next five years. Adequate roads for accessing these facilities have been proposed, and, considering the new site for security purposes, a compound wall will be constructed throughout the entire area.

EXECUTIVE SUMMARY AND RECAP OF PROPOSALS

1. General Details

	Particular	Details
1	Name of the ULB	Achalpur
2	ULB Category (Municipal Class)	A
3	Area of the ULB (In Sq. Km)	16.54 sq.km
4	SWM Processing & Disposal Site Location	Achalpur
5	SWM Processing & Disposal Site Area (In Sq. M)	91658 Sq. M

2. Demographic Details

The waste generation is function of population and lifestyle of people. Therefore, it is essential to project the population for setting out the infrastructure for SWM. The details of Population data and its projection is presented below:

	Particular	Details
1	Population as per census 2001	107316
2	Population as per census 2011	112311
3	Projected Population @2023 (Present Year)	1,42027 (As per projection)
4	Projected Population @2026 (Design Year)	147704
5	Projected Population @ 2043(20 Years)	176585
	Population Data as per CSWAP	
1	Current Population @2022	144230
2	Projected Population @2026 (2.3% decadal growth)	1,57,964

Population Projection

Year	Arithmetic Increase	Incremental Increase	Geometric Increase	Average of Three Methods
2023	142,748	141,773	141,561	142,027
2026	**149,655**	**146,609**	**146,848**	**147,704**
2028	1,54,260	1,49,426	1,50,482	1,51,389
2033	1,65,772	1,55,048	1,59,964	1,60,261
2038	1,77,284	1,58,639	1,70,044	1,68,656
2043	1,88,796	1,60,199	1,80,760	1,76,585

3. Waste Quantification

As per SBM 2.0 guidelines the typical per capita waste generation rate in the cities with morethan one lakh population is 450 Gram/Day and as per CPHEEO manual per capita waste generation is increasing by about 1.3% per year same has been considered for the estimation of future waste generation.

Sr No	Year	Population	Waste Generation	Bio-Degradable	Non-Biodegradable	Inerts & Other
			(MT/ Day)	55%	35%	10%
1	2023	1,42,027	64.764	35.620	22.668	6.476
2	2026	1,47,704	70.307	38.669	24.607	7.031
3	2028	1,51,389	74.181	40.799	25.963	7.418
4	2033	1,60,261	84.137	46.275	29.448	8.414
5	2038	1,68,656	94.953	52.224	33.234	9.495
6	2043	1,76,585	106.481	58.564	37.268	10.648

As per CSWAP population for the year 2026

Sr No	Year	Population	Waste Generation	Bio-Degradable	Non-Biodegradable	Inerts & Other
	2026	1,57,964	75.191	41.355	26.317	7.519

In this scenario, the CSWAP population for the year 2026 surpasses the projected population. Therefore, when quantifying waste, the CSWAP population is taken into account. Considering safety on higher side.

	Waste Quantification as per CSWAP						
	Particular	Total Waste	Wet waste	Dry waste	Domestic Haz. Waste	Sanitary Waste	Other
1	CSWAP Waste Generation @ 2022(TPD)	35.47	9.53	24.81	0.61	0.00	0.52
2	CSWAP Waste Generation @ 2026(TPD)	48.63	13.07	34.02	0.84	0.00	0.71

4. Assessment of Solid Waste Management System

SN	Description	Existing Capacity in TPD	Existing Gap as per Analysis (TPD)	Approved as per C-SWAP (TPD)	Proposed Capacity in TPD	Remark
1	Wet Waste Processing (Pit Composting on different Site)	10	31.355	0.00	41.35	Windrow platform is proposed of 2600 SQM for wet waste processing
2	Dry Waste Processing (MRF Facility on Different Site)	25	1.317	0.00	50	Considering future waste generation Presorting shed is provided with one presorting trommel machine of 50 TPD is proposed for segregation of total waste.
3	Sanitary Landfill Facility (SLF)	0	0	10.70	7.419	As per projection capacity is proposed
4	Hazardous Waste Processing	0	0	0	1	Animal Disposal Machine of 1 TPD is provided.
6	C&D Waste Processing (Storage)	0	0	0	11.85	C & D waste shed of 120 SQM is proposed.

5. Allied Infrastructure

SN	Particular	Status	Proposed	Remark
1	Internal Roads	Not Available	Yes	As C and D facility and simple landfill facility is proposed at the site. To access these facilities an internal road of 3.5m and 5.5m wide at site of length 225 m and 255m is proposed.
2	Weighbridge	Not Available	Yes	weigh Bridge platform is proposed of 12m X 3 m
3	Security Cabin	Not Available	No	Not required
4	Compound	Not	Yes	Compound wall of 1548 m is proposed at site

S N	Particular	Status	Proposed	Remark
	Wall	Available		from all four sites.
5	Toilet Block	Not Available	No	Not required
6	Office Block	Not Available	yes	Office block area 9 Sqm is provided as per requirement

6. Financial Aspect

S No	Description	Amount
1	Funds Required as per CSWAP	4.97 cr
2	Funds Available as per CSWAP	9.56 cr
3	Proposed cost in DPR (Based on Gap Analysis and ULB Requirement)	**₹ 9,12,69,460.67**

Funding Pattern of the Project			
S No	**Particular**	**% Contribution**	**Amount**
1	Government of India (GoI)	33%	₹ 4,56,34,730.34
2	Government of Maharashtra(GoM)	52%	₹ 4,10,71,257.30
3	ULB	15%	₹ 45,63,473.03
	Total	**100**	₹ 9,12,69,460.67

7. CSWAP REPORT

City Soild Waste Action Plan CSWAP - Module I (SWM) & II (LWDR)SBM 2.0

CSWAP Baseline Template

Census Population 2011	112311	% Waste Distribution base for 2026	ULB Code (Enter the ULB Code>>)	802685
Current Population 2022	144230		ULB Name	ACHALPUR (802685)
Estimated Population 2026 (2.3% Decadal Growth)	157964		Division	AMRAVATI
Total Waste Generation @ 2022 (TPD)	35.47		**Total Waste Generation** @ 2026 (TPD)	48.55
Total **Wet Waste Generation** @ 2022 (TPD)	9.53	26.87%	Total **Wet Waste** Generation @ 2026 (TPD)	13.05
Total **Dry Waste Generation** @ 2022 (TPD)	24.81	69.95%	Total **Dry Waste** Generation @ 2026	33.97
Total **Domestic Hzardous** @ 2022 (TPD)	0.61	1.72%	Total **Domestic Hzardous Waste** Generation @ 2026	0.84
Total **Sanitary Waste Generation** @ 2022 (TPD)	0.00	0.00%	Total **Sanitary Waste** Generation @ 2026	0.00
Total **Other Waste Generation** @ 2022 (TPD)	0.52	1.45%	Total **Other Waste** Generation @ 2026	0.71
Per Capita Generation @ 2022 (grams)	245.90	100.00%	**Per Capita Generation @ 2026 (grams)**	307.38
Current Waste Analysis				
Temporary **Wet Waste** Processing Arrangement	9.60		Temporary **Dry Waste** Processing Arrangements Capacity	25.00
Operational Compost Plant Capacity (TPD)	0.00		**Operational MRF Plant** Capacity (TPD)	0.00
Non Operation Compost Plant Capacity (TPD)	14.54		**Non Operational MRF Plant** Capacity (TPD)	21.10
Operational Biogas Plant Capacity (TPD)	0.00	Bio Gas	**Operational WtE/RDF (>10L) Plant** Capacity (TPD)	0.00
Non Operation Biogas Plant Capacity (TPD)	5.00	Approved	**Non Operational WtE/RDF (>10L) Plant** Capacity (TPD)	0.00
Total Available Wet Waste Processing Capacity in TPD	19.54	5	**Total Available Dry Waste Processing Capacity in TPD**	21.10
2026 Waste Analysis/GAP Analysis				
Wet Waste % of 2026	26.87%		Dry Waste % of 2026	69.95%
Total Wet Waste Generation @ 2026 (TPD)	13.05		Total Dry Waste Generation @ 2026 (TPD)	33.97
Gap In Wet Waste Processing (TPD) (+ surplus/ Gap)	6.49		Gap In Dry Waste Processing (TPD) (+ surplus/ -Gap)	12.87
Required Wet Waste Processing Plan Capacity (TPD)	0.00		Proposed Dry Waste Processing Plan Capacity (TPD)	12.87
Is ULB has land Issue	0.00		Dry Waste Plant Capacity - MRF	12.87
Proposed Wet Waste Plant Capacity - Compost	0.00		Dry Waste Plant Capacity - MRF Cum RDF	0
Proposed Wet Waste Plant Capacity - Bio Gas	0.00		Dry Waste Plant Capacity - WtE (>10L)	0

Fund Analysis

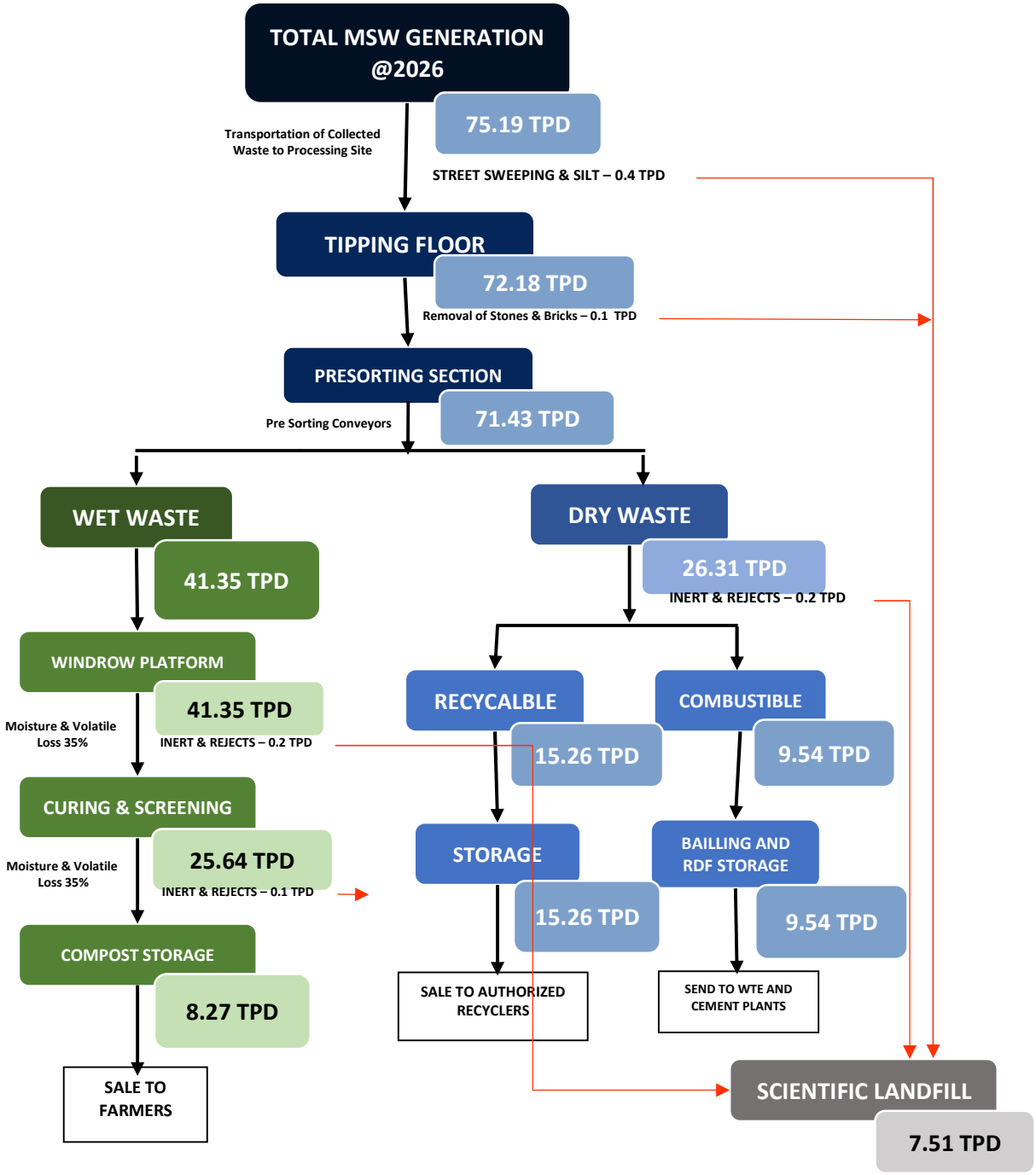
SN	Category	Required Quantity (TPD)	Unit Rate(INR)	Total Cost in Cr	Central Share in Cr
M-1	**Solid Waste Management**				
1	Wet Waste Plant Capacity - Compost	10.00	1150000.00	1.15	0.38
2	Wet Waste Plant Capacity - Bio Gas	0.00	1800000.00	0.00	0.00
3	Dry Waste Plant Capacity - MRF	15.00	850000.00	1.28	0.42
4	Dry Waste Plant Capacity - MRF Cum RDF	0.00	850000.00	0.00	0.00
5	Dry Waste Plant Capacity - WtE (>10L)	0.00	1800000.00	0.00	0.00
6	TS Station (>5L)	0.00	Not Eligible 450000.00	0.00	0.00
7	SLF	10.68	650000.00	0.69	0.23
M-2	**Legacy Waste**	33600.00	420.00	1.85	0.61
M-3	**Construction and Demolition**	0.00	600000.00	0.00	0.00
M-4	**Mechnical Road Sweeper**	0.00	5500000.00	0.00	0.00
A	Total Estimated Cost			4.97	1.64

Fund Status

		Population 2026	Elligible/Available Fund in Cr	Fund Required in Cr
B	SWM Fund Allocation @ 605 INR / Capita @2026	157964	9.56	4.97

NGT Default Category:	#N/A
	In case of Legacy Default, please recheck the claim.

PROPOSED MSW PROCESS FLOW WITH MASS BALANCE



1. RECAP SHEET OF UMARKHED SWM SITE

Achalpur Municipal Council, Achalpur
Name of Scheme: Municipal Solid Waste Management of Achalpur Municipal Council Tal- Achalpur, District- Amravati, {Under SBM (U) 2.0}
RECAPITULATION SHEET

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
Solid Waste Management					
A	**Compost Plant (including leachate management)**	**TPD**			
1	**Civil Works**				
a	Windrow Platform with Shed	SQ. M.		2600	1,12,00,097.24
b	Tipping Area	SQ. M.		900.00	20,78,610.26
c	Leachate Tank	SQ. M.		4.00	1,34,810.36
2	**Plant & Machinery**				
	Sub- Total of A (A1+A2)				**1,34,13,517.86**
B	**MRF Plant**	**TPD**			
1	Presorting shed-Civil Works	SQ. M.		1200	1,72,15,456.66
2	**Plant & Machinery**				
a	Machinery cost - Presorting Trommel	TPD		50	69,00,000.00
	Sub Total of B (B1+B2)				**2,41,15,456.66**
C	**Sanitary Landfill (SLF)**	**TPD**			
1	**Civil Works**				
a	Sanitary landfill	SQ. M.		5070	95,03,850.89
b	Leachate collection Sump	SQ. M.		4	1,79,749.95
2	**Plant & Machinery**				-
	Sub Total of C (C1+C2)				**96,83,600.84**
D	**Total Project Basic Cost (A+B+C)**				**4,72,12,575.35**
E	**MJP Fees (1% of D, inclusive of GST)**				
F	**PMC Fees of (2.35% of D)**				11,09,495.52
G	**GST**				
1	Civil Works - 18% of (A1+B1+C1)				72,56,263.56
2	Plant & Machinery - 18% of (A2+B2+C2)				12,42,000.00
3	PMC Fees (18% on F)				1,99,709.19
H	**Total GST (G1+G2+G3)**				86,97,972.76
TC-1	**Total Project Cost of Solid Waste Management (D+E+F+H)**				**5,70,20,043.63**
C&D Waste Management		**TPD**	**Existing Capacity available**	**Proposed Capacity in SBM 2.0**	**Amount in Rs.**

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
a	C&D Waste Management - Shed	SQ. M		120	21,82,832.68
	Machinery cost-Jaw Crusher	NOS		1	5,25,000.00
I	**C&D Waste Management - Total**				27,07,832.68
J	**MJP Fees (1% of I, inclusive of GST)**				
K	**PMC Fees of (2.35% of I)**				63,634.07
L	**GST**				
1	C&D Waste Management (18% of I)				4,87,409.88
2	PMC Fees (18% of K)				11,454.13
M	**Total GST (L1+L2)**				4,98,864.01
N	**Other Charges if any (add row for individual charges)**				-
TC-2	**Total Project Cost of C and D Shed (I+J+K+M+N)**				32,70,330.76
Other Items (Site Development, Vehicles, Incinerator, etc.)		**Unit**		**Qty**	**Amount in Rs.**
O	**Other Items (Item-1,2, 3…. add the items in row)**				
1	Machinery cost - Animal Disposal Machine	TPD		1	46,00,000.00
2	3.5 m wide road	R. M.		225	28,89,579.25
3	5.5 m wide road	R. M.		255	32,74,855.21
4	Compound wall	R. M.		800	1,14,95,813.79
5	Weigh Bridge Room	SQ. M		9	4,45,153.46
6	Weigh Bridge Platform	SQ. M		36	5,26,414.54
7	Leachate Drainage Line	R. M.		360.00	16,70,627.39
P	**Total Basic Cost (O1+O2+O3…….)**				2,49,02,443.64
Q	**MJP Fees (1% of P, inclusive of GST)**				-
R	**PMC Fees of (2.35% of P)**				5,85,207.43
S	**GST**				
1	Other Items (18% on P)				44,82,439.86
2	PMC Fees of (18% on R)				1,05,337.34
T	**Total GST (S1+S2)**				45,87,777.19
TC-3	**Total Cost for Other Items (P+Q+R+T)**				3,00,75,428.26
TPC	**Total Project Cost (Sum of TC-1, TC-2, TC-3)**				**9,03,65,802.65**
					Cost Summery
1				Total Net Cost =	7,48,22,851.67

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
3	Total PMC 2.35 % Charges =				17,58,337.01
4	Total GST (Civil and Mechanical Works) =				1,37,84,613.96
5	Total Cost=				**9,03,65,802.65**
6	Total MJP 1% TS Charges =				9,03,658.03
7	**TOTAL COST OF PROJECT =**				**9,12,69,460.67**

	Prepared By		NP Engineer		Chief Offier
	All India Institute of Local Self Government				

1 INTRODUCTION

1.1 INTRODUCTION OF MUNICIPAL SOLID WASTE MANAGEMENT (MSW)

Municipal Solid Waste (MSW) is the garbage that is discarded day to day from any human settlement. According to MSW Rules 2016, this waste “includes solid or semi- solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, slaughter house waste, treated bio-medical waste excluding industrial waste, radio- active waste generated in the area under the local authorities and other entities.”

Municipal Solid Waste (MSW) has to be managed by technologies and methods that enable keeping our cities clean, prevent pollution and protect the environment and at the same time minimize the cost through recovery of resources and energy. According to CPCB annual report 2020-21, The total quantity of municipal Solid waste generated in the country is 160038.9 TPD of which 152749.5 TPD of waste is collected at a collection efficiency of 95.4%. 79956.3 TPD (50 %) of waste is treated and 29427.2 (18.4%) TPD is landfilled.

As per CPCB annual report of 2020-21, Maharashtra is one of the highest urbanized states with nearly 50% population residing in urban areas. Total 396 ULBs are responsible for MSW management in the State of Maharashtra, comprising of 27 Municipal Corporation, 238 Municipal Councils and 131 Municipal Councils. There are 7 Cantonment Boards.

Total Solid Waste generation in the State of Maharashtra for the year 2020-21 is 22632.71 TPD, out of which 22584.4 TPD is collected and 15056.1 TPD of waste is treated. 1355.36 TPD is landfilled and 6221.5 TPD is unscientifically.

ULBs in Maharashtra installed 372 composting plants as a waste processing facility. Also 83 vermin- composing facilities are installed, 47 bio-methanization plants are installed, 01 waste to Energy plant (4 MW) and 18 RDF plant installed. The 382 landfill sites are identified and 45 sites under construction phase.

ULBs are practicing segregation of waste at source and adequate provisions are made in Solid Waste Management DPRs for achieving 100% segregation of waste at source. ULBs in state of Maharashtra are segregating waste into three categories wet, dry and domestic hazardous waste.



Figure 1:1 Municipal Solid Waste Generation Sources

1.2 PROBLEMS ARISING DUE TO MUNICIPAL SOLID WASTE

Accumulation of solid waste in open area leads to degradation of environment and aesthetic quality. Improper disposal of MSW in open areas have a negative impact on the living conditions of human beings as well as the overall environment. In addition to the stench emanated, the untreated waste becomes a breeding ground for mosquitoes, flies and other insects resulting in spread of various diseases. In addition, it leads to the contamination of soil, surface and ground water. However, with the help of adequate information, resources, and efficient management practices, one can turn solid waste into a useful resource.

1.3 MUNICIPAL SOLID WASTE MANAGEMENT

Municipal Solid Waste Management (MSWM) refers to a systematic process that comprises of waste segregation and storage at source, primary collection, secondary storage, transportation, secondary segregation, resource recovery, processing, treatment, and final disposal of solid waste. It is an integrated process comprising several collection methods, mix of transportation equipment's, storage, recovery mechanisms for recyclable material, reduction of waste volume and quantity by methods such as composting, waste-to-power etc and disposal in a designated engineered sanitary landfill.

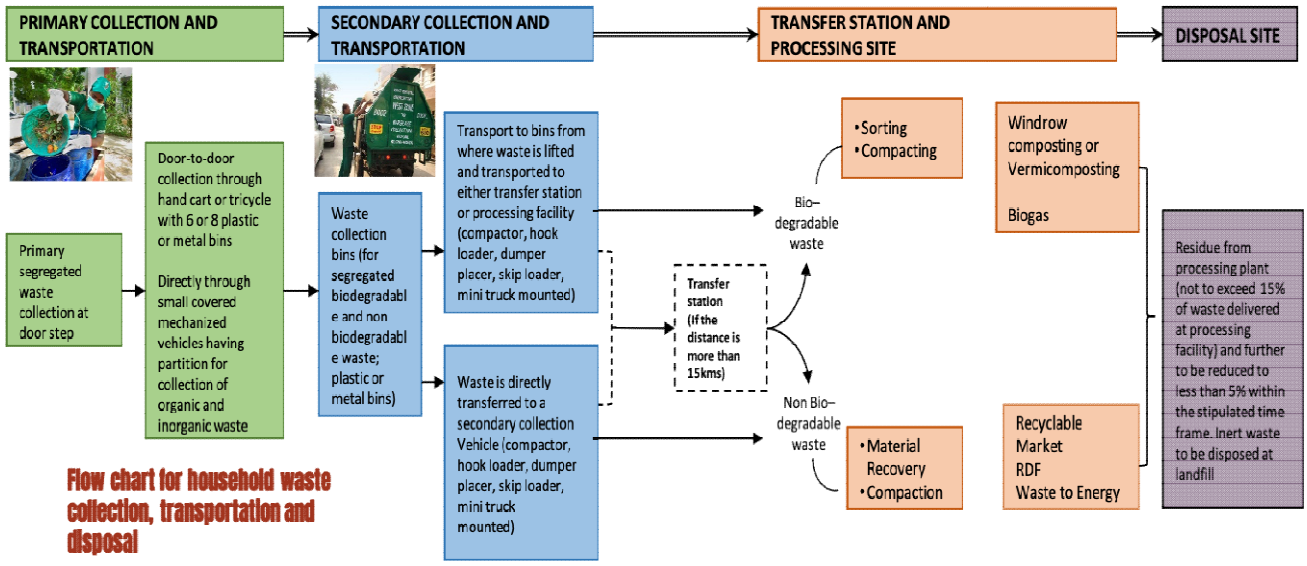


Figure 1:2 MSW Process Flow

Effective solid waste **management has the following benefits:**

(a) It prevents contamination of water and soil;

(b) Reduces waste sent to the landfill, which may have negative impacts on groundwater and air quality;

(c) Significantly controls vector borne diseases;

(d) Reduce emissions from energy consumption, as waste when recycled requires less energy than making goods from virgin materials thereby reducing the energy demand and demand on non-renewable sources;

(e) Contributes to minimizing Climate Change by reducing methane emissions from landfills. Waste prevention and recycling (including composting) divert organic wastes from landfills, reducing the methane released when these materials decompose.

(f) Reduction in quantum of waste by diverting it to recycling and other processing unit reduces the landfill costs;

(g) An effective waste management implies reduce, reuse and recycle waste matter leading to introduction of more and more of waste matter into the value chain leading to economic benefits;

(h) Waste management being a labour-intensive activity, it helps in employment generation.

1.4 PROBLEM ASSOCIATED WITH SOLID WASTE MANAGEMENT

The major deficiencies associated with the system are as follows:

(a) The solid waste generation is increasing due to rise in the population and increase in the per capita waste generation due to lifestyle changes. The increasing solid waste quantities and the areas to be served strain the existing SWM system.

(b) While allocating funds, SWM is assigned with a low priority resulting in inadequate provision of funds, although under the SBM initiatives of GOI this is gaining priority

(c) Inadequate human resources and lack of adequate training

(d) Use of obsolete and inefficient technologies

(e) Gap in contracted waste quantity and available waste during operation period

(f) Limited availability of competent SWM Vendors with design, construction and operational expertise.

(g) Lack of public awareness

(h) The operational efficiency of SWM depends on the active participation of both the municipalities and citizens. Since the social status of SWM is low, there is a strong apathy towards it, which can be seen from the uncollected waste in many areas and the deterioration of aesthetic and environmental quality at the uncontrolled disposal sites.

(i) The SWM system is unplanned and is operated in an unscientific way. The vehicles are poorly maintained. Due to shortage of financial resources, the vehicles are often used beyond their economic life resulting in inefficient operation.

(j) There is no coordination of activities between different components of the system.

The cumulative effect of all or a combination of the above factors leads to an inefficient SWM system.

1.5 PROJECT BACKGROUND AND SCOPE

The "Swachh Bharat Mission-Urban" (SBM-U) is a significant initiative of the Government of India, launched on Mahatma Gandhi's birth anniversary on October 2nd, 2014. The mission aims to achieve his vision of a "Clean India". Swachh Bharat Mission (Urban) (SBM-U) had three major objectives:

- Achieving 100% Open Defecation Free (ODF) status,
- Ensuring 100% scientific Solid Waste Management (SWM),
- Behaviour change through 'Jan Andolan,' by 2nd October 2019, in all statutory towns

This Mission has achieved significant levels of success against the above objectives, with massive engagement of citizens across all categories of society. Mission is now being extended for a period of 5 (five) years, from 1st October 2021 to 1st October 2026, as Swachh Bharat Mission (Urban) 2.0 (SBM-U 2.0), for completing the work remaining, institutionalizing 'Swachh' behaviour and making it sustainable.

To achieve the objectives of the Swachh Bharat Mission, the Government of Maharashtra had initiated the "Swachh Maharashtra Mission" at the state level. The implementation of the Swachh Maharashtra Mission in urban areas is overseen by the Urban Development Department (UDD) through a dedicated Swachh Maharashtra Mission. With extension of Swachh Bharat Mission, Government of Maharashtra intends to further strengthen the entire Municipal Solid Waste Management (MSWM) system in all the Urban Local Bodies (ULBs) across Maharashtra to comply with the Solid Waste Management Rules 2016, meet the Sustainable Development Goals (SDG) 2030 set by the Government of India, and achieve the goals of the Swachh Bharat Mission Urban 2.0.

Swachh Maharashtra Mission has empanelled All India Institute of Local Self Government (AIILSG) along with other two agency for the preparation of Detail Project Report (DPR), Transaction Advisory including Bid process Management and provision of supervision and Monitoring services for Implementation of Integrated Solid waste Management projects for the ULB's of the Pune Revenue Division. Based on the presentation, understanding of the project output, timelines and competencies of AIILSG Achalpur Municipal Council appointed AIILSG to prepare the Detail Project Report (DPR), Transaction Advisory including Bid process Management and provision of supervision and Monitoring services for Implementation of Integrated Solid waste Management project.

1.6 SCOPE OF WORK

AIILSG Scope of work includes

Part-1: Preparation of Detailed Project Report (DPR)

(a) Site visit and collection of data from Achalpur Municipal Council (AMC) for existing SWM scenario

(b) Studying secondary data and Gap analysis

(c) Assessment of quantity, quality (characterization and classification) of MSW

(d) DPR comprising following four components of SWM to be prepared:

(e) Collection: Planning for waste collection from source such as residential, commercial, Institutional etc. The waste segregation at source would be adopted

(f) Transportation: The waste transportation with requirement of Transfer Station (TS) would be analysed. The requirement of transportation vehicles and equipment would be calculated as per waste generation and its projection for project design period, i.e., 20 years.

(g) Treatment and processing: The waste collected from different sources would be treated with suitable technology. The treatment technology would be as per the qualitative and quantitative assessment of the waste. This is also in line with SWM Rules 2016 and SWM Manual of CPHEEO. The waste to be processed and the by-product such as recyclables, compost, energy etc. would be sold for recovery of cost for meeting the partial requirement of SWM.

(h) Disposal: As per the requirement of SWM Rules 2016, only rejects from waste processing should be disposed in Sanitary Landfill site (SLF). The requirement of SLF area and its preliminary design would be carried out for disposal of process rejects for 5 years period. The SLF would be equipped

Part-2: Tender preparation, assistance in Bid Process management and Bid evaluation

(a) To provide Transaction Advisory and bid process management support to Authority.
(b) Prepare Tender Document (Project Information Memorandum (PIM), Request for Proposal (RFP), Draft Concession Agreement (DCA), Inter ULB Agreement (IUA), etc) in consultation with ULB's official in-charge
(c) Prepare BOQ and Estimates as per applicable schedule of rates
(d) Prepare & assist in finalization of Bid Documents for uploading on e- procurement portal of Government of Maharashtra (GoM)
(e) Answering the technical queries raised by the contractors in the pre- bid meeting
(f) Preparing all the pre bid questionnaire and clarifications
(g) Assisting in evaluation of bids received by Authority

Part-3: Project Management Consultancy (PMC) services of Supervision and Monitoring required during implementation of the project

(a) Monitoring and supervise the contractor's work during execution period and reports to the concerned Nodal Authority and take Nodal Authority's consent wherever required.

(b) Provide Daily, Weekly and Monthly progress report to client.

(c) Provide timely direction to the Contractor in all matters related to the interpretation of the Contract Documents and other matters related to contract compliance and progress of the project.

(d) Assist Nodal Authority and the contractor in easy resolution of issues, and conflicts. Project Formulation Justification

1.7 Need of the Project

The Swachh Maharashtra Mission is committed to make all cities of Maharashtra 'Garbage Free' under SBM-Urban 2.0 in order to contribute to the achievement of the Sustainable Development Goals (SDG) 2030, Government of India and achieve, which will ultimately improve the quality of life and ease of living of urban populations, thus leading to urban transformation. Therefore, the Government of Maharashtra (GoM) proposes to strengthen the MSWM system covering collection, segregation, transportation, processing, recycling and disposal including options for composting and other processing technologies and final disposal. The project is being implemented by Swachh Maharashtra Mission (SMM) in many ULBs of Maharashtra.

In order to achieve this vision, the following specific objectives are targeted to be achieved in this DPR:

(a) Setting up of waste processing facilities such as MRFs, composting plants, bio methanation plants, RDF processing facilities, plastic waste processing facilities, waste to electricity, sanitary landfill, etc.

2 CITY PROFILE

2.1 Geographical and Climatic Conditions

Achalpur, formerly known as Ellichpur and Illychpur, is a city and a municipal council in Amravati District in the Indian state of Maharashtra. It is the second most populous city in Amravati District after Amravati and seventh most populous city in Vidarbha. Achalpur camp is known as Paratwada Achalpur and Paratwada are twin cities located in the lap of Satpuda . It has an average elevation of 369 metres (1210 ft). These twin cities are surrounded by rivers named Sapan and Bicchhan, the tributaries of Chandrabhaga river. There is hilly area that acts like a fence to this city. This city is at the boundary of Maharashtra and Madhya Pradesh. Even Madhya Pradesh is so close to this city that travelling of (about) 12 km changes the state region

Description	Details
Area	16.54 sq.km
Minimum temperature	22 C
Maximum temperature	33 C
Average Rainfall	789.44 mm
Latitude	21.2550
Longitude	77.5096

2.2 Location and Extent

Paratwada is well connected to major cities by state highways. Maharashtra Major State Highway 6 and Major State Highway 24 passes from Paratwada. Both public and private transport are popular in Paratwada. Private companies too run buses to major cities throughout India. Auto rickshaws and cycle rickshaws are allowed to operate in this city. Also,the Maharashtra State Road Transport Corporation (MSRTC) provides transport services to this city for interstate travel.

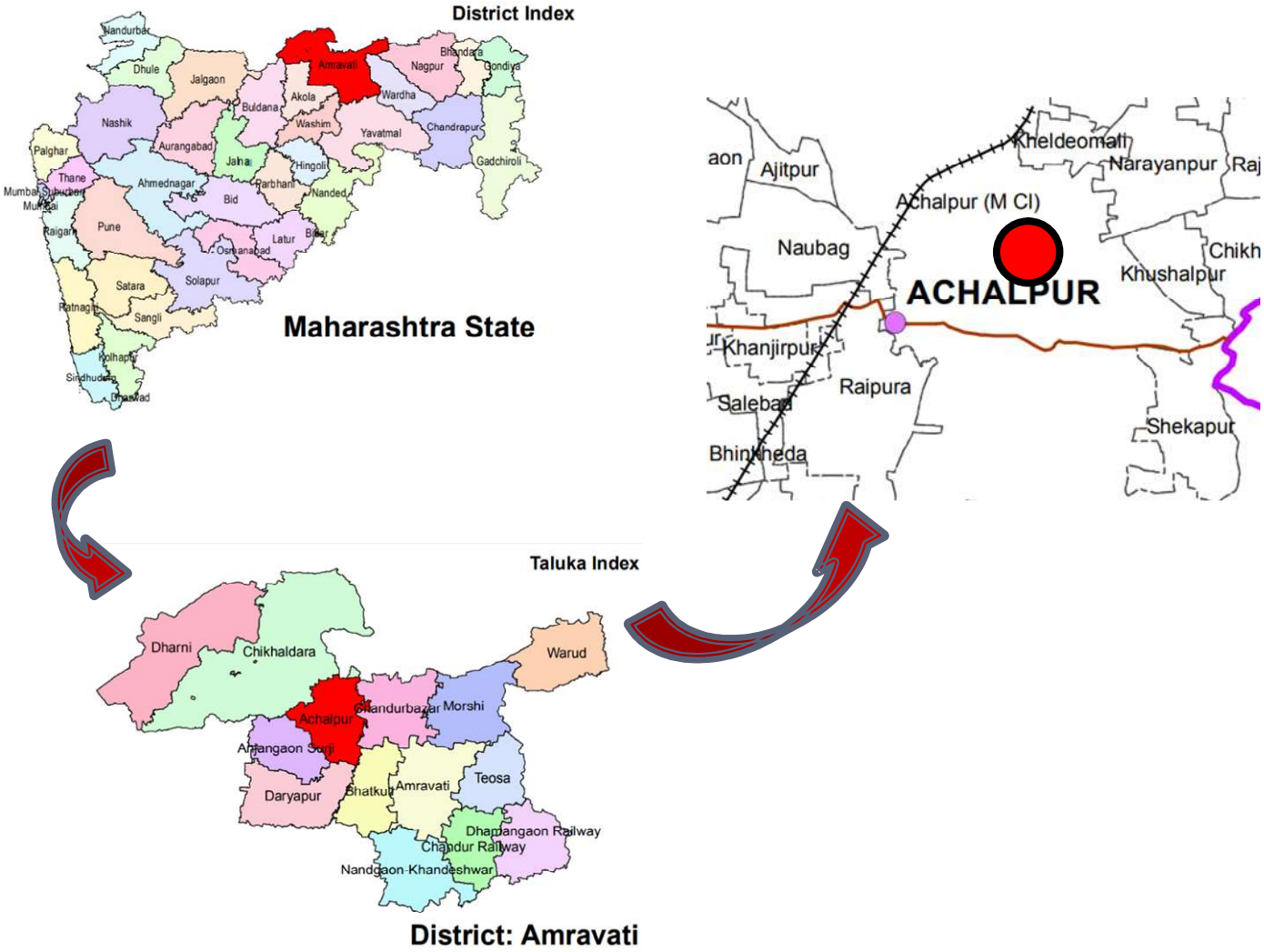


Figure2:1 Location Map of Achalpur Town

2.3 Population

According to the Census of 2011, Achalpur had a total population of 1,12,311 individuals. The waste generation is function of population and lifestyle of people. Therefore, it is essential to project the population for setting out the infrastructure for SWM.

2.3.1 Population Projections

The population projection of Achalpur is carried out based on following methods:

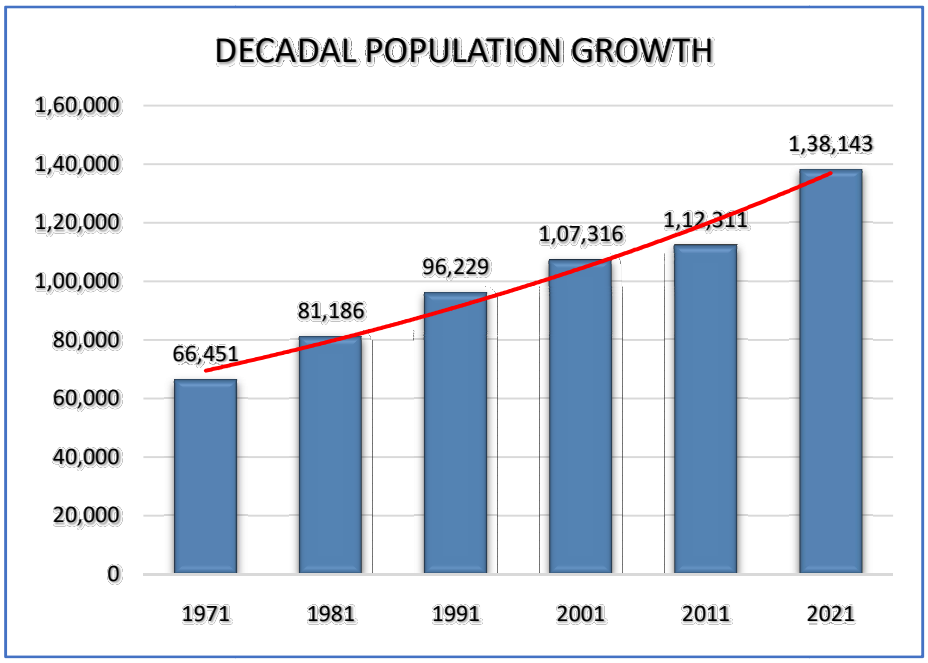
(a) Arithmetic Increase Method

(b) Incremental Increase Method

(c) Geometric Increase Method

Table 2.1 Decadal Increase in Population of Achalpur Municipal Council

Year	Population	Increase in Population	Incremental Increase in Population	Population Growth Rate (%)
1971	66,451	66,451		
1981	81,186	14,735	- 51,716	22.2%
1991	96,229	15,043	308	18.5%
2001	1,07,316	11,087	- 3,956	11.5%
2011	1,12,311	4,995	- 6,092	4.7%
2021	1,38,143	25,832	20,837	23.0%



2:2 Decadal Population Growth of AchalpurMunicipal council

Table 2.2 Population Projection for Achalpur Municipal Council

Year	Arithmetic Increase	Incremental Increase	Geometric Increase	Average of Three Methods
2023	142,748	141,773	141,561	142,027
2024	145,050	143,466	143,302	143,939
2025	147,353	145,078	145,064	145,832

Year	Arithmetic Increase	Incremental Increase	Geometric Increase	Average of Three Methods
2026	149,655	146,609	146,848	147,704
2027	151,957	148,058	148,654	149,556
2028	154,260	149,426	150,482	151,389

Note – The average of Arithmetic increase, Incremental increase and Geometric Increase is adopted for the further calculations

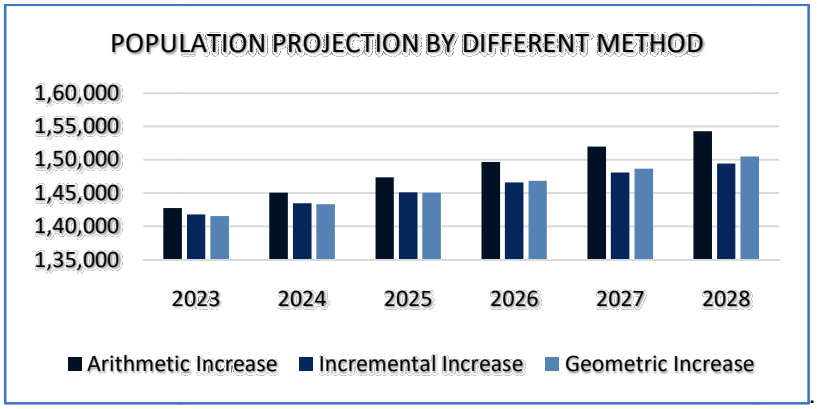


Figure2:3 Population Projection by Different Methods

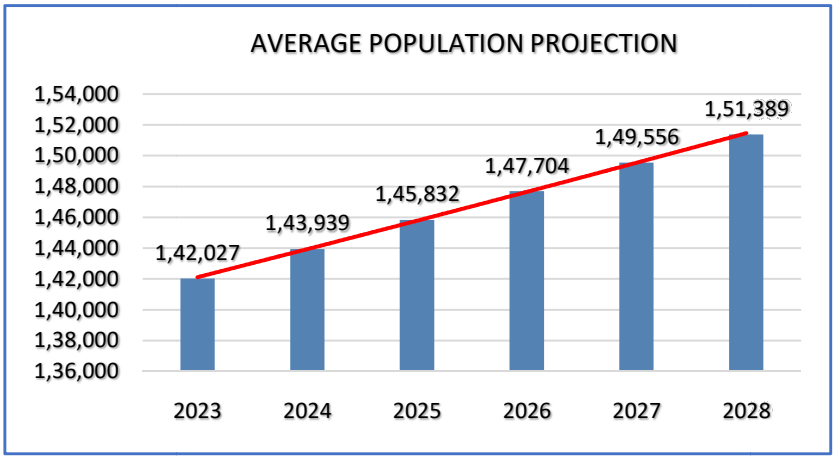


Figure 2:4 Average Population Projection

2.3.2 Floating Population

Achalpur is the taluka place. Some of the government institutions and main market is situated in the town. Government institutions like Panchayat samiti office, public health centre, Nationalised Banks, etc. are situated in the town. As per data shared by the officials the floating population in the town is around 8,000.

2.4 Settlements in City

2.4.1 Number of Households, Shops, Commercial Establishments and Institutions

In the town of Achalpur, there are a total of 26,462 households. This figure represents the number of residential units or dwellings where families or individuals reside. These households form the residential fabric of the town, accommodating its permanent population. Alongside the households, Achalpur also have 7,230 shops and commercial establishments. These commercial units cater to the needs of the local community and contribute to the town's economic activity.

Table 2.3 List of HHs, Commercial Establishment and Institutions

Sr. No	Description	Numbers
1	Households	26462
2	Commercial Establishments	7230
3	Institutions	83
4	Hotels	30

(Source: As per data shared by Achalpur Municipal Council)

2.4.2 Number of Large Markets (Vegetables, Meat and Fish)

There are nine major fruits and vegetables market where a wide variety of fresh fruits & vegetables and others are traded. This market serves as a hub for farmers, vendors, and consumers, facilitating the smooth flow of agricultural produce from the surrounding areas to the town. Additionally, there is a fish market in Achalpur, providing a centralized location for the sale and purchase of fresh fish and seafood. Furthermore, Achalpur has 3 mutton/chicken and Fish market, where residents can purchase fresh meat products. And a slaughterhouse.

2.4.3 Slums and Other Informal Settlements

As per the ULB records, the total slum population of Achalpur town is 74022 which is 65.91 % of the population of total town. There is total 34 slum settlements present in the town out of which Mughlai (1338 Households) and Allhadpura (1330 Households) are few major settlements.28 notified settlements; 6 notified settlements also exist as per ULB information.

2.4.4 Healthcare Establishments

In the city, there are 20 private hospitals and three government hospital. This distribution suggests that the majority of healthcare facilities in the city are privately owned, with private hospitals outnumbering the government hospital by a significant margin. The presence of both private and government hospitals in the city reflects the diversity of healthcare options available to residents.

2.4.5 Slaughterhouses

There is one slaughterhouse present in the town.

2.5 Industries and Their Profile

An industry is a broad term which refers to manufacturing of raw materials into goods and products. The town has no major industrial construction activities except four small cotton factories and one Oil-mil between 1-2 km radius of town boundary.

2.6 Physical Infrastructure

2.6.1 Roads

The existing road condition and length in the town. The total road length in Town is 136.6 km. Out of the total road lengths ,22.34 % roads are less than 3.5m, 77 % roads are more than 3.5m. About 68.81 % roads are pucca roads and remaining 30.52 % are kutcha in nature. The following are the details of roads infrastructure existing in the town.

2.6.2 Storm Water Management

There is no dedicated storm water management system exists in the town. The storm water drainage system in the town comprises of mainly tertiary drains. The hierarchy between primary, secondary and tertiary drains at various locations is blocked by waste disposal. The storm water drains need to be strengthened by separating the sanitation, sewerage and drainage aspects, which are currently intermixed. The total drain Length existing in the town is about 230 Kms. Out of the total existing drain, 73 Kms (32 %) consists of primary drains, 125 Kms (54 %) consist of secondary Drains and 32 Kms (14 %) consists of tertiary drains. 96 % of the total drains are pucca in nature while the rest are kutcha.

2.6.3 Sewage Management

Town doesn't have underground sewerage system. There is no continuous network due to encroachment and illegal constructions over the roads. At present the waste water from bathrooms and kitchens from HHs is disposed of into open drains or fields in front of houses. The sullage/sewage is being disposed into nearby open drains at various locations in the town without any treatment. 9 Sq. Km of the municipal area is covered by drainage network. Majorly the coverage of drainage network is dominated by open drains (100 %), No Closed Drains or Underground sewerage network exists in the town.

2.6.4 Water Supply System

The ULB currently produces total 13.78 MLD water. Out of the total water produced, 13.75 MLD water comes from Ground water sources (100%) and 0.03 MLD water comes from Surface water sources (0 %). 100 % of the total produced water is treated daily. The total water storage capacity existing in the ULB as per the records is 31.5 MLD. Overall, there are total 12660 water connections in the town. 67 % of the Municipal Area is supplied by piped network

2.6.5 Electricity

The main source of electricity in Achalpur town is MSEDC which covers 90% of municipal area but it serves almost hundred percent of the population. The connection of electricity is good in terms of service reach. The town is provided almost 22-23 hours of supply although during peak season time of power is cut off for load shedding.

2.7 Administrative Setup of Sanitation Department of the ULB

The Chief Officer Municipal Council heads the executive wing of AMC and is assisted by Health department and the sanitary inspectors therein for the overall waste management in the city. The Senior Sanitary Inspector leads the team of 3 sanitary inspectors and 164 SWM staff.

3 STATUS OF EXISTING SOLID WASTE MANAGEMENT IN THE CITY

3.1 Methodology adopted for data collection

The solid waste management data for Achalpur town was collected through a comprehensive methodology. The process includes visit to the Achalpur Municipal Council, where statistical data about the town and existing SWM system has been collected through the questionnaire format as attached in Annexure 1. The survey involved gathering essential information related to solid waste management, interaction with the City Coordinators, Health Officer and Chief Officer regarding issues and challenges related to solid waste management, reconnaissance survey in the urban locality and visiting the current solid waste processing site.

3.1.1 Visit to Achalpur Municipal Council

The data collection process for Achalpur solid waste management began with a visit to the Urban Local Body (ULB). During this visit crucial information related to solid waste management is gathered through the questionnaire. The data and documents received through this questionnaire played a vital role in providing valuable insights into the town's existing waste management infrastructure and processes.



Figure 3:1 Photographs of AMC

3.1.2 Reconnaissance Survey

A reconnaissance survey was done by AIILSG team, aimed at evaluating the overall sanitation scenario and practices within the region. Several noteworthy observations emerged from this survey, affirming the local authority's commitment to maintaining a well-managed environment. Firstly, it was observed that regular street sweeping operations were diligently carried out, ensuring

the cleanliness of the town's thoroughfares. The roads were found to be clean, with minimal instances of indiscriminate dumping along their lengths.

A notable aspect of the waste management strategy employed by the Municipal Council Achalpur is its adherence to a bin-free town approach. This progressive approach avoids the traditional reliance on community bins and associated practices. Instead, the emphasis is placed on individual responsibility, encouraging households and shops, recognized as key waste generators, to manage their waste disposal effectively. This approach not only promotes a cleaner and more organized environment but also instils a sense of ownership and accountability among the residents.

Furthermore, the absence of industries within the urban local body limits contributes to a streamlined waste management process. With no industrial waste to contend with, the focus remains primarily on residential and commercial waste management, allowing for a more targeted and efficient approach.

Hazardous and bio medical waste is treated at the generator level (clinics, hospitals) and not forwarded to Municipal Councils system minimizing handling procedure and measures for harmful waste handling.

Moreover, during the survey, particular attention was given to the zoning of the waste processing site. It was observed that the site had been thoughtfully located away from the core residential area. This strategic decision ensures that potential environmental hazards associated with waste processing activities are minimized, safeguarding the well-being and quality of life for residents.

3.1.3 Visit to existing waste processing site

On July 13, 2023, a comprehensive visit took place at the waste processing site of Achalpur Municipal Council. The purpose of this visit was to gather detailed information about the existing waste processing practices at the site. The main objectives of the visit were to evaluate the effectiveness of the processing units and identify any areas that require improvement or showed inadequacy in the operations of the site.

During the visit, a team of AIILSG conducted a thorough data collection exercise. They carefully observed and documented the processes and systems in place at the waste processing site. The team analysed various aspects such as waste collection methods, sorting and segregation techniques, treatment and disposal methods, and overall operational efficiency.

The primary focus was on assessing the adequacy of the processing units. This involved examining the capacity of the site to handle the incoming waste, ensuring that the processing units were functioning optimally and efficiently. The team assessed the machinery, equipment, and infrastructure used for waste processing, looking for any signs of wear and tear, malfunctioning, or out-dated technology.





Figure 3:2 Photographs of MSW Site of Achalpur

Furthermore, the visit aimed to identify areas of improvement or insufficiency within the site's operations. This involved scrutinizing the waste management practices for potential bottlenecks, inefficiencies, or environmental concerns. The team evaluated the waste processing workflow, monitoring the effectiveness of waste segregation, treatment processes, and disposal methods. They also reviewed the compliance with environmental regulations and safety standards to ensure that the site was operating in an environmentally friendly and sustainable manner.

Throughout the visit, the team interacted with site personnel, including managers, operators, and workers, to gather their insights and perspectives on the current waste processing practices. This helped in understanding the challenges faced by the site and the potential opportunities for improvement.

3.1.4 General findings and observations

- Achalpur town has made significant progress in achieving an overall sanitation scenario that promotes cleanliness and sustainable waste management practices. As part of this endeavour, the town has successfully transitioned to a bin-free city, eliminating the practice of waste dumping on the streets.

- The implementation of a door-to-door collection system has ensured 100% coverage, encompassing residential areas, commercial establishments, marketplaces, hotels, and restaurants.
- To facilitate the collection and transportation of waste, Achalpur Municipal Council operates a fleet of 45 vehicles. These vehicles are responsible for ensuring the timely and efficient removal of waste from various sources throughout the town. The comprehensive coverage provided by the Municipal Council includes both residential and commercial areas, demonstrating their commitment to maintaining a clean and hygienic environment.
- At processing site AMC presently have 10.48 TPD capacity pit composting facility to process the wet waste.
- To process the dry waste AMC do have dedicated space and machines like bailing machine, pet bottle shredding machine but due to manual operation it is not functioning.
- There is no scientific disposal facility to dispose of the inerts and process rejects due to which legacy waste is observed at the site.

3.2 Solid Waste Generation

3.2.1 Waste Generators in the town

Table 3.1 Details of Waste Generators in Achalpur Town

Sr. No	Description	Numbers
1	Households	26462
2	Commercial Establishments	7230
3	Government Institutions	14
4	Schools	71
5	Colleges	12
6	Hotels	30
7	Restaurants	30

(Source: Questionnaire data collected from AMC)

3.2.2 Physical Characteristics of MSW

3.2.2.1. Waste Characterization

To determine the waste composition and other relevant parameters, **The quartering and coning method** is used, 10kg sample of waste was collected from a waste of 100kg which was collected from various sources like residential areas (including slums), commercial, business, and market areas (vegetable market, meat market, grain market, etc.) thoroughly mixed and then analysed with the help of quartering and coning method. The sample is placed as a uniform heap. The heap is divided into four portions using straight lines perpendicular to each other. Waste from opposing

corners of the divided heap is removed to leave half of the original sample. The remaining portions are again thoroughly mixed and the quartering process is repeated until a desired size is obtained.

Figure 1.7: Characterisation of Municipal Solid Waste through Quartering Method[12]

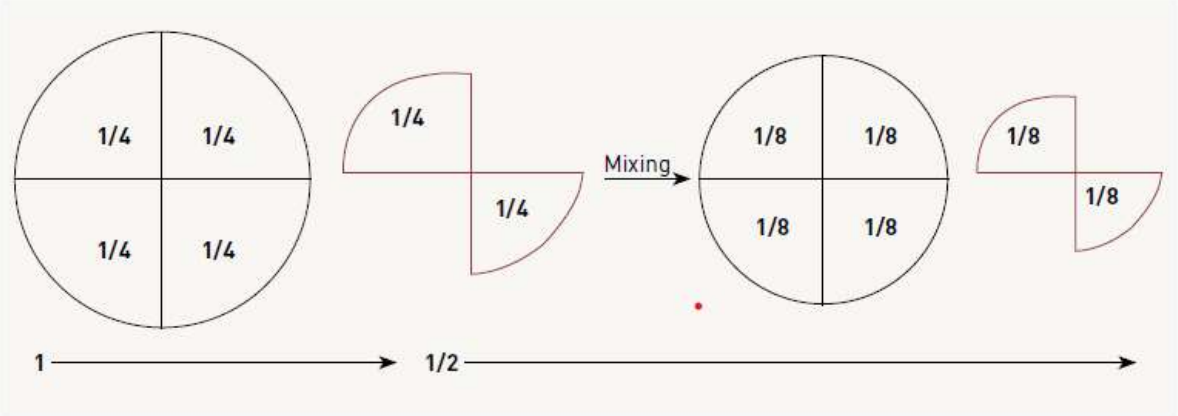


Figure 1 *Characterisation of Municipal Solid Waste Trough Quartering Method, SWACHH BHARAT MISSION MUNICIPAL SOLID WASTE MANAGEMENT MANUAL Part II: The manual, Central Public Health and Environmental Engineering Organisation (CPHEEO)*

1. Emptying of waste



2. Sampling of waste



3. Quartering of waste



4. Quartering and Coning Process



5. Quartering and Coning Process of ULB



6. Segregation of waste



7. Weighing of waste



3.2.2.2. Waste Composition

The samples were analyzed to arrive at physical composition and segregated into constituents the same was recorded. Components of all the waste sample were segregated in various categories like Food/fruit, Leaves/hay/straw, Paper/cardboard/packaging, Rubber/leather, Plastic/polythene, Textile, wood, Glass and crockery, Tin cans, Stone/brick, Coal ash/fine earth/dust and metals. The waste samples were analyzed for organic bio degradable waste, inert waste, and recycling waste. Put the table of Waste composition (Match it with the waste projections used for the DPR)

The below chart table shows the category wise share of each MSW component.

Table 3.2 Physical Characterisation of MSW

S No	Parameter	Unit (%)
1	Plastic	13.38
2	Paper	12.74
3	Glass, Metal	2.73
4	Leather, Rubber	3.11
5	Cloth	2.83
6	Food Waste	42.59
7	Horticulture Waste	12.47
8	Misc	9.04
9	Silt	0.63
10	Other	0.48
11	TOTAL	100

(Source: MUNICIPAL SOLID WASTE MANAGEMENT ANNUAL, 2016)

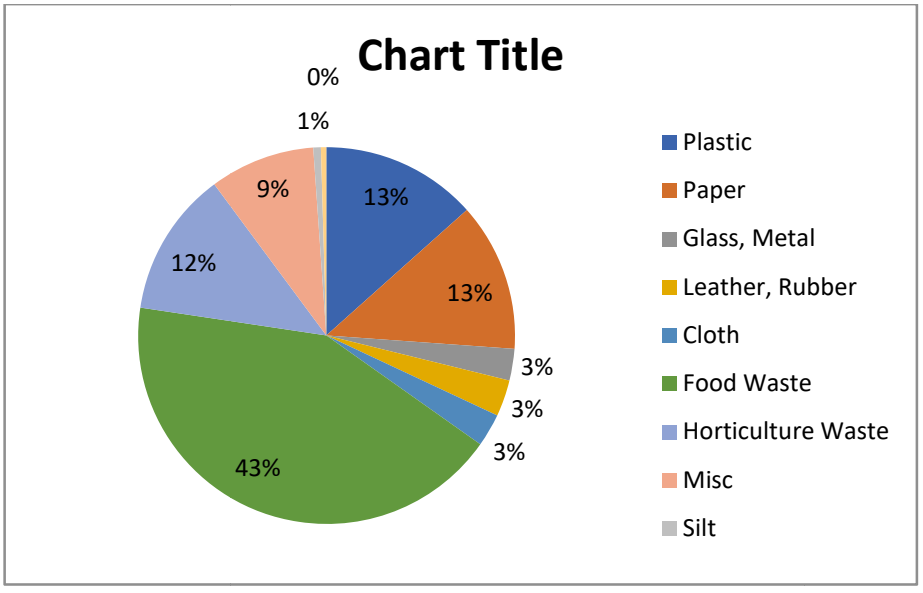


Figure 3:3 Physical Characterisation of MSW

As per the physical characterisation report conducted in the year 2017 during the preparation of SWM DPR for Achalpur town the composting of biodegradable waste was 40.8%, non-biodegradable waste is 11.39% and other waste (inerts) is around 30.66%. However, as per the latest information provided by the AMC officials in the questionnaire the total solid waste generation of the town is around 70 (TPD). Among this the biodegradable waste is 38.5TPD which is around 55% of the total waste collection and non-biodegradable waste is around 24.5TPD which is around 35% of the total waste collection. The marginal amount of Domestic Hazardous Waste and E Waste is also being collected by AMC.

3.2.3 Solid Waste Segregation

1st level segregation at household level: Achalpur town has successfully implemented a comprehensive solid waste segregation system, as reported by the Achalpur Municipal Council. The initiative has achieved 100% waste segregation adoption by households, with a clear separation of wet and dry waste. This segregation practice ensures that different types of waste are kept separate, allowing for efficient and effective waste management. Moreover, Achalpur has adopted a bin-free approach, eliminating the need for traditional disposal bins in the town. Instead, the focus is on door-to-door waste collection, where waste is collected directly from households. This system promotes cleanliness and hygiene while minimizing litter and enhancing the overall appearance of the town. The commitment to waste segregation and the adoption of innovative waste management practices contribute to Achalpur efforts in creating a cleaner and more sustainable environment.

2nd level segregation at waste processing site: It is to be noted that, though it is said that 100% segregation takes place at household level, factual condition shows that the received waste at waste processing site contains mixed waste for which second level of segregation is necessary. It is observed that, the received wet waste at composting facility contain small percentage of non-biodegradable items like plastic, paper etc. If the wet waste is directly put into compost pits, it can affect the compost quality significantly. Therefore, it is recommended to undertake second level of segregation at the processing facility. For this purpose, pre-sorting unit shall be proposed for segregation of mixed waste received at the processing facility to run the processing more efficiently.

3.2.4 Solid Waste Collection and Transportation

The Achalpur Municipal Council ensures the implementation of a comprehensive waste collection system, by conducting daily waste collection activities that encompass all wards. To accomplish this, a door-to-door approach is adopted, whereby waste is directly gathered from various sources, including residential, commercial, and public areas. The Urban Local Body (ULB) has allocated a fleet of 45 vehicles specifically for solid waste collection. This fleet comprises 28 auto tippers 17 tricycles dedicated to waste collection.

To maintain effective waste management practices, the ULB emphasizes the importance of household segregation, dividing waste into two distinct categories: wet waste, consisting of organic materials, and dry waste, which is a mix of different materials. Prior to collection, residents are encouraged to separate these waste types accordingly. Moreover, the waste collection process adheres to specific time frames based on the respective areas being serviced. Residential areas are attended to during daylight hours, precisely from 9 am to 2 pm.

Furthermore, the collected waste is promptly transported to the designated waste processing site without any intermediary buffer storage zones present within the town. This streamlined approach ensures a swift and efficient disposal process. By implementing these waste management practices, the Achalpur Municipal Council upholds to maintaining a clean and sustainable environment.

Table 3.3 Details of Primary and Secondary Collection & Transportation Vehicles

Sr. No	Type of Vehicle	Total Quantity	Capacity (In Tons)	No. of daily Trips	Total waste collected daily (In Tons)
1	Auto Tipper	28	1.5	1-2	42
2	Tricycle	17	2	1-2	34

3.2.5 Solid Waste Treatment and Processing

Achalpur town has established an effective system for the treatment and processing of solid waste. According to primary collected data by ULB, the town generates a total of 70 (TPD) of waste, with 38.5 TPD being wet waste and 24.5TPD being dry waste which gets processed at waste processing site.

The collected waste is transported to the designated processing site at Ghankachra depot.

The below table shows the details of waste category wise treatment methods adopted in Achalpur.

Details of existing waste processing facility in Achalpur

Table 3.4 Existing Processing and Disposal Facilities

TYPE OF WASTE	TYPE OF FACILITY (Centralized)	PRESENT CAPACITY (In TPD)	CURRENT STATUS
WET WASTE	Pit Composting	10.00 TPD	Operational (Temporary)
DRY WASTE	MRF	25 TPD	Operational (Temporary)

INERT WASTE	No scientific disposal facility available	NA	NA

3.2.6 Site Analysis

The waste processing site in Achalpur is located in the eastern part of the town. The total area of the site is around16944.0 Sq. M and is used for processing and disposal of municipal solid waste. It is enclosed by a permanent stone masonry boundary wall from the northern and western side. The land is owned by the Achalpur Municipal Council.

To access the site, there is an approach road that is 4.5 meters wide. At the site the infrastructure facilities available are Faecal Sludge treatment plant for treating faecal waste from septic tanks which is shown as block “A.” Shed for conveyer belt machine is shown as block “B.” Storage Shed shown as block “C”. Store room shown as block “D”. Cabin which is shown as block “E”. Temporary shed of bailing machine and shredding machine shown as “F”. And Temporary composting pits shown as “G”. The existing facilities are shown in below existing layout diagram.

The detailed layout of proposed facilities with area is provided in the layout diagram in Annexure



Figure 3:4 Existing MSW Site Layout

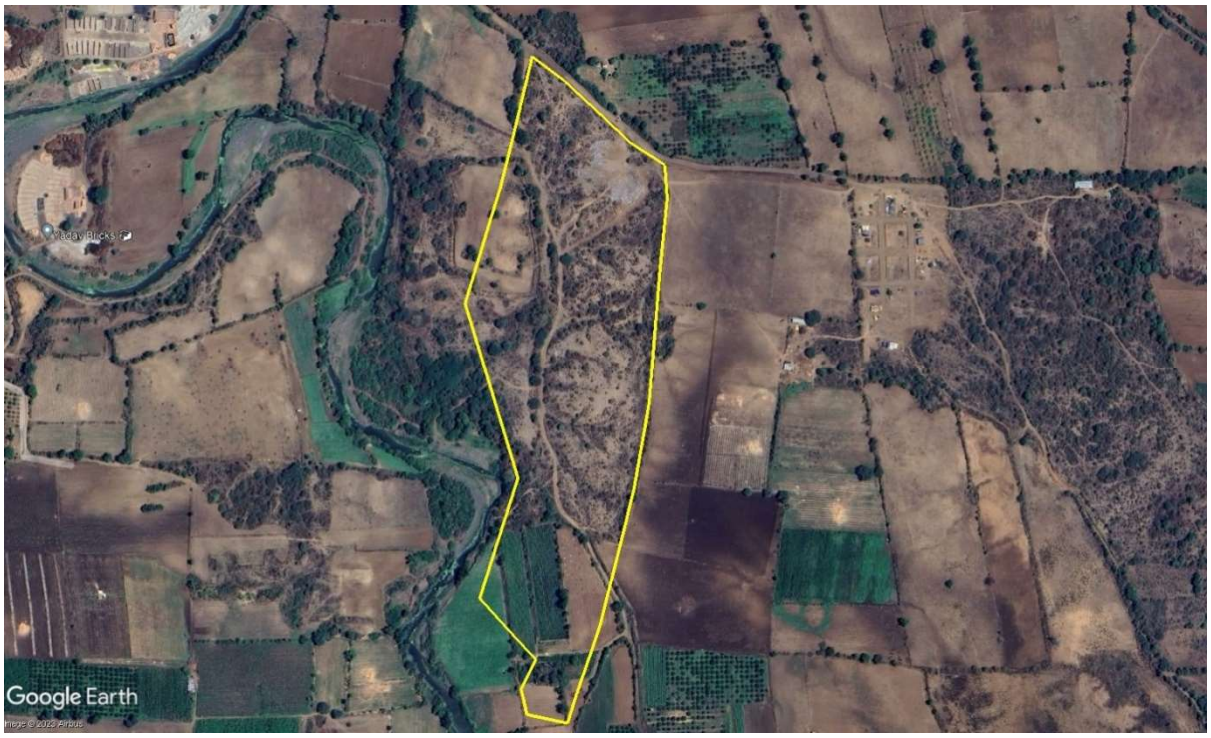


Figure 3:4 New MSW Site Layout

The new waste processing site in Achalpur is located in the South part of the town. The total area of the site is around 91658 Sq. M and as per discussion with ULB officials this new site will be used for processing and disposal of municipal solid waste. The land is owned by the Achalpur Municipal Council. Currently the site do not have any processing facilities.



Figure 3:5 New MSW Site photographs

3.2.7 Wet Waste Processing

Wet waste, which amounts to 38.5TPD (as per data shared by ULB), is processed through pit composting, which involves the decomposition of organic waste, the pit composting process is temporarily active, with a maximum intake capacity of 10.00 TPD.



Figure 3:5 Photographs of Existing Pit Composting Facility

3.2.8 Dry waste processing (Material Recovery Facility):

Dry waste around 24.5TPD (as per data shared by ULB), is collected and further segregated into distinct categories such as glass, paper, cloth, rubber, plastic (bottles, white film and colour film), and coconut waste and cardboard. These segregated materials are then stored separately.

Furthermore, the municipality recognizes the importance of recycling dry waste to minimize environmental impact and promote sustainability.



Figure 3:6 Photographs of Existing Dry Waste Machinery

3.2.9 Disposal site

Currently, the municipal council faces a significant challenge in managing disposal of inerts and rejects due to the absence of a dedicated landfill facility. However, recognizing the urgency of the situation, the council has identified a suitable site for the establishment of a scientific landfill. The proposed site is located at Ghankachra Garbage Depot, and it is covered by legacy waste.



Figure 3:7 Photographs of Existing Disposal Site

4 GAP ANALYSIS

It is to be noted that the present SWM system in Achalpur is fairly good and functioning to cater the present needs of the town population. However, with increasing population, it is necessary to augment the existing facilities and improvise on the system where some issues and gaps are found. While preparing the plan for the proposed solid waste management system in the town, it is extremely important to interact with all the stakeholders involved in this process which provides significant inputs for the formulation of proposals. It is important to understand current limitations, issues involved in the existing system. This chapter summarizes the existing SWM situation in the town and identify the present gaps for which the current detailed project report will cater for.

Table 4.1 Stagewise GAP analysis of Existing Municipal Solid Waste Management System in Achalpur Town

Sr No	Components of SWM system in town	Existing situation	Present Gap
1	Door to door collection of waste	100 % collection of waste from the town	For future waste generation, appropriate and suitable vehicles to be procured to achieve 100% collection efficiency. Also required man power to be employed for the same. Coverage of the vehicles has to be increased based on the development and expansion of the town
2	Segregation of waste into dry and wet waste	100 % segregation adopted at household level	Though 100% segregation is achieved at household level, second level of segregation facility/ space has to be provided to check the quality of the waste to be put in the processing plants. This stage is required to maximize the efficiency of the processes and achieve desired quality of the output.
3	Waste transportation to waste processing site	Suitable vehicles like auto tippers, tri cycles are provided for the waste transportation	Process for the procurement of vehicles and required machinery is in process (SBM funding has been provided to ULB for the same)

Sr No	Components of SWM system in town	Existing situation	Present Gap
4	Wet Waste (Bi-degradable Waste Processing)	Pit composting In Temporarily working condition	The capacity of the existing processing facility is not sufficient if operated on full capacity with efficiency. Temporary pit composting available. Permanent structure is not available for composting. Pit composting Shed is not available. The capacity of the processing facility needs to be increased for future waste generation
5	Dry waste processing (Non-Bi-degradable Waste Processing)	temporary dry Waste Processing Facility available	Permanent structure is not available. Bailing Machines, shredding Machine available The capacity of the processing facility is not sufficient for future waste generation.
6	Domestic Hazardous Waste	No Provision	Incinerator machine can be provided in the existing pre-sorting facility which can be utilized for disposal of sanitary napkins and diapers. Other domestic hazardous waste can be store and disposed of safely.
7	Inert waste	No processing facility	Sanitary landfill has to be provided for the inert waste (10% of the total MSW)

Table 4.2 Gap Analysis for Wet Waste Processing

Sr. No	Year	Population	Waste generation TPD	Bio-degradable waste	Present capacity of the composting plant	Present Gap
1	2023	142027	64.764	35.620	10.00	25.62
2	2026	157964	75.191	41.355	10.00	31.355

Table 4.3 Gap Analysis for Dry Waste Processing

Sr. No	Year	Population	Waste generation TPD	Dry -waste generation	Present capacity of the MRF	Present Gap
1	2023	142027	64.764	22.668	25	0.0
2	2026	157964	75.191	26.317	25	1.317

5 PROPOSED MUNICIPAL SOLID WASTE MANAGEMENT SYSTEM

The overall objectives for the proposed SWM System in Achalpur have been formulated considering the goals set for SBM 2.0 and also the specific requirements shared by the local authorities.

5.1 Quantification of Waste Generation

As per SBM 2.0 guidelines the typical per capita waste generation rate in the cities with more than one lakh population is 450 Gram/Day and as per CPHEEO manual per capita waste generation is increasing by about 1.3% per year. same has been considered for the estimation of future waste generation.

For designing the processing facilities, the base year is considered as 2023 and the design period is considered for 2026. For designing the sanitary landfill facility, the base year is considered as 2023 and design period is considered as 2028 as per SBM 2.0 guidelines.

However, based on the existing data provided by the AMC officials and as per City Solid Waste Action Plan submitted under SBM 2.0 the composition of biodegradable waste is 55% and non-Biodegradable waste is 35%. Therefore, for estimation of future waste generation the same shall be followed.

Table 5.1 Quantification of Waste Generation

Sr No	Year	Population	Waste Generation	Bio-Degradable	Non-Biodegradable
			(MT/ Day)	55%	35%
1	2023	142027	64.764	35.620	22.668
2	2024	143939	66.500	36.575	23.275
3	2025	145832	68.395	37.617	23.938
4	2026	157964 (As per CSWAP)	75.191	41.355	26.317

In this scenario, the CSWAP population for the year 2026 surpasses the projected population. Therefore, when quantifying waste, the CSWAP population is taken into account.

5.2 Proposed MSW processing facility:

The size of the city; projected waste generation rate; waste characterisation; geographical location; climatic conditions; hydrogeological conditions and environmental, social, and economic considerations have an impact on the selection of appropriate systems and technologies for processing and disposal of waste. Proposal for the MSW processing facility for estimated waste generation for the year 2026 has been worked out taking into consideration the existing SWM

scenario and the feedback received from the respective ULB authorities. The AIILSG project team had detailed discussion with chief officers and other concerned officials to understand the current challenges and their requirements for the successful implementation of the proposed solid waste management system in the town.

1. Proposed Breakup for Biodegradable Waste:

S No	Technology	Capacity	Existing/Proposed	Remark
1	Pit Composting	10.00 TPD	Existing	Temporary pit composting available. Permanent structure is not available for composting. Pit composting Shed is not available.

2. Proposed Breakup for Non-Biodegradable Waste:

S No	Technology	Capacity	Existing/Proposed	Remark
1	MRF	25 TPD	Existing	temporary dry Waste Processing Facility available but permanent structure is not available. Bailing Machines, shredding Machine available

3. Sanitary Landfill

The inert waste and process rejects from wet waste and dry waste plant will be landfilled in scientific manner.

4. Material Intake

The weight of all incoming vehicles containing MSW shall be recorded with electronic weigh bridge at the entry gate. The same be unloaded on the Tipping Floor and visually inspected

5. Tipping Shed

The MSW Collected from various sources is transported to the Processing Facility and delivered at a well-defined area within the plant referred to as “Tipping Shed.” This area receives the mixed waste/segregated waste and therefore, is very essential for overall smooth functioning and regulated flow of MSW feedstock into the processing area. The tipping shed is adequately designed for receiving the predetermined quantities of waste with retention time of 3 days.

TIPPING AREA	2026	Unit
Total Quantity of Municipal Waste Generation (@ 2026)	75.19	MT/Day
Density of Municipal Solid Waste	0.50	MT/Cum
Total Volume of Waste	150.38	CuM

TIPPING AREA	2026	Unit
Retention Time	2.00	Days
Total Volume of Municipal Solid Waste	300.76	CuM
Base width of heap	2.00	m
Height of heap	1.20	m
Area of the heap	1.58	Sq. M
Length of heap	10.00	m
Volume of 1 heap	15.84	CuM
No of Heaps	18.99	Nos
No of heaps, say	19.00	Nos
Total width required (Including 1 m spacing between 2 Heaps)	58.00	m
Total length required (including 1m space on both sides)	12.00	m
Area Required	696.00	Sq. M
20% excess provided for walkway and movement	139.20	Sq. M
Total Tipping Area Required	835.20	Sq. M

(*Note - The proposed new site does not includes all the necessary infrastructure, as this site lacks any facilities. To address this, a tipping platform of 900 square meters has been suggested to handle a waste capacity of 75.91 metric tons.)*

6. Pre-sorting Unit Cum MRF Area

Since the waste coming to the plant is either mixed or segregated so it is necessary to provide pre-sorting facility. The waste will be feed in hopper and taken through a rotary sieve with 50 mm holes. The material passing through is considered as biodegradable waste and is taken further to pit composting facility. The oversize material is taken to material recover facility where it is segregated manually into combustibles and recyclables. The rejects from the MRF and pit composting will be further sent to landfill facility for final disposal. It is proposed to provide single shed for pre-sorting, machinery and processing activities including the sorting of combustibles and recyclables, storage and bailing of RDF.

Pre-sorting Trommel

Waste is fed into trammel with 50mm perforations. The undersize material (- 50mm) are mostly organic material and over size are inorganic and combustible materials. The undersize is then transferred to pit composting. The over size is further sent to manual screening to convert into recyclables and RDF.

Pre-Sorting Cum MRF Shed	Quantity	Unit
Total Dry Waste Generation Rate (2026)	26.32	MT/Day
Density Of Dry Waste	0.50	MT/CuM

Pre-Sorting Cum MRF Shed	Quantity	Unit
Total Volume of Waste	52.63	CuM
No. Of Days to Be Stored	15.00	Nos
Volume Of Dry Waste For 10 Days	789.50	CuM
Height Of the Waste considered	1.00	m
Area Required for Sorting	789.50	SqM
Addition 20% area for movement and walkway	157.90	SqM
Total Area Required for Sorting	947.40	SqM
Recyclables Storage Area	189.48	SqM
Bailing and RDF Storage Shed	189.48	SqM
Total MRF Shed Area	1,326.37	SqM
Area Required for Machinery for Pre-sorting	1328	Sqm

(Note: The pre-sorting shed is intended for the segregation of mixed waste using a pre-sorting trommel machine. Based on calculations, an area of 1328 Sq.m is needed to handle 26.32 metric tons per day. Following discussions with ULB officials, a finalized area of 1000 Sq.m has been agreed upon for the pre-sorting shed.)

7. Proposed wet (bio-degradable) waste processing:

At present, biodegradable waste collected from households, hotels, restaurants, markets, commercial establishments are processed through pit composting.

As the wet waste generation quantity for the year 2026 is 41.355 TPD the existing pit composting facility is not sufficient to accommodate the future waste quantity so new area is proposed for wet waste processing.

WINDROW PLATFORM	Quantity	Unit
Total Quantity of Wet Waste for Composting	41.35	MT/Day
Density of Municipal Solid Waste	0.50	MT/Cum
Total Volume of Waste	82.71	CuM
Retention Time	21.00	Days
Total Volume of Municipal Solid Waste	1,736.91	CuM
Base width of windrow	2.00	m
height of windrow	1.50	m
Area of the windrow	1.98	Sq M
Length of windrow	50.00	m
Volume of 1 heap	99.00	CuM
No of Heaps	17.54	Nos

WINDROW PLATFORM	Quantity	Unit
No of heaps, say	18.00	Nos
Total width required (Including 0.5 m spacing between 2 windrows)	45.50	m
Total length required (including 1m space on both sides)	52.00	m
Area Required	2,366.00	Sq M
20% excess provided for walkway and movement	473.20	Sq M
Total Area Required	**2,839.20**	**Sq M**

(Note: The Widrow Platform is intended for the composting of wet waste. Based on calculations, an area of 2839 Sq.m is needed to handle 41.35 metric tons per day. Following discussions with ULB officials, a finalized area of 2600 Sq.m has been agreed upon for the pre-sorting shed.)

8. Hazardous Waste Processing:

It is proposed to provide incinerator machine to process the domestic hazardous waste.

9. Proposed Facility:

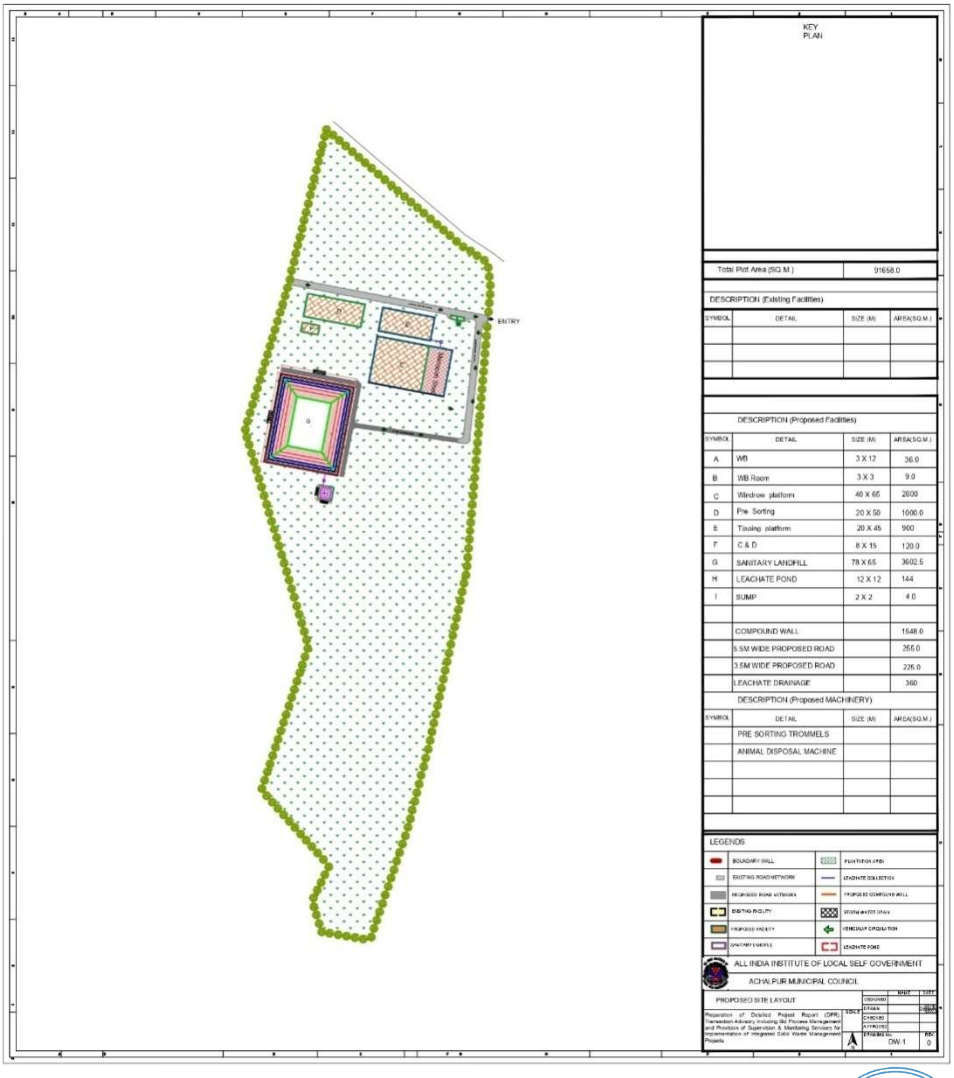


Figure 5:1 Proposed MSW site layout of Achalpur

The new waste processing site in Achalpur is located in the South part of the town. The total area of the site is around 91658Sq. M and is used for processing and disposal of municipal solid waste. The site have open space with no processing facilities. The land is owned by the Achalpur Municipal Council.

To access the site, there is an approach road that is 4.5 meters wide. At the site the infrastructure facilities have to be proposed are Weigh Bridge platform is shown as block “A”. Weigh bridge room shown as block “B”. Windrow platform is shown as block “C”. Pre-sorting shown as block “D”. Tipping platform is shown as block “E”. C&D shown as block “F”. Sanitary landfill is shown as “G”. And Leachate Pond is shown as block “H”.

The detailed layout of proposed facilities with area is provided in the layout diagram in Annexure 1

10. C and D Shed

As per the Construction and Demolition (C&D) Waste Rule 2016, ‘any waste comprising building materials, debris and rubble resulting from construction, remodelling, repair and demolition of any civil structure’ is classified as C&D waste. Wastes also include surplus and damaged products and materials arising in the course of construction work or used temporarily during the course of on-site activities. Some municipalities also include debris recovered from desilting of drains and waterbodies in C&D waste.

	C&D Waste Generation Details	2026	Estimated C&D Waste generated @ 50gm/capita of total Municipal Solid Waste in TPD
1	Estimated C&D Waste generated @ 50gm/capita of total Municipal Solid Waste in TPD	7.9	
2	Add 25% extra for bulk C & D waste generators, depositing with ULB	1.975	
3	Add 20% over and above	1.975	
4	**Total C&D waste currently generated in TPD**	**11.85**	

C&D Waste Sorting & Storage SHED	Quantity	Unit	Reference
Total C&D Waste Generation Rate (2026)	11.85	MT/Day	As per waste quantification
Density Of C&D Waste	1.50	MT/CuM	CPHEEO Part 2 Pg 48
Total Volume Of C&D Waste	7.90	CuM	
No. Of Days To Be Stored	15.00	Nos	Assumption
Volume Of Waste For 15 Days	118.50	CuM	
Height Of The Waste considered	1.50	m	Assumption
Area Required for C&D Waste Handling	79.00	SqM	
Addition 20% area for movement and walkway	15.80	SqM	
Area required for C&D Waste Storage	23.70		

Total Area Required for Domestic Hazardous Waste Processing	118.50	SqM	
Total width of shed	8		Assumption
Total length of shed	14.81		
Domestic Hazardous Waste Shed Area	**8 m X 15 m**		

Therefore shed of 120 sq.m has been proposed.

11. Allied Infrastructure at Processing Site

Based on the site condition, requirement from AMC officials and available funds the following allied minimum infrastructure is proposed. The details of proposed allied infrastructure at the processing site are as follows:

S No	Component	Details
1	Compound Wall	As compound wall is not available have to be proposed on site.
2	Internal Road	On the site internal road not available. It is required.

6 MUNICIPAL SANITARY LANDFILL

The process of sanitary landfilling involves the systematic placement of solid waste in a scientifically designated and designed area. The waste is spread in well-compacted layers and covered with daily, intermediate, and final soil cover. Sanitary landfilling is proposed as a means of disposing of the inert and residual waste portion of municipal solid waste (MSW), which is non-recyclable and non-combustible, generated from waste processing activities. The landfill activities must adhere to the applicable MSW rules, which include the following provisions:

- Cease the landfilling or dumping of mixed waste once the specified timeline in rule 23 for setting up and operating a sanitary landfill has expired. Only non-usable, non-recyclable, non-biodegradable, non-combustible, and non-reactive inert waste, along with pre-processing rejects and residues from waste processing facilities, should be sent to the sanitary landfill.
- The sanitary landfill sites must meet the specifications outlined in Schedule-I of the rules. However, every effort should be made to recycle or reuse the rejects to achieve the goal of zero waste going to the landfill.
- If bio-mining and bio-remediation of a dumpsite are not feasible, the dumpsite should be scientifically capped according to landfill capping norms to prevent further environmental damage.
- Local bodies and census towns with a population under 0.5 million should establish common or regional sanitary landfills within three years to dispose of the permitted waste under the rules.
- Old and abandoned dumpsites should undergo bio-remediation or capping within five years.
- The planning, design, and development of the sanitary landfill site should be documented, including the construction plan and closure planning, following a phased approach.
- The landfill site should be sufficiently large to last for at least 20-25 years. It should develop "landfill cells" in a phased manner to prevent waterlogging and misuse.

6.1 Landfill Capacity:

As per SBM 2.0 guidelines for designing the scientific landfill we have considered a 5-year short-term period plan. It is assumed that the expected inerts and rejects of total MSW of

around 10% will go in to landfill as after processing facilities operation the rejects will reduce significantly.

The total volume of inerts and rejects going to landfill is calculated as presented below:

Table 6.1 Quantification of Inerts and Rejects going to landfill

S No	Year	Total Waste Generation in TPD	Total Inerts & Rejects @10% of total Waste in TPD	Waste Going to Landfill per Annum (In Tonnage)	Cumulative Waste Going to Landfill (In Tonnage)
1	2024	66.500	6.650	2427.62	2427.62
2	2025	68.395	6.840	2496.60	4924.22
3	2026	75.191	7.519	2744.80	7669.02
4	2027	72.236	7.224	2636.76	10305.78
5	2028	74.181	7.418	2707.94	13013.71

In this scenario, the CSWAP population for the year 2026 surpasses the projected population. Therefore, when quantifying waste, the CSWAP population is taken into account.

(Note – As mentioned earlier, scientific landfills are consistently designed for a period of 5 years. Therefore, the year 2028 is designated as the design year for the scientific landfill.)

6.2 Estimation of Landfill Area Requirement:

As per CPHEEO manual the calculations for landfill volume, daily cover, Volume required for components of liner system and of cover system (on the assumption of 1.5 m thick liner system (including leachate collection layer) and 1.0 m thick cover system (including gas collection layer), Total Volume of daily cover in n years (on the basis of 0.015 m soil cover on top and sides for lift height of 1.5 m to 2 m), Total Volume required for components of liner system and of cover system (on the assumption of 1.5 m thick liner system (including leachate collection layer) and 1.0 m thick cover system (including gas collection layer). Volume likely to become available within 10 years due to settlement of waste. The actual capacity of the landfill will depend upon the volume occupied by the liner system and the cover material (daily, intermediate and final cover) as well as the compacted density of the waste. In addition, the amount of settlement a waste will undergo due to overburden stress and due to biodegradation should also be considered. The density of waste varies on account of large variations in waste composition, degree of compaction and state of decomposition. Densities may range as low as 0.40 t/CuM to 1.25 t/CuM For planning purposes, a density of 1 T/CuM

Sanitary Landfill Area	Unit	Year 2028
Total Landfillable waste (for 5 Years) (As per CPHEEO Guidelines 4.5.2.2 pg 370)	MT	13,013.71
Total landfill capacity (Vwm)	MT/CuM	1.00
Total Volume of daily cover in n years (Vdc) (on the basis of 0.15 m soil cover on top and sides for lift height of 1.5 m to 2 m)	CuM	13,013.71
Vdc = 0.1 Vw (Cum)	CuM	1,301.37
Total Volume required for components of liner system and of cover system (on the assumption of 1.5 m thick liner system (including leachate collection layer) and 1.0 m thick cover system (including gas collection layer)		
Vc = k Vw (Cum)	CuM	3,253.43
(k = 0.25 for 10 m high landfill, 0.125 for 20 m high landfill and 0.08 for 30 m high landfill. This is valid for landfills where width of landfill is significantly larger than height)		
Volume likely to become available within 10 years due to settlement / biodegradation of waste		
Vs = m Vw	CuM	1,301.37
(m = 0.10 for bio-degradable waste; m will be less than 0.05 for incinerated / inert waste)		
Landfill Capacity (Ci)		
Ci = Vw + Vd + Vc – Vs (Cum)	CuM	**16,267.14**

To accommodate the estimated volume in SLF we have exercised the required foot print on ground for SLF. Several iterations were carried out for arriving at waste height of landfill and sizing to optimize the area. Based on these iterations and evaluations, the following specifications are proposed.

S No	Parameter	Details
1	Landfill Height Above Ground Level	4m
2	Landfill Height below Ground Level	1m
3	Embankment Slope	1V:3H
4	Side Slope Above Ground Level	1V:3H
5	Side Slope below Ground Level	1V:3H
6	Liners – Landfill base preparation	HDPE, Geotextile,

S No	Parameter	Details
		Gravel, Clay Liner
7	Leachate collection system	Lateral pipes, header pipes, leachate collection sump, perimeter leachate drain
8	Access Road for SLF	3.5 m
9	Total SLF Footprint area	**5070 Sq M**

Based on the above calculation a landfill footprint size of dimension 78m X 65m is proposed as presented in the layout drawing attached in the annexure 1.

6.3 Conceptual Design of Landfill

1. Site Selection: The selection of the site for the sanitary landfill must adhere to the criteria specified in the table below, as outlined in the SWM Manual 2016 and relevant regulations. Since these facilities are typically constructed for a minimum of 5 years or more and involve structural components and environmental considerations, it is crucial to ensure compliance with the applicable regulations. It is imperative to take all necessary precautions to safeguard environmental sensitivities during the construction and operational phases of the project, as indicated in the table below.

Sr. No	Particular	Minimum Sitting Criteria	Description	Remarks
1	Coastal regulation, wetland, critical habitat areas, sensitive Eco fragile areas, and flood plains as recorded for the last 100 years	Sanitary landfill site not permitted within these identified areas	Not Applicable	-
2	Rivers, lakes, water bodies	100 metres (m) away from the flood plain	Not Applicable	-
3	Pond, lakes, water bodies	200 m	Not Applicable	-
4	Non-meandering water channel (canal, drainage, etc.)	30 m	Not Applicable	-
5	Highway or railway line, water supply wells	500 m from center line	Not Applicable	-

Sr. No	Particular	Minimum Sitting Criteria	Description	Remarks
6	Habitation	All landfill facilities: 500 m	Applicable	-
7	Earthquake zone	500 m from fault line fracture*	Not Applicable	-
8	Flood prone area	Sanitary landfill site not permitted	Not Applicable	-
9	Water table (highest level)	The bottom liner of the landfill should be above 2 m from the highest water	Not Applicable	-
10	Airport	20 km**	Not Applicable	-

2. Design of the Sanitary Landfill: The lifespan of a sanitary landfill encompasses an active period and a closure and post-closure period. In the case of the Landfill site, the active period will extend for a minimum of 5 years, depending on the quantity of waste disposal. Following the active period, the closure and post-closure period, during which the sanitary landfill will be monitored and maintained, will span at least 5 years.

3. Construction of the Sanitary Landfill: The primary construction elements of the Sanitary Landfill include subgrade preparation, the bottom liner system, the leachate collection and conveyance system, the landfill gas management system, and the final closure cover system.

Bottom Liner System: The Bottom Liner System, as per the SWM Manual 2016, is outlined below. To provide an impermeable barrier, a geosynthetic clay liner (GCL) is employed, which can supplement the use of a 90 cm thick mineral layer (clay) in the landfill base and cover. The GCL consists of bentonite clay bonded to one or more layers of geosynthetics. Bentonite, specifically sodium montmorillonite, is a type of volcanic clay utilized in various applications, including GCL. In India, calcium bentonite, which possesses similar characteristics to sodium bentonite, is commonly utilized. The GCL typically consists of bentonite sandwiched between geotextiles and may be further reinforced by an additional layer of high-density polyethylene (HDPE) liner.

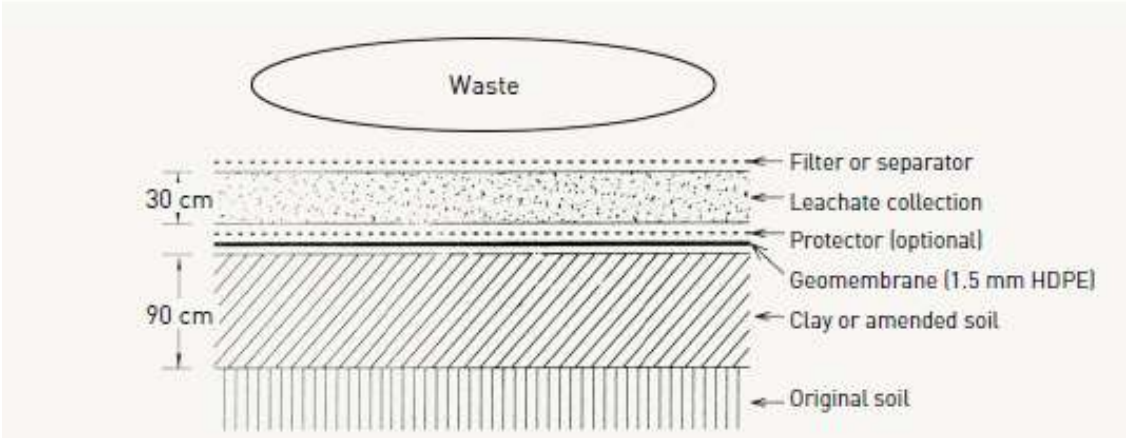


Figure: Bottom Liner of SLF (Courtesy-MSWM Manual 2016)

Leachate Collection and Conveyance System: The Leachate collection and conveyance system play a crucial role in the Sanitary landfill by directing the Leachate to the Leachate treatment facility or leachate treatment pond.

The proposed section of the Leachate collection pipe at the bottom of the SLF is provided below. It is recommended to maintain a minimum 1% slope for all leachate collection pipes. The collected Leachate will be diverted and pumped to the Solar Evaporation Pond.

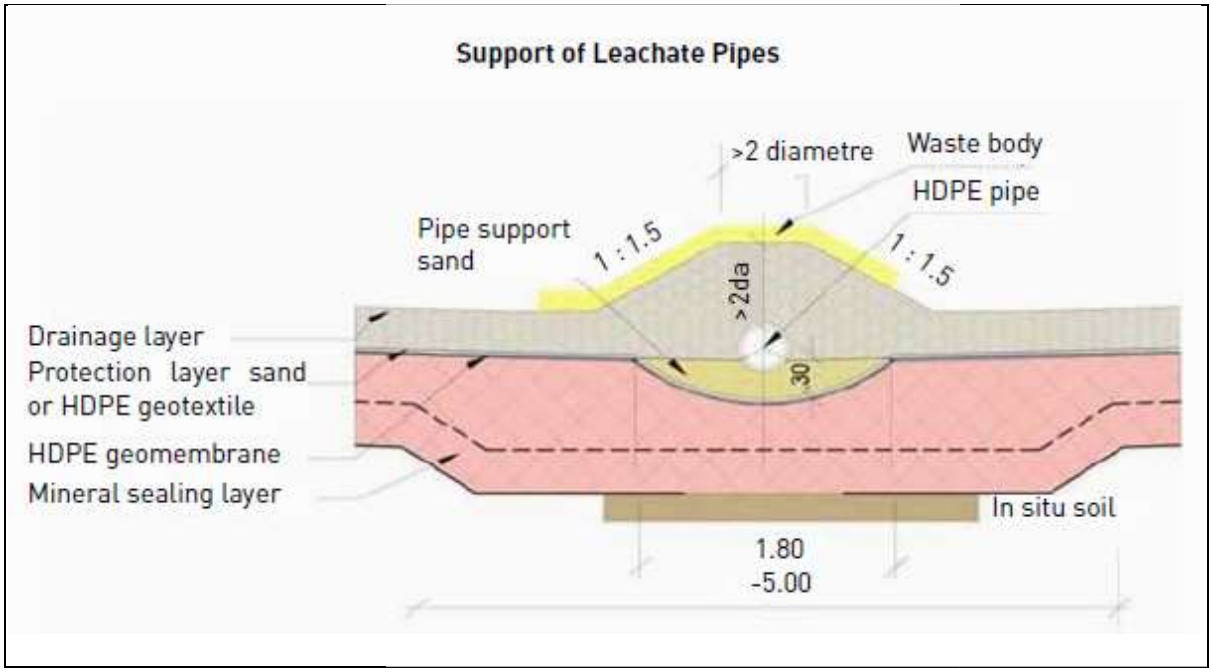


Figure: Section for Leachate Drainage system at SLF bottom (Courtesy- MSWM Manual 2016)

4. Operation of the Sanitary Landfill: The day-to-day operation of the Sanitary landfill is a critical aspect that needs to be carefully planned considering various factors such as seasonal variations, rainfall, wind direction, temperature, and optimal utilization of resources like equipment, machinery, manpower, and soil cover material. The guidelines provided in

the SWM Manual for the typical sections of the Landfill Phases are presented below for reference.

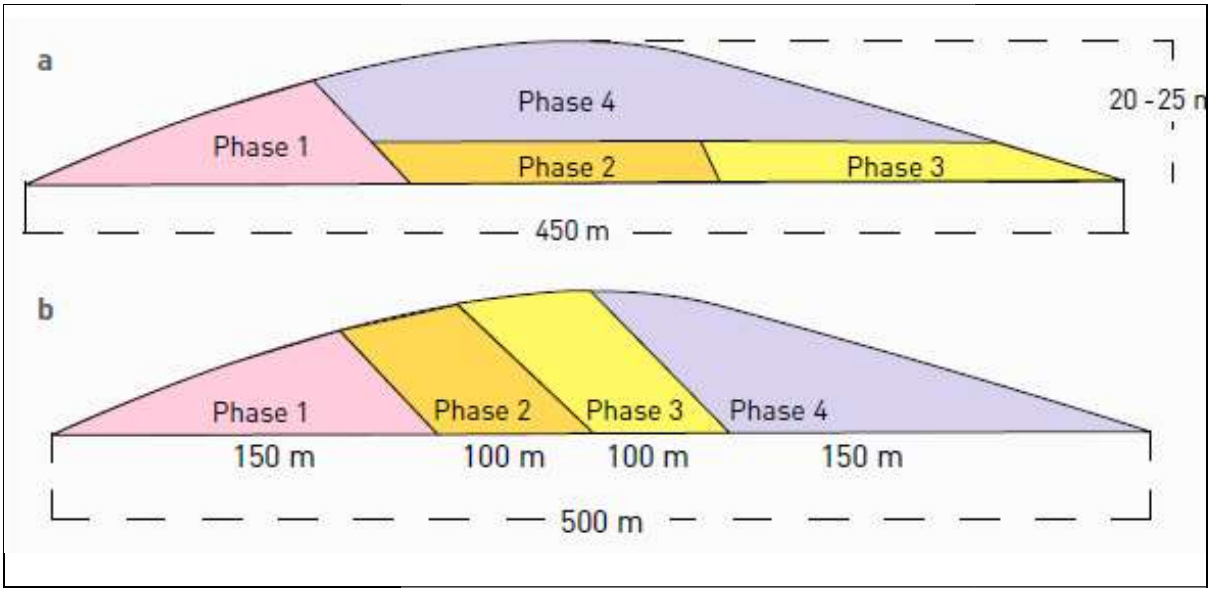


Figure: Phasing of Landfill Operation (Courtesy: MSWM Manual 2016)

Landfill operations involve multiple simultaneous activities, including the spreading of waste in layers, compaction, soil cover placement, intermediate covers, resource planning and availability, installation of landfill gas and leachate pipelines, and erosion control.

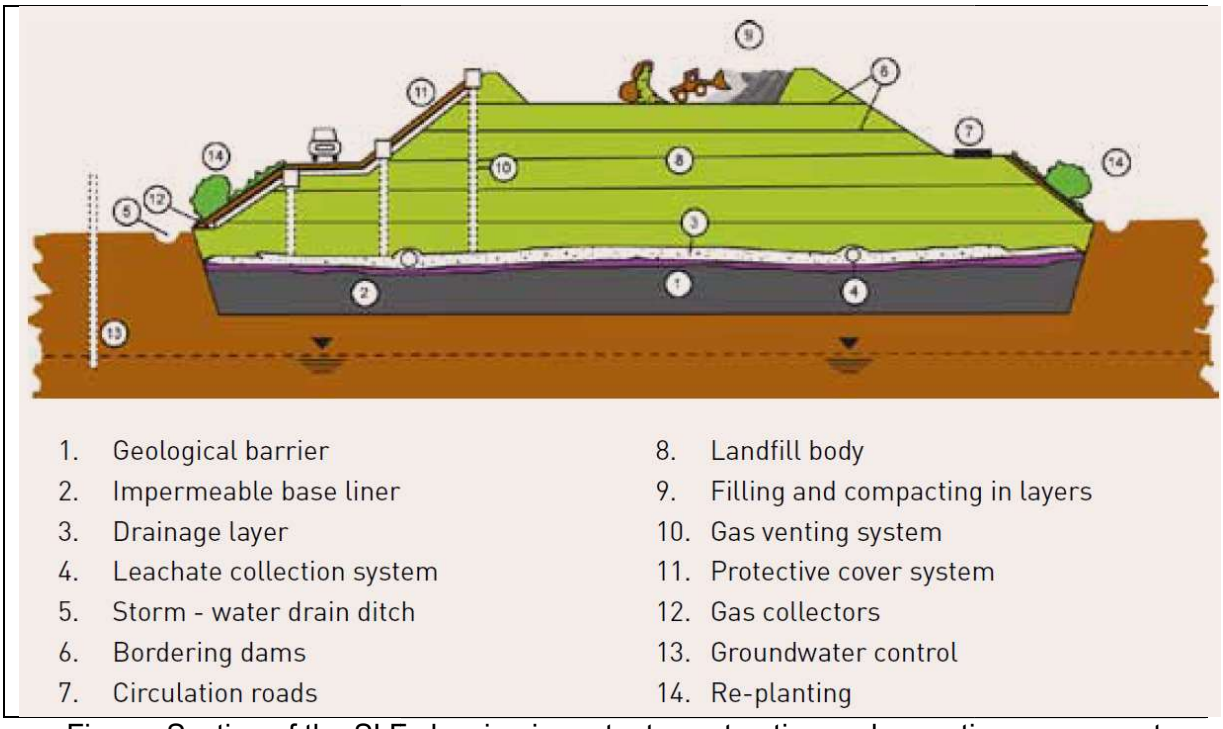


Figure: Section of the SLF showing important construction and operation components (Courtesy: MSWM Manual 2016)

During the monsoon season, operating the landfill becomes challenging due to increased rainfall and surface run-off. It is proposed to limit the active cell area during this period to minimize leachate generation. The collected leachate will be directed to the Solar

Evaporation Pond. The Landfill Operator will ensure that areas of the landfill not in active use are covered with intermediate covers according to guidelines, and if necessary, tarpaulin may be used to reduce rainfall percolation. Stormwater runoff will be channelled and pumped to nearby drainage systems.

5. Closure and Post-Closure Plan: As per the SWM Rules 2016, the following closure components should be provided after the completion of the landfill. A final cover will be designed to minimize infiltration and erosion. The final cover specifications are as follows:

(a) A barrier soil layer with a thickness of 60 cm consisting of clay or compacted soil with a permeability coefficient of less than 1 x 10-7 cm/sec.

(b) A 15 cm drainage layer will be placed on top of the barrier soil layer.

(c) A 45 cm vegetative layer will be added on top of the drainage layer to support natural plant growth and minimize erosion.

The proposed Scientific Closure plan for ULB is presented below. The typical section of the proposed bottom liner and closure components is also provided.

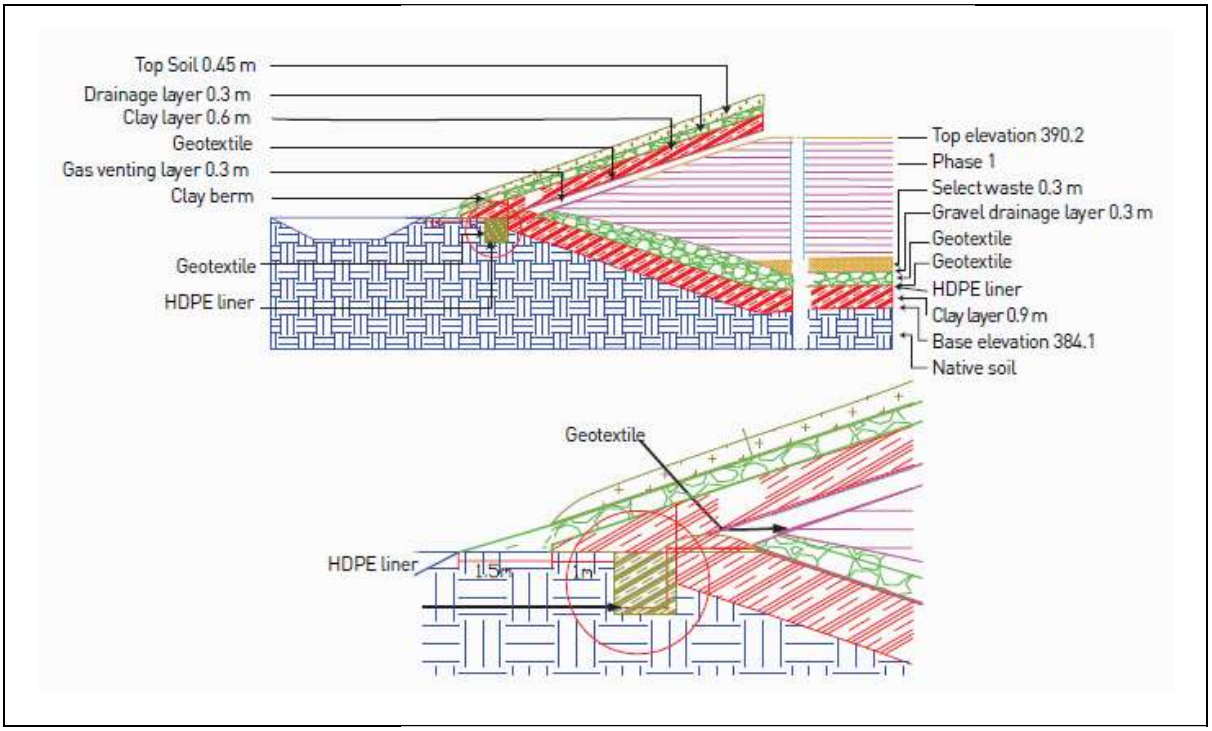


Figure: Typical Section of the Proposed SLF (Courtesy- MSWM Manual 2016)

6. Interim Plan: During the interim period from DPR preparation to the award of the tender, the ULB will ensure that only the minimum quantity of rejects and residual waste is disposed of at Dumpsite. ULB will maintain records of reject disposal at the dumpsite until the contractor is awarded.

7. Construction Plan: The appointed Contractor will be responsible for preparing and presenting a detailed construction plan and schedule that outlines all the main activities involved in the development of the dumpsite. The contractor will also ensure the smooth transition and reception of the present waste management system at the dumpsite.

6.4 Leachate Management

The leachate collection and conveyance system in SLF is comprised of various components, including drainage media, a leachate collection pipe positioned at the base of the proposed landfill, a collection tank, submersible pumps, and a conveyance pipeline. The primary function of this system is to gather and transport leachate to the Leachate treatment pond. At the pond, the leachate will be applied onto the lined walls, allowing for the evaporation of water content. Additionally, the leachate can be utilized as a source of moisture in the windrow composting process. Any remaining leachate will be directed to the FSTP plant for further processing. The sludge that accumulates at the bottom of the leachate pond will be managed and disposed of in accordance with established standards, norms, and procedures

6.4.1 Leachate Evaluation

Leachate Evaluation	Unit	Quantity
Average Rainfall	mm/year	790
Land Area For Landfill	m2	5070
Rainfall In 4 Months		80%
Total Rainfall In 4 Months	mm	632.00
Days In 4 Months	no.	120.00
Rainfall Per Day In Rainy Season	mm/day	5.27
Leachate Quantity	m3/day	18.97
Consider Additional 25% Capacity as FoS	m3	4.74
Total Leachate Treatment Capcity to be provided		23.71
Height Of Leachate Tank Considered	m	1.00
Area of Leachate Tank	Sq M	23.71
Length of leachate tank considered	m	5.00
width of leachate tank	m	4.74
Size of the leachate tank	m	5 x 5
Total Size with Embankment of 3.5M on all size	m	12 x 12

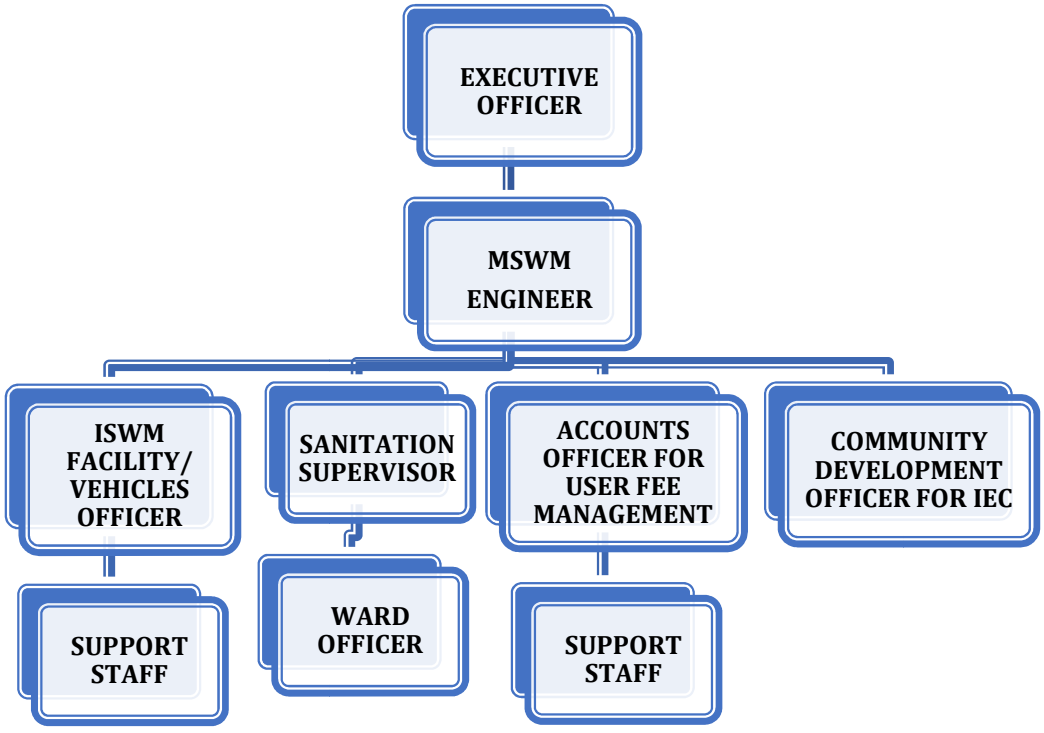
Based on the leachate volume generation the leachate pond is proposed as per following design criteria

S No	Description	Quantity	Unit
1	Leachate Pond Bund Slope	1:3	V:H
2	Bund Top Width	0.5m	m
3	Bund Bottom Width	3.5	m
4	Bund Height	0.5	m
5	Length of Pond	12	m
6	Width of Pond	12	m
7	Total Area of Pond with Bund	144	Sq. M

7 INSTITUTIONAL ASPECTS AND CAPACITY BUILDING

In the aspect of Municipal Solid Waste Management, service levels are inadequate and inefficient. For improving the solid waste management services, it is essential to adopt modern methods of waste management, having a proper choice of technology, which can work in the given area successfully. Simultaneously, measures must be taken for institutional strengthening and internal capacity building so that the efforts made can be sustained over a period and the system put in place can be well managed. Institutional strengthening can be done by adequately decentralizing the administration, delegating adequate powers at the decentralized level, by including professionals into the administration and providing adequate training to the existing staff. NGO/private sector participation also needs to be encouraged to make the SWM services competitive and efficient.

7.1 Proposed Organizational Set-up



7.2 Decentralization of Administration

In the ULB, the MSWM services can be performed effectively only if its administration is adequately decentralized at the ward level and prabhag level. The SWM functions are proposed to be decentralized as described in section below:

7.2.1 Ward Level & Prabhag Level Administration

The ward level administration should be fully responsible for ensuring storage of segregated waste at source, primary collection of waste, street sweeping and taking the waste to bulk community waste storage sites clearing debris and cleaning surface drains and public spaces. The cleaning of each street, lane by lane, markets and public space should be regularly supervised by the ward level supervisors. The presence of all SWM officers of the ward in the field during and morning hours is most essential. A grievance redressal system should be put in place in each ward. Ward level efforts could be made in the following:

- Creating public awareness at the ward level
- Formation of Residents Association/ Neighbourhood Committees to ensure public participation in source segregation of recyclable waste and deposition of domestic waste in the handcarts on time during primary collection
- Involving school children to be watchdogs in preventing littering of streets by the people
- Interfacing with the people and officials and help in redressal of public grievances on SWM at the ward level
- Supporting the effort of cost recovery for the services rendered
- Encouraging NGO participation

7.2.2 City Level Administration

The city level administration should supervise and support the ward level administration. The MSWM Department should be responsible for upkeep of vehicles, setting up and maintenance of processing plants as well as for managing the disposal sites in an environmentally acceptable manner.

The MSWM department should also be responsible for the procurement of vehicles, equipment, and land for processing and disposal of waste. As a Head office it should take policy decisions and co-ordinate the activities of all the wards and be answerable to the chief executive officer and elected body for the efficient functioning of the department. It should look after the recruitment of manpower, human resources development and training, etc.

7.3 Training & Capacity Building

Human resources development is very essential for internal capacity building for any organization. Training, motivation, incentives for outstanding service and disincentives for those who fail to perform are essential for human resources development. Concerted efforts should be made by the Municipal Council to inculcate among its officers and staff a sense of pride in the work they do and to motivate them to perform and give their optimum output to improve the level of services of the city and the image of the Municipal Council.

7.3.1 Special Training to Unqualified Staff

Unqualified supervisory staff should be given service training to qualify for supervising sanitation works.

7.3.2 Refresher Courses for Supervisory Staff

Refresher courses should be conducted for the supervisory staff at least every 5 years or they should be sent for training to get an exposure to advance in this field.

7.3.3 Work Norms

The sweepers may be assigned “Pinpoint” individual work assignments to the density of the area to be swept. Similarly work norms may be prescribed for variety of vehicles used depending upon the distance to be travelled and the places to be covered. These norms may be prescribed after conducting time and motion study. The norms of work for the supervisor may also be prescribed and monitored by the Municipal Council, for the extent of sweeping areas and the number of garbage collection points to be inspected watch day by the various levels of supervisors and inspection of processing and disposal sites etc. to ensure adequate output of the supervisory staff. For capacity building of the department, senior officials should be frequently exposed to developments taking place in various parts of the State and Country by sending them out on city visits and to attend seminars, workshops and training courses. They should also be involved in all decision-making processes

7.3.4 Course Content for Training to Staff/Officers

A. Training to sanitation workers

1. Importance of sanitation in urban areas.
2. Present scenario of solid waste management system in the urban areas, deficiency in the system etc.
3. Impact of inefficient SWM services on health and environment
4. Impact of inefficient SWM services on the health of sanitation workers.
5. Inefficiency of tools and equipment’s used and loss of manpower productivity.
6. Need for modernization of solid waste management practices.
7. Options available for improving the services.
8. Advantages of using improved tools and equipment’s for primary collection of waste and street sweeping.
9. Need for synchronization of storage of waste of source, primary collection of waste and waste storage depots.
10. Proper upkeep of tools and equipment’s and waste storage depots.

B. Training to Sanitation Supervisors of Various levels

1 to 10 as per A above

1. Need for synchronization of transportation of waste with waste storage depot.
2. Transportation of waste on day-to-day basis
3. Waste processing and disposal options, advantages and disadvantages of various technologies.
4. Sanitary land filling.
5. Public and NGO participation in waste management.
6. Building public awareness.
7. Enforcement

C. Training for the Officers looking after SWM Department

1 to 10 as per A and 1 to 7 as per B above

1. SWM practices prevalent in other parts of the country and in the developed countries
2. Institutional strengthening, internal capacity building and human resource development.
3. Private sector participation in SWM
4. Management information system
5. Financial aspects
6. Health aspects
7. Legal aspects

D. Training modules of SBM

As a part of Swachh Bharat Mission (SBM) of GoI, an online e-portal has been created for training of municipal bodies. (https://swachhbharat.cloudapp.net). The portal draws from the leading practices in sanitation sector and introduces these to municipal functionaries who are at the forefront of delivering objectives of the Swachh Bharat Mission (SBM).

The various modules dwell into depth of each of the components of SBM and will be useful for officials of the state sanitation missions, city managers-engineers, administrators, field supervisors and sanitation workers in-charge of implementing SBM.

Successful completion will entitle the participant with a certificate from the Ministry of Urban Development, GoI. The ULB officials should be encouraged to complete the training modules of this portal.

The e-learning courses offered under this portal are as follows:

1. Municipal Solid Waste Management
2. Individual Household Toilets
3. Community and Public Toilets
4. IEC and Public Awareness Program

5. PPP and Financing Sanitation
6. Validated Sanitation Technologies

A certificate of completion is issued by the Ministry of Urban Development to the professional working in the government body, once the course is successfully completed.

8 COMMUNITY AWARENESS AND PUBLIC PARTICIPATION

Any solid waste management plan's success can be evaluated based on the degree of public cooperation, the viability of the suggested system, and operational efficacy. Human resource development and capacity building can increase the system's efficacy and operational efficiency, but information, education, and communication (IEC) strategies can increase human cooperation. Such programmes may also promote trash minimization, reuse, and recycling (R& R) techniques in order to gain long-term advantages.

8.1 Status of Public Participation in SWM

The public's list of priorities does not include solid waste management. SWM has always been approached with an "Out of Sight, Out of Memory" and "Not in my backyard" mentality. Participation in the community is not very vibrant. Not every member of the public segregates waste at the source on a religious basis. To eliminate the odour and garbage, waste is burned outdoors. Regarding solid waste management, public involvement may be seen as minimal. Trash is irresponsibly dumped into the ecosystem. Waste processing is not taken into consideration. As a result, garbage frequently contaminates our ecosystem by ending up on productive soil and water sources. There are instances where waste gets down our drains and clogs it, wasting a lot of resources and energy in the process. Also, there is a lack of leadership in raising the level of the waste management system and trash management is not seen as a respectable occupation. As a result, the system has several flaws that need to be addressed.

8.2 Essential Steps of Public Participation

The development of strong partnerships with the stakeholders is essential for SWM's success. The following community organisations must participate actively, especially during primary collecting:

- Resident Welfare Associations
- Hotel owners Association
- Hospital owners' association
- Merchants' union
- Dairy owners' association
- Builders (Building Contractors) Association

The ULB may organize the above groups through a series of interactive meetings with the office bearers before a phased programme for community awareness is launched. NGOs can provide support in:

- Awareness creation programmes
- In developing pilot programmes

- In organizing door – to – door collection systems
- In setting up local processing units

Community awareness programme have to focus on:

- Awareness of the perils of the present practice, their role in keeping the surroundings clean.
- Not to litter on streets
- Storage of waste at source in two bins in a segregated manner
- Primary collection from doorstep
- Popularizing 4R strategy – Reduce, Reuse, Recycle, Recovery
- Discourage use of plastics
- Developing methodology for reaching schools to create awareness among children

8.3 Public Information, Education, Communication Programs (IEC)

For the successful execution of any programme engaging the general public in the SWM system, it is critical to set out and make public the manner in which the local body wants to address the waste management problem, as well as the extent to which public participation in Solid Waste Management is expected to maintain the city clean and improve the quality of life in the city. This is a description of the method for creating an IEC plan based on the recommendations made by several government bodies and the MSWM Regulation, 2016.:

- Organize the Safaimitra, train them for providing professional services in field of Solid Waste Management.
- Provide Safaimitra training and other capacity development to guarantee efficient, quality and timely waste management services including door to door collection of waste.
- Mobilize resident communities and bring awareness to segregate the waste and not to throw or dump waste in back-lanes and open plots
- Execute Awareness and information campaigns, organize SBM thematic drives, meetings etc. as instructed by officials and Consultant
- Training of field staff of ULB in solid waste management and door to door collection, route rationalizing of vehicles and it's planning and get it approved from officials and consultant.
- Awareness and training for segregation of waste at source to the citizens and staff of the ULB, organise meeting in consultation with Ward Corporator and RWA on weekly basis
- Promote primary collection, secondary collection of waste and cleaning of entire ward area i.e. door to door collection in assign wards, collection and removal of roadside

waste dumps, collection and cleaning of waste bins, cleaning of drains and nallahs and cleaning of entire ward area and back-lanes.

- Identification of open defecation points in the wards, creating awareness involving RWA, residents, female groups, children and helping ULB to make the wards ODF, identification of locations for constructing new community /public toilets, suggest up gradation if required in existing community /public toilets. Filling up of application forms for constructing household toilets in the wards.
- Report weekly to the ULB officials and Consultant

By keeping biodegradable "wet" kitchen and food wastes unmixed and separate from recyclable "dry" wastes and other hazardous wastes, citizens' cooperation is essential to reduce, reuse, and recycle waste and in keeping garbage off the streets. This will help to stop land filling or dumping of mixed waste as specified in MSWM Rule for setting up scientific land fill site. It is also crucial that they take part in primary waste collection and use communal bins to store waste produced in multistorey buildings, societies, commercial complexes, and slums. Public participation is sure to increase if the justifications are clarified.

The activity schedule for Public Information, Education, and Communication Programs (IEC) is given below:

S. No	Activity	Sub Activity
1	**Preparation and designing promotional materials**	Designing of SWM Flex and hoardings
		Designing of SWM Pamphlets
		SWM Voice Recording Based on local theme
		Designing of SWM Uniform for workers
		Designing of SWM Small Hording and promotional material
		Perform SWM Street Play
		Vehicle Route Planning as per SWM rules
		Logo Designing
		Share with the ULB Team and get approval for the same
2	**Meeting with all stakeholder of Solid Waste Management activities**	Meeting with Local Corporator and citizens to organize SWM campaign
		Meeting with Social and Youth Groups and organize SWM campaign
		Meeting with School and colleges and organize SWM campaign
		Meeting with Market Associations and organize SWM campaign
		Meeting with Municipal staff and organize SWM campaign
		Share and promote waste management video/best practices

S. No	Activity	Sub Activity
		Organize rally with RWA for SWM weekly
		Meeting with women's group and self-help groups
		Pamphlet distribution at HH level and performing street play
3	**Door to Door Waste Collection**	HH/Shops and Public awareness for Uses of two/three dustbin for segregation of MSW
		HH /shops and other common places information Collection
		HH Awareness for Waste Segregation
		Promote D to D Waste Collection with segregation
		Training of Safaimitra for Door-to-Door waste collection
		Feedback and Suggestion from Stakeholder
		Report Preparation and sharing with the ULB weekly
4	**Street Cleaning**	Information collection of all Roads/Markets areas
		Study of Present system
		Design route map for proper cleaning in consultation with the ULB
		Training of Safaimitra for street cleaning. Help in Assigning responsibility to Safaimitra with time scheduling
		Promote Safaimitra for street cleaning on daily basis
6	**Drain Nallah Cleaning**	Information collection of all Nallah and Drain
		Study of Present system
		Design route map for proper cleaning of drains
		Training of Safaimitra for Nallah and Drain cleaning
		Assign responsibility to Safaimitra
		Strat Drain Cleaning on daily basis
		Proper collection of nallah and drain waste. Assign responsibility to Safaimitra
		Take 2 person sign daily from HH in each row / lane of every ward
		Creating awareness involving RWA, local residents, female groups, children and helping the ULB to make the wards ODF
		Identification of locations for constructing new community /public toilets, suggest up gradation if required in existing community /public toilets
		Filling up of application forms for constructing household toilets in the wards.

8.4 Capacity Building in MSW Management

The communication material developed should be utilized in public awareness programmes through variety of approaches as under:

A. Group Education:

This may be done through:

1. Group meetings in the community
2. Workshops
3. Exhibitions
4. Lecture series
5. Panel Discussions, etc.

B. Mass Education:

This is very essential to cover the entire population as it is not possible to reach all the people through group education programs. Mass Education programs can be planned to use following methods of communication.

1. Use of Print Media
2. Use of TV / Cable TV / Radio/Web Site
3. Use of Cinema Halls
4. Street Plays, Puppet Shows, etc.
5. Posters
6. Pamphlets
7. Use of Hoardings
8. Use of Public Transport System
9. Use of School Children
10. Primary School Curriculum to cover the subject
11. Involvement of National Cadet Corps (NCC), National Social Service (NSS) and Scouts
12. Involvement of Religious Leaders
13. Involvement of Medical Practitioners
14. Involvement of Mahila Mandals/Women Associations
15. Resident Associations
16. Voluntary Organizations/NGO involvement

According to MSWM Rules, 2016, all manufacturers of disposable products such as tin, glass, plastics packaging, etc., brand owners or marketing companies shall educate the masses for wrapping and disposal of their products.

8.5 Stakeholder Consultation

S. No.	Target Group	Action Plan
1.	Local influential /community leaders	Holding of locality wise meetings and group discussion with local influential, whereby the extent of societal problems of solid waste, related physical and humane factors, the consequent health hazards and the possible remedial measure are highlighted through the talks and technical presentation by the experts and social workers.
2.	Local NGOs	Motivating and advising local NGOs to participate in planning execution and follow up efforts of community action plans for ensuring a clean and healthy community life through litter free town.
3.	School teachers and students	Promoting schools as models of clean living and healthy environments and training school, teachers and students as motivators and informal change agents for involving families and communities in segregation of waste at source and strategies for waste reduction. Reuse and recycling (R–&–R).
4.	Elite Group and Organizations like Rotary Clubs, Lions Club, Association and forums of writers and artists etc.	Motivate local influential people like leading businessmen, industrialists, office bearers of the elite clubs like Rotary, Lions, Junior Chamber of Commerce, local chapters of FICCI to undertake or sponsor such activities as solid waste management services through an effective strategy of public private partnership for improving sanitation conditions.
5.	Political / Religious Leaders	Motivate local MLAs and MPs and leaders or political parties to participate actively in the promotional efforts of community involvement for solid waste management scheme against the hazards of pollution, an effort which shall pay them abundantly through the building of possible public opinions.
6.	Representatives of media viz, Editors/ Correspondents of local press any key functionaries	Launching of mass campaign for educating and motivating local community and families about the need to have on site sanitation facility like community toilet complexes at the public places and household toilets at the family level.

S. No.	Target Group	Action Plan
	of local radio and TV stations	

8.6 CSR Initiatives

Corporate Social Responsibility is a management concept whereby private and community organizations integrate social and environmental concerns in their business operations and interactions with their stakeholders. CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives ("Triple-Bottom-Line- Approach"), while at the same time addressing the expectations of shareholders and stakeholders. CSR Initiatives are being proactively considered by Indian as well as multinational organizations. However, in a place like Parbhani where there are no industries in the ULB limit, it will be difficult to engage the interest of an organization for CSR initiatives. However, initiatives by them can be explored by mediation by local NGOs. They could facilitate some initiatives in terms of creating awareness amongst the public, supporting training programs for welfare associations and distribution of bins to the slums and weaker sections of the society. The CSR opportunities can be explored on state-level industries and approached for SWM Systems.

9 O & M ASPECTS, ENVIRONMENTAL HEALTH & RISK MANAGEMENT

9.1 Management Information System

Collection and analysis of data related to MSWM is required to assess the existing situation and propose adequate measures for improving service delivery. Management information system (MIS) is a computerised system which can help capture, store, and retrieve data or information for decision makers. MIS can manage large amounts of data such as waste collection points, location of bins, designated secondary storage points, ward level vehicle movement, information on transportation of waste and its weight. MIS helps in establishing a strong and reliable information database necessary to facilitate planning, midcourse corrections, and decision making. It enhances transparency and accountability of officials in the MSWM system. Information is the foundation of an MIS system. Therefore, for any ULB to have a sound MIS on solid waste management, it should have a good compilation of basic information ranging from a ward to a city level. Details on the minimum data requirement to establish a MIS is elaborated in Figure 9.1. Essentially all the information that was earlier kept and updated manually in the ULB has to be now available electronically. Creation and maintenance of such information and database is not very resource intensive and requires basic technical expertise at the ULB level.

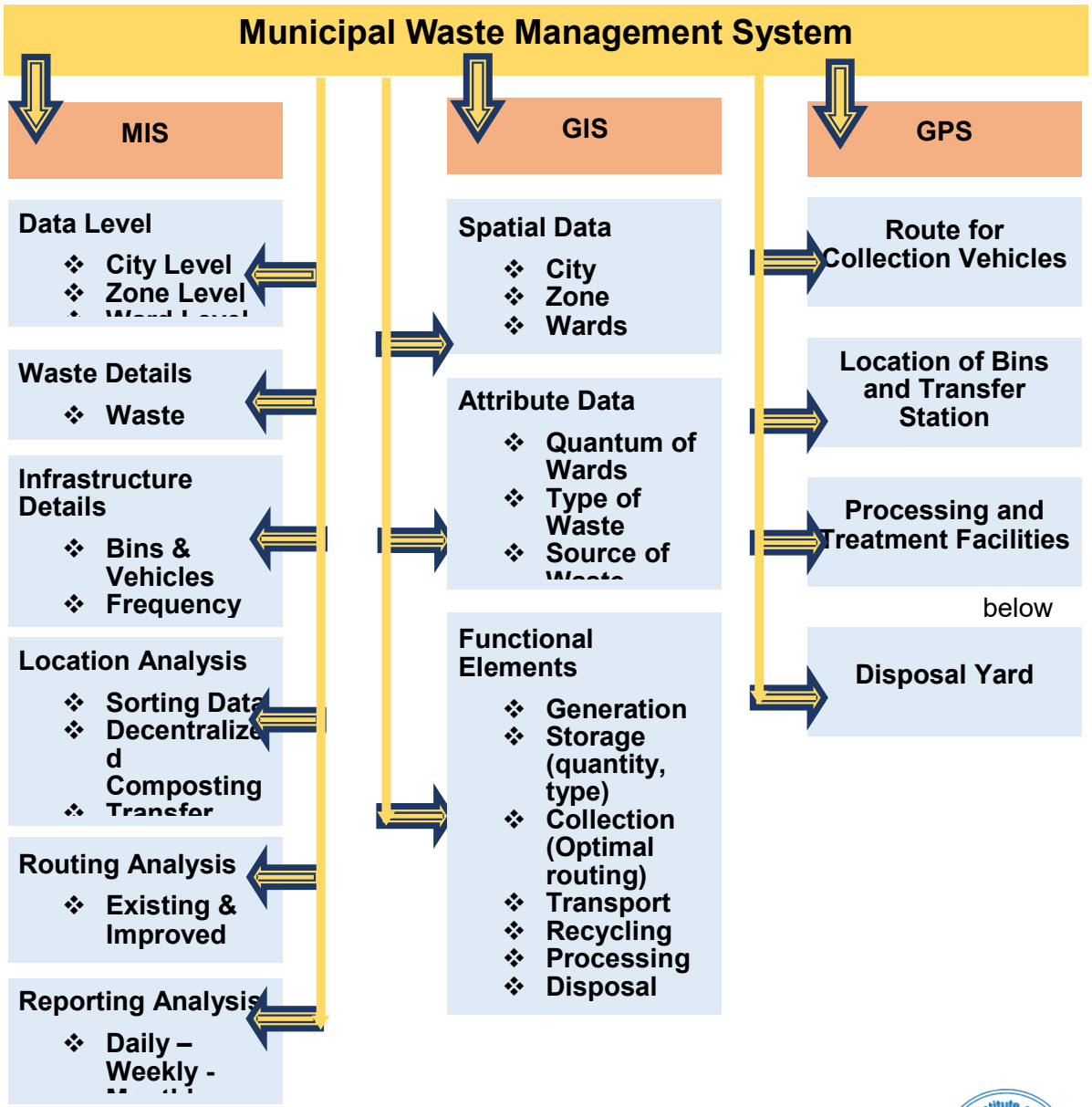
ULB need to maintain a basic MIS system either through manual records or electronically. Once this system has been established, level two is to connect this basic database on solid waste to be analysed through map-based tools and applications. The use of integrated technologies over the basic MIS system such as geographic information systems (GIS), global positioning system (GPS), radio frequency identification (RFID), and general packet radio services (GPRS) have resulted in the development of integrated and comprehensive solutions for MSWM. GIS and remote sensing imageries (visual capture of information using cameras) are now being integrated with MIS to provide spatial and visual validation for provision of services. A GIS system is actually a visual representation of information (attributes) on maps which are geo-referenced (show location coordinates). Data collected for monitoring and evaluation (M&E) of MSWM systems can thus be linked to the geographical locations on a map created in the GIS system. Data on maps can be used to analyse the spatial information and identify patterns, trends, and relationships in the existing information. GIS systems are useful in planning for door-to-door collection, waste transportation routes, location for waste collection bins, etc.

Once the GIS has been linked to the MIS, the system can be further advanced to show real-time spatial information captured through a global positioning system (GPS), e.g., real-time data regarding vehicle movement, secondary collection bin pickup, and transportation to processing and disposal sites can also be linked to the GIS system. Waste transport

vehicles may be fitted with a GPS linked to the GIS system to enable real-time monitoring of vehicle movement.

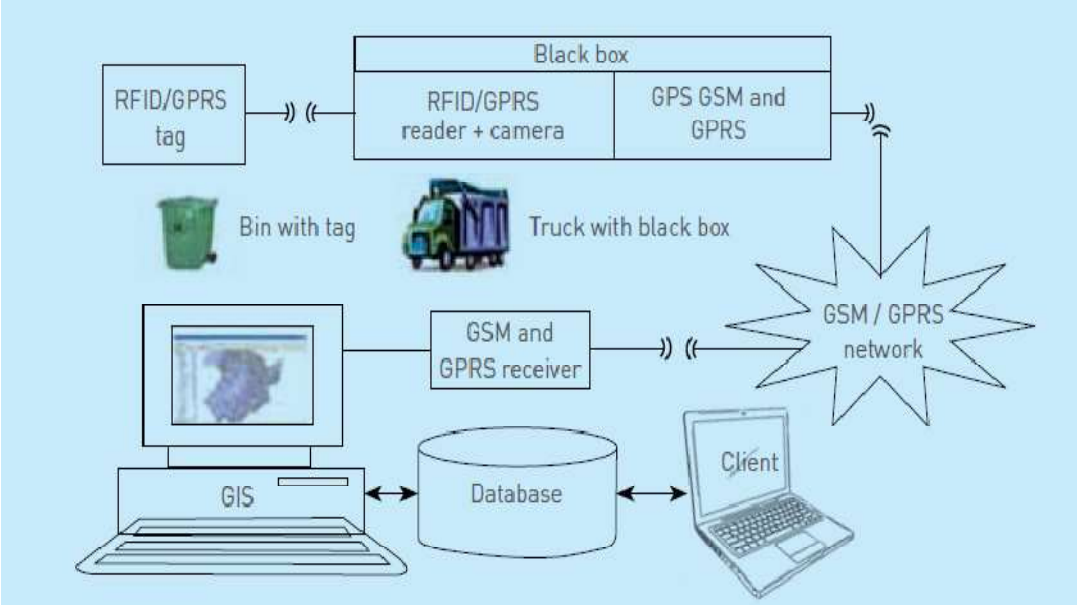
In several advanced MIS systems, radio frequency identification (RFID) tags are used to identify equipment. These are electronic tags which can carry preloaded information specific to the equipment they are tagged to, e.g., secondary collection bins. Electronic scanners equipped with the general packet radio services (GPRS) technology can scan these tags and relay information to the GIS system, whereby all necessary information fed into the GPRS unit with regard to the equipment is updated automatically. GIS is then used to check the location.

Thus, linked with GPRS or RFID systems, GIS provides real-time data on vehicles, collection of waste, bin pickup, and transportation of waste to treatment or disposal facilities. These systems are now being suitably adopted by cities to improve service efficiency of MSWM. Minimum data requirements for an effective MIS–GIS–GPS system are shown in Figure



1. Benefits of These Systems Include the Following:

Data aggregation and process monitoring are managed electronically, avoiding daily human intervention, thereby increasing reliability and transparency of information and helping in resolution of disputes among citizens, contractors, and officials. Effective and timely complaint redressal of grievances is generated through online monitoring system. Movement of vehicles and tracking of average stoppage time may be monitored in real time by using a surveillance system based on GIS and or GPS technologies, thereby reducing noncompliance and enhancing efficiency. Status of evacuation of bins on a daily basis can be monitored through RFID and or GPRS, facilitating increase in service efficiency and decrease in customer complaints.



9.2 Complaint Redressal System

A complaint redressal system creates a platform for citizens to voice their complaints and grievances regarding provision of MSWM services and also helps in promoting efficiency and transparency at the ULB level. The ULB, through an analysis of the complaints or grievances it receives, is able to identify lacunae and bridge gaps in service delivery. The time taken for resolution of grievances and the action taken are also monitored and recorded through this system. Typically, ULBs have a common complaint redressal system for all municipal services. A complaint redressal system is effectively supported through the introduction of a citizen charter. The citizen's charter is a written voluntary declaration by a ULB with the basic objective to empower the citizens to get public service in a given time frame.

The Citizen's Charter includes:

- Information on municipal services and expected outcomes,

- Municipal service delivery standards,
- Response time for rendering services or redressing grievances,
- Information dissemination process on the complaint redressal process, and
- Contact details of officers responsible for provision of the various municipal services.

The citizen's charter should be prepared by the ULB and officially adopted by the municipal council and widely publicised. Urban development or local government departments may prepare a model citizen's charter to be adopted by all ULBs in the state after preparing city-specific citizen's charters for their own city.

Elements of a Complaint Redressal System

Typical elements of a complaint redressal system include the following:

1. Complaint management system: A computerised central complaint management system should be networked, and the complaints could be recorded through a register. A grievance redressal officer from the MSWM department or cell at senior level should be responsible for recording and monitoring the complaints and also for taking necessary actions for redressal.
2. Medium of complaint registration: Multiple channels or a combination of different channels may be adopted for receiving complaints, e.g., phone calls to a centralised customer service or complaint number, SMS messages to notified mobile numbers, automated generated complaints sent to commissioners for their records, walk-in complaint registration, and online complaint registration.
3. Complaint registration and recording system: This system should
   - assign a unique ID to each complaint generated;
   - record contact details of the complainant;
   - record details of the physical location (zone, ward, area) relevant to the complaint;
   - assign the complaint to the concerned official in the MSWM department or cell;
   - record the stipulated time within which the complaint shall be redressed;
   - provide an acknowledgement receipt to the complainant with all the above details, in case the complaint is registered manually or online; and
   - Provide a complaint reference number with an SMS of registration to telephone-based complainants.
4. Resolution certificate: Field officers, after resolving the complaint, should take resolution certificate from the complainant and subsequently inform the complaint cell. The complaint shall thereafter be treated as resolved.

5. Complaint resolution and feedback: The designated official for complaint resolution in the MSWM department or cell shall be made aware of received complaints on a daily basis. Feedback could be taken through telephone, internet, SMS.
6. Pending complaints: Complaints which are not resolved in stipulated time shall be deemed pending. The reason for the pending complaint should be recorded and the designated officer and the complainant should be duly informed. Such pending complaints should automatically be escalated to higher officials for monitoring and directions.
7. Reporting and complaint analysis: A daily status report of complaint redressal should be prepared by an officer and submitted to the higher officer-in-charge for further directions. The complaint management system should generate periodic, area-wise reports on number of complaints received, nature of complaints, time taken for resolution, etc. The report should highlight the critical issues such as most frequently received complaints, frequently delayed responses, repetition of complaints (if any), time for resolution of complaints, etc. The weekly analysis of all complaints received should be reported to the Head of Municipal Council. Status of the complaints should be put in public domain and updated on a daily basis for ensuring transparency of the system.

9.4 Environmental Health and Safety Aspects

Apart from providing a sustainable solution to waste management, this system has many direct as well as indirect social, health and environmental benefits

Aspects	Description
Environmental Health	
Environmental Improvement	• No dumping of waste on ground and open areas • Covered waste handling, to prevent spreading of foul odour at collection points • No open burning of MSW • Recycling of MSW • Composting of biodegradable waste • Development of sanitary landfill • In the long run, lower pollution levels would ensure cleaner environment and improve the ambiance of the cluster
Improvement in soil fertility	• Composting provides the dual benefits of generation of revenue for the system and restoring fertility to the soil • Does not carry harmful chemicals

Aspects	Description
Pollution Reduction	• Based on 4R principle (Reduce, Reuse, Recycle and Recover)
Health and Safety Aspects	
Improved Health	• Workers are trained in the appropriate techniques of waste handling • Reduction in spread of diseases, lower emissions, improved ground water quality and soil fertility • Reduced exposure to waste • Segregation of wastes and inspection prior to land filling will ensure that hazardous waste is not mixed with the MSW • Elimination of roadside disposal would reduce the health hazards caused due to open decomposition
Safety Measures	• Implementation of the proposed strategy would result in safe disposal of MSW. Safety standards implemented at multiple levels, would result in safer working conditions for the waste collectors • Providing protective gear to waste collectors would prevent injuries when in contact with unsafe waste disposed

9.5 Post Closure Stabilization, Operation and Care

9.5.1 Long –Term Vegetative Stabilization

If a landfill cover is intended to be used for a specific purpose e.g. park or golf course or vehicle parking area, then the cover shall be stabilized in such a manner that the end –use is achieved. However, if no specific end –use is envisaged, then long – term vegetative stabilization will be undertaken to return the land to its original and natural vegetative landform.

Vegetation is by far the most common and usually the preferred stabilization option after closure of landfills. A self –perpetuating vegetative cover when established, not only minimizes wind and water erosion, but also provides the landfill some semblance of its original appearance and Land use by natural process within a reasonably short period.

Typically, vegetation efforts follow a series of steps. While the specific procedures are unique to each landfill and climatic regime, the following are usually representative element of the process:

1. Seedbed Preparation: Seedbed Preparation is necessary to set the stage for establishment of the short-term community. Initial operations may include grading,

furrowing, or grouping to enhance microclimate and addition of nutrients and soil amendment, if required.

2. Short Term Vegetation: It is common practice, in both humid and dry environments, to rely largely on grasses for the primary source of short- term land cover. Usually several species are included in the initial seeding mixture to increase diversity and reduce the chance of total community failure. Short-term vegetation is usually by irrigation.
3. Long Term Vegetation: To achieve the ultimate goal of attaining a self–sustaining and stable community, a transition between short – term and long-term vegetation must occur. In some cases, this may be left to invasion by native species after short–term vegetation is assured, and soil development is well under way. In other cases – example, when irrigation has been used temporarily to establish the short –term community- it may be necessary or desirable to enhance the natural succession process by replanting with a more diverse mix of species suited to the next stage of community succession, such as shrubs.
4. Several factors limit the growth of plants on landfills. These include toxicity of landfill generated gases (methane and carbon dioxide) to root systems, low soil oxygen due to heavy compaction, thin cover layer inhibiting root penetration, low nutrient status of cover soil, high soil temperatures and poor soil structure. Some of these factors can be eliminated or their effect on plant growth reduced.

9.5.2 Closure and Post Closure Maintenance Plan

Determination of the end-use of landfill site is essential to decide the measures of closure and post – closure maintenance. Some of the uses of closed landfill sites near urban centres include park, recreational area, golf courses, vehicle parking area and sometimes even commercial development.

A closure and post closure plan for landfill involves following components.

- Plan for vegetative stabilization of the final cover
- Plan for management of surface water runoff with an effective drainage system.
- Plan for periodical inspection and maintenance of landfill cover and facilities.

9.5.3 Operation after closure

The following facilities will be operated routinely after closure:

- Leachate management system
- Surface water management system
- Environmental monitoring system;
- Cover rehabilitation and repair system;

The operating methodology will depend on the type of system adopted at the landfill.

9.5.4 Landfill Monitoring

The objective of an environmental monitoring system is

- To find out whether a landfill is performing as designed
- To ensure that the landfill is confirming to the regulatory standards

Monitoring at a landfill site is carried out in four zones.

- On and within the landfill.
- In the unsaturated subsurface zone (vadose zone) beneath and around the landfill.
- In the ground water (saturated) zone beneath and around the landfill and
- In the atmosphere / local air above and around the landfill.

The parameters to be regularly monitored are:

- Leachate head within the landfill
- Leachate and gas quantity within the landfill
- Long – term movements of the landfill cover
- Quality of ground water in the saturated zone
- Air quality above the landfill, at the gas control facilities, at building on or near the landfill and along any preferential migration paths.

The indicators of leachate quality and landfill gas quantity shall be decided after conducting a study relating to the type of the waste, the age of the waste, the waste composition of leachate and gas likely to be generated and the geotechnical as well as hydrological features of the area. All the monitoring programmes must first establish the baseline/ background conditions prior to landfill monitoring.

The frequency of monitoring shall be capable of detecting unusual event and risk in the initial phases. This will give time to identify, diagnose the cause and enable early steps to be taken for containment or remediation. Usually a monthly/ bimonthly monitoring frequency is considered suitable during the operational phase as well as for 3 to 4 years after closure. The frequency can be decreased to 2 to 3 times a year in later years, if all system performance satisfactorily. Monitoring frequency may have to be increased if concentrations of gases/leachate are higher (Usually during monsoon period) than expected are detected, if control systems are changed or if drainage system gets clogged/non- functional.

A monitoring programme must specify:

- A properly selected offsite testing laboratory capable of measuring the constituents at correct detection levels.
- A methodology for acquiring and storing data.

- A statistical procedure for analysis of the data.
- The following instruments equipment shall be used for monitoring
- Ground water samplers for monitoring water in wells
- Leachate samplers for leachate monitoring within the landfill and at the leachate tank.
- Vacuum lysimeters, filter tip samplers, free drainage samplers, for leakage detection beneath landfill liner.
- Surface water samplers for collection of sample sedimentation basin.
- Down hole water quality sensors for measuring conductivity, pH, DO, temperature in leachate wells, ground water wells and sedimentation basins.
- Portable gas monitors for onsite monitoring of gases.
- Active and passive air samplers for monitoring ambient air quantity.

It is recommended that location of each type of instrument/ equipment shall be finalized in consultation with an expert on the basis of topography of the area and layout of the landfill. A minimum of 4 sets of ground water monitoring wells (one up gradient and three down gradient) for each aquifer are considered desirable.

A. Quantitative parameter to be monitored will be;

- Leachate quantity;
- Gas quantity;
- Surface water run –off quantity and
- Cover system settlement quantities.

B. Qualitative parameters to be monitored will be:

- Leachate quality within the landfill (at the base)
- Leachate quality after treatment
- Groundwater quality (up gradient and down gradient)
- Surface water quality at the exit of landfill
- Gas quality within the landfill
- Air quality above the landfill and at gas vents
- Air quality at gas control facilities.

The regulatory limits for various parameters of quality will be prescribed by the regulatory authorities.

9.5.5 Periodic Inspection and Maintenance

Periodic inspection and routine maintenance at a closed landfill site shall be carried out for a period of 15 year after closure. The following components of a closed landfill are inspected visually after landfill closure to confirm that all functional elements are working satisfactorily. A maintenance schedule with specified reporting formats is drawn up after each inspection.

9.5.6 Cover System

The final cover is inspected 2 to 4 time a year

- To check that vegetation growth is occurring satisfactorily and that plants are not showing stunted growth,
- To detect if any erosion gullies have been formed thereby exposing the barrier layers,
- To earmark depressions that may have developed with time and
- To identify ponding of water on the landfill cover. At least one inspection shall be carried out during or immediately after peak of the monsoon season.

Closed landfills show significant settlement. Rectification measures must not only re-establish the initial slope of the cover (for proper surface water runoff) but must also ensure that all the components of the landfill cover system continue to perform as originally envisaged. Adequate equipment and funds shall be allocated for post closure maintenance work in the form of soil filling re-grading the cover and re-vegetating the landfill cap. In areas where extensive erosion gully formation is observed, filling of cover material, regarding of cover slopes and re-vegetation must be routinely undertaken.

9.5.7 Surface Water Drainage System

The surface water drainage system shall also be inspected 2 to 4 times a year.

- To identify cracks in drains due to settlements
- To delineate clogged drain requiring immediate clean up and
- To study the level of deposited soil in the storm water basin and initiate excavation measures.

9.5.8 Gas and Leachate Management System

Periodic inspection of the gas and leachate collection system shall be undertaken to identify broken pipes, leaking gas (if any) and damaged or clogged wells/ sumps. Repair work for gas and leachate management system requires skilled manpower and shall be carried out by the agencies operating the gas treatment and leachate treatment facilities. One may often have to install new gas extraction and leachate collection wells if the damaged/ clogged facilities are inaccessible and irreparable.

9.5.9 Environmental Monitoring system

Ground water monitoring wells, air quality monitoring system and vadose zone monitoring instruments shall be periodically inspected to check satisfactory functioning of the systems and to ensure good health of all well caps and sampling ports. Environmental monitoring system shall be maintained during the entire post – closure period as per the requirements

of the local environments regulatory agencies. Wherever possible, monitoring instruments shall be periodically recalibrated. Sample devices shall be routinely detoxified and checked for proper functioning of the opening and closing of valves or springs loaded mechanisms.

9.6 Landfill Quality Assurance and Quality Control

Quality Assurance plan shall be prepared for each stage of the land filling process; accordingly, the quality shall be controlled to ensure:

- The landfill design of a high standard.
- Effective mechanisms are in place to ensure the construction and operation to design parameters.
- Documentation is carried out during design, construction, operation, closure, monitoring and post closures care for purposes of satisfying regulations and legal liability.
- Public has access to and is aware about the acceptability of land filling quality.

An independent engineer shall oversee the implementation of QC programme. Advice may be taken from a Quality Assurance Agency for incorporation of quality control conciliation in award of contracts relating to siting, planning, design, construction, operation, monitoring and maintenance

9.7 Environment Mitigation Measures

Environment mitigation measure addresses all the adverse environmental impacts of the proposed facility. This would also include the social and health and safety issues.

Service	Risk Involved	Mitigation Plan
Collection	Waste spillage by stray animals	Covered bins
	Removal of recyclables by rag pickers	Waste collected by primary collection vehicles directly transferred to Ghantagadis, which transfer the waste to the landfill site, thus ensuring minimum ground touch during collection and transportation.
	E-waste, hazardous waste getting mixed with household waste	Separate collection vehicles for e-waste and hazardous waste
	Huge emissions while operating the vehicles in highly dense areas	Rickshaws will operate in highly dense areas and hence contribute to emission reduction

Service	Risk Involved	Mitigation Plan
	Spillage of waste around collection bins	Waste will be majorly collected from each household and the collection bins will only be used for waste collected from street sweeping as well as pedestrian waste
	No door-to-door collection of waste	Propose a plan for door-to-door collection of municipal solid waste by also charging user-fees and penalty for irresponsible disposal of waste
	Nuisance due to location of waste collection bins. During monsoon, the waste may mix with runoff and create unhygienic conditions	Covered collection bins are proposed and are placed on a slightly elevated impervious area
Storage at Satellite Stations	Spillage of waste during unloading and loading	Solid and covered platform must be made, and proper equipment's should be provided to handle the waste
	Delay in tertiary transportation due to some unavoidable issues	Provisions must be made at the satellite station to store the waste for a few more days in any emergency, especially for wet waste
Transportation	Waste Spillage while transportation	Transportation in covered vehicles
	Non-collection of waste in a region due to non-functioning of any vehicle	Centralized GPS monitoring as well as stand-by vehicles will ensure that the waste is collected as schedules
	Spillage of waste while transferring waste to refuse compactors manually	Auto-tippers will transfer the waste to the refuse compactors
Segregation	Poor segregation resulting in poor collection of recyclables	Automatic segregator will ensure efficient segregation
	Theft of recyclables from segregation unit	Segregation unit has been planned in the centralized landfill site with proper

Service	Risk Involved	Mitigation Plan
		boundary walls
	Odour nuisance	De-odorizes in place to maintain
Disposal/ temporary storage for rejects	The site being accessed by stray animals	The site provided by boundaries to prevent this
	Leachate contaminating the ground water as well as downstream water courses	Proper leachate collection system is planned; further landfill site not close to any water body
	Contaminated air at the site	Ambient air quality in and around the site to be maintained
	Loss of amenity, aesthetics, property values to neighbours	The site lies at more than 250 metres from any residential establishments
	Odour Nuisance	Adequate buffer in the form of green belt to be provided
Safety of manpower involved in operations	Health and safety hazards to workers during waste collection, transportation and at compost and disposal site	Occupational Safety Plan shall be prepared. This shall include: (i) provision of personal protection equipment such as gloves, boots, (ii) Eliminating manual handling of waste; and (iii) Training of workers on safe handling of waste

10. COST SUMMARY OF THE PROPOSED SYSTEM

Achalpur Municipl Council, Achalpur
Name of Scheme: Municipal Solid Waste Management of Achalpur Municipal Council
Tal- Achalpur, District- Amravati,{Under SBM(U) 2.0}
RECAPITULATION SHEET

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
Solid Waste Management					
A	**Compost Plant (including leachate management)**	**TPD**			
1	**Civil Works**				
a	Windrow Platform with Shed	SQ.M.		2600	1,12,00,097.24
b	Tipping Area	SQ.M.		900.00	20,78,610.26
c	Leachate Tank	SQ.M.		4.00	1,34,810.36
2	**Plant & Machinery**				
	Sub- Total of A (A1+A2)				**1,34,13,517.86**
B	**MRF Plant**	**TPD**			
1	Presorting shed-Civil Works	SQ.M.		1200	1,72,15,456.66
2	**Plant & Machinery**				
a	Machinery cost - Presorting Trommel	TPD		50	69,00,000.00
	Sub Total of B (B1+B2)				**2,41,15,456.66**
C	**Sanitary Landfill (SLF)**	**TPD**			
1	**Civil Works**				
a	Sanitary landfill	SQ.M.		5070	95,03,850.89
b	Leachate collection Sump	SQ.M.		4	1,79,749.95
2	**Plant & Machinery**				-
	Sub Total of C (C1+C2)				**96,83,600.84**
D	**Total Project Basic Cost (A+B+C)**				**4,72,12,575.35**
E	**MJP Fees (1% of D, inclusive of GST)**				
F	**PMC Fees of (2.35% of D)**				11,09,495.52
G	**GST**				
1	Civil Works - 18% of (A1+B1+C1)				72,56,263.56
2	Plant & Machinery - 18% of (A2+B2+C2)				12,42,000.00
3	PMC Fees (18% on F)				1,99,709.19
H	**Total GST (G1+G2+G3)**				86,97,972.76
TC	**Total Project Cost of Solid**				**5,70,20,043.6**

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
-1	**Waste Management (D+E+F+H)**				**3**
C&D Waste Management		**TPD**	**Existing Capacity available**	**Proposed Capacity in SBM 2.0**	**Amount in Rs.**
a	C&D Waste Management - Shed	SQ.M		120	21,82,832.68
	Machinery cost-Jaw Crusher	NOS		1	5,25,000.00
I	**C&D Waste Management - Total**				27,07,832.68
J	**MJP Fees (1% of I, inclusive of GST)**				
K	**PMC Fees of (2.35% of I)**				63,634.07
L	**GST**				
1	C&D Waste Management (18% of I)				4,87,409.88
2	PMC Fees (18% of K)				11,454.13
M	**Total GST (L1+L2)**				4,98,864.01
N	**Other Charges if any (add row for individual charges)**				-
TC-2	**Total Project Cost of C and D Shed (I+J+K+M+N)**				32,70,330.76
Other Items (Site Development, Vehicles, Incinerator, etc.)		**Unit**		**Qty**	**Amount in Rs.**
O	**Other Items (Item-1,2, 3…. add the items in row)**				
1	Machinery cost - Animal Disposal Machine	TPD		1	46,00,000.00
2	3.5 m wide road	R.M.		225	28,89,579.25
3	5.5 m wide road	R.M.		255	32,74,855.21
4	Compound wall	R.M.		800	1,14,95,813.79
5	Weigh Bridge Room	SQ.M		9	4,45,153.46
6	Weigh Bridge Platform	SQ.M		36	5,26,414.54
7	Leachate Drainage Line	R.M.		360.00	16,70,627.39
P	**Total Basic Cost (O1+O2+O3…….)**				2,49,02,443.64
Q	**MJP Fees (1% of P, inclusive of GST)**				-
R	**PMC Fees of (2.35% of P)**				5,85,207.43
S	**GST**				
1	Other Items (18% on P)				44,82,439.86
2	PMC Fees of (18% on R)				1,05,337.34
T	**Total GST (S1+S2)**				45,87,777.19
TC-3	**Total Cost for Other Items (P+Q+R+T)**				3,00,75,428.26

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
TPC	**Total Project Cost (Sum of TC-1, TC-2, TC-3)**				**9,03,65,802.65**
					Cost Summery
1				Total Net Cost =	7,48,22,851.67
3				Total PMC 2.35 % Charges =	17,58,337.01
4				Total GST (Civil and Mechanical Works) =	1,37,84,613.96
5				Total Cost=	**9,03,65,802.65**
6				Total MJP 1% TS Charges =	9,03,658.03
7				**TOTAL COST OF PROJECT =**	**9,12,69,460.67**
	Prepared By		**NP Engineer**		**Chief Offier**
	All India Institute of Local Self Government				

11. FINANCIAL FRAMEWORK

The "Swachh Bharat Mission-Urban" (SBM-U) is a significant initiative of the Government of India, launched on Mahatma Gandhi's birth anniversary on October 2nd, 2014. The mission aims to achieve his vision of a "Clean India". Swachh Bharat Mission - (Urban) (SBM-U) had three major objectives

- Achieving 100% Open Defecation Free (ODF) status
- Ensuring 100% scientific Solid Waste Management (SWM),
- Behaviour changes through 'Jan Andolan,' by 2nd October 2019, in all statutory towns

This Mission has achieved significant levels of success against the above objectives, with massive engagement of citizens across all categories of society. Mission is now being extended for a period of 5 (five) years, from 1st October 2021 to 1st October 2026, as Swachh Bharat Mission (Urban) 2.0 (SBM-U 2.0), for completing the work remaining, institutionalizing "Swachh' Behaviour" and making it sustainable. The Government of India in partnership with States/ UTs and ULBs is committed to make all cities 'Garbage Free' under SBM-Urban 2.0 in order to contribute to the achievement of the Sustainable Development Goals (SDG) 2030, which will ultimately improve the quality of life and ease of living of urban populations, thus leading to urban transformation.

Mission Components

1. Sustainable Solid Waste Management
2. Sustainable Sanitation
3. Used water management
4. IEC/ BCC
5. Capacity Building (CB)

11.1 Funding Pattern of the Project

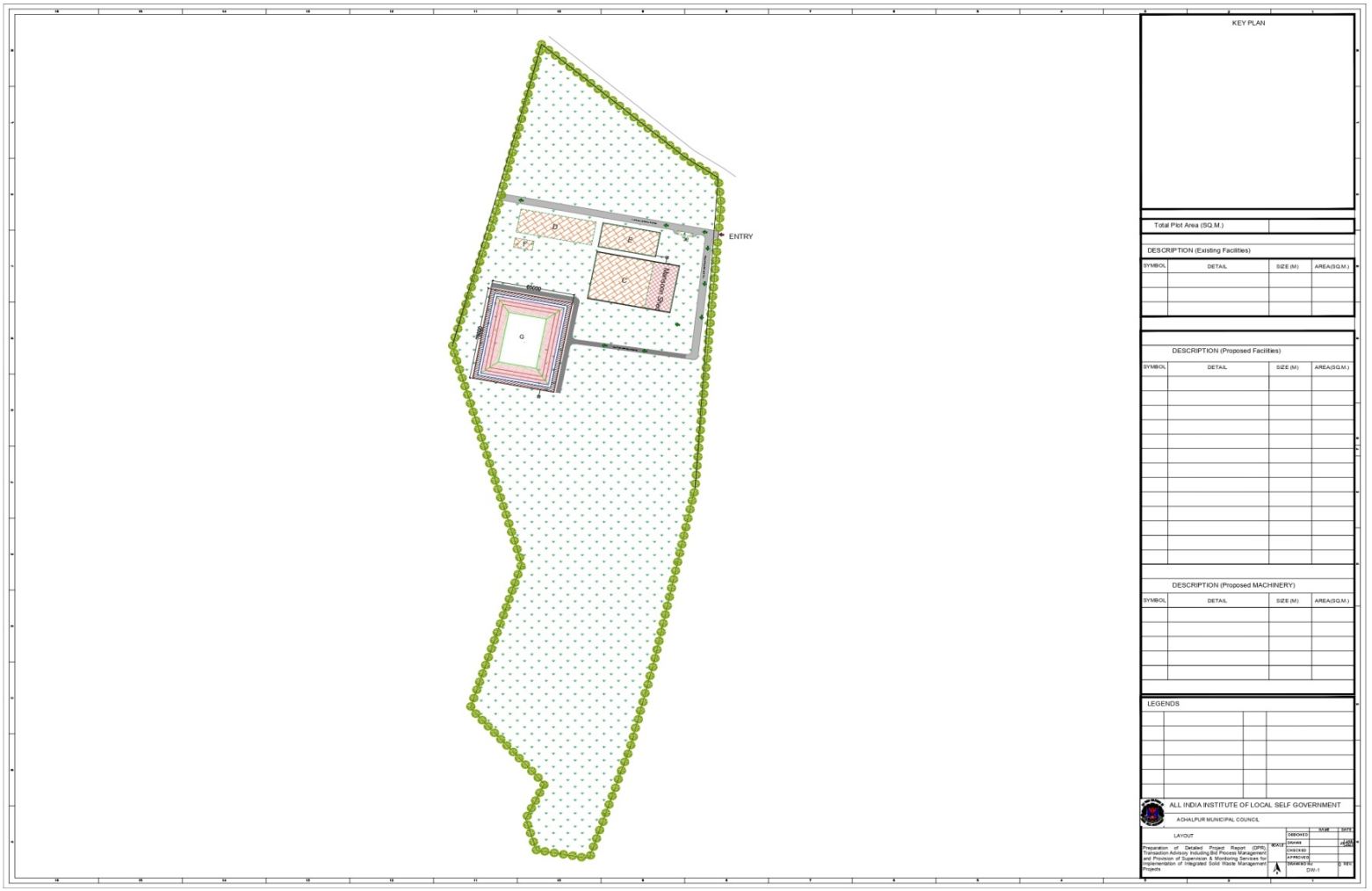
The total capital cost for the proposed project is 9.12 crore. Under SBM 2.0 the contribution of Central Government, State Government and Urban Local Body foe the cities with population of more than 1 lakh is as follows:

Table 11.1 Capital Expenditure (CAPEX) Contribution

Sr. No.	Component	% Contribution	Cost(In lakhs)
1	Government of India (GoI)	33%	₹ 4,56,34,730.34
2	Government of Maharashtra (GoM)	52%	₹ 4,10,71,257.30
3	Achalpur Municipal Council	15%	₹ 45,63,473.03
	Total	**100**	₹ 9,12,69,460.67

As per SBM 2.0 Guidelines ULBs with less than 10 lakh population can leverage the 15th Finance Commission grants where 40% of grants are untied, while 60% is tied to national priorities including sanitation and Solid Waste Management. ULBs can leverage the 15th FC grants in addition to the SBM-U funds, for meeting Mission outcomes.

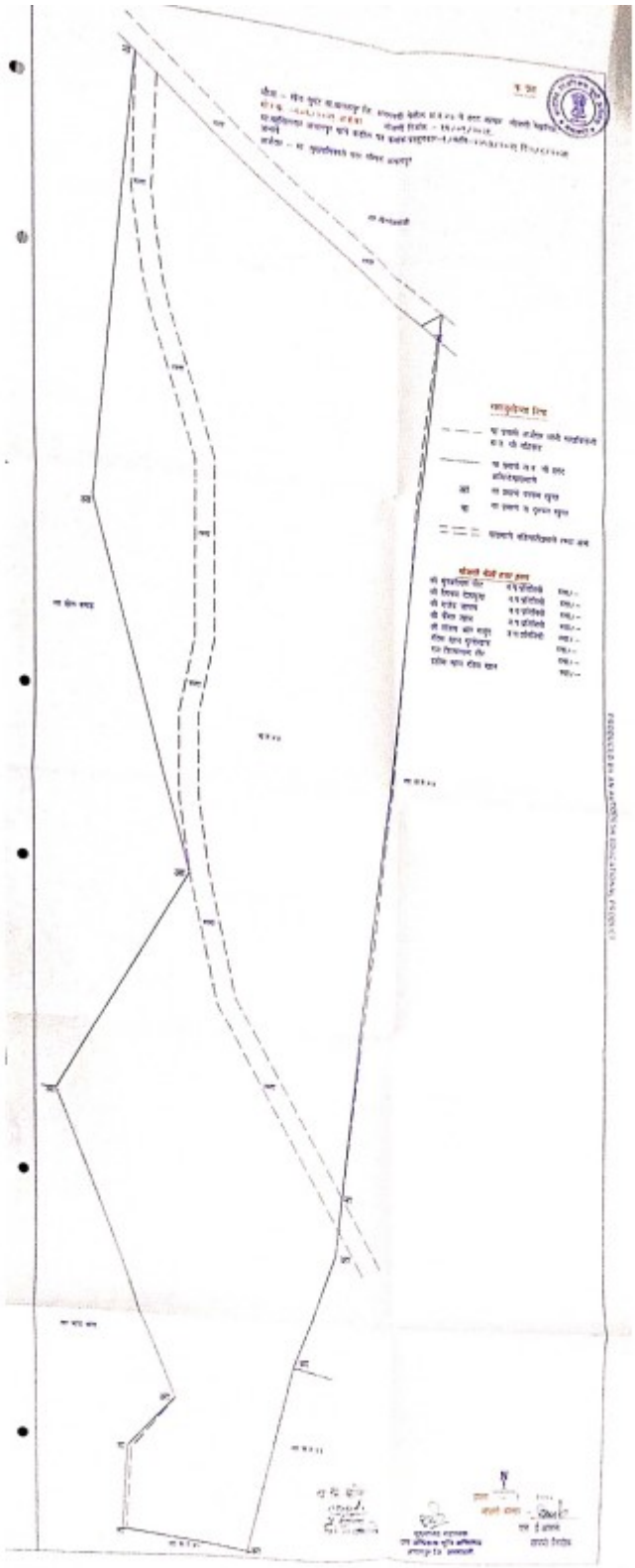
ANNEXURES 1: Proposed Site Layout



ANNEXURE 3: PROJECT TIMELINE

S No	Description	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8	M 9	M 10	M 11	M 12	M 13	M 14	M 15	M 16	M 17	M 18
		Pre-Construction Phase						Construction/Implemetaion Phase										Trail Run	
1	Finalisation of DPR from ULB, Techncial Sanction from MJP and Administrative Approval from SLTC to DPR																		
2	Preparation of the Detailed Bid Documents (RFQ, RFP & Concession Agreement in line with approved DPR)																		
3	Approval of the Bid Documents																		
4	Issuance of Notice for Inviting Tender																		
5	Receipt of Tenders from Bidders																		
6	Bid Evaluation and Recommendation of Bidder (s)																		
7	Award of Works Contract to Successful Bidder(s)																		
8	Preparation of Implementation Plan & Construction Schedule																		
9	Site Handover																		
10	Construction of Proposed Civil Works for Prcoessing of Municipal Solid Waste like Wet Waste,Dry Waste, Hazardous Waste, C& D Waste and allied infrastrcuture																		
11	Procurement of Proposed Machinearies & Equipments																		
12	Erection & Commissioning of Processing Plant																		
13	Trial & Run																		

Land Document



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भूमि अभिलेख विभाग,महाराष्ट्र शासन
मोजणीची 'क ' प्रत देवुन प्रकरण निकाली

प्रति,
श्री/श्रीमती :- मा मुख्याधिकारी
नगर परीषद
अचलपूर(९०९६३३३३६४)
रा.रोड नाव :एकता ज्वेलर्स समोर
मेन रोड ,गाव
:परतवाडा,तालुका:अचलपूर
,जिल्हा:अमरावती ,पिन
नं.४४४८०५..

जावक क्रमांक: 3099
DY. Supt. Of Land Record
अचलपुर यांचे कार्यालय,
निकाली दिनांक: ४/१०/२०२१

विषय:- जमीन मोजणीबाबत.

संदर्भ:- आपला दिनांक ३०/८/२०२१ चा मोजणीअर्ज.

महोदय/
महोदया,

आपल्या विषयांकीत संदर्भीय अर्जाप्रमाणे आपणास रितसर आगाउ नोटीशीने कळवून ईकडील भुकरमापक यांनी नेमलेल्या तारखेस गावी येवुन आपले व लगत कब्जेदार व पंचासमक्ष मोजणी केलेली आहे.ईकडील अभिलेखाच्या आधारे आपणांस हद्दीच्या खुणा दाखविल्या आहेत.त्याबाबत आपण भुकरमापक यांचेसमोर पंचासमक्ष हद्दी मान्य असलेबाबत संमतीदर्शक जबाब दिलेला आहे.तो प्रकरणी सामील आहे.आता मोजणी कामाची पुर्तता झालेने आपला मोजणी अर्ज निकाली ठेवला आहे.सोबत मोजणी नकाशाची 'क' प्रत पाठवली आहे.कळावे.

मोजणी प्रकार		मो. र. क्र.	तालुका	गांव /वार्ड	सर्व्हे नं.	मोजणी दिनांक	हद्दी दाखविल्याचा दिनांक	'क' प्रत पाठविलेली दिनांक
कालावधी	उद्देश							
अतितातडी	हद्दकायम	६०६	अचलपुर	खेल घुमंट	२७	१६/९/२०२१	१६/९/२०२१	४/१०/२०२१

DY. Supt. Of Land Record,अचलपुर.

अभिलेखपाल:

प्रस्तुत प्रकरणी आता काहीही तजवीज नसलेनेप्रकरण निकाली केले आहे. बी.एन.डी.क्रमांक देउन पुढील नियमाधिन कार्यवाही करावी.

Reference Document - Manual on Solid Waste Management

As per manual 1.3% per year increment is consider for per capita waste generation.

1.4.3.3 QUANTIFICATION AND COMPOSITION OF WASTE

As an essential requirement each ULB should assess the quantity and composition of waste generated to plan for and design MSWM systems effectively. The quantity and composition of MSW generated in the ULB determine collection, processing, and disposal options that could be adopted. They are dependent on the population, demographic details, principal activities in the city or town, income levels, and lifestyle of the community.

Waste generation is strongly dependent on the local economy, lifestyle, and infrastructure. It has been well established that waste generation of an area is proportional to average income of the people of that area. It is also observed that generation of organic, plastic, and paper waste is high in high income areas.

An assessment states that the per capita waste generation is increasing by about 1.3% per year. With an urban growth rate of 3.0%–3.5% per year, the annual increase in waste quantities may be considered at 5% per year. Impacts of increasing ULB jurisdiction should also be considered while assessing future waste generation rates.

Several studies were conducted by Central Pollution Control Board (CPCB) over the last 2 decades to arrive at waste generation details and composition of MSW generated in the country. Summaries of the several findings are listed below:

- **1996:** The characterisation studies carried out by National Environmental Engineering Research Institute (NEERI) in 1996 indicate that MSW contains large organic fraction (30%–40%); ash and fine earth (30%–40%); paper (3%–6%); along with plastic, glass, and metal (each less than 1%). The calorific value of refuse ranges between 800 and 1,000 kilocalorie per kilogram (kcal/kg) and carbon-to-nitrogen (C/N) ratio ranges between 20 and 30. Study revealed that quantum of waste generation varies between 0.2 and 0.4 kg/capita/day in the urban centres and goes up to 0.5 kg/capita/day in metropolitan cities. The study was carried out in 43 cities of varying sizes, as detailed out in Table 1.5. The results were presented in a report published by NEERI "Strategy Paper on Solid Waste Management in India" (1996).

Reference Document - Manual on Solid Waste Management

Referred for design calculation of SLF

Density of waste material in landfill will depend on refuse compaction, moisture content, and the degree of compaction

Based on the MSWM plan, the volume of waste in a sanitary landfill should be roughly calculated under the following assumptions:

- 1 tonne of waste is equivalent to 1 cubic metre (m^3) of sanitary landfill volume. (In reality, the specific weight of waste in a sanitary landfill is 0.8 t/m^3 during the first years and will increase after settlement over the time to 1.2 t/m^3.)
- Covering of waste will use about 10% more volume.

The total sanitary landfill area (for details, see next section) would be larger than the area required for the filling area to accommodate all infrastructure and support facilities as well as to allow the formation of a green belt around the sanitary landfill.

Amount of soil necessary for daily and final cover must be added to the refuse volume amount to obtain final landfill space projection

From an economical viewpoint, a small base area with a high sanitary landfill is preferable, because it reduces considerably the cost for the sealing systems, leachate collection system, and operational roads. The generation of leachate and the related costs will also decrease.

From a technical viewpoint, it is important to guarantee the runoff of rainwater. Therefore, minimum inclinations have to be maintained at the slopes. Every footprint of the disposal area of a landfill will have to maintain a certain minimum height to meet these inclination requirements. The height of the sanitary landfill is also constrained by the overburden pressure on the soil; it should be within acceptable limits.

From an environmental viewpoint, sanitary landfills with considerable heights can interfere with the landscape and cause visual disturbance. However, restricting the height would result in larger landfill footprints, requiring larger tracts of land. The larger the base of the landfill, the higher is the risk of leachate contamination of groundwater.

Planners and operators must carefully plan new facilities and optimise the design criteria that adhere to technical and environmental considerations

4.5.2.3 SANITARY LANDFILL LAYOUT

As mentioned above, a sanitary landfill site comprises an area in which the waste will be filled and an additional area for support facilities. Within the area to be filled, usually only a part is under active disposal in a specific phase of operation. Figure 4.2 depicts a typical layout of a sanitary landfill.

Reference Document – CSWAP Report SBM 2.0 Guidelines

As per this document SLF Design is consider 5 Year (2023 – 2028)

B	Projected Waste generation streams for year 2025:

Waste stream	Fraction in MSW (indicative–can be changed as per actuals in ULB)	Projected waste generation in TPD	% of MSW
Wet Waste	55%		
Dry Waste	35%		
Domestic Hazardous waste	Minor		
Other Waste(Drain Silt & Inert)	10%		
To SLF (not more than)	20%		

Other components of MSW Management

C	**Sanitary Landfill (SLF)** (Filling CELL for 5 years only)

Waste sent to SLF restricted to 20% of total Municipal	
SLF capacity for 5 years duly adding extra volume for daily cover, top cover etc. (as per Manual on MSWM) Tonnes/cum/day	

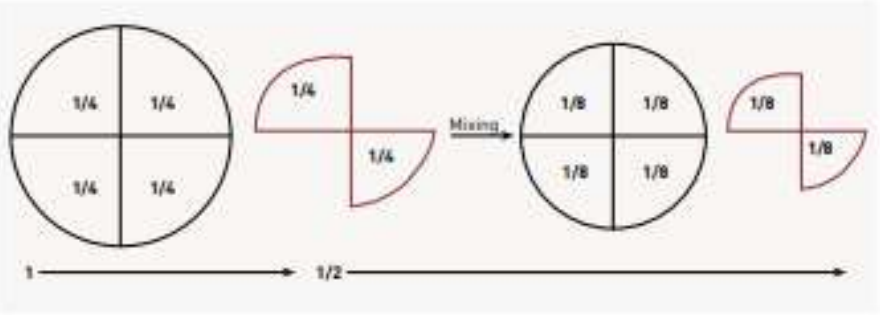
D	**Estimated cost for proposed components as per GAP analysis**

Waste Management Component	Total proposed requirement (gap projected @2025)	Estimated cost/ tonne (per machine for MRSs)	Proposed estimated cost
Wet waste processing			
Dry waste processing			
C&D waste processing			
Dumpsite Remediation			
Sanitary Landfill			
Transfer Station			
Mechanical Road Sweepers (MRSs)			

Reference Document – CPHEEO Manual

As per document density of solid waste is taken as 450-500 kg/sqm

Figure 1.7: Characterisation of Municipal Solid Waste through Quartering Method[12]



Proportion of Waste Constituents: The size distribution of waste constituents in the waste stream is important because of its significance on the selection of appropriate collection, transportation, processing, treatment, and disposal practices. The waste characterisation method mentioned above shall be followed to assess proportions of waste constituents.

1.4.3.3.3 Physical Characteristics of Municipal Waste

1. Density of Waste

Critical parameters for selecting the appropriate processing technology are: waste quantity and characteristics, such as density, moisture, calorific value, toxicity etc.

The density of waste (mass per unit volume, kg/m³) determines the storage and transportation volume requirements. MSW density in India is typically around 450–500 kg/m³.

Impact of Density on Waste Transportation Choices

The efficacy of using compactor bins and refuse compactors is dependent on the initial density of waste. Low density wastes (e.g., packaging wastes, plastic waste) may be hauled most efficiently through the use of compactors, where a compaction ratio as high as 2.5:1 is achievable. Compactors offer little or no advantage and are not cost-effective for transportation of wastes with high densities (e.g., street sweeping waste). In general, compactors may be used for all municipal wastes, except inert wastes.

Method for Bulk Density Measurement

Materials and Apparatus:

- Wooden box of 1 m³ capacity
- Wooden box of 1 ft³ capacity
- Spring balance weighing upto 50 kg.

12 Adapted from "Toolkit for Solid Waste Management" JnNURM, (2012) and Manual on MSWM (First Edition), CPHEEO (2000) available at: http://jnnurm.nic.in/toolkits-report-primers.html

DETAILED PROJECT REPORT

VOLUME II



PREPARATION OF DETAILED PROJECT REPORT

for

INTEGRATED SOLID WASTE MANAGEMENT OF ACHALPUR MUNICIPAL COUNCIL

SWACHH BHARAT MISSION – URBAN 2.0

Prepared by

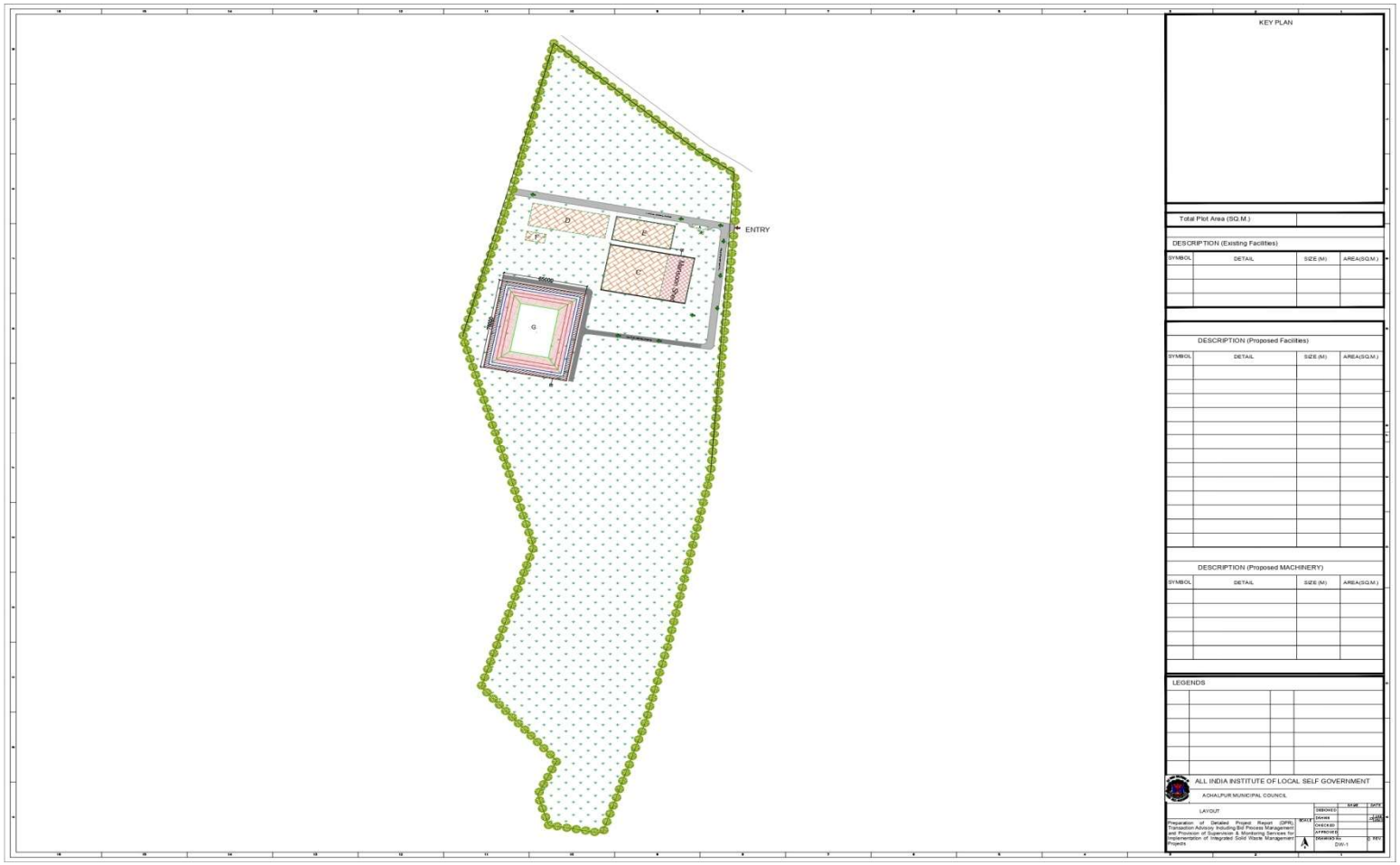
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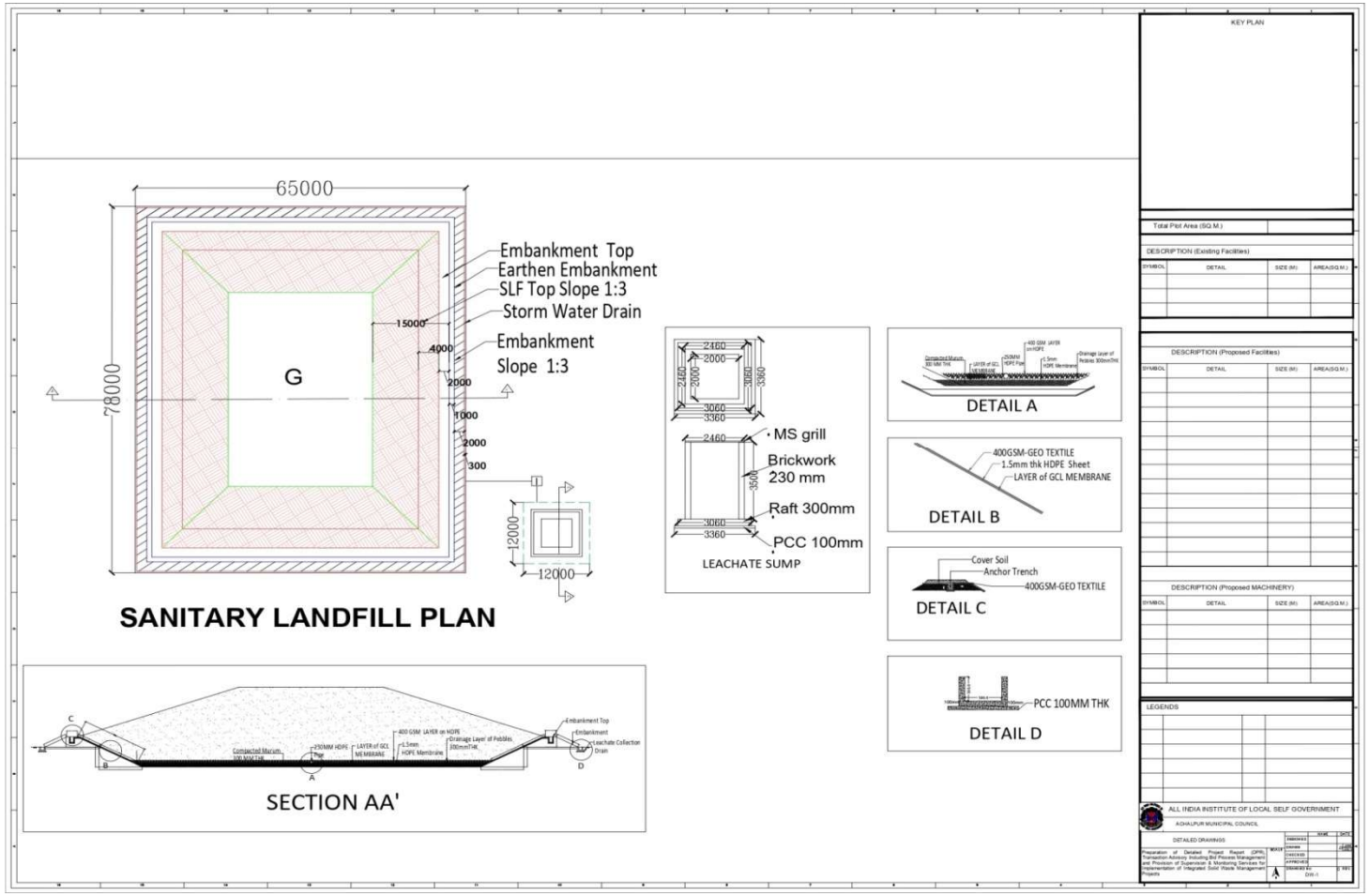
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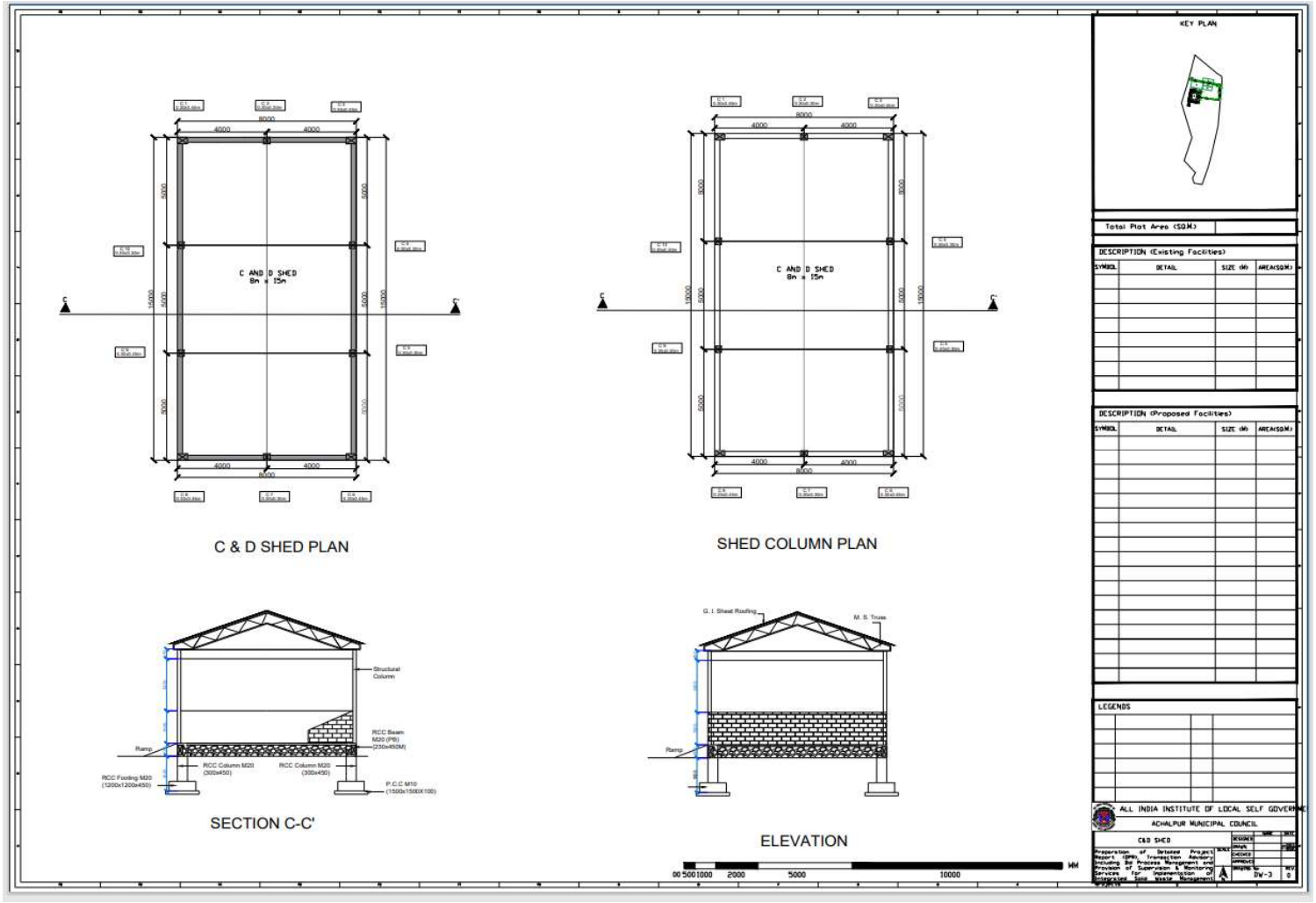
1. PROPOSED SITE LAYOUT PLAN



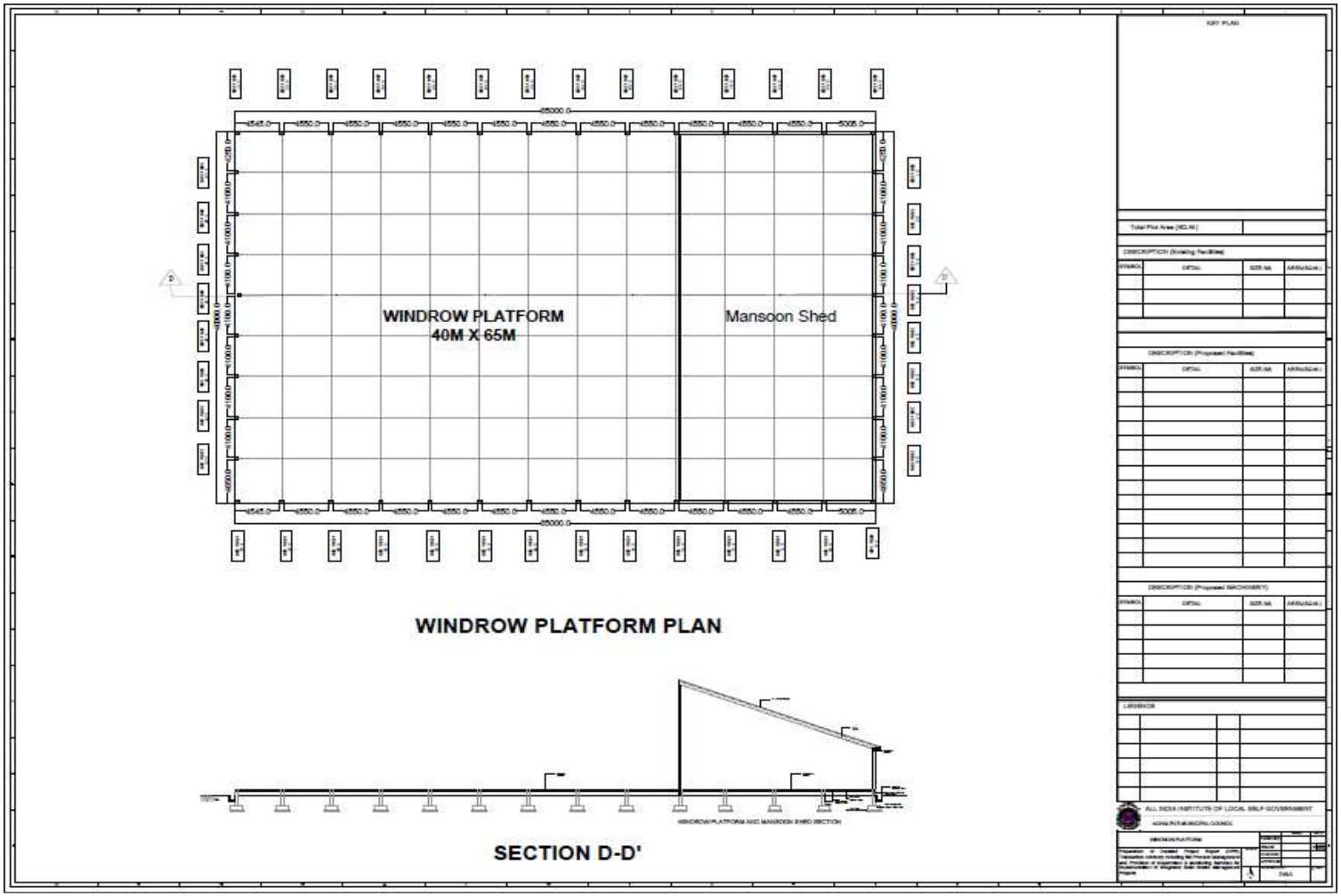
2. Detailed Drawing of SLF



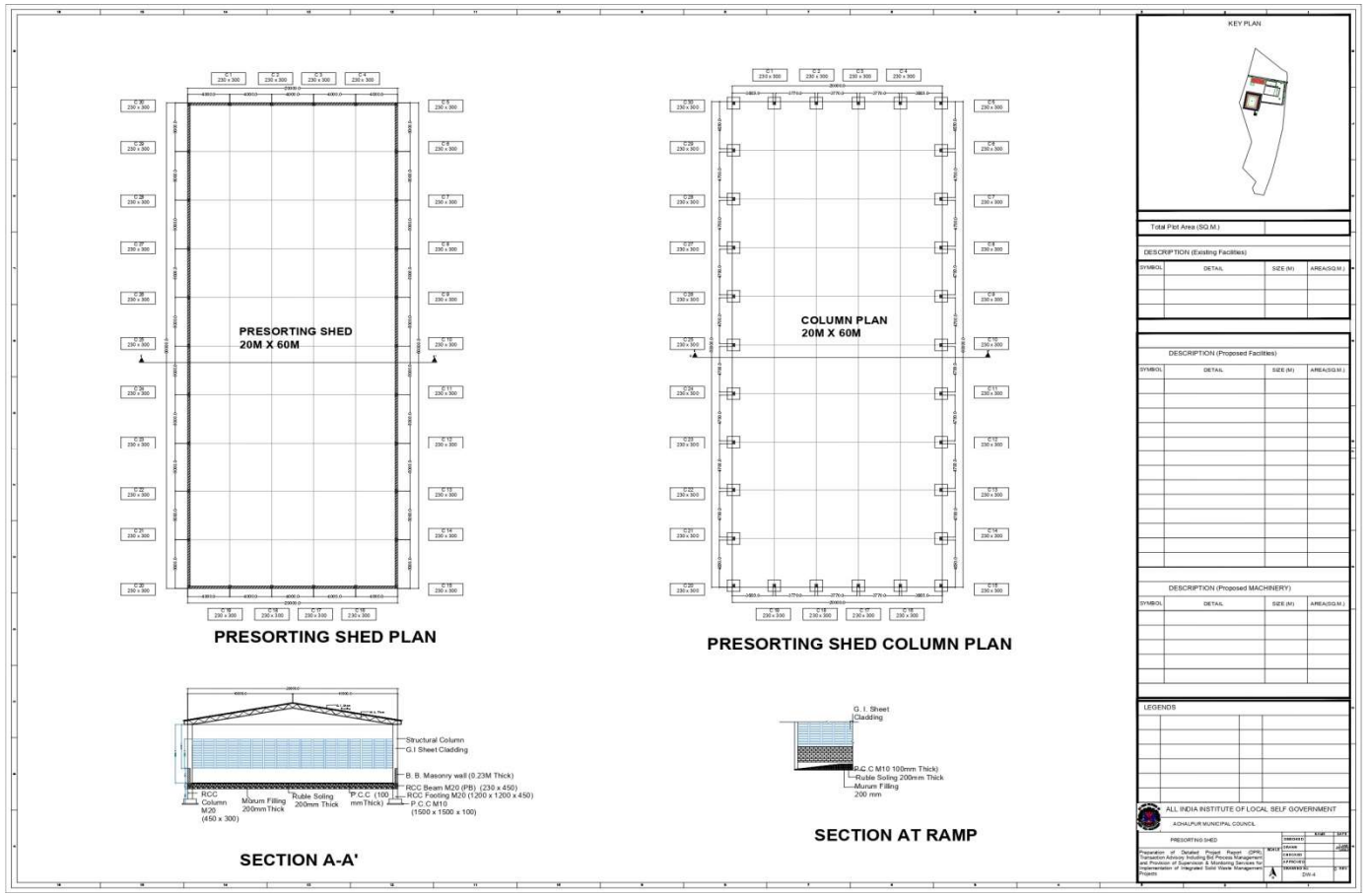
3. PROPOSED C & D WASTE SHED



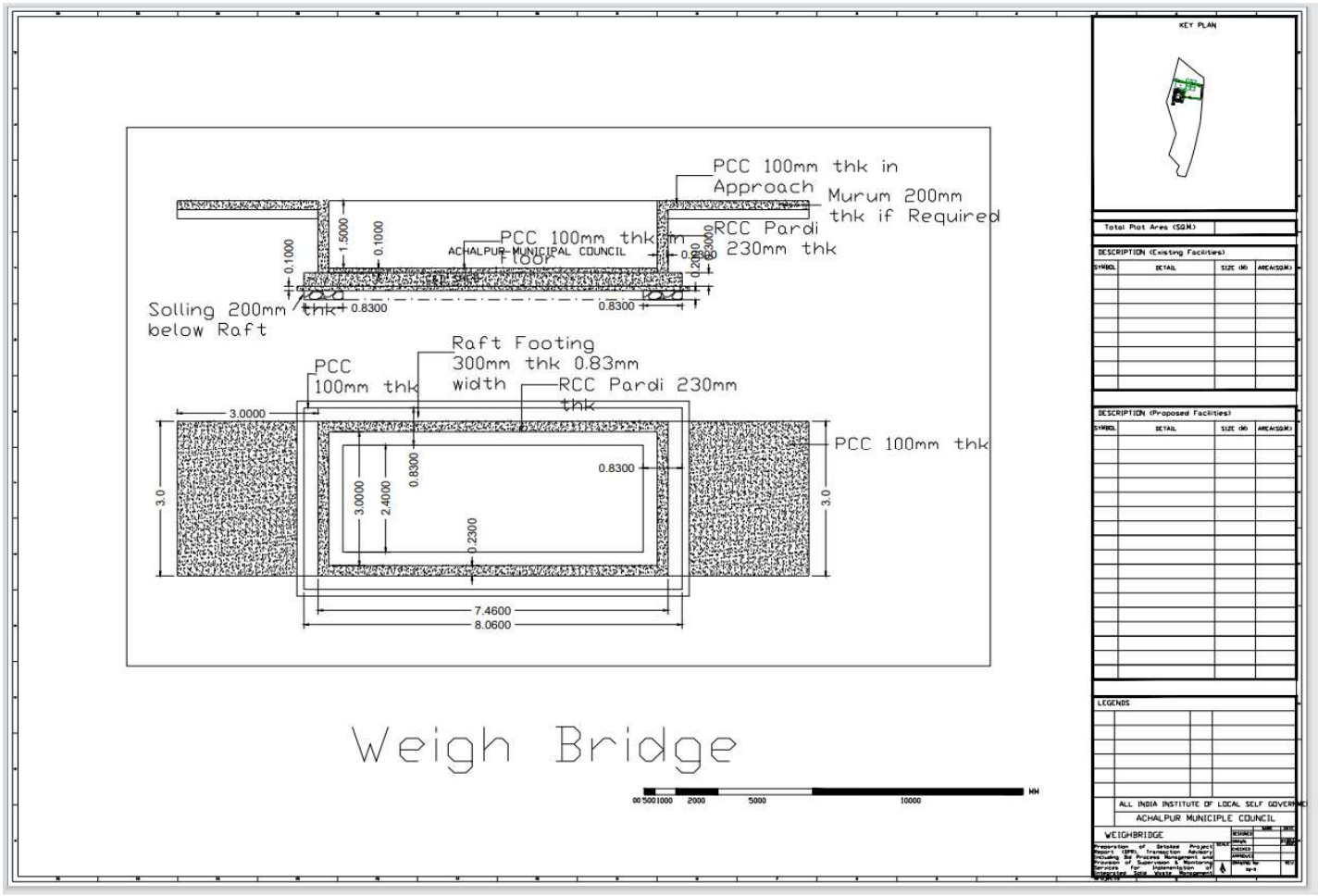
4. PROPOSED WINDROW PLATFORM WITH SHED



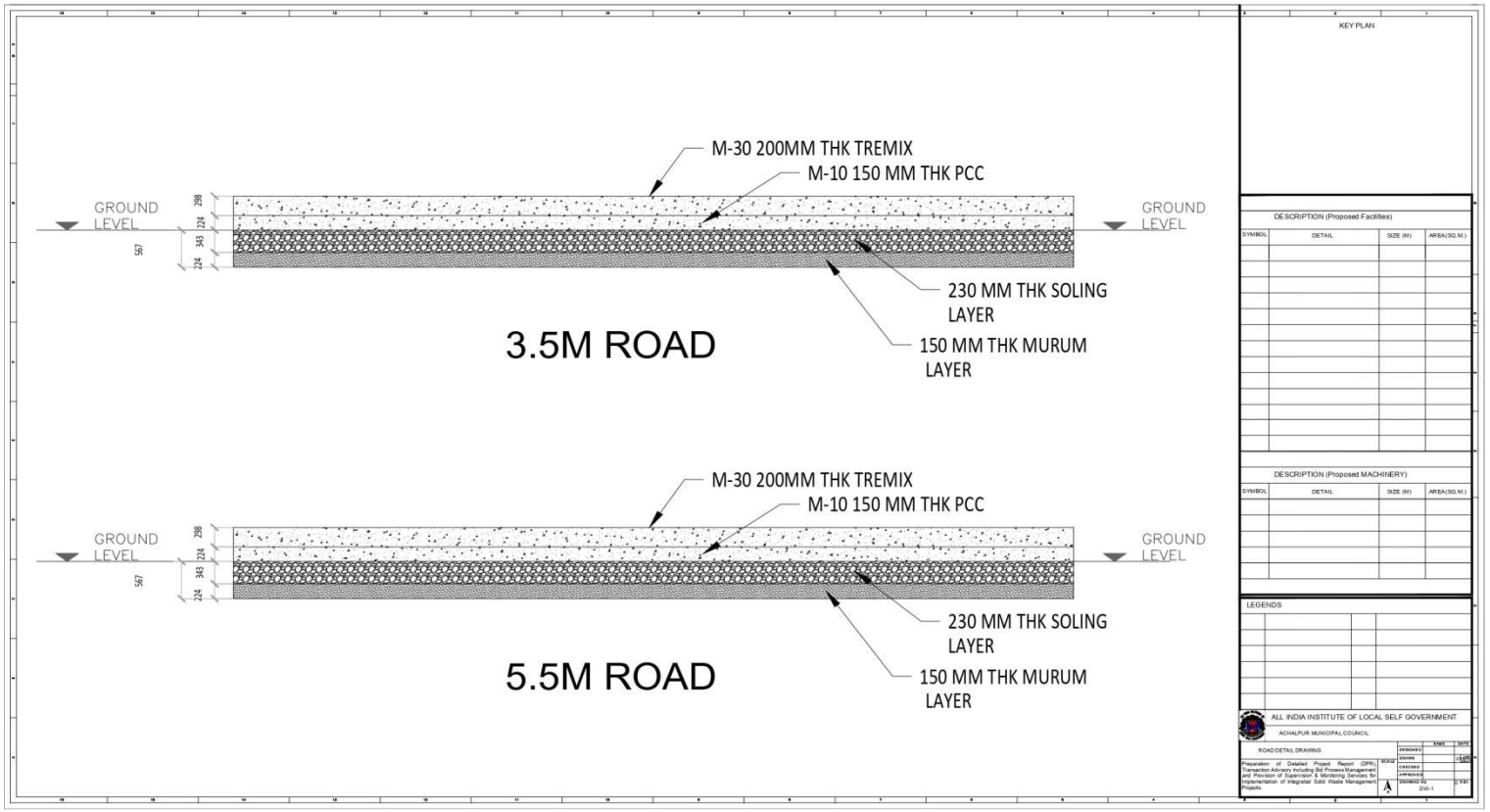
5. PROPOSED PRESORTING SHED



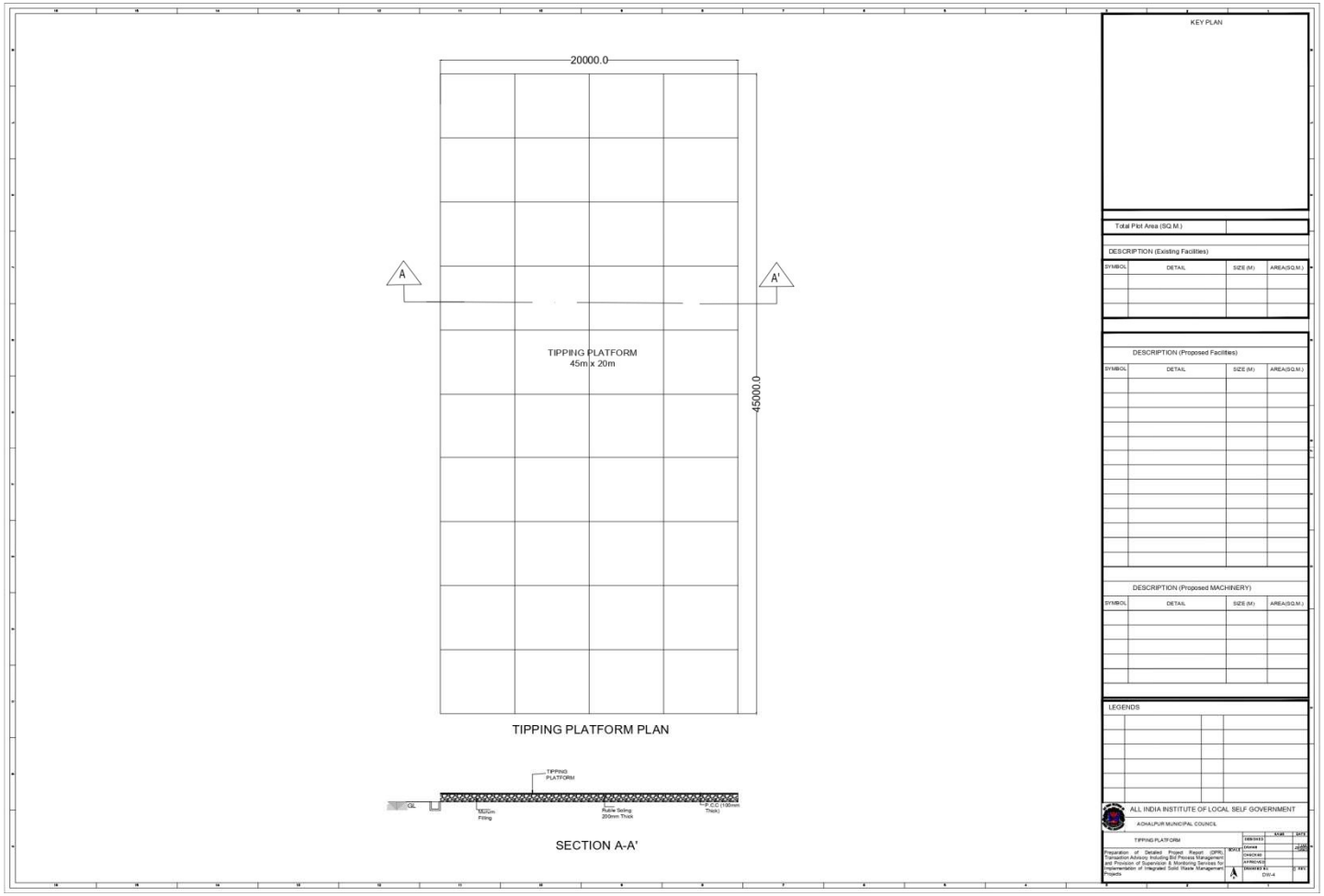
6. PROPOSED WEIGHBRIDGE PLATFORM



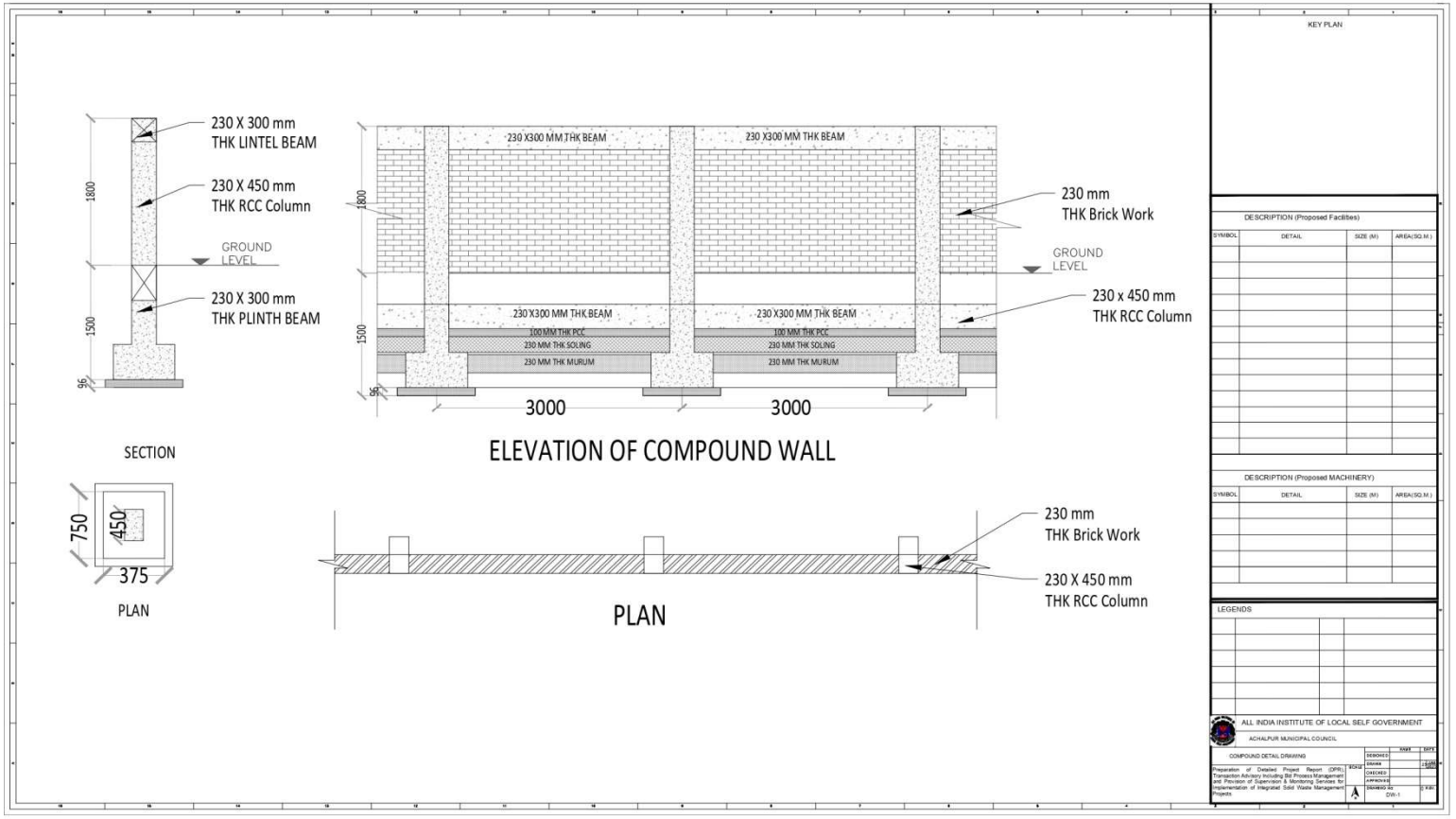
7. PROPOSED ROAD DETAIL



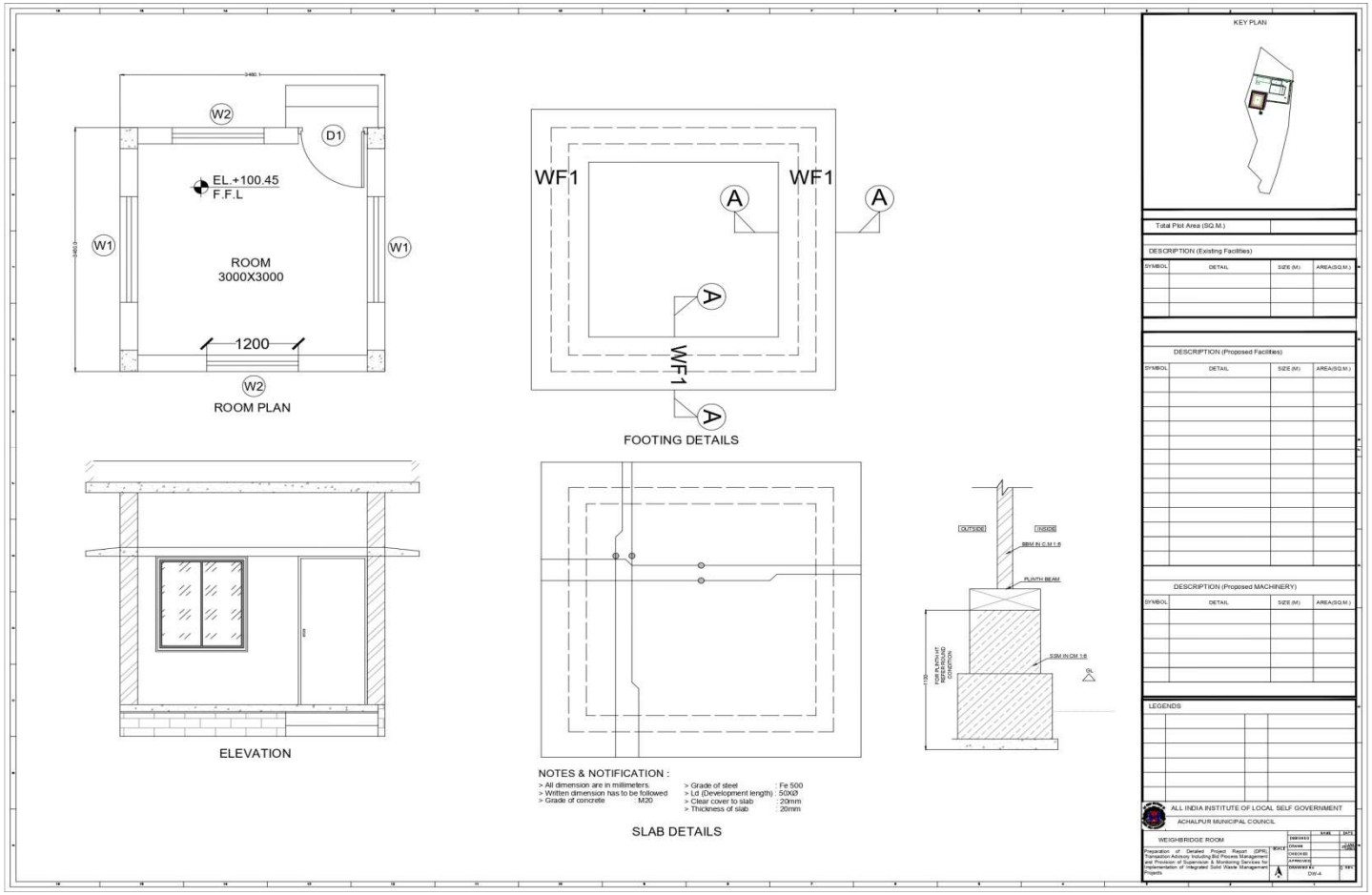
8. PROPOSED TIPPING PLATFORM DETAIL



9. PROPOSED COMPOUND WALL DETAIL



10. PROPOSED WEIGH BRIDGE ROOM



11. RECAP SHEET OF UMARKHED SWM SITE

Achalpur Municipl Council, Achalpur

Name of Scheme: Municipal Solid Waste Management of Achalpur Municipal Council

Tal- Achalpur, District- Amravati,{Under SBM(U) 2.0}

RECAPITULATION SHEET

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
Solid Waste Management					
A	**Compost Plant (including leachate management)**	**TPD**			
1	**Civil Works**				
a	Windrow Platform with Shed	SQ.M.		2600	1,12,00,097.24
b	Tipping Area	SQ.M.		900.00	20,78,610.26
c	Leachate Tank	SQ.M.		4.00	1,34,810.36
2	**Plant & Machinery**				
	Sub- Total of A (A1+A2)				**1,34,13,517.86**
B	**MRF Plant**	**TPD**			
1	Presorting shed-Civil Works	SQ.M.		1200	1,72,15,456.66
2	**Plant & Machinery**				
a	Machinery cost - Presorting Trommel	TPD		50	69,00,000.00
	Sub Total of B (B1+B2)				**2,41,15,456.66**
C	**Sanitary Landfill (SLF)**	**TPD**			
1	**Civil Works**				
a	Sanitary landfill	SQ.M.		5070	95,03,850.89
b	Leachate collection Sump	SQ.M.		4	1,79,749.95
2	**Plant & Machinery**				-
	Sub Total of C (C1+C2)				**96,83,600.84**
D	**Total Project Basic Cost (A+B+C)**				**4,72,12,575.35**
E	**MJP Fees (1% of D, inclusive of GST)**				
F	**PMC Fees of (2.35% of D)**				11,09,495.52
G	**GST**				
1	Civil Works - 18% of (A1+B1+C1)				72,56,263.56
2	Plant & Machinery - 18% of (A2+B2+C2)				12,42,000.00

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
3	PMC Fees (18% on F)				1,99,709.19
H	**Total GST (G1+G2+G3)**				86,97,972.76
TC -1	**Total Project Cost of Solid Waste Management (D+E+F+H)**				**5,70,20,043.63**
C&D Waste Management		**TPD**	**Existing Capacity available**	**Proposed Capacity in SBM 2.0**	**Amount in Rs.**
a	C&D Waste Management - Shed	SQ.M		120	21,82,832.68
	Machinery cost-Jaw Crusher	NOS		1	5,25,000.00
I	**C&D Waste Management - Total**				27,07,832.68
J	**MJP Fees (1% of I, inclusive of GST)**				
K	**PMC Fees of (2.35% of I)**				63,634.07
L	**GST**				
1	C&D Waste Management (18% of I)				4,87,409.88
2	PMC Fees (18% of K)				11,454.13
M	**Total GST (L1+L2)**				4,98,864.01
N	**Other Charges if any (add row for individual charges)**				-
TC -2	**Total Project Cost of C and D Shed (I+J+K+M+N)**				32,70,330.76
Other Items (Site Development, Vehicles, Incinerator, etc.)		**Unit**		**Qty**	**Amount in Rs.**
O	**Other Items (Item-1,2, 3…. add the items in row)**				
1	Machinery cost - Animal Disposal Machine	TPD		1	46,00,000.00
2	3.5 m wide road	R.M.		225	28,89,579.25
3	5.5 m wide road	R.M.		255	32,74,855.21
4	Compound wall	R.M.		800	1,14,95,813.79
5	Weigh Bridge Room	SQ.M		9	4,45,153.46
6	Weigh Bridge Platform	SQ.M		36	5,26,414.54
7	Leachate Drainage Line	R.M.		360.00	16,70,627.39
P	**Total Basic Cost (O1+O2+O3…….)**				2,49,02,443.64
Q	**MJP Fees (1% of P, inclusive of GST)**				-
R	**PMC Fees of (2.35% of P)**				5,85,207.43

Sr No	Particulars	Unit	Existing Capacity available	Proposed Capacity in SBM 2.0	Proposed Amount in Rs. In SBM 2.0
S	**GST**				
1	Other Items (18% on P)				44,82,439.86
2	PMC Fees of (18% on R)				1,05,337.34
T	**Total GST (S1+S2)**				45,87,777.19
TC-3	**Total Cost for Other Items (P+Q+R+T)**				3,00,75,428.26
TPC	**Total Project Cost (Sum of TC-1, TC-2, TC-3)**				**9,03,65,802.65**
					Cost Summery
1				Total Net Cost =	7,48,22,851.67
3				Total PMC 2.35 % Charges =	17,58,337.01
4				Total GST (Civil and Mechanical Works) =	1,37,84,613.96
5				Total Cost=	**9,03,65,802.65**
6				Total MJP 1% TS Charges =	9,03,658.03
7				**TOTAL COST OF PROJECT =**	**9,12,69,460.67**
	Prepared By		**NP Engineer**		**Chief Offier**
	All India Institute of Local Self Government				

12. LEAD STATEMENT

LEAD CHART						
Lead Statement for Works						
Sr. No.	**Material**	**Source of Supply**	**Lead in Km**	**Rate of Carting**	**Net Rate**	**Remark**
1	VSI Sand	Quary/Local	10.0	345.15	345.15	Pg. 554
2	Crusher Metal					
3	Above 40 mm Metal	Quary/Local	10.0	330.77	330.77	Pg. 554
4	Below 40 mm Metal	Quary/Local	10.0	345.15	345.15	Pg. 554
5	Murum	Quary/Local	10.0	330.77	330.77	Pg. 554
6	Cement	Quary/Local	5.0	164.99	164.99	Pg. 554
7	Bricks	Quary/Local	5.0	531.38	531.38	Unit Per 500 Nos. Pg. 554
8	Steel (MS, TMT, H.Y.S.D.) Structural Steel	Quary/Local	5.0	164.99	164.99	Pg. 554
9	Soling	Quary/Local	10.0	330.77	330.77	

13. ESTIMATION FOR WINDROW PLATFORM (65m x 40m)

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)	**2814.0**	**SQM**	**4.16**	**11701.74**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)	**10.0**	**Nos**	**531.24**	**5312.36**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)	**10.0**	**Nos**	**880.54**	**8805.41**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**100.5**	**Cum**	**215.20**	**21627.32**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	**29.7**	**Cum**	**235.99**	**7008.88**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115	**29.7**	**Cum**	**324.36**	**9633.35**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117	**43.9**	**Cum**	**124.75**	**5475.74**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**981.7**	**Cum**	**953.49**	**936010.06**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**510.4**	**Cum**	**1767.50**	**902095.22**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**271.5**	**Cum**	**6406.88**	**1739467.38**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**28.5**	**Cum**	**7752.10**	**221012.37**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.	**8.6**	**Cum**	**14695.59**	**126675.99**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs anddrawings or as directed including steel centering, formwork, cover blocks,laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fineaggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.	**21.7**	**Cum**	**13121.63**	**285264.24**
14	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	**5.6**	**M.T**	**93420.23**	**523330.78**
15	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144	**18.7**	**Cum**	**7532.50**	**140556.38**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
16	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224	**128.4**	**sq.m**	**670.39**	**86078.64**
17	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.	**34.4**	**MT**	**124354.57**	**4281776.43**
18	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm	**1218.0**	**Sqm**	**1219.45**	**1485291.07**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
	center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167				
19	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No	**0.3**	**Cum**	**69653.20**	**20687.00**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
20	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)	**5.0**	**Rmt**	**4043.00**	**20215.00**
21	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.125)	**5.0**	**Rmt**	**146.85**	**734.26**
22	**Royalty charges** for sand required for the work As per Statement	**163.4**	**Cu.m**	**237.37**	**38786.26**
23	**Royalty charges** for murum, Rubble required for the work As per Statement	**1492.1**	**Cu.m**	**216.18**	**322551.37**
	Estimated Amount				**₹ 1,12,00,097**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)		65	40	2600		
	Area	1	**67.00**	**42.00**		**2814.00**	
					Qty	**2814.00**	**SQ M**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Footing Long side @ 4.65 C/C x both side	28	1.50	1.50	1.00	63.00	
	Footing short side gable end @ 5 C/C x both side	16	1.50	1.50	1.00	36.00	
	Below Ramp for Leachate Pipe	1	5.00	0.60	0.50	1.50	
						100.50	**Cum**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Footing Long side @ 4.65 C/C x both side	28	1.50	1.50	0.30	18.90	

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
	Footing short side gable end @ 5 C/C x both side	16	1.50	1.50	0.30	10.80	Cum
						29.70	Cum
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115						
	Footing Long side @ 4.65 C/C x both side	28	1.50	1.50	0.30	18.90	
	Footing short side gable end @ 5 C/C x both side	16	1.50	1.50	0.30	10.80	
						29.70	Cum
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117						
	To be used for levelling of ground where undulations are there						
	PCC Below Footing	28	1.50	1.50	0.10	6.30	
		16	1.50	1.50	0.10	3.60	
	Footings	28	1.20	1.20	0.45	18.14	
		16	1.20	1.20	0.45	10.37	
	Column till GL	28	0.30	0.45	1.05	3.97	
		16	0.30	0.30	1.05	1.51	
	Total Qty					**43.89**	Cum
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Floor Area Murum Filling for plinth 0.6m	1	64.54	39.54	0.4	1020.76	
	Murum Filling for Ramp	1	4.00	4.00	0.3	4.80	
	Deduction sr no 7 remaining excavated material obtained after backfilling of footing pits	-1	43.89			-43.89	
						981.67	Cum

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Floor Area Soling for plinth 0.6m	1	64.54	39.54	0.2	510.38	
						510.38	**Cum**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	whole Floor Area PCC	1	65.00	40.00	0.10	260.00	
	Footing Long side @ 4.65 C/C x both side	28	1.50	1.50	0.10	6.30	
	Footing short side gable end @ 5 C/C x both side	16	1.50	1.50	0.10	3.60	
	Ramp	1	4.00	4.00	0.10	1.60	
	Total Qty					**271.50**	**Cum**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Footing Long side @ 4.65 C/C x both side	28	1.20	1.20	0.45	18.14	
	Footing short side gable end @ 5 C/C x both side	16	1.20	1.20	0.45	10.37	
						28.51	**Cum**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.						
	COLUMNS Till Plinth						
	Footing Long side @ 4.65 C/C x both side	28	0.30	0.45	1.65	6.24	
	Footing short side gable end @ 5 C/C x both side	16	0.30	0.30	1.65	2.38	
						8.62	**Cum**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs anddrawings or as directed including steel centering, formwork, cover blocks,laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fineaggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.						
	Ground Beam Long Side	2	65.00	0.23	0.45	13.46	
	Ground Beam Short Side	2	40.00	0.23	0.45	8.28	
						21.74	**Cum**
14	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	footing qty.	**1**	**28.51**	**90**		**2565.9**	
	column qty	**1**	**8.62**	**100**		**862.0**	
	beam qty	**1**	**21.74**	**100**		**2174.0**	
						5601.90	**kg**
	Total Qty					**5.60**	**M.T**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
15	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144						
	Brickwork till Plinth	2	65.00	0.23	0.60	17.94	
		2	40.00	0.23	0.60	11.04	
	Ramp	2	4.00	0.23	0.30	0.55	
	Deduction Ground beam	-2	65	0.23	0.225	-6.73	
		-2	40	0.23	0.225	-4.14	
						18.66	**Cum**
16	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						
	Ground floor TILL PLINTH	2	65.00		0.60	78.00	
		2	40.00		0.60	48.00	
	Ramp	2	4.00		0.30	2.40	
	Total qty.					**128.40**	**sq. m**
17	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.						
	Weight of Shed 4kg per Sqft	**1.000**	**20.00**	**40**	**43.04**	**34432.00**	
	Total Weight of Shed					**34432.00**	**kg**
						34.43	**MT**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
18	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167						
	Roof Cladding	1	20.00		40.00	800.00	
	Side Cladding long side	2	20.00		3.00	120.00	
	Side Cladding short side	1	40.00		3.00	120.00	
	Ridge	1	1		40.00	40.00	
	Drain gutter	2	1		40.00	80.00	
	Wastage	0.050	1160.00			58.00	
	Total Qty					**1218.00**	**Sq m**
19	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No						
		44	0.3	0.45	0.05	**0.30**	**Cum**

Name of Work:- ESTIMATION FOR WINDROW PLATFORM (65M x 40M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
20	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)						
	Below Ramp for Leachate pipe	**1**	**5.00**			**5.00**	
					TOTAL Qty	**5.00**	**Rmt**
21	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.125)						
	Below Ramp for Leachate pipe	**5.00**				**5.00**	**Rmt**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)			
	Basic Rate as per SSR 2022-23			4.00
	Deduct Labour Cess 1%			**-0.04**
	Sub Total			**3.96**
	Add 4% Municipal Council Charges			**0.16**
	add Labour Cess 1%			0.04
		Total Rate RS.		**4.16**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)			
	Basic Rate as per SSR 2022-23			511.00
	Deduct Labour Cess 1%			**-5.11**
	Sub Total			**505.89**
	Add 4% Municipal Council Charges			**20.24**
	add Labour Cess 1%			5.11
		Total Rate RS.		**531.24**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)			
	Basic Rate as per SSR 2022-23			847.00
	Deduct Labour Cess 1%			**-8.47**
	Sub Total			**838.53**
	Add 4% Municipal Council Charges			**33.54**
	add Labour Cess 1%			8.47
		Total Rate RS.		**880.54**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] **S.S.R. Item No.21.36 Page.No.117**			
	Basic Rate as per SSR 2022-23			120.00
	Deduct Labour Cess 1%			**-1.20**
	Sub Total			**118.80**
	Add 4% Municipal Council Charges			**4.75**
	add Labour Cess 1%			1.20
		Total Rate RS.		**124.75**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**
10	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.31 Page.No.**			
	Basic Rate as per SSR 2022-23			13783
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-137.83**
	Sub Total			**13519.17**
	Add 4% Municipal Council Charges			**540.77**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	add Labour Cess 1%			137.83
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14695.59**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for **R.C.C. beams and lintels** as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.50 Page.No.**			
	Basic Rate as per SSR 2022-23			12269
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-122.69**
	Sub Total			**12020.31**
	Add 4% Municipal Council Charges			**480.81**
	add Labour Cess 1%			122.69
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**13121.63**
14	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
15	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete. **S.S.R. Item No27.12 Page No.144**			
	Basic Rate as per PWD SSR 2022-23			6884
	Deduct Labour Cess 1%			**-68.84**
	Sub Total			**6815.16**
	Add 4% Municipal Council Charges			**272.61**
	add Labour Cess 1%			68.84
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7532.50**
16	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. **S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
17	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. **S.S.R. Item No. 23.04.Page No.**			
	Basic Rate As per MJP 2023-24			119459
	Deduct Labour Cess 1%			**-1194.59**
	Sub Total			**118264.41**
	Add 4% Municipal Council Charges			**4730.58**
	add Labour Cess 1%			1194.59
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**124354.57**
18	Providing and fixing **colour coated Zincalume (**R) AZ 150 (min 150 gms/ sq.mt. total on each side) **profiled sheets** for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal **Thickness (BMT) (0.5mmTCT)**,Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) **S.S.R. Item No. 38.34 Page No. 167**			
	Basic Rate as per PWD SSR 2022-23			1173
	Deduct Labour Cess 1%			**-11.73**
	Sub Total			**1161.27**
	Add 4% Municipal Council Charges			**46.45**
	add Labour Cess 1%			11.73
		Total Rate RS.		**1219.45**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
19	Providing and applying **"high strength, non shrink free flow grout material"** i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) **S.S.R. Item No. 51.146 Page No**			
	Basic Rate as per PWD SSR 2022-23			67000.00
	Deduct Labour Cess 1%			**-670.00**
	Sub Total			**66330.00**
	Add 4% Municipal Council Charges			**2653.20**
	add Labour Cess 1%			670.00
		Total Rate RS.		**69653.20**
20	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 **(As per MJP 2023-24 I.No.Section C I(IX) P.No.124)**			
	Basic Rate As per MJP 2023-24			**4043.00**
		Total Rate RS.		**4043.00**
21	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 Part II xiv) 200 mm Rmt. 144 **(As per MJP 2023-24 2.No.Section I(IX) P.No.125)**			
	Basic Rate As per MJP 2023-24			**144.00**

RATE ANALYSIS (As Per SSR 2022-23) FOR WINDROW PLATFORM (65M X 40M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Deduct Labour Cess 1%			**-1.44**
	Sub Total			**142.56**
	Add 2% Municipal Council Charges			**2.85**
	add Labour Cess 1%			1.44
		Total Rate RS.		**146.85**

ROYALTY CHARGES FOR WINDROW PLATFORM (65M X 40M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	981.667	981.67			1.00	981.67
2	Soling	510.380	510.38			1.00	510.38
3	M10 PCC	271.500	271.50	0.47	127.61		
4	M20 footing	28.510	28.51	0.425	12.12		
5	M20 Column	8.620	8.62	0.425	3.66		
6	M20 Beam	21.740	21.74	0.425	9.24		
7	BBM in Foundation	18.660	18.66	0.350	6.53		
9	Sand Face Plaster	128.40	128.40	0.033	4.24		
				Total	**163.40**	**Total**	**1492.05**
						Grand Total	**1655.45**

14. ESTIMATION FOR TIPPING PLATFORM (45m x 20m)

Name of Work:- ESTIMATION FOR TIPPING PLATFORM (45M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**137.940**	**Cum**	**215.20**	**29684.30**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**135.000**	**Cum**	**953.49**	**128721.20**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**135.000**	**Cum**	**1767.50**	**238612.12**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**90.000**	**Cum**	**6406.88**	**576619.02**

Name of Work:- ESTIMATION FOR TIPPING PLATFORM (45M X 20M)					
ABSTRACT SHEET					
I No	**Description of Item**	**Qty**	**Unit**	**10**	**Amount**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**135.000**	**Cum**	**7752.10**	**1046533.50**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	**4.050**	**M.T**	**93420.23**	**0.30**
7	**Royalty charges** for sand required for the work As per Statement	**0.3000**	**Cu.m**	**237.37**	**71.21**
8	**Royalty charges** for murum, Rubble required for the work As per Statement	**270.00**	**Cu.m**	**216.18**	**58368.60**
	Estimated Amount				**₹ 20,78,610**

Name of Work:- ESTIMATION FOR TIPPING PLATFORM (45M X 20M)							
MEASUREMENT SHEET							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
			45	20	0.40		
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Platform Excavation	1	45.30	20.30	0.15	137.94	
						137.94	**Cum**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Floor Area Murum	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Floor Area Soling	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Floor Area PCC	1	45.00	20.00	0.10	90.00	
	Total Qty					**90.00**	**Cum**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Floor Area Concrete	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**

Name of Work:- ESTIMATION FOR TIPPING PLATFORM (45M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	Concrete qty.	**1**	**135.00**	**30**		**4050.0**	
						4050.00	**kg**
	Total Qty					**4.05**	**M.T**

RATE ANALYSIS (As Per SSR 2022-23) FOR TIPPING PLATFORM (45M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**

RATE ANALYSIS (As Per SSR 2022-23) FOR TIPPING PLATFORM (45M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75

RATE ANALYSIS (As Per SSR 2022-23) FOR TIPPING PLATFORM (45M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
		Total Rate RS.		**7752.10**
6	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**

ROYALTY CHARGES FOR TIPPING PLATFORM (45M X 20M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	135.000	135.00			1.00	135.00
2	Soling	135.000	135.00			1.00	135.00
3	M10 PCC	90.000	90.00	0.47	42.30		
4	M20 footing	135.000	135.00	0.425	57.38		
				Total	**0.30**	**Total**	**270.00**
						Grand Total	**270.30**

15. ESTIMATION FOR LEACHATE TANK (2.46m X 2.46m)

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**16.930**	**Cum**	**215.20**	**3643.29**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	**16.930**	**Cum**	**235.99**	**3995.30**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115	**4.520**	**Cum**	**324.36**	**1466.09**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R.	**1.130**	**Cum**	**6391.35**	**7222.22**

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	Item No.24.01 Page.No.				
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**2.810**	**Cum**	**7752.10**	**21783.40**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No	**0.253**	**M.T**	**93420.23**	**23625.98**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144	**4.100**	**Cum**	**7532.50**	**30883.24**
8	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page	**41.62**	**sq.m**	**670.39**	**27903.96**

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46) ABSTRACT SHEET					
I No	**Description of Item**	**Qty**	**Unit**	**Rate**	**Amount**
	No.367.S.S.R. Item No.32.11 Page No. 224				
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.	**6.05**	**Sqm**	**2183.16**	**13211.61**
10	**Royalty charges** for sand required for the work As per Statement	**4.5300**	**Cu.m**	**237.37**	**1075.29**
11	**Royalty charges** for murum, Rubble required for the work As per Statement	**0.00**	**Cu.m**	**216.18**	**0.00**
	Estimated Amount				**₹ 1,34,810**

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
		1	2.46	2.46		6.05	
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Sump Area excavation	1	3.36	3.36	1.50	16.93	
	2.46+0.3 raft one side +0.3 raft one side +0.15 PCC one side +0.15 PCC one side				**Total Qty**	**16.93**	**Cum**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Sump Area excavation	1	3.36	3.36	1.50	16.93	
					Total Qty	**16.93**	**Cum**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115						
	Sump Area excavation	1	3.36	3.36	0.40	4.52	
					Total Qty	**4.52**	**Cum**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Sump Area PCC	1	3.36	3.36	0.10	1.13	

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
	2.46+0.3 raft one side +0.3 raft one side +0.15 PCC one side +0.15 PCC one side				**Total Qty**	**1.13**	**Cum**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Sump Area FOOTING	1	3.06	3.06	0.30	2.81	
	2.46+0.3 raft one side +0.3 raft one side				**Total Qty**	**2.81**	**Cum**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No						
	Ground floor						
	footing qty.	1	2.81	90.00		**252.90**	
						252.90	**kg**
	Total Qty					**0.25**	**M.T**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144						
	Sump Area	2	2.46	0.23	2.00	2.26	
		2	2.00	0.23	2.00	1.84	
						4.10	**Cum**

Name of Work:- ESTIMATION OF LEACHATE TANK (2.46M X 2.46) MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
8	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						
	Horizontal	4	2.46		2.12	20.81	
	Vertical	4	2.46		2.12	20.81	
	Total qty.					**41.62**	**sq.m**
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.						
	Grill	1	2.46		2.46	6.05	
	Total Qty					**6.05**	**Sq m**

RATE ANALYSIS (As Per SSR 2022-23) FOR LEACHATE TANK (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**

RATE ANALYSIS (As Per SSR 2022-23) FOR LEACHATE TANK (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct Labour Cess 1%			-58.30
	Deduct SCADA			-126
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6391.35**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct Labour Cess 1%			**-71.04**
	Deduct SCADA			-126
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**

RATE ANALYSIS (As Per SSR 2022-23) FOR LEACHATE TANK (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
6	Providing and fixing in position **T.M.T.** bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete. **S.S.R. Item No27.12 Page No.144**			
	Basic Rate as per PWD SSR 2022-23			6884
	Deduct Labour Cess 1%			**-68.84**
	Sub Total			**6815.16**
	Add 4% Municipal Council Charges			**272.61**
	add Labour Cess 1%			68.84
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7532.50**
8	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.**S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**

RATE ANALYSIS (As Per SSR 2022-23) FOR LEACHATE TANK (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.			
	Basic Rate as per SSR 2022-23		Sqm	2100
	Deduct Labour Cess 1%			**-21.00**
	Sub Total			**2079.00**
	Add 4% Municipal Council Charges			**83.16**
	add Labour Cess 1%			21.00
		Total Rate RS.		**2183.16**

ROYALTY CHARGES FOR LEACHATE TANK (2.46M X 2.46M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	M10 PCC	1.130	1.13	0.47	0.53		
2	M20 footing	2.810	2.81	0.425	1.19		
3	M20 Slab		0.00	0.425	0.00		
4	BBM in Foundation	4.100	4.10	0.350	1.44		
5	Sand Face Plaster	41.62	41.62	0.033	1.37		
				Total	4.53	Total	0.00
						Grand Total	4.53

16. ESTIMATION FOR PRESORTING SHED (60m x 20m)

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)	**1364.00**	**SQM**	**4.16**	**5672.06**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)	**10.00**	**Nos**	**531.24**	**5312.36**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)	**10.00**	**Nos**	**880.54**	**8805.41**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**78.000**	**Cum**	**215.20**	**16785.38**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	**22.950**	**Cum**	**235.99**	**5415.95**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115	**22.950**	**Cum**	**324.36**	**7443.95**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117	**34.124**	**Cum**	**124.75**	**4256.97**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**436.037**	**Cum**	**953.49**	**415756.62**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**232.680**	**Cum**	**1767.50**	**411261.25**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**129.250**	**Cum**	**6463.34**	**835386.05**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**22.030**	**Cum**	**7752.10**	**170778.76**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.	**10.500**	**Cum**	**14695.59**	**154303.70**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.	**16.560**	**Cum**	**13121.63**	**217294.19**
14	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139	**240.000**	**Cum**	**9155.49**	**2197317.60**
15	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page	**28.689**	**M.T**	**93420.23**	**2680104.92**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	No139				
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144	**14.350**	**Cum**	**7532.50**	**108091.32**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213	**55.200**	**Cum**	**7763.29**	**428533.48**
18	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224	**616.12**	**sq.m**	**670.39**	**413043.40**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.	**51.65**	**MT**	**124354.57**	**6422664.65**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
20	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167	**1890.00**	**Sqm**	**1219.45**	**2304762.01**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
21	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No	**0.23**	**Cum**	**69653.20**	**15985.41**
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165	**616.12**	**Sqm**	**271.34**	**167175.29**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)	**5.00**	**Rgm**	**4043.00**	**20215.00**
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.126)	**5.00**	**Rgm**	**146.85**	**734.26**
25	**Royalty charges** for sand required for the work As per Statement	**226.6200**	**Cu.m**	**237.37**	**53792.79**
26	**Royalty charges** for murum, Rubble required for the work As per Statement	**668.72**	**Cu.m**	**216.18**	**144563.89**
	Estimated Amount				**₹ 1,72,15,457**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)		60	20	4.5	1200	Sqm
	Area	1	**62.00**	**22.00**		**1364.00**	
					Qty	**1364.00**	**SQ M**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Footing Long side @ 4.65 C/C x both side	26	1.50	1.50	1.00	58.50	
	Footing short side gable end @ 5 C/C x both side	8	1.50	1.50	1.00	18.00	
	Below Ramp for Leachate Pipe	1	5.00	0.60	0.50	1.50	
						78.00	**Cu m**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Footing Long side @ 4.65 C/C x both side	26	1.50	1.50	0.30	17.55	
	Footing short side gable end @ 5 C/C x both side	8	1.50	1.50	0.30	5.40	**Cu m**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
						22.95	**Cum**
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115						
	Footing Long side @ 4.65 C/C x both side	26	1.50	1.50	0.30	17.55	
	Footing short side gable end @ 5 C/C x both side	8	1.50	1.50	0.30	5.40	
						22.95	**Cum**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117						
	To be used for levelling of ground where undulations are there.						
	PCC Below Footing	26	1.50	1.50	0.10	5.85	
		8	1.50	1.50	0.10	1.80	
	Footings	26	1.20	1.20	0.45	16.85	
		8	1.20	1.20	0.45	5.18	
	Column till GL	26	0.30	0.45	1.05	3.69	
		8	0.30	0.30	1.05	0.76	
	Total Qty					**34.12**	**Cum**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Floor Area Murum Filling for plinth 0.6m	1	59.54	19.54	0.4	465.36	
	Murum Filling for Ramp	1	4.00	4.00	0.3	4.80	
	Deduction sr no 7 remaining excavated material obtained after backfilling of footing pits	-1	34.12			-34.12	
						436.04	**Cum**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Floor Area Soling for plinth 0.6m	1	59.54	19.54	0.2	232.68	
						232.68	**Cum**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	whole Floor Area PCC	1	60.00	20.00	0.10	120.00	
	Footing Long side @ 4.65 C/C x both side	26	1.50	1.50	0.10	5.85	
	Footing short side gable end @ 5 C/C x both side	8	1.50	1.50	0.10	1.80	
	Ramp	1	4.00	4.00	0.10	1.60	
	Total Qty					**129.25**	**Cum**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Footing Long side @ 4.65 C/C x both side	26	1.20	1.20	0.45	16.85	
	Footing short side gable end @ 5 C/C x both side	8	1.20	1.20	0.45	5.18	
						22.03	**Cum**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.						
	COLUMNS Till Plinth						
	Footing Long side @ 4.65 C/C x both side	26	0.30	0.45	1.65	5.79	
	Footing short side gable end @ 5 C/C x both side	8	0.30	0.30	1.65	1.19	
	Above Plinth	26	0.23	0.30	1.50	2.69	
		8	0.23	0.30	1.50	0.83	
						10.50	**Cum**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.						
	Ground Beam Long Side	2	60.00	0.23	0.45	12.42	
	Ground Beam Short Side	2	20.00	0.23	0.45	4.14	
						16.56	**Cum**
14	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139						
	M30 Tremix Floor	1	60.00	20.00	0.20	240.00	
						240.00	**Cum**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
15	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	footing qty.	**1**	**22.03**	**90**		**1982.7**	
	column qty	**1**	**10.50**	**100**		**1050.0**	
	beam qty	**1**	**16.56**	**100**		**1656.0**	
	Tremix qty	**1**	**240.00**	**100**		**24000.0**	
						28688.70	**kg**
	Total Qty					**28.69**	**M.T**
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144						
	Brickwork till Plinth	2	60.00	0.23	0.60	16.56	
		2	20.00	0.23	0.60	5.52	
	Ramp	2	4.00	0.23	0.30	0.55	
	Deduction 1/2 Ground beam	-2	60	0.23	0.225	-6.21	
		-2	20	0.23	0.225	-2.07	
						14.35	**Cum**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213						
	Brickwork in Superstructure	2	60.00	0.23	1.50	41.40	
		2	20.00	0.23	1.50	13.80	
	Total qty.					**55.20**	**Cum**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
18	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						
	Plaster Brickwork till Plinth	2	60.00		0.60	72.00	
		2	20.00		0.60	24.00	
	Brickwork in Superstructure	4	60.00		1.62	387.60	
		4	20.00		1.62	129.20	
	Ramp	2	4		0.415	3.32	
	Total qty.					**616.12**	**sq. m**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.						
	Weight of Shed 4 kg per Sqft	**1**	**60.0**	**20**	**43**	51648.00	
	Total Weight of Shed					**51648.00**	**kg**
						51.65	**MT**
20	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167						
	Roof Cladding	1	60		20.00	1200.00	
	Side Cladding long side	2	60.00		3.00	360.00	

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
	Side Cladding short side	1	20.00		3.00	60.00	
	Ridge	1	1		60.00	60.00	
	Drain gutter	2	1		60.00	120.00	
	Wastage	0.050	1800.0			90.00	
	Total Qty					**1890.00**	**Sqm**
21	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No						
	Grouting for base plate at column	34	0.3	0.45	0.05	**0.23**	**Cum**
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165						
	Qty as per External plaster					**616.12**	**Sqm**
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)						
	Below Ramp for Leachate pipe	**1**	**5.00**			**5.00**	
					TOTAL Qty	**5.00**	**Rgm**

Name of Work:- ESTIMATION FOR PRE-SORTING SHED (60M X 20M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.126)						
	Below Ramp for Leachate pipe	**5.00**				**5.00**	**Rgm**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)			
	Basic Rate as per SSR 2022-23			4.00
	Deduct Labour Cess 1%			**-0.04**
	Sub Total			**3.96**
	Add 4% Municipal Council Charges			**0.16**
	add Labour Cess 1%			0.04
		Total Rate RS.		**4.16**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)			
	Basic Rate as per SSR 2022-23			511.00
	Deduct Labour Cess 1%			**-5.11**
	Sub Total			**505.89**
	Add 4% Municipal Council Charges			**20.24**
	add Labour Cess 1%			5.11
		Total Rate RS.		**531.24**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)			
	Basic Rate as per SSR 2022-23			847.00
	Deduct Labour Cess 1%			**-8.47**
	Sub Total			**838.53**
	Add 4% Municipal Council Charges			**33.54**
	add Labour Cess 1%			8.47
		Total Rate RS.		**880.54**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate		**215.20**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
		RS.		
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] **S.S.R. Item No.21.36 Page.No.117**			
	Basic Rate as per SSR 2022-23			120.00
	Deduct Labour Cess 1%			**-1.20**
	Sub Total			**118.80**
	Add 4% Municipal Council Charges			**4.75**
	add Labour Cess 1%			1.20
		Total Rate RS.		**124.75**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**
10	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 5% for Municipal Corporation charges			**282.29**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6463.34**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. columns** as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.31 Page.No.**			
	Basic Rate as per SSR 2022-23			13783
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-137.83**
	Sub Total			**13519.17**
	Add 4% Municipal Council Charges			**540.77**
	add Labour Cess 1%			137.83
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14695.59**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for **R.C.C. beams and lintels** as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.50 Page.No.**			
	Basic Rate as per SSR 2022-23			12269
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-122.69**
	Sub Total			**12020.31**
	Add 4% Municipal Council Charges			**480.81**
	add Labour Cess 1%			122.69
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**13121.63**
14	Providing and laying in situ cement concrete **M -30 with tremix treatment for 200 mm** thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. **S.S.R. Item No.5.22 Page No139**			
	Basic Rate as per SSR 2022-23			8446
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-84.46**
	Sub Total			**8235.54**
	Add 4% Municipal Council Charges			**329.42**
	add Labour Cess 1%			84.46
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.4	164.99	66.00
		Total Rate RS.		**9155.49**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
15	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete. **S.S.R. Item No27.12 Page No.144**			
	Basic Rate as per PWD SSR 2022-23			6884
	Deduct Labour Cess 1%			**-68.84**
	Sub Total			**6815.16**
	Add 4% Municipal Council Charges			**272.61**
	add Labour Cess 1%			68.84
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7532.50**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 **in superstructur**e including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213			
	Basic Rate as per PWD SSR 2022-23			7106
	Deduct Labour Cess 1%			**-71.06**
	Sub Total			**7034.94**
	Add 4% Municipal Council Charges			**281.40**
	add Labour Cess 1%			71.06
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7763.29**
18	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. **S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. **S.S.R. Item No. 23.04.Page No.**			
	Basic Rate as per SSR 2022-23			119459
	Deduct Labour Cess 1%			**-1194.59**
	Sub Total			**118264.41**
	Add 4% Municipal Council Charges			**4730.58**
	add Labour Cess 1%			1194.59
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**124354.57**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
20	Providing and fixing **colour coated Zincalume (**R) AZ 150 (min 150 gms/ sq.mt. total on each side) **profiled sheets** for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal **Thickness (BMT) (0.5mmTCT)**,Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) **S.S.R. Item No. 38.34 Page No. 167**			
	Basic Rate as per PWD SSR 2022-23			1173
	Deduct Labour Cess 1%			**-11.73**
	Sub Total			**1161.27**
	Add 4% Municipal Council Charges			**46.45**
	add Labour Cess 1%			11.73
		Total Rate RS.		**1219.45**
21	Providing and applying **"high strength, non shrink free flow grout material"** i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) **S.S.R. Item No. 51.146 Page No**			
	Basic Rate as per PWD SSR 2022-23			67000.00
	Deduct Labour Cess 1%			**-670.00**
	Sub Total			**66330.00**
	Add 4% Municipal Council Charges			**2653.20**
	add Labour Cess 1%			670.00
		Total Rate RS.		**69653.20**

RATE ANALYSIS (As Per SSR 2022-23) FOR PRE-SORTING SHED (60M X 20M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165			
	Basic Rate as per SSR 2022-23			261
	Deduct Labour Cess 1%			**-2.61**
	Sub Total			**258.39**
	Add 4% Municipal Council Charges			**10.34**
	add Labour Cess 1%			2.61
		Total Rate RS.		**271.34**
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stacking the same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest IS Specifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 **(As per MJP 2023-24 I.No.Section C I(IX) P.No.124)**			
	Basic Rate As per MJP 2023-24			**4043.00**
		Total Rate RS.		**4043.00**
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 Part II xiv) 200 mm Rmt. 144 **(As per MJP 2023-24 2.No.Section I(IX) P.No.126)**			
	Basic Rate As per MJP 2023-24			**144.00**
	Deduct Labour Cess 1%			**-1.44**
	Sub Total			**142.56**
	Add 2% Municipal Council Charges			**2.85**
	add Labour Cess 1%			1.44
		Total Rate RS.		**146.85**

ROYALTY CHARGES FOR PRE-SORTING SHED (60M X 20M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	436.037	436.04			1.00	436.04
2	Soling	232.680	232.68			1.00	232.68
3	M10 PCC	129.250	129.25	0.47	60.75		
4	M20 footing	22.030	22.03	0.425	9.36		
5	M20 Column	10.500	10.50	0.425	4.46		
6	M20 Beam	16.560	16.56	0.425	7.04		
7	M30 Tremix	240.000	240.00	0.425	102.00		
8	BBM in Foundation	14.350	14.35	0.350	5.02		
9	BBM in Super structur	55.200	55.20	0.320	17.66		
10	Sand Face Plaster	616.12	616.12	0.033	20.33		
				Total	**226.62**	**Total**	**668.72**
						Grand Total	**895.34**

17. ESTIMATION FOR SANITARY LANDFILL (78M X 65M)

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.	**5009.60**	**Cum**	**215.20**	**1078051.89**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.	**979.20**	**Cum**	**235.99**	**1078051.89**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.	**652.80**	**Cum**	**324.36**	**211739.07**
4	Providing earth work in embankment with approved materials obtained from departmental land upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from departmental Land) (as per SSR 2022-23	**794.40**	**Cum**	**233.91**	**185818.10**

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	I.No.2.27)				
5	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117	**846.00**	**Cum**	**124.75**	**105540.19**
6	Providing and laying Geo-sythetic Clay Liner (GCL) of standard specifications, on bed and slopes of excavation on profiled surface, including making provision for its anchoring in anchor etc (Basic Rate as per GEM Portal Market Rate)	**4858.96**	**Sqm**	**175.00**	**850318.00**
7	Providing, laying and welding 1.50 mm thick High Density Poly Ethelin (HDPE) sheets on slopes and bed of landfill including testing the welded joints by air inject test at standard testing interval, including all tools and plants for testing etc complete. (Basic Rate as per GEM Portal Market Rate)	**4858.96**	**SQM**	**260.00**	**1263329.60**
8	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**846.00**	**Cum**	**1781.88**	**1507468.11**
9	Providing and laying Geotextile 400 GSM one layer laid over HDPE sheet and other layer on drainage layer including stitching the Geotextile at joints and making the layer homogeneous. Etc complete…(Basic Rate as per GEM Portal Market Rate)	**4858.96**	**SQM**	**100.00**	**485896.00**

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
10	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm : xi) 250 mm Rmt 2549 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)	**647.90**	**Rgm**	**2549.00**	**1651497.10**
11	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xvi) 250 mm Rmt. 189 (As per MJP 2023-24 2.No.Section I(IX) P.No.125	**647.90**	**Nos**	**192.78**	**124902.16**
12	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**20.02**	**Cum**	**6427.65**	**128681.55**

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
13	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**31.46**	**Cum**	**7752.10**	**243881.07**
14	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No	**0.94**	**MT**	**93420.23**	**88188.70**
	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.	**143.00**	**Sqm**	**2183.16**	**312191.88**
15	**Royalty charges** for sand required for the work As per Statement	**22.78**	**Cu.m**	**237.37**	**5407.29**
16	**Royalty charges** for murum, Rubble required for the work As per Statement	**846.00**	**Cu.m**	**216.18**	**182888.28**
				Estimated Amount	**₹ 95,03,851**

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)							
MEASUREMENT SHEET for SLF 2m d							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
	SLF Area	1	78.00	65.00		5070.0	
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.						
	SLF Excavation	1	64.00	51.00	1.50	4896.00	
	Pipe to Leachate	1	20.00	0.45	1.50	13.50	
	Storm water drain	2	78.00	0.70	0.50	54.60	
		2	65.00	0.70	0.50	45.50	
					TOTAL Qty	**5009.60**	**Cum**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.						
	SLF Excavation	1	64.00	51.00	0.30	979.20	
					TOTAL Qty	**979.20**	**Cum**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.						
	SLF Excavation	1	64.00	51.00	0.20	652.80	
					TOTAL Qty	**652.80**	**Cum**
4	Providing earth work in embankment with approved materials obtained from departmental land upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from departmental Land) (as per SSR 2022-23 I.No.2.27)						
	Excavated material	1	6641.60			6641.60	
	Embankment Long	2	72.70	3	1	436.20	

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)							
MEASUREMENT SHEET for SLF 2m d							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
	side						
	Embankment Short side	2	59.70	3	1	358.20	
	Use Excavated Material				**TOTAL Qty**	**794.40**	**Cum**
4	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117						
	Excavated material	1	6641.60			6641.60	
	Used For Embankment	-1	794.40			-794.40	
	Remaining Available Material					**5847.20**	
	Compacted soil / Murum Layer bed from excavated material at Bottom of SLF	1	60.00	47.00	0.3	846.00	
	TOTAL Qty					**846.00**	**Cum**
6	Providing and laying Geo-sythetic Clay Liner (GCL) of standard specifications, on bed and slopes of excavation on profiled surface, including making provision for its anchoring in anchor etc (Basic Rate as per GEM Portal Market Rate)						
	at SLF bottom	1	60.00	47.00		2820.00	
	Embankment slope of long side	2	72.70	5.20		756.08	
	Embankment slope short side	2	59.70	5.20		620.88	
	Anchor Trench Long side	2	72.70	2.50		363.50	
	Short side	2	59.70	2.50		298.50	
					TOTAL Qty	**4858.96**	**Sqm**
7	Providing, laying and welding 1.50 mm thick High Density Poly Ethelin (HDPE) sheets on slopes and bed of landfill including testing the welded joints by air inject test at standard testing interval, including all tools and plants for testing etc complete. (Basic Rate as per GEM Portal Market Rate)						

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)							
MEASUREMENT SHEET for SLF 2m d							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
	Qty As per GCL Layer					4858.96	
	TOTAL Qty					**4858.96**	**SQM**
8	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Drainage Layer of 20mm metal Pebbles at Bottom of SLF	1	60.00	47.00	0.3	846.00	
					TOTAL Qty	**846.00**	**Cum**
9	Providing and laying Geotextile 400 GSM one layer laid over HDPE sheet and other layer on drainage layer including stitching the Geotextile at joints and making the layer homogeneous. Etc complete…(Basic Rate as per GEM Portal Market Rate)						
	Filtration Layer						
	Qty As per GCL Layer					4858.96	
					TOTAL Qty	**4858.96**	**SQM**
10	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm : xi) 250 mm Rmt 2549 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)						
	Main Header Line from SLF to Sump	1	20.00			20.00	
	Header line at SLF bottom	1	78.00			78.00	
	Lateral Lines (like brances) at SLF bottom for leachate collection	18	30.55			549.90	

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)							
MEASUREMENT SHEET for SLF 2m d							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
					TOTAL Qty	**647.90**	**Rgm**
11	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xvi) 250 mm Rmt. 189 (As per MJP 2023-24 2.No.Section I(IX) P.No.125						
	Total HDPE pipe Qty	647.90				647.90	**Nos**
12	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Storm water drain long side PCC	2	78.00	0.70	0.10	10.92	
	Storm water drain Short side PCC	2	65.00	0.70	0.10	9.10	
					TOTAL Qty	**20.02**	**Cum**
13	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Storm water drain Walls Long Side	4	78.00	0.30	0.10	9.36	
	Bottom	2	78.00	0.50	0.10	7.80	
	Storm water drain Walls Short Side	4	65.00	0.30	0.10	7.80	
	Bottom	2	65.00	0.50	0.10	6.50	
					TOTAL Qty	**31.46**	**Cum**

Name of Work:- ESTIMATION FOR SANITARY LANDFILL (78M X 65M)							
MEASUREMENT SHEET for SLF 2m d							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
14	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No						
	Steel 30kg per cum for Drain	1	31.46		30.00	943.80	
					TOTAL Qty	**0.94**	**MT**
15	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.						
	Grill	1	286.00		0.50	143.00	
					TOTAL Qty	**143.00**	**Sqm**

Rate Analysis (As Per SSR 2022-23) FOR SANITARY LANDFILL (78M X 65M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 **S.S.R. Item No.21.02 Page.No.**			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 **S.S.R. Item no. 21.06 Page .No.**			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means **S.S.R. Item No.21.12Page.No.**			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**

Rate Analysis (As Per SSR 2022-23) FOR SANITARY LANDFILL (78M X 65M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing earth work in embankment with approved materials obtained from departmental land upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from departmental Land) (as per SSR 2022-23 I.No.2.27)			
	Basic Rate as per SSR 2022-23			**225.00**
	Deduct Labour Cess 1%			**-2.25**
	Sub Total			**222.75**
	Add 4% Municipal Council Charges			**8.91**
	add Labour Cess 1%			2.25
		Total Rate RS.		**233.91**
5	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] **S.S.R. Item No.21.36 Page.No.117**			
	Basic Rate as per SSR 2022-23			**120.00**
	Deduct Labour Cess 1%			**-1.20**
	Sub Total			**118.80**
	Add 4% Municipal Council Charges			**4.75**
	add Labour Cess 1%			1.20
		Total Rate RS.		**124.75**
6	Providing and laying Geo-sythetic Clay Liner (GCL) of standard specifications, on bed and slopes of excavation on profiled surface, including making provision for its anchoring in anchor etc (Basic Rate as per GEM Portal Market Rate)			
	Basic Rate as per GEM Portal Market Rate			175.00
		Total Rate RS.		**175.00**
7	Providing, laying and welding 1.50 mm thick High Density Poly Ethelin (HDPE) sheets on slopes and bed of landfill including testing the welded joints by air inject test at standard testing interval, including all tools and plants for testing etc complete. (Basic Rate as per GEM Portal Market Rate)			

Rate Analysis (As Per SSR 2022-23) FOR SANITARY LANDFILL (78M X 65M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Basic Rate as per GEM Portal Market Rate			260.00
		Total Rate RS.		**260.00**
8	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Metal 20mm Pebbles	1	345.15	345.15
		Total Rate RS.		**1781.88**
9	Providing and laying Geotextile 400 GSM one layer laid over HDPE sheet and other layer on drainage layer including stitching the Geotextile at joints and making the layer homogeneous. Etc complete…(Basic Rate as per GEM Portal Market Rate)			
	Basic Rate as per GEM Portal Market Rate			100.00
		Total Rate RS.		**100.00**
10	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stacking the same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest IS Specifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm : xi) 250 mm Rmt 2549 **(As per MJP 2023-24 I.No.Section C I(IX) P.No.124)**			
	Basic Rate As per MJP 2023-24			**2549.00**
		Total Rate RS.		**2549.00**

Rate Analysis (As Per SSR 2022-23) FOR SANITARY LANDFILL (78M X 65M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
11	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xvi) 250 mm Rmt. 189 **(As per MJP 2023-24 2.No.Section I(IX) P.No.125**			
	Basic Rate As per MJP 2023-24			**189.00**
	Sub Total			**189.00**
	Add 2% Municipal Council Charges			**3.78**
		Total Rate RS.		**192.78**
12	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct Labour Cess 1%			**-58.30**
	Deduct SCADA			-126
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**6427.65**
13	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct Labour Cess 1%			**-71.04**

Rate Analysis (As Per SSR 2022-23) FOR SANITARY LANDFILL (78M X 65M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Deduct SCADA			-126
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**
14	Providing and fixing in position **T.M.T.** bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
15	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.			
	Basic Rate as per SSR 2022-23		Sqm	2100
	Deduct Labour Cess 1%			**-21.00**
	Sub Total			**2079.00**
	Add 4% Municipal Council Charges			**83.16**
	add Labour Cess 1%			21.00
		Total Rate RS.		**2183.16**

ROYALTY CHARGES FOR SANITARY LANDFILL (78M X 65M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
			50	42	Qty	Therotical Rate Of Consumption	Qty
1	metal 20mm	846.000	846.00			1.00	846.00
3	M10 PCC	20.020	20.02	0.47	9.41		
4	M20 footing	31.460	31.46	0.425	13.37		
				Total	22.78	Total	846.00
					Grand Total		868.78

18. QUOTATION FOR GEO- SYNTHETIC CLAY LINER

Geo-synthetic clay liner			
Quotation comparison (lowest first)			
Sr. No.	Suppliers	Specifications	Rate
1	Jeevan Ecotex	Geo-synthetic clay liner(GCL)(6mm thick)	**Rs. 138**
2	Ocean Non Wovens Pvt Ltd.	Clay liner	**Rs. 230**
3	Ashapura, Bhuj.	Geo-synthetic clay liner, 6mm thick with thin layer of bentonite clay sandwiched between non- wovengeo-textiles geo-fabric filter layer of Geo-textile (Non-woven and from 100°A polypropylene fibers, needlepunched) as per technical specifications.	**Rs. 295** The above rate including Freight (Bhuj to Chinchwad) and 12% Gst

High Density Polyethylene (HDPE) sheet (1.5 mm thick)			
Quotation comparison (lowest first)			
Sr. No.	Suppliers	Specifications	Rate
1	Ocean Non Wovens Pvt Ltd	Ocean HDPE Liner-1500 Micron 1.5 MM Thickness	**Rs. 220**
2	Jeevan Ecotex	High Density Polyethylene (HDPE) sheet (1.5 mm thick)	**Rs. 265**
3	S B Oswal	HDPE Polythene Sheet 1500 Micron	**Rs. 270**

Geotextile 400 GSM			
Quotation comparison (lowest first)			
Sr. No.	Suppliers	Specifications	Rate
1	Jeevan Ecotex	400 GSM Polypropylene Sheet	**Rs. 58**
2	Ocean Non Wovens Pvt Ltd	Ocean Non Woven Geotextiles (PET) 4.0 MM Thickness	**Rs. 65**
3	Gayatri polymers and geosynthetics	400 GSM X 5 m X 100 m	**Rs. 95**

Geotextile 800 GSM			
Quotation comparison (lowest first)			
Sr. No.	Suppliers	Specifications	Rate
1	Jeevan Ecotex	Geotextile 800 GSM[36PN37]	**Rs. 109**
2	Ocean Non Wovens Pvt Ltd	Ocean Non Woven Geotextiles (PET) 8.0 MM Thickness	**Rs. 165**
3	Gayatri polymers and geosynthetics	800 GSM X 5 m X 100 m-	**Rs. 190**

ISO 9001:2015 certified Company

Quotation

Jeevan Ecotex Pvt Ltd Office No401, Vascon Eco Tower Baner Pune-411045 Headoffice-1109/B, Kailas Business Park Kailas Complex, Park Site, Vikroli Powai Link Road, Powai, Mumbai - 400 079 Email : sales@jeevanecotex.com	Quotation No. : AA/AP/Q0632/DEC/23-24 Date : 08-12-2023 Your Ref : Email Ref Date : 08-12-2023 Page: 1 of 1

To,

All India Institute of Local Self Government,Pune. Urban Planner, AIILSG, Pune. Ph: +91 9657489940 Email: pankaj.pathare1997@gmail.com	Banking Details: - 1. Cheque/ D.D. in favour of "Jeevan Ecotex Pvt Ltd" 2. Bank details – Bank of Baroda 3. Bank Account No. - 07620500000312 4. RTGS Details - IFSC No. – BARBOBHABOM 5. Our Correspondence Address: Jeevan Group, 1109 – B, Kailas Business Park, Kailas Complex, Vikhroli Park Site, Mumbai - 400079

Kind Attn : Mr.Ar. Pankaj Pathare,

We thank you for your interest in our Products. Refering to your enquiry and according to our general terms & Conditions, We would like to send you our non-binding offer as below-

Sr. No.	Product Description - Part Number	GST Extra	UOM	Qty	Unit Price Rs.	Total
1	Geo-synthetic Clay Liner (GCL) (6mm thick)	12%	SQM	1	138.00	₹ 138.00
2	High Density Polyethylene (HDPE) sheet (1.50 mm thick)	12%	SQM	1	265.00	₹ 265.00
3	Geotextile 400 GSM [36PN37]	12%	SQM	1	58.00	₹ 58.00
4	Geotextile 400 GSM [4PPN]	12%	SQM	1	74.00	₹ 74.00
4	Geotextile 800 GSM[36PN37]	12%	SQM	1	109.00	₹ 109.00
5	Geotextile 800 GSM [4PPN]	12%	SQM	1	148.00	₹ 148.00
						₹ 792.00

Terms & Condition

1] Freight Extra at actual / full truck load basis
2] Payment - 100% advance
3] Rates quoted above are valid for 15 days from date of this quotation.
4] Material will be invoiced and dispatched based on material calculations indicated by you in your Purchase order.
5] Once the Purchase order, cancellation of your order will not be accepted.
6] Delivery Period will be informed you after receiving your purchase order.

Looking forward to your Valued Purchase Order

Thanking you,
This is a system generated quote and valid without Signature

QUOTATION

Ocean Non Wovens Pvt Ltd.
Regd Office:RR-24,2nd Floor,Mianwali Nagar,Main Rohtak Road, New Delhi-110087(India)
Opp Metro Pillar No. 307
Email Id: oceantender01@gmail.com/sales@oceangeosynthetics.com
Web: www.oceangeosynthetics.com
Tel: 011-45120291(D), +91-8447226007(M), +91-9811107978(M),+91 9911097776

Reference No. : OG/23-24/010472

Date	: Wed Dec 06 00:00:00 GMT 2023
Company	: NINAD Chandu contractor
Contact Person	: NINAD Chandu
Billing Address	: Kolhapur, Maharashtra Kolhapur Maharashtra IN
Shipping Address	:
Contact No.	: +91-9096684146
Email	: ninadmule46@gmail.com

Product code	Product Description	Dimension	Quantity	Rate	Unit	Amount
OG / HDPE-1500	Ocean HDPE Liner-1500 Micron 1.5 MM Thickness	6*50	1600	220.00	Sq.Mtr	
OG / GT-401	Ocean Non Woven Geotextiles (PET) 4.0 MM Thickness	2*200	1600	65.00	Sq.Mtr	
Ocean global clay liner	Clay liner	2*25	1600	230.00	Sq.Mtr	
OG / GT-601	Ocean Non Woven Geotextiles (PET) 8.0 MM Thickness	2*200	1600	165.00	Sq.Mtr	
					Sub Total	1088000.00
					IGST@18%	195840

QUOTATION

Ocean Non Wovens Pvt Ltd.
Regd Office:RR-24,2nd Floor,Mianwali Nagar,Main Rohtak Road, New Delhi-110087(India)
Opp Metro Pillar No. 307
Email Id: oceantender01@gmail.com/sales@oceangeosynthetics.com
Web: www.oceangeosynthetics.com
Tel: 011-45120291(D), +91-8447226007(M), +91-9811107978(M),+91 9911097776 **Reference No. : OG/23-24/010472**

Net amount	1283840 (INR)
Total Amount (in words) in INR: Twelve Lakhs Eighty Three Thousand Eight Hundred Fourty Only	

TERMS & CONDITIONS:

This quotation is subject to the conditions noted below :

- **Quote:** Ex- Works
- **Transportation:** As actual to be borne by the buyer
- **Order Booking:** After the receipt of confirmed purchase order and mutual agreement on payment terms.
- **Delivery Schedule:** Delivery within 10 days as per the order booking
- **Quality Control:**

  (a) Goods once sold will not be taken back

  (b) Kindly approve the sample before order booking

Payment:

(a) All payments to be made in favour of Ocean Non Wovens Pvt Ltd

(b) 15% Interest will be charged if payment is delayed beyond due date.

(c) Legal notice will be enforced on the buyer if due date has exceeded 15 days.

This is system generated copy.

Geosynthetic Clay Liner offer

Sivaraman <sivaraman@ashapura.com>
To: pankaj.pathare2011@gmail.com

Dear Mr.Pankaj,

As discussed, Please find the best commercial offer for supplying GCL

Geo synthetic Clay liner	Unit	Qty	Rate	Amount
Supplying of geo-synthetic clay liner, 6mm thick with thin layer of bentonite clay sandwiched between non- woven geo-textiles geo-fabric filter layer of Geo-textile (Non-woven and from 100°A polypropylene fibres, needle punched) as per technical specifications.	sqm	2700.00	Rs.295	

The above rate including Freight (Bhuj to Chinchwad) and 12% Gst.

Regards,

Sivaraman

91082 59888



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एस. बी. ओसवाल
• ताडपत्री • कारपेट • रोप
होलसेल व रिटेल ताडपत्री, रस्सी व कार्पेटस्चे व्यापारी, गव्हर्मेंट व शुगरमील सप्लायर्स
१९५५ सी, लक्ष्मी रोड, कोल्हापूर 416002 फोन : ऑफिस 0231 2644323, 2644089

DT: - 7.12.23

TO,
ALL INDIA INSTITUTE OF LOCAL SELF GOVERNMENT
GADHIGLAJ

SUB : QUOTATION

PARTICULARS	RATE PER SQ. MT.
GEO SYNTHETIC CLAY LINER	RS. 190.00
HDPE POLYTHENE SHEET 1500 MICRON	RS. 270.00
GEO TEXTILE 800 GSM	RS . 165.00
GEO TEXTILE 400 GSM	RS. 105.00

TERMS & CONDITION
1 DELIVERY – 15 TO 20 DAYS AT KOLHAPUR
2 PAYMENT – 100 % WITH ORDER
3 TAX - 18 % GST EXTRA

YOURS FAITHFULL

CHETAN OSWAL
9049498765

GAYATRI POLYMERS & GEOSYNTHETICS

AN ISO 9001:2015 CERTIFIED COMPANY

M/S All India Institute Of Local Self Government . **DT.06.12.2023**

Mr. Ninad Mule Contact No: 9096684146
GEOSYNTHETICS-

Sr. No.	Item Description	Unit	Ex-VADODARA/ Unit /in Rs.
hdpe black bothside smooth geomembrane/geotextiles/ GCL			
1	1500 micron X 6 m X 100 m-	Sq. m.	228.00
2	400 GSM X 5 m X 100 m-	Sq. m.	95.00
3	800 GSM X 5 m X 100 m-	Sq. m.	190.00
4	6 MM (4.8 Kgs) X 4 M X 50 M	Sq. m.	157.00

GAYATRI GEOSYNTHETICS ISO 9001:2008

PRICES:

1) Delivery: Material readiness within 10 - 15 days from the date of issuance of supply order and receipt of 20% advance payment.

2) Validity: Until 23.12.2023 and subject to reconfirmation then after.

3) Payment: 20% advance along with order and balance 80% after material readiness before dispatch.
In case of stock material, 100% advance through RTGS.

4) Taxes: extra

5) Inco terms: The above offered rates are Ex.Works Vadodara Gujarat.

28, Unique Trade Centre, Opp: Hotel P.M Regency, Sayajigunj,Vadodara-390005.Gujarat.
Tel: +91 265 2225569/3592520
Web site: www.gayatrigeosynthetics.com; email: gpasj_26@yahoo.co.in, sales@gayatrigeosynthetics.com.

COMPUTER GENERATED DOCUMENTS NO SIGNATURE REQUIRE

19. ESTIMATION FOR SLF SUMP (2.46M x 2.46M)

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**16.930**	**Cum**	**215.20**	**3643.29**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	**16.930**	**Cum**	**235.99**	**3995.30**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115	**9.030**	**Cum**	**324.36**	**2928.93**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R.	**1.130**	**Cum**	**6391.35**	**7222.22**

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	Item No.24.01 Page.No.				
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**2.810**	**Cum**	**7752.10**	**21783.40**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No	**0.253**	**M.T**	**93420.23**	**23625.98**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144	**7.180**	**Cum**	**7532.50**	**54083.32**
8	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224	**71.14**	**sq.m**	**670.39**	**47694.00**

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.	**6.05**	**Sqm**	**2183.16**	**13211.61**
10	**Royalty charges** for sand required for the work As per Statement	**6.5800**	**Cu.m**	**237.37**	**1561.89**
11	**Royalty charges** for murum, Rubble required for the work As per Statement	**0.00**	**Cu.m**	**216.18**	**0.00**
	Estimated Amount				**₹ 1,79,750**

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M)							
MEASUREMENT SHEET							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
		1	2.46	2.46		6.05	
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Sump Area excavation	1	3.36	3.36	1.50	16.93	
	2.46+0.3 raft one side +0.3 raft one side +0.15 PCC one side +0.15 PCC one side				**Total Qty**	**16.93**	**Cum**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Sump Area excavation	1	3.36	3.36	1.50	16.93	
					Total Qty	**16.93**	**Cum**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115						
	Sump Area excavation	1	3.36	3.36	0.80	9.03	
					Total Qty	**9.03**	**Cum**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Sump Area PCC	1	3.36	3.36	0.10	1.13	
	2.46+0.3 raft one side +0.3 raft one side +0.15 PCC one side +0.15 PCC one side				**Total Qty**	**1.13**	**Cum**

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M)							
MEASUREMENT SHEET							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Sump Area FOOTING	1	3.06	3.06	0.30	2.81	
	2.46+0.3 raft one side +0.3 raft one side				**Total Qty**	**2.81**	**Cum**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No						
	Ground floor						
	footing qty.	1	2.81	90.00		**252.90**	
						252.90	**kg**
	Total Qty					**0.25**	**M.T**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144						
	Sump Area	2	2.46	0.23	3.50	3.96	
		2	2.00	0.23	3.50	3.22	
						7.18	**Cum**
8	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						

Name of Work:- ESTIMATION FOR SLF SUMP (2.46M X 2.46M)							
MEASUREMENT SHEET							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
	Horizontal	4	2.46		3.62	35.57	
	Vertical	4	2.46		3.62	35.57	
	Total qty.					**71.14**	**sq.m**
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.						
	Grill	1	2.46		2.46	6.05	
	Total Qty					**6.05**	**Sq m**

RATE ANALYSIS (As Per SSR 2022-23) FOR SLF SUMP (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
3	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**

RATE ANALYSIS (As Per SSR 2022-23) FOR SLF SUMP (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct Labour Cess 1%			-58.30
	Deduct SCADA			-126
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6391.35**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct Labour Cess 1%			**-71.04**
	Deduct SCADA			-126
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**

RATE ANALYSIS (As Per SSR 2022-23) FOR SLF SUMP (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
6	Providing and fixing in position **T.M.T.** bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
7	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete. **S.S.R. Item No27.12 Page No.144**			
	Basic Rate as per PWD SSR 2022-23			6884
	Deduct Labour Cess 1%			**-68.84**
	Sub Total			**6815.16**
	Add 4% Municipal Council Charges			**272.61**
	add Labour Cess 1%			68.84
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7532.50**
8	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.**S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**

RATE ANALYSIS (As Per SSR 2022-23) FOR SLF SUMP (2.46M X 2.46M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**
9	Providing and fixing mild steel grill gate as per the detailed drawing in cluding hinges,locking arrangements and painting in threecoat so foilpaint of approved colour and shade etc. complete.(weight 18 Kilogram. to 20 Kilogram. Per Sq.m.) Spec.One Number: As directed by Engineer- in-charge. S.S.R. Item No. 23.09 Page No.			
	Basic Rate as per SSR 2022-23		Sqm	2100
	Deduct Labour Cess 1%			**-21.00**
	Sub Total			**2079.00**
	Add 4% Municipal Council Charges			**83.16**
	add Labour Cess 1%			21.00
		Total Rate RS.		**2183.16**

ROYALTY CHARGES FOR SLF SUMP (2.46M X 2.46M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	M10 PCC	1.130	1.13	0.47	0.53		
2	M20 footing	2.810	2.81	0.425	1.19		
3	M20 Slab		0.00	0.425	0.00		
4	BBM in Foundation	7.180	7.18	0.350	2.51		
5	Sand Face Plaster	71.14	71.14	0.033	2.35		
				Total	6.58	Total	0.00
						Grand Total	6.58

20. ESTIMATION FOR C&D WASTE SHED (15M X 8M)

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)	**170.00**	**SQM**	**4.16**	**706.93**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)	**10.00**	**Nos**	**531.24**	**5312.36**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)	**10.00**	**Nos**	**880.54**	**8805.41**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**28.500**	**Cum**	**215.20**	**6133.12**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	**8.100**	**Cum**	**235.99**	**1911.51**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115	**8.100**	**Cum**	**324.36**	**2627.28**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117	**11.988**	**Cum**	**124.75**	**1495.53**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**36.662**	**Cum**	**953.49**	**34956.87**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**21.930**	**Cum**	**1767.50**	**38761.21**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**16.300**	**Cum**	**6463.34**	**105352.36**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**7.770**	**Cum**	**7752.10**	**60233.82**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.	**3.610**	**Cum**	**14695.59**	**53051.08**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.	**4.770**	**Cum**	**13121.63**	**62590.18**
14	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139	**24.000**	**Cum**	**9155.49**	**219731.76**
15	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	**3.937**	**M.T**	**93420.23**	**367823.47**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144	**4.520**	**Cum**	**7532.50**	**34046.88**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213	**15.870**	**Cum**	**7763.29**	**123203.37**
18	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224	**179.50**	**sq.m**	**670.39**	**120335.79**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.	**3.87**	**MT**	**124354.57**	**481699.85**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
20	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167	**292.95**	**Sqm**	**1219.45**	**357238.11**
21	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-	**0.08**	**Cum**	**69653.20**	**5641.91**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M) ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No				
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165	**179.50**	**Sqm**	**271.34**	**48704.74**
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)	**5.00**	**Rgm**	**4043.00**	**20215.00**
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by	**5.00**	**Rgm**	**146.85**	**734.26**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	Rate	Amount
	engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.126)				
25	**Royalty charges** for sand required for the work As per Statement	**37.3000**	**Cu.m**	**237.37**	**8853.90**
26	**Royalty charges** for murum, Rubble required for the work As per Statement	**58.59**	**Cu.m**	**216.18**	**12665.99**
	Estimated Amount				**₹ 21,82,833**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)		15	8	4.5	120	Sqm
	Area	1	**17.00**	**10.00**		**170.00**	
					Qty	**170.00**	**SQ M**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)						
	Lump Sum	10				10.00	
					Qty	**10.00**	**Nos**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Footing Long side @ 4.65 C/C x both side	8	1.50	1.50	1.00	18.00	
	Footing short side gable end @ 5 C/C x both side	4	1.50	1.50	1.00	9.00	
	Below Ramp for Leachate Pipe	1	5.00	0.60	0.50	1.50	
						28.50	**Cu m**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Footing Long side @ 4.65 C/C x both side	8	1.50	1.50	0.30	5.40	
	Footing short side gable end @ 5 C/C x both side	4	1.50	1.50	0.30	2.70	**Cu m**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
						8.10	**Cum**
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115						
	Footing Long side @ 4.65 C/C x both side	8	1.50	1.50	0.30	5.40	
	Footing short side gable end @ 5 C/C x both side	4	1.50	1.50	0.30	2.70	
						8.10	**Cum**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] S.S.R. Item No.21.36 Page.No.117						
	To be used for levelling of ground where undulations are there.						
	PCC Below Footing	8	1.50	1.50	0.10	1.80	
		4	1.50	1.50	0.10	0.90	
	Footings	8	1.20	1.20	0.45	5.18	
		4	1.20	1.20	0.45	2.59	
	Column till GL	8	0.30	0.45	1.05	1.13	
		4	0.30	0.30	1.05	0.38	
	Total Qty					**11.99**	**Cum**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Floor Area Murum Filling for plinth 0.6m	1	14.54	7.54	0.4	43.85	
	Murum Filling for Ramp	1	4.00	4.00	0.3	4.80	
	Deduction sr no 7 remaining excavated material obtained after backfilling of footing pits	-1	11.99			-11.99	
						36.66	**Cum**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Floor Area Soling for plinth 0.6m	1	14.54	7.54	0.2	21.93	
						21.93	**Cum**
10	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	whole Floor Area PCC	1	15.00	8.00	0.10	12.00	
	Footing Long side @ 4.65 C/C x both side	8	1.50	1.50	0.10	1.80	
	Footing short side gable end @ 5 C/C x both side	4	1.50	1.50	0.10	0.90	
	Ramp	1	4.00	4.00	0.10	1.60	
	Total Qty					**16.30**	**Cum**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Footing Long side @ 4.65 C/C x both side	8	1.20	1.20	0.45	5.18	
	Footing short side gable end @ 5 C/C x both side	4	1.20	1.20	0.45	2.59	
						7.77	**Cum**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.						
	COLUMNS Till Plinth						
	Footing Long side @ 4.65 C/C x both side	8	0.30	0.45	1.65	1.78	
	Footing short side gable end @ 5 C/C x both side	4	0.30	0.30	1.65	0.59	
	Above Plinth	8	0.23	0.30	1.50	0.83	
		4	0.23	0.30	1.50	0.41	
						3.61	**Cum**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.						
	Ground Beam Long Side	2	15.00	0.23	0.45	3.11	
	Ground Beam Short Side	2	8.00	0.23	0.45	1.66	
						4.77	**Cum**
14	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139						
	M30 Tremix Floor	1	15.00	8.00	0.20	24.00	
						24.00	**Cum**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
15	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	footing qty.	**1**	**7.77**	**90**		**699.3**	
	column qty	**1**	**3.61**	**100**		**361.0**	
	beam qty	**1**	**4.77**	**100**		**477.0**	
	Tremix qty	**1**	**24.00**	**100**		**2400.0**	
						3937.30	**kg**
	Total Qty					**3.94**	**M.T**
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete.S.S.R. Item No27.12 Page No.144						
	Brickwork till Plinth	2	15.00	0.23	0.60	4.14	
		2	8.00	0.23	0.60	2.21	
	Ramp	2	4.00	0.23	0.30	0.55	
	Deduction 1/2 Ground beam	-2	15	0.23	0.225	-1.55	
		-2	8	0.23	0.225	-0.83	
						4.52	**Cum**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213						
	Brickwork in Superstructure	2	15.00	0.23	1.50	10.35	
		2	8.00	0.23	1.50	5.52	
	Total qty.					**15.87**	**Cum**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
18	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						
	Plaster Brickwork till Plinth	2	15.00		0.60	18.00	
		2	8.00		0.60	9.60	
	Brickwork in Superstructure	4	15.00		1.62	96.90	
		4	8.00		1.62	51.68	
	Ramp	2	4		0.415	3.32	
	Total qty.					**179.50**	**sq. m**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. S.S.R. Item No. 23.04.Page No.						
	Weight of Shed 3 kg per Sqft	**1**	**15.0**	**8**	**32**	3873.60	
	Total Weight of Shed					**3873.60**	**kg**
						3.87	**MT**
20	Providing and fixing colour coated Zincalume (R) AZ 150 (min 150 gms/ sq.mt. total on each side) profiled sheets for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal Thickness (BMT) (0.5mmTCT),Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) S.S.R. Item No. 38.34 Page No. 167						
	Roof Cladding	1	15		8.00	120.00	
	Side Cladding long side	2	15.00		3.00	90.00	

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
	Side Cladding short side	1	8.00		3.00	24.00	
	Ridge	1	1		15.00	15.00	
	Drain gutter	2	1		15.00	30.00	
	Wastage	0.050	279.0			13.95	
	Total Qty					**292.95**	**Sq m**
21	Providing and applying “high strength, non shrink free flow grout material” i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) S.S.R. Item No. 51.146 Page No						
	Grouting for base plate at column	12	0.3	0.45	0.05	**0.08**	**Cum**
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165						
	Qty as per External plaster					**179.50**	**Sq m**
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stackingthe same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest ISSpecifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 (As per MJP 2023-24 I.No.Section C I(IX) P.No.124)						
	Below Ramp for Leachate pipe	**1**	**5.00**			**5.00**	
					TOTAL Qty	**5.00**	**Rgm**

Name of Work:- ESTIMATION FOR C & D WASTE SHED (15M X 8M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 PartII xiv) 200 mm Rmt. 144 (As per MJP 2023-24 2.No.Section I(IX) P.No.126)						
	Below Ramp for Leachate pipe	**5.00**				**5.00**	**Rgm**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Clearing grass and removal of rubbish up to a distance of 50 metres outside the periphery of the area (as per SSR 2022-23 I.No.2.07)			
	Basic Rate as per SSR 2022-23			4.00
	Deduct Labour Cess 1%			**-0.04**
	Sub Total			**3.96**
	Add 4% Municipal Council Charges			**0.16**
	add Labour Cess 1%			0.04
		Total Rate RS.		**4.16**
2	Cutting down trees including trunks and branches with girths above 30cm to 60cm and stacking the materials neatly with all lifts and lead of 1000m as directed and earth filling in the depression / pit if any.(as per SSR 2022-23 I.No.2.01)			
	Basic Rate as per SSR 2022-23			511.00
	Deduct Labour Cess 1%			**-5.11**
	Sub Total			**505.89**
	Add 4% Municipal Council Charges			**20.24**
	add Labour Cess 1%			5.11
		Total Rate RS.		**531.24**
3	Cutting down trees including trunks and branches with girths above 60cm to 90cm and stacking the materials neatly with all lifts and lead of 1000m. as directed and earth filling in the depression/pit if any.(as per SSR 2022-23 I.No.2.02)			
	Basic Rate as per SSR 2022-23			847.00
	Deduct Labour Cess 1%			**-8.47**
	Sub Total			**838.53**
	Add 4% Municipal Council Charges			**33.54**
	add Labour Cess 1%			8.47
		Total Rate RS.		**880.54**
4	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
		Total Rate RS.		**215.20**
5	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
6	Excavation for foundation in Hard murum and boulders including removing the excavated material upto a distance of 50 metres, beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift from 1.5 m to 3.0 m.) By Mechanical Means S.S.R. Item No.21.12Page.No.115			
	Basic Rate as per SSR 2022-23			312.00
	Deduct Labour Cess 1%			**-3.12**
	Sub Total			**308.88**
	Add 4% Municipal Council Charges			**12.36**
	add Labour Cess 1%			3.12
		Total Rate RS.		**324.36**
7	Filling in plinth and floors with approved excavated materials in 15 cm to 20 cm layers including watering and compaction complete. [Spec.No. :Bd.A.10 Page No.262] **S.S.R. Item No.21.36 Page.No.117**			
	Basic Rate as per SSR 2022-23			120.00
	Deduct Labour Cess 1%			**-1.20**
	Sub Total			**118.80**
	Add 4% Municipal Council Charges			**4.75**
	add Labour Cess 1%			1.20
		Total Rate RS.		**124.75**
8	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
9	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**
10	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 5% for Municipal Corporation charges			**282.29**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6463.34**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
11	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**
12	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. columns** as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.31 Page.No.**			
	Basic Rate as per SSR 2022-23			13783
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-137.83**
	Sub Total			**13519.17**
	Add 4% Municipal Council Charges			**540.77**
	add Labour Cess 1%			137.83
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14695.59**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
13	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for **R.C.C. beams and lintels** as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.50 Page.No.**			
	Basic Rate as per SSR 2022-23			12269
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-122.69**
	Sub Total			**12020.31**
	Add 4% Municipal Council Charges			**480.81**
	add Labour Cess 1%			122.69
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**13121.63**
14	Providing and laying in situ cement concrete **M -30 with tremix treatment for 200 mm** thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. **S.S.R. Item No.5.22 Page No139**			
	Basic Rate as per SSR 2022-23			8446
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-84.46**
	Sub Total			**8235.54**
	Add 4% Municipal Council Charges			**329.42**
	add Labour Cess 1%			84.46
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.4	164.99	66.00
		Total Rate RS.		**9155.49**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
15	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
16	Providing fly ash brick masonry with conventional / I.S. type fly ash bricks in C.M. 1:6 in foundation and plinth including bailing out water manually striking joints, racking out joints watering and scaffolding etc. complete. **S.S.R. Item No27.12 Page No.144**			
	Basic Rate as per PWD SSR 2022-23			6884
	Deduct Labour Cess 1%			**-68.84**
	Sub Total			**6815.16**
	Add 4% Municipal Council Charges			**272.61**
	add Labour Cess 1%			68.84
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7532.50**
17	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 **in superstructur**e including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213			
	Basic Rate as per PWD SSR 2022-23			7106
	Deduct Labour Cess 1%			**-71.06**
	Sub Total			**7034.94**
	Add 4% Municipal Council Charges			**281.40**
	add Labour Cess 1%			71.06

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7763.29**
18	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. **S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**
19	Providing structural steel work in trusses, other similar trussed purlins and members with all bracing, gusset plates etc. as per detailed designs and drawings or as directed including cutting, fabricating, hoisting, erecting fixing in position, Making riveted/ bolted/ welded connection and one coat of anticorrosive paint and over it 2 coats of oil painting approved quality and shade etc. complete. **S.S.R. Item No. 23.04.Page No.**			
	Basic Rate as per SSR 2022-23			119459
	Deduct Labour Cess 1%			**-1194.59**
	Sub Total			**118264.41**
	Add 4% Municipal Council Charges			**4730.58**
	add Labour Cess 1%			1194.59
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**124354.57**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
20	Providing and fixing **colour coated Zincalume (**R) AZ 150 (min 150 gms/ sq.mt. total on each side) **profiled sheets** for roofing. The feed material is manufactured out of nominal 0.45 mm Base Metal **Thickness (BMT) (0.5mmTCT)**,Hi-strength steel with min. 550M Pa yield strength, metallic hot dip coated with Aluminium-Zincalloy (55% aluminium 43.4% zinc 1.6% silicon) with COLORBOND (R) steel quality super durable polyester paint coat (within organic pigment). The paint shall have a total coating thickness of nominal 35um ,comprising of nominal 25um exterior coat on top surface and nominal 10 um reverse coat on back surface. Profile sheet shall have nom. 950-1050mm effective cover widt hand nominal 25-30 mm deep ribs with subtle square fluting in t h e five panat nominal 180-250mm center-to-center. The end rib shall be designed for anti-capillary groove. and return leg. The feed material should have coil manufacturers product details marked a regular interval. Including fastener s with min. fastened with min. 25um Zinc-Tin alloy coated, Hexhead, self-drilling screw etc.complete. (weight of profile 4.52 Kilogram/ One Square Metre) **S.S.R. Item No. 38.34 Page No. 167**			
	Basic Rate as per PWD SSR 2022-23			1173
	Deduct Labour Cess 1%			**-11.73**
	Sub Total			**1161.27**
	Add 4% Municipal Council Charges			**46.45**
	add Labour Cess 1%			11.73
		Total Rate RS.		**1219.45**
21	Providing and applying **"high strength, non shrink free flow grout material"** i. e. micro concrete (like shrink comp or equivalent) having compressive strength as 400 Kilogram/sq.cm. including finishing the surface and curing for 07 days. Etc complete. The usage of this non shrink concrete with zero slump is to allow to occupy every free space leaving no voids, thereby producing dense concrete with proper bonding with concrete (The quoted rates to be inclusive of all materials, labours, tools & tackles, transportation,taxes etc complete) to be applied for foundation and strengthening of pier etc and as per the direction of Site-In-Charge. (The product like Ultratech/Rendroc (RGL) of FOSROC or its equivalent) **S.S.R. Item No. 51.146 Page No**			
	Basic Rate as per PWD SSR 2022-23			67000.00
	Deduct Labour Cess 1%			**-670.00**
	Sub Total			**66330.00**
	Add 4% Municipal Council Charges			**2653.20**
	add Labour Cess 1%			670.00
		Total Rate RS.		**69653.20**

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
22	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165			
	Basic Rate as per SSR 2022-23			261
	Deduct Labour Cess 1%			**-2.61**
	Sub Total			**258.39**
	Add 4% Municipal Council Charges			**10.34**
	add Labour Cess 1%			2.61
		Total Rate RS.		**271.34**
23	Providing and supplying in standard lengths Polyethelene Pipes, confirming to IS 4984 / 14151 / 12786 / 13488 with nesessary jointing material like mechanical connector i. e. thread / insert joint / quick release coupler joint / compression fitting joint or flanged joint excluding coupler/specials, including transportation and freight charges,inspection charges, loading / unloading charges, conveyance to the departmental stores & stacking the same in closed shade duly protecting from sunrays & rains, excluding GST levied by GI & GOM in all respect etc. complete. Note:- H.D.P.E. Pipes shall be as per latest IS Specifications Also HDPE pipes upto 110 mm Dia shall be in coil form C) PE-100, 10 Kg/Sq. cm :xiii) 315 mm Rmt 4043 **(As per MJP 2023-24 I.No.Section C I(IX) P.No.124)**			
	Basic Rate As per MJP 2023-24			**4043.00**
		Total Rate RS.		**4043.00**
24	Lowering, Laying and Jointing H. D. P. E./ M. D. P. E. pipes in proper position including all specials by compression fitting/electrofusion and butt fusion jointing procedure as per relevent IS Code complete with all materials for jointing procedure like Electrofusion machine, Electric heater/butt fusion welding machine with hydraulic jack, top loading clamp etc. and all labours as directed by engineer in charge as per IS-7634 Part II xiv) 200 mm Rmt. 144 **(As per MJP 2023-24 2.No.Section I(IX) P.No.126)**			
	Basic Rate As per MJP 2023-24			**144.00**
	Deduct Labour Cess 1%			**-1.44**
	Sub Total			**142.56**
	Add 2% Municipal Council Charges			**2.85**
	add Labour Cess 1%			1.44

RATE ANALYSIS (As Per SSR 2022-23) FOR C & D WASTE SHED (15M X 8M)				
Item No.	Description of Items	QTY.	LEAD CHARGES	RATE
		Total Rate RS.		**146.85**

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ROYALTY CHARGES FOR C & D WASTE SHADE (15M X 8M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	36.662	36.66			1.00	36.66
2	Soling	21.930	21.93			1.00	21.93
3	M10 PCC	16.300	16.30	0.47	7.66		
4	M20 footing	7.770	7.77	0.425	3.30		
5	M20 Column	3.610	3.61	0.425	1.53		
6	M20 Beam	4.770	4.77	0.425	2.03		
7	M30 Tremix	24.000	24.00	0.425	10.20		
8	BBM in Foundation	4.520	4.52	0.350	1.58		
9	BBM in Super structur	15.870	15.87	0.320	5.08		
10	Sand Face Plaster	179.50	179.50	0.033	5.92		
				Total	37.30	Total	58.59
						Grand Total	95.89

21. ESTIMATION FOR 3.5M ROAD WORK

Name of Work:- ESTIMATION FOR 3.5M ROAD WORKS					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Quantity**	**Rate**	**Unit**	**Amount**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**324.90**	**215.20**	**Cum**	**69917.57**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**128.25**	**953.49**	**Cum**	**122285.14**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**196.65**	**1767.50**	**Cum.**	**347578.32**

Name of Work:- ESTIMATION FOR 3.5M ROAD WORKS					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Quantity**	**Rate**	**Unit**	**Amount**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**128.25**	**6406.88**	**Cum**	**821682.10**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139	**157.50**	**9155.49**	**Cum**	**1441989.68**
6	**Royalty charges** for sand required for the work As per Statement	**66.94**	**237.37**	**Cu.m**	**15889.55**
7	**Royalty charges** for murum, Rubble required for the work As per Statement	**324.90**	**216.18**	**Cu.m**	**70236.88**
	TOTAL				**2889579.25**

Name of Work:- ESTIMATION FOR 3.5M ROAD WORKS							
MEASUREMENT SHEET							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Unit**	**Quantity**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115		225	3.5			
	Road Excavation	1	225	3.8	0.38		324.90
						Cum	**324.90**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Road Murum Filling	1.00	225.00	3.8	0.15		128.25
						Cum	**128.25**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Road Soling Filling	1.00	225.00	3.80	0.23		196.65
						Cum	**196.65**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Road PCC	1.00	225.00	3.80	0.150		128.25
						Cum	**128.25**

Name of Work:- ESTIMATION FOR 3.5M ROAD WORKS							
MEASUREMENT SHEET							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Unit**	**Quantity**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139						
	Road Tremix	1	225.00	3.50	0.200		157.50
						Cum	**157.50**

Rate Analysis (As Per SSR 2022-23) FOR 3.5M ROAD WORKS				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**

Rate Analysis (As Per SSR 2022-23) FOR 3.5M ROAD WORKS				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. **S.S.R. Item No.5.22 Page No139**			
	Basic Rate as per SSR 2022-23			8446
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-84.46**
	Sub Total			**8235.54**
	Add 4% Municipal Council Charges			**329.42**
	add Labour Cess 1%			84.46
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.4	164.99	66.00
		Total Rate RS.		**9155.49**

ROYALTY CHARGES 3.5M ROAD WORKS							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	128.25	128.25			1.00	128.25
2	Soling	196.65	196.65			1.00	196.65
3	M10 PCC	128.25	128.25	0.00	0.00		
4	M25 Concrete	157.50	157.50	0.425	66.94		
				Total	**66.94**	**Total**	**324.90**
						Grand Total	**391.84**

22. ESTIMATION FOR 5.5M ROAD WORK

Name of Work:- ESTIMATION FOR 5.5M ROAD WORKS					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Quantity**	**Rate**	**Unit**	**Amount**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**368.22**	**215.20**	**Cum**	**79239.91**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**145.35**	**953.49**	**Cum**	**138589.83**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**222.87**	**1767.50**	**Cum.**	**393922.10**

Name of Work:- ESTIMATION FOR 5.5M ROAD WORKS					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Quantity**	**Rate**	**Unit**	**Amount**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**145.35**	**6406.88**	**Cum**	**931239.72**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139	**178.50**	**9155.49**	**Cum**	**1634254.97**
6	**Royalty charges** for sand required for the work As per Statement	**75.86**	**237.37**	**Cu.m**	**18006.89**
7	**Royalty charges** for murum, Rubble required for the work As per Statement	**368.22**	**216.18**	**Cu.m**	**79601.80**
	TOTAL				**3274855.21**

Name of Work:- ESTIMATION FOR 5.5M ROAD WORKS							
MEASUREMENT SHEET							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Unit**	**Quantity**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115		255	3.5			
	Road Excavation	1	255	3.8	0.38		368.22
						Cum	**368.22**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Road Murum Filling	1.00	255.00	3.8	0.15		145.35
						Cum	**145.35**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Road Soling Filling	1.00	255.00	3.80	0.23		222.87
						Cum	**222.87**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Road PCC	1.00	255.00	3.80	0.150		145.35
						Cum	**145.35**

Name of Work:- ESTIMATION FOR 5.5M ROAD WORKS							
MEASUREMENT SHEET							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Unit**	**Quantity**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. S.S.R. Item No.5.22 Page No139						
	Road Tremix	1	255.00	3.50	0.200		178.50
						Cum	**178.50**

Rate Analysis (As Per SSR 2022-23) FOR 5.5M ROAD WORKS				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**

Rate Analysis (As Per SSR 2022-23) FOR 5.5M ROAD WORKS				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
5	Providing and laying in situ cement concrete M -30 with tremix treatment for 200 mm thickness for Concrete Road is including laying plastic sheet for 125 micron thickness with groove cutting of 4 mm wide and 20 mm deep with necessary refilling with bitumen (excluding reinforcement) with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) etc. complete with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. **S.S.R. Item No.5.22 Page No139**			
	Basic Rate as per SSR 2022-23			8446
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-84.46**
	Sub Total			**8235.54**
	Add 4% Municipal Council Charges			**329.42**
	add Labour Cess 1%			84.46
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.4	164.99	66.00
		Total Rate RS.		**9155.49**

ROYALTY CHARGES FOR 5.5M ROAD WORKS							
S.No.	**Description**	**Ground Floor**	Total Qty.	**Sand**		**Rubble/Murum**	
				Therotical Rate Of Consumption	**Qty**	**Therotical Rate Of Consumption**	**Qty**
1	**Murrum**	145.35	145.35			1.00	145.35
2	**Soling**	222.87	222.87			1.00	222.87
3	**M10 PCC**	145.35	145.35	0.00	0.00		
4	**M25 Concrete**	178.50	178.50	0.425	75.86		
				Total	**75.86**	**Total**	**368.22**
						Grand Total	**444.08**

23. ESTIMATION FOR COMPOUND WALL

Name of Work:- ESTIMATION FOR COMPOUND WALL					
ABSTRACT SHEET					
Sr. no	Description of items.	Qty	Unit	Rate	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**664.81**	**Cum**	**215.20**	**143064.71**
2	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**88.24**	**Cum**	**1767.50**	**155971.20**
3	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**38.37**	**Cum**	**6406.88**	**245812.69**

Name of Work:- ESTIMATION FOR COMPOUND WALL					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Qty**	**Unit**	**Rate**	**Amount**
4	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.178	**88.09**	**Cum**	**7752.10**	**682862.97**
5	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.	**79.71**		**14695.59**	**1171408.15**

Name of Work:- ESTIMATION FOR COMPOUND WALL					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Qty**	**Unit**	**Rate**	**Amount**
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.	**110.40**	**Cum**	**13121.63**	**1448628.22**
7	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	**26.94**	**M.T**	**93420.23**	**2516650.44**
8	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213	**195.38**	**Cum**	**7763.29**	**1516762.10**

Name of Work:- ESTIMATION FOR COMPOUND WALL					
ABSTRACT SHEET					
Sr. no	**Description of items.**	**Qty**	**Unit**	**Rate**	**Amount**
9	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. S.S.R. Item No.32.11 Page No. 224	**3370.55**	**Sqm**	**775.66**	**2614418.13**
10	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165	**3370.55**	**Sqm**	**271.34**	**914551.07**
12	**Royalty charges** for sand required for the work As per Statement	**280.61**	**Cu.m**	**237.37**	**66608.40**
13	**Royalty charges** for murum, Rubble required for the work As per Statement	**88.24**	**Cu.m**	**216.18**	**19075.72**
	TOTAL				**11495813.79**

Name of Work:- ESTIMATION FOR COMPOUND WALL							
Measurment Sheet							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Quantity**	**Unit**
		1	800		1.8		**Cum**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Compound Wall Footing @ 3m C/C	267.00	1.05	1.05	1.50	441.55	
	Extra for Construction joint	81.00	1.05	1.05	2.50	223.26	
	0.75 footing + 0.3 PCC					**664.81**	**Cum**
2	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Compound Wall column Footing	267.00	1.05	1.05	0.23	67.70	
	Extra for Construction joint	81.00	1.05	1.05	0.23	20.54	
						88.24	**Cum.**
3	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Compound Wall column Footing	267.00	1.05	1.05	0.10	29.44	
	Extra for Construction joint	81.00	1.05	1.05	0.10	8.93	
						38.37	**Cum**
4	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.178						
	Compound Wall column Footing	267.00	0.75	0.75	0.45	67.58	

Name of Work:- ESTIMATION FOR COMPOUND WALL							
Measurment Sheet							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Quantity**	**Unit**
	Extra for Construction joint	81.00	0.75	0.75	0.45	20.50	
						88.09	**Cum**
5	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.						
	Column till Plinth	267.00	0.23	0.45	0.72	19.90	
	Extra for Construction joint	81.00	0.23	0.45	0.72	6.04	
	Column till	267.00	0.23	0.45	1.8	49.74	
	Extra for Construction joint	81.00	0.23	0.45	1.8	15.09	
	Deduction Plinth Beams	-267.00	0.23	0.3	0.3	-5.53	
	Lintel Beam	-267.00	0.23	0.3	0.3	-5.53	
						79.71	**Cum**
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.						
	Ground beam	1	800	0.23	0.3	55.20	
	Lintel Beam	1	800	0.23	0.3	55.20	
						110.40	**Cum**
7	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Footing Qty	1	88.09	90		**7927.88**	**kg**
	Column Qty	1	79.71	100		**7971.16**	**kg**
	Beam Qty	1	110.40	100		**11040.00**	**kg**
						26939.03	**kg**
	Total Qty					**26.94**	**M.T**

Name of Work:- ESTIMATION FOR COMPOUND WALL							
Measurment Sheet							
Sr. no.	**Description of items**	**No.**	**Length**	**Width**	**Height**	**Quantity**	**Unit**
8	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213						
	Wall	1	800	0.23	1.8	331.20	
	Deduction Plinth Beam	-1	800	0.23	0.3	-55.20	
	Lintel Beam	-1	800	0.23	0.3	-55.20	
	Deduction Col	-267.00	0.23	0.23	1.8	-25.42	
						195.38	**Cum**
9	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. S.S.R. Item No.32.11 Page No. 224						
	Wall	2	800.0		1.92	**3064.00**	
	Col Projections	696	0.23		1.92	**306.55**	
						3370.55	**Sqm**
10	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165						
	Qty as per Plaster	1	3370.6			3370.55	
						3370.55	**Sqm**

Rate Analysis (As Per SSR 2022-23) FOR COMPOUND WALL				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 **S.S.R. Item No.21.02 Page.No.115**			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**
3	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45

Rate Analysis (As Per SSR 2022-23) FOR COMPOUND WALL				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
		Total Rate RS.		**6406.88**
4	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.178**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**7752.10**
5	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. columns** as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.31 Page.No.**			
	Basic Rate as per SSR 2022-23			13783
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-137.83**
	Sub Total			**13519.17**
	Add 4% Municipal Council Charges			**540.77**
	add Labour Cess 1%			137.83
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64

Rate Analysis (As Per SSR 2022-23) FOR COMPOUND WALL				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14695.59**
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for **R.C.C. beams and lintels** as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.50 Page.No.**			
	Basic Rate as per SSR 2022-23			12269
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-122.69**
	Sub Total			**12020.31**
	Add 4% Municipal Council Charges			**480.81**
	add Labour Cess 1%			122.69
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**13121.63**
7	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**
8	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 **in superstructur**e including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213			
	Basic Rate as per PWD SSR 2022-23			7106

Rate Analysis (As Per SSR 2022-23) FOR COMPOUND WALL				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
	Deduct Labour Cess 1%			**-71.06**
	Sub Total			**7034.94**
	Add 4% Municipal Council Charges			**281.40**
	add Labour Cess 1%			71.06
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7763.29**
9	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. **S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**775.66**
10	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge **S.S.R. Item No.35.25 Page No. 165**			
	Basic Rate as per SSR 2022-23			261
	Deduct Labour Cess 1%			**-2.61**
	Sub Total			**258.39**
	Add 4% Municipal Council Charges			**10.34**
	add Labour Cess 1%			2.61
		Total Rate RS.		**271.34**

ROYALTY CHARGES FOR COMPOUND WALL							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum		0.00			1.00	0.00
2	Soling	88.24	88.24			1.00	88.24
3	M10 PCC	38.37	38.37	0.47	18.03		
4	M20 Footing	38.37	38.37	0.425	16.31		
5	M20 Column	79.71	79.71	0.425	33.88		
6	M20 Beam	110.40	110.40	0.350	38.64		
7	BBM in Super structur	195.38	195.38	0.320	62.52		
8	Sand Face Plaster	3370.55	3370.55	0.033	111.23		
				Total	**280.61**	**Total**	**88.24**
						Grand Total	**368.85**

24. ESTIMATION FOR WEIGH BRIDGE ROOM (3M X 3M)

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	Particulars	Qty.	Rate.	Unit.	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	10.03	215.20	Cum	2158.34
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115	10.03	235.99	Cum	2366.88
3	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	2.70	953.49	Cum	2574.42
4	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	1.80	1767.50	Cum	3181.49
5	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With	2.57	6406.88	Cum	16475.93

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	**Particulars**	**Qty.**	**Rate.**	**Unit.**	**Amount**
	fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.				
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.	**1.62**	**14695.59**	**Cum**	**23806.86**
7	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.	**3.58**	**13121.63**	**Cum**	**47001.68**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	Particulars	Qty.	Rate.	Unit.	Amount
8	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap/granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fineaggregate (Crushed sand VSI Grade) S.S.R. Item No.25.70 Page.No.	1.77	14850.49	Cum	26243.79
9	Providing and laying Cast in situ/Ready Mixcement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.26.05 Page.No.	0.43	14850.49	Cum	6415.41
10	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	0.73	93420.23	M.T	68133.24

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	Particulars	Qty.	Rate.	Unit.	Amount
11	Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually , striking joints on un exposed faces and watering etc.complete. S.S.R. Item No 28.01 Page No.199	4.21	5732.15	Cum	24148.97
12	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213	10.30	7763.29	Cum	79953.63
13	Providing internal cement plaster 12 mm thick in single coat in cement mortar 1:4 with neeru finish to concrete or brick surfaces , in all positions including scaffolding and curing etc.complete. S.S.R. Item No.32.04 Page No.153	42.03	295.10	Sqm.	12403.00
14	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224	50.52	670.39	Sqm.	33869.40
15	Providing and applying plastic emulsion paint of approved quality, colour and shade to old/new surfaces in two coats including scaffolding, preparing the surface. (excluding the primer coat) complete. Bd.P.6 Page No.414. For new surface S.S.R. Item No. 36.12 Page No. 167	42.03	83.17	Sqm.	3495.55
16	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the	50.52	271.34	Cum	13708.31

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	**Particulars**	**Qty.**	**Rate.**	**Unit.**	**Amount**
	surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165				
17	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float, filling joints with neat cement slurry, curing, polishing and cleaning etc. complete. S.S.R. Item No.33.18 Page No. 165	**1.80**	**1645.27**	**Sqm**	**2961.49**
	Providing and laying vitrified matt fininsh tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern for flooring in required position laid on a bed of 1:4 cement morar including neat cement float, filling joints, curing and cleaning etc. complete. a) Flooring Bd.M.12 Page No. 385 S.S.R. Item No. 33.42 Page. No.233	**9.00**	**1674.38**	**Sqm**	**15069.42**
	Providing and laying vitrified matt finish tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern for flooring in required position laid on a bed of 1:4 cement mortar including neat cement float, filling joints, curing and cleaning etc. complete. b) Skirting S.S.R. Item No. 33.43 Page. No.233	**1.20**	**1752.35**	**Sqm**	**2102.82**
18	Providing and fixing frame with/ without ventilator of size as specified with Country non teak wood for doors and windows including chamfering, rounding, rebating, iron holdfast of size 300mm x 40mm x 5mm with oil painting, etc. complete .S.S.R. Item No. 39.02 Page No.303	**0.04**	**111353.64**	**cu.m**	**4543.23**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	Particulars	Qty.	Rate.	Unit.	Amount
19	Providing an d fixing solid core flush door shutter in single leaf 32mm thick decorative type of exterior grade as per detailed drawings approved face veneers 3mm thick on both faces or as directed, all necessary beads, mouldings and lipping, wrought iron hold fasts, chromium plated fixtures and fastenings ,with brass mortise lock, chromium plated handles on both sides, and finishing with French Polish etc. complete. .S.S.R. Item No.39.09 Page No.231	1.89	3200.93	Sq.m	6049.75
20	Providing and fixing in position powder coated aluminium louvered windows/ ventilator of various sizes with powder coating a s per detailed drawing and specifications including aluminium frames 80x 38 mmx 1.22 mm box type, 5 mm thick sheet glass louvers, of approved quality etc. complete. S.S.R. Item No. 39.68 Page No.231	4.05	3604.29	Sq.m	14597.39
21	Providing and fixing mild steel grill work for windows, ventilators etc. 20kg/SQ.M. as per drawing including fixtures, necessary welding and painting with one coat of anticorrosive paint and two coats of oil painting complete. Bd.U.1 Page No.537. S.S.R. Item No. 40.01 Page. No.281	4.05	2180.04	Sq.m	8829.17
22	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved waterproofing compound and laying the brick bat son bottom layer in C.M. 1:5 admixed with approved waterproofing compound filling upto halfdepth of brickbats, curing this layer for 3days, applying cement slurry over this layer joints of brickbats with C.M. 1:3 admixed with approved waterproofing compound and finally top finishing with average 20mm. thick layers of same mortar added with jute fiber at 1Kilogram per bag including finishing the surface smooth with cement slurry admixed with approved waterproofing compound. Marking finished	14.14	1214.19	Sqm.	17165.70

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)					
ABSTRACT SHEET					
Sr. No.	Particulars	Qty.	Rate.	Unit.	Amount
	surface with false squares of 300mmx 300mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leak proofness on Court fee stamp paper of Rs.500/-includingponding test etc. complete.S.S.R. Item No.31.04 Page No.196				
23	**Royalty charges** for sand required for the work As per Statement	**14.92**	**237.37**	**Cu.m**	**3541.56**
24	**Royalty charges** for murum, Rubble required for the work As per Statement	**20.15**	**216.18**	**Cu.m**	**4356.03**
			Total	**Rs.**	**445153.46**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	Description	No.	L	B	H/D	Qty	Unit
	EXCAVATION AND CIVIL WORK						
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115		3	3		9	
	Security Room UCR Excavation	2	3.98	1.05	0.60	5.01	
	width=0.750 raft +0.15 PCC one side +0.15 PCC one side	2	3.98	1.05	0.60	5.01	
	Total Qty					**10.03**	**Cum**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115						
	Security Room UCR Excavation	2	3.98	1.05	0.6	5.01	
	width=0.750 raft +0.15 PCC one side +0.15 PCC one side	2	3.98	1.05	0.6	5.01	
	Total Qty					**10.03**	**Cum**
3	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Security Room Murum Filling	1	3.00	3.00	0.30	2.70	
	Total Qty					**2.70**	**Cum**
4	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Security Room Soling	1	3.00	3.00	0.20	1.80	
	Total Qty					**1.80**	**Cum**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	Description	No.	L	B	H/D	Qty	Unit
5	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Security Room PCC	1	3.00	3.00	0.10	0.90	
	PCC Below Security Room UCR	2	3.98	1.05	0.10	0.84	
		2	3.98	1.05	0.10	0.84	
	Total Qty					**2.57**	**Cu m**
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap /granite /quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversibleDrum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.31 Page.No.						
	COLUMNS above plinth for protection of overturning	2	0.30	0.45	3.00	0.81	
		2	0.30	0.45	3.00	0.81	
						1.62	**Cu m**
7	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to beprovided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.25.50 Page.No.						
	Ground Beam	2	3.98	0.45	0.25	0.90	
		2	3.98	0.45	0.25	0.90	
	Slab Beam	2	3.98	0.45	0.25	0.90	
		2	3.98	0.45	0.25	0.90	
	Total Qty					**3.58**	**Cu m**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	**Description**	**No.**	**L**	**B**	**H/D**	**Qty**	**Unit**
8	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap/granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fineaggregate (Crushed sand VSI Grade) S.S.R. Item No.25.70 Page.No.						
	Security Room Slab	1	3.76	3.76	0.125	1.77	
	Total Qty					**1.77**	**Cum**
9	Providing and laying Cast in situ/Ready Mixcement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.26.05 Page.No.						
	Chajja on Ventilator and Door	2	3.000	0.600	0.12	0.432	
	Total Qty					**0.432**	**Cum**
10	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	Col qty	1	1.62	100		**162.00**	**kg**
	Beam qty	1	3.58	100		**358.20**	**kg**
	Slab qty	1	1.77	100		**176.72**	**kg**
	Chajja qty	1	0.43	75		**32.40**	**kg**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	Description	No.	L	B	H/D	Qty	Unit
						729.32	**kg**
	Total Qty					**0.73**	**M.T**
11	Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually , striking joints on un exposed faces and watering etc.complete. S.S.R. Item No 28.01 Page No.199						
	Security Room	2	3.98	0.60	0.45	2.15	
		2	3.98	0.60	0.45	2.15	
	Steps	2	1.50	0.60	0.45	0.81	
	Deduction 1/2 Plinth Beam	-2	3.98	0.45	0.13	-0.45	
		-2	3.98	0.45	0.13	-0.45	
	Total Qty					**4.21**	**Cum**
12	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213						
	Security Room	2	3.46	0.230	3.450	5.49	
		2	3.46	0.230	3.450	5.49	
	Deduction Door	-0.5	0.90	0.230	2.10	-0.22	
	Window	-1	1.500	0.230	1.35	-0.47	
	Total Qty					**10.30**	**Cum**
13	Providing internal cement plaster 12 mm thick in single coat in cement mortar 1:4 with neeru finish to concrete or brick surfaces , in all positions including scaffolding and curing etc.complete. S.S.R. Item No.32.04 Page No.153						
	Wall	2	3.00		3.000	18.00	
		2	3.00		3.000	18.00	
	Ceiling	1	3.00		3.00	9.00	
	Deduction Door	-0.5	0.90		2.10	-0.95	
	Window	-1	1.50		1.35	-2.03	
	Total Qty					**42.0**	**Sq**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	Description	No.	L	B	H/D	Qty	Unit
						3	**m.**
14	Providing sand faced plaster externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367.S.S.R. Item No.32.11 Page No. 224						
	Security Room tillplinth	2	3.46		0.45	3.11	
		2	3.46		0.45	3.11	
	above plinth Wall with Parapet	2	3.46		3.415	23.63	
	3+0.3+0.115	2	3.46		3.415	23.63	
	Deduction Door	-0.5	0.90		2.10	-0.95	
	Window	-1	1.50		1.35	-2.03	
	Total Qty					**50.52**	**Sq m.**
15	Providing and applying plastic emulsion paint of approved quality, colour and shade to old/new surfaces in two coats including scaffolding, preparing the surface. (excluding the primer coat) complete. Bd.P.6 Page No.414. For new surface S.S.R. Item No. 36.12 Page No. 167						
	Qty of Internal Plaster					**42.03**	**Sq m.**
16	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165						
	Qty as per External plaster					**50.52**	**Cum**
17	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float, filling joints with neat cement slurry, curing, polishing and cleaning etc. complete. S.S.R. Item No.33.18 Page No. 165						
	Steps till plinth	2	1.5	0.6		1.80	
	Total qty.					**1.80**	**Sq m**

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	**Description**	**No.**	**L**	**B**	**H/D**	**Qty**	**Unit**
18	Providing and laying vitrified matt fininsh tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern for flooring in required position laid on a bed of 1:4 cement morar including neat cement float, filling joints, curing and cleaning etc. complete. a) Flooring Bd.M.12 Page No. 385 S.S.R. Item No. 33.42 Page. No.233						
	Flooring	1	3	3		9.00	
	Total qty.					**9.00**	**Sq m**
19	Providing and laying vitrified matt finish tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern for flooring in required position laid on a bed of 1:4 cement mortar including neat cement float, filling joints, curing and cleaning etc. complete. b) Skirting S.S.R. Item No. 33.43 Page. No.233						
	dado & Skirting	2	3	0.1		0.60	
		2	3	0.1		0.60	
	Total qty.					**1.20**	**Sq m**
18	Providing and fixing frame with/ without ventilator of size as specified with Country non teak wood for doors and windows including chamfering, rounding, rebating, iron holdfast of size 300mm x 40mm x 5mm with oil painting, etc. complete .S.S.R. Item No. 39.02 Page No.303						
	Door Frame	1	5.10	0.100	0.080	0.04	
	Total qty.					**0.04**	**cu. m**
19	Providing an d fixing solid core flush door shutter in single leaf 32mm thick decorative type of exterior grade as per detailed drawings approved face veneers 3mm thick on both faces or as directed, all necessary beads, mouldings and lipping, wrought iron hold fasts, chromium plated fixtures and fastenings ,with brass mortise lock, chromium plated handles on both sides, and finishing with French Polish etc. complete. .S.S.R. Item No.39.09 Page No.231						
	Door Shutter	1	0.90		2.10	1.89	
	Total Qty					**1.89**	**Sq. m**
20	Providing and fixing in position powder coated aluminium louvered windows/ ventilator of various sizes with powder coating a s per detailed drawing and specifications including aluminium frames 80x 38 mmx 1.22 mm box type, 5 mm thick sheet glass louvers, of approved quality etc. complete. S.S.R. Item No. 39.68 Page No.231						

Name of Work:- ESTIMATION FOR WEIGH BRIDHE ROOM (3M X 3M)							
MEASUREMENT SHEET							
Sr.	**Description**	**No.**	**L**	**B**	**H/D**	**Qty**	**Unit**
	Window	2	1.50		1.35	4.05	
	Total Qty					**4.05**	**Sq. m**
21	Providing and fixing mild steel grill work for windows, ventilators etc. 20kg/SQ.M. as per drawing including fixtures, necessary welding and painting with one coat of anticorrosive paint and two coats of oil painting complete. Bd.U.1 Page No.537. S.S.R. Item No. 40.01 Page. No.281						
	Window Grill	2	1.50		1.35	4.05	
	Total Qty					**4.05**	**Sq. m**
22	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved waterproofing compound and laying the brick bat son bottom layer in C.M. 1:5 admixed with approved waterproofing compound filling upto halfdepth of brickbats, curing this layer for 3days, applying cement slurry over this layer joints of brickbats with C.M. 1:3 admixed with approved waterproofing compound and finally top finishing with average 20mm. thick layers of same mortar added with jute fiber at 1Kilogram per bag including finishing the surface smooth with cement slurry admixed with approved waterproofing compound. Marking finished surface with false squares of 300mmx 300mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leak proofness on Court fee stamp paper of Rs.500/-includingponding test etc. complete.S.S.R. Item No.31.04 Page No.196						
	Total Slab	1	3.760		3.760	14.14	
	Total Qty					**14.14**	**Sq m.**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
	EXCAVATION AND CIVIL WORK			
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Excavation for foundation in hard murum including removing the excavated materials upto distance of 50 meters beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.50 m). Spec No. Bd. A .2 Page No. 259 S.S.R. Item no. 21.06 Page .No.115			
	Basic Rate as per SSR 2022-23			227.00
	Deduct Labour Cess 1%			**-2.27**
	Sub Total			**224.73**
	Add 4% Municipal Council Charges			**8.99**
	add Labour Cess 1%			2.27
		Total Rate RS.		**235.99**
3	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
4	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**
5	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
6	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. columns** as per detailed designs and drawing or as directed including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.31 Page.No.**			
	Basic Rate as per SSR 2022-23			13783
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-137.83**
	Sub Total			**13519.17**
	Add 4% Municipal Council Charges			**540.77**
	add Labour Cess 1%			137.83

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14695.59**
7	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for **R.C.C. beams and lintels** as per detailed designs and drawings or as directed including steel centering, formwork, cover blocks, laying/pumping, compactionand roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.50 Page.No.**			
	Basic Rate as per SSR 2022-23			12269
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-122.69**
	Sub Total			**12020.31**
	Add 4% Municipal Council Charges			**480.81**
	add Labour Cess 1%			122.69
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**13121.63**
8	Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap/granite / quartzite/ gneiss metal for **R.C.C. slabs and landings** as per detailed designs and drawings including steel centering, formwork, cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.25.70 Page.No.**			
	Basic Rate as per SSR 2022-23			13932
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-139.32**
	Sub Total			**13666.68**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
	Add 4% Municipal Council Charges			**546.67**
	add Labour Cess 1%			139.32
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14850.49**
9	Providing and laying Cast in situ/Ready Mixcement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.26.05 Page.No.**			
	Basic Rate as per SSR 2022-23			13932
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-139.32**
	Sub Total			**13666.68**
	Add 4% Municipal Council Charges			**546.67**
	add Labour Cess 1%			139.32
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75
		Total Rate RS.		**14850.49**
10	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
11	Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually , striking joints on un exposed faces and watering etc.complete. **S.S.R. Item No 28.01 Page No.199**			
	Basic Rate as per PWD SSR 2022-23			5025
	Deduct Labour Cess 1%			**-50.25**
	Sub Total			**4974.75**
	Add 4% Municipal Council Charges			**198.99**
	add Labour Cess 1%			50.25
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead Rubble	1.16	330.77	383.69
	Add for Lead cement	0.085	164.99	14.02
		Total Rate RS.		**5732.15**
12	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 **in superstructur**e including striking joints, raking out joints, watering and scaffolding etc. Complete S.S.R. Item No.27.13 Page No.213			
	Basic Rate as per PWD SSR 2022-23			7106
	Deduct Labour Cess 1%			**-71.06**
	Sub Total			**7034.94**
	Add 4% Municipal Council Charges			**281.40**
	add Labour Cess 1%			71.06
	Add for Lead Sand	0.32	345.15	110.45
	Add for Lead brick	0.475	531.38	252.41
	Add for Lead cement	0.079	164.99	13.03
		Total Rate RS.		**7763.29**
13	Providing internal cement plaster 12 mm thick in single coat in cement mortar 1:4 with neeru finish to concrete or brick surfaces , in all positions including scaffolding and curing etc.complete. **S.S.R. Item No.32.04 Page No.153**			
	Basic Rate as per SSR 2022-23			278
	Deduct Labour Cess 1%			**-2.78**
	Sub Total			**275.22**
	Add 4% Municipal Council Charges			**11.01**
	add Labour Cess 1%			2.78
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**295.10**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
14	Providing **sand faced plaster** externally in cement mortar using Kharsalia/Kasaba or similar type of sand, in all positions including base coat of 15mm thick in C.M. 1:4 using waterproofing compound at 1kg.per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8mm thick in C.M. 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc. complete. Bd.L.7 Page No.367. **S.S.R. Item No.32.11 Page No. 224**			
	Basic Rate as per SSR 2022-23			639
	Deduct Labour Cess 1%			**-6.39**
	Sub Total			**632.61**
	Add 4% Municipal Council Charges			**25.30**
	add Labour Cess 1%			6.39
	Add for Lead Sand	0.015	345.15	5.18
	Add for Lead cement	0.0055	164.99	0.91
		Total Rate RS.		**670.39**
15	Providing and applying plastic emulsion paint of approved quality, colour and shade to old/new surfaces in two coats including scaffolding, preparing the surface. (excluding the primer coat) complete. Bd.P.6 Page No.414. For new surface S.S.R. Item No. 36.12 Page No. 167			
	Basic Rate as per SSR 2022-23			80
	Deduct Labour Cess 1%			**-0.80**
	Sub Total			**79.20**
	Add 4% Municipal Council Charges			**3.17**
	add Labour Cess 1%			0.80
		Total Rate RS.		**83.17**
16	Providing and applying two coats of exterior acraylic emulsion paint confirming to corresponding I.S. of approved manufacture and of approved colour to the plastered surfaces including cleaning , preparing the plaster surface, applying primer coat ,scaffolding if necessary , and watering the surface for two days etc complete.As directed by Engineer in charge S.S.R. Item No.35.25 Page No. 165			
	Basic Rate as per SSR 2022-23			261
	Deduct Labour Cess 1%			**-2.61**
	Sub Total			**258.39**
	Add 4% Municipal Council Charges			**10.34**
	add Labour Cess 1%			2.61
		Total Rate RS.		**271.34**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
17	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float, filling joints with neat cement slurry, curing, polishing and cleaning etc. complete. S.S.R. Item No.33.18 Page No. 165			
	Basic Rate as per SSR 2022-23			1572.00
	Deduct Labour Cess 1%			**-15.72**
	Sub Total			**1556.28**
	Add 4% Municipal Council Charges			**62.25**
	add Labour Cess 1%			15.72
	Add for Lead Sand	0.02	345.15	6.90
	Add for Lead cement	0.025	164.99	4.12
		Total Rate RS.		**1645.27**
18	Providing and laying vitrified matt fininsh tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern **for flooring** in required position laid on a bed of 1:4 cement morar including neat cement float, filling joints, curing and cleaning etc. complete. **a) Flooring Bd.M.12 Page No. 385 S.S.R. Item No. 33.42 Page. No.233**			
	Basic Rate as per SSR 2022-23			1600.00
	Deduct Labour Cess 1%			**-16.00**
	Sub Total			**1584.00**
	Add 4% Municipal Council Charges			**63.36**
	add Labour Cess 1%			16.00
	Add for Lead Sand	0.02	345.15	6.90
	Add for Lead cement	0.025	164.99	4.12
		Total Rate RS.		**1674.38**
19	Providing and laying vitrified matt finish tiles having size 590 mm to 605 mm x to 605 mm of 8 to 10 mm thickness and confirming IS. 15622-2006 (Group Bla) of approved make, shade and pattern for flooring in required position laid on a bed of 1:4 cement mortar including neat cement float, filling joints, curing and cleaning etc. complete. **b) Skirting S.S.R. Item No. 33.43 Page. No.233**			
	Basic Rate as per SSR 2022-23			1675.00
	Deduct Labour Cess 1%			**-16.75**
	Sub Total			**1658.25**
	Add 4% Municipal Council Charges			**66.33**
	add Labour Cess 1%			16.75
	Add for Lead Sand	0.02	345.15	6.90
	Add for Lead cement	0.025	164.99	4.12

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
		Total Rate RS.		**1752.35**
20	Providing and fixing frame with/ without ventilator of size as specified with Country non teak wood for doors and windows including chamfering, rounding, rebating, iron holdfast of size 300mm x 40mm x 5mm with oil painting, etc. complete **.S.S.R. Item No. 39.02 Page No.303**			
	Basic Rate as per SSR 2022-23			107112.00
	Deduct Labour Cess 1%			**-1071.12**
	Sub Total			**106040.88**
	Add 4% Municipal Council Charges			**4241.64**
	add Labour Cess 1%			1071.12
		Total Rate RS.		**111353.64**
21	Providing an d fixing solid core flush door shutter in single leaf 32mm thick decorative type of exterior grade as per detailed drawings approved face veneers 3mm thick on both faces or as directed, all necessary beads, mouldings and lipping, wrought iron hold fasts, chromium plated fixtures and fastenings ,with brass mortise lock, chromium plated handles on both sides, and finishing with French Polish etc. complete. **.S.S.R. Item No.39.09 Page No.231**			
	Basic Rate as per SSR 2022-23			3079.00
	Deduct Labour Cess 1%			**-30.79**
	Sub Total			**3048.21**
	Add 4% Municipal Council Charges			**121.93**
	add Labour Cess 1%			30.79
		Total Rate RS.		**3200.93**
23	Providing and fixing in position powder coated aluminium louvered windows/ ventilator of various sizes with powder coating a s per detailed drawing and specifications including aluminium frames 80x 38 mmx 1.22 mm box type, 5 mm thick sheet glass louvers, of approved quality etc. complete. **S.S.R. Item No. 39.68 Page No.231**			
	Basic Rate as per SSR 2022-23			3467.00
	Deduct Labour Cess 1%			**-34.67**
	Sub Total			**3432.33**
	Add 4% Municipal Council Charges			**137.29**
	add Labour Cess 1%			34.67
		Total Rate RS.		**3604.29**

Rate Analysis (As Per SSR 2022-23) FOR WEIGH BRIDGE ROOM (3M X 3M)				
Item No.	**Description**			**Rate**
24	Providing and fixing mild steel grill work for windows, ventilators etc. 20kg/SQ.M. as per drawing including fixtures, necessary welding and painting with one coat of anticorrosive paint and two coats of oil painting complete. Bd.U.1 Page No.537. **S.S.R. Item No. 40.01 Page. No.281**			
	Basic Rate as per SSR 2022-23			2097.00
	Deduct Labour Cess 1%			**-20.97**
	Sub Total			**2076.03**
	Add 4% Municipal Council Charges			**83.04**
	add Labour Cess 1%			20.97
		Total Rate RS.		**2180.04**
25	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved waterproofing compound and laying the brick bat son bottom layer in C.M. 1:5 admixed with approved waterproofing compound filling upto halfdepth of brickbats, curing this layer for 3days, applying cement slurry over this layer joints of brickbats with C.M. 1:3 admixed with approved waterproofing compound and finally top finishing with average 20mm. thick layers of same mortar added with jute fiber at 1Kilogram per bag including finishing the surface smooth with cement slurry admixed with approved waterproofing compound. Marking finished surface with false squares of 300mmx 300mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leak proofness on Court fee stamp paper of Rs.500/-includingponding test etc. complete.**S.S.R. Item No.31.04 Page No.196**			
	Basic Rate as per SSR 2022-23			1155.00
	Deduct Labour Cess 1%			**-11.55**
	Sub Total			**1143.45**
	Add 4% Municipal Council Charges			**45.74**
	add Labour Cess 1%			11.55
	Add for Lead Sand	0.033	345.15	11.39
	Add for Lead cement	0.0125	164.99	2.06
		Total Rate RS.		**1214.19**

ROYALTY CHARGES FOR WEIGH BRIDGE ROOM (3M X 3M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	18.35	18.35			1.00	18.35
2	Soling	1.80	1.80			1.00	1.80
3	M10 PCC	11.15	11.15	0.470	5.24		
4	M20 column	1.62	1.62	0.425	0.69		
5	M20 beam	1.09	1.09	0.425	0.46		
6	M20 Slab	1.93	1.93	0.425	0.82		
7	M20 Chajja	0.43	0.43	0.425	0.18		
8	BBM in Foundation	1.64	1.64	0.350	0.57		
9	BBM in Super structur	11.30	11.30	0.320	3.61		
10	Internal plaster	101.51	101.51	0.033	3.35		
				Total	14.92	Total	20.15
						Grand Total	35.07

25. ESTIMATION FOR WEIGH BRIDGE PLATFORM (12M X 3M)

Name of Work:- ESTIMATION FOR WEIGH BRIDGE PLATFORM (12M X 3M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115	**137.940**	**Cum**	**215.20**	**29684.30**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117	**135.000**	**Cum**	**953.49**	**128721.20**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.	**135.000**	**Cum**	**1767.50**	**238612.12**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.	**90.000**	**Cum**	**6406.88**	**576619.02**

Name of Work:- ESTIMATION FOR WEIGH BRIDGE PLATFORM (12M X 3M)					
ABSTRACT SHEET					
I No	Description of Item	Qty	Unit	10	Amount
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.	**135.000**	**Cum**	**7752.10**	**1046533.50**
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139	**4.050**	**M.T**	**93420.23**	**0.30**
7	**Royalty charges** for sand required for the work As per Statement	**0.3000**	**Cu.m**	**237.37**	**71.21**
8	**Royalty charges** for murum, Rubble required for the work As per Statement	**270.00**	**Cu.m**	**216.18**	**58368.60**
	Estimated Amount				**₹ 20,78,610**

Name of Work:- ESTIMATION FOR WEIGH BRIDGE PLATFORM (12M X 3M)							
MEASUREMENT SHEET							
Item No	**Description of Item**	**Nos**	**Length**	**Breadth**	**Height**	**Qty**	**Unit**
			45	20	0.40		
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115						
	Platform Excavation	1	45.30	20.30	0.15	137.94	
						137.94	**Cum**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. S.S.R. Item No.21.37 Page.No.117						
	Floor Area Murum	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. S.S.R. Item No.21.38 Page.No.						
	Floor Area Soling	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**
4	Providing and laying Cast in situ/Ready Mix cement concrete in M-10 of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) S.S.R. Item No.24.01 Page.No.						
	Floor Area PCC	1	45.00	20.00	0.10	90.00	
	Total Qty					**90.00**	**Cum**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite/quartzite/ gneiss metal for R.C.C. work in foundations like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)S.S.R. Item No.25.11 Page.No.						
	Floor Area Concrete	1	45.00	20.00	0.15	135.00	
						135.00	**Cum**

Name of Work:- ESTIMATION FOR WEIGH BRIDGE PLATFORM (12M X 3M)							
MEASUREMENT SHEET							
Item No	Description of Item	Nos	Length	Breadth	Height	Qty	Unit
6	Providing and fixing in position T.M.T. bar reinforcement of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. S.S.R. Item No.26.33 Page No139						
	Ground floor						
	Concrete qty.	**1**	**135.00**	**30**		**4050.0**	
						4050.00	**kg**
	Total Qty					**4.05**	**M.T**

RATE ANALYSIS (As Per SSR 2022-23) FOR WEIGH BRIDGE PLATFORM (12M X 3M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
1	Excavation for foundation in earth, soils of all types sand, gravel and soft murum including removing the excavated material upto a distance of 50 m. beyond the building area and all lifts stacking and spreading as directed, dewatering, shoring, strutting and preparing the bed for the foundation and necessary back filling, ramming, watering (Including shoring and strutting) etc. complete. (Lift Upto 1.50Metre) Spec No. Bd. A .1 Page No. 259 S.S.R. Item No.21.02 Page.No.115			
	Basic Rate as per SSR 2022-23			207.00
	Deduct Labour Cess 1%			**-2.07**
	Sub Total			**204.93**
	Add 4% Municipal Council Charges			**8.20**
	add Labour Cess 1%			2.07
		Total Rate RS.		**215.20**
2	Filling in plinth and floors with contractors material/brought from outside and approved by Engineer incharge in layers of 15 cm to 20 cm including watering and compaction etc. complete. **S.S.R. Item No.21.37 Page.No.117**			
	Basic Rate as per SSR 2022-23			599.00
	Deduct Labour Cess 1%			**-5.99**
	Sub Total			**593.01**
	Add 4% Municipal Council Charges			**23.72**
	add Labour Cess 1%			5.99
	Add for Lead Murum	1	330.77	330.77
		Total Rate RS.		**953.49**
3	Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete. **S.S.R. Item No.21.38 Page.No.**			
	Basic Rate as per SSR 2022-23			1382
	Deduct Labour Cess 1%			**-13.82**
	Sub Total			**1368.18**
	Add 4% Municipal Council Charges			**54.73**
	add Labour Cess 1%			13.82
	Add for Lead Soling	1	330.77	330.77
		Total Rate RS.		**1767.50**

RATE ANALYSIS (As Per SSR 2022-23) FOR WEIGH BRIDGE PLATFORM (12M X 3M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
4	Providing and laying Cast in situ/Ready Mix cement concrete in **M-10** of trap/ granite/ quartzite/ gneiss metal for foundation and bedding including bailing out water, Steel centering, formwork, laying/pumping, compacting, roughening them if special finish is to be provided, finishing if required and curing complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade) **S.S.R. Item No.24.01 Page.No**.			
	Basic Rate as per SSR 2022-23			5830
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-58.30**
	Sub Total			**5645.70**
	Add 4% Municipal Council Charges			**225.83**
	add Labour Cess 1%			58.30
	Add for Lead Sand	0.470	345.15	162.22
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.13	164.99	21.45
		Total Rate RS.		**6406.88**
5	Providing and laying in situ /Ready Mix cement concrete M-20 of trap / granite /quartzite/ gneiss metal for **R.C.C. work in foundations** like raft, strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water, Steel centering formwork, laying/pumping cover blocks, compaction and curing roughening the surface if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Crushed sand VSI Grade)**S.S.R. Item No.25.11 Page.No.**			
	Basic Rate as per SSR 2022-23			7104
	Deduct SCADA			-126
	Deduct Labour Cess 1%			**-71.04**
	Sub Total			**6906.96**
	Add 4% Municipal Council Charges			**276.28**
	add Labour Cess 1%			71.04
	Add for Lead Sand	0.425	345.15	146.69
	Add for Lead for 20mm Metal	0.57	345.15	196.74
	Add for Lead for 12/10mm Metal	0.28	345.15	96.64
	Add for Lead cement	0.35	164.99	57.75

RATE ANALYSIS (As Per SSR 2022-23) FOR WEIGH BRIDGE PLATFORM (12M X 3M)				
Item No.	**Description of Items**	**QTY.**	**LEAD CHARGES**	**RATE**
		Total Rate RS.		**7752.10**
6	Providing and fixing in position **T.M.T. bar reinforcement** of various diameters for reinforced cement concrete pile caps, footings, foundation, slabs, beams, columns, canopies, stair case, newels, chajja, lintels, pardi, copings, fins, arhes etc. as per detailed designs, drawings and schedules including cutting bending, hooking the bars, binding with wires or tack welding and supporting as required complete. Spec No. : Bd.F.17 Page No.306. **S.S.R. Item No.26.33 Page No139**			
	Basic Rate as per PWD SSR 2022-23			89703.00
	Deduct Labour Cess 1%			**-897.03**
	Sub Total			**88805.97**
	Add 4% Municipal Council Charges			**3552.24**
	add Labour Cess 1%			897.03
	Add for Lead TMT steel	1	164.99	164.99
		Total Rate RS.		**93420.23**

ROYALTY CHARGES FOR WEIGH BRIDGE PLATFORM (12M X 3M)							
S.No.	Description	Ground Floor	Total Qty.	Sand		Rubble/Murum	
				Therotical Rate Of Consumption	Qty	Therotical Rate Of Consumption	Qty
1	Murrum	135.000	135.00			1.00	135.00
2	Soling	135.000	135.00			1.00	135.00
3	M10 PCC	90.000	90.00	0.47	42.30		
4	M20 footing	135.000	135.00	0.425	57.38		
				Total	**0.30**	**Total**	**270.00**
						Grand Total	**270.30**

26. QUOTATIONS FOR JWA CRUSHER

	Quatation Comparison Chart			
1.	MSW SORTING AND RDF PROCESSING PLANT	1	ECOSTAR	525000.0
		2	ADVANCED	562270.0
		3	ENVIRO SMART	850000.0

EcoStan — Complete Waste 2 Energy Solutions

All quoted prices are in Indian Rupees (INR) and equipment is Ex-Works

To,
Chief Officer,
Nandurbar Municipal Council
Nandurbar, Maharashtra

Ref: ES/OS/LS/1255
Date: 26.08.2023

"Quotation for ECOSTAN® Jaw Crusher"

Sr.No.	Description	Qty.	Price (INR)
1	Briquette Press Model ECOSTAN® Supreme 90 Production: 150 KG/Day (± 10 % variation) Power Required: 5 HP, RPM-800, Body/Enclosure-12mm, Belt conveyor: L1000mmXW300mm	1	5,25,000
	Total(excluding GST)		5,25,000



Looking forward to hearing from your office soon

Warm Regards,
Vijay P. Yadav
Project Marketing Manager
Mobile - +91 8707870542
Email - vijay@ecostan.com
Ecostan India Pvt Ltd

www.ecostan.com +91-87078 - 70542 vijay@ecostan.com

EcoStan

Complete Waste 2 Energy Solutions

TERMS & CONDITIONS

Payment:

- Payment will be accepted by NEFT / RTGS Mode only
- Order with 40% amount in advance and the balance 60% amount before delivery
- Advance once received will not be refunded at any condition

Delivery, Transportation & Taxes:

- Machine will be ready within 6-7 working weeks after receipt of advance and the same will be ready to collect after 10 days from the receipt of full payment
- Transportation charges & offloading charges are all in the scope of client
- 18 % GST shall be charged at the time of billing

Installation (Supervision) of Plant:

- ECOSTAN*engineer will come for installation only if the civil work (Foundation, Flooring, Shed, Plinting & Electrical Connection has been done)
- ECOSTAN*would demand site photography evidence for the confirmation of engineer Department to proceed
- ECOSTAN*will provide Engineer to Supervise and do Commissioning of the plant at customer site
- Customer has to provide full board and lodging & to-and-fro tickets from ex-works to the Installation Team
- Customer Shall also provide skilled technicians for positioning of machinery & electrical installations
- Civil work of the plant is also in the scope of client (i.e. crane, labour, shed, foundation work etc)
- On-site training on how to operate the machine will be provided free of cost (for 2 -3 days only after the successful commissioning)
- We also recommend during the time of installation, client should engage full time foreman (mechanical engineering background) to learn the complete installation and commissioning of the equipment(s)

Offer Validation:

- This Offer is only valid for 30 days from the date of Quotation

Machine Capacity & Quality of Finish Product:

- The ratings given in this quotation are indications only and all the rated productions are achieved at ideal conditions at our facility only, as they depend on the number of factors such as raw material type, its size, moisture in material etc. i.e. the quality & appearance of end product is based on feedstock & its blend proportion

- *Kindly refer to the operation manual for the further details of SOP'S

www.ecostan.com +91-879078 - 70542 vijay@ecostan.com

EcoStan®

Warranty:-

- **Warranty of Machine is for One Year (12 calendar months) from the date of Sale**
- **Warranty for the electrical items (Motors, Panel & Gear) is not in our scope, these items have direct warranty from their respective supplier(s)**
- **Parts which are not covered under warranty**
  - Wear & Tear / Consumables
  - Negligence /Accident /Mishandling of Machine(s)
  - Failure or Damage Caused by Foreign Material
  - Modifications done without consent
  - Force Majeure, Any Act of God, Natural Calamity
- **Items Included in our Quoted Price**
- **Insurance of all equipment as per invoice**
- **Items Not Included in our Quoted Price**
  - Operation and Maintenance at buyer's cost
  - On-site training on how to operate the machine
  - VFD drives on all motors
  - Seaworthy Packing or Normal Packing
- Latest Safety Standards are adhered by us
- One Year Warranty is valid if Genuine ECOSTAN® spare parts are used

Our Bank Details:

ECOSTAN INDIA PRIVATE LIMITED
Bank Name: Oriental Bank of Commerce
A/C No: 06381131002503
IFSC: ORBC0100638
SWIFT CODE: ORBCINBBPTL
Account Type: Current Account (CA)
Bank Address: Mandi Ahmedgarh Branch, Sangrur, Punjab (India)

www.ecostan.com +91-87570-70542 vijay@ecostan.com

QUOTATION CUM PROFORMA

ADVANCED RENEWABLE ENERGY Row House-6, Samrudhhi Park, Near Suktdev School, Jogging Track, Indira Nagar, Nashik- 09, Ph : 9373024999	Quo No: ARE/23-24/B/22	Date:28.08.2023
	Challan No: ARE/-/-	Payment Terms: NA
	Contract No: NA	Date:
To, Chief Officer, Nandurbar Municipal Council, Nandurbar, maharashtra	Regd Office: ADVANCED RENEWABLE ENERGY. Row House-6, Samrudhhi Park, Near Suktdev School, Jogging Track, Indira Nagar, Nashik- 09, OUR CST No.:27AAXFA2217J1Z7	

Sr. No	Description of Goods	Specifications	Qty	Rate	Amount
	JAW CRUSHER (150KG/HR)		1 set	476500	476500
A	JAW CRUSHER	Type of Crusher :-JawType Operation :-Stone/Brick Crushing Crushes :-Reduction Balance System:-2 wheel Piece Transportable:-2 wheel Mech Maximum intake capacity per day:-150 Kg/day Output size:- 10-12mm coarse particles Crushing Chamber Dimension (in mm):- 400mm X600mm (approx.) Volume reduction:- 90-95 % Machine Motor (Kw):- 5 RPM :- 800 Outer hood(Body):- MS 12mm Painting of all ms partsCoated with anti corrosive Epoxy Paint ad 2 coats of epoxy paint Hopper Material:- MS Feeder mechanism into shredder :-Manual Feeding Belt Conveyor-L1000mmXW300mm, rubber 4 ply 8mm			
	TOTAL				476500.00
	GST@ 18%				85770.00

ADVANCED RENEWABLE ENERGY

Regd., Add.:Row House-6, Samruddhi Park, Near Suktdev School, Jogging Track, Indira Nagar, Nashik-422009
Factory Add. :- S. No. 155/3, Plot No-05-A, Bhil Gate Gujarat Industries, Nashik, Village (GT)
Mob.:-09373024999 Web:- www.advancedrenewableenergy.co.in

Grand Total	962370.00

Terms & Condition

1. Order Should placed in favour of "Advanced Renewable Energy"
2. GST:-Included @18%
3. Price:-All prices quoted are for –Nashik basis
4. Payment Terms:-30%+GST along with P.O. & 70% after post inspection before dispatch of good.
5. Delivery:- 30 days from P.O.
6. Warranty:-All products will bear the warranty as indicated in their warranty statement. Standard warranty of product is 1 year from date of commissioning or 13 months from the date of invoicing whichever is earlier
7. Transit Insurance:-Extra as per actual or as per offer submitted

For: Advanced Renewable Energy

Authorized Signature

ADVANCED RENEWABLE ENERGY
Regd., Add :- Row House-4, Samruddhi Park, Near Sakalan School, Jogging Track, Indira Nagar, Nashik-422009
Factory Add :- S. No. 1573, Plot No-05-A, Shri Datta Gujarat Industries, Nashik, Vilholi (CT)
Mob:-09970009999 Web:- www.advancedrenewableenergy.co.in

ENVIROSMART
WASTE EQUIPEMENT
MANUFACTURING CO

REF:SE/SPP-1081/23-24 **Date:26/08/2023**

To,
Chief Officer,
Nandurbar Municipal Council
Nandurbar, Maharashtra

KINDLY ATTEN. Dear sir
SUBJECT: Envirosmart Make Jaw Crusher
REFERENCE: AS per Our Telephonic Conversation.
Dear Sir,
We thankfully acknowledge the receipt of your above inquiry and are glad to send you our most competitive **Technical**

No	H S N CODE	DESCRIPTION	QTY	RATE	PER	AMOUNT	
1	8413 7091	**ENVIROSMART MAKE JAW CRUSHER** **Cap:-1000 Kg/day** **Power:-10 HP** **Material to be processed:Stone/Brick** **RPM:-900** **MOC- 12 mm MS** **Conveyor:-Belt, W300XL1mt**	01 NOS	850000	01	850000	00
GSTIN No.:27AGEPP1661Q1Z7				**Total**		**850000**	**00**

TERMS & CONDITION

- **Payment- 70% Advance Balance Against Performa**
- **Delivery Time-15-20 Working Days After Valuable Order & Advance (For qty-4 nos)**
- **Transport Charge in Your Scope**
- **Offer Validity 120 days**

E. & O. E.

ENVIROSMART WASTE EQUIPEMENT & MANUFACTURING CO.

SUNIL BACHHAV

27. QUOTATIONS FOR ANIMAL DISPOSAL MACHINE

	Quatation Comparison Chart			
1.	MSW SORTING AND RDF PROCESSING PLANT	1	HORIZON	4600000.0
		2	ELECTRO DREAM	5200000.0
		3	SAMARTH	5200000.0

HORIZON consultancy

HORIZON CONSULTANCY
G-9, Gulmohar Residency, Opp.Chinmay Ashram, Gulmohar Colony, SANGLI 416 416.
Contact No. +91 9665718020

To,

Sub: Quotation for Dead Animal Disposal / Incinerator System.

Dear Sir,
As desired, please find enclosed our detailed offer for the subject Plant

Sr.No	Description	Rate	Qty	Cost
1	**Dead Animal Disposal / Incinerator System.** ***Disposal Capacity : 1 Ton Per Day**	46,00,000/-	1No	46,00,000/-
			Total Amount	46,00,000/-
			Transportation And Installation	Including
			GST 18%	Including

We trust , you will find our offer in line with your requirements. However, in case you want any clarifications, kindly do not hesitate to contact us.

Authorized Signatory

Annexure 1 : **Technical Specification of Offered Plant**
Annexure 2 : **Terms And Conditions Governing Our Offer**

Annexure I

Technical Specification of Offered Plant:

Dimensions:		
Sr.No	**Parameter**	**Specification**
1.	External Length	4 Meter
2.	External Width	2 Meter
3.	External Height	3 meter
4.	Door Size	500*500 mm
5.	Shipping Weight	45000 kilogram
6.	Chimney Height	16 meter
7.	ID FAN Motor	5HP, 440 Volt
8.	Filter Type	Jet Liquid Filter with Scrubber
9.	Filter Quantity	3 No(2 Jet Liquid Filter, 1 Carbon Filter)
10.	Heater Type	Spiral 2 Pole
11.	Heater wattage	2000watt
12.	Heater Material	Confidential
13.	Control Panel	Electrical
14.	Operation Mode	Automatic / Manual
15.	Timer	Sequential
16.	Voltmeter	Digital with Indicator
17.	Ammeter	Digital with Indicator
18.	Temperature Controller	Digital with PT100 Sensor
19.	Contactor	32 Amp (Qty As per Requirement)
20.	MCB	32 AMP (Qty As per Requirement)
21.	Mains MCCB	150Amp , 440 volt , 4 Pole
22.	Wire / Cable	As per Requirement.
23.	Buzzer alert	For different error
24.	Noise Level, Max	60 decibel
25.	Total Place Required For System	20ft*20ft Minimum
26.	Air / Gas Flow Line	5 Inch
27.	Scrubber Chamber Size	25 Inch Dimeter *5 Ft Height
General Features:		
28.	Number of Chamber	1
29.	Burn Rate/Capacity in Kg/Day	1000
30.	Average Fuel Consumption Litres per Hour	NA(In case of Only Electric Operated)
31.	Primary Chamber Operational Temperature	800 -1200 degree Celsius
32.	Temperature Monitoring Function	Yes
33.	Average ash residue % , Max	3
34.	Type of Combustion Feeding in Primary Chamber	Batch/Lot Wise
35.	Waste Feeding System in Primary Chamber	Manual
36.	Compliance of Emissions Norms	CPCB,SPCB ,NA

37.	Combustion Efficiency, Min %	99
38.	Automatic On/OFF of Fuel Burners corresponding to Low & High Temperature of Furnace	No
39.	Automatic shutdown of entire system in case of tripping of ID fan or Recirculation Pump	Yes
Standards & Certification		
40.	Certification	Yes
41.	ISO Certificate	ISO9001:2008
42.	incinerator system operating standards and emission standards are as per biomedical & waste management & handling rules 1998 under schedule	Yes
43.	Electrical safety conforms to the standards - IEC 60601	Yes
44.	Venting of Exhaust gases from primary & secondary furnace in case of power failures	Yes
Other Future		
45.	Power Source	Electric
46.	Automatic function operation	Yes
47.	Online monitoring system for monitoring different parameters in flue gases	Not Available
48.	Material of Chamber	MS steel construction
49.	Water scrubber for gas neutralization	Yes
50.	Ash collection tray	Yes
51.	Oil Tank Capacity	Not Available
52.	Wire Rope for Chimney	Yes
53.	Warranty	2 Year

Electro Dreams Tech, India
Plot No.39, Near Surya Bumb , Kupwad Miraj Main Road, Kupwad MIDC , Sangli .
Tal- Miraj , Dist- Sangli (Maharashtra).416436
Office- 9960361004, 9960341004. Email-electrodreams.info@gmail.com
Website- www.electrodreams.co.in
Industrial, Agricultural, Automation & System Design, Developing & Manufacturing (Electronics & Electrical)
GST NO - 27BBLPJ7098G2Z3 / /20 Date

To,

Subject : Quotation For Dead Animal Disposal/ Medical Incinerator Unit for Vita Municipal Council , Vita.

As per Requirement, We provide all Specification and Offer Price. Please Consider Our Offer Price As per Your Product Requirement. .

Sr.No	Material	Quantity	Amount
1	Dead Animal Disposal / Medical Incinerator Unit	1	4406780/-

	Taxable Amount	4406780/-
	GST Amount	793220.34/-
	Total Amount with GST	52,00,000/-
	Installation and transportation	Including

- **Specification for Dead Animal Disposal**

Sr.No	Parameter	Specification
1.	External Length	4 Meter
2.	External Width	2 Meter
3.	External Height	3 meter
4.	Door Size	450*450 mm
5.	Shipping Weight	34000 kilogram
6.	Chimney Height	15 meter
7.	ID FAN Motor	5HP, 440 Volt
8.	Filter Type	Air Filter with Scrubber tunnel
9.	Filter Quantity	2 unit
10.	Heater Type	Electrical Heater
11.	Heater wattage	1800watt
12.	Control Panel	Electrical
13.	Operation Mode	Manual

14.	Timer	Sequential
15.	Voltmeter	Digital Meter
16.	Ammeter	Digital Meter
17.	Temperature Controller	PT100 Sensor with Digital Controller
18.	Contactor	30 Amp
19.	MCB	30 AMP
20.	Mains MCCB	125Amp , 44volt , 4 Pole
21.	Wire / Cable	As per Requirement.
22.	Buzzer alert	Available
23.	Noise Level, Max	60 decibel
24.	Total Place Required For System	25ft*20ft Minimum
25.	Air / Gas Flow Line	5inch
26.	Scrubber Chamber Size	20 Inch Dimeter *4 Ft Height
27.	Number of Chamber	2
28.	Burn Rate/Capacity in Kg/Day	600
29.	Average Fuel Consumption Litres per Hour	NA
30.	Primary Chamber Operational Temperature	800 degree Celsius
31.	Temperature Monitoring Function	Temp Controller with Display
32.	Average ash residue % , Max	4.5
33.	Type of Combustion Feeding in Primary Chamber	Lot wise
34.	Waste Feeding System in Primary Chamber	Manual
35.	Compliance of Emissions Norms	NA
36.	Combustion Efficiency, Min %	99
37.	Automatic On/OFF of Fuel Burners corresponding to Low & High Temperature of Furnace	No
38.	Automatic shutdown of entire system in case of tripping of ID fan or Recirculation Pump	Available
39.	Certification	N/A
40.	ISO Certificate	N/A
41.	Incinerator system operating standards and emission standards are as per biomedical & waste management & handling rules 1998 under schedule	N/A
42.	Electrical safety conforms to the standards -IEC 60601	Yes
43.	Venting of Exhaust gases from primary & secondary furnace in case of power failures	Yes
44.	Power Source	Electric
45.	Automatic function operation	Yes
46.	Online monitoring system for monitoring different parameters in flue gases	Not Available
47.	Material of Chamber	Mild Steel
48.	Water scrubber for gas neutralization	Yes
49.	Ash collection tray	Yes
50.	Oil Tank Capacity	Only for Carbon Filter
51.	Wire Rope for Chimney	Available
52.	Warranty	1 Year

(Computer generated Performa Invoice , Signature Not Required)

SAMARTH ENTERPRISES

Gat no- 90, Near Meera Chitramandir, Shriram Chowk , Ramanandnagar Pin-416308,
Tal-Palus, Dist-Sangli , GSTIN-27CZIPS2812K1ZZ, Mo- 9890594853/8793214731.
Email Id- samarthenterprises916@gmail.com

प्रति,

विषय : डेड ॲनिमल डिस्पोजल मशीन संदर्भात कोटेशन व स्पेसिफिकेशन -

महोदय

आपली आवश्यकतेनुसार डेड ॲनिमल डिस्पोजल मशीन या प्रोजेक्ट साठी खालीलप्रमाणे दरपत्रक सादर करत आहोत -

Sr.No	तपशील	संख्या	रक्कम
1	डेड ॲनिमल डिस्पोजल मशीन Including with installation, Transportation, Commissioning and GST	1	52,00,000/-
		एकूण रक्कम	52,00,000/-

Specification for Dead Animal Disposal

Sr.No	Parameter	Specification
1.	External Length	3 Meter
2.	External Width	2 Meter
3.	External Height	3 meter
4.	Door Size	400*400 mm
5.	Shipping Weight	30000 kilogram
6.	Chimney Height	10 meter
7.	ID FAN Motor	3HP, 440 Volt
8.	Filter Type	Liquid Filter with Scrubber
9.	Filter Quantity	1 Liquid Filter + 1 Carbon Filter
10.	Heater Type	Electrical Spiral
11.	Heater wattage	2500watt
12.	Control Panel	Electrical
13.	Operation Mode	Manuel
14.	Timer	Not Availeble
15.	Voltmeter	Analog Meter
16.	Ammeter	Analog Meter
17.	Temperature Controller	PT100 Sensor with Digital Controller
18.	Contactor	32 Amp
19.	MCB	32 AMP
20.	Mains MCCB	100Amp , 44volt , 4 Pole

21	Wire / Cable	As per Requirement.
22	Buzzer alert	For different error
23	Noise Level, Max	80 decibel
24	Total Place Required For System	25ft*20ft Minimum
25	Air / Gas Flow Line	3 Inch
26	Scrubber Chamber Size	20 Inch Dimeter *5 Ft Height
27	Number of Chamber	1
28	Burn Rate/Capacity in Kg/Day	1000
29	Average Fuel Consumption Litres per Hour	NA(In case of Only Electric Operated)
30	Primary Chamber Operational Temperature	800 -1200 degree Celsius
31	Temperature Monitoring Function	Yes
32	Average ash residue % , Max	3
33	Type of Combustion Feeding in Primary Chamber	Batch/Lot Wise
34	Waste Feeding System in Primary Chamber	Manual
35	Compliance of Emissions Norms	NA
36	Combustion Efficiency, Min %	99
37	Automatic On/OFF of Fuel Burners corresponding to Low & High Temperature of Furnace	No
38	Automatic shutdown of entire system in case of tripping of ID fan or Recirculation Pump	Yes
39	Certification	N/A
40	ISO Certificate	N/A
41	incinerator system operating standards and emission standards are as per biomedical & waste management & handling rules 1998 under schedule	N/A
42	Electrical safety conforms to the standards -IEC 60601	Yes
43	Venting of Exhaust gases from primary & secondary furnace in case of power failures	Yes
44	Power Source	Electric
45	Automatic function operation	Yes
46	Online monitoring system for monitoring different parameters in flue gases	Not Available
47	Material of Chamber	MS steel construction
48	Water scrubber for gas neutralization	Yes
49	Ash collection tray	Yes
50	Oil Tank Capacity	Not Available
51	Wire Rope for Chimney	N/A
52	Warranty	2 Year

For Samarth Enterprises

28. QUOTATIONS FOR PRE SORTING TROMMEL

	Quatation Comparison Chart			
1.	MSW SORTING AND RDF PROCESSING PLANT	1	A.S TECHNO GREEN	6900000.0
		2	ECOSTER	7140000.0
		3	PRADIGN WEST	7000000.0

A.S.TECHNO GREEN PVT. LTD.

5	ELECTRICAL CONTROL PANEL	STANDARD	1 NOS
		GRAND TOTAL	16, 50,000/-

SUB:- OFFER FOR 50 TPD MIXED MUNICIPAL WASTE PREPRATORY SECTION.

SR.NO	DESCRIPTION	SIZES	QTY
1	FEED CONVEYOR TO TROMMEL WITH HOPPER 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- HEAVY DUTY 6. MOTOR -2HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	7 MTR X 600MM	1 NOS
2	TROMMEL T-50 MM 1. MOTOR – 3 HP EACH (MAKE-ABB/CGL/BBL/EQUIVALENT) 2. GEARBOX- PBGL/PREMIUM/EQUIVALENT 3. BEARING- MAKE SKF,FK,FKD OR EQUIVALENT 4. HALF GEARED COUPLING DRIVE 5. RUBBERISED WHEEL -4 NOS. 6. STRUCTURE:- HEAVY DUTY	DIA-1.5 MTR X 5 MTR	1 NOS
3	REJECT CONVEYOR 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200 MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200 MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -2HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	5 MTR X 600 MM	1 NOS
4	ACCEPT CONVEYOR TO TROMMEL 16 MM 1. BEARING-UCP-211/UCT-211 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-273 MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-273 MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -3 HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	9 MTR X 600 MM	1 NOS
5	TROMMEL T-16 MM 1. MOTOR – 3 HP EACH (MAKE-ABB/CGL/BBL/EQUIVALENT) 2. GEARBOX- PBGL/PREMIUM/EQUIVALENT 3. BEARING- MAKE SKF,FK,FKD OR EQUIVALENT 4. HALF GEARED COUPLING DRIVE 5. RUBBERISED WHEEL -4 NOS. 6. STRUCTURE:- HEAVY DUTY	DIA-1.2 MTR X 4 MTR	1 NOS
6	REJECT CONVEYOR 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200 MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200 MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -2HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	4 MTR X 500 MM	1 NOS

PLOT NO 115, SEC-24,PHASE-3, HSIIDC BARHI GANNAUR, SONIPAT -131101,
E-mail:info@astechno.co.in, PH +91-8708891087 GST No. 06AAPCA2010E1Z9

A.S.TECHNO GREEN PVT. LTD.

7	**ACCEPT CONVEYOR** 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200 MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200 MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -2 HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	7 MTR X 500 MM	1 NOS
8	**ELECTRICAL CONTROL PANEL**	STANDARD	1 NOS
9	**AIR DENSITY SEPERATOR 5 HP**	STANDARD	1 NOS
		GRAND TOTAL	5250000/-

(REFINEMENT / COMPOST SECTION)

SR.NO	DESCRIPTION	SIZES	QTY
1	**FEED CONVEYOR TO TROMMEL** 1 BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- HEAVY DUTY 6. MOTOR -3HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	7 MTR X 500MM	1 NOS
2	**TROMMEL T-4 MM** 1. MOTOR – 3 HP EACH (MAKE-ABB/CGL/BBL/EQUIVALENT) 2. GEARBOX- PBGL/PREMIUM/EQUIVALENT 3. BEARING- MAKE SKF,FK,FKD OR EQUIVALENT 4. HALF GEARED COUPLING DRIVE 5. RUBBERISED WHEEL -4 NOS. 6. STRUCTURE:- HEAVY DUTY	DIA-1.2 MTR X 4 MTR	1 NOS
3	**REJECT CONVEYOR** 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200MM/6MM. 4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -3HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	4 MTR X 500 MM	1 NOS
4	**ACCEPT CONVEYOR** 1. BEARING-UCP-210/UCT-210 (MAKE-FK/FKD/EQUI.) 2. HEAD PULLY DIA-200MM/6MM (DIMOND GROOVE RUBBERLINED) 3. TAIL PULLEY DIA-200MM/6MM.4. CONVEYOR BELT -8 MM THICK IN 3 PLY 5. STRUCTURE- ISMC-75X40, ISMC-100X50 ISA-50X5,HR SHEET-2MM 6. MOTOR -3HP MAKE-ABB/CGL/BBL/EQUI. 7. GEARBOX-PBGL/PREMIUM/EQUIVALENT. 8. DRIVE COUPLING – HALF GEARED/PIN BUSH/CHAIN COUPLING.	7 MTR X 500 MM	1 NOS
5	**ELECTRICAL CONTROL PANEL**	STANDARD	1 NOS
		GRAND TOTAL	16, 50,000/-

ECOSTER
RECYCLING SYSTEMS

ESTIMATE

 # ERS/EST/23-24/53

Ecoster Recycling Systems
Chennai Tamil Nadu 600089
3/142, Sathya Nagar,
Ramapuram Road, Manapakkam
Chennai, Tamil Nadu, India
info@ecostermfg.com | www.ecostermfg.com
+91 8148926934
GSTIN 33ALBPV3082F1Z7

Bill To
All India Institute of Local Self Government
Pune

Estimate Date : 08/08/2023
Expiry Date : 02/10/2023

Place Of Supply: Maharashtra (27)

Subject :
Quotation for Composting Facility 5 Tons/Hour Capacity

#	Item & Description	Qty	Rate	Amount
1	ERS - Feed Hopper With Conveyor Power - 2 HP/3 Phase Length - 2400mm Width - 800mm Belt - 3 Ply	1.00	3,50,000.00	3,50,000.00
2	ERS - Belt Conveyor (Feeding Trommel Screen 50mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
3	Trommel Screen 1200 (50mm Screen) Power - 5 HP/3 Phase Drum Dia - 1200mm Drum Length - 4000mm Screen - 50mm MOC - MS	1.00	11,00,000.00	11,00,000.00
4	ERS - Belt Conveyor (Trommel Screen + 50mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00

#	Item & Description	Qty	Rate	Amount
5	ERS - Belt Conveyor (Trommel Screen - 50mm) Power - 3 HP/3 Phase Length - 4000mm Width - 800mm Belt - 3 Ply	1.00	2,50,000.00	2,50,000.00
6	ERS - Belt Conveyor (Feeding Trommel Screen 16mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
7	Trommel Screen 1200 (16mm Screen) Power - 5 HP/3 Phase Drum Dia - 1200mm Drum Length - 3000mm Screen - 16mm MOC - MS	1.00	11,00,000.00	11,00,000.00
8	ERS - Belt Conveyor (Trommel Screen + 16mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
9	ERS - Belt Conveyor (Trommel Screen - 16mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
10	ERS - Belt Conveyor (Feeding Trommel Screen 5mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
11	Trommel Screen 1200 (6mm Screen) Power - 5 HP/3 Phase Drum Dia - 1200mm Drum Length - 8000mm Screen - 6mm MOC - MS	1.00	11,00,000.00	11,00,000.00

#	Item & Description	Qty	Rate	Amount
12	ERS - Belt Conveyor (Trommel Screen - 6mm) Power - 3 HP/3 Phase Length - 6000mm Width - 800mm Belt - 3 Ply	1.00	3,20,000.00	3,20,000.00
13	ERS - Belt Conveyor (Trommel Screen - 6mm) Power - 3 HP/3 Phase Length - 4000mm Width - 800mm Belt - 3 Ply	2.00	2,50,000.00	5,00,000.00
14	Integrated PLC Control Panel with suitable VFDs	1.00	5,00,000.00	5,00,000.00
			Sub Total	71,40,000.00
			Total	**71,40,000.00**

Total in Words: ***Indian Rupee Seventy-One Lakh Forty Thousand Only***

Notes

Looking forward for your business.

Terms & Conditions

Total Price are Exclusive of GST 18%
Transportation & Insurance Exclusive
Material Unloading at buyer scope
Installation & Commissioning Exclusive
Lifting Cranes required at the time of installation is customer scope.
Electrical Wiring & Civil Exclusive
Electrical Starters Inclusive
Payment: 50% advance on PO and 40% against Proforma Invoice before dispatch 10% after installation
The material can be inspected prior to dispatch at our works at your cost.
Delivery within 8 to 10 weeks
Limited 12 months warranty on any manufacturing defects...Not applicable for wear & tear parts.
Please note that no other terms & conditions would be deemed to have been accepted by us unless otherwise specially confirmed in writing.
The above mentioned capacity are dependent on the raw material condition used as input and the manpower used to operate the Machine.
Order Cancellation In case of cancellation of order by the buyer, the advance payment shall be imposed.
Subject to Chennai Jurisdiction

For ECOSTER RECYCLING SYSTEMS,
Proprietor.

Authorized Signature

Paradigm Waste Management

126, The Summit Business Park, Andheri Kurla Road, Andheri East, Mumbai - 400093.

Date: 8th August 2023.

To,
Mr. Sanket Thorat,
All India Institute of Self Governance.

Subject: Quotation of equipment for waste management.

As per the pre-requisites shared with us, please refer the below given quotation for waste processing equipment's.

MT capacity	Cost of Trommel					Cost of Conveyer			
	120mm	90mm	60mm	30mm	Amount	No. of units	Unit cost	Amount	Total
25	16,00,000.00		9,00,000.00		25,00,000.00	2	4,50,000.00	9,00,000.00	34,00,000.00
50	16,00,000.00	11,00,000.00	9,00,000.00		45,00,000.00	5	4,50,000.00	25,00,000.00	70,00,000.00

Also, we recommend that any waste above 100 tons per day will need composting. Hence post waste characterization and quantification the solution can be looked at holistically,
Regards,

Sunita Gupta
Founder & CEO Paradigm WM Pvt Ltd
9867980841
sunita@paradigmwm.in

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कार्यालय अचलपूर नगर परिषद
जिल्हा - अमरावती
पिन कोड - 444805

O/o The Achalpur Municipal Council
Dist:- Amravati (M.S)
Pin No:- 444805

Tel-Office- +07223-220372, President-Office-+07223-220370, Chief Officer Office -+07223-222448
Fax - +07223-222494 E-mail: mcachalpur@gmail.com, comcach@rediffmail.com

क्रं./अनपा/आवि/मुआ/८४०५/२०२३ दि. 3/09/२०२३

प्रति,
मा.कार्यकारी अभियंता,
महाराष्ट्र जिवन प्राधिकरण विभाग,
अमरावती.

विषय :- स्वच्छ भारत अभियान 2.0 अंतर्गत Solide waste management Detailed Project Report (DPR) ला तांत्रीक मंजुरी प्रदान करणे बाबत.

संदर्भ:- 1. RFP No.: SMM-2022/179/UD 34. Tender ID: 2023 UDDMH 864695 1 issued by theMaharashtra Urban Development Mission Directorate Swachh Maharashtra Mission (U) 2.0 dated 2nd January 2023
2. Government of Maharashtra, Urban Development Department Government Resolution. Number 9431-702/6(shikana)/navi-34 Dated 14th February 2023.
3. या कार्यालयाचे आदेश क्रं2345/2023 दि.10/07/2023
4.या कार्यालयाचे पत्र क्रं.3578/2023 दि.13/10/2023.
5. या कार्यालयाचे पत्र क्रं.3715/2023 दि.30/10/2023.

महोदय,

उपरोक्त विषयान्वये संदर्भीय शासन निर्णय व संचालनालयाचे पत्रानुसार, राज्यातील नागरी स्थानिक स्वराज्य संस्थांमध्ये स्वच्छ भारत अभियान २.० अंतर्गत **Solide waste management** Detailed Project Report (DPR) तयार करणे बाबत कळविण्यात आले होते.त्यानुषंगाने संदर्भ क्रं.3 अन्वये आदेश देवून **All India Institute of Local Self-Government,** या संस्थे कडून अचलपूर नगर परिषद घनकचरा व्यवस्थापन प्रकल्पा करीता सविस्तर प्रकल्प अहवाल तयार करण्यात आला असुन सदर Detailed Project Report (DPR) आपल्या तांत्रीक मंजुरी करीता संदर्भ क्रं.4 अन्वये प्रस्ताव आपणाकडे पाठविण्यात आले आहे.तसेच संदर्भ क्रं.5 अन्वये आपण सुचविल्या दुरूस्ती करून पुनश्च प्रस्ताव आपणाकडे पाठविण्यात आला आहे.तसेच शासनाने निर्देशदिल्या प्रमाणे **Solide waste management** Detailed Project Report (DPR) रू.10,43,30,395/- किंमतीचे तयार करण्यात आले असुन, तांत्रीक मंजुरी प्रदान करण्यात यावी त्याकरीता लागणारे तांत्रीक शुल्कचा भरणा करण्यास नगर परिषद तयार आहे.तरी सदर काम हे अत्यावश्यक सेवेशी संबंधीत असुन लवकरात लवकर तांत्रीक मंजुरी प्रदान करण्यात यावी हि विनंती.

कार्यालय नगर परिषद अचलपूर

मुख्याधिकारी
नगर परिषद अचलपूर

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ANNEXURE R-15 2571929 / 135560

COST ESTIMATES FOR BIOMINING OF OLD DUMPED WASTE

ANNEXURE (xiv)

General Site Development

	REF.	DESCRIPTION OF ITEM	NOS.	L (M)	W (M)	D (M)	QTY.	UNIT	RATE	AMOUNT (in Rs.)
1	Annex No. (ii) /Rate Analysis/S. no.59	Cutting, Dozing and spreading of Municipal Solid waste as well as natural ground with the help of Dozer or any other suitable machinery/equipment and compacting the M.S.W/soil with the help of Dozer it self up to required line & level. Excess of waste cut will be shifted with in the plot as per instruction given by Engineer-In-Charge. The newly filled area must also be compacted with the dozer up to required compaction etc. complete as directed by Engineer- in-Charge .	1.00				5279	Cum	250	1319750
2	Annex No. (ii) /Rate Analysis/S. no.60	Screening of old garbage through rotary/ vibratory seive through sieve of minimum 20 mm.	1				5279	Cum	170.7	901125
3	Annex No. (ii) /Rate Analysis/S. no.62	TRANSPORTATION AND CARRIAGE OF MATERIALS By mechanical transport including loading , unloading and stacking approximately 1 km	1				2956.24	Cum	66.5	196590
4	MJP DSR SWM section processing and disposal B1	Supply and Spray of innnoculant and biosanitiser in required quantity	1				3510.55	Cum	44	154464
							GRAND TOTAL			2571929

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Detailed Project Report (DPR) For Solid Waste Management (Under Swachh Maharashtra Mission)	NAME OF ULB:-	ACHALPUR
	NAME OF DISTRICT:-	AMRAVATI
	POPULATION (CENSUS 2011):-	1,12,311
	CLASS OF ULB:-	A

ABSTRACT OF COST

NO.	DESCRIPTION OF ITEM	AMOUNT (IN RS.)
PART-I	**Waste Collection & Transportation**	
1	Cost Estimates of Equipments and Vehicles for Primary Waste Storage, Primary Waste C&T Door to Door Collection (DTDC), Street Sweeping, Secondary Waste Storage & Secondary Waste Transportation System	1,83,51,257.00
	Sub Total (PART I)	**1,83,51,257.00**
PART-II	**Waste Processing & Disposal**	
A	**Waste Processing**	
2	Cost Estimates for Civil Works of Dumping Yard	7,65,217.00
3	Cost Estimates for Civil Works of Materials Recovery Facility (MRF) Shed	25,98,321.00
4	Cost Estimates for Civil Works of Windrow Platform	92,49,022.00
5	Cost Estimates for Civil Works of Vermi Pits	0.00
	Sub Total (A)	**1,26,12,560.00**
B	**Waste Disposal**	
6	Cost Estimates for Civil Works of Simple Landfill Site	51,44,327.00
	Sub Total (B)	**51,44,327.00**
C	**Site Development**	
7	Cost Estimates for Civil Works of Security & Operating Room	3,53,676.00
8	Cost Estimates for Civil Works of Entrance Gate	0.00
9	Cost Estimates for Civil Works of Toilets	2,54,599.00
10	Cost Estimates for Civil Works of Drainage Works	9,82,251.00
11	Cost Estimates for Civil Works of Fencing Works	0.00
12	Cost Estimates for Civil Works of Pavement Works	12,08,392.00
13	Cost Estimates for Biomining of Old Dumped Waste	25,71,929.00
14	Cost Estimates For Green Belt Development	57,455.75
15	Water Supply, Electricity Arrangement, Culture & Safety Equipments	8,52,976.00
	Sub Total (C)	**62,81,278.75**
D	**Plant & Machinery, Vehicle and Equipments**	
16	Cost Estimates for Plant & Machinery, Vehicle & Equipments	32,83,525.00
	Sub Total (D)	**32,83,525.00**
	Sub Total (PART II=A+B+C+D)	**2,73,21,690.75**
	Total Capital Cost (PART I+PART II)	**4,56,72,947.75**
PART-III	**Awareness and IEC**	
17	For A- Class Municipal Council = 1 Cr. or 5% of DPR cost; whichever is less.	**22,83,647.00**
	Sub Total (III)	**22,83,647.00**
	GRAND TOTAL (I+II+III)	**4,79,56,594.75**
	GRAND TOTAL (In LACS)	**479.57**

For-MaRS Planning & Engineering Services Pvt. Ltd.
(Technical Consultant)
Ahmedabad, Gujarat

पाणि पूरवठा जलनि:सारण व स्वच्छता पर्यवेक्षक, नगर परिषद, अचलपूर

पाणि पूरवठा जलनि:सारण व स्वच्छता पर्यवेक्षक, नगर परिषद, अचलपूर

मुख्याधिकारी
अचलपूर नगर परिषद

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ANNEXURE R-16

कार्यालय अचलपूर नगर परिषद अचलपूर
Office of the Achalpur Municipal Council

अनप/साबावि/नअ /१३२६ /१७-२०१९ दिनांक - 6/3 /~~२०१७~~ २०१९

प्रति,

विजयलक्ष्मी ऑरगॅनिक कम्पोस्ट अँड ॲग्रो

अमरावती

विषय :- काम सूरू करण्याचा आदेश

संदर्भ :- **न.प.सर्वसाधारण सभा** **२२.१.२०१९** प्रस्ताव क्र **२**

खालील कामाकरीता दि. **१९.१२.२०१८** रोजी सादर केलेले कोटेशन / निविदा दर वरील संदर्भातील ठरावान्वये नगर परिषदेने मंजुर केले आहेत. त्या कामाबाबत कंत्राटदाराने दि 2/3/19. **.१.२०१९** रोजी करारनामा लिहून दिला आहे.

नगरपरिषद सभेची मंजुरी व कंत्राटदारने लिहून दिलेला करारनामा विचारात घेता खालील अटी व शर्तीस अधीन राहून काम सूरू करण्याचा आदेश देण्यात येत आहे.

कामाचे नाव :- **अचलपूर नगर परिषद क्षेत्रात घनकचरा व्यवस्थापन अंतर्गत जूने जमा असलेले कचज्याचे जैविक उत्खनन Bio mining आवश्यक यंत्रसामुग्री वापरून करणे**

अंदाजित रक्कम :- **२५७१९२९.००** करारनामा क्रं . ---- 16/17

मंजूर निविदेचे दर **अंदाजपत्रकीय दरापेक्षा** **५.२७% कमी**

.कामाचे लेखा **घनकचरा व्यवस्थापन**

योजनेचे नाव :- **१४ वा वित्त आयोग**

कामाची मुदत : वेळोवेळी आदेशानंतर **१८०** दिवस

अटी व शर्ती :

१ कामाचे आदेश दिल्यानंतर संबधीत अभियंता यांचे निर्देशानूसार काम करणे बंधनकारक आहे.

Ishtiyak T. Hussain
7-03-2019

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२ कामाचे अटी व शर्ती असलेले ४ पेजेस व **महत्वाच्या अटी व शर्ती** या करारनाम्याचा भाग आहे सदहू अटी व शर्ती बंधनकारक राहतील व त्यानूसारच कार्यवाही करण्यात यावी

३ काम दिलेल्या मुदतीत पूर्ण करावे. काही कारणास्तव मुदतीत काम करणे शक्य नसल्यास कामाची मुदत संपण्याच्या अगोदर अगाउ अर्ज देउन मुख्याधिकारी यांचे कडून मुदतवाढ करून घेणे.

४ कामाची प्रत बरोबर नसल्यास किंवा काम पूर्ण करण्यास दिरंगाई झाल्यास आकारलेली दंडाची रक्कम दर आठवडयाला रोख भरावी लागेल.

५ कोणत्याही परिस्थितीत ठेकेदाराने पर्यवेक्षण करणाज्या अभियंत्याच्या लेखी पूर्व परवानगी शिवाय रात्रीच्या वेळेस वा सुटीच्या दिवशी काम करू नये.

६ काम समाधानकारक न झाल्यास बिलाचे शोधन करण्यात येणार नाही.

७ निधीच्या उपलब्धतेनूसार देयकाचे शोधन करण्यात येईल.

८ शासनाचे निर्देशानूसार वेळोवेळी आकारले जाणारे कर,शुल्क देयकातून कपात करण्यात येइल.

९ कामाचे ठिकाणी कही अपघात घडणार नाही याची दक्षता पार्टी नं. १ ला घ्यावी लागेल. तरी अपघात घडल्यास त्यास कोणत्याही प्रकारे पार्टी नं. २ जवाबदार राहणार नाही

मुख्याधिकारी
नगर परिषद अचलपूर
नगर परिषद अचलपूर

Office of Municipal Council Achalpur

Bhosale

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ANNEXURE R-17

W.O. 7/3/19
1320 - 1326

अचलपूर नगर परिषद

नमुना १३३ (नियम १७७ पहा)

काम पूर्ण झाल्याबद्दलचे प्रमाणपत्र

मूळ काम पूर्ण केल्याबद्दलचे प्रमाणपत्र

कामाचे नांव Biomining work at Rajapura Compost Dep.

प्राधिकरण Nagarparishad Achalpur (S.W.M) Fund.

अंदाजपत्रक क्रमांक _____

प्रमाणित करण्यात येते की, वर उल्लेखिलेले काम 21/8/2020 २०

रोजी पूर्ण झाले आणि 25/8/20 २०२० रोजी घेण्यात आले आणि काम योग्यरित्या केल्याबद्दल माझ्या कार्यक्षमतेची पराकाष्ठा करुन मी माझी खात्री करून घेतली आहे.

दिनांक 30-12-२०२०.

मुख्य अधिकारी
नगरपरिषद, अचलपूर

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राज्यातील २८ नागरी स्थानिक स्वराज्य संस्थामध्ये बायोमायनिंग (legacy waste remediation) प्रक्रिया प्रकल्प राबविण्यास प्रशासकीय मान्यता देण्याबाबत.

महाराष्ट्र शासन
नगर विकास विभाग
शासन निर्णय क्रमांक : स्वमअ-२०२२/प्र.क्र.९३/नवि-३४
हुतात्मा राजगुरू चौक, मादाम कामा मार्ग
३ रा मजला, मंत्रालय, मुंबई
दिनांक: १० ऑगस्ट, २०२२.

वाचा :

(१) केंद्र शासनाचे पत्र क्र. F.NO.१/५/२०२२-SBM-१ (Computer No.९१२२४४४) दि. २१ मार्च, २०२२.

(२) शासन निर्णय, नगर विकास विभाग क्रमांक स्वमअ-२०२२/प्र.क्र.७३/नवि-३४, दि. १५ जुलै, २०२२.

प्रस्तावना:

केंद्र शासनाच्या "स्वच्छ भारत अभियान (नागरी) २.०" च्या धर्तीवर राज्यामध्ये "स्वच्छ महाराष्ट्र अभियान (नागरी) २.० " ची अंमलबजावणी संदर्भ क्र. २ येथील शासन निर्णयान्वये सुरू करण्यात आली आहे. या अभियानामध्ये घनकचरा व्यवस्थापनातंर्गत Bioremediation of legacy waste या घटकाचा समावेश आहे.

२. स्वच्छ महाराष्ट्र अभियान (नागरी) २.० अंतर्गत नागरी स्थानिक स्वराज्य संस्थेमध्ये साठून असलेल्या जुन्या कचऱ्यावर शास्त्रोक्त प्रक्रिया करून या कचऱ्याची विल्हेवाट लावणे व नागरी स्थानिक स्वराज्य संस्थेमार्फत जागेची पुनर्प्राप्ती करून घेणे आवश्यक आहे. याकरीता राज्यातील अमृत शहरांपैकी २८ शहरांमध्ये साठून असलेल्या जुन्या कचऱ्यावर शास्त्रोक्त प्रक्रिया करण्याकरीता बायोमायनिंग (legacy waste remediation) प्रकल्पाकरीता केंद्र शासनाने त्यांच्या हिस्स्याच्या निधीपैकी रूपये ८६.७६ कोटी इतका निधी संदर्भ क्र. १ येथील पत्रान्वये राज्य शासनास उपलब्ध करून दिला आहे.

४. केंद्र शासनामार्फत प्राप्त उपरोक्त निधी २८ नागरी स्थानिक स्वराज्य संस्थाना वितरीत करण्यापूर्वी सदर बायोमायनिंग (legacy waste remediation) प्रकल्पास प्रशासकीय मान्यता देण्याची बाब शासनाच्या विचाराधीन होती.

शासन निर्णय:

प्रस्तावनेत नमूद केलेली बाब विचारात घेवून, राज्यातील २८ नागरी स्थानिक स्वराज्य संस्थांमध्ये जुन्या साठलेल्या कचऱ्यावर शास्त्रोक्त पध्दतीने प्रक्रिया करण्याकरीता खालील विवरणपत्रातील रकाना क्र. ७ मध्ये दर्शविलेल्या किंमतीनुसार बायोमायनिंग (legacy waste remediation) प्रकल्प राबविण्यास परिच्छेद क्र २ मधील नमूद अटी व शर्तींच्या अधीन राहून प्रशासकीय मान्यता देण्यात येत आहे.

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(रुपये कोटीत)

S. No.	ULB Name	Class	Area of dumpsite (in Sq. Mtr)	Legacy Waste Quantity (in Mtr)	Prevalent DSR Rate (in Rs./Mtr)	Total Proposal cost as per DSR	Central Share	State Share	ULB Share
1	2	3	4	5	6	7	8	9	10
ULBs With > 10 Lakh Population (Municipal Corporation)									
1	Kalyan Dombivali	C	58300	950000	447	42.47	10.62	19.11	12.74
2	Thane	B	129000	830000	447	37.10	9.28	12.99	14.83
3	Vasai Virar	C	1050000	1050000	447	46.94	11.73	21.12	14.09
4	Pune	A	652000	800000	429	34.32	8.58	12.01	13.73
5	Greater Mumbai	A+	1440000	26000000	447	1162.20	290.55	406.77	464.88
6	Nagpur	A	222577	1000000	428	42.80	10.70	14.98	17.12
7	Pimpri Chinchwad	B	45586	1500000	429	64.35	16.09	22.52	25.74
ULBs With 1 to 10 Lakh Population (Municipal Corporation)									
8	Akola	D	46000	16788	420	0.71	0.23	0.26	0.22
9	Amravati	D	68700	371450	420	15.60	5.15	5.77	4.68
10	Bhiwandi Nizampur	D	40000	462178.14	447	20.66	6.82	7.64	6.20
11	Dhule	D	36421	75650	425	3.22	1.06	1.19	0.97
12	Jalgaon	D	65000	80000	425	3.40	1.12	1.26	1.02
13	Kolhapur	D	42205	372300	429	15.97	5.27	5.91	4.79
14	Latur	D	80800	204000	425	8.67	2.86	3.21	2.60
15	Malegaon	D	141640	80000	425	3.40	1.12	1.26	1.02
16	Mira-Bhayander	D	17058	909630.2	447	40.66	13.42	15.04	12.20
17	Sangli-Miraj Kupwad	D	203469	642223	429	27.55	9.09	10.19	8.27
18	Solapur	D	203469	578716.8	429	24.83	8.19	9.19	7.45
19	Ulhasnagar	D	20234	215159	447	9.62	3.17	3.56	2.89
20	Nanded	D	1588696	714221	425	30.35	10.02	11.23	9.10
21	Ichhalkaranji	D	34610	129978.18	429	5.58	1.84	2.06	1.68
ULBs With 1 to 10 Lakh Population (Municipal Council)									
22	Osmanabad	A	29100	99428.8	425	4.23	1.39	2.20	0.64
23	Achalpur	A	11600	22000	420	0.92	0.30	0.48	0.14
24	Ambarnath	A	16678	62301	447	2.78	0.92	1.45	0.42
25	Bhusawal	A	50000	32000	425	1.36	0.45	0.71	0.20
26	Gondiya	A	9043	9965	428	0.43	0.14	0.22	0.07
27	Hinganghat	A	23200	17962	428	0.77	0.25	0.40	0.12
28	Jalna	A	40400	241000	425	10.24	3.38	5.32	1.54
Tota				**37466951.2**		**1661.13**	**433.74**	**598.07**	**629.32**

२. **अटी व शर्ती :**

१) सदर प्रकल्पासाठी कार्यान्वयन यंत्रणा संबंधित नागरी स्थानिक स्वराज्य संस्था राहील.

२) केंद्र शासनाच्या मार्गदर्शक सुचना व राज्य शासनाच्या संदर्भाधीन क्रमांक १ चा शासन निर्णय व घनकचरा व्यवस्थापन नियम, २०१६ नुसार सदर प्रकल्पाची अंमलबजावणी विहित कालावधीमध्ये करणे संबंधित कार्यान्वयन यंत्रणेस बंधनकारक राहील.

३) निविदा प्रक्रिया राबविताना सर्व प्रचलित नियमांचे पालन करणे संबंधीत नागरी स्थानिक स्वराज्य संस्थेस बंधनकारक असेल.

४) केंद्र शासनाच्या गृहनिर्माण व नागरी कार्य मंत्रालय (MoHUA) व केंद्रीय प्रदूषण नियंत्रण मंडळ (CPCB) यांनी देशातील शहरांना विविध प्रकल्पांच्या अंमलबजावणीसाठी मार्गदर्शन करण्याच्या दृष्टीने वेळोवेळी मार्गदर्शक पुस्तिका प्रकाशित केलेल्या आहेत. यापैकी, बायोमायनिंग (legacy waste remediation) प्रकल्पाच्या अंमलबजावणीस साहाय्यभूत होतील अशा खालील तीन पुस्तिका आपल्या सुलभ संदर्भासाठी नमूद करण्यात येत आहेत-

i. Advisory on Landfill Reclamation

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ii. Usage of RDF in various industries

iii. Guidelines for Disposal of Legacy Waste

५) उपरोक्त नमूद मार्गदर्शक पुस्तिकांमध्ये बायोमायनिंग प्रक्रिया, विविध शहरांनी केलेल्या बायोमायनिंग Case Studies, बायोमायनिंग प्रक्रियेदरम्यान प्राप्त होणाऱ्या Refuse Derived Fuel (RDF) चा विविध उद्योगांमध्ये वापर / विल्हेवाट, इत्यादी घटकांचा समावेश आहे. या मार्गदर्शक पुस्तिकेमधील संदर्भ व शिफारसी यांचे पालन करणे, सदर प्रकल्पाच्या यशस्वीरित्या अंमलबजावणीसाठी सहाय्यभूत ठरेल.

६) निविदाप्रक्रिया शासनाने विहित करून दिलेल्या ई-टेंडरिंग पद्धतीने सर्व नियमांचे पालन करून पारदर्शीपणे राबविणे आवश्यक आहे.

७) बायोमायनिंग (legacy waste remediation) कामाची व्याप्ती विचारात घेवून जूना कचरा साठविलेल्या जागेपैकी कंत्राटदारकडून या कामाच्या माध्यमातून जागा पुनर्प्राप्त करून घेण्याची जबाबदारी संबंधित नागरी स्थानिक स्वराज्य संस्थेची राहील.

८) बायोमायनिंग (legacy waste remediation) प्रक्रियेनंतर तेथे निर्माण होणाऱ्या दुय्यम उत्पादनाची व उर्वरित कचऱ्याची योग्य प्रकारे विल्हेवाट कंत्राटदारामार्फत लावून घेण्याची जबाबदारी संबंधित नागरी स्थानिक स्वराज्य संस्थेची राहील.

९) बायोमायनिंग (legacy waste remediation) नंतर नागरी स्थानिक स्वराज्य संस्था जर जुन्या भरावभूमीपैकी अंदाजित जमीन पुर्नप्राप्त करण्याबाबत अपयशी ठरल्यास संबंधित नागरी स्वराज्य संस्था व संबंधित अधिकारी / पदाधिकारी / कर्मचारी यांच्यावर जबाबदारी निश्चित करण्यात येईल.

३. **निधी वितरणाची कार्यपध्दती :**

१) सदर प्रकल्पाकरीता केंद्र, राज्य व नागरी स्थानिक स्वराज्य संस्थांचा हिस्सा स्वच्छ महाराष्ट्र अभियान (नागरी) २.० च्या संदर्भ २ येथील शासन निर्णयातील वित्तीय आकृतीबंधानुसार राहील.

२) सदर प्रकल्पाचा केंद्र व राज्य शासनाच्या हिस्साचा निधी केंद्र शासनामार्फत प्राप्त होणाऱ्या निधीच्या प्रमाणात वितरीत करण्यात येईल.

३) सदर प्रकल्पासाठी निधी वितरीत करताना दिलेल्या सूचनांनुसार, सदर प्रकल्पासाठी प्राप्त निधी शासनाच्या प्रचलित धोरणानुसार विहीत केलेल्या बँकांमध्ये, स्वतंत्र खाते उघडून ठेवणे अनिवार्य राहील.

४) सदर प्रकल्पासाठी वितरीत केलेला निधी त्याच प्रकल्पासाठी वापरणे बंधनकारक असून त्याचा वापर इतर प्रयोजनार्थ केल्यास सदर बाब ही गंभीर वित्तिय अनियमितता समजण्यात येईल.

५) राज्य शासनामार्फत नागरी स्थानिक स्वराज्य संस्थेसाठी प्रकल्प मंजूर झाल्यानंतर, मूळ प्रकल्प किंमतीमध्ये कोणत्याही कारणास्तव वाढ झाल्यास त्याची संपूर्ण जबाबदारी संबंधीत नागरी स्थानिक स्वराज्य संस्था/ कार्यान्वयन यंत्रणेची राहील. राज्य शासनामार्फत त्या करिता कोणतेही वाढीव अनुदान उपलब्ध करून दिले जाणार नाही.

६) स्वच्छ महाराष्ट्र अभियान (नागरी) २.० च्या वित्तिय आकृतीबंधानुसार केंद्र व राज्य शासनाने वितरीत केलेल्या निधीच्या प्रमाणात नागरी स्थानिक स्वराज संस्थेने स्वहिश्याचा निधी उभारून, सदर एकत्रित खर्चाचे उपयोगिता प्रमाणपत्र केंद्र शासनाने विहित केलेल्या प्रपत्रात सादर करणे संबंधित नागरी स्थानिक स्वराज्य संस्थेवर बंधनकारक असणार आहे.

७) सदर प्रकल्पासाठी उपलब्ध करून दिलेल्या केंद्र व राज्य शासनाच्या हिश्श्याच्या प्रथम हप्त्याच्या निधीचे विहित नमुन्यातील उपयोगिता प्रमाणपत्र राज्य शासनास सादर केल्यानंतर पुढील हप्त्याचा निधी वितरीत करण्यात येईल.

पृष्ठ ४ पैकी ३

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८) याबाबत केंद्र व राज्य शासनाने घालून दिलेल्या नियमांचे पालन करण्याची जबाबदारी संबंधीत नागरी स्थानिक स्वराज्य संस्थांची राहील.

४. सदर शासन निर्णय महाराष्ट्र शासनाच्या www.maharashtra.gov.in या संकेतस्थळावर उपलब्ध करण्यात आला असून त्याचा संकेताक २०२२०८१०१६४६५३९७२५ असा आहे. हा आदेश डिजीटल स्वाक्षरीने साक्षांकित करुन काढण्यात येत आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने.

Digitally signed by ANIRUDDHA V JEWLIKAR
Date: 2022.08.10 17:45:02 +05'30'

(अनिरूध्द व्यं. जेवळीकर)
उप सचिव, महाराष्ट्र शासन

प्रत,

१. मा. राज्यपाल यांचे सचिव, राजभवन, मलबार हिल, मुंबई.
२. मा. मुख्यमंत्री महोदयांचे प्रधान सचिव, मंत्रालय, मुंबई
३. मा. मुख्य सचिव, महाराष्ट्र शासन, मंत्रालय, मुंबई
४. आयुक्त तथा संचालक, नगरपरिषद प्रशासन संचालनालय, वरळी, मुंबई
५. विभागीय आयुक्त, सर्व
६. जिल्हाधिकारी, सर्व
७. आयुक्त, महानगरपलिका (संबंधीत)
८. राज्य अभियान संचालक, स्वच्छ महाराष्ट्र अभियान (नागरी) संचालनालय, मुंबई
९. मुख्याधिकारी, उस्मानाबाद, अचलपूर, अंबरनाथ, भूसावळ, गोंदिया, हिंगणघाट, जालना
१०. निवडनस्ती, नवि-३४.

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ANNEXURE R-19

महाराष्ट्र जीवन प्राधिकरण

कार्यालय
फोन क्र. ०७२१-२५५२२३१
फॅक्स क्र. ०७२१-२५५२२३१

कार्यकारी अभियंता,
म.जी.प्रा. विभाग, जेल रोड, अमरावती.
जिल्हा अमरावती ४४४६०६
E-mail : eeur.amravati@gmail.com

तांत्रिक मंजुरी

विषय :- अंदाजपत्रकास तांत्रिक मंजुरी प्रदान करणेबाबत.

संदर्भ :- 1) मुख्याधिकारी, नगर परिषद, अचलपुर यांचे पत्र क्र.अनपा/आवि/मुअ/तां.मं./१७६७, दि.२०/०२/२०२३.
2) या कार्यालयाचे पत्र क्र.तांशा/918, दि.28/03/2023.
3) मुख्याधिकारी, नगर परिषद, अचलपुर यांचे पत्र क्र.अनपा/आवि/मुअ/तां.मं./११८९, दि.०३/०४/२०२३.
4) मुख्याधिकारी, नगर परिषद, अचलपुर यांचे पत्र क्र.अनपा/आवि/आ.वि./मुअ/१२११, दि.०५/०४/२०२३.

संदर्भीय पत्रान्वये तांत्रिक मंजुरी मिळण्याबाबत सादर केलेले खालील दर्शवलिल्या कामाचे अंदाजपत्रकास **माहे एप्रिल-२०२३** अन्वये खालील अटी व शर्तीच्या अधीन राहुन तांत्रिक मान्यता देण्यात येत आहे. सदर अंदाजपत्रकासाठी नगर विकास विभाग यांनी स्वच्छ भारत अभियान टप्पा-२ अंतर्गत निश्चित केलेले दर लावले असुन मोजमापे मुख्याधिकारी नगर पंचायत, धारणी यांना प्रमाणीत केलेली आहेत. अंदाजपत्रकात समाविष्ट बाबीत नमुद केल्याप्रमाणे संपुर्ण कामे करुन घेण्याची जबाबदारी मुख्याधिकारी, नगर परिषद, अचलपुर यांची राहील.

अ.क्र.	बाब क्र.	कामाचे नाव	अंदाजत्रकीय रक्कम (रु.)	तपासणी शुल्क १% (रु)
१.	1	Boimining of old Dumpsite and reclaiam of land for the Develpoment of new processing plant.	९२४०००.००	९२४००.००
		एकुण	**९२४०००.००**	**९२४००.००**

अटी व शर्ती

१) तांत्रिक मंजुरी प्रदान केलेली कामे भारतीय मानकानुसार उत्तम गुणवत्तेमध्ये करुन घेण्याचे दृष्टीने ही कामे संबंधित अभियंत्याचे देखरेखीखाली करुन घेण्याची जबाबदारी आपल्या कार्यालयाची राहील.

२) आर.सी.सी डिझाईनमध्ये गृहीत धरलेली पायाची Safe Bearing capacity प्रत्यक्ष स्थळी तपासण्यात यावी.

३) कामाकरीता उपयोगात आणावयाचे साहित्याची (जसे – खडी, रेती, सिंमेट, लोंखड इ) गुणवत्ता हे साहित्य बांधकाम उपयोगात आणण्यापुर्वी शासन मान्यता प्राप्त संस्थाकडुन तपासुन घ्यावी.

४) सदर कामे करतांना सार्वजनिक बांधकाम विभागाचे मापदंडानुसारच करण्यात यावीत व कॉक्रिट कामाची क्युब टेस्ट सार्वजनिक बांधकाम विभागाचे प्रयोग शाळेतुन तपासुन घ्यावीत.

५) वरील कामे करीत असतांना रोडच्याकडेने पाईपलाईन, केबल इ. सुविधेकरीता जागा उपलब्ध आहे याबाबतची खात्री आपले स्तरावरुन करण्यात यावी.

६) अंदाजपत्रकातील परिमाणे व लीड चार्जेस ही नगरपालिकेमार्फत प्रमाणित करण्यात आलेली आहेत त्याची संपूर्ण जबाबदारी नगरपालिकेची राहील. उपरोक्त तांत्रिक मान्यता न. प. प्रस्तावासोबत सादर केलेल्या माहीतीच्या आधारे देण्यात येत आहे.

७) अंदाजपत्रकामध्ये समाविष्ट सर्व प्रकारच्या मनुष्यबळाचे बाबतीत कर्मचारी निर्वाह निधी, लेबर सेंस इ. बाबतची आवश्यक ती कार्यवाही करण्याची जबाबदारी संबंधीत संस्थेची राहील.

८) अंदाजपत्रकामध्ये घेण्यात आलेल्या GST बाबत निर्णय नगरपरीषदेने आपल्या स्तरावर घेण्यात यावा.

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९) महाराष्ट्र शासन सार्वजनिक बांधकाम विभाग, शासन परिपत्रक क्र.संकिर्ण-२०१७/प्र.क्र.९/नियोजन-३, मंत्रालय मुंबई दि.२७.०४.२०१७ नुसार कार्यवाही करण्यात यावी.

१०) सदर कामाचे आरसीसी संकल्पन सक्षम यंत्रणेकडुन मंजुर करुन घेऊन त्याप्रमाणे कामे करणे बंधनकारक राहील.

११) पाण्याच्या टाकीच्या ढोबळ अंदाजपत्रकास मान्यता देण्यात येत असली तरी प्रत्यक्ष कामे करण्यापुर्वी पाण्याच्या उंच टाकीच्या संकल्पनेस Govt. Engg. College अथवा तत्सम यंत्रणेकडुन करणे व Third Party कडुन मंजुर करुन घेणे आवश्यक राहील. संकल्पनेबाबत मजीप्रा जबाबदार राहणार नाही, या अटीवर मान्यता देण्यात येत आहे.

१२) आपल्या कार्यालयामार्फत तांत्रिक मंजुरी करीता देण्यात आलेल्या तांत्रिक शुल्काच्या धनादेशाचे रोखीकरण न झाल्यास सदर तांत्रिक मान्यता रद्द समजण्यात येईल.

१३) निधी प्राप्त करुन घेण्याची जबाबदारी न.प. ची राहील.

१४) मंजुर रकमेपेक्षा जादा खर्च करण्यात येवू नये.

१५) न.प. ने सादर केलेल्या प्रस्तावाची तांत्रिक तपासणी केलेली आहे. त्यामध्ये तफावत असल्यास हे कार्यालय जबाबदार राहणार नाही.

१६) सदर कामाचे आर्थिक अनियमिततेबाबत हे कार्यालय जबाबदार राहणार नाही.

१७) तांत्रिक मंजुरी प्रदान केलेल्या कामामध्ये न.प. स्तरावरुन तांत्रिक बदल केले गेल्यास हे कार्यालय जबाबदार राहणार नाही.

१८) मंजुर अंदाजपत्रकानुसार ई-निविदा प्रपत्रे तयार करण्यात यावे.

१९) प्रत्यक्ष काम करतांना त्याप्रमाणे मोजमाप पुस्तीकेमध्ये नोंदी करण्याची व देयक अदा करण्याची जबाबदारी न.प. ची राहील.

२०) सदर काम हे न.प. ला लागु असलेले सर्व प्रचलित शासकीय नियमावली / परिपत्रके व शासन निर्णय याच्या मार्गदर्शक तत्वानुसार व आदेशानुसार घेता येत असल्याची खात्री करावी.

२१) लेखा संहिता नियमानुसार सर्व शासकीय कपाती करण्याची व संबंधीत विभागाकडे भरणा करण्याची जबाबदारी न. प. ची राहील.

२२) वरिलपैकी कुठल्याही अटी व शर्तीचा भंग झाल्यास सदर तांत्रिक मान्यता आपोआप रद्द होईल.

२३) निविदा कार्यवाही करण्यापूर्वी कार्यव्ययी अंदाजपत्रक तयार करुन सर्व दर व Specification बाबत खात्री करुनच निविदा प्रक्रिया करण्यात यावी.

२४) सदर प्रस्तावात जरी १८% GST घेऊन मंजुरी प्रदान करण्यात आलेली असली तरी, निविदेमध्ये Govt.of Maharashtra च्या वित्त विभागाने वेळोवेळी निर्गमित केलेल्या शासन निर्णयानुसार कंत्राटदारास GST ची अदायगी करण्यात यावी.

२५) कामाचे तुकडे पाडण्यात येवू नयेत.

(विवेक सोळंके)
कार्यकारी अभियंता

जाक्र./काअ/रेचिशा/तां.मं./ १०९६ /२०२३
दिनांक :- ५/९/२०२३

प्रतिलिपी :- मुख्याधिकारी, नगर परिषद, अचलपुर यांना संदर्भीय पत्राच्या अनुषंगाने माहिती व कार्यवाही करीता अग्रेषित.

सहपत्र :- अंदाजपत्रक - ०१

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Municipal Council Achalpur Dist Amravati.

Name Of Work - Boiminig Of old Dumsite and reclaiam of land for the Development of new processing plant 2023-24

Estimate 2023-24

Sr No	Name Of Work	Qty	Rate /cum	Toal
1	Name Of Work - Boiminig Of old Dumsite and reclaiam of land for the Development of new processing plant	220000CUM.	420	9240000/-
Total				9240000/-

HOD WATER SUPPLY
Achalpur Municipal Council

Jr.Engineer
Achalpur Municipal Council

Chief Officer
Achalpur Municipal Council

TECHNICAL SANCTION
Technically Sanctioned for
Rs. 9,24,000/- (Nett)
Rs. 9,24,000/- (Gross)
Only vide Item No. 01
of form No. 85 for the month
of April 2023

Executive Engineer
Maharashtra Jeevan Pradhikaran
Division-Amravati

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ेवली असून दडपशाहीचे
ेध म्हणून तालुका काँग्रेस
स कमिटी अंजनगाव सुर्जीच्या
यानक येथे
आली.
आ.बळवंत
काध्यक्ष प्रमोद
प्रदीप देशमुख,
बोबडे, मिर्झा
वदास यावले,
सारी, मनोज
ब्दुल कलीम,
ट्टे, साहेबराव
आबीद, ऋग्वेद
; अली, गजानन

सुधाकर खारोडे, नागेश गोळे, बाळासाहेब धारबडे, दिलीप खडगे शेकडो काँग्रेसचे कार्यकर्ते पदाधीकाऱ्यांनी निदर्शने केली.

जातीत घेतल्या जाणाऱ्या परीक्षमध्ये वर्ग ५ वा (शैक्षणिक सत्र २०२२-२३) मध्ये शिकत असलेल्या सात्वीक राजेश पाटील व गुंजन

यांनी कौतुक केले व त्यांना भावी वाटचालीसाठी शुभेच्छा दिल्या.

Homestone

१) बांधकाम परमिशन
२) प्लॉट सब डिव्हीजन करून मिळेल

- संपर्क :-
९६५७५१६१५५,
९४२०४१०६२३,
७८७५०१५०८३

प्लॉट उपलब्ध

अमरावती शहराच्या मध्यभागी स्थित राम लक्ष्मण संकुल मार्केटच्या मागे, KL कॉलेज रोडवर मोकेशिर प्लॉट विकेने आहे. फक्त २ प्लॉट उपलब्ध.

- संपर्क :-
मो.नं.९५६१८३३३८२

पाहिजेत

शोरूमसाठी सेल्स पर्सन/ शोरूम मॅनेजर

पत्ता :- मेहदिपुर पेट्रोल इन्डी ब्रॅन्ड सर्विसेस गणपती डाग्नोस्टीकसमोर मेन रोड, रुक्मिनी नगर, अमरावती
.मो.नं.९०२८२३२९०१

प्रवेश देणे सुरु आहे

आय.टी.आय व १२ वी समकक्ष कोर्सेस
१) इलेक्ट्रीशियन २ वर्ष
२) बांधकाम पर्यवेशक १ वर्ष
प्रवेश पात्रता १० वी, १२ वी पास/ नापास, टक्केवारीची अट नाही डायरेक्ट ऑनलाईन प्रवेश

संपर्क :- मेहदिपुर पेट्रोल पंपाजवळ, कॉलेज SBI बँकेच्या वर, राठीनगर, अमरावती
8087958087

वरूड जि.अमरावती

सुचना

दि.०७/०७/२०२३

राष्ट्र शात्तनाकडे आवश्यक त्या वर्गात नोंदणीकृत तीने दर मागवण्यात येत आहे. निविदेचा विस्तृत दि.०७/०७/२०२३ पासून पाहण्यास उपलब्ध

	निविदा प्रपत्र शुल्क	बयाना रक्कम	कामाचा कालावधी
दलीतेत्तर योजना)			
- /-	१५००/-	३४,०००/-	०३ महिने
१/- - /-	१५००/-	२५,५५०/-	०३ महिने

ा तपशिल :-

०२३ ते १४/०७/२०२३ दु.५.०० वाजेपर्यंत
०२३ दु.५.०० वाजेपर्यंत
.०२३ दु.१२.०० वा. (शक्य झाल्यास)

प्रशासक तथा मुख्याधिकारी
नगर परिषद, वरूड

Office of the Municipal Council Achalpur

(Solid Waste Management)

E-Tender Notice Second Call No:2324/2023 Dated. 7/7/2023

Achalpur Municipal Council invites online tender for the following works;

Sr. No.	Name of the work	Earnest Money Deposit (EMD) (In Rs)	Cost of Bid Document (In Rs)	Time Limit
1	The Work of "Scientific Dumpsite Land Reclamation through Bio- mining, Resource Recovery and Scientific Rejects Disposal, Achalpur	92,000	1,180	3 Months

The RFP documents for the above project are available on the website https://mahatenders.gov.in. The right to reject any or all tenders without assigning any reason thereof is kept reserved by the Chief Officer, Achalpur Municipal Council, Achalpur.

Scheduled time for tender submission

Sr. No.	Particular	Date	Time
1	Pre Bid meeting	Dt.14/7/2023	12.00

Scheduled time for tender submission

Sr. No.	Particular	Date	Time
1	Publishing of tender	Dt.7/7/2023	6.00
2	Downloading of tender	Dt.7/7/2023	6.00
3	Last Date of tender Submission	Dt.17/7/2023	5.00
4	Date of tender opening	Dt.19/7/2023	5.00

All terms and condition Related to the work are uploaded with tender noticeon www.mahatenders.gov.in government web portal.

Mr.Dhirajkumar Gohad
Chief Officer
M.C.Achalpur

	तूर	हरभरा	सोयाबीन	भुईमूग	तीळ	मका	कापूस
०	९६५०-९८५०	४५५०-४८५०	४८००-५०००	---	१२०००-१३०००	-	--
	९०००-१०३२०	४३५०-४९४०	४०००-४८५०	-	-----	१२००-१८००	-
	५५००-६४१५	३८००-४८५०	४५००-४९४०	-	-	-	-
००	५५००-६०००	४२००-४८९५	----	-	-	---	-
		४२००-४३००	----	-	-	-	

L 2, बिझोलन्ड, नांदगावपेठ, अमरावती

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ANNEXURE R-21

मा. प्रशासक, अचलपूर नगर परिषद
यांचे दि. 07/09/2023 रोजी दुपारी 12-00 वा. ताची प्रशासकिय सभा
स्थळ-: नगर परिषद अचलपुर प्रशासकिय ठराव क्र.23 ची सत्यप्रत

अ.क्र.	प्र.क्र.	प्रस्तावाचा विषय
05	23	आरोग्य विभाग अंतर्गत प्राप्त निविदा दरांना मंजुरात मेळणे बाबत.

प्रशासकिय ठराव क्र.23 (अ) अचलपूर नगर परिषदेच्या रायपुरा कंपोस्ट डेपो येथे साठलेल्या जुना कचऱ्यावर बायोमायनींग प्रक्रिया करणे बाबत आपल्या दि.06/02/2023 रोजी च्या आदेशान्वये मंजुराती अन्वये ई-निवीदा मागविण्यात आली असुन दुसरी वेळ निवीदेत एकुण 02 पात्र निवीदा प्राप्त झाली असुन, दि.18/08/2023 रोजी निवीदेचा वित्तीय लिफाफा उघडण्यात आला सदर निवीदेत खालील प्रमाणे दर प्राप्त आहे.

अ. क्र	कामाचे नांव	अंदाजीत किमंत दर प्रति क्यु.मिटर	कंत्राटदाराचे नाव व दर केलेले दर		सर्वात कमि दराची प्राप्त निवीदा
			Core Prject Engineers and Consultant Pvt.Ltd	SUPRIME GOLD IRRIGATION PVT LTD	
1.	Scientific Dumpsite Reclamation through Bio-minning	रू.420/-	रू.393/-	रू.360/-	SUPRIME GOLD IRRIGATION PVT.LTD दर रू.360/- अंदाजपत्रकिय दरा पेक्ष रू.60 ने कमी

उपरोक्त प्राप्त निवीदांमध्ये SUPRIME GOLD IRRIGATION PVT.LTD यांचे सर्वात कमी रू.360/- दराला आर्थीक व प्रशासकिय मंजुरात प्रदान करून आदेश पारीत करण्यात येत आहे.

ठराव मंजुर

सत्यप्रत

मुख्याधिकारी
नगर परिषद,अचलपुर

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ANNEXURE R-22

भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17513 20-09-2023 CB 646423

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र.६१०२००६
तहसील कार्यालय, अचल

Seeprem Gold Irrigations Ltd
For
I.T. Hasseain

SUB-TREASURY OFFICE ACHALPUR
21 SEP 2023
Sub-Treasury Officer Achalpur

करारनामा

पार्टी नं (१) :- करारनामा लिहुन देणार :- सुप्रिम गोल्ड ईरीगेशन, नांदेड.

पार्टी नं (२) :- करारनामा लिहुन घेणार :- मुख्याधिकारी , अचलपूर नगर परिषद, अचलपूर, जि. अमरावती.

पार्टी नं १ पार्टी नं २ ला खालील प्रमाणे लिहुन देत आहे. ई निविदा सुचना क्रं 2023 DMA022208-1 नुसार खालील कामा करीता निविदा सादर केली होती सदर्हु निविदा पार्टी नं २ ने

कार्यालय अचलपूर नगर परिषद जिल्हा-अमरावती

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महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17512 26.09.2023 CB 646422

Supreme Gold Irrigations LTD
For
I. T. Hussein

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र.६१०२००६
तहसील कार्यालय, अचल

SUB-TREASURY OFFICE ACHALPUR
21 SEP 2023
Sub-Treasury Officer Achalpur

निविदा समिती समक्ष दिनांक १८/०७/ २०२३ रोजी निविदा उघडण्यात आली होती निविदा पत्रातील सर्व अटी व शर्ती सोबत जोडल्या आहेत. स्टॅम्प पेपर निविदा प्रपत्र व सोबतचे अटी शर्ती चे प्रपत्र हे कागदपत्र या करारनाम्याच्या भाग आहे, मी मंजूर दराने मंजूर आदेशानुसार काम करण्यास तयार आहे.

१. निवेदे सोबत प्रसिद्ध करण्यात आलेली अटी व शर्ती या करारनाम्याचा भाग राहील.
२. काम करते वेळी कोणत्याही अपघात घडल्यास न.प. जबाबदार राहणार नाही सर्वस्वी जबाबदारी कंत्राटदाराची राहील.
३. आपले मजुर वर्गास सर्व प्रक्रारचे जिवन रक्षक/सुरक्षा साहीत्य पुरवण्याची जबाबदारी कंत्राटदराची राहील.
४. कंत्राटदारास निविदेतील मंजुर २२००० Cum कचऱ्याचे बायोमाईनिंग करावे लागेल.

नगर परिषद अचलपूर जिल्हा-अमरावती

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भारतीय गैर-न्यायिक

भारत INDIA

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महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 1751 26.09.2023 CB 646421

Suprem Gold Irrigations LTD

For I. T. Hussain

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र. ६५०२००६
तहसील कार्यालय, अचल

SUB-TREASURY OFFICE
ACHALPUR
21 SEP 2023
Sub Treasury Officer
Achalpur

५. सध्या स्थितीत मोजमापा नुसार ४२००० Cum जुना कचरा असुन बायोमाईनिंग Quantity चे प्रमाणात जागा पुर्णत: रिकामी करावी लागेल.

६. नगर परिषदेने ठरवून दिलेल्या किंवा आखून दिलेल्या जागेवरील कचऱ्याचे बायोमाईनिंग करावे लागेल.

७. बायोमाईनिंग झाल्यावर निघणारे प्लास्टिक, ईत्यादी वस्तुची Recycle बाबत विल्हेवाट लावण्याची जबाबदारी कंत्राटदाराची राहील.

८. सदरील भु भरणा ही नगर पालीकेने दिलेल्या जागेतेच करावी.

कार्यालय अचलपूर नगर परिषद जिल्हा-अमरावती

SUPREME GOLD IRRIGATIONS LIMITED AMRAVATI

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भारतीय गैर न्यायिक

भारत INDIA

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महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17510 26.09.2023 CB 646420

Supreme Gold Irrigations Ltd For I. T. Hussain

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र. ६१०२००६
तहसील कार्यालय, अचल

SUB-TREASURY OFFICE ACHALPUR
21 SEP 2023
Sub-Treasury Officer Achalpur

९. निविदे सोबत प्रसिद्ध करण्यात आलेली Condition & Contract Volume - I Pahe No 17 to 20 व Volume -III Page no 39 to page no 48 तसेच B मधील Special Condition page no 49 to 51 कंत्राटदारास लागु राहतील.

१०. कंत्राटदारा द्वारे वापरण्यात येणाऱ्या Machine, Electric उपकरणे साठी लागणारे Electric साहीत्य सर्व कंत्राटदाराने स्वःखर्चाने खरेदी करावे लागेल, न.प. द्वारे कोणतेही साहीत्य पुरविण्यात जाणार नाही.

११. कंपोस्ट डेपो येथे काम करतांना तेथील वातावरण कचऱ्यातुन निघणारा दुषित वायु यांचा संपुर्ण अभ्यास करून काम सुरू करावे.

कार्यालय अचलपूर नगर परिषद अचलपूर-अमरावती

SUPREME GOLD IRRIGATIONS LIMITED AMRAVATI

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भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17309 26.09.2023 CB 646419

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
इरवाना क्र. ६१०२००६
तहसील कार्यालय, अचल

Suprem Gold Irrigations LTD
For
I. T. Hussain

TREASURY OFFICE ACHALPUR
21 SEP 2023

१२. काम समाधानकारक न झाल्यास बिलाचे शोधन करण्यात येणार नाही.

१३. या कामात जागेवर अस्तितवात असलेल्या घनकचऱ्यातील प्लॉस्टीक व ईतर साहीत्याचे विलगीकरण (Segregation) चे काम करावे लागेल.

१४. विलगीकरण केलेल्या कचऱ्याचे थर जमा करण्याची प्रक्रीया शास्त्रोक्त पध्दतीने करावयाची आहे या साठी कामात न.प. कडुन समक्ष तांत्रिक यंत्रणेच्या सल्ल्यानुसार काम करावे लागेल.

१५. कंम्पोस्टिंग चे प्रक्रीयेत समक्ष यंत्रणेनी Bio Culture चा उपयोग विहित केलेल्या प्रमाणात किंवा "Sutable" scientific Method प्रक्रीयेनुसार कंत्राटदारास करणे बंधनकारक राहील.

१६. कंत्राटदारास महाराष्ट्र प्रदुषण नियत्रंण मंडळ घनकचरा व्यवस्थापन कायद्याचे पालन करावे लागेल.

कार्यालय अचलपूर नगर परीषद ★ जिल्हा-अमरावती ★

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भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

सत्यमेव जयते

पाँच सौ रुपये Rs. 500

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17508 26.09.2023 CB 646418

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र.६१०२००६
तहसील कार्यालय, अचल

Suprem Gold Irrigations LTD
for
I. T. Hussain

TREASURY OFFICE ACHALPUR
21 SEP 2023
Sub-Treasury Officer Achalpur

१७. वरील अटीशिवाय घनकचरा व्यवस्थापन व स्वच्छता अभियान अंतर्गत शासनाकडुन प्राप्त निर्देशांचे अंमलबजावणीसाठी न.प. ला आवश्यक वाटल्यास इतर निर्देशांचे पालन करणे कंत्राटदारास (पार्टी नं १) ला बंधनकारक राहील.

१८. कामाचे आदेश दिल्यानंतर संबंधीत अभियंता यांचे निर्देशानुसार काम करणे बंधनकारक आहे.

१९. काम दिलेल्या मुदतीत पूर्ण करावे, काही कारणास्तव मुदतीत काम करणे शक्य नसल्यास कामाची मुदत संपण्याच्या अगोदर आगाऊ अर्ज देउन मुख्याधिकारी यांचे कडुन मुदतवाढ करून घेणे आवश्यक राहील.

नगर परिषद अचलपूर जिल्हा-अमरावती

SUPREME GOLD IRRIGATION LTD. AMRAVATI

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भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17507 20/09/2023 CB 646417

दिलीप एस.काळमेघ
मुद्रांक विक्रेता
परवाना क्र.६१०२००६
तहसील कार्यालय,अचल

Supreem Gold Irrigations LTD
For
I. T. Hussain

TREASURY OFFICE ACHALPUR
21 SEP 2023
Sub-Treasury Officer Achalpur

२०.कामाची प्रत बरोबर नसल्यास किंवा काम पुर्ण करण्यास दिरंगाई झाल्यास आकारलेली दंडाची रक्कम रोख भरावी लागेल.

२१.काम करतांना सार्वजनिक किंवा खाजगी मालमत्तेचे पार्टी नं १ कडुन काही नुकसान झाल्यास ते पार्टी नं १ ला भरून द्यावे लागेल तसे न केल्यास पार्टी नं २ पार्टी नं १ च्या बिलातुन पैसे वुसन करण्याच्या अधिकार राहील.

२२.या कारारनाम्यामध्ये येणाऱ्या कामापैकी काही काम पार्टी नं १ ला दुसऱ्या ठेकेदाराकडुन करुन घ्यावयाचे असेल तर त्या साठी मुख्याधिकारी यांची लेखी परवानगी घेणे आवश्यक राहील. मुख्याधिकारी यांचे लेखी परवानगी शिवाय पार्टी नं १ ने ईतर ठेकेदारास काम दिल्याचे आढळुन आल्यास ते संपुर्ण काम रद्द करण्याच्या अधिकार मुख्याधिकारी यांना राहील. या परिस्थितीत पार्टी नं १ कडुन घेतलेली सेक्युरिटी डिपॉजीट जप्त करण्यात येईल शिवाय पार्टी नं १ ला कोणत्याही प्रकारे नुकसान भरपाई मिळणार नाही.

नगरपरिषद अचलपूर नगर परिषद चिल्हा-अमरावती

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भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17506 20.09.2023 CB 646416

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र.६१०२००६
तहसील कार्यालय, अचलपूर

Supreem Gold Irrigations LTD
For
I. T. Hussain

TREASURY OFFICE CHALPUR
21 SEP 2023

२३.करारनाम्यात नमुद केलेल्या दराने काम पुर्ण करुन देण्याची जबाबदारी पार्टी नं १ वर राहील.

२४. पार्टी नं १ मुदतीच्या आत कामपुर्ण न केल्यास मुदत संपल्यावर रू.२०००/- प्रति दिवस प्रमाणे दंड आकारल्या जाईल किंवा पार्टी नं २ ला हा करारनामा रद्द करण्याच्या अधिकार राहील, किंवा पार्टी नं २ कोणाकडुनही काम पुर्ण करुन घेईल, असे करण्यात पार्टी नं २ ला जो खर्च येईल तो पार्टी नं १ कडुन वसुल करण्याच्या अधिकार पार्टी नं २ ला राहील. पार्टी नं १ ला कोणत्याही प्रकारची नुकसान भरपाई मिळणार नाही.

कार्यालय अचलपूर नगर परीषद जिल्हा-अमरावती

SUPREME GOLD IRRIGATIONS LIMITED AMRAVATI

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भारतीय गैर न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

सत्यमेव जयते

INDIA NON JUDICIAL

महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17505 26.09.2023 CB 646415

दिलीप एल. काळमेघ
मुद्रांक विक्रेता
परवाना क्र. ६१०२००६
तहसील कार्यालय, अचलपूर

Suprem Gold Irrigations LTD
For
I. T. Hussain

SUB-TREASURY OFFICE
ACHALPUR
21 SEP 2023
Sub-Treasury Officer
Achalpur

२५. म्युनिसिपल कोड मधील तरतुदीप्रमाणे केलेल्या कामाचे बिल पार्टी नं १ ला देण्यात येईल.

२६. किमान वेतन कायदा वर्क्समन काम्पनसेशन ॲक्ट मधील तरतुदीचे पालन करण्याची जबाबदारी पार्टी नं १ ची राहील.

२७. या करारनाम्यातील कोणत्याही अटी व शर्ती या बाबत वाद उत्पन्न झाल्यास मुख्याधिकारी यांचा निर्णय अंतिम राहील तो पार्टी नं १ ला बंधनकारक राहील.

२८. शासनाचे निर्देशानुसार वेळोवेळी आकारले जाणारे कर व शुल्क देयकातुन कपात करण्यात येईल.

२९. कामाचे अंतिम देयकापुर्वी व्हॅट, पॅन नंबर, इ. पजीयन प्रमाणपत्र पार्टी नं १ ला सादर करावे लागेल.

कार्यालय अचलपूर नगर परीषद जिल्हा-अमरावती

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भारतीय गैर-न्यायिक

भारत INDIA

रु. 500 FIVE HUNDRED RUPEES

पाँच सौ रुपये Rs. 500

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महाराष्ट्र MAHARASHTRA ◐ 2023 ◐ 17504 26.09.2023 CB 646414

Scaprem Gold Irrigations LTD

For

I. T. Haseem

दिलीप एस. काळमेघ
मुद्रांक विक्रेता
परवाना क्र. ६१०२००६
तहसील कार्यालय, अचल

SUB-TREASURY OFFICE
ACHALPUR
21 SEP 2023

३०. कामाचे ठिकाणी काही अपघात घडणार नाही याची दक्षता पार्टी नं १ ला घ्यावी लागेल. तरी अपघात घडल्यास त्यास कोणत्याही प्रकारे पार्टी नं २ जबाबदार राहणार नाही.

३१. एजन्सी आणि अचलपुर नगर परिषद यांच्यात कोणत्याही प्रकारचा वाद उद्भवल्यास मुख्याधिकारी अचलपुर नगर परिषद निर्णयाचे पुर्णावलोकन आणी निर्णय घेण्यात येईल व त्या करीता नोटीस मिळाल्यापासुन २१ दिवसाच्या आंत निर्णय देईल असे नमुद आहे, त्यामध्ये परत कोणत्याही प्रकारचा वाद उद्भवल्यास हि प्रक्रिया पुर्ण केल्या शिवाय किंवा वादाचे निरासन मुख्याधिकारी कडे केल्याशिवाय त्याला वाद लवादा कडे देता येणार नाही.

कार्यालय अचलपूर नगर परिषद जिल्हा-अमरावती

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येणेप्रमाणे हा करारनामा मी पार्टी नं १ करारनाम्यातील अट क्रं १ ते ३१ वाचुन या मधील सर्व अटी व शर्ती मला मान्य असुन सदर कामा बाबतचा करारनामा मी स्वसंतोषाने व अक्कलहुशारीने पुर्ण शुद्धीत कोणत्याही दडपणाखाली न येता खालील साक्षीदारा समक्ष मी पार्टी नं १ ( ) पार्टी नं २ (मुख्याधिकारी , नगर परिषद अचलपुर) सोबत करारनाम्यावर आज दि. / /२०२३ ५.०० वाजता अचलपुर न.प. कार्यालय मुक्कामी मि स्वतः स्वाक्षरी केली आहे. हा करारनामा व करारनाम्यातील अटी व शर्ती मला व माझे इस्टेट व आप्त वारसास लागू राहील हे मला मान्य आहे.

करीता करारनामा करुन देत आहे.

साक्षीदार

१. ----------

२. ----------

करारनामा लिहुन देणार सही
(पार्टी नं. १)

करारनामा लिहुन घेराऱ्यची सही
(पार्टी नं. २)

कार्यालय अचलपुर नगर परिषद जिल्हा-अमरावती

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कार्यालय अचलपूर नगर परिषद
जिल्हा - अमरावती
पिन कोड - 444805

O/o The Achalpur Municipal Council
Dist:- Amravati (M.S)
Pin No:- 444805

Tel-Office- +07223-220372, President-Office-+07223-220370, Chief Officer Office -+07223-222448
Fax - +07223-222494 E-mail: mcachalpur@gmail.com, comcach@rediffmail.com

क्र./ अनपा / आ.वि/ मुअ/ 3848 /2023 दि. ६/१०/2023

कामाचा आदेश,

प्रति,
सुप्रीम गोल्ड ईरीगेशन,
नांदेड

विषयः- रायपुरा कंम्पोस्ट डेपो येथील जुने कचऱ्यावर बायोमायनींग पध्दतीने प्रक्रिया करणे बाबतचे काम सुरू करणे बाबत आदेश.

संदर्भः- 1. महाराष्ट्र शासन नगर विकास विभाग शासन निर्णय स्वमअ-2022/प्र.क्रं.93/नवि-34 दि.10/08/2022 अन्वये प्रशासकिय मान्यता.
2. तांत्रीक मजुरात आदेश .जा.क्र.मुअ/माजीप्रा/रेचिशा/तांमं/1016 दि.05/04/2023.
3. आपण सादर केलेली निवीदा दि.17/07/2023.
4. निवीदा दर मंजुरी आदेश क्रं.23 दि.07/09/2023.
5. आपण केलेला करारनामा दि.04/10/2023.

वरील विषयाच्या अनुषंगाने आपणांस आदेशीत करण्यात येते कि, आपण भरलेली वरील संदर्भीय कामाची निवीदा व सदर कामा करीता आपण केलेला दि.04/10/2023 करारनामा लिहून दिला आहे. मा.प्रशासक यांच्या संदर्भीय क्रं.4 च्या आदेश अन्वये आपले दर मंजुर करण्यात आले असुन आपणांस रायपुरा कंम्पोस्ट डेपो येथील जुने कचऱ्यावर बायोमायनींग पध्दतीने प्रक्रियेच्या कामाबाबत कार्यारंभ आदेश देण्यात येत आहे तरी आपण केलेल्या करारनाम्यातिल अटि व शर्तींचे अधिन राहुन कार्यादेश मिळाल्यापासुन तिन दिवसाचे आंत काम सुरू करावे.

योजनेचे नांवः- स्वच्छ महाराष्ट्र अभियान नागरी 2.0
प्रशासकिय मंजुरीः- शासन निर्णय स्वमअ-2022/प्र.क्रं.93/नवि-34 दि.10/08/2022
कामाची अंदाजीत रक्कमः- रू.92,40,000/-
प्रक्रिया करावयाचे कचऱ्याचे प्रमाण :- 22000 CUM
अंदाजपत्रकिय दर :- रू.420/- प्रति CUM
मंजुर निवीदेचे दरः- अंदाजपत्रकिय दरापेक्षा 14.29% कमी दराने.
करारनामाः- दि.04/10/2023
कामाची मुदतः- आदेशा पासुन 3 महिने.

नगर परिषद अचलपूर

(धिरजकुमार गोहाड)
मुख्याधिकारी
नगर परिषद अचलपूर

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ANNEXURE R-24

Y \ X	758990	759000	759010	759020	759030	759040	759050	759060	759070	759080	Cut	Fill
2351590			0	0	0	0					0	0
2351580		54.1527	188.5988	247.2	228.65	243.63	27.5336				989.7651	0
2351570	39.7498	489.5075	705.97	781.65	670.37	535.02	304.2461	5.3606			3531.874	0
2351560	170.96	501.5	955.47	1049.1	976.45	815.02	488.25	85.6393			5042.389	0
2351550	-20.18	373.29	910.7	1055.37	1055.72	936.47	582.95	187.2112			5101.711	-20.18
2351540	1.91	335.16	825.72	983.65	978.77	936.67	658.3	320.4103			5040.59	0
2351530	89.75	321.02	721.7	860.27	847.77	921.37	732.48	474.3834			4968.743	0
2351520	7.8472	350.0336	640.85	749.27	760.92	917.8	805.7	449.8	26.1555		4708.376	0
2351510		374.15	555.82	697.12	818.03	985.03	865.65	459.75	83.1044		4838.654	0
2351500		291	448.25	627.28	848.25	1032.93	917.12	570.1	225.8125		4960.743	0
2351490		49.3945	331.87	565.52	829.42	1023.68	922.1	633.92	308.3922	0.4194	4664.716	0
2351480		2.6707	239.5258	486.55	836.22	1004.27	800.95	478.95	184.1783	0.1534	4033.468	0
2351470			111.9059	369.55	731.42	801.65	635.4639	199.7242	9.3075		2859.022	0
2351460			27.6824	236.3176	398.17	454.5134	153.2225				1269.906	0
2351450				76.6	103.5556	19.0915					199.2471	0
									Total Qty =		52209.21	-20.18

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ANNEXURE R-26

Volume Report -2-

Sl. No.	Section From	Previous Section	Difference	Width	Cutting Volume				Filling Volume			
					Area Sq. Meters	Previous Area	Average Sq. Meters	Volume Cubic Meters	Area Sq. Meters	Previous Area	Average Sq. Meters	Volume Cubic Meters
1	2351470.000	-	0.000	30.000	17.810	0.000	8.905	0.000	0.000	0.000	0.000	0.000
2	2351480.000	2351470.000	10.000	48.060	125.874	17.810	71.842	718.420	0.162	0.000	0.081	0.810
3	2351490.000	2351480.000	10.000	61.026	374.177	125.874	250.026	2500.255	0.000	0.162	0.081	0.810
4	2351500.000	2351490.000	10.000	64.427	403.449	374.177	388.813	3888.130	0.065	0.000	0.033	0.325
5	2351510.000	2351500.000	10.000	67.018	417.409	403.449	410.429	4104.290	0.081	0.065	0.073	0.730
6	2351520.000	2351510.000	10.000	70.258	430.138	417.409	423.774	4237.735	0.173	0.081	0.127	1.270
7	2351530.000	2351520.000	10.000	60.000	394.660	430.138	412.399	4123.990	0.000	0.173	0.087	0.865
8	2351540.000	2351530.000	10.000	60.000	448.595	394.660	421.628	4216.275	0.000	0.000	0.000	0.000
9	2351550.000	2351540.000	10.000	60.000	498.850	448.595	473.723	4737.225	0.000	0.000	0.000	0.000
10	2351560.000	2351550.000	10.000	60.000	525.815	498.850	512.333	5123.325	0.000	0.000	0.000	0.000
11	2351570.000	2351560.000	10.000	63.847	521.619	525.815	523.717	5237.170	0.000	0.000	0.000	0.000
12	2351580.000	2351570.000	10.000	47.493	366.303	521.619	443.961	4439.610	0.000	0.000	0.000	0.000
13	2351590.000	2351580.000	10.000	26.390	84.828	366.303	225.566	2255.655	0.000	0.000	0.000	0.000
14	2351592.030	2351590.000	2.030	0.056	0.095	84.828	42.462	86.197	0.000	0.000	0.000	0.000
					Total			45668.277				4.810

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ANNEXURE R-27

Volume Report -3

Sl. No.	Section From	Previous Section	Difference	Width	Cutting Volume				Filling Volume			
					Area Sq. Meters	Previous Area	Average Sq. Meters	Volume Cubic Meters	Area Sq. Meters	Previous Area	Average Sq. Meters	Volume Cubic Meters
1	2351450.000	-	0.000	7.797	0.000	0.000	0.000	0.000	1.248	0.000	0.624	0.000
2	2351460.000	2351450.000	10.000	28.608	0.000	0.000	0.000	0.000	4.795	1.248	3.022	30.215
3	2351470.000	2351460.000	10.000	39.966	0.000	0.000	0.000	0.000	8.859	4.795	6.827	68.270
4	2351480.000	2351470.000	10.000	59.484	46.512	0.000	23.256	232.560	9.474	8.859	9.167	91.665
5	2351490.000	2351480.000	10.000	74.998	165.585	46.512	106.049	1060.485	5.960	9.474	7.717	77.170
6	2351500.000	2351490.000	10.000	72.703	224.151	165.585	194.868	1948.680	5.260	5.960	5.610	56.100
7	2351510.000	2351500.000	10.000	70.363	298.984	224.151	261.568	2615.675	4.807	5.260	5.034	50.335
8	2351520.000	2351510.000	10.000	68.860	290.646	298.984	294.815	2948.150	3.028	4.807	3.918	39.175
9	2351530.000	2351520.000	10.000	69.082	339.084	290.646	314.865	3148.650	1.390	3.028	2.209	22.090
10	2351540.000	2351530.000	10.000	68.999	472.515	339.084	405.800	4057.995	0.933	1.390	1.162	11.615
11	2351550.000	2351540.000	10.000	69.928	472.967	472.515	472.741	4727.410	0.980	0.933	0.957	9.565
12	2351560.000	2351550.000	10.000	66.604	483.492	472.967	478.230	4782.295	0.192	0.980	0.586	5.860
13	2351570.000	2351560.000	10.000	63.763	416.741	483.492	450.117	4501.165	1.165	0.192	0.679	6.785
14	2351580.000	2351570.000	10.000	50.922	295.832	416.741	356.287	3562.865	0.090	1.165	0.628	6.275
15	2351590.000	2351580.000	10.000	30.000	1.204	295.832	148.518	1485.180	16.643	0.090	8.367	83.665
					Total			35071.110				558.785

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ANNEXURE R-28

Item No. 01 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 606/2018

Compliance of Municipal Solid Waste Management Rules, 2016
(States of Punjab and Uttar Pradesh and UT Chandigarh)

Date of hearing: 10.01.2020

CORAM: **HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON**
HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER
HON'BLE MR. SIDDHANTA DAS, EXPERT MEMBER

For Respondent(s): Mr. Karan A. Singh, Chief Secretary, State of Punjab with Mr. Sanjay Kumar, Addl. Secy. and Mr. R.K. Verma, Principal Secy. State of Punjab
Mr. Rajendra Kumar Tiwari, Chief Secretary, State of Uttar Pradesh with Mr. Manoj Kumar Singh, Principal Secy., Urban Development, UP and Mr. Ashish Tiwari, M.S., UPPCB
Mr. Manoj Parida, IAS, Advisor to Administrator, UT Chandigarh with Mr. Debendra Dalai, IFS, CCF & Director (Envt.) and Mr. K.K. Yadav, IAS, Commissioner (CMC)
Mr. P. Gargawa, M.S., CPCB
Mr. A. Sudhakar, DH-WQM-I, CPCB

ORDER

S. No.	CONTENT	PARA No.
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II	Orders of the Hon'ble Supreme Court transferring the issue of Solid Waste Management and Liquid Waste Management to this Tribunal.	2-6
III	Proceedings Before this Tribunal in pursuance of orders of the Hon'ble Supreme Court till date	7-21
IV	Recent orders of the Hon'ble Supreme Court dated 25.11.2019 and 13.01.2020 having bearing on the matter (M.C. Mehta vs. Union of India, W.P. No. 13029/1985)	22-23
V	25th Report dated 12.02.2019 of the Standing Committee on Urban Development, 16th Lok Sabha on the issue of solid waste management including hazardous waste, medical waste and e-waste	24
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I. PREFACE:

1. The matter has been put up today in continuation of proceedings on the subject of monitoring execution of orders of this Tribunal on the subject of compliance of waste management (solid and liquid) and other environmental issues, particularly air pollution, in the States of Punjab, Uttar Pradesh and UT Chandigarh in terms of earlier orders of this Tribunal and orders of the Hon'ble Supreme Court.

II. ORDERS OF THE HON'BLE SUPREME COURT TRANSFERRING THE ISSUE OF SOLID WASTE MANAGEMENT AND LIQUID WASTE MANAGEMENT TO THIS TRIBUNAL:

2. It is necessary to set out brief background of the proceedings. The Hon'ble Supreme Court vide order dated 02.09.2014 in *Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors.*, transferred proceedings pending before it on the subject of solid waste management[1].

3. The matter was earlier considered by the Hon'ble Supreme Court *inter-alia* vide judgments reported in *(2000) 2 SCC 678* and *(2004) 13 SCC 538* directing scientific disposal of waste by setting up of compost plants, preventing water percolation through heaps of garbage, creating focused **'solid waste management cells'** in all States and complying with the Municipal Solid Waste Management Rules, 2016 (SWM Rules, 2016) on urgent basis. **It was observed**

[1] Operative part of the order of the Hon'ble Supreme Court reads:
"Enforcement of the Rules and efforts to upgrade the technology relevant to the handling of solid municipal waste is a perennial challenge and would require constant efforts and monitoring with a view to making the municipal authorities concerned accountable, taking note of dereliction, if any, issuing suitable directions consistent with the said Rules and direction incidental to the purpose underlying the Rules such as upgradation of technology wherever possible. **All these matters can, in our opinion, be best left to be handled by the National Green Tribunal established under the National Green Tribunal Act, 2010.** The Tribunal, it is common ground, is not only equipped with the necessary expertise to examine and deal with the environment related issues but is also competent to issue in appropriate cases directions considered necessary for enforcing the statutory provisions."

that the local authorities constituted for providing services to the citizens are lethargic and insufficient in their functioning which is impermissible. Non-accountability has led to lack of effort on the part of the employees. Domestic garbage and sewage along with poor drainage system in an unplanned manner contribute heavily to the problem of solid waste. The number of slums have multiplied significantly occupying large areas of public land. Promise of free land attracts more land grabbers. **Instead of "slum clearance" there is "slum creation" in cities which is further aggravating the problem of domestic waste being strewn in the open**. Accordingly, the Court directed that provisions pertaining to sanitation and public health be complied with, streets and public premises be cleaned daily, **statutory authorities levy and recover charges from any person violating laws and ensure scientific disposal of waste**, landfill sites be identified keeping in mind requirement of the city for next 20 years and environmental considerations, sites be identified for setting up of compost plants, steps be taken to prevent fresh encroachments and compliance report be submitted within eight weeks.

4. Further observations in the judgment of the Hon'ble Supreme Court are:

> *"3. The petitioner has handed over a note in the Court showing the progress that has been made in some of the States and also setting out some of the suggestions, including the suggestion for creation of solid waste management cell, so as to put a focus on the issue and also to provide incentives to those who perform well as was tried in some of the States. The said note states as under:*
>
> > *"1. As a result of the Hon'ble Supreme Court's orders on 26-7-2004, in Maharashtra the number of authorisations granted for solid waste management (SWM) has increased from 32% to 98%, in Gujarat from 58% to 92% and in M.P. from NIL to 34%. No affidavits at all have been received*

from the 24 other States/UTs for which CPCB reported NIL or less than 3% authorisations in February 2004. All these States and their SPCBs can study and learn from Karnataka, Maharashtra and Gujarat's successes.

2. ***All States/UTs and their SPCBs/PCCs have totally ignored the improvement of existing open dumps, due by 31-12-2001****, let alone identifying and monitoring the existing sites. Simple steps can be taken immediately at almost no cost by every single ULB to prevent monsoon water percolation through the heaps, which produces highly polluting black run-off (leachate). Waste heaps can be made convex to eliminate standing water, upslope diversion drains can prevent water inflow, downslope diversion drains can capture leachate for recirculation onto the heaps, and disused heaps can be given soil cover for vegetative healing.*

3. Lack of funds is no excuse for inaction. Smaller towns in every State should go and learn from Suryapet in A.P. (population 103,000) and Namakkal in T.N. (population 53,000) which have both seen dustbin-free 'zero garbage towns' complying with the MSW Rules since 2003 with no financial input from the State or the Centre, just good management and a sense of commitment.

4. States seem to use the Rules as an excuse to milk funds from the Centre, by making that a precondition for action and inflating waste processing costs 2-3 fold. The Supreme Court Committee recommended 1/3 contribution each from the city, State and Centre. Before seeking 70-80% Centre's contribution, every State should first ensure that each city first spends its own share to immediately make its wastes non-polluting by simple sanitising/stabilising, which is always the first step in composting viz. inoculate the waste with cow dung solution or bio culture and placing it in windrows (long heaps) which are turned at least once or twice over a period of 45 to 60 days.

5. *Unless each State creates a focussed* ***'solid waste management cell'*** *and rewards its cities for good performance, both of which Maharashtra has done, compliance with the MSW Rules seems to be an illusion.*

6. ***The admitted position is that the MSW Rules have not been complied with even after four years.*** *None of the functionaries have bothered or discharged their duties to ensure compliance.* ***Even existing dumps have not been improved.*** *Thus deeper thought and urgent and immediate action is necessary to ensure compliance in future."*

5. In this regard, reference may also be made to orders of Hon'ble Supreme Court in *Municipal Council, Ratlam vs. Vardhichand*[2] and *B.L. Wadhera v. Union of India and Ors.*[3] laying down that **clean environment is fundamental right of citizens under Article 21** and it is for the local bodies as well as the State to ensure that public health is preserved by taking all possible steps. **For doing so, financial inability cannot be pleaded.**

6. The Hon'ble Supreme Court also dealt with the issue of liquid waste management and after issuing requisite directions, required this Tribunal to monitor the compliance. Directions of the Hon'ble Supreme Court include steps for liquid waste management by setting up requisite treatment plants for which funds are to be generated by the local bodies and the States as per constitutional provisions.[4]

---

[2] (1980) 4 SCC 162

[3] (1996) 2 SCC 594

[4] "10. Given the responsibility vested in municipalities under Article 243-W of the Constitution, as also, in Item 6 of Schedule XII, wherein the aforesaid obligation, pointedly extends to "public health, sanitation conservancy and solid waste management", we are of the view that the onus to operate the existing common effluent treatment plants, rests on municipalities (and/or local bodies). Given the aforesaid responsibility, the municipalities (and/or local bodies) concerned, cannot be permitted to shy away from discharging this onerous duty. **In case there are further financial constraints, the remedy lies in Articles 243-X and 243-Y of the Constitution. It will be open to the municipalities (and/or local bodies) concerned, to evolve norms to recover funds,** for the purpose of generating finances to install and run all the "common effluent treatment plants", within the purview of the provisions referred to hereinabove**. Needless to mention that such norms as may be evolved for generating financial resources, may include all or any of the commercial, industrial and domestic beneficiaries, of the facility.** The process of evolving the above norms, shall be supervised by the State Government (Union Territory) concerned, through the Secretaries, Urban Development and Local Bodies, respectively (depending on the location of the respective common effluent treatment plant). **The norms for generating funds for setting up and/or operating the "common effluent treatment plant" shall be finalised, on or before 31-3-2017, so as to be implemented with effect from the next financial year. In case, such norms are not in place, before the commencement of the next financial year, the State Governments (or the Union Territories) concerned, shall cater to the financial requirements, of running the "common effluent treatment plants", which are presently dysfunctional, from their own financial resources.**

11. **Just in the manner suggested hereinabove, for the purpose of setting up of "common effluent treatment plants", the State Governments concerned (including, the Union Territories concerned) will prioritise such cities, towns and villages, which discharge industrial pollutants and sewer, directly into rivers and water bodies.**

13. We are of the view that mere directions are inconsequential, unless a rigid implementation mechanism is laid down. .... The said data shall be furnished to the Central Ground Water Authority, which shall evaluate the data and shall furnish the same to the Bench of the jurisdictional National Green Tribunal.

III. PROCEEDINGS BEFORE THIS TRIBUNAL IN PURSUANCE OF ORDERS OF THE HON'BLE SUPREME COURT TILL DATE:

Solid Waste Management:

Order dated 22.12.2016:

7. This Tribunal considered the matter of solid waste management after notifying all the concerned States/Regulatory Bodies and finally disposed of the same on 22.12.2016[5] requiring all the States/UTs to follow the SWM Rules, 2016 after preparing requisite action plans in a time bound manner with further direction that **any State/UT which failed to comply with the Rules shall be liable to be proceeded against under Section 15 of the Environment (Protection) Act, 1986 (EP Act), apart from being required to pay environmental compensation and senior most officers of the States/Local Bodies being personally liable.** The directions also include requirement for segregation of waste, providing buffer zone around plants and landfill sites and due monitoring. The States/Local Bodies were also to create market for consumption of RDF. Tipping fee was to include the efficient and regular monitoring of waste processing plant, segregation of inert and C&D material and its transportation. Landfill sites were required to be bio-stabilized preventing leachate and generation of Methane, enforcement of Extended Producer Responsibility, rights and liabilities under contracts being made consistent with the Rules, creating public awareness about the facilities available at regular intervals. **Copy of**

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14. **To supervise complaints of non-implementation of the instant directions, the Benches concerned of the National Green Tribunal, will maintain running and numbered case files, by dividing the jurisdictional area into units. The abovementioned case files will be listed periodically.** The Pollution Control Board concerned is also hereby directed to initiate such civil or criminal action, as may be permissible in law, against all or any of the defaulters."

[5] O.A. No. 199/2014 (2016) SCC Online NGT 2981

the judgment was circulated to all the Chief Secretaries/ Advisors of States/UTs.

8. **Execution of above directions has been subject matter of further proceedings in the last more than three years after the said order and after almost 20 years after the orders of the Hon'ble Supreme Court.**

Order dated 20.08.2018:

9. Reference may be now made to some further significant orders. Vide order dated 20.08.2018[6], after referring to earlier proceedings and a chamber meeting with all the concerned stakeholders, the Tribunal considered the following questions:

> *"i. Whether State-wise Action Plan with timelines and budgetary support/provision for management of MSW has been prepared?*
> *ii. Whether each city/town/urban local body is covered under the said Plan and individual Action Plan has timelines with budgetary provisions?*
> *iii. What time has been fixed to completely comply with the provisions of the Rules, 2016?*
> *iv. What are the main constraints of non-compliance of Rules, 2016?"*

It was directed that action plans be finalized latest by 31.10.2018 and executed latest by 31.12.2019 which was to be overseen by the Principal Secretaries of Urban/Rural Development Departments of States/UTs. States were directed to standardize technical specifications instead of leaving the same to individual local bodies. Further directions are for installing CCTV cameras at dump sites, installing GPS system in garbage collection vans, adopting best practices including control rooms where citizens can upload photos of garbage to be looked into by responsible officers, conducting performance audit with reference to source

[6] O.A. No. 606/2018

segregation, door to door collection, public sweeping, waste processing, grievance redressal mechanism and monitoring. This Tribunal also constituted Regional/Apex Committees for a limited period.

Sewage Management:

10. Apart from the issue of SWM, the Tribunal also dealt with the issue of sewage management in pursuance of order of the Hon'ble Supreme Court in *Paryavaran Suraksha vs. Union of India*[7] requiring this Tribunal to monitor directions for proper treatment of sewage to prevent untreated sewage and other effluents being discharged in water bodies. On 28.08.2019, it was directed that 100% sewage treatment must be ensured by all local bodies. Vide further order dated 06.12.2019 in O.A. No. 673/2018[8], the Tribunal directed that for failure to commence in-situ remediation, compensation will be payable at the rate of Rs. 5 lakh per month per drain after 31.03.2020 and for failure to commence setting up of STPs after 31.03.2020 compensation is to be paid at the rate of Rs. 5 lakh per month per STP. For failure to complete the project, compensation has to be paid at the rate of Rs. 10 lakh per STP per month after 31.03.2021. Relevant part of the order is quoted below:

> *"47. (i)* ***100% treatment of sewage may be ensured as directed by this Tribunal vide order dated 28.08.2019 in O.A. No. 593/2017 by 31.03.2020 atleast to the extent of in-situ remediation and before the said date, commencement of setting up of STPs and the work of connecting all the drains and other sources of generation of sewage to the STPs must be ensured.*** *If this is not done, the local bodies and the concerned departments of the States/UTs will be liable to pay compensation as already directed vide order dated 22.08.2019 in the case of river Ganga i.e.* ***Rs. 5 lakhs per month per drain, for default in in-***

[7] (2017) 5 SCC 326

[8] News item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB"

situ remediation and Rs. 5 lakhs per STP for default in commencement of setting up of the STP.

ii. Timeline for completing all steps of action plans including completion of setting up STPs and their commissioning till 31.03.2021 in terms of order dated 08.04.2019 in the present case will remain as already directed. In default, compensation will be liable to be paid at the scale laid down in the order of this Tribunal dated 22.08.2019 in the case of river Ganga i.e**. Rs. 10 lakhs per month per STP."**

Other issues:

11. Apart from solid waste management and sewage management, the Tribunal is seized of other significant environmental issues in separate proceedings including 351 polluted river stretches[9], 122 non-attainment cities[10], 100 polluted industrial clusters[11], illegal sand mining[12], reuse of treated water[13], restoration of water bodies[14], compliance of Plastic Waste, Bio-medical waste etc.[15], carrying capacity study[16], remediation of legacy waste sites[17], preparation of District Environment Plans[18], Hazardous Waste Management Rules[19], depletion of ground water in over-exploited, critical and semi-critical areas[20]. However, for today's consideration, as directed vide order dated 07.01.2020, primary monitoring is focused at:

(i) Solid waste management including legacy waste.

(ii) Sewage management and 351 polluted river stretches.

(iii) Air quality management in 122 non-attainment cities.

[9] Vide order dated 06.12.2019, O.A. No. 673/2018
[10] Vide order dated 20.11.2019, O.A. No. 681/2018
[11] Vide order dated 14.11.2019, O.A. No. 1038/2018
[12] Vide order dated 26.07.2019, O. A. No. 360/2015
[13] Vide order dated 10.05.2019, O.A. No. 148/2016
[14] Vide order dated 10.05.2019, O.A. No. 325/2015
[15] Vide order dated 24.04.2019, O.A. No. 606/2018 – Karnataka
[16] Vide order dated 11.02.2019, Appeal No. 122/2018
[17] Vide order dated 17.07.2019, O.A. No. 519/2019 with O.A. No. 386/2019
[18] Vide order dated 25.07.2019, O.A. No. 710/2017
[19] Vide order dated 26.08.2019, O.A. No. 804/2017
[20] Vide order dated 10.10.2019, O.A. No. 176/2015

Order dated 16.01.2019:

12. Vide order dated 16.01.2019, after noticing that statutory timelines under Rule 22 had expired for various steps and failure of the statutory authorities was punishable criminal offence under the provisions of the EP Act as well as under the provisions of the National Green Tribunal Act, 2010 (NGT Act), this Tribunal required presence of Chief Secretaries of all States/UTs. The timelines in the said Rule are as follows:

"

Sl. No.	***Activity***	***Time limit from the date of notification of rules***
(1)	*(2)*	*(3)*
1.	*Identification of suitable sites for setting up solid waste processing facilities.*	*1 year*
2.	*Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.*	*1 year*
3.	*Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.*	*2 years*
4.	*Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.*	*2 years*
5.	*Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.*	*2 years*
6.	*ensure separate storage, collection and transportation of construction and demolition wastes.*	*2 years*
7.	*setting up solid waste processing facilities by all Local Bodies having 100000 or more population.*	*2 years*
8.	*Setting up solid waste processing facilities by Local Bodies and census towns below 100000 population.*	*3 years*
9.	*setting up common or stand alone sanitary landfills by or for all Local Bodies having 0.5*	*3 years*

	million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.	
10.	*setting up common or regional sanitary landfills by 3 years all Local Bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.*	*3 years*
11.	*bio-remediation or capping of old and abandoned dump sites.*	*5 years*

"

13. It was noted that apart from failure of solid waste management, there was also failure of liquid waste management. Such failure had resulted in 351 identified polluted river stretches, 102 (now 122) non-attainment cities in terms of air quality, 100 polluted industrial clusters and other serious environmental consequences, threatening life and health of citizens, water and air quality and the climate. The Chief Secretaries of all States/UTs were required to acquaint themselves with specific issues mentioned in the said order and coordinate with all the concerned authorities in their respective States/UTs and appear before this Tribunal with their respective status reports. Other directions included constitution of special task force in each district for awareness by involving educational, religious and social organizations, including local Eco-clubs.

14. The issues specified were as follows:

> *"a. Status of compliance of SWM Rule, 2016, Plastic Waste Management Rules, 2016 and Bio-Medical Waste Management Rules, 2016 in their respective areas.*
>
> *b. Status of functioning of Committees constituted by this order.*
>
> *c. Status of the Action Plan in compliance vide order dated 20.09.2018 in the News Item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB (Original Application No. 673/2018).*

d. *Status of functioning of Committees constituted in News Item Published in "The Times of India' Authored by Shri Vishwa Mohan Titled "NCAP with Multiple timelines to Clear Air in 102 Cities to be released around August 15" dated 08.10.2018 (O.A. No. 681/2018).*

e. *Status of Action Plan with regard to identification of polluted industrial clusters in O.A. No. 1038/2018, News item published in "The Asian Age" Authored by Sanjay Kaw Titled "CPCB to rank industrial units on pollution levels" dated 13.12.2018.*

f. *Status of the work in compliance of the directions passed in O.A. No. 173 of 2018, Sudarsan Das v. State of West Bengal & Ors. Order dated 04.09.2018.*

g. *Total amount collected from erring industries on the basis of 'Polluter Pays' principle, 'Precautionary principle' and details of utilization of funds collected.*

h. *Status of the identification and development of Model Cities and Towns in the State in the first phase which can be replicated later for other cities and towns of the State."*

15. Accordingly, the Chief Secretaries of the States/UTs appeared and interacted with this Tribunal. The Tribunal noted unsatisfactory state of affairs on the subject of environmental governance in the country and serious non-compliance of statutory mandate, need to ensure that statutory regulators performed their duty and are manned by credible persons. Failure in this regard had potential for public health and environment and sustainable development goals. It was noted that SOP had been prepared for clearance of legacy waste and circulated to the SPCBs/PCCs which had been successfully implemented at some places like Indore.

16. After interaction with the Chief Secretaries on several dates, further directions were issued which were by and large on same pattern as non-compliance was found by all the States/UTs. It will be suffice to refer to the observations and directions issued vide order dated

18.07.2019 in respect of State of J&K, which was the last State in the series of interactions:

Observations:

> *"36. Needless to say that improvement in environment is not only inalienable duty of the State, but is also necessary for sustainable development which is essential for the health and well-being of citizens as well as for intergenerational equity. These principles require that all human activities should be conducted in such a way that the rights of future generations to access clean air and potable water are not taken away.* ***At the cost of repetition, it may be mentioned that water is being polluted because of discharge of untreated sewage and effluents. Air pollution is result of failure to manage solid waste and to prevent other causes leading to air pollution****. There are also other issues like deterioration in groundwater level, damage to forests and wild life, unscientific and uncontrolled sand mining etc. Unsatisfactory implementation of law is clear from the fact that in spite of severe damage, there is no report of any convictions being recorded against the polluters, nor adequate compensation has been recovered for damage caused to the environment. Steps for community involvement are not adequate. There is reluctance even to declare some major cities as fully compliant with the environment norms.* ***The authorities have not been able to evolve simplified and standard procedure for preparing project reports and giving of contracts. There is no satisfactory plan for reuse of the treated water or use of treated sewage or waste and for segregation and collection of solid waste, for managing the legacy waste or other wastes, etc.***
>
> *37. Since we have found huge gap in steps taken and steps required to be taken to remedy the unsatisfactory state of environment, we had an interaction with the Chief Secretary about the way forward. The gap in the mandate of law on the one hand and actual compliance with law on the other has manifested itself in the form of polluted water, air and land. Its actual measurement in terms of monetary value or the loss on account of adverse impact on public health and environment or otherwise in terms of number of deaths or diseases does not appear to have been duly and exhaustively undertaken by the official machinery so far for the country or for any particular area. The private reports mention diseases by pollution in the state of J&K, as already noted in the para 33 above. There are also various studies reporting about number of deaths and diseases in India by pollution.[21] Death by pollution may be comparable to an offence of homicide and any disease on that account may be likewise comparable to attempt to murder or grievous hurt. Polluter is, thus,*

[21] https://www.healtheffects.org/publication/gbd-air-pollution-india

To the effect that 3283 Indians died per day due to outdoor air pollution in India in 2015, making the potential number of deaths due to outdoor air pollution in India in 2015 to 11.98 lakh.

liable to be dealt with in the same manner as a person committing any other heinous crime as per law of the land. Mere fact that such polluter creates wealth or employment does not make the offence less serious. The statutory framework prohibits polluting activity and provides for penal consequences. Further, the 'Polluter Pays' principle requires compensation to be recovered to meet the cost of remedying the adverse impact of pollution. Governance of such laws can be held to be satisfactory if the magnitude of punishment of law violators corresponds to the extent of violation of law and the compensation recovered is adequate to meet the cost of damage. There is enough evidence of pollution but no data is shown of corresponding convictions or recovery of adequate compensation for restoration of environment. This calls for authentic study of the extent of damage to the environment and to the public health so that policy makers and law enforcers can bridge the gap.

38. In case extent of convictions for the environment related offences do not correspond to the extent of crime, paradigm shift in policies and strategies for implementation of law may need to be considered. Similarly, the mechanism for recovery of compensation may need to be revised on that pattern. Such review of policy cannot be left to the local bodies or the Pollution Control Boards but has to be at highest level in the State and further review at the national level. As noted in some of the studies, the ranking of the country in compliance of environmental norms needs to be brought to respectable higher position which may be possible only if there is change in policies and strategies for implementation of necessary norms at every level in right direction. ***The scale of compensation needs to be suitably revised so that the same is deterrent and adequate to meet the cost of reversing the pollution.***

39. Authentic data is required to be compiled which is necessary for proper policy making. The Rules provide for such data to be collected at the state level as well as at the national level. If such data is not furnished timely from ground level with all the requisite details, the policy making remains deficient. ***Since none of the States is fully compliant with the mandate of statutory waste management rules under various headings, as already noted, remedial measures are necessary.*** *We consider it necessary to observe that at least some major cities/towns/villages be first developed as model and thereafter successful experiment replicated in remaining cities/towns/villages.*

40. Though environment is priceless and no amount of compensation may be sufficient for real restoration of environment to its pristine glory, the 'Polluter Pays' principle requires cost of restoration to be recovered which should be deterrent and also include Net Present Value (NPV) for environmental services forgone forever. ***Though such compensation is to be primarily recovered from polluters, where authorities fail to implement law and recover compensation on account of collusion or inaction, such authorities can also be made accountable and required to pay compensation.*** *Strong*

central mechanism of auditing the compliance of environmental laws by the States and the Union Territories (UTs) is necessary. We are also of the view that to encourage enforcement of environmental laws, cognizance of performance or otherwise need to be taken by authorities allocating funds. Incentives can be given to encourage compliance and those deficient in compliance may be required to comply as a condition for getting grants or part of such grants. Such a policy may be a step in the right direction for achieving sustainable development goals. We take note of discussion on the subject in the minutes of National Development Council held on 01.10.1990.[22] Therein a formula called "Gadgil – Mukerjee" formula is referred to envisaging grants to meet environmental problems. We may add that while such grants may be necessary, there may be a condition requiring measurable and demonstrable improvement in time bound manner as a condition for the grant. Accordingly, vide order dated 24.04.2019 a copy of this order has been sent to Niti Aayog, Finance Commission and MoEF&CC to consider the observations, particularly in this para.

41. One major hurdle in compliance of the Rules is lack of institutional training mechanism. Scheme of Rules and strategies for implementation, including technology to be used, best practices to be employed need to be identified. Resource persons, target group of persons to be trained, location at which training is to be undertaken need to be worked out.

42. ***It is also necessary to have an Environment Plan for the country as well as for the States which may identify and publish gaps in compliance of environmental law and indicate action plan to remedy the same****. Compliance of environmental norms also requires carrying capacity study not only of eco-sensitive areas but also areas where violation of environmental laws has clearly surfaced out based on scientific data published by CPCB such as non-attainment cities in terms of air quality, critically polluted industrial clusters on account of air/water pollution, polluted river stretches etc. Drastic remedial measures may be necessary to deal with the same which should not merely be responsive but proactive by way of planning population density, vehicle numbers, nature and quality of vehicles, nature and quality of activity to be allowed.* ***Absence of such measures may render it difficult to meaningfully implement the accepted norms of 'Sustainable Development' or 'Intergenerational Equity'. Such planning is part of 'Precautionary' principle. 'Polluter Pays' principle can be meaningfully implemented only when assessment of damage is realistic and compensation recovered matches the extent of damage.*** *As per census of India 2011, there are 475 places with 981 overgrowths (OGs) have been identified as Urban Agglomeration (UA). The number of total towns in India is 7,935 (Statutory Towns 4,041 + Census Towns 3,894). There are total 6,166 Urban Agglomeration/towns which constitutes the urban frame of the country. During FY 2017-2018, out of 35 SPCBs/PCCs only 16 SPCBs/ PCCs reported the status of Solid*

[22]http://planningcommission.gov.in/aboutus/committee/wrkgrp12/wg_state_finan0106.pdf

Waste Management Rules, 2016.[23] ***In view of these statistics, emergent and stringent measures are required for compliance of environmental norms.***

43. We discussed with the Chief Secretary the above unsatisfactory situation of environment and about ***need for having an effective monitoring cell directly attached to the office of the Chief Secretary*** *with experts in environment and related issues to assist the Chief Secretary.*

44. The presence of Chief Secretary before this Tribunal was directed with an expectation that there will be realization of seriousness at the highest level which may percolate in the administration."

Directions:

"45. In view of above, after discussion with the Chief Secretary, following further directions are issued:

i. *Apart from three towns said to have been notified as proposed models for compliance of Environmental norms, atleast three villages in every District of the State may be notified on the website of the State within two weeks from today which will be made fully compliant with environmental norms within the next six months. Remaining cities, towns and villages of the State may be made fully compliant in respect of environmental norms within one year.*
ii. *A quarterly report be furnished by the Chief Secretary, every three months. First such report shall be furnished by October, 10, 2019.*
iii. *The Chief Secretary may personally monitor the progress, atleast once in a month, with all the District Magistrates.*
iv. *The District Magistrates may monitor the status of compliance of environmental norms, atleast once in two weeks.*
v. *The District Magistrates or other Officers may be imparted requisite training.*
vi. *Estimate of value of environmental degradation and cost of restoration be prepared and compensation be planned and recovered from polluters for environmental restoration and restitution on that basis.*
vii. *Performance audit of functioning of all regulatory bodies may be got conducted and remedial measures be taken, within six months.*
viii. *Introduction of a policy of giving ranking, based on performance on the subject of environment and giving of rewards or other incentives on that basis to individual areas, localities, institutions or individuals may be considered. This may also include encouraging students or*

[23] Annual report of CPCB for the year 2017-18 accessible at: http://cpcb.nic.in/uploads/hwmd/MSW_AnnualReport_2017-18.pdf

other citizens significantly contributing to the cause of environment. The best practices may be evolved, if necessary, in the light of experiences on the subject. This may help in educating and involving public at large which may help in enhancing of environmental laws.

ix. The Chief Secretary may remain present in person before the Tribunal with the status of compliance in respect of various issues mentioned in para 22 as well as any other issues discussed in the above order on 10.02.2020 at 2.p.m. It is made clear that Chief Secretary may not delegate the above function and the further requirement of appearance before this Tribunal to anyone else. However, it will be open to him to change the date, by advance intimation by e-mail at ngt.filing@gmail.com to adjust their convenience.

A copy of the compliance report furnished by the Chief Secretary be sent to CPCB as already directed vide order dated 24.04.2019 for the State of Karnataka (supra)."

17. It was further directed that compliance reports be furnished by the States/UTs to CPCB. Reference may also be made to some further orders on the subject being dated 08.04.2019[24], 22.04.2019[25], 23.04.2019[26], 24.04.2019[27], 11.02.2019[28], 08.03.2019[29], *02.11.2018*[30], 10.05.2019[31], 10.05.2019[32], 17.07.2019[33],

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[24] O.A. No. 673/2018, News item published in 'The Hindu' authored by Shri Jacob Koshy Titled 26 "More river stretches are now critically polluted: CPCB" (**directing effective steps for remediation of the polluted river stretches**.)

[25] OA No. 606/2018 - Meghalaya (**directing training and capacity building at National and State Level**)

[26] O.A. No. 606/2018 – Tamil Nadu (**directing preparation of Annual Environment Plan giving status of compliance to environmental norms and gaps therein including assessment of damage to the environment in monetary terms**)

[27] O.A. No. 606/2018 – Karnataka (**directing monitoring of compliance of Plastic Waste, Bio-medical waste, Sewage Waste and air pollution**)

[28] Appeal No. 122/2018, *Anil Tharthare Vs. The Secretary, Envt. Dept. Govt. of Maharashtra & Ors.* Para 33 of the order wherein the Tribunal directed constitution of a five Members Expert Committee to carry out **carrying capacity study** of the area for relevant environment parameters and impact of such expansion on already congested and stressed areas.

[29] O.A. No. 568/2016, *Ajay Khera Vs. Container Corporation of India Limited & Ors*, the Tribunal directed the Container Corporation of India (CONCOR) to phase out diesel vehicles, used for transportation by the Inland Container Depot (ICD) Tughlakabad, within six months.

[30] O.A. No. 400/2017, *Westend Green Farms Society Vs. Union of India & Ors.* Para 28 of the order wherein the Tribunal directed carrying capacity assessment to regulate activities violating environmental laws.

[31] O.A. No. 148/2016, Mahesh Chandra Saxena Vs. South Delhi Municipal Corporation & Ors. (**Reuse of treated water**)

[32] O.A. No. 325/2015, Lt. Col. Sarvadaman Singh Oberoi Vs. Union of India & Ors. (**restoration of water bodies**)

[33] Original Application No. 519/2019 WITH Original Application No. 386/2019 (**remediation of legacy waste sites**)

22.07.2019[34], 25.07.2019[35], 26.07.2019[36], 26.08.2019[37], 28.08.2019[38], 11.09.2019[39], 11.09.2019[40], 10.10.2019[41], 14.11.2019[42], 19.11.2019[43], 20.11.2019[44], 06.12.2019[45] and 18.12.2019[46].

18. The Registry was directed to forward quarterly reports received from the Chief Secretaries as and when received to the CPCB so that CPCB may prepare a gap analysis report and present the same to this Tribunal.

19. Accordingly, the CPCB filed following reports:

> *"i. Report dated 09.09.2019 enclosing Annual Environment Plan for the country giving compliance of environment norms and gaps.*
> *ii. Report dated 09.09.2019 annexing Preliminary Framework for Imposing Environmental Damage Compensation.*
> *iii. Report dated 09.09.2019 on the subject of Methodology of Assessment of Environment Carrying Capacity.*
> *iv. Gap Analysis report filed on 06.09.2019 on the subject of compliance of solid waste, plastic waste, bio-medical waste management, rejuvenation of identified polluted river stretches, polluted industrial clusters, non-attainment cities.*
> *v. Report dated 24.07.2019 on Framework on national environmental training program.*
> *vi. Status report dated 09.08.2019 on Information, Education & Communication (IEC) activities."*

Order dated 12.09.2019:

[34] Execution Application No. 13/2019 (**Plastic Waste Management**)
[35] O.A. No. 710/2017 (**preparation of District Environment Plans**)
[36] O. A. No. 360/2015 (**Illegal sand mining**)
[37] O.A. No. 804/2017 (**Hazardous Waste Management Rules**)
[38] O.A. No. 593/2017 (**requirement of 100% treatment of sewage and effluents**)
[39] O.A. No. 148/2016 (**utilization of treated waste water**)
[40] O.A. No. 496/2016 (**ground water management, rain water harvesting**)
[41] O.A. No. 176/2015 (**depletion of ground water in over-exploited, critical and semi-critical areas**)
[42] O.A. No. 1038/2018 (**polluted industrial clusters**)
[43] O.A. No. 519/2019 (**legacy waste dump sites**)
[44] O.A. No. 681/2018 (**non-attainment cities in terms of air quality and also control of noise pollution**)
[45] O.A. No. 673/2018 (**351 polluted river stretches**)
[46] O.A. No. 200/2014 (**pollution of river Ganga**)

20. The Tribunal vide order dated 12.09.2019 considered the above and directed all the States/UTs to furnish information to the CPCB as follows:

> *"3. We have heard learned Counsel for the CPCB for future course of action and further directions required on the above subjects. He submitted that the above reports are incomplete for want of information from the States/UTs. It was elaborated during the course of hearing that information is required to be submitted in terms of following thematic areas viz.*
>
> - *Compliance to Solid Waste Rules including Legacy Waste.*
> - *Compliance to Bio-medical Waste Rules.*
> - *Compliance to Construction & Demolition Waste.*
> - *Compliance to Hazardous Waste Rules.*
> - *Compliance to E-waste Rules.*
> - *351 Polluter Stretches in the country.*
> - *122 Non-attainment cities.*
> - *100 industrial clusters.*
> - *Status of STPs and re-use of treated water.*
> - *Status of CETPs/ETPs including performance.*
> - *Ground water extraction/contamination and re-charge.*
> - *Air pollution including noise pollution.*
> - *Illegal sand mining.*
> - *Rejuvenation of water bodies.*
>
> *4. The information with regard to above thematic areas needs to be submitted to CPCB by the Chief Secretaries of all the States and Union Territories in terms of following:*
>
> - *Current status*
> - *Desirable level of compliance in terms of statutes.*
> - *Gap between current status and desired levels.*
> - *Proposal of attending the gap with time lines.*
> - *Name and designation of designated officer for ensuring compliance to provisions under statute.*
>
> *5. CPCB is permitted to file revised updated reports on the subject after collecting information from concerned States/UTs by 15.11.2019."*

Order dated 07.01.2020:

21. The status report dated 27.12.2019 with reference to the above thematic areas was considered on 07.01.2020 and it was observed:

> *"12. The reports give information about States who have given some information but the nature and extent of information which was required has not been furnished. Available information with regard to*

sewage generation and treatment shows huge gap. Grading made by the CPCB into 'good', 'average', 'poor' and 'no information' is not based on any qualitative analysis but extent of information furnished.

Instead, what is least expected is information on:

(i) solid waste management, including remediation of legacy waste in terms of earlier orders of this Tribunal,
(ii) sewage treatment and restoration of 351 polluted river stretches and
(iii) air quality management in 102 (122) non-attainment cities.

With respect to serial no. (i), the information is required with regard to the quantity of MSW generated, segregated and treated; gaps in the waste processing in terms of generation and treatment and enforcement of statutory timelines and orders of this Tribunal for bridging the gap; number of sites, and quantity of legacy waste therein and timelines for its remediation.

With respect to serial no. (ii), quantity of sewage generated and treated in the State, gap in the sewage treatment and timelines to bridge the gap including strategy for use of treated water for secondary purpose. Further, with regard to restoration of 351 polluted river stretches, the States need to furnish information about the compliance of directions including in-situ and ex-situ remediation by way of phyto-remediation/artificial wetlands, bio-diversity parks or any other appropriate measure to supplement load reduction on recipient river systems.

With respect to serial no. (iii), the Chief Secretaries need to monitor and compile information on the subject of execution of action plans for containment of air pollution in terms of orders of this Tribunal and furnish the quantifiable progress/achievement to the CPCB.

13. In view of above, CPCB needs to redesign formats and secure relevant quantifiable information from the Chief Secretaries under different heads so that the Chief Secretaries are able to respond to the Tribunal on their appearance as per schedule of appearance already notified. Chairman and Member Secretary, CPCB may remain present on the dates of appearance of Chief Secretaries with relevant data.

14. The regime of compensation in terms of earlier directions will be considered after interaction with the Chief Secretaries."

IV. RECENT ORDERS OF THE HON'BLE SUPREME COURT DATED 25.11.2019 AND 13.01.2020 HAVING BEARING ON THE MATTER (M.C. Mehta vs. Union of India, W.P. No. 13029/1985):

22. The Hon'ble Supreme Court vide order dated 25.11.2019[47] while dealing with the pollution in Delhi and NCR held:

[47] Writ Petition(s)(Civil) No(s). 13029/1985, M.C. Mehta Vs. Union of India & Ors.

"4. We see Yamuna river virtually turned into a sullage. We take judicial notice of this situation. Similar is the position with Ganges. As it proceeds, industrial effluents are being poured in rivers. ***Sewage is also being directly put in rivers contributing to the river water pollution.*** *We direct the Pollution Control Boards of the various States as well as the Central Pollution Control Board and various Governments to place before us the data and material with respect to various rivers in the concerned States, and what steps they are taking to curb the pollution in such rivers and to management as to industrial effluents****, sewage, garbage, waste and air pollution, including the water management.*** *We club the pending case of water management with this matter.*

10. As we have noted that from last several years, the position of air pollution is worsening in spite of various orders passed by this Court. The reports and the scientific data indicating that large section of people are suffering from the dreaded diseases due to such air pollution such as Cancer, Asthma and various other diseases. Life span is adversely affected. ***Time has come that the various States recognise right to life is important right. Human life and health have been put in danger.*** *In such scenario, why they should not be required to pay compensation to such persons who are being affected by inadequate arrangement to check the* ***air pollution, non-lifting of garbage, waste which add ultimately to the pollution.***

11. In this case we find that Delhi is lacking the capacity to the extent of 45% to even clean the garbage/waste which is being generated. Similar is the situation in various other places. We take note of the situation which is alarming and time has come to remind the State machineries as to their duties as all of us are meant to serve the people of this great country. Our Constitution has envisaged certain Directive Principles as they are more important rights at the discretion of the Government. The Courts are not to interfere in that, but dereliction cannot be to the extent that the very right to life is endangered by the inaction.

13. Not only the basic Fundamental Rights are being ignored with respect to air and water, ***problem of governance are being projected, which cannot come into the way of the basic Fundamental Rights which a human enjoys,*** *much less to talk of the Fundamental Duties and Directive Principles contained in the State policy which have already found statutory expression in the form of Municipal laws, Prevention of Air Pollution and Water Acts and various schemes framed by the Central Government and State Governments, but we see neither the air quality has improved nor the water quality in several States, not to talk of Delhi only. We have called for the report from Delhi Government where the reports indicate that the contaminated water is being supplied and also from Bureau of Indian Standards to submit report in this regard.*

15. At the same time, as we find that in spite of various orders passed by this Court, we are not able to improve the situation of air quality which we can see at least in Delhi and NCR with certainty. ***Time has come to require the State Governments to explain***

why they should not be asked to compensate the persons who are being affected by bad air quality. *Obviously, the State is run by the administration, why liability should not be imposed for such a tort on the concerned machinery also of the various States which are failing to discharge their basic duties. This Court in Municipal Council, Ratlam Vs. Vardhichand & Ors., reported in (1980) 4 SCC 162 has held they have to take proper and positive action in this direction****. It is their bounden duty to provide civic amenities, and also to see that self-created bankruptcy does not come in the discharge of the statutory obligation which are necessary for existence of human life. We have seen during the course of the arguments that one State is passing the burden upon the Centre and then it is stated on behalf of the Central Government that they have framed scheme and it for the State Governments to implement it.*** *We expect not only the 'policy making' but also its 'implementation'. Let the States of Punjab, Haryana, Uttar Pradesh and the Government of NCT of Delhi respond, due to the air pollution, why the concerned Government and its concerned machinery, from top to bottom, should not be asked to compensate the citizens of Delhi and adjoining areas for various diseases which are being caused and sufferings and troubles which are being faced and the report indicates the life span is being shortened. Let show cause notice be issued to the various State Governments, and to the Chief Secretaries, to submit reply within six weeks. Let the matter be listed for consideration on 17.01.2020. The Chief Secretaries to the States of Punjab, Haryana, Uttar Pradesh and Government of NCT of Delhi be personally present on that date."*

23. Again, in the above matter, the Hon'ble Supreme Court vide order dated 13.01.2020 observed:

"56 (F). With respect to waste burning ***compliance of Solid Waste Management Rules, 2016 is necessary****. The waste segregation and management is required, what are the existing facilities and deficit requirements have to be met by the Government of NCT of Delhi, Haryana, Uttar Pradesh, Rajasthan and Punjab.*

57. (xviii). Let the Government of NCT of Delhi work out the details with respect to 45% deficit capacity to lift the garbage and waste as there is only 55% capacity available with respect to garbage and waste generated in Delhi. ***Let it work out at a comprehensive plan within three months to have full (100%) capacity to deal with garbage and wastes*** *and place it before this Court, including the implements, tools, manpower and the expenditure required in that connection.*

(xxi). We direct the various State Governments through ***Chief Secretaries to inform this Court about the measures taken by them with respect to pouring of sewage*** *and untreated industrial effluents in various rivers and the plan prepared by them and arrangement of* ***funds made by them for the purpose of***

sewage treatment plants and existing facilities *and requirements be pointed out within eight weeks.*

(xxii). ***Let the Government of NCT of Delhi and Governments of Punjab, Haryana and UP show cause why they should not be saddled with the compensation for failure of their machinery and the concerned authorities in taking appropriate steps to prevent stubble burning and other pollution being caused."***

V. 25TH REPORT DATED 12.02.2019 OF THE STANDING COMMITTEE ON URBAN DEVELOPMENT, 16TH LOK SABHA ON THE ISSUE OF SOLID WASTE MANAGEMENT INCLUDING HAZARDOUS WASTE, MEDICAL WASTE AND E-WASTE:

24. The Standing Committee on Urban Development, 16th Lok Sabha in its 25th Report dated 12.02.2019 considered the issue of solid waste management including hazardous waste, medical waste and e-waste and observed:

"It is estimated that about ***65 million tonnes of waste is generated annually*** *in the country out of which about 62 million tonnes is Municipal Solid Waste (MSW) which include organic waste, recyclables like paper, plastic, wood, glass etc. About 45-50% of this MSW is biodegradable/wet/organic waste, 20-25 % is recyclable waste & about 30-35% is inert/debris.*

1.2 Only about 75-80% of the municipal waste gets collected and out of this only ***22- 28% is processed and treated and remaining is deposited indiscriminately at dump yards.*** *It is projected that by the year 2031, the MSW generation shall increase to 165 million tonnes and to 436 million tonnes by 2050.* ***Eliminating, dumping and minimizing releases of hazardous chemicals by paying special attention to air quality and municipal and other waste management and reducing waste generation through prevention, reduction, recycling and reuse globally have been one of the Sustainable Development Goals (SDGs) that have been adopted by UN General Assembly in September, 2015****.*

1.3 It has been estimated that the Urban Local Bodies (ULBs) spend about 60-70% of total expenditure on street sweeping, 20-30% on transportation and less than 5% on municipal disposal of waste, which shows that hardly any attention is given to scientific disposal of waste. The waste collection efficiency in India ranges between 70% and 90% in major Metro cities, whereas in several smaller cities it is below 50%. However, if the current 62 million tones annual generation of MSW continues to be dumped without treatment; it will need 3.40 lakh cubic meter of landfill space every day. Considering the projected waste generation of 165 million tonnes by 2031, ***the requirement of land for setting up landfill for 20 years (considering 10 meter high waste pile)***

could be as high as 66 thousand hectares (1240 hectare per year) of precious land, which our country cannot afford to waste. *Currently, of the estimated 62 million tonnes of MSW generated annually by 377 million people in urban areas, more than 80% is disposed of indiscriminately at dump yards in an unhygienic manner by the municipal authorities leading to problems of health and environmental degradation.*

1.4 As per NITI Aayog, presently, out of the total MSW generated, only 29.51% is subjected to treatment which, however, is poised to improve with the Swachh Bharat Mission (Urban) scheme of Government of India being in full swing."

VI. FURTHER CONSIDERATION OF THE MATTER IN TODAY'S HEARING:

25. Accordingly, we have considered the matter further after interaction with the Chief Secretaries and officers representing CPCB. Even though all the thematic areas of the environment are significant, interaction has been limited to few selected themes, other themes being left to be considered separately on different scheduled hearings.

26. The fact remains that there is huge gap in generation and treatment of solid and liquid waste. **As per CPCB report 2016 (06.12.2016) as against 61948 MLD sewage generated in urban areas in India, the treatment capacity is 23277 MLD. The deficit in capacity is 62%.** There is no data of sewage generation in rural areas. **As per CPCB estimate[48], about 65 million tonnes of waste is generated annually in the country out of which about 62 million tonnes is Municipal Solid Waste (MSW). Only about 75-80% of the municipal waste gets collected and out of this only 22- 28% is processed and treated and remaining is deposited indiscriminately at dump yards. It is projected that by the year 2031, the MSW generation shall increase to 165 million tonnes and to 436 million tonnes by 2050. There are more than 4000**

[48] http://164.100.47.193/lsscommittee/Urban%20Development/16_Urban_Development_25.pdf

dump sites as per CPCB data[49] which need to be remediated to avoid harmful impact on environment and public health.

27. All the States/UTs were directed by this Tribunal to commence remediation of legacy waste sites by 01.11.2019[50]. The Tribunal observed:

> *"28. .....We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health[51]."*
>
> *"30. Needless to say that potential hazard of dumpsites on public health and environment is more or less on the same pattern and earliest such dumpsites are cleared, sooner it is better for public health.* ***Such dumpsites are undoubted source of air pollution resulting in respiratory and other diseases. Most vulnerable are the infants and the senior citizens.*** *The right to breathe fresh air being part of right to life, delay in remedying the situation is not desirable. The plea of capping is being put forward on the ground of need for urgent remedial action, ignoring that doing so will perpetuate the adverse consequences of retaining non-biodegradable and other polluting components in the garbage eventually causing continuous damage to the soil and the ground water. Biological solutions have to be preferred over engineering solutions on the subject. However action has to be taken fast. Delay which has taken place so far is on account of inaction of the concerned authorities for which there is no justification.*
>
> *31. It will also be appropriate to note that the scheme of the SWM Rules is to prevent collection of waste and instead, to ensure its segregation, treatment and disposal at the earliest and as far as possible at the source itself.* ***If it is***

[49] Order dated 18.10.2019 in O.A. No. 606/2018 para 6

[50] Order dated 17.07.2019 O.A. No. 519/2019 Para 28

[51] (a) *What a Waste 2.0, Global Snapshot of Solid Waste Management to 2050*, World Bank Group, ISBN (paper): 978-1-4648-1329-0, 2018 International Bank for Reconstruction and Development / The World Bank, http://datatopics.worldbank.org/what-a-waste/. The report states- When waste is burned, the resulting toxins and particulate matter in the air can cause respiratory and neurological diseases, among others (Thompson 2014). Piles of waste produce toxic liquid runoff called leachate, which can drain into rivers, groundwater, and soil. Organic waste entering waterways reduces the amount of oxygen available and promotes the growth of harmful organisms (Bhada-Tata and Hoornweg 2016). Marine pollution is also increasing as a result of mismanaged solid waste on land, poor disposal practices by sea vessels, and runoff from sewage and polluted streams.
(b)https://www.epw.in/engage/article/institutional-framework-implementing-solid-wastemanagement-india-macro-analysis Several studies have been published that link asthma, heart attack, and emphysema to burning garbage. Human faecal matter is also frequently found in
municipal waste—this, along with unmanaged decomposed garbage, attracts other rodents, that further lead to a spread of diseases such as dengue and malaria. Leachate from rotten garbage contains heavy metals and toxic liquid; with such emissions ending up either absorbed into the soil or flowing into water bodies today (Awasthi 2013), the entire food chain can be affected when this contaminated water is utilised for agriculture, human consumption and animal consumption.

> ***not done, the waste continues to be accumulated which becomes a challenge for the environment and public health. In this regard particular reference may be made to Rule 15 (zi). The authorities need to evolve a holistic strategy for integrated waste management in the municipal planning which may result in 'zero waste' going to the landfill in terms of the said rules[52].***
>
> *35. A copy of this order be sent to CPCB, all the Chief Secretaries, the MoEF&CC and MoHUA."*

28. The issue of solid and liquid waste needs to be taken seriously. We have already mentioned the available statistics on the subject. It is a matter of serious concern that legacy waste remediation has not even commenced at most of the sites even though statutory rules contemplate outer limit for completion of such remediation by 07.04.2021. Current processing of the waste generated and collected is also not taking place on regular basis. For any person travelling by train, hot spots of scattered garbage and overflowing sewage are common sights. Satisfactory sewage management also remains far cry. This unsatisfactory state of affairs must be remedied at the earliest and in a time bound manner by initiative at the highest level. Accountability needs to be fixed and consequences for failure clearly provided and enforced.

29. We may now note States specific scenario for UP, Punjab and UT Chandigarh as depicted in the earlier orders of this Tribunal when the Chief Secretaries appeared and as emerging from the data now made available.

I. **Data noted in the earlier orders of this Tribunal**:

[52] Reference may also be made to- *Suggestive /Indicative "The National Action Plan for Municipal Solid Waste Management"*, Central Pollution Control Board, https://cpcb.nic.in/uploads/MSW/Action_plan.pdf.

A. **STATE OF PUNJAB**:

RULES	DATA
Solid Waste Management	• No of Towns and Local Bodies: 167 • Waste generation: 4632.27 TDP Collection: 4498.57 TDP Treatmnt: 696 TDP Landfill : 3801 TDP Existing dumps : 167
Plastic waste management	Waste generation : 54066 TPA No. of Plastic Units: 142 Un Registered Units: 246
Biomedical waste management	No of Hospitals : 7137 Waste Generation : 15203 Kg/D CBMWTF: 4
Polluted river stretches	River Ghaggar - PI River Sutlej - PII River Kali Been - PIV River Beas - P V (Action Plans are accepted by CPCB)
Air quality action plans	1.Derabasi 2. Gobindgarh 3. Jalandhar 4. Khanna 5. Ludhiana 6. Naya Nangal 7. Dera baba/ Pathankot 8. Patiala 9. Amritsar (Action Plans not prepared)
Industrially polluted clusters	Ludhiana and Mani Gobindgarh
ETPs CETPs and STPs	Sl. No. ETP CETPs STPs Total 1666 4 641 Complying 1580 3 570 Non-Comply 86 1 71 Under construction - 4 120

B. **STATE OF UTTAR PRADESH**:

RULES	DATA
Solid Waste Management	Number of towns to be covered: 653 Local Bodies: 653 Waste Generation: 15500 TPD Collected: 12000TPD Treated : 3115 TPD Landfilling : No. of Dumpsites :
Plastic waste management	Waste Generation : 206733.4505 TPA
Biomedical waste management	No of Hospitals : 12876+ Authorizations granted : 7644 Waste Generation : 43554 Treatment : 43554 Common Bio-medical waste Treatment Facilities : 17

	Number of captive facilities: 13
Polluted river stretches	P(I)- 4 Hindon, Kalindi, Varuna, Yamuna P(II)- P(III)- 1 Gomti P(IV)- 2 Ganga, Ramganga P(V)- 5 Betwa, Ghaghara, Rapti, Sai, Saryu Total -12
Air quality action plans	Agra, Allahabad, Anpara, Bareily, Firozabad, Gajrula, Ghaziabad, Jhansi, Kanpur, Khurja, Luckhnow, Moradabad, Noida, Raebareli, Varanasi.
Industrially clusters	Agra, Ghaziabad, Kanpur, Noida, Aligarh, Bulandshar – Khurza, Firozabad, Gajrula, Mathura, Meerut, Moradabad, Singrauli and Varanasi.
ETPs CETPs and STPs	**ETPs** No. of industries which require ETP : No. of industries having functional ETP: No. of industries complying : **STPs** No. of STPs : No. of STPs complying : No. of under construction/proposed STPs : **CETPs** No CETP in the State

C. **<u>UT CHANDIGARH</u>**:

RULES	DATA
Solid Waste Management	• No. of Local Bodies: 01 • No. of city: 01 • Waste generation: 500 TPD • Waste collection: 463 TPD • Waste treated: 142.87 TPD • Land filling: 319.68 TPD • House to house collection: 100% • Segregation: 80% • Composting: 01 • Bio-gas Plant: 02 • RDF Plant: 01
Plastic waste management	• Waste generation : 12775 TPA • Use of Plastic: Ban on use of carry bags. • No. of registered units: 126
Biomedical waste management	• No. of hospitals : 788 • No. of authorizations: 350 • Waste generation : 2503 Kg/D • Quantity of waste treated: 2503 Kg/D • CBMWTF: 01 • No. of captive facilities: 03
Polluted river stretches	• Sewage disposal in river Ghaggar. • Action Plan prepared.
Air quality in Non-attainment cities	• Chandigarh. • Action plan prepared.
Industrially polluted clusters	• No cluster identified.
ETPs CETPs and STPs	1. **Compliance Status of ETPs (Jan., 2019):** • No. of industries which require ETP: 245 • No. of industries having functional ETP: 245

	• No. of Industries complying: 241 • No. of industries non-complying: 04 **2. Compliance Status of CETPs (Jan., 2019):** • No. of CETPs: 0 • No. of under construction/proposed CETPs: 0 **3. Compliance Status of STPs (Jan., 2019):** • No. of STPs: 60 • No. of STPs complying: 57 • No. of STPs non-complying: 03 • No. of under construction /proposed STPs: 03 • Targeted time period: Not specified

II. Data now made available during the hearing by the CPCB by way of presentation based on the data furnished by the concerned States/UT alongwith its observations:

A. **STATE OF PUNJAB**:

(i) Solid waste management including legacy waste.

S.no	Item	Remarks
	Number of ULBs	167
	Overall waste management status	
1	Quantity of MSW generated in the state (TPD)	4634
2	Quantity of MSW collected in the state (TPD)	4575
3	Quantity of MSW segregated and transported in the state (TPD)	4483 (98%)
4	SOLID WASTE MANAGEMENT PLAN	Decentralized approach adopted for SWM. Composting proposed for wet waste processing. Channelization of recyclable waste to be done through MRF facility. Inert waste to be dumped in landfill

Legacy Waste		
1	Number of dumpsites	150
2	Quantity of Waste dumped at dumpsites	Not provided
3	Number of dumpsites cleared	Nil
4	Number of dumpsites in which biomining has commenced	8
5	Time frame for clearing all dumpsites	April 2021

(ii) Sewage management and 351 polluted river stretches.

SEWAGE GENERATION VS TREATMENT CAPACITY						
Sewage Generation	**Treatment Capacity**	**Actual Treatment**	**Gap - Treatment (A-C)**	**Gap - Treatment Capacity (A-B)**	**Proposed Treatment Capacity**	**Timeline to meet the Gap**
2478 MLD	**1827 MLD**	**1355 MLD**	**1123 MLD**	**651 MLD**	**651 MLD (100 STPs)**	**05 Years (2024)**

SEWERAGE NETWORK						
Existing Sewerage Length	**Expected Network**	**Gap in Network (B-A)**	**Timelines to meet the Gap**			
12039 Km	**15434 Km**	**3395 Km (22 %)**	**05 Years (2024)**			

COMPLIANCE STATUS OF STPS						
Operational STPs	**Under Construction**	**STPs meeting the norms**	**New Proposed**	**Total STPs (A+B+D)**		
98	**35**	**66 (67 %)**	**100**	**233**		

RE-USE OF TREATED SEWAGE						
Present Utilization	**Proposed**	**Timelines**				
280 MLD (20.99 %)/1355 (MLD)	**1450 MLD (58.51 %) / 2478 MLD)**	**05 Years (2024)**				

Priority Class	**I**	**II**	**III**	**IV**	**V**	**Grand Total**
No. of PRS	2	-		1	1	4

RIVER NAME	**RIVER STRETCH**	**BOD RANGE/ MAX VALUE (mg/l) (2016-2017 Data)**	**PRIORITY**
GHAGGAR	SARDULGARH TO MUBARAKPUR	9.0-380	I
SUTLEJ	RUPNAGAR TO HARIKA BRIDGE	3.8-108	I
KALI BEIN	SULTANPUR LODHI TO C/F BEAS	9.0	IV
BEAS	ALONG MUKERIAN	3.8	V

(iii) Air quality management in 122 non-attainment cities.

- Number of Non Attainment cities (09) – (1) Dera Bassi (2) Gobindgarh (3) Jalandhar (4) Khanna (5) Ludhiana (6) Naya Nangal (7) Dera Baba/Pathankot (8) Patiala (9) Amritsar
- AQMC formed and all 09 plans approved by CPCB for implementation, CPCB Directions dated April 16, 2019
- City plans target all major sources specific to city (Soil & Road Dust, Vehicles, Domestic Fuel, MSW Burning, Construction Material and Industries), with short (wihtin six months), mid (within two year) and long - term (> two year) actions and responsible agencies.
- Micro level planning for each action needed.
- Strengthening of Monitoring Network –
  - Existing: Manual 22, CAAQMS 06
  - Required: Manual 06, CAAQMS 12 (Timeframe – November 20, 2020)
- GRAP – Preparation & Implementation of GRAP to be ensured
- Development of Public Grievance Redressal portal (PGRP) - Required to be developed
- Focused timely actions to tackle seasonal issues – stubble burning.

B. **STATE OF UTTAR PRADESH**:

(i) Solid waste management including legacy waste.

	Item	Remarks
	Overall waste management status	
	NUMBER OF ULBs	**652**
1	**Quantity of MSW generated in the state (TPD)**	**17377**
2	**Quantity of MSW collected in the state (TPD)**	**17329.4**
3	**Quantity of MSW segregated and transported in the state (TPD)**	**Not provided**
4	**SOLID WASTE MANAGEMENT PLAN** ✓ **97.2% of Door to Door collection of MSW is being practiced.** ✓ **12 MSW processing facilities (waste to compost) functional with cumulative treatment capacity of 4615 TPD.** ✓ **To fill the gap for waste processing, 5 firms have been issued letter of award for setting up waste to energy plants. Decentralized approach in all ULBs has been approved for creating composting of wet waste and MRF of dry waste.**	

Legacy Waste		
1	**Number of dumpsites**	**609**
2	**Quantity of Waste dumped at dumpsites**	**Not provided**
3	**Number of dumpsites cleared**	**1**
4	**Number of dumpsites in which biomining has commenced**	**Legacy waste remediation started at Gawri, Meerut and in Agra. RFP floated for 10 towns to remediate approx 39 Lacs ton of legacy waste. 1 Lac ton legacy waste remediated at Meerut site**
5.	**Time frame for clearing all dumpsites**	**Three years**

Observations:

- Information regarding quantity of legacy waste to be provided.

(ii) Sewage management and 351 polluted river stretches.

SEWAGE GENERATION VS TREATMENT CAPACITY						
Sewage Generation	**Treatment Capacity**	**Actual Treatment**	**Gap - Treatment (A-C)**	**Gap - Treatment Capacity (A-B)**	**Proposed Treatment Capacity**	**Timeline to meet the Gap**
5500 MLD	**3298.84 MLD**	**2248.28 MLD**	**3251.72 MLD**	**2201 MLD**	**1281.33 MLD (56 STPs)**	**By 2021**
SEWERAGE NETWORK						
Existing Sewerage Length	**Expected Network**	**Gap in Network (B-A)**	**Timelines to meet the Gap**			
No Information						
COMPLIANCE STATUS OF STPS						
Operational STPs	**STP not in Operation**	**STPs meeting the norms**	**New Proposed**	**Total STPs (A+B+D)**		
96	**8**	**72 (75 %)**	**56**	**160**		
RE-USE OF TREATED SEWAGE						
Present Utilization	**Proposed**	**Timelines**				

410 MLD (18.23 %) / 2248.28 (MLD)	**No Further Plan**	-				

Priority Class	**I**	**II**	**III**	**IV**	**V**	**Grand Total**
No. of PRS	4	-	1	2	5	12

RIVER NAME	**RIVER STRETCH**	**BOD RANGE/ MAX VALUE (mg/l)**	**PRIORITY**
HINDON	SAHARANPUR TO GHAZIABAD	48-120	I
KALINADI	MUZAFFAR NAGARTO GULAOTHI TOWN	8 - 78	I
VARUNA	RAMESHWAR TO C/F GANGA, VARANASI	4.5-45.2	I
YAMUNA	ASGARPUR TO ETAWAH SHAHPUR TO ALLAHABAD (BALUA GHAT)	12.0-55	I
GOMTI	SITAPUR TO VARANASI	3.1-18.0	III
GANGA	KANNAUJ TO VARANASI	3.5-8.8	IV
RAMGANGA	MURADABAD TO KANNAUJ	6.6	IV
BETWA	HAMIRPUR TO WAGPURA	3.5-4.2	V
GHAGHARA	BARHALGANJ TO DEORIA	4.0-4.5	V
RAPTI	DOMINGARH TO RAJGHAT	4.7-5.9	V
SAI	UNNAO TO JAUNPUR	4.0-4.5	V
SARYU	AYODHYA TO ELAFATGANJ	4.3	V

(iii) Air quality management in 122 non-attainment cities.

- Number of Non Attainment cities (15) – (1) Agra (2) Prayagraj (3) Anpara (4) Bareily (5) Firozabad (6) Gajraula (7) Ghaziabad (8) Jhansi (9) Kanpur (10) Khurja (11) Lucknow (12) Moradabad (13) Noida (14) Raebareli (15) Varanasi
- AQMC formed; all 15 plans approved and directions dated March 14, 2019 issued by CPCB for implementation

- City plans target all major city specific sources (Soil & Road Dust, Vehicles, Domestic Fuel, MSW Burning, Construction Material and Industries) with short (upto six months), mid and long - term actions (upto one year) and responsible agencies.
- Micro level planning for each action needed.
- Quarterly progress – Information awaited on ground actions initiated – CPCB directions & reminders (March 14, June 26, August 06 & October 31, 2019)
- Source Apportionment studies – Initiated in Agra, Ghaziabad and Kanpur
- Strengthening of Monitoring Network –
  - Existing: Manual 58, CAAQMS 17
  - Additional Required as per CPCB criteria : Manual 04, CAAQMS 31
  - Action partially initiated (Agra, Prayagraj Firozabad, Kanpur, Lucknow & Varanasi) (Timeframe – November 20, 2020)
- GRAP – Prepared for Ghaziabad, Noida, Lucknow, Kanpur, Agra, Moradabad & Varanasi; Implementation of GRAP to be ensured
- Development of Public Grievance Redressal portal (PGRP) - Required to be developed

C. **UT CHANDIGARH**:

(i) Solid waste management including legacy waste.

	Item	Remarks
	NUMBER OF ULBs	**1**
A	**Overall waste management status**	
1	**Quantity of MSW generated in the state (TPD)**	**470**
2	**Quantity of MSW collected in the state (TPD)**	**458**
3	**Quantity of MSW segregated and transported in the state (TPD)**	**366 (80%)**
4	**SOLID WASTE MANAGEMENT PLAN** **The Municipal Corporation Chandigarh has facilitated door to door collection system in all 26 wards, 1415 no. of waste pickers have been incorporated for collection and segregation of MSW. 39 Sahaj Safai Kendras have been constructed as secondary storage facility of MSW. MSW is transported to garbage processing plants (RDF plant capacity: 500 TPD and Compost plant capacity: 300 TPD) setup by M/s JP ASSOCIATES where MSW is processed to producer RDF and compost.**	


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Legacy Waste		
Number of dumpsites	**1**	**The total area of existing dumping ground is 45 acres in which 25 acres land has been reclaimed by way of developing capping, covering, closing in 17 acres of land and construction of sanitary landfill site in 8 acres.**
Quantity of Waste dumped at dumpsites	**1.32 lakh tons**	
Number of dumpsites in which biomining has commenced	**Tendering done**	

Biodegradable Waste (wet waste) (47%) Required Capacity – 220 TPD	
Composting	**Biomethanation**
Existing capacity : 300 TPD (Adequate).	**Existing capacity : 7 TPD (Adequate).**

Non- Biodegradable (Dry waste) (53%) – 249 TPD	
Material Recovery Facility (Required capacity) : 249TPD	**Recycling Required Capacity (28%) : 131**
Information required	**Information required**

Observations:

- Information regarding existing/planned MRF/ Recycling facility to be provided

(ii) Sewage management and 351 polluted river stretches.

SEWAGE GENERATION VS TREATMENT CAPACITY					
Sewage Generation	**Treatment Capacity**	**Actual Treatment**	**Gap in Treatment**	**Proposed Treatment Capacity**	**Timeline to meet the Gap**
--	231 MLD	164 MLD	--	Upgradation - existing plant for tertiary Treatment	--
SEWERAGE NETWORK					
Existing Sewerage Length	**Expected Network**	**Gap in Network (B-A)**	**Timelines to meet the Gap**		
No Information					
COMPLIANCE STATUS OF STPS					

Operational STPs	**STP not in Operation**	**STPs meeting the norms**	**New Proposed**	**Total STPs (A+B+D)**	
06	NIL	03 (50%)	NIL	06	
RE-USE OF TREATED SEWAGE					
Present Utilization	**Proposed**	**Timelines**			
40.86 MLD (25 %) / 164 (MLD)	No Further Plan	-			

- Information not provided as per the format circulated by CPCB for the purpose of NGT review meeting
- No action is required in the matter of OA No. 673 of 2018. Presently, action plans prepared in compliance to Hon'ble NGT orders passed in O. A. No 138/2016 and 139/2016 are reviewed by Executing Committee under the Chairmanship of Hon'ble Justice Pritam Pal.
- Timelines for installation of new STP is April 2022 against the timeline of 31.03.2021
- No measures proposed for maintaining E-Flows/FPZ Protection
- Lakes Identified: 01 (Sukhna Lake)
- Chandigarh UT claims no action is required for restoration of lake, but as per water quality data for the year 2018, Sukhna Lake requires restoration

(iii) Air quality management in 122 non-attainment cities.

- Information awaited on ground actions initiated – CPCB Directions & reminders (February 12, June 26, August 06 & October 31, 2019).
- Source Apportionment studies: Source Apportionment studies under proposal stage – to be initiated.
- Strengthening of Monitoring Network.
- Existing: Manual 05, CAAQMS 1
- Required: Manual 03, CAAQMS 04 (Timeframe – November 20, 2020).
- GRAP - Draft action Plan for GRAP prepared, under process of approval - Preparation & Implementation of GRAP to be ensured.
- Development of Public Grievance Redressal portal (PGRP): Required to be developed.

ANALYSIS:

Solid Waste Management:

30. It is self-evident from the above statistics that there remains a huge gap in terms of generation and treatment of solid waste which is endangering environment, adversely affecting public health and posing serious threat to life. There is hardly any significant improvement in comparison to the status apprised earlier. No firm commitment to remedy the gap consistent with the statutory Rules has been put forth, as expected in terms of directions of the Hon'ble Supreme Court and this Tribunal.

Likewise, remediation of legacy dumps sites has not even been initiated as directed by this Tribunal and as expected under the Rules at most of the places. The timeline of three years proposed for remediation in State of UP is against the mandate of law in terms of statutory provisions of Solid Waste Management Rules, 2016. The said timeline needs to be revised and legacy waste remediation needs to be commenced at the earliest so as to complete the same as per the statutory timeline of 07.04.2021. The State of Punjab has indicated timelines for remediation of legacy waste as April 2021 but to achieve the same, tangible steps are not shown to have begun which is necessary. If immediate steps are not initiated, it is difficult to believe that the target of completing the remediation on or before 07.04.2021 as per Rules will be achieved. With regard to UT Chandigarh, the action for its remediation has reportedly commenced. We expect that adherence to the timelines in the Rules

is maintained wherein 07.04.2021 is the date of completion rather than initiation of work for remediation.

31. As regards sewage management, there is huge gap in generation and treatment capacity which needs to be remedied in terms of directions already issued by this Tribunal. Longer timelines proposed need to be revised so as to be consistent with the directions of this Tribunal which are already in force. Untreated waste water and raw sewage is being continuously discharged in water bodies. There seems to be no synergy between work of laying of sewerage networks and setting up of STPs. Neither there is any interim plan to reduce pollution load on recipient river systems by way of phyto-remediation/bio-remediation of any other alternative low capital intensive natural remediation processes nor have the authorities successfully tapped the sewage containing storm water drain so as to channelize the untreated sewage to central STP as completion work of sewerage network has not even commenced. As already directed, atleast phytoremediation/bio-remediation or other such remediation must commence at or nearest the source of generation as a supplement to setting up of STPs as an interim measure to reduce the load of pollution on recipient water bodies before 31.03.2020. Setting up of STPs must also commence before the said date so as to complete the same by 31.03.2021. In this regard, compensation regime has already been laid down which has to be strictly followed. In short, the States may take earlier steps to adhere to the following timelines:

i. Interim measures for phytoremediation/ bioremediation etc in respect of 100% sewage to reduce the pollution load on recipient water bodies – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per drain by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.

ii. Commencement of setting up of STPs – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.

iii. Commissioning of STPs – 31.03.2021. Compensation is payable for failure to do so at the rate of Rs. 10 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2021.

32. The Chief Secretaries must ensure adverse entries in the service records of erring officers in respect of liquid waste management atleast from 01.04.2020.

Likewise, remediation work of legacy dump sites must commence at the earliest and adverse entries in ACRs of concerned officers if the remediation does not commence by 31.03.2020 which may be ensured by the Chief Secretaries.

To save time, standard specifications and service providers must be notified by the Chief Secretaries on the websites of the States within one month from today. The Chief Secretaries may take such opinion as may be necessary for the purpose.

Compliance reports may be filed quarterly and first such report may be filed by 31.03.2020 with a copy to the CPCB. CPCB may furnish gap analysis report.

33. With regard to air quality management in non-attainment cities, execution of action plans has to be duly ensured as per laid down timelines by making adequate budgetary provision in accordance with the orders of this Tribunal by clearly defined monitoring and enforcement strategies and fixing responsibilities for failures on the

officers. Absence of due execution of action plans is worsening the situation on account of resultant pollution. The execution of action plan needs to be supervised by the Chief Secretaries of States/UTs.

34. Similarly with regard to restoration of 351 polluted river stretches, the execution of action plans to ameliorate Priority (I) and Priority (II) is not shown to have commenced in right earnest and holistic manner. Considering that implementation requires inter-sectoral consideration and there is a need for a robust institutional mechanism to implement it, this needs to be overseen by the Chief Secretaries.

35. The Committees constituted by this Tribunal vide order dated 16.01.2019 to oversee the compliance of Solid Waste Management Rules, 2016 and also certain other issues entrusted to the said Committees from time to time have furnished reports which needs to be first looked into by the Chief Secretaries for further action and action taken report needs to be filed. In respect of State of UP, 72 reports are said to have been received from the Committee headed by Justice D.P. Singh, former Judge of Allahabad High Court. The said reports may be forwarded to the Chief Secretary, UP and the new Committee for further action and filing of action taken report.

Similarly, in respect of State of Punjab, five reports are said to have been received after 16.01.2019, the Registry may take same course of action as in the case of UP.

VII. DIRECTIONS:

36. We accordingly direct:

a. In view of the fact that most of the statutory timelines have expired and directions of the Hon'ble Supreme Court and this Tribunal to comply with Solid Waste Management Rules, 2016 remain unexecuted, compensation scale is hereby laid down for continued failure after 31.03.2020. The compliance of the Rules requires taking of several steps mentioned in Rule 22 from Serial No. 1 to 10 (mentioned in para 12 above). Any such continued failure will result in liability of every Local Body to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body from 01.04.2020 till compliance. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.

b. Legacy waste remediation was to 'commence' from 01.11.2019 in terms of order of this Tribunal dated 17.07.2019 in O.A. No. 519/2019 para 28[53] even though statutory timeline for 'completing' the said step is till 07.04.2021 (as per serial no. 11 in Rule 22), which direction remains unexecuted at most of the places. Continued failure of every Local Body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body. If the Local Bodies are unable to

[53] The Chief Secretaries may ensure allocation of funds for processing of legacy waste and its disposal and in their respective next reports, give the progress relating to management of all the legacy waste dumpsites. Remediation work on all other dumpsites may commence from 01.11.2019 and completed preferably within six months and in no case beyond one year. Substantial progress be made within six months. We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health.

bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.

c. Further, with regard to thematic areas listed above in para 20, steps be ensured by the Chief Secretaries in terms of directions of this Tribunal especially w.r.t. plastic waste, bio-medical waste, construction and demolition waste which are linked with solid waste treatment and disposal. Action may also be ensured by the Chief Secretaries of the States/UTs with respect to remaining thematic areas viz. hazardous waste, e-waste, polluted industrial clusters, reuse of treated water, performance of CETPs/ETPs, groundwater extraction, groundwater recharge, restoration of water bodies, noise pollution and illegal sand mining.

d. The compensation regime already laid down for failure of the Local Bodies and/or Department of Irrigation and Public Health/In-charge Department to take action for treatment of sewage in terms of observations in para 31 above will result in liability to pay compensation as already noted above.

e. Compensation in above terms may be deposited with the CPCB for being spent on restoration of environment which may be ensured by the Chief Secretaries' of the States/UTs.

f. An 'Environment Monitoring Cell' may be set up in the office of Chief Secretaries of all the States/UTs within one month from today, if not already done for coordination and compliance of above directions which will be the responsibility of the Chief Secretaries of the States/UTs.

g. Compliance reports in respect of significant environmental issues may be furnished in terms of order dated 07.01.2020 quarterly with a copy to CPCB.

The Chief Secretaries of UP, Punjab and UT Chandigarh may remain present in person for further review tentatively on 24.08.2020.

A copy of this order be sent to Chief Secretaries of UP, Punjab and UT Chandigarh, CPCB and Chairman of Committee constituted by this Tribunal in States of UP, Punjab and UT Chandigarh by e-mail. CPCB may put all Local Bodies and other concerned Departments of all the States in the country to notice for compliance.

Adarsh Kumar Goel, CP

S.P Wangdi, JM

Dr. Nagin Nanda, EM

Siddhanta Das, EM

January 10, 2020
Original Application No. 606/2018
DV

NATIONAL GREEN TRIBUNAL, NEW DELHI

TRUE COPY

ANNEXURE R-29

Item No. 01 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 606/2018

(**In respect of State of Maharashtra**)

In re: **Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues**

(Arising out of directions of the Hon'ble Supreme Court in W.P. No. 888/1996 and W.P. No. 375/2012)

Date of hearing: 08.09.2022

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER

Present: Shri Manu Kumar Shrivastava, Chief Secretary
Smt. Manisha Mhaiskar, Principal Secretary, Environment Dept.
Dr. Sonia Sethi, Principal Secretary, Urban Development Dept.
Shri P. Velarasu, Addl. Municipal Commissioner, MCGM
Shri Vikram Kumar, Municipal Commissioner, Pune
Shri Ashok Shingare, Member Secretary, MPCB
Shri Sameer Unahale, Director, Swacch Maharashtra
Shri A.V. Jevalikar, Dy. Secretary, UD
Shri C.A. Vibhute, Dy. Secretary
Shri S.B. Sandanshiv, Under Secretary
Dr. Y.B. Sontakke, JD
Dr. J.B. Sanjewar, RO, HR
Dr. N.N. Gurav, R.O., BMC

ORDER

The Issue – Monitoring of compliance of waste in terms of orders of Hon'ble Supreme Court

1. The issues of solid as well as liquid waste management are being monitored by this Tribunal as per orders of the Hon'ble Supreme Court order dated 02.09.2014 in *Writ Petition No. 888/1996, Almitra H. Patel vs. Union of India & Ors.,* with regard to solid waste management and order

dated 22.02.2017 in W.P. No. 375/2012, reported in (*2017) 5 SCC 326, Paryavaran Suraksha vs. Union of India,* with regard to liquid waste management. Other related issues include pollution of 351 river stretches, 124 non-attainment cities in terms of air quality, 100 polluted industrial clusters, illegal sand mining etc. which have also been dealt with earlier but we propose to limit the proceedings in the present matter to two issues of solid waste and sewage management.

ORDERS OF THE HON'BLE SUPREME COURT TRANSFERRING THE ISSUE OF SOLID WASTE MANAGEMENT AND LIQUID WASTE MANAGEMENT TO THIS TRIBUNAL:

Solid Waste Management

2. While transferring the issue of solid waste management vide Order dated 02.09.2014 in *Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors.*, the Hon'ble Supreme Court observed **"handling of solid municipal waste is a perennial challenge and would require constant efforts and monitoring with a view to making the municipal authorities concerned accountable, taking note of dereliction, if any, issuing suitable directions consistent with the said Rules and direction incidental to the purpose underlying the Rules such as upgradation of technology wherever possible. All these matters can, in our opinion, be best left to be handled by the National Green Tribunal established under the National Green Tribunal Act, 2010. The Tribunal, it is common ground, is not only equipped with the necessary expertise to examine and deal with the environment related issues but is also competent to issue in appropriate cases directions considered necessary for enforcing the statutory provisions."**

3. Before transferring the said proceedings, matter was monitored by Hon'ble Supreme Court for about eighteen years and orders passed include

(2000) 2 SCC 679 and *(2004) 13 SCC 538,* directing scientific disposal of waste by setting up of compost plants/processing plants, preventing water percolation through heaps of garbage, creating focused **'solid waste management cells'** in all States and complying with the Municipal Solid Waste Management Rules, 2000 (now replaced by SWM Rules, 2016). **It was observed that the local authorities constituted for providing services to the citizens are lethargic and insufficient in their functioning which is impermissible. Non-accountability has led to lack of effort on the part of the employees.** Domestic garbage and sewage along with poor drainage system in an unplanned manner contribute heavily to the problem of solid waste. The number of slums have multiplied significantly occupying large areas of public land. Promise of free land attracts more land grabbers. **Instead of "slum clearance" there is "slum creation" in cities which is further aggravating the problem of domestic waste being strewn in the open**. Accordingly, the Court directed that provisions pertaining to sanitation and public health be complied with, streets and public premises be cleaned daily, **statutory authorities levy and recover charges from any person violating laws and ensure scientific disposal of waste**, landfill sites be identified keeping in mind requirement of the city for next 20 years and environmental considerations, sites be identified for setting up of compost plants, steps be taken to prevent fresh encroachments and compliance report be submitted within eight weeks. Further observations in the judgment of the Hon'ble Supreme Court[1] are:

> *"3. The petitioner has handed over a note in the Court showing the progress that has been made in some of the States and also setting out some of the suggestions, including the suggestion for creation of solid waste management cell, so as to put a focus on the issue and also to provide incentives to those who perform*

[1] (2004) 13 SCC 538

well as was tried in some of the States. The said note states as under:

"1. As a result of the Hon'ble Supreme Court's orders on 26-7-2004, in Maharashtra the number of authorisations granted for solid waste management (SWM) has increased from 32% to 98%, in Gujarat from 58% to 92% and in M.P. from NIL to 34%. No affidavits at all have been received from the 24 other States/UTs for which CPCB reported NIL or less than 3% authorisations in February 2004. All these States and their SPCBs can study and learn from Karnataka, Maharashtra and Gujarat's successes.

2. ***All States/UTs and their SPCBs/PCCs have totally ignored the improvement of existing open dumps, due by 31-12-2001****, let alone identifying and monitoring the existing sites. Simple steps can be taken immediately at almost no cost by every single ULB to prevent monsoon water percolation through the heaps, which produces highly polluting black run-off (leachate). Waste heaps can be made convex to eliminate standing water, upslope diversion drains can prevent water inflow, downslope diversion drains can capture leachate for recirculation onto the heaps, and disused heaps can be given soil cover for vegetative healing.*

3. Lack of funds is no excuse for inaction. Smaller towns in every State should go and learn from Suryapet in A.P. (population 103,000) and Namakkal in T.N. (population 53,000) which have both seen dustbin-free 'zero garbage towns' complying with the MSW Rules since 2003 with no financial input from the State or the Centre, just good management and a sense of commitment.

4. States seem to use the Rules as an excuse to milk funds from the Centre, by making that a precondition for action and inflating waste processing costs 2-3 fold. *The Supreme Court Committee recommended 1/3 contribution each from the city, State and Centre. Before seeking 70-80% Centre's contribution, every State should first ensure that each city first spends its own share to immediately make its wastes non-polluting by simple sanitising/stabilising, which is always the first step in composting viz. inoculate the waste with cow dung solution or bio culture and placing it in windrows (long heaps) which are turned at least once or twice over a period of 45 to 60 days.*

5. Unless each State creates a focussed ***'solid waste management cell'*** *and rewards its cities for good performance, both of which Maharashtra has done, compliance with the MSW Rules seems to be an illusion.*

> 6. ***The admitted position is that the MSW Rules have not been complied with even after four years.*** *None of the functionaries have bothered or discharged their duties to ensure compliance.* ***Even existing dumps have not been improved.*** *Thus deeper thought and urgent and immediate action is necessary to ensure compliance in future."*

4. In this regard, reference may also be made to orders of Hon'ble Supreme Court in *Municipal Council, Ratlam vs. Vardhichand*[2] and *B.L. Wadhera v. Union of India and Ors.*[3] laying down that **clean environment is fundamental right of citizens under Article 21** and it is for the local bodies as well as the State to ensure that public health is preserved by taking all possible steps. **For doing so, financial inability cannot be pleaded.** We note that even after 26 years of monitoring, 18 years by Hon'ble Supreme Court and eight years by this Tribunal, ground situation remains unsatisfactory.

Liquid Waste Management

5. Hon'ble Supreme Court in *Paryavaran Suraksha vs. Union of India*[4] required this Tribunal to monitor directions for proper treatment of sewage to prevent untreated sewage and other effluents being discharged in water bodies by directing "We are of the view that mere directions are inconsequential, unless a rigid implementation mechanism is laid down. We, therefore, hereby provide that the directions pertaining to continuation of industrial activity only when there is in place a functional "primary effluent treatment plants", and the setting up of functional "common effluent treatment plants" within the timelines, expressed above, shall be of the Member Secretaries of the Pollution Control Boards concerned. The Secretary of the Department of Environment, of the State Government

[2] (1980) 4 SCC 162
[3] (1996) 2 SCC 594
[4] (2017) 5 SCC 326

concerned (and the Union Territory concerned), shall be answerable in case of default. **The Secretaries to the Government concerned shall be responsible for monitoring the progress and issuing necessary directions to the Pollution Control Board concerned, as may be required, for the implementation of the above directions. They shall be also responsible for collecting and maintaining records of data, in respect of the directions contained in this order. The said data shall be furnished to the Central Ground Water Authority, which shall evaluate the data and shall furnish the same to the Bench of the jurisdictional National Green Tribunal. To supervise complaints of non-implementation of the instant directions, the Benches concerned of the National Green Tribunal, will maintain running and numbered case files, by dividing the jurisdictional area into units. The abovementioned case files will be listed periodically. The Pollution Control Board concerned is also hereby directed to initiate such civil or criminal action, as may be permissible in law, against all or any of the defaulters."**

6. Extracts from the judgement of the Hon'ble Supreme Court in *Paryavaran Suraksha Samiti Vs. Union of India* are as follows:

> "***7.*** *Having effectuated the directions recorded in the foregoing paragraphs, the next step would be, to set up common effluent treatment plants.* ***We are informed, that for the aforesaid purpose, the financial contribution of the Central Government is to the extent of 50%, that of the State Government concerned (including the Union Territory concerned) is 25%. The balance 25%, is to be arranged by way of loans from banks****. The above loans, are to be repaid, by the industrial areas, and/or industrial clusters. We are also informed that the setting up of a common effluent treatment plant, would ordinarily take approximately two years (in cases where the process has yet to be commenced). The reason for the above prolonged period, for setting up "common effluent treatment plants",*

according to the learned counsel, is not only financial, but also, the requirement of land acquisition, for the same.

x……x……x…….

10. *Given the responsibility vested in municipalities under Article 243-W of the Constitution, as also, in Item 6 of Schedule XII, wherein the aforesaid obligation, pointedly extends to "public health, sanitation conservancy and solid waste management", we are of the view that the onus to operate the existing common effluent treatment plants, rests on municipalities (and/or local bodies). Given the aforesaid responsibility, the municipalities (and/or local bodies) concerned, cannot be permitted to shy away from discharging this onerous duty.* ***In case there are further financial constraints, the remedy lies in Articles 243-X and 243-Y of the Constitution. It will be open to the municipalities (and/or local bodies) concerned, to evolve norms to recover funds, for the purpose of generating finances to install and run all the "common effluent treatment plants", within the purview of the provisions referred to hereinabove. Needless to mention that such norms as may be evolved for generating financial resources, may include all or any of the commercial, industrial and domestic beneficiaries, of the facility.*** *The process of evolving the above norms, shall be supervised by the State Government (Union Territory) concerned, through the Secretaries, Urban Development and Local Bodies, respectively (depending on the location of the respective common effluent treatment plant).* ***The norms for generating funds for setting up and/or operating the "common effluent treatment plant" shall be finalised, on or before 31-3-2017, so as to be implemented with effect from the next financial year. In case, such norms are not in place, before the commencement of the next financial year, the State Governments (or the Union Territories) concerned, shall cater to the financial requirements, of running the "common effluent treatment plants", which are presently dysfunctional, from their own financial resources.***

11. *Just in the manner suggested hereinabove, for the purpose of setting up of "common effluent treatment plants", the State Governments concerned (including, the Union Territories concerned) will prioritise such cities, towns and villages, which discharge* ***industrial pollutants and sewer, directly into rivers and water bodies.***

12. *We are of the view that in the manner suggested above,* ***the malady of sewer treatment, should also be dealt with simultaneously.*** *We, therefore, hereby direct that "sewage treatment plants" shall also be set up and made*

functional, within the timelines and the format, expressed hereinabove."

7. Expression 'Common Effluent Treatment Plants" in para 7 may infact refer to the STPs, as the context shows.

8. On this subject, inspite of deadline of 31.3.2018 fixed by Hon'ble Supreme Court for preventing discharge of pollutants and rigorous monitoring by this Tribunal for the last five years, ground situation remains unsatisfactory.

Procedural History of present proceedings before this Tribunal

9. In the light of above, the Tribunal has considered the matter in the last eight years as far as solid waste management is concerned and more than five years as far as liquid waste management is concerned. Main orders on the subject include orders dated 22.12.2016, 31.08.2018, 16.01.2019, 28.8.2019, 12.09.2019, 6.12.2019, 07.01.2020, 28.02.2020, 02.07.2020, 14.12.2020, 22.2.2021, 30.11.2021, 14.12.2020 and 31.05.2022. First two orders - dated 22.12.2016 and 31.08.2018 deal only with solid waste management. Orders dated 28.8.2019, 6.12.2019 and 22.2.2021 deal with only liquid waste management while the remaining orders deal with solid waste as well as liquid waste management. Issue of liquid waste has also been separately dealt with in OA No. 593/2017 which was finally disposed of on 22.02.2021 with direction that further monitoring be undertaken by Central Monitoring Committee constituted by the said order. It was held that monitoring by the Tribunal cannot be for indefinite time and State authorities are primarily responsible for such monitoring after adequate monitoring by the Tribunal. By the same order, the Tribunal also dealt with the issue of 351 identified polluted river stretches in OA 673/2018. This is apart from individual cases dealing with

solid and liquid waste management. A brief reference of these orders will be made hereafter.

Orders dated 22.12.2016 and 31.08.2018

10. Vide order dated 22.12.2016, (2016) SCC Online NGT 2981, the issue of Solid Waste Management was disposed of requiring strict compliance of Solid Waste Management Rules, 2016 by all the States/UTs making it clear that if violations continue, the State will be liable to pay compensation. Later, matter was taken up to ascertain compliance status and finding that all the States/UTs were still non-compliant in the matter, the matter was again taken up and fresh directions issued for monitoring by the Tribunal constituted Monitoring Committees vide order dated 31.08.2018. Later, continuance of the committees was left to discretion of the States, depending on their own monitoring mechanism.

Order dated 16.01.2019 requiring personal presence of Chief Secretaries of all States and UTs to explore remedial action after interaction with them and further orders

11. In view of continuing non-compliances, vide order dated 16.01.2019, the Tribunal directed personal presence of Chief Secretaries of all States and UTs for interaction to ensure compliance. The Tribunal held that large scale non-compliance of environmental norms was resulting in deaths and diseases and irreversible damage to the environment, without accountability for such failures. Though violation of the Rules as well as orders of this Tribunal is criminal offence, still there was rampant violation by State authorities practically with no accountability which unhappy situation was required to be remedied by involvement of highest functionaries of the State in the interest of public health and to uphold rule of law.

12. In terms of order dated 16.1.2019, the Chief Secretaries of all the States/UTs appeared on different dates till 18.07.2019 and the Tribunal, after reviewing the status of noncompliance on most of the issues, directed further effective steps to be taken for compliance of the Rules and the environmental norms. The Chief Secretary of Maharashtra appeared on 08.04.2019 and following directions were issued:

> *"37. In view of above, after discussion with the Chief Secretary, following further directions are issued:*
>
> *i. Steps for compliance of Rules 22 and 24 of SWM Rules be now taken within six weeks to the extent not yet taken. Similar steps be taken with regard to Bio-Medical Waste Management Rules and Plastic Waste Management Rules.*
>
> *ii. Atleast three major cities and threemajor towns in the State and atleast three Panchayats in every District may be notified on the website within two weeks from today as model cities/towns/villages which will be made fully compliant within next six months.*
>
> *iii. The remaining cities, towns and Village Panchayats of the State may be made fully compliant in respect of environmental norms within one year.*
>
> *iv. A quarterly report be furnished by the Chief Secretary, every three months. First such report shall be furnished by July 10, 2019.*
>
> *v. The Chief Secretary may personally monitor the progress, atleast once in a month, with all the District Magistrates.*
>
> *vi. The District Magistrates or other Officers may be imparted requisite training.*
>
> *vii. The District Magistrates may monitor the status of compliance of environmental norms, atleast once in two weeks.*
>
> *viii. Performance audit of functioning of all regulatory bodies may be got conducted and remedial measures be taken, within six months."*

13. The Chief Secretary of Maharashtra appeared again on 24.01.2020 and the Tribunal inter-alia issued following directions:

"37. In view of above, consistent with the directions referred to in Para 29 issued on 10.01.2020 in the case of UP, Punjab and Chandigarh which have also been repeated for other States in matters already dealt with, we direct:

a. *In view of the fact that most of the statutory timelines have expired and directions of the Hon'ble Supreme Court and this Tribunal to comply with Solid Waste Management Rules, 2016 remain unexecuted, compensation scale is hereby laid down for continued failure after 31.03.2020. The compliance of the Rules requires taking of several steps mentioned in Rule 22 from Serial No. 1 to 10 (mentioned in para 12 above). Any such continued failure will result in liability of every Local Body to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body from 01.04.2020 till compliance. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.*

b. *Legacy waste remediation was to 'commence' from 01.11.2019 in terms of order of this Tribunal dated 17.07.2019 in O.A. No. 519/2019 para 28[5] even though statutory timeline for 'completing' the said step is till 07.04.2021 (as per serial no. 11 in Rule 22), which direction remains unexecuted at most of the places. Continued failure of every Local Body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal.*

[5] The Chief Secretaries may ensure allocation of funds for processing of legacy waste and its disposal and in their respective next reports, give the progress relating to management of all the legacy waste dumpsites. Remediation work on all other dumpsites may commence from 01.11.2019 and completed preferably within six months and in no case beyond one year. Substantial progress be made within six months. We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health.

c. *Further, with regard to thematic areas listed above in para 20, steps be ensured by the Chief Secretaries in terms of directions of this Tribunal especially w.r.t. plastic waste, bio-medical waste, construction and demolition waste which are linked with solid waste treatment and disposal. Action may also be ensured by the Chief Secretaries of the States/UTs with respect to remaining thematic areas viz. hazardous waste, e-waste, polluted industrial clusters, reuse of treated water, performance of CETPs/ETPs, groundwater extraction, groundwater recharge, restoration of water bodies, noise pollution and illegal sand mining.*

d. *The compensation regime already laid down for failure of the Local Bodies and/or Department of Irrigation and Public Health/In-charge Department to take action for treatment of sewage in terms of observations in para 33 above will result in liability to pay compensation as already noted above which is reproduced for ready reference:*

   i. *Interim measures for phytoremediation/ bioremediation etc in respect of 100% sewage to reduce the pollution load on recipient water bodies – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per drain by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.*

   ii. *Commencement of setting up of STPs – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.*

   iii. *Commissioning of STPs – 31.03.2021. Compensation is payable for failure to do so at the rate of Rs. 10 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2021.*

e. *Compensation in above terms may be deposited with the CPCB for being spent on restoration of environment which may be ensured by the Chief Secretaries' of the States/UTs.*

f. *An 'Environment Monitoring Cell' may be set up in the office of Chief Secretaries of all the States/UTs within one month from today, if not already done for coordination and compliance of above directions which will be the responsibility of the Chief Secretaries of the States/UTs.*

g. *Compliance reports in respect of significant environmental issues may be furnished in terms of order dated 07.01.2020 quarterly with a copy to CPCB."*

14. **In short, the Tribunal expected three model cities, towns and villages to be made compliant in six months and the remaining State with one year. It was this target for the State by setting up of environmental cells directly under the Chief Secretaries, regular periodical monitoring by the Chief Secretaries at the State level and by the District Magistrates at the District level.** Further direction also was to take action for non-compliance by recovery of compensation and recording adverse ACRs against erring officers. The Tribunal also directed filing of quarterly reports by the Chief Secretaries. Based on such reports, CPCB was to file consolidated status reports. The Chief Secretaries were to appear again after six months with updated status of compliance. **It is difficult to hold that the State has taken directions of the Tribunal seriously or even endeavoured to go by this mandate. Even after three years, neither there is adequate compliance nor the same has been projected in immediate future. No accountability fixed, no performance audit shown to have been conducted and no entries in ACRs are shown to have been made. There is nothing to show that compensation has been recovered in terms of directions of the Tribunal. The State assumes that none is responsible for such gross violations of law and directions of Hon'ble Supreme Court and this Tribunal. It is difficult to say how rule of law will be achieved. We thus record our disappointment with the attitude of the State and hope the State makes amends in compliance now.**

15. The Tribunal has been receiving progress reports from States as well as monitoring Committees wherever functioning which have been considered by further orders.

Further Review after completing round of interaction with all Chief Secretaries by order dated 12.9.2019

16. The matter was then reviewed on 12.09.2019 in the light of report of the CPCB dated 09.09.2019 **showing wide gaps in compliance of solid waste, plastic waste, bio-medical waste management, rejuvenation of identified polluted river stretches, polluted industrial clusters and non-attainment cities**. A fresh schedule for appearance of the Chief Secretaries was issued. Vide order dated 07.01.2020, the Tribunal directed CPCB to ascertain Compliance of Solid Waste Management Rules, 2016 in terms of MSW generated, segregated and treated, gaps in the waste processing, enforcement of statutory timelines and orders of this Tribunal, number of sites remediated, and quantity of legacy waste therein and timelines for completing remediation. It was further directed that on the subject of sewage treatment, CPCB has to ascertain quantity of sewage generated and treated in the State, gap in the sewage treatment and timelines to bridge the gap, including strategy for use of treated water for secondary purpose. CPCB was accordingly directed to redesign its formats for securing relevant quantifiable information.

Order dated 28.02.2020

17. Accordingly, the Chief Secretaries of 18 States/UTs appeared and filed updated status reports. Since there still existed huge gaps in compliance, further directions were issued by way of different orders. Last such order is of 28.2.2020. Other orders are on same pattern. The direction part of the said order is reproduced below:

> *"41. In view of above, consistent with the directions referred to in Para 29 issued on 10.01.2020 in the case of UP, Punjab and Chandigarh which have also been repeated for other States in matters already dealt with, we direct:*
>
> **h.** *In view of the fact that most of the statutory timelines have expired and directions of the Hon'ble Supreme Court*

and this Tribunal to comply with Solid Waste Management Rules, 2016 remain unexecuted, ***interim compensation scale is hereby laid down for continued failure after 31.03.2020. The compliance of the Rules requires taking of several steps mentioned in Rule 22 from Serial No. 1 to 10 (mentioned in para 12 above). Any such continued failure will result in liability of every Local Body to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body from 01.04.2020 till compliance. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal. Final compensation may be assessed and recovered by the State PCBs/PCCs in the light of Para 33 above within six months from today. CPCB may prepare a template and issue an appropriate direction to the State PCBs/PCCs for undertaking such an assessment in the light thereof within one month.***

i. ***Legacy waste remediation was to 'commence' from 01.11.2019 in terms of order of this Tribunal dated 17.07.2019 in O.A. No. 519/2019 para 28[6] even though statutory timeline for 'completing' the said step is till 07.04.2021 (as per serial no. 11 in Rule 22), which direction remains unexecuted at most of the places and delay in clearing legacy waste is causing huge damage to environment in monetary terms as noted in para 33 above, pending assessment and recovery of such damage by the concerned State PCB within four months from today, continued failure of every Local Body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month***

[6] The Chief Secretaries may ensure allocation of funds for processing of legacy waste and its disposal and in their respective next reports, give the progress relating to management of all the legacy waste dumpsites. Remediation work on all other dumpsites may commence from 01.11.2019 and completed preferably within six months and in no case beyond one year. Substantial progress be made within six months. We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health.

per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal. Final compensation may be assessed and recovered by the State PCBs/PCCs in the light of Para 33 above within six months from today.

j. *Further, with regard to thematic areas listed above in para 20, steps be ensured by the Chief Secretaries in terms of directions of this Tribunal especially w.r.t. plastic waste, bio-medical waste, construction and demolition waste which are linked with solid waste treatment and disposal. Action may also be ensured by the Chief Secretaries of the States/UTs with respect to remaining thematic areas viz. hazardous waste, e-waste, polluted industrial clusters, reuse of treated water, performance of CETPs/ETPs, groundwater extraction, groundwater recharge, restoration of water bodies, noise pollution and illegal sand mining.*

k. *The compensation regime already laid down for failure of the Local Bodies and/or Department of Irrigation and Public Health/In-charge Department to take action for treatment of sewage in terms of observations in Para 36 above will result in liability to pay compensation as already noted above which are reproduced for ready reference:*

iv. Interim measures for phytoremediation/ bioremediation etc. in respect of 100% sewage to reduce the pollution load on recipient water bodies – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per drain by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.

v. Commencement of setting up of STPs – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.

vi. ***Commissioning of STPs – 31.03.2021. Compensation is payable for failure to do so at the rate of Rs. 10 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2021.***

l. *Compensation in above terms may be deposited with the CPCB for being spent on restoration of environment which may be ensured by the Chief Secretaries' of the States/UTs.*

m. *An 'Environment Monitoring Cell' may be set up in the office of Chief Secretaries of all the States/UTs within one month from today, if not already done for coordination and compliance of above directions which will be the responsibility of the Chief Secretaries of the States/UTs.*

n. *Compliance reports in respect of significant environmental issues may be furnished in terms of order dated 07.01.2020 quarterly with a copy to CPCB.*

18. Timelines under the Rules referred to in sub para (a) above are **:**

"22. ***Time frame for implementation:-*** *Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:*

Sl. No.	***Activity***	***Time limit from the date of notification of rules***
(1)	*(2)*	*(3)*
1.	*Identification of suitable sites for setting up solid waste processing facilities.*	*1 year*
2.	*Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.*	*1 year*
3.	*Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.*	*2 years*
4.	*Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.*	*2 years*
5.	*Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.*	*2 years*

6.	*ensure separate storage, collection and transportation of construction and demolition wastes.*	*2 years*
7.	*setting up solid waste processing facilities by all Local Bodies having 100000 or more population.*	*2 years*
8.	*Setting up solid waste processing facilities by Local Bodies and census towns below 100000 population.*	*3 years*
9.	*setting up common or stand alone sanitary landfills by or for all Local Bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.*	*3 years*
10.	*setting up common or regional sanitary landfills by 3 years all Local Bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.*	*3 years*
11.	*bio-remediation or capping of old and abandoned dump sites.*	*5 years*

"

19. **Our comments with regard to compliance of directions dated 28.2.2020 remain the same as in para 13 above.**

Order dated 02.07.2020

20. The matter was then considered on 02.07.2020. Having regard to the pandemic, appearance of remaining Chief Secretaries was deferred.

Order dated 14.12.2020

21. The matter was further considered on 14.12.2020 for review of progress. Scheduled appearance of remaining Chief Secretaries was dispensed with but it was directed that monitoring at the level of Chief Secretaries may continue and quarterly status reports be filed with CPCB so that CPCB may file a consolidated report every six months before the Tribunal. It was further directed that compensation in terms of earlier orders be recovered and credited to a separate account with the Environment Department of concerned State to be used for restoration of environment. It was also observed that in these proceedings Solid Waste

Management also will be monitored, other issues being considered in separate proceedings.

22. **As already noted above, there is nothing to show compliance by the State of Maharashtra on the issue of deposit of compensation and its utilization as directed.**

Further review on 30.11.2021 – huge gaps still found and hence, another round of interaction with Chief Secretaries proposed

23. The matter was thereafter taken up on 30.11.2021 to consider the report of CPCB dated 25.10.2020 giving compliance status in 32 States/UTs as in March, 2021 as follows:-

> **"Solid Waste Management**
>
> ***4.0 SUMMARY & CONCLUSIONS***
>
> *a. Total No. of ULBs in 29 States/UTs is 4186.*
>
> ***b. As per information provided by 29 States/UTs - total waste generated is 150858.951 TPD of which 94435.318 TPD is processed, which is 62.6% of the total waste generated in these States/UT. 11772.4538 TPD (7.8%) of the waste is landfilled and the gap in Solid waste management in 29 States is 45071.771 TPD which is 29.8% of the waste generated in these States/UTs.***
>
> *c. Information on MRF has been provided for 28 States/UTs covering 77% of ULBs in these States/UTs.*
>
> *d. Information on Recycling facilities have been provided for 22 States/UTs covering 39% of ULBs in these States/UTs*
>
> *e. Information on Composting facilities has been provided for all 29 States/UTs covering 70% of ULBs in these States/UTs*
>
> *f. Information on WtE has been provided for 25 out of 29 States/UTs covering 1.9% of ULBs in these States/UTs.*
>
> *g. Information on RDF has been provided for 24 out of 29 States/UTs covering 12.4% of ULBs in these States/UTs.*
>
> *h. Information on Biomethanation has been provided for 27 out of 29 States/UTs covering 7.1% of ULBs in these States/UTs.*
>
> ***i. Information on Landfills has been provided in 24 out of 29 States/UTs covering 18.9% of ULBs in the States.***

j. 498 of 2111 (23%) dumpsites in 25 States/UTs have been cleared and Remediation has been initiated in 23% (496) of the dumpsites.

k. Model Town/Cities have been identified in 25 States/UTs.

l. 16 States /UTs have established environmental cells.

m. 15 States /UTs have standardised rates for procurement of services/equipment required for solid waste management.

*n. In view of above, States/UTs need to develop of ULB wise action plan for collection, segregation, transportation and processing of waste and lay down an appropriate governance framework at state and district levels.**"***

24. The Tribunal in its order dated 30.11.2021 observed:-

"1to17....xxxx.....xxx.....xxx

18. We are of the view that hence forthwith proceedings in this matter need to cover Solid Waste Management and Sewage Management, these issues being crucial and required to be monitored by this Tribunal by the Hon'ble Supreme Court. Absence of management of waste results in adding to air and water pollution in a big way. All the legacy waste dump sites in the country need to be remediated to reduce methane gas, foul smell and leachate and also to release valuable land occupied by such sites which can be used for waste management/plantation or raising funds. Waste collected must be scientifically processed and disposed at the earliest in the interest of hygiene and public health. It needs to be ensured that instead of remediating the legacy waste sites, the garbage is not shifted to new sites which is not a solution to the problem. It only results in shifting the problem from one place to the other without any advancement of environment protection. What is necessary is that the garbage must be finally disposed of and land reclaimed. The authorities must move towards zero garbage at the end of the day by ensuring that instead of garbage being collected and dumped, it is taken to destination where it is finally processed scientifically and appropriately, except for reused/recycling of such residues as is possible. This is also the mandate of Swachh Bharat Mission, initiated by the Central Government. Similarly, sewage has to be scientifically treated to give effect to the mandate of Water (Prevention and Control of Pollution) Act, 1974 in the interest of availability of clean water in rivers and other waterbodies. Central Governments programmes also provide for initiatives on these subjects. On both aspects, compensation regime has been laid down which is necessary to enforce the rule of law and for protection of environment and public health. The compensation laid down has to be duly collected and utilized for restoration of environment, by being kept in a separate account. Accountability for the failures needs to be fixed by

way of ACRs and departmental action as such failures result in crimes under the law of land and damage to public health. Such failure is also breach of Constitutional obligation to uphold the Right to Life. The country is committed to Sustainable Development Goals of providing clean air and safe drinking water.

19. In view of above, continued failure of Rule of Law must be remedied in terms of mandate of orders of the Hon'ble Supreme Court in Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors. and Paryavaran Suraksha vs. Union of India,[7] followed by orders of this Tribunal. It is necessary that Chief Secretaries continue the monitoring and interact with this Tribunal periodically by video conferencing. Accordingly, we lay down following further schedule for personal appearance of the Chief Secretaries, by Video Conferencing, with the status of compliance in respect of each of the States/UTs on the subject of Solid Waste Management and Sewage Management. The data to be furnished should cover all categories of areas in the State – big cities, towns and villages.

20. The hearing on each of above dates will commence at 10:30 a.m. sharp. The Chief Secretaries may not delegate the responsibility. As far as possible, they may adjust other work for which long advance notice is being given. In case adjustment is found difficult for any unforeseen reason, request for change of date may be mailed by e-mail at judicial-ngt@gov.in.

21. All the States/CPCB may undertake process of verification of data after having interaction on video conferencing with the concerned States/UTs within one month. The Secretaries, Environment, Urban Development Department and Irrigation Department may also coordinate with the Member Secretaries of State Legal Services Authorities in all State/UTs in the light of background mentioned in paras 3 and 4 above for the awareness programmes on the subject."

Separate orders dated 28.8.2019, 12.9.2019, 6.12.2019 and 22.02.2021 on the subject of Liquid Waste Management

25. Issue of liquid waste management was separately dealt with in OA 593/2017 on directions of Hon'ble Supreme Court and in suo motu proceedings for restoration of 351 identified polluted river stretches in OA 673/2018. Vide order dated 28.08.2019, the Tribunal directed that 100% sewage treatment must be ensured by all local bodies. Vide further order

[7] (2017) 5 SCC 326

dated 06.12.2019 in O.A. No. 673/2018[8], the Tribunal directed that for failure to commence in-situ remediation, compensation will be payable at the rate of Rs. 5 lakh per month per drain after 31.03.2020 and for failure to commence setting up of STPs after 31.03.2020 compensation is to be paid at the rate of Rs. 5 lakh per month per STP. For failure to complete the project, compensation has to be paid at the rate of Rs. 10 lakh per STP per month after 31.03.2021. Relevant part of the order is quoted below:

> *"47. (i)* ***100% treatment of sewage may be ensured as directed by this Tribunal vide order dated 28.08.2019 in O.A. No. 593/2017 by 31.03.2020 atleast to the extent of in-situ remediation and before the said date, commencement of setting up of STPs and the work of connecting all the drains and other sources of generation of sewage to the STPs must be ensured.*** *If this is not done, the local bodies and the concerned departments of the States/UTs will be liable to pay compensation as already directed vide order dated 22.08.2019 in the case of river Ganga i.e.* ***Rs. 5 lakhs per month per drain, for default in in-situ remediation and Rs. 5 lakhs per STP for default in commencement of setting up of the STP.***
>
> ii. Timeline for completing all steps of action plans including completion of setting up STPs and their commissioning till 31.03.2021 in terms of order dated 08.04.2019 in the present case will remain as already directed. In default, compensation will be liable to be paid at the scale laid down in the order of this Tribunal dated 22.08.2019 in the case of river Ganga i.e**. Rs. 10 lakhs per month per STP."**

26. Both the matters were disposed of vide order dated 22.02.2021 with a direction that further monitoring be continued at the level of the Chief Secretaries in States and Central Monitoring Committee headed by Secretary, Ministry of Jal Shakti at the national level.

Today's hearing in the presence of Chief Secretary, Maharashtra to ascertain compliance status and way forward

[8] News item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB"

Compliance status in Maharashtra presented

27. The presentation filed by the Chief Secretary, Maharashtra on 07.09.2022 shows following data:

SUMMARY OF STATUS

A: Solid Waste Management					
Quantity of waste generation in the State (in TPD)	Waste Processed (in TPD)	Gap in generation and Processing (in TPD)	Quantity of waste being disposed in landfills (in TPD)	Quantity of Legacy waste in the State (Tones)	Status of Bio-mining
24,951 (403 ULBs)	20,294	1776	2881	3,94,19,287	189 out of 273 dump sites cleared

B): Sewage Management					
Quantity of sewage generation in the State (in MLD)	Utilized capacity (in MLD)	Current Gap in treatment (in MLD)	Utilization of treated sewage in		
			Agriculture/ Horticulture purpose	Industrial purpose	Any other purpose
9758.53	4338.2	5420.33	320 MLD		

Our Observations findings and Directions

28. It is disappointing to see from the data presented by the Chief Secretary that after 24.1.2020 when the Chief Secretary, Maharashtra last appeared before the Tribunal in the present matter, there is no meaningful progress. There are huge gaps in management of solid as well as liquid waste.

29. The above data shows that legacy waste is to the extent of 3,94,19,287. Data of rural areas has not been given. It is stated that 189 sites out of 273 dump sites have been cleared but it is not clear how much quantity of waste is remediated. Area of land recovered through this process has not been

mentioned. Further, more waste is being added on daily basis. Legacy waste remains source of air, water and land pollution resulting in damage to environment and public health, as noted in para 24 earlier. Since statutory timelines for remediation of legacy waste having expired, further steps have now to be taken in a mission mode and for past violations liability of the State has to be quantified on 'Polluter Pays' principle by way of monetary compensation to be utilised for restoration of damage to the environment.

30. On the issue of liquid waste/sewage, gap is to the extent of 5420.33 MLD. The said data does not cover the compliance status in rural areas. Figure of utilisaton of treated sewage shows that much work remains to be done. Unless treated sewage is usefully deployed for non potable purpose, potable water may be used for such purposes and sewage may mix with potable water or go to storm water drains or rivers which has to be avoided. Timeline for the establishing requisite treatment systems in terms of judgment of Hon'ble Supreme Court in *Paryavaran Suraksha vs. Union of India,* supra has long expired. This Tribunal had also directed that for delay after 01.04.2020, coercive measures are to be taken. Till the gaps are bridged, untreated liquid waste will continue to remain source of degradation of environment and damage to public health, including deaths and diseases which the society can ill afford. Hence, the urgency of the situation for good governance for ensuring emergent measures in public interest to protect the environment, natural resources and public health as per mandate of the Constitution. We have to levy compensation for continuing violation on polluter pays principle to be utilised for restoration measures.

31. As already noted and observed in the judgement of the Hon'ble Supreme Court in Paryavaran Surakhsha, supra, quoted earlier, the

matter falls in 12th Schedule to the Constitution and it is constitutional responsibility of the State and the Local Bodies to provide pollution free environment and to arrange funds. Being part of right to life, which is also basic human right and absolute liability of the State, lack of funds cannot be plea to deny such right. While there may be no objection to any central funds being availed, the State cannot avoid its responsibility or delay its discharge on that pretext.

32. It is a matter of concern that even after 48 years of enactment of Water (Prevention and Control of Pollution) Act, 1974 and expiry of timelines for taking necessary steps for solid waste management in terms of Solid Waste Management Rules, 2016 and binding direction in the judgment of the Hon'ble Supreme Court and this Tribunal in *Almitra H. Patel vs. Union of India & Ors.* and *Paryavaran Suraksha vs. Union of India*, supra, huge gaps still exist. Are there insurmountable difficulties for State authorities or lack of will and determination? We find it difficult to believe the first. In our view, it is lack of good governance and determination responsible for the situation which needs to be remedied soonest.

33. We have suggested change in approach in realizing that remedial action cannot wait for indefinite period as is being proposed by the Administration. Sources of funding are laid down in the orders of the Hon'ble Supreme Court. Responsibility of the State is to have comprehensive plan to control pollution which is its absolute liability, which is not being understood. If there is deficit in budgetary allocations, it is for the State and state alone to have suitable planning by reducing cost or augmenting resources. By way of suggestion, one may consider harnessing traditional knowledge and community involvement. People must be involved in the problem by appropriate awareness and strategies

to encourage public participation and contribution. At the cost of repetition, health issues cannot be deferred to long future. Long future dates which, breach of which is established from the track record of last several decades, is not convincing solution. There is no accountability for the past breaches. It is poor substitute for compliance. This approach may project lack of concern or not realizing the grim ground situation crying for emergent remedial measures on priority. There is no time for leisure, reflected in timelines proposed for bridging the acknowledged gaps.

34. It is the mindset and determination to act in a mission mode which can produce results.

35. Segregation of the solid waste at source and its earliest processing nearest to the point of generation with defined destination is imperative. In particular, adequate compositing/vermicomposting/bio-methanation centers need to be set up and upgraded nearest to the source of generation of wet solid waste, listing people's involvement. Waste generators can themselves be required to process the waste under guidance and handholding by the Administration, with the assistance of identified empaneled service providers. This may perhaps reduce planned expenditure.

36. Similarly, sewage can be required to be processed by conventional cost-effective methods at least at several identified locations with least expenses. Decentralized treatment plants can be explored, apart from imposing condition of ZLD on industries, Group Housing Societies etc. Reduced load can be processed partly with the help of water using commercial establishments requiring water for their processes enforcing consent conditions in CTEs and CTOs whereby State's financial burden can be reduced. In this context, the draft Notification of MoEF&CC dated

25.02.2022[9] etc. and the relevant part of the draft Notification in context of sewage and solid waste management is reproduced below:

> ***"xxx .....xxx.....xxx***
> ***C. Management of sewage/waste water, Reuse and recycle of treated wastewater by dual plumbing system***
>
> *10. Dual Plumbing System shall be implemented - one for supplying fresh water for drinking, cooking and bathing etc. and another for supply of treated water for flushing.*
>
> *11. Only treated water shall be used for flushing.*
>
> *12. In no case, sewage or untreated waste water generated within the project area shall be discharged through storm water drains or otherwise into water bodies nor discharged/injected into the ground water by any mode.*
>
> *13. Subject to Clause (3) of this notification, the project authority may opt or avail to common off-site treatment facility, as feasible, for treatment with reuse & recycle of corresponding quantity of treated water through the dual plumbing system for flushing and other non-potable use.*
>
> ***A. For projects with built up area of 5,000 sq.mtrs. to 20,000 sq.mtrs. –***
>
> *i. In areas where there is no municipal sewage network,*
>
> *a. Either Onsite Sewage Treatment Systems with capacity to treat 100% waste water may be installed with appropriate tertiary treatment system with disinfection for black & grey water. Such treated water should be used with dual plumbing system for flushing and other non-potable use;*
>
> *OR*
>
> *b. In case of usage of septic tank, only black water shall be discharged in the septic tank. Grey water may be treated through natural treatment systems or other secondary treatment as feasible. Such treated water should be used with dual plumbing system for flushing and other non-potable use;*

[9] https://www.compfie.com/wp-content/uploads/2022/03/01032022_EHS_02.pdf

The excess treated water should conform to the general discharge norms of CPCB/MoEF&CC.

ii. In areas where there is municipal sewage network

a. *Either Onsite Sewage Treatment Systems with capacity to treat 100% waste water may be installed with appropriate tertiary treatment system with disinfection for black & grey water. Such treated water should be used with dual plumbing system for flushing and other non-potable use;*

OR

b. *The project authority may opt to discharge only black water in such municipal sewage network subject to availability of trunk sewer line. For this purpose, two separate pipeline network– one for black water discharge and other for collection of grey water shall be installed. Grey water may be treated through natural treatment systems or other secondary treatment as feasible. Such treated water should be used with dual plumbing system for flushing and other non-potable use;*

B. For projects involving built-up area of 20,000 sq. mts. or more –

14. Subject to Clause (3) of this notification, Onsite Sewage Treatment Plant with capacity to treat 100% waste water generated within the project area through tertiary treatment shall be installed. Treated waste water shall be reused on site for landscape, flushing, HVAC, fire-fighting, and other end-uses.

15. The adequacy of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the authorized agency.

16. Discharge of excess treated wastewater outside the premises, after treatment in STP, should meet the discharge standards as notified by CPCB/MoEF&CC from time to time.

17. Wastewater and treated water quantification system through metering/sub-metering shall be installed.

18. Sludge from the onsite sewage treatment shall be collected, conveyed and disposed as per the Central Public Health and Environmental Engineering Organization (CPHEEO) Manual,

Ministry of Housing and Urban Affair, on Sewerage and Sewage Treatment Systems.

19. Where Common Sewage Treatment Plan facility has been availed, it shall be ensured that treated waste water is recycled back to respective building for reuse.

D. Solid Waste Management

20. Subject to Clause (3) of this notification, onsite solid waste management facility should be developed and a formal contractual arrangement shall be ensured with authorized recyclers/concerned municipal agency for disposal of all non-biodegradable waste.

21. Subject to Clause (3) of this notification, where there is no alternate arrangement for disposal of biodegradable waste, Organic waste composter/Vermiculture pit with a minimum capacity of 1.0 kg/150 sqm. of built-up area/day shall be installed & operated."

37. Treated water can also be used by establishments like malls, industrial estates, automobile establishments, power plants, playgrounds, railways, bus stands, local bodies, universities etc. to save potable water for drinking. The treated sewage can be utilized for industrial/agricultural/other non-drinking uses like washing railway wagons/yards, buses, roads, water sprinkling. Several such models reportedly exist[10].

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[10] https://www.newindianexpress.com/cities/chennai/2019/jul/31/chennai-industries-to-now-use-treated-sewage-water-2011837.html
https://timesofindia.indiatimes.com/city/surat/surat-water-reuse-model-goes-global/articleshow/85668103.cms
https://www.aninews.in/news/national/general-news/surat-generating-massive-revenue-by-selling-treated-water-to-industries20201217051127/
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https://m.timesofindia.com/city/ahmedabad/amc-offers-rs43/kl-treated-wastewater-for-industries/amp_articleshow/87169850.cms https://theprint.in/india/governance/nagpur-to-become-the-first-indian-city-to-treat-and-reuse-90-of-its-sewage/180493/

https://www.business-standard.com/content/press-releases-ani/india-s-1st-and-largest-ppp-on-waste-water-reuse-completed-in-record-time- during-pandemic-bags-ficci-water-award-2020-121022500841_1.html
https://mpcb.gov.in/sites/default/files/focus-area-reports-documents/NMC_%26_KTPS_success_story_28052019.pdf
https://cpcb.nic.in/success-stories/upload/1501156301.pdf

38. Thus, it may be necessary to brain storm with available experts and other stake holders in the State at different levels, evolve models which can be fast replicated, initiate special campaigns with community/media involvement in the larger interest of protecting environment and public health with determination for prompt action. Such brain storming sessions may enable capacity enhancement of the regulators and the processes. Campaigns and community involvement may result in reducing the financial and administrative load on the administration.

39. Compliance of environmental norms on the subject of waste management has to be on high on priority. Tribunal has come across cases of serious neglect and continuing damage to the environment in absence of inadequate steps for treatment of solid and liquid waste.[11] We are of the

http://cpheeo.gov.in/upload/uploadfiles/files/engineering_chapter7.pdf

[11]

(i) O.A. No. 142/2016(THC), Sheikh Rashid Charitable Foundation, (Malegaon) & Ors. v. UOI & Ors., order dated 05.12.2017, relating to release of amount for functioning of sewage treatment plant in Malegaon.

(ii) O.A. No. 177/2016(THC), Kaustubha Ghokhale & Anr. v. State of Maharashtra Through Chief Secretary & Ors., order dated 23.10.2017, relating to grant of public hearing in case of grant of EC to MSW Processing Plant at Umbarde and Barave.

(iii) O.A. No. 177/2016(THC), Kaustubha Ghokhale & Anr. v. State of Maharashtra Through Chief Secretary & Ors., order dated 23.10.2017, relating to grant of public hearing in case of grant of EC to MSW Processing Plant at Umbarde and Barave.

(iv) O.A. No. 122/2017, Dileep Gopal Mangankar v. State of Maharashtra & Ors. order dated 31.01.20118, seeking direction the respondents to take steps in order to manage, collect, segregate, transport and disposal of the msw as per Rules.

(v) O.A. No. 168/2017, Mr. Omkar Ajit Keni V/s The Deputy Director (Forest) Sawantwadi, & Ors., order dated 17.07.2018, relating to removal of garbage dumped around Dhamapur Lake, Sindhudurg District.

(vi) O.A. No. 179/2017, Mr. Atul Kishor Karle & Ors. V/s The Collector, Pune & Ors., order dated 21.07.2017, seeking direction against respondent for not dumping msw and its proper disposal.

(vii) O.A. No. 11/2018, Amir Shaikh & Ors. v. Haji Ali Dargah Trust & Ors., order dated 25.08.2022, seeking direction against respondents to immediately stop releasing excrement/untreated sewage into the sea.

(viii) O.A. No. 40/2019, Rajkumar Kukreja & Anr. v. Ulhasnagar Municipal Corporation & Ors., order dated 23.08.2022, seeking direction against respondents to stop unauthorized dumping of municipal solid waste.

(ix) Original Application No. 60/2019(WZ), Ganesh Dadarao Anasane v. Amravati Municipal Corporation & Anr. order dated 07.09.2022, relating to illegal dumping of solid waste at Sukali Dumping ground in Amravati, Maharashtra.

view that issues have been identified and monitored by the Tribunal for a long time. It is high time that the State realizes its duty to law and to citizens and adopts further monitoring at its own level.

Conclusion with expression of hope for future remedial action

40. **We hope in the light of interaction with the Chief Secretary, Maharashtra that he will take further measures in the matter by innovative approach, stringent monitoring at appropriate level, including at the level of the District Magistrates (who execute the**

(x) Original Application No. 14/2020(WZ), Mohan Nanasaheb Kudale v. Pune Municipal Corporation & Ors., order dated 17.01.2022 relating to operation of an incinerator plant for disposal of animal carcass on land situated at Keshavnagar, Mundhwa, Pune.

(xi) Original Application No. 29/2020(WZ), Suraj Pradip Ajmera v. Aurangabad Municipal Corporation, order dated 09.03.2022, relating to absence of scientific management of sewage problem in Aurangabad city.

(xii) Original Application No.59/2020 (WZ), Riverdale Vista Co-operative Housing Society v. MoEF &CC & Ors., order dated 16.11.2021 relating to Common Municipal Solid Waste Management Facility Site at Revenue Village Barave in contravention of Solid Waste Management Rules 2016.

(xiii) Original Application No.62/2020 (WZ), Dagadkhan Asanghatit Kamgar Vikas Parishad Maharashtra v. State of Maharashtra & Ors., order dated 17.11.2021 relating to Illegal dumping of municipal solid waste by the Wagholi Gram Panchayat and Pune Metropolitan Region Development Authority on common land next to residential apartments and hutments of quarry workers at Wageshwarnagar in Village Wagholi, Taluka Haweli, District Pune.

(xiv) Original Application No. 84/2020 (WZ), Dhananjay Balwant Kokate & Anr. v. Union of India & Ors., order dated 08.12.2021 relating to Setting up of a Garbage Processing Plant at Survey No. 51/10, Ambegaon Bk., Pune.

(xv) Original Application No. 32/2021(WZ), Charan Ravindra Bhatt v. Vasai-Virar City Municipal Corporation & Anr. order dated 07.12.2021 relating to Failure of Vasai – Virar Municipal Corporation in performing its statutory obligation of providing clean environment by scientific disposal of solid and liquid waste.

(xvi) Original Application No. 55/2021(WZ), Tousif Bagnikar v. Nix Paolymers & Ors., order dated 03.12.2021 relating to illegally dumping, untreated toxic effluent by respondent no.1 from the polyester resin plant into Maharashtra Industrial Development Corporation (MIDC Drain) which in turn flows into river Krishna.

(xvii) Org. Application No. 75/2021(WZ), The Cliff Gardem Condominium B & C v. Gram Panchayat, Maan & Ors., order dated 10.03.2022 relating to failure of Authorities in the State of Maharashtra to follow Solid Waste Management Rules, 2016 in Village Maan, Tal. Mulshi, Dist. Pune, near housing society - Cliff Garden Condominium, MIDC infotech Park, Maan, Pune.

(xviii) Original Application No. 33/2022(WZ), Sanjay Vishwanath Lature & Ors v. Solapur Municipal Corporation & Ors., order dated 18.07.2022 relating to land filling site- to remove the set-up of abandoned processing plant at survey nos. 73 and 74/1 of Village Kasabe Solapur, Taluka-North Solapur, District Solapur.

District Environment Plans) and the Chief Secretary, ensuring that the gap in solid and liquid waste generation and treatment is bridged at the earliest, shortening the proposed timelines, adopting alternative/interim measures to the extent and wherever found viable.

41. The Chief Secretary may consider designating a Senior Nodal Officer at the rank of ACS to regularly assess the progress in bridging the gaps in sewage and solid waste management and establishing stocktaking at district level. Existing and upcoming STPs need to have linkages with industries and other bulk users including Agriculture/horticulture for using treated sewage. Legacy waste sites need to be remediated and reclaimed areas utilized for setting up of waste processing plants so to process day-to-day waste generation. More and more green belts/dense forests need to be set up to mitigate adverse impact of waste. Based on the gained experience, standardized processing and treatment methodologies be replicated for areas of other Corporations, Municipalities and Panchayats.

42. Laid down statutory norms need to be complied as per prescribed timelines and directions in the judgments of Hon'ble Supreme Court and this Tribunal, including directions in orders dated 25.4.2019, 28.2.2020 and 14.12.2020 and other orders in individual cases. In the light of observations in paras 14, 19 and 22 above, accountability be fixed for erring officers and compensation collected and utilised, as already directed.

Need for monitoring by NMCG and MoUD NMCG, SBM and Amrut schemes

43. In view of continuing huge gap in solid and liquid waste generation and treatment, it is high time that Ministry of Housing and Urban Development (MoUD) and National Mission for Clean Ganga (NMCG) who have programmes like Swachh Bharat Mission (SBM), AMRUT - 1 and 2.0 and River Cleaning, appropriately monitor compliance of waste management norms by concerned States and take remedial action on their part. MoEF&CC and CPCB may continue monitoring as per MSW Rules and the Water Act.

Determination of liability for compensation for restoration of environment

44. **Apart from compliance in future, the liability of the State has to be fixed for the past violations in the light of earlier binding orders passed in pursuance of orders of Hon'ble Supreme Court dated 2.9.2014 in WP 888/1996, Almitra Patel and dated 22.2.2017 in WP 375/2012, Paryavaran Suraksha. Order dated 22.12.2016 in Almitra Patel clearly laid down liability for compensation for breach of statutory timelines. Similarly, liability for compensation was laid down for failing to install water pollution control devices after 31.3.2020.** The Tribunal has to follow 'Polluter Pays' principle under Section 20 of the NGT Act. The State Authorities contributing to the pollution by failing in their constitutional duties are to be held accountable on this principle. Admittedly, timelines under Supreme Court orders and orders of this Tribunal for preventing water pollution and statutory timelines for solid waste management are over. Thus, atleast from 01.01.2021, the 'Polluter Pays' principle has to be applied. Compensation has to be equal to the loss to the environment and also taking into account cost of remediation.

45. In our recent order dated 01.09.2022 in O.A No. 606/2018 (in respect of State of West Bengal), considering scale of compensation adopted in earlier cases including in OA No. 1002/2018, *Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors.*, compensation was determined @ Rs. 2 Crore per MLD for untreated liquid waste and in OA No. 286/2022 for unprocessed legacy waste compensation was fixed @ Rs. 300 per MT to be utilized for restoration measures, including preventing discharge of untreated sewage and solid waste treatment/processing facilities, as per appropriate mechanism for planning and execution that may be evolved, within three months. Operative part of the said order is reproduced below:-

> **"Conclusion about quantum of compensation**
>
> *49. In the light of above and considering damage to the recipient environment, we hold that apart from ensuring compliance at the earliest, compensation has to be paid by the State for past violations. The amount of compensation is fixed @ Rs. 2 crore per MLD (at which rate compensation has been levied against Noida and DJB in OA No. 1002/2018, Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors, referred to in para 48 above for detailed reasons mentioned therein). As noted earlier,* ***gap in generation and treatment in West Bengal, as per data furnished is 1490 MLD. Thus, under this head, liability of the State of West Bengal is to pay compensation of Rs. 2980 crores, rounded off to Rs. 3000 crore in view of continuing damage****. F****or failure to process solid waste, unprocessed legacy waste being 1.20 crore MT, compensation is assessed @ Rs. 300 per MT (at which approximate rate compensation has been awarded in OA No. 286/2022 against Municipal Corporation, Ludhiana, for the reasons given therein). This works out to Rs. 366 crore but adding 134 crore for continuing addition of unprocessed waste @ 13469.19 TPD, the total amount is rounded off to Rs. 500 crore. Thus, final amount of compensation under the two heads (solid and liquid waste) is assessed at Rs. 3500 crores which may be deposited by the State of West Bengal in a separate ring-fenced account within two months, to be operated as per directions of the Chief Secretary and utilised** *for restoration measures, including preventing discharge of untreated sewage and solid waste treatment/processing facilities, as per appropriate mechanism for planning and execution that may be evolved, within three months. If violations continue, liability to pay additional compensation may have to be considered. Compliance will be the responsibility of the Chief Secretary."*

46. Following the above pattern, we determine compensation payable by the State of Maharashtra. In respect of **gap in treatment of liquid waste/ sewage i.e. 5420.33 MLD, compensation works out to Rs. 10840.66 crores and compensation for un-remediated legacy waste to the extent of 3,94,19,287 works out roughly to about Rs. 1200 crores. We round off the compensation amount @ Rs. 12,000/- crores which may be deposited by the State of Maharashtra in a separate ring-fenced account within two months, to be operated as per directions of the Chief Secretary and utilised** for restoration measures. The restoration measures with respect to sewage management would include setting up of sewage treatment and utilization systems, upgrading systems/operations to ensure utilization of their full capacities, ensuring compliance of standards, including those of fecal coliform and setting up of proper fecal sewage and sludge management in rural areas. With regard to solid waste management, the action plan would include setting up of required waste processing plants and remediation of left out 84 sites. Bio-remediation/bio-mining process need to be executed as per CPCB guidelines and the stabilized organic waste from biomining as well as from compost plants need to comply with laid down specifications. Other material recovered during such processes are to be put to use through authorized dealers/handlers/users. This restoration plan needs to be planned and executed in a time bound manner without further delay. If violations continue, liability to pay additional compensation may have to be considered. Compliance will be the responsibility of the Chief Secretary.

47. Award of above compensation has become necessary under section 15 of the NGT Act to remedy the continuing damage to the environment and to comply with directions of the Hon'ble Supreme Court requiring this Tribunal to monitor enforcement of norms for solid and liquid waste

management. Moreover, without fixing quantified liability necessary for restoration, mere passing of orders has not shown any tangible results in the last eight years (for solid waste management) and five years (for liquid waste management), even after expiry of statutory/laid down timelines. Continuing damage is required to be prevented in future and past damage is to be restored.

Directions for further follow up

48. Further, six monthly progress reports may be filed by the Chief Secretary with a copy to the Registrar General of this Tribunal by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. Copies thereof may be furnished to the NMCG, MoUD and CPCB and also be placed on the website of the State Government.

IA No. 163/2021 stands dismissed in light of today's proceedings.

A copy of this order be forwarded for compliance to the Chief Secretary, Maharashtra, Secretary, Ministry of Housing and Urban Development, MoEF&CC, GoI, National Mission for Clean Ganga and CPCB.

On report being filed with the Registrar General of this Tribunal, the same may be placed before the Bench, if found necessary.

If any grievance survives, it will be open to the aggrieved parties to take further remedies as per law.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

September 08, 2022
Original Application No. 606/2018

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ANNEXURE R-30

ITEM NO.8 COURT NO.1 SECTION XVII

S U P R E M E C O U R T O F I N D I A
RECORD OF PROCEEDINGS

CIVIL APPEAL Diary No(s).44889/2023

(Arising out of impugned final judgment and order dated 04-05-2023 in RA No. 19/2023 and 08-09-2022 in OA No. 606/2018 passed by the National Green Tribunal)

THE STATE OF MAHARASHTRA Appellant(s)

VERSUS

NATIONAL GREEN TRIBUNAL Respondent(s)

(WITH IA No.240808/2023-CONDONATION OF DELAY IN FILING and IA No.240695/2023-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.240690/2023-STAY APPLICATION)

Date : 28-11-2023 These appeals were called on for hearing today.

CORAM :
HON'BLE THE CHIEF JUSTICE
HON'BLE MR. JUSTICE J.B. PARDIWALA
HON'BLE MR. JUSTICE MANOJ MISRA

For Petitioner(s) **Mr. Mukul Rohatgi, Sr. Adv.**
Mr. Dhruv Mehta, Sr. Adv.
Mr. Chirag Shah, Adv.
Mr. Utsav Trivedi, Adv.
Mr. Ajay Bhargava, Adv.
Ms. Trishala Trivedi, Adv.
Ms. Manini Roy, Adv.
Ms. Nandini Acharya, Adv.
For M/S. Tas Law, AOR

For Respondent(s)

UPON hearing the counsel the Court made the following
O R D E R

1 On the oral request of counsel for the appellant, the Union of India is permitted to be impleaded as a party respondent. Amended memo of parties be filed within a week.

Signature Not Verified
Digitally signed by Sanjay Kumar
Date: 2023.11.29 11:22:18 IST
Reason:

2 Issue notice on the applications for condonation of delay in filing the appeals and on the appeals.

3 Tag with Civil Appeal Diary No 36830 of 2022.

4 In the meantime, the direction issued by the National Green Tribunal requiring the State of Maharashtra to deposit an amount of Rs 12000 crores as compensation in a “separate ring-fenced account” shall remain stayed.

(SANJAY KUMAR-I)
DEPUTY REGISTRAR

(SAROJ KUMARI GAUR)
ASSISTANT REGISTRAR

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Service: Reply in OA No. 125 of 2023 (WZ) Between Sh. Praful N. Mahajan Vs. Chief Officer, Achalpur Municipal Council & Ors.

Adv Sangramsingh R Bhonsle <srb.chambers@gmail.com> Tue, Aug 6, 2024 at 3:13 PM
To: ms@mpcb.govin, collector.amravati@maharashtra.gov.in, dtpms_pune@rediffmail.com, do_tpv1@rediffmail.com
Cc: Sangramsingh Bhonsle <sangramsinghbhonsle@gmail.com>

Sir,

We are the Advocates appearing on behalf of the Respondent No.1 in the abovementioned matter. We are filing an Reply on behalf of the Respondent No.1 on 06.07.2024.

Please find attached herewith the copy of the same and consider this email as the service of the same on your esteemed office.

Regards,
Sangramsingh R. Bhonsle
Advocate On Record
Supreme Court of India
H-5, Second Floor, Lajpat Nagar III,
New Delhi - 110024.
Mob- 9545809120

Achalpur Municipal Council Reply.pdf

What's aap Service to the Applicant i.e. Sh. Praful N. Mahajan

