

Detail Project Report on Construction & Demolition Waste Processing Plant Unit At Dhanbad Municipal Corporation



Final Detail Project Report

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Regional Centre for Urban &
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ACRONYMS

<i>BOQ</i>	<i>: Bill of Quantities</i>
<i>BOT</i>	<i>: Build Operate Transfer</i>
<i>CapEx</i>	<i>: Capital Expenditure</i>
<i>CBO</i>	<i>: Community Based Organization</i>
<i>CPCB</i>	<i>: Central pollution Control Board</i>
<i>DPR</i>	<i>: Detail Project Report</i>
<i>GoI</i>	<i>: Government of India</i>
<i>HPC</i>	<i>: High Power Committee</i>
<i>IEC</i>	<i>: Information, Education and Communication</i>
<i>MT</i>	<i>: Metric Tonnes</i>
<i>MoUD</i>	<i>: Ministry of Urban Development</i>
<i>MSW</i>	<i>: Municipal Solid Waste</i>
<i>MSWM</i>	<i>: Municipal Solid Waste Management</i>
<i>NGO</i>	<i>: Non-Governmental Organization</i>
<i>NH</i>	<i>: National Highway</i>
<i>O&M</i>	<i>: Operation and Maintenance</i>
<i>DMC</i>	<i>: Dhanbad Municipal Corporation</i>
<i>PPP</i>	<i>: Public Private Partnership</i>
<i>RCUES</i>	<i>: Regional Centre for Urban and Environmental Studies</i>
<i>RWA</i>	<i>: Resident Welfare Association</i>
<i>RFID</i>	<i>: Radio Frequency Identification</i>
<i>SBM</i>	<i>: Swatch Bharat Mission</i>
<i>SH</i>	<i>: State Highway</i>
<i>SHG</i>	<i>: Self-Help Group</i>
<i>SLF</i>	<i>: Sanitary Landfill Facility</i>
<i>TPD</i>	<i>: Tons per Day</i>
<i>MT</i>	<i>: Metric Ton</i>
<i>ULB</i>	<i>: Urban Local Body</i>
<i>WPF</i>	<i>: Waste Processing Facility</i>
<i>WPSLF</i>	<i>: Waste Processing & Sanitary Landfill Site</i>

1 Construction and Demolition waste

1.1 Introduction

Construction and Demolition (C&D) waste is the unused material left after any new construction or demolition of an old structure. These wastes consist of mostly inert and non-biodegradable material like concrete, plaster, metal, wood, plastics etc. These wastes are heavy, bulky and occupy considerable amount of space when dumped without processing. Conventionally this waste is regarded as a material with limited economic potential, but actually these wastes provide an ideal solution to minimize the problems of virgin material exhaustion.

These wastes are heavy, having high density, often bulky and occupy considerable storage space either on the road or community waste bin/container. It is common to see huge piles of such waste, which is heavy as well, stacked on roads especially in large projects, resulting in traffic congestion and disruption. Waste from small generators like individual house construction or demolition, find its way into the nearby municipal bin/vat/waste storage depots, making the municipal waste heavy and degrading its quality for further treatment like composting or energy recovery. Often it finds its way into surface drains blocking free flow of water runoff and choking them. It constitutes about 10-20 % of the municipal solid waste (excluding large construction projects).

1.2 Legal & Regulatory Scenario

In India, there has yet to be a concerted effort for management of C&D waste. There are however initiatives have been taken to address the issue by forming Construction & Demolition waste Management Rules, 2016.

Key highlights of the recent developments:

- Mandatory for large cities to setup recycling plant within 18 months and smaller cities within 3 years from date of notification of C&D waste Management rule- 2016.
- Generators of waste are required to pay notified collection and processing fees.
- Imposition of heavy penalties on illegal dumping of C&D Waste.
- Use of Construction & Demolition waste 20% to 100% is allowed in construction. IS-383 standard code revised.
- Introduction of Centralized Helpline number including Mobile App.

1.3 Sources of C&D Waste Generation

The sources of C&D Waste can be highlighted as follows:

a) *Infrastructure Development*

Construction of roads, bridges, drains, landscaping activities generate considerable amount of C&D waste. This activity is carried out by the various Government agencies.

b) Private construction

Construction of commercial complexes, residential colonies, industries etc. undertaken by Private Contractors also generates construction waste.

c) Renovation/ Re-conditioning of the above

Renovation of the above infrastructure and private constructions generates most of the demolition waste in the locality. It has been estimated that roughly 2% of the stock is replaced every year by way of renovation and, demolition and reconstruction.

d) Repair and Maintenance Activities

Repair and Maintenance activities carried out at various locations also contribute to the quantum of C&D waste. Different sources of C&D waste are:

- Illegally dumped waste.
- Waste generated due to small scale construction/demolition/renovation activities. This could be illegally dumped by the generators.
- Waste generated by the private builders as a part of construction or demolition activities.
- Waste generated from the activities of various government organizations like PWD local bodies in the vicinity, Roadways and Highways, NHAI, Commercial Institutions like Offices, Shopping Complexes, hotels on expansion mode, Schools and Colleges on Expansion drive and other varied development works that go unnoticed and unregulated.

Figure 1-1 Sources of C&D Waste

C&D Waste				
Type of Waste	Excavation Soil	Roadwork Waste	Demolition Waste	Construction & Other Wastes
Sources	<ul style="list-style-type: none"> ✓ Excavation Activity 	<ul style="list-style-type: none"> ✓ Road ✓ Railroad ✓ Airport ✓ Runway ✓ Construction ✓ Renovation ✓ Demolition Activity 	<ul style="list-style-type: none"> Building Demolition Activities; Such as ✓ Residential ✓ Educational ✓ Health care ✓ Industrial building 	<ul style="list-style-type: none"> ✓ Construction ✓ Excavation ✓ Renovation ✓ Refurbishment ✓ Demolition ✓ Roadwork and Other Construction Related Activities
Components	<ul style="list-style-type: none"> ✓ Plant soil ✓ Soil ✓ Sand ✓ Gravel ✓ Rock ✓ Clay 	<ul style="list-style-type: none"> ✓ Concrete ✓ Broken asphalt ✓ Paving Stone ✓ Sand ✓ Pebble ✓ Railway Traverse 	<ul style="list-style-type: none"> ✓ Concrete with Iron ✓ Concrete without iron ✓ Roofing Construction and Roofing Cover (wood, tile, isolation material) ✓ Wall Materials (brick, briquet, stone) ✓ Stucco 	<ul style="list-style-type: none"> ✓ Concrete, Wall materials (brick, briquet, stone) ✓ Stucco ✓ Sand ✓ Pebble ✓ Wood ✓ Plastics ✓ Ceramics ✓ Metals ✓ Paper and Carton

1.4 C&D Waste Components and Quantification

C&D waste can be classified into two components;

Figure 1-2 Components and Quantification

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Major components includes,</p> <ul style="list-style-type: none"> • Cement concrete • Bricks • Cement plaster • Steel from RCC • Doors & windows • Roofing support systems • Rubble • Stones & Clay (Soil from excavation) • Timber etc. | <p>2. Minor components includes,</p> <ul style="list-style-type: none"> • Conduits, • GI pipes/Iron pipes/Plastic pipes • Electrical fixtures, • Panels, • Asbestos and contaminated soil, • Glass. • Plastic carry bags, sachets of tobacco and other plastics, Clothes, Cement bags, gunny bags, Thermocol, etc. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Demolition waste are mainly the collection of all construction materials from a building after removal of salvageable components like doors and windows. Demolition wastes are much larger in volume than the construction wastes. According to Danish Environmental Protection Agency (DEPA), 2003, 30% of the total waste generated was C&D waste. Of this 70-75% waste

generated was from demolition activity, 20-25% from renovation and remaining 5-10% from new building developments

The disposal of C&D waste contributes to environmental concerns including wasted materials and embodied energy, greenhouse gas generation and other environmental impacts associated with producing new materials instead of using existing materials. Concurrently, the number of C&D landfills is declining, which means fewer disposal options, greater hauling distances, and increased fuel consumption and vehicle emissions.

1.5 Estimation of C&D waste:

TIFAC calculated waste from the construction industry accounting for 15 to 25 percent of solid waste. In India the following amount of C&D Wastes generated during different activities.

- ✓ Demolition of Pucca and Semi-Pucca buildings on an average generates 500 and 300 kg. Per Sq.m. Respectively.
- ✓ Estimated waste generation during construction is 40 to 60 Kg. per Sq.m.
- ✓ Waste generation during renovation/ repair work is estimated to be 40 to 50 kg. Per Sq.m.

2 Study Area

2.1 Introduction

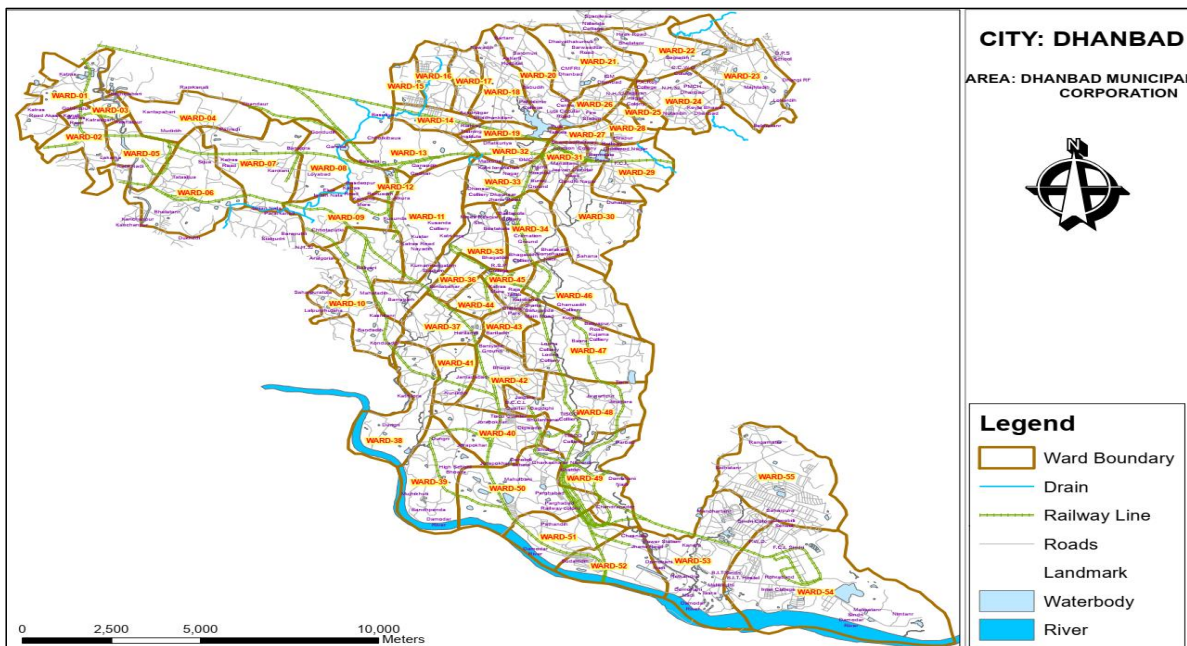
This section covers the history, geographical and climatic condition, location, population, details of settlement, current land use plan, political as well as administrative and financial aspect & etc. The information is gathered from primary as well secondary data sources.

The primary data is based on the Information collected from DMC and survey report done by RCUES, Lucknow. The salient features of the city are based on the discussions with the concerned officials, and field surveys. Some of the information is based on secondary data /Secondary information from various earlier studies conducted and other resource persons.

2.2 History and importance of project area

Dhanbad is the second-most populated city in the Indian state of Jharkhand after Jamshedpur. It ranks as the 42nd largest city in India and is the 34th largest million-plus urban agglomeration in India. It is the 96th fastest growing city of the world by the City Mayors Foundation. Dhanbad shares its land borders with Paschim Bardhaman district, West Bengal.

The city is called the 'Coal Capital of India' for housing one of the largest coal mines of India. The prestigious institute, Indian School of Mines (now IIT Dhanbad) is situated in Dhanbad. Apart from coal, it has also grown in information technology. The City has grown so rapidly that once considered a small City Dhanbad has now expanded its boundaries from Nirsa in east to Katras in west, a total stretch of 50 Km.



Dhanbad is the 56th cleanest city of India, according to the 2019 Swachh Survekshan cleanliness survey. It showed a great change in the city which was considered the dirtiest city in the 2018 Swachh Survekshan. Dhanbad Municipal Corporation works for increasing green

cover in the city. Among the rail divisions of Indian Railway, Dhanbad Rail Division is the second-largest in revenue generation after the Mumbai division. Dhanbad ranked as the top city in India with the highest 4G mobile phone network availability in India by a survey of Open signal.

In 2006 Dhanbad was reconstituted administratively when it annexed a large number of adjacent towns and villages. One result of the reorganization was that it became the most populous city in the state.

The present district used to be a part of Manbhum region and was occupied by Mundari tribals in the wilderness of South undivided Bihar. In the seventh century A.D. some information is available from the account of the travels of Hieun Tsang. These accounts narrate the existence of a powerful kingdom which comprised the district and adjoining areas, ruled by Sasanka. Manbhum was one of the districts of the East India during the British Raj.

The region has thick forests, with rich mineral resources, and had a mixed demographic profile with people from different religious and social groups, including adivasis, particularly the Santals and the Mundas before the city was established. After the Partition of India, the district became a part of Bihar state, and upon re-organization of the Indian states in the mid-1950s, the district became a part of the West Bengal. Purulia district was carved out of the district of Manbhum.

2.3 Geographical and Climatic Condition

2.3.1 Geographical location:

The Damodar is a major river of the Chota Nagpur Plateau. It rises in Palamu and flows eastward between the plateaus of Ranchi and Hazaribag. It is joined by the Bokaro, the Konar and the Barakar rivers. The Damodar enters Dhanbad district at its confluence with the Jamuria, a stream which marks the western boundary of Dhanbad with Hazaribagh District. Further east, the Damodar is joined by the Katri River which rises in the foothills below Parasnath and traverses through the coal-field area. The Barakar, which forms the northern boundary of the district, traverses about 77 km. It flows in south westerly direction up to Durgapur and then south till it joins the Damodar near Chirkunda.

2.3.2 Climatic condition

Dhanbad district experience sub-tropical climate, which is characterized by hot summer from March to May and well distributed rainfall during southwest monsoon from June to September. Winter season in the area is marked by dry and cold weather with intermittent showers during the month of December to February.

Dhanbad area is climatically different from neighboring regions. The important climatic elements such as temperature, precipitation, pressure, and wind velocity show great variation.

Three broad climatic seasons are found –

- (1) The winter season lasting from November to February. The months of December and January are the coldest.
- (2) The summer season begins from March and lasts till May. During April the wind blows from the west .It remains relatively hot and temperature rises around 40°C.
- (3) The Rainy season - This season normally begins from the middle of June, when the monsoon winds bring moisture-laden clouds from the Bay of Bengal.

2.3.3 Rainfall

Dhanbad areas receive more rainfall due to coal dust, which attracts clouds and brings rainfall to the area. Rainfall is the principal method of ground water recharge to ground water. Southwest monsoon brings rainfall to this area during the months of June to October mainly. Normal data of the Dhanbad I.M.D. observatory indicates 1306 mm of rainfall.

2.3.4 Temperature:

Long-term data of temperature shows that temperature decreases progressively after October. The winter season starts from November and lasts till February. January is the coldest month with the mean daily maximum temperature at 30° C and the mean daily minimum temp. at 14.9° C.

2.3.5 Linkage & Connectivity

Dhanbad Airport is used for private small aircraft and helicopters, currently there is no public air-link at the airport. The nearest public airports to Dhanbad are Kazi Nazrul Islam Airport, Asansol-Durgapur 85 kilometres (53 mi) Birsa Munda Airport, Ranchi 140 kilometres (87 mi) Gaya Airport 207 kilometres (129 mi) Netaji Subhas Chandra Bose International Airport, Kolkata 269 kilometres (167 mi) Lok Nayak Jayaprakash Airport, Patna 271 kilometres (168 mi).

National Highway 2 and National Highway 32 are the major highways passing through Dhanbad.NH2 is part of Golden Quadrilateral (GQ) highway network; Dhanbad lies in Kolkata-Delhi link of the Golden Quadrilateral network. NH2 is being converted into six lane expressway; NH 32 connects Dhanbad to Bokaro-Jamshedpur.

Dhanbad is connected with almost all states through rail network. Each and every train through this has a stop at Dhanbad, other than the Sealdah New Delhi & Howrah New Delhi Duronto Exp, which also has a Technical Halt, but not to be used for Commercial Purposes.

2.4 Dhanbad Municipal Corporation

. **“Dhanbad Municipal Corporation”** was formed as per notification vied Establishment /Formation – 101/5334/Urban Development Department, Ranchi, dated 01-02- 2006. Dhanbad Municipal Corporation was formed by combining urban settlements (32 towns) and 258 villages. The urban settlements consisted of erstwhile Dhanbad Municipality,

Jharia NAC, Sindri NAC, Chhatandh NAC, Katras NAC, and 27 census towns (as per 2001 census).

The DMC comprises of 55 wards and responsible to provide basic education, infrastructure, healthcare tourism, sanitation and other basics amenities to their residents

2.5 Demographic Profile of Dhanbad Municipal Corporation (DMC)

The Dhanbad Municipal Corporation comprises of fifty-five wards and jurisdiction of each ward is well demarcated.

This Municipal Corporation falls at district head quarter. The development of market and connectivity through NH attracts visitor and generate employment for local peoples. Availability of natural resource and presence of major and minor industry in this area attract a good population for temporary or permanent residence. The amount of floating population is also high because of good connectivity of surface transportation and junction. Dhanbad Municipal Corporation area have high Population density.

2.5.1 Population trend for Dhanbad Region

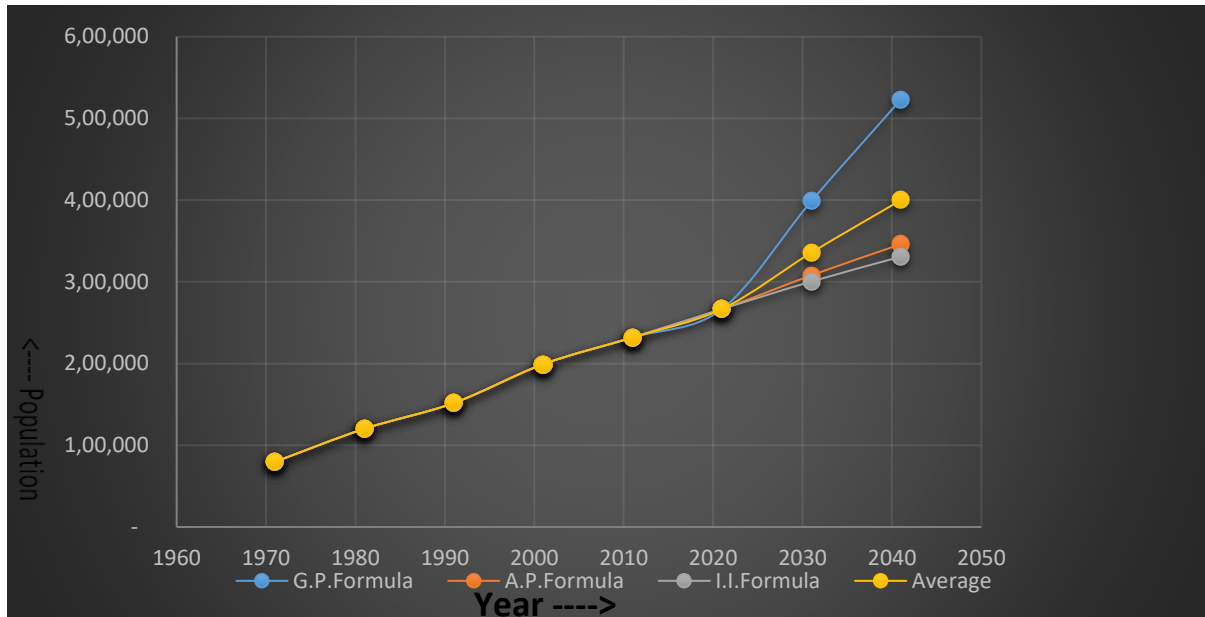
Table 2-1 Trend of Population Growth of Dhanbad Region

Year	Population (As per G.P. formula)	Population (A.P. Formula)	Population (I.I. Formula)	Average of 1,2,3
1971	79,838	79,838	79,838	79838
1981	1,20,221	1,20,221	1,20,221	120221
1991	1,51,789	1,51,789	1,51,789	151789
2001	1,99,258	1,99,258	1,99,258	199258
2011	2,31,996	2,31,996	2,31,996	231996
2021	266795	266795	266795	266795
2031	398952	3,08,074	3,00,429	335819
2041	523168	3,46,114	3,30,823	4,00,035
2051	686060	3,84,153	3,58,669	4,76,294

2.5.2 Ward Wise Population Projection for Dhanbad Municipal Corporation (DMC)

The entire jurisdiction of Dhanbad has been sprawl over an area of 149.59 Sq. Km Further, DMC is responsible for providing the SWM services to their residents within administrative jurisdiction of their ULB. The projection of population and accordingly estimation of waste generation has been carried out in line with historical census record and their decadal growth. The floating population has been considered with prosperous development and availability of basic facilities of cities.

Figure 2-1 Graphical Representation of Population Growth Trend



This city has been surrounded with forest and other developed cities (Bokaro and Ranchi) which is well developed industrial area hence the decadal growth and floating population is slightly lower than other cities. However, increase in population has been mainly because of migration from rural area and which is historically been on account of employment opportunities, education and better life style, and this would continue to be the most important factor.

2.6 Population of Dhanbad Municipal Corporation

The ward wise population distribution of DMC is presented as under

Table 2-2 Ward Wise Population Projection

Ward	2011	2021	2031	2041
1	22817	26240	33029	39345
2	19201	22081	27794	33109
3	27629	31773	39993	47641
4	19221	22104	27823	33143
5	20521	23599	29704	35384
6	25338	29139	36678	43692
7	20464	23534	29623	35288
8	19422	22335	28113	33489
9	23488	27011	33999	40500
10	18709	21515	27081	32260
11	23127	26596	33477	39879
12	19535	22465	28277	33684
13	19218	22101	27819	33139
14	18628	21422	26964	32120
15	9883	11365	14305	17040
16	18176	20902	26310	31341
17	6269	7209	9074	10809



Ward	2011	2021	2031	2041
18	22476	25847	32534	38755
19	29154	33527	42201	50271
20	13172	15148	19067	22713
21	18085	20798	26179	31185
22	24335	27985	35225	41961
23	23972	27568	34700	41335
24	25241	29027	36537	43524
25	23509	27035	34029	40536
26	19817	22790	28686	34171
27	17132	19702	24799	29541
28	31472	36193	45557	54269
29	21928	25217	31741	37811
30	24955	28698	36123	43031
31	16655	19153	24108	28718
32	22952	26395	33224	39577
33	25828	29702	37386	44535
34	19812	22784	28679	34163
35	28856	33184	41769	49756
36	16493	18967	23874	28439
37	20632	23727	29866	35577
38	23378	26885	33841	40312
39	25570	29406	37014	44092
40	31532	36262	45643	54371
41	23209	26690	33595	40019
42	28754	33067	41622	49581
43	34210	39342	49520	58989
44	12634	14529	18288	21785
45	15774	18140	22833	27199
46	24629	28323	35651	42468
47	27607	31748	39962	47604
48	20473	23544	29635	35302
49	20898	24033	30251	36036
50	10683	12285	15463	18420
51	22016	25318	31868	37962
52	17103	19668	24756	29490
53	18705	21511	27076	32254
54	10571	12157	15302	18228
55	16688	19191	24156	28775
Total	1162556	1336937	1682823	2004618

2.7 Existing C&D Waste Management Practices and Gap Analysis

RCUES has conducted waste generation survey from different sources of waste generation. The waste generation survey offers an advantage to assess individual waste streams and suggest waste treatment technologies specific to the city waste. RCUES prepared an alternative - and more resource demanding - approach, keeping the requirement of samples.

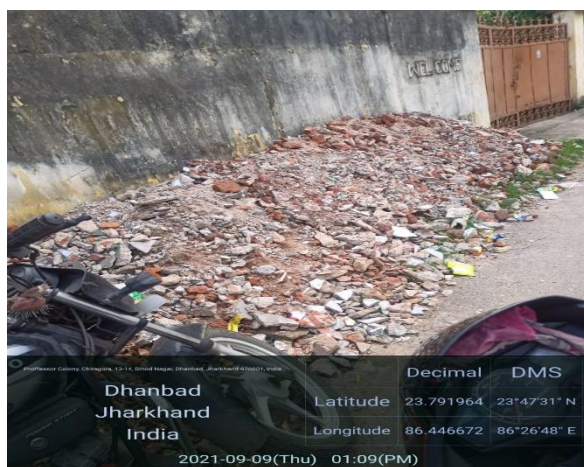




Table 2-3 Survey Report conducted by RCUES Team (Location, Quantity & Area of Waste)

Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
KATRAS								
1	Chhatabad Near Pul	2	23.7969000	86.2948000	2	3	1	6
2	Guhibandh Near Masjid	3	23.8036000	86.2997000	5	7	1.5	35
3	Millat Club Guhibandh	3	23.8057000	86.2984000	5	4	1.2	20
4	Near Salan Pur Main Road	3	23.8078000	86.2977000	5	5	2	25
5	Near Maruti Suzuki Showroom	1	23.8108000	86.2947000	5	6	1	30
6	Satyanarayan Mandir Gali	1	23.8125000	86.2939000	4	3	1	12
7	Rajbari Road	1	23.8138000	86.2956000	10	5	2	50
8	Bhagat Singh Chowk	1	23.8153000	86.2923000	10	12	2	120
9	Near Katras Collage	1	23.8146000	86.2909000	15	11	2	165
10	Dhanbad Road Katras	3	23.7987000	86.2993000	10	5	1	50
11	Salanpur Road Near Durga Mandir	3	23.7983000	86.3099000	10	10	1	100
12	Near Bus Stand	3	23.8021000	86.3001000	15	9	1	135
13	Salanpur Workshop	3	23.8030000	86.2981000	14	11	2	154
14	Purana Shyam Bazar	6	23.7901950	86.3246250	3	4	1	12
15	Near Purana Gram Panchayat	6	23.7801240	86.3221200	5	7	2	35
16	Tata Steel Gate Bhalatand	6	23.7708549	86.3178500	8	6	3	48
17	Tata Steel Gate Bhalatand	6	23.7699489	86.3183083	9	5	1	45
18	Tata Steel Gate Bhalatand	6	23.7708990	86.3191983	10	7	1.5	70
19	Tata Steel Gate Bhalatand	6	23.7701100	86.3197833	12	7	1	84
20	Tata Steel Gate Bhalatand	6	23.7700800	86.3197883	6	4	0.5	24
21	Das Basti Bhalatand	6	23.7687500	86.3229883	15	9	1.6	135
22	Das Basti Bhalatand	6	23.7717780	86.3229533	8	7	2	56



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
23	Taxi Stand Loyabad	8	23.7845033	86.3571700	4	3	0.5	12
24	AJSU Party Office		23.7820333	86.3637467	10	11	1.3	110
25	Loyabad Thana		23.7840883	86.3591000	12	8	1	96
26	Ambedkar Academy Hatiya Loyabad	8	23.7820866	86.3591133	12	4	2	48
27	Mahua Indan Gas	8	23.7773830	86.3565233	8	11	2	88
28	Loyabad Road	8	23.7751316	86.3546583	16	4	1	64
29	Loyabad Road	8	23.7800100	86.3570517	10	6	1	60
30	Loyabad Road	8	23.7799700	86.3570483	15	12	1	180
31	Loyabad Road	8	23.7798050	86.3570550	14	10	2	140
32	Loyabad Road	8	23.7947533	86.3592166	9	8	0.5	72
33	Kusunda SBI Building	7	23.7798479	86.3570096	9	9	1	81
34	Sankara Road Kusunda	8	23.7693101	86.3571149	19	6	1.5	114
CHATATAND								
1	Pandarpala Kali Mandir	18	23.8064000	86.4148700	2	3	1	6
2	Abhay sundri School Road	17	23.7957700	86.4404400	5	7	1.5	35
3	Shamsher Nagar	18	23.7984500	86.4109800	5	4	1.2	20
4	Railway Fatak ke Pass	18	23.7984500	86.4109800	5	5	2	25
5	Railway Fatak k Pass	18	23.7987600	86.4090180	5	6	1	30
6	City School k Pass	18	23.8019060	86.4090180	4	3	1	12
7	New Azad Nager road	17	23.8047480	86.4064180	10	5	2	50
8	Royal Bazar k Pass	18	23.8181500	86.4087300	10	12	2	120
9	Kusunda Road	14	23.7748184	86.3739311	13	11	1.5	143
10	Kusunda Road	14	23.7734366	86.3843834	14	4	2	56
11	Loyabad No 8 Near Taxi Stand	13	23.7845220	86.3843809	16	7	1	112
12	Sankara Road Kusunda	13	23.7693939	86.3849035	12	5	1.2	60
13	Sankara Road Kusunda	13	23.7720950	86.3848969	14	7	2	98



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
14	Sankara Road Kusunda	13	23.7720885	86.3844652	18	7	1	126
15	Sankara Road Kusunda	13	23.7693194	86.3848996	17	4	1	68
16	Sankara Road Kusunda	13	23.7694204	86.3848340	13	9	2	117
17	Sankara Road Kusunda	13	23.7691103	86.3848839	15	7	2	105
18	Sankara Road Kusunda	13	23.7693842	86.3849006	19	3	2.2	57
19	Kusunda Road	11	23.7707064	86.3806120	12	11	1	132
20	NH 18 Chhath Talab	9	23.7701009	86.3706723	14	8	1	112
21	NH 18 Chhath Talab	9	23.7697569	86.3711704	18	4	1	72
DHANBAD								
1	Mada colony Hirapur	27	23.8018240	86.4350620	15	17	2.2	255
2	Pandey Muhalla Hirapur	27	23.7989640	86.4414530	10	5	1	50
3	Pandey Muhalla Hirapur	27	23.7981790	86.4423000	20	15	1	300
4	Mada colony Hirapur	27	23.7970110	86.4436120	15	9	1	135
5	Mada colony Hirapur	27	23.7969850	86.4436000	14	11	2	154
6	Pandey Muhall Hirapur	27	23.7974070	86.4440120	3	4	1	12
7	R.S.P Malik Colony	27	23.7973750	86.4451380	5	7	2	35
8	R.S.P Malik Colony	27	23.7972090	86.4450350	8	6	3	48
9	Ambika Apartment	27	23.7963760	86.4449170	9	5	1	45
10	Devi Para RD Pandey Muhalla	27	23.7971270	86.4458540	10	7	1.5	70
11	Telipara Hirapur	27	23.7989050	86.4482460	12	7	1	84
12	Hirapur	25	23.7978230	86.4501340	6	4	0.5	24
13	Pandey Muhalla Hirapur	25	23.7978280	86.4501280	15	9	1.6	135
14	CMPF Colony Hirapur	25	23.7979050	86.4503260	8	7	2	56
15	Sarvoday Nager Hirapur	25	23.7980870	86.4502920	4	3	0.5	12
16	Telipara Hirapur	25	23.7983190	86.4500670	10	11	1.3	110
17	Telipara RD CMPF Colony	25	23.7983340	86.4500510	12	8	1	96
18	Binod Nagar	25	23.7978660	86.4500340	12	4	2	48



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
19	Pandey Muhalla Hirapur	25	23.7978640	86.4501600	10	4	0.5	40
20	Hirapur Sinladih	25	23.7981120	86.4512540	11	9	0.7	99
21	CMPL Colony	25	23.8004320	86.4503900	19	10	1	190
22	CMPF Colony Hirapur	25	23.8004380	86.4509070	12	3	0.5	36
23	Simal dih	25	23.8003180	86.4508980	16	7	1	112
24	S.K Nagar Hirapur	25	23.8030410	86.4493200	14	4	0.4	56
25	J.c Malik Road Binod Nagar	25	23.8085860	86.4449310	9	5	0.3	45
26	Jaya Jivan Nagar	24	23.8085700	86.4998930	8	6	0.7	48
27	Canala Road	24	23.8085840	86.4998930	11	3	0.6	33
28	Canala Road	24	23.8075490	86.4497150	15	5	1	75
29	CMPF Colony Hirapur	24	23.8085840	86.4497490	15	12	1	180
30	Canala Road	24	23.8075490	86.4508010	17	17	2	289
31	R.S.P Malik Colony	24	23.8074300	86.4509190	13	5	0.6	65
32	Loyabad Road	24	23.8073810	86.4510420	13	15	1	195
33	Dhansar Shiva TVS	33	23.7800820	86.4118750	11	8	2	88
34	Raj Medical Joraphatak	33	23.7809860	86.4110780	16	12	2.2	192
35	Shidhi vinayak Joraphatak	33	23.7809860	86.4110780	12	10	1	120
36	Gandhi Nagar Manai Tand	33	23.7833390	86.4210890	15	14	1	210
37	Rajeev Nagar Manaitand Road	31	23.7850380	86.4272580	15	9	1	135
38	Sakti Mandir Manaitand	29	23.7841410	86.4322050	12	5	2	60
39	Bank of India ATM Manaitand	29	23.7840130	86.4321360	11	7	1	77
40	Shiv Ganga House Manaitand	29	23.7839570	86.4328760	16	12	2	192
41	ManaiTand	29	23.7846910	86.4347080	15	14	3	210
42	ManaiTand	29	23.7858870	86.4375060	14	11	1	154
43	Januna Restaurent Manaitand	29	23.7858640	86.4375460	18	18	1.5	324
44	Binod Nagar	26	23.7888810	86.4461400	19	11	1	209
45	Binod Nagar	26	23.7888380	86.4469950	15	9	0.5	135



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
SINDRI								
1	Digwadih No 10 Canara Bank	40	23.6998950	86.4156180	10	12	3	120
2	Digwadih No 12 Near SBI Bank	40	23.6935780	86.4160730	12	10	1	120
3	LOCO Bazar, Traffic Colony Near Kali Mandir	51	23.6797390	86.4299600	15	8	1.5	120
4	Khairpal Road, Patthdih Behind BIT Sindri	51	23.6797390	86.4299600	16	10	1	160
5	Khairpal Road, Patthdih Behind BIT Sindri Campus	54	23.6596900	86.4628440	10	11	0.5	110
6	Sindri Rohrabandh, Near Yatri Lodge	55	23.6539110	86.4700040	13	9	1.6	117
7	Pathardih lice Bazar Parghabad	51	23.6786850	86.4289760	15	7	2	105
8	Pathardih Near Mohan Bazar	51	23.6856890	86.4302770	18	11	0.5	198
9	Digwadih Ganesh Puja Ground	40	23.7018350	86.4217360	10	8	1.3	80
10	Joraphokhar No 1 Telepati Jamadoba	42	23.7109830	86.4051000	19	12	1	228
11	Joraphokhar No 1 Near Railway gate Samalas Pur Basti	42	23.7109100	86.4098500	9	8	2	72
12	SDM School Jealgore No7 Jamadoba	42	23.7109810	86.4107750	8	6	0.5	48
13	Jelgora No 1 Near Railway Gate	48	23.7068260	86.4197740	12	8	0.7	96
14	Jelgora No 16 Near CISF Camp	48	23.7060440	86.4177300	12	9	1	108
15	Durga Mandir Jamadoba	48	23.7085970	86.4232590	16	11	0.5	176



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
16	Bagdeyi Colliery	48	23.7100590	86.4307900	10	10	1	100
17	Bagdeyi Colliery	48	23.7100590	86.4307900	13	9	0.4	117
18	Bagdeyi Colliery	47	23.7099810	86.4305890	18	5	0.3	90
19	Bagdeyi Colliery	47	23.7100590	86.4307500	14	13	0.7	182
20	Joraphokhar No 1 Near Railway gate Samalas Pur Basti	42	23.7109120	86.4051470	10	9	0.6	90
JHARIA								
1	RajaPur Colony Jharia	34	23.7546220	86.4131780	17	11	1	187
2	Bhagat Dih Rajapur	34	23.7545580	86.4132250	12	12	2	144
3	Bhagat Dih Rajapur	35	23.7553560	86.4129010	10	8	0.6	80
4	Dhas Kapoti Katras more	35	23.4098940	86.9894000	19	11	1	209
5	Shankar Road	44	23.7489520	86.4099030	14	13	1	182
6	Shankar Road	44	23.7489080	86.4098500	13	9	1.5	117
7	Shankar Road	44	23.7488180	86.4099230	16	10	2	160
8	Tikiya Para	35	23.7617010	86.4092370	15	14	1	210
9	Manjhi Basti	35	23.7649080	86.4110080	17	11	1.5	187
10	Bastacola Basti	35	23.7665430	86.4112790	10	8	1.2	80
11	Anugarah Nagar	34	23.7721920	86.4108090	15	11	2	165
12	Dhansar Thana	34	23.7724680	86.4106580	18	15	1	270
13	Durga Mandir Dhansar	34	23.7728280	86.4107430	16	13	1	208
14	Dhansar More	34	23.7785140	86.4125110	10	8	2	80
15	Durga Mandap Bhagatdih	34	23.7559210	86.4100410	15	11	1.6	165
16	Shiv Mandir Bhagadiah	34	23.7549700	86.4115350	12	10	2	120
17	Bastacola Basti	35	23.7652790	86.4095870	15	13	0.5	195
18	Bhalghara Basti	35	23.7401840	86.4077430	10	8	1.3	80
19	Vikas Bhawan Bastacola	35	23.7433730	86.4109880	15	9	1	135



Sr No	Point Name	Ward No	Latitude	Longitude	Length(M)	Width(M)	Height(M)	Area(sqm)
20	Jamadoba	37	23.7188090	86.4044200	12	10	2	120
21	Bccl Quarter	37	23.7509430	86.4093970	25	15	2	375
22	Bhaga Indian Oil	41	23.7229740	86.4097520	12	12	1	144
23	Baniyahir	41	23.7327230	86.4135470	15	7	1	105
24	Jamadoba	38	23.7188090	86.4044200	9	9	1	81
25	Tata Colony	38	23.7112890	86.4084530	8	5	2	40
26	Baniyahir 4	38	23.7433730	86.4112100	6	4	0.5	24
27	Jorapokhar No 3	39	23.7056260	86.3923400	5	5	0.6	25
28	Jamadoba Dumri Chowk	39	23.7058700	86.4018090	15	10	1	150
29	Jorapokhar Thana	40	23.7112140	86.4084430	12	11	1	132
30	Joraphokhar No 3	40	23.7032010	86.3900890	15	12	1	180
31	Jamadoba Dumri NO 4	40	23.7028060	86.3978380	14	13	1	182

2.8 Waste Estimation

The per capita waste generated from domestic, commercial, Institutional etc. in different wards of Dhanbad Municipal Corporation is 404.88 gms/day including drain silt & C&D waste. The waste generation would increase with increase in population in upcoming year. The waste generation is forecasted in order to plan the infrastructure or system that is being proposed.

The quantification and characterization of generated waste was estimated during primary survey and their compilation has been carried out for analysis and reporting purposes. The data was analyzed and based on these data the ward wise waste generated from various establishments is estimated and discussed in the following paragraph. Certain information from secondary sources was also compiled.

In Dhanbad Municipal Corporation total waste generated from residential, commercial is 541.30 TPD whereas C&D waste generated is 81.19 TPD.

Table 2-4 Projected Ward wise waste generation from Dhanbad Municipal Corporation

	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%
Ward	2011		2021		2031		2041	
1	9.24	1.39	10.62	1.59	13.37	2.01	15.93	2.39
2	7.77	1.17	8.94	1.34	11.25	1.69	13.41	2.01
3	11.19	1.68	12.86	1.93	16.19	2.43	19.29	2.89
4	7.78	1.17	8.95	1.34	11.26	1.69	13.42	2.01
5	8.31	1.25	9.55	1.43	12.03	1.80	14.33	2.15
6	10.26	1.54	11.80	1.77	14.85	2.23	17.69	2.65
7	8.29	1.24	9.53	1.43	11.99	1.80	14.29	2.14
8	7.86	1.18	9.04	1.36	11.38	1.71	13.56	2.03
9	9.51	1.43	10.94	1.64	13.77	2.06	16.40	2.46
10	7.57	1.14	8.71	1.31	10.96	1.64	13.06	1.96
11	9.36	1.40	10.77	1.62	13.55	2.03	16.15	2.42
12	7.91	1.19	9.10	1.36	11.45	1.72	13.64	2.05
13	7.78	1.17	8.95	1.34	11.26	1.69	13.42	2.01
14	7.54	1.13	8.67	1.30	10.92	1.64	13.00	1.95
15	4.00	0.60	4.60	0.69	5.79	0.87	6.90	1.03
16	7.36	1.10	8.46	1.27	10.65	1.60	12.69	1.90
17	2.54	0.38	2.92	0.44	3.67	0.55	4.38	0.66
18	9.10	1.37	10.46	1.57	13.17	1.98	15.69	2.35
19	11.80	1.77	13.57	2.04	17.09	2.56	20.35	3.05
20	5.33	0.80	6.13	0.92	7.72	1.16	9.20	1.38
21	7.32	1.10	8.42	1.26	10.60	1.59	12.63	1.89
22	9.85	1.48	11.33	1.70	14.26	2.14	16.99	2.55
23	9.71	1.46	11.16	1.67	14.05	2.11	16.74	2.51



	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%	Total Waste	C&D Waste @15%
Ward	2011		2021		2031		2041	
24	10.22	1.53	11.75	1.76	14.79	2.22	17.62	2.64
25	9.52	1.43	10.95	1.64	13.78	2.07	16.41	2.46
26	8.02	1.20	9.23	1.38	11.61	1.74	13.84	2.08
27	6.94	1.04	7.98	1.20	10.04	1.51	11.96	1.79
28	12.74	1.91	14.65	2.20	18.45	2.77	21.97	3.30
29	8.88	1.33	10.21	1.53	12.85	1.93	15.31	2.30
30	10.10	1.52	11.62	1.74	14.63	2.19	17.42	2.61
31	6.74	1.01	7.75	1.16	9.76	1.46	11.63	1.74
32	9.29	1.39	10.69	1.60	13.45	2.02	16.02	2.40
33	10.46	1.57	12.03	1.80	15.14	2.27	18.03	2.70
34	8.02	1.20	9.22	1.38	11.61	1.74	13.83	2.07
35	11.68	1.75	13.44	2.02	16.91	2.54	20.15	3.02
36	6.68	1.00	7.68	1.15	9.67	1.45	11.51	1.73
37	8.35	1.25	9.61	1.44	12.09	1.81	14.40	2.16
38	9.47	1.42	10.89	1.63	13.70	2.06	16.32	2.45
39	10.35	1.55	11.91	1.79	14.99	2.25	17.85	2.68
40	12.77	1.92	14.68	2.20	18.48	2.77	22.01	3.30
41	9.40	1.41	10.81	1.62	13.60	2.04	16.20	2.43
42	11.64	1.75	13.39	2.01	16.85	2.53	20.07	3.01
43	13.85	2.08	15.93	2.39	20.05	3.01	23.88	3.58
44	5.12	0.77	5.88	0.88	7.40	1.11	8.82	1.32
45	6.39	0.96	7.34	1.10	9.24	1.39	11.01	1.65
46	9.97	1.50	11.47	1.72	14.43	2.17	17.19	2.58
47	11.18	1.68	12.85	1.93	16.18	2.43	19.27	2.89
48	8.29	1.24	9.53	1.43	12.00	1.80	14.29	2.14
49	8.46	1.27	9.73	1.46	12.25	1.84	14.59	2.19
50	4.33	0.65	4.97	0.75	6.26	0.94	7.46	1.12
51	8.91	1.34	10.25	1.54	12.90	1.94	15.37	2.31
52	6.92	1.04	7.96	1.19	10.02	1.50	11.94	1.79
53	7.57	1.14	8.71	1.31	10.96	1.64	13.06	1.96
54	4.28	0.64	4.92	0.74	6.20	0.93	7.38	1.11
55	6.76	1.01	7.77	1.17	9.78	1.47	11.65	1.75
Total	470.70	70.60	541.30	81.19	681.34	102.20	811.63	121.74

However, the waste generated is currently not being disposed in scientific and safe manner. Proper processing of C&D waste in Dhanbad City is causing constraints for waste disposal, resulting in unauthorized dumping in areas such as rivers and lakes. In order to facilitate proper management of this waste the Dhanbad Municipal Corporation is planning to take an

initiative to set up a proper project for Collection, Transportation, and Processing and Management of C&D waste in Dhanbad Municipal Corporation area.

Table 2-5 Waste Projection for Dhanbad Municipal Corporation (in MT/day)

Year	Population	Waste Generation (Domestic + Commercial)	C&D Waste @15%	Household
2011	1162556	470.70	70.60	217783
2021	1336937	541.30	81.19	250450
2031	1682823	681.34	102.20	315245
2041	2004618	811.63	121.74	375527
2051	2387949	966.83	145.02	447337

2.9 Waste Processing and Disposal Facilities:

No waste processing facility available in city. Waste is being dumped at Road Side. No measures are adopted for protection of soil pollution and protection from fugitive dust.

2.10 Proposed Methodology

The Dhanbad city has seen very rapid growth during the last few decades. The heavy influx of professionals has resulted in housing and infrastructure along with industrial and commercial complexes. The city also generates about 540 metric tons per day of municipal solid waste at per capita generation of 404.88 grams per day. The same is managed by the DMC's Solid Waste Management Department. With this regard it has been noted that construction and demolition activities that generate the types of waste which requires similar framework for their regulation are not limited to only activities such as construction, repair, re-modelling, renovation, but also includes land clearance activities, activities related to digging of trenches, creation of underground facilities, clearing drains and water bodies within the city. It also been noted that waste generated from construction and demolition activities can compromise of a large amount of different elements which include both hazardous and non-hazardous materials. The unauthorized dumping of solid waste from construction and demolition activities is a major cause of nuisance and pollution within the city. Dhanbad Municipal Corporation needs to allot a few acres of land for the processing and disposal of construction and demolition waste of Dhanbad city. The Dhanbad Municipal Corporation would also like to implement an integrated C&D Waste Management project including the collection, transportation, recycling, processing and disposal.

3 Proposed Action Plan

As per SWM Rules, 2016, recommended that ULB's 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.

3.1 C&D Waste Rules 2016

3.1.1 Duties of the waste generator

1. Every waste generator shall prima-facie be responsible for collection, segregation of concrete, soil and others and storage of construction and demolition waste generated, as directed or notified by the concerned local authority in consonance with these rules.
2. The generator shall ensure that other waste (such as solid waste) does not get mixed with this waste and is stored and disposed separately.
3. Waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar and shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodelling work and keep the concerned authorities informed regarding the relevant activities from the planning stage to the implementation stage and this should be on project to project basis.
4. Every waste generator shall keep the construction and demolition waste within the premise or get the waste deposited at collection centre so made by the local body or handover it to the authorised processing facilities of construction and demolition waste; and ensure that there is no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains.

5. Every waste generator shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities; Waste generators who generate more than 20 tons or more in one day or 300 tons per project in a month shall have to pay for the processing and disposal of construction and demolition waste generated by them, apart from the payment for storage, collection and transportation. The rate shall be fixed by the concerned local authority or any other authority designated by the State Government.

3.1.2 Duties of service provider and their contractors

1. The service providers shall prepare within six months from the date of notification of these rules, a comprehensive waste management plan covering segregation, storage, collection, reuse, recycling, transportation and disposal of construction and demolition waste generated within their jurisdiction.
2. The service providers shall remove all construction and demolition waste and clean the area every day, if possible, or depending upon the duration of the work, the quantity and type of waste generated, appropriate storage and collection, a reasonable timeframe shall be worked out in consultation with the concerned local authority.
3. In case of the service providers have no logistics support to carry out the work specified in sub rules (1) and (2) , they shall tie up with the authorised agencies for removal of construction and demolition waste and pay the relevant charges as notified by the local authority.

3.1.3 Duties of local authority

The local authority shall,-

1. issue detailed directions with regard to proper management of construction and demolition waste within its jurisdiction in accordance with the provisions of these rules and the local authority shall seek detailed plan or undertaking as applicable, from generator of construction and demolition waste;
2. chalk out stages, methodology and equipment, material involved in the overall activity and final clean up after completion of the construction and demolition ;
3. seek assistance from concerned authorities for safe disposal of construction and demolition waste contaminated with industrial hazardous or toxic material or nuclear waste if any;
4. shall make arrangements and place appropriate containers for collection of waste and shall remove at regular intervals or when they are filled, either through own resources or by appointing private operators;
5. shall get the collected waste transported to appropriate sites for processing and disposal either through own resources or by appointing private operators;

6. shall give appropriate incentives to generator for salvaging, processing and or recycling preferably in-situ;
7. shall examine and sanction the waste management plan of the generators within a period of one month or from the date of approval of building plan, whichever is earlier from the date of its submission;
8. shall keep track of the generation of construction and demolition waste within its jurisdiction and establish a data base and update once in a year;
9. shall devise appropriate measures in consultation with expert institutions for management of construction and demolition waste generated including processing facility and for using the recycled products in the best possible manner;
10. shall create a sustained system of information, education and communication for construction and demolition waste through collaboration with expert institutions and civil societies and also disseminate through their own website;
11. shall make provision for giving incentives for use of material made out of construction and demolition waste in the construction activity including in non-structural concrete, paving blocks, lower layers of road pavements, colony and rural roads.

3.2 Storage of Construction and Demolition Waste

These wastes are best stored at source, i.e., at the point of generation. If they are scattered around or thrown on the road, they not only cause obstruction to traffic but also add to the workload of the local body. All attempts should be made to stick to the following measures:

1. All construction/demolition waste should be stored within the site itself. A proper screen should be provided so that the waste does not get scattered and does not become an eyesore.
2. Attempts should be made to keep the waste segregated into different heaps as far as possible so that their further gradation and reuse is facilitated.
3. Material, which can be reused at the same site for the purpose of construction, levelling, making road/pavement etc. should also be kept in separate heaps from those, which are to be sold or landfilled.
4. The local body or a private company may arrange to provide appropriate number of skip containers/trolleys on hire which may be parked at the site and removed with skip lifters or tractors as the case may be.
5. Whenever a new streamlined system is introduced in a municipality, the local body may consider using its old vehicles, especially, tractors and trailers or old Lorries or tippers for this purpose.
6. For large projects involving construction of bridges, flyovers, subways etc., special provision should be made for storage of waste material. Depending on the storage capacity, movement of the waste has to be planned accordingly. Otherwise, it would result in job constraint as well as traffic bottlenecks.

7. This subject is often neglected in case of repair/maintenance of roads, water pipes, underground telephone and electric cables etc. It is not uncommon to see that after such work, the waste remains piled for months on the roads or pavements. The concerned departments and contractors must co-ordinate with the municipality for removal of the debris generated.

The municipality while giving permission for such work should clearly sort out the issue of removal of the debris and should insist that immediately after the job is over, the road should be repaired and brought back to its normal shape.

3.3 Collection and Transportation

If the construction debris is stored in skips, then skip lifters fitted with hydraulic hoist system should be used for efficient and prompt removal. In case, trailers are used, then tractors may remove these. For handling very large volumes, front-end loaders in combination with sturdy tipper trucks may be used so that the time taken for loading and unloading is kept to the minimum.

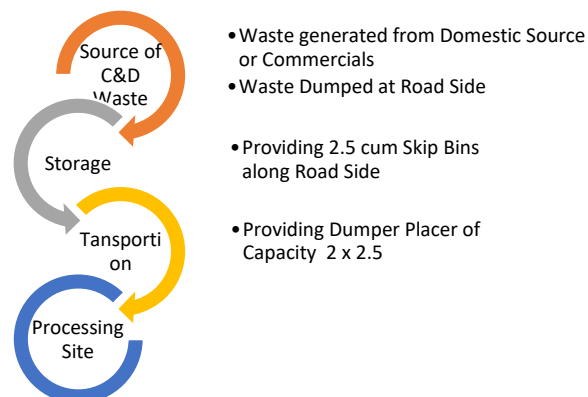
For small generators of construction debris, e.g., petty repair/maintenance job, there may be two options – (i) specific places for such dumping by the local body and (ii) removal on payment basis. In case of small towns where skips and tipping trailers are not available, manual loading and unloading should be permitted.

Close co-ordination between the Sanitary Department, Municipal Engineering Department and Town Planning Department is essential if there is no consolidated Solid Waste Management Department to take care of the construction and demolition waste in addition to other municipal garbage.

3.4 Proposed Plan for Collection and Transportation

Proposed action plan for Dhanbad Municipal Corporation is mentioned as in below in figure:

Figure 3-1 Flow Diagram for Collection and Transportation





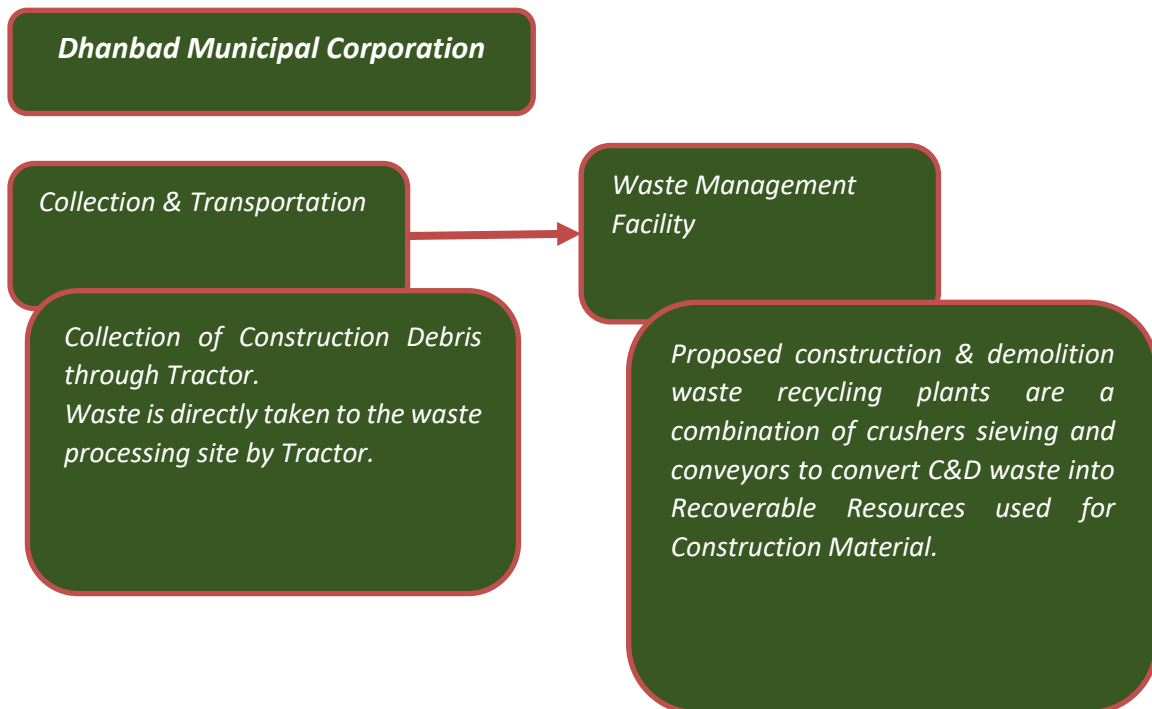
C& D waste Generation	Unit	Quantity	Capacity Required	Capacity Tractor	No Trips	Tractors/DP required, 2.5 MT capacity & 2 trips a day, add 10% breakdown	
		C&D				Actual Req.	Rounded up
Total C&D Waste	MT/Day	81.19	81.19	2 cum	4	4	5
Total	MT/Day	81.19				4	4

The lifting of C& D waste would be done on call basis also and would be based on polluter must pay principle.

- Each vehicle is proposed to make four trips for collection of waste.
- Timing of entire operation can be summarized as under: -

C&D Waste from generator

: After 2:00 PM



4 C&D Waste Processing and Recycling opportunities

Reuse and recycling of C&D waste is one component of a larger holistic practice called sustainability or green building construction being practiced in most developed countries. Re-utilization or recycling is an important strategy for management of such waste.

Construction and demolition waste can be used in the following manner:

- Reuse (at site) of bricks, stone slabs, timber, conduits, piping railings etc. to the extent possible and depending upon their condition.
- Sale / auction of material which cannot be used at the site due to design constraint or change in design.
- Plastics, broken glass, scrap metal etc. can be used by recycling industries.
- Rubble, brick bats, broken plaster/concrete pieces etc. can be used for building activity, such as, leveling, under coat of lanes where the traffic does not constitute of heavy moving loads.
- Larger unusable pieces can be sent for filling up low-lying areas.
- Fine material, such as, sand, dust etc. can be used as cover material over sanitary landfill.
- Use as a granular sub-base (the layer above compacted earthen sub-grade) in road construction. Sub-base is generally constructed using non-plastic moorum. Processed C&D waste (after sizing and sieving) can be used in road pavement for sub-base construction.

C&D waste being a free draining material, its proper particle gradation can be used in place of moorum.

4.1 Economic Benefits of Using C&D Waste Recycled Products:

1. Use of recycled aggregate up to 30% does not affect the functional requirements of the structure as per the findings of the test results.
2. Various tests conducted on recycled aggregates and results compared with natural aggregates are satisfactory as per IS 386.

4.2 Environmental benefits of recycling C&D waste

The environmental benefits of recycling C&D waste are considerable. By assessing carbon dioxide and energy use at a large-scale recycling plant, researchers have shown that, over its 60 year life span, the carbon dioxide emissions prevented will be ten times as much as those produced, and eight times as much energy will be saved, than is used.

It eases the production and emission of greenhouse gas and other pollutants by reducing the need to extract raw materials and transporting the materials long distances. It reduces the need for new landfills and the costs involved in it. Recycling saves energy and also reduces the environmental impact. It creates employment opportunities in recycling industries. A lot

of money can be saved by reducing the project disposal costs, transportation costs and the cost of new construction materials by recycling old materials onsite.

4.3 Two Pillars of C&D Waste Stream Utilization:

1. Reusing of C& D Waste: It does not require any further processing to convert into a useful product. The items which are usable directly are screened out from the debris and put into the possible use without further processing.
2. Recycling of C&D Waste: Once the waste generated from construction and demolition activities has been segregated and reusable items are taken out, the leftover is available for further processing i.e. recycling into next useful stage.

4.4 Recycling of Waste Concrete

Recycling of waste concrete is done to reuse the concrete rubble as aggregates in concrete. The recycled aggregates have less crushing strength, impact resistance and specific gravity and has more absorption value as compared to fresh aggregates.

4.5 Necessity of Concrete Recycling:

Millions of tonnes of waste concrete is generated every year around the world due to following reasons:

- Demolition of old structure,
- Destruction of buildings and structures during earthquakes and wars,
- Removal of useless concrete from structures, buildings, road pavements etc.
- Waste concrete generated due to concrete cube and cylinder testing, destructive methods of testing of existing structures etc.

4.6 Advantages of Concrete Recycling:

Usually demolished concrete were shipped to landfills for disposal, but due to greater environmental awareness, the concrete is being recycled for reuse in concrete works. There are a variety of benefits in recycling concrete rather than dumping it or burying it in a landfill. Keeping concrete debris out of landfills saves space there.

4.7 Other Benefits of Recycling of Concrete are:

- Local Product – Local Sources
- Reduces Truck Traffic
- Alternative to a Non-Renewable Resource
- Cost Savings
- No Disposal Fees
- Better Trucking Utilization (Reduced Costs)

Using recycled material as gravel reduces the need for gravel mining. There are also economic benefits. Recycled concrete is a construction material that the community does not need to pay for; those who generated the concrete waste pay a fee to have it recycled.



Figure 4-1 Process Flow of C&D Waste

4.8 Quality of recycled aggregate and its concrete:

The strength of recycled aggregate concrete is about 10 to 15 per cent less as compared to concrete with fresh aggregate. However suitable mix designs may be made and reliable results obtained. The mix requires slightly higher quantity of cement or using admixtures to reduce water requirement.

Recycled aggregate concrete can be safely used as plain concrete. With proper corrections in mix design, it can be used for R.C.C. works also.

4.9 Process of C&D waste Recycling

Crushing and screening systems start with primary jaws, cones Crushers taking rubble from 30 inches to 4 feet.

A scalping screen will remove dirt and foreign particles. A fine harp deck screen will remove fine material from coarse aggregate. Further cleaning is necessary to ensure the recycled concrete product is free of dirt, clay, wood, plastic and organic materials.

Occasionally asphalt overlay or patch is found. A mixture of asphalt and concrete is not recommended but small patches are not detrimental. The more care that is put into the quality, the better product you will receive.

With sound quality control and screening good quality recycled material can be produced without having to wash it as with virgin aggregate which may be laden with clay and silt.

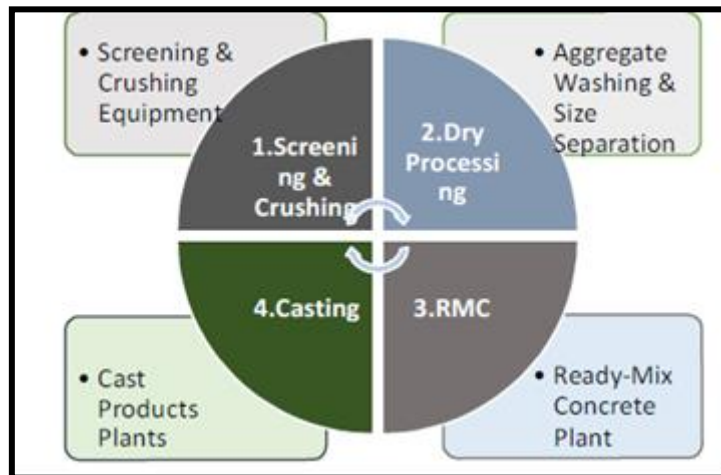


Figure 4-2 Components of Processing

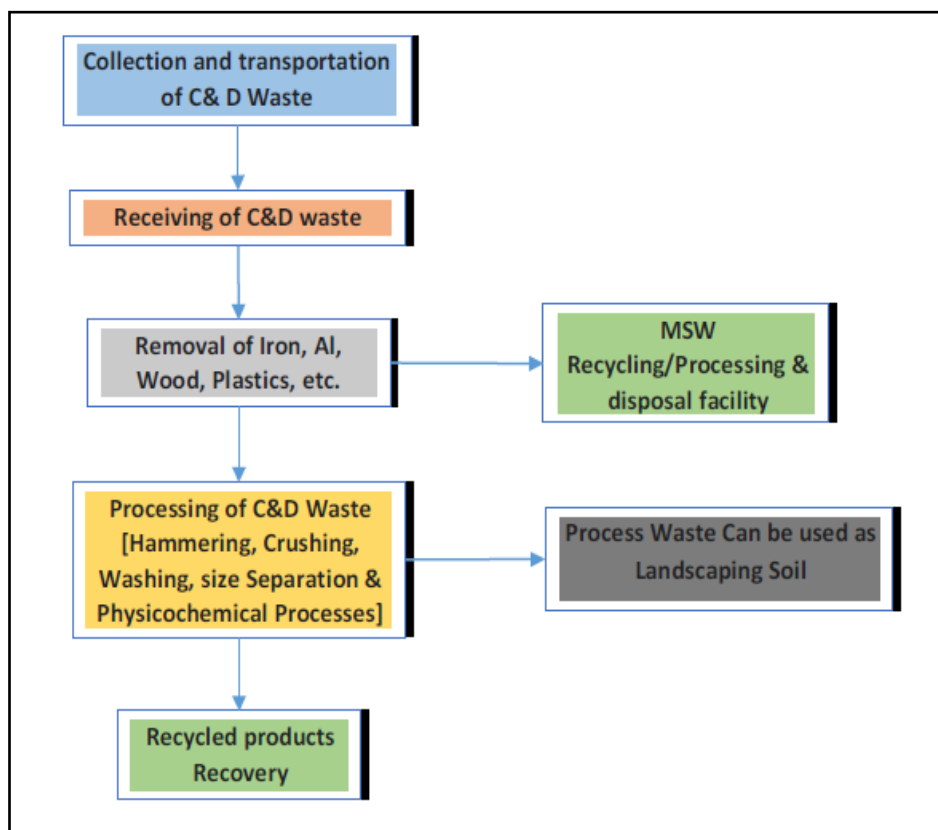


Figure 4-3 C&D Waste Processing Flow Chart:

There are a variety of benefits in recycling concrete rather than dumping it or burying it in a landfill. Keeping concrete debris out of landfills saves space there. Other benefits of recycling of concrete are (a) Local product local sources. (b) Reduces truck traffic. (c) Alternative to a

non-renewable resource. (d) Cost savings. (e) No disposal fees. (f) Better trucking utilization (reduced costs).

Using recycled material as gravel reduces the need for gravel mining. There are also economic benefits. Recycled concrete is a construction material that the community does not need to pay for; those who generated the concrete waste pay a fee to have it recycled.

The strength of recycled aggregate is same as compared concrete with fresh aggregate. However suitable mix designs may be made and reliable results obtained. The mix requires slightly higher quantity of cement or using admixtures to reduce water requirement. Recycled aggregate concrete can be safely used as plain concrete. With proper corrections in mix design, it can be used for R.C.C. works also.

4.10 Machineries for Recycling

Use of appropriate equipment and machinery is essential in the recycling process. Such equipment are jaw crushers, magnetic separators, vibratory screens brick making units etc.

Proposed recycling plant consists of the following technologies:

- Handpicking
- Feed hopper
- Pre Crushing
- Magnetic Separator
- Trash Screen/Blower for removal of light weights
- Sizing Screen for washed Aggregate
- Impact Crusher
- Mixture Machine
- Brick Making Machine

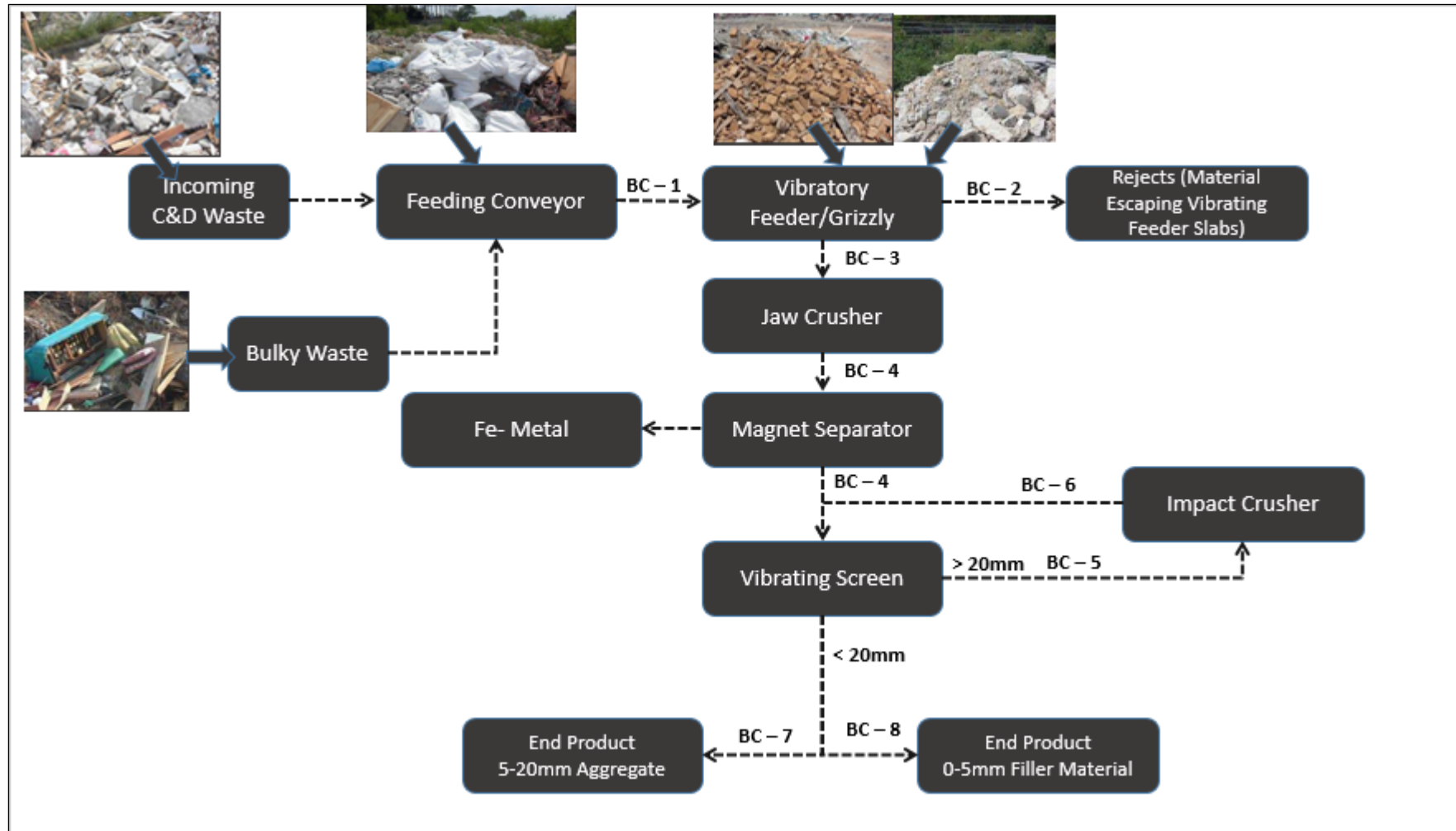
4.11 Process Description

Reducing and Recycling C&D materials as a resource conserves landfill space, thus it is an environmentally friendly method to manage urban wastage. Resources Recovery reduces the environmental impact of producing new materials, creates jobs, and reduce overall building project expenses, this is by avoiding raw material purchases and overall disposal management costs.

Proposed construction & demolition waste recycling plants are a combination of crushers sieving and conveyors to convert C&D waste into Recoverable Resources Used Construction Material. Proposed construction & demolition waste recycling plants are cost effective, efficient and are customized to each required solution.

Considering the quantity of C&D Waste in the project area, it is proposed to establish a 125 TPD (15 TPH) at Processing plant at Waste Processing Facility.

4.12 Process Flow Diagram



4.13 Process Description

Construction & Demolition waste processing plant uses facilities to process C&D waste into an aggregate product known as Recycled Concrete Aggregate (RCA). The processes include:

1. Feeding Conveyor of bulky waste and / or opening of bags, as well as pre-crush of the C&D waste shall be done with the help of a hydraulic hammer.
2. Feeding the Material into Vibratory Feeder using Front End Loader.
3. A Primary Crushing Process of material using Jaw Crusher.
4. Escaping material from vibratory feeder slats are transferred for sieving.
5. Material from vibratory feeder slats are transferred for sieving and Material Sieved above 50mm is diverted to manual sorting conveyors line with ferrous separator upfront along with crushed material coming from the Primary Crusher Section.
6. Material below 50mm is diverted to another vibrating sieve for further sorting.
7. During the course of Manual Sorting, plastics' wood and non-ferrous metal will be Separated and Sorted.
8. Further Crushing of Material comes from manual sorting will be processes using impact crusher.
9. Screening of the materials will be done using vibrating fractions into two major fractions 5-50mm aggregates and 0-5mm sand and dust.
10. Bulky waste, green waste and wood shall be directed into a shredder, shredded material can be used as a wood fuel or landfill.

Figure 4-4 Vibratory Feeder & Jaw Crusher



Figure 4-5 Impact Crusher & Vibrating Screen



Figure 4-6 Impact Crusher





4.14 Technical Specification of Proposed Processing Plant

Sl. No.	Particulars	Function	Technical Specification
1.	Feeding Conveyor (BC – 1)	Convey material to Grizzly feeder	<p>Belt Length:- 15000mm Effective Belt Width: – 450mm Drive Power:- 3.7 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type</p>
2.	Vibratory/Grizzly Feeder	Feed incoming material into the crusher	<p>Funnel Size:- 500mm X 3000mm Maximum Feed Size:- 400mm Motor Power Rating:- 5.5KW [Operated by variable speed drive] Motor Base:- Spring Loaded design to absorb load Grizzly Bar Spacing:- 30mm Hopper Size:- 3 Cum</p>
3.	Belt Conveyor (BC – 2)	Convey material escaping Grizzly feeder slats to rejects storage location	<p>Belt Length:- 20000mm Effective Belt Width: – 450mm Drive Power:- 3.7 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type</p>



Sl. No.	Particulars	Function	Technical Specification
4.	Belt Conveyor (BC – 3)	Transfer of Material from jaw crusher to belt conveyor to Jaw Crusher	Belt Length:- 8000mm Effective Belt Width:- 750mm Drive Power:- 3.7 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type
5.	Jaw Crusher PE 500 X 750 Inclusive of Vibrating Pan Feeder	Crushing of incoming material into smaller size (0-165mm)	Feed Opening:- 500mm X 500mm Max Feed Size:- 400mm Settling Adjustment Range:- 65-160mm Capacity:- 20-30 Tons/hr Motor Power Rating-45 kW Pan Feeder Tray Size:- 400mm (W) X 750mm (L) Tray Construction:- Mild Steel Suspended on Spring Drive:- 2 Units
6.	Belt Conveyor (BC – 4)	Transfer of Material from jaw crusher to belt conveyor to magnetic separator	Belt Length:- 8000mm Effective Belt Width:- 750mm Drive Power:- 3.7 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type
7.	Magnetic Separator	Removal of Ferrous Material	Magnet Size:- 1100mm (L) X 600mm (W) X 240mm (H) Effective Operating Gap:- 250-300mm



Sl. No.	Particulars	Function	Technical Specification
			Cleaner Belt Speed:- 114m/min Gear Motor:- 2.2kW Installation:- Suspended with turn buckle for adjustment of height over 750mm wide inclined transfer belt conveyor
8.	Vibrating Screen	Screening of material in three fractions namely above 50mm, 5- 50mm and 0-5mm	Size:- 1220mm X 2296mm Screen Deck:- 2 Nos First Deck:- 50mm Second Deck:- 5mm Feed Size:- ≤100mm Motor Power:- 7.5KW Bearing:- Self Aligning Roller Bearing Screen Cloth:- High Tensile woven screen cloth of square opening 50mm
9.	Belt Conveyor (BC – 5)	Transfer of Material > 20mm from Vibrating Screen by belt conveyor to Impact Crusher	Belt Length:- 8000mm Effective Belt Width:- – 750mm Drive Power:- 3.7 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type
10.	Impact Crusher	Crushing of material to smaller size 0 - 100mm [adjustable output size]	Rotor:- 800mm X 800mm Feeding Size:- <20mm Capacity:- 15 Tons/hr Power:- 45kW
11.	Belt Conveyor (BC – 6)	Transfer of Material from Impact Crusher to Vibrating Screen	Belt Length:- 8000mm Effective Belt Width:- – 750mm Drive Power:- 3.7 kW



Sl. No.	Particulars	Function	Technical Specification
			Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type
12.	Belt Conveyor (BC – 7)	Conveying of material between 5mm - 50mm material from vibratory to storage area.	Belt Length:- 20000mm Effective Belt Width:- 450mm Drive Power:- 5.5 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber, ladder on one side with hand rails Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt Tension Control:- Screw Type
13.	Belt Conveyor (BC – 8)	Conveying of material between 0mm- 5mm material from vibratory screen (013-00) to storage area	Belt Length:- 20000mm Effective Belt Width:- 450mm Drive Power:- 5.5 kW Belt Material:- Rubber Belt Inclination:- 0~17 degree Belt Speed:- 1.5m/sec Accessories:- Belt Scrapper, fixed type with bolted rubber, ladder on one side with hand rails Steel Frame:- Fixed Type Hold Back:- Provided to prevent belt from sliding backward when the conveyor is suddenly stopped Belt



Sl. No.	Particulars	Function	Technical Specification
14.	Open Top Container	Collection of wood, plastics and metals for transportation.	Tension Control:- Screw Type Length:- 5900mm Width:- 2400mm Height:- 1700mm

4.15 Wet Separation of Construction & Demolition Waste Recycling

4.15.1 Objectives of Wet Separation

- Recycling of C&DW by removal of oversize and ultrafine from feed
- To produce washed sand and aggregate and dewater the same
- Anticipated moisture in the product stockpiled by conveyor is approximately~12%
- Recycle water as much as possible

4.15.2 Feed Material

General C&D waste comprising cement concrete, cement mortar, bricks, rubble, stone , sand and soil. Metal is removed prior to feeding our system.

- Material Size: C&D Waste
- Feed Size: <40mm (after crushing)

4.15.3 Plant Capacity & Product

Feed Capacity: 10TPH (**Sand capacity 5 TPH Max**)

- ✓ **Oversize:** (-) 40mm + 20mm
- ✓ **Aggregate:** (-) 20mm + 5mm
- ✓ **Sand:** (-) 5mm + 75 micron

4.15.4 Performance Statement

- ✓ Feed capacity of the plant: 10TPH
- ✓ Minus 75micron particles in the washed sand product: <4%

4.15.5 Estimated Water Requirement

The Estimated Water Requirement 10-15m³/hr

4.16 General Process Description

4.16.1 Stage 1

The circuit includes a Feed Hopper & feeding system for effectively feeding 30 tph of crushed and raw C&D waste. Hopper is provided with a static grizzly with 80mm opening grid to avoid any large oversize material to pass through. Raw C&D Waste Material is fed to Hopper to control the feed rate through integrated belt feeder. The speed of belt feeder is controlled by a VFD drive to maintain the desired feed rate (provided the material is available in hopper). The Belt Feeder discharges material to a static feed conveyor to deliver the C&D waste to washing circuit.

4.16.2 Stage 2

The Machine incorporates this screen which is built with high pressure water jet washing systems in each deck to ensure thorough rinsing of the material and remove most of the fines

from the feed. The washed oversize material from the top deck of screen forms the >20 mm product (Product 1) and that from the bottom deck (-)20+5mm product (Product2). All these are stocked piled through stockpiling conveyors. All sand particles along with most of the water flow by gravity to the sump of the sand washing circuit.



4.16.3 Stage 3

It has is also features a sand system is a combination of a sump, pump, dewatering screen and cyclones. The slurry from the sump & pump with required dilution water to maintain desired solid water ratio is pumped to the first stage cyclone mounted on for first cyclone wash. This removes most of ultra-fines as clay (~ <75 microns) out of the system. The underflow (primary washed sand) of the cyclone will fall into the sump and is pumped to the second stage of cyclone mounted on the same system. This removes the remaining <75micron slimes from the material and clean sand falls onto a dewatering screen. Washed sand from the dewatering screen discharges into conveyors and is stockpiled through mobile stockpiler. The overflow from all the cyclones is fed into an intergrated water management system for recycling 90% of the process water.

4.16.4 Stage 4

The combined slurry from the washing circuit (hydrocyclones overflow) will pass to water treatment tank to rapidly settle and control the tailings. Dense sludge of circa 450-550g/litre will be issued from the integrated heavy duty pump for discharge to a remote designated settlement area. Clean recycled water (water recycling overflow) is immediately released from the system and piped to the inbuilt water storage tank, ready for recycle to the washing system. The water treatment system is highly preferable to the majority of other mechanical settlement aids as there is virtually no agitation of the sludge bed and polyelectrolyte usage is kept to a minimum; circa 5 to 7 times less than some other well-known systems. Furthermore the ability of the system to pump waste solids to a remote area for final settlement means that valuable plant area is not taken up for sludge control.

4.17 Technical Specifications and List of Equipment for Wet Separation

Sl. No.	Particulars	Technical Specification	Image
1.	Hopper & Feeder	<ul style="list-style-type: none"> ✓ 10 tons holding capacity Hopper ✓ Belt feeder with 4 kw direct drive motor & Gearbox with VFD ✓ 800 mm wide belt for belt feeder ✓ Self-Supporting structure ✓ Head drum comes with diamond lagged rubber ✓ Static Grizzly Bar with 80mm opening 	
2.	Feed Conveyor	<ul style="list-style-type: none"> ✓ Feed boot to receive material ✓ 800mm belt (estimated length 12meters) ✓ Fully adjustable skirting rubbers ✓ Troughing rollers as standard ✓ Direct coupled motor and gearbox ✓ Polyurethane spring tensioned primary belt scraper ✓ Guarded to specification ✓ Lagged head drum ✓ Crowned tail and head drums to assist belt tracking ✓ Fitted with permanent magnet for secondary protection against ferrous metal ✓ Fitted with Belt weigher 	
3.	Waste recycling station	<p>Consisting of following components and features:</p> <ul style="list-style-type: none"> ✓ Rinsing Screen ✓ Double Deck Rinsing cum Sizing Screen with 3 discharge outlet ✓ Wiremesh for all 2 decks ✓ 0.8 Mtr x 1.6 Mtr ✓ Self-supported Structure includes walkways, access stair and toe plates ✓ Series of spray lines with 5 nozzles in each 	



Sl. No.	Particulars	Technical Specification	Image
		<ul style="list-style-type: none"> ✓ Rubber lining for the front chute and funnel to reduce noise and improve durability ✓ 4.2 Kw motor ✓ Separation Sizes : 20mm Top Deck and 5mm for Bottom deck ✓ Series of spray lines with 5 nozzles in each ✓ Hydro cyclone(s) ✓ Hot vulcanised rubber lined modular cyclone c/w overflow discharge chamber ✓ Rubber lined Cyclone Apex & spigot. ✓ High Performance Cyclones ✓ CDE adjustable apex per cyclone ✓ Hot vulcanised rubber lined custom twin cyclone feed manifold ✓ Custom cyclone support frames ✓ Dewatering screen ✓ Fully modular polyurethane panels – non bolted ✓ 200 x 2400 Dewatering screen ✓ Adjustable offset 3.6kW vibrating motors ✓ Replaceable modular polyurethane liners along screen sides and front dam bar ✓ Splash protection cover over rear of dewatering screens ✓ Replaceable modular back splash panels ✓ High-efficiency ‘Marsh Mallow’ rubber screen mounts. ✓ Rubber lined Sump ✓ Automatic sump level controls ✓ Feed / overflow points each side ✓ Skid mounted with integrated base for pumps and motors ✓ Heavy-duty rubber lined slurry pumps ✓ Rubber lined pipe-work between pump and cyclone ✓ Complete with stainless steel impellers, safety guarded motors and drives ✓ High Rate Thickener 	



Sl. No.	Particulars	Technical Specification	Image
		<ul style="list-style-type: none"> ✓ Mild steel bolted sectional construction CDE Thickener tank (6m diameter) for rapid assembly on site ✓ Steel support structure and necessary bracings ✓ QuadRake four-arm rake system with angled scrapers for conditioning of sludge ✓ Direct drive motor and gearbox and heavy duty shaft ✓ Peripheral weir for collection and discharge of recycled water to your recycled water storage point (transfer pipe not included) ✓ Central diffuser drum for receiving pre-dosed effluent ✓ De-aeration chamber fitted to side of Thickener for primary treatment ✓ Conical bottom section complete with flushing valves, connections, and pipe-work ✓ Heavy-duty centrifugal sludge pump to discharge thickened sludge to your settlement area or buffer tank for Filter Press ✓ Pneumatic and electrically operated valves for control of sludge / fresh water discharge fitted to base of Thickener ✓ Compressor for pneumatics ✓ Scraper support bridge and walkway ✓ Access stairs and all necessary handrails ✓ Multiple dosing points for polyelectrolyte (de-aeration chamber and internal feed pipe) ✓ Automatic flushing of sludge pipe-work after de-sludging cycle ✓ Requires constant uninterrupted power supply of 400V ✓ Fully Automatic Polyelectrolyte Dosing Station ✓ Loading hopper for (powder based) polyelectrolyte complete with screw-feeder ✓ Powder eductor system with cone to transfer powder to make-up tank ✓ Mixing tank with lid incorporating: <ul style="list-style-type: none"> ○ Stirrer unit twin propellers Level electrodes 	



Sl. No.	Particulars	Technical Specification	Image
		<ul style="list-style-type: none"> ✓ Transfer pump to convey matured polyelectrolyte to storage tank ✓ Storage tank incorporating level electrodes ✓ Dosing pump complete with: <ul style="list-style-type: none"> ○ In line dilution facility Variable speed gearboxes ✓ Plant will require a clean water supply for polyelectrolyte make-up (~4m³/hr) 	
4.	Wing Conveyor	<ul style="list-style-type: none"> ✓ Feed boot to receive material ✓ 650mm belt ✓ Fully adjustable skirting rubbers ✓ Troughing rollers as standard ✓ Energy saving troughing rollers made from PU. ✓ Energy saving return rollers made from PU. ✓ Direct coupled motor and gearbox ✓ 20° Elevation ✓ Polyurethane spring tensioned primary belt scraper ✓ Guarded to specification ✓ Lagged head drum ✓ Crowned tail and head drums to assist belt tracking ✓ Fitted with belt weigher 	
5.	Cylindrical steel water tank	<ul style="list-style-type: none"> ✓ Complete with water recycle pump and motor for feeding the fluidising sump ✓ Complete with water recycle pump and motor for feeding the compact plants ✓ Mounted on steel stanchions / skid chassis incorporating pump base ✓ Ultra sonic probe for measuring water level ✓ Mounted with Sieve Bend for protection from lightweights 	
6.	Additional Items & Services	<ol style="list-style-type: none"> 1. PLC Control Panel for CDE supplied items 1 Nos 2. Electric wiring for all CDE supplied equipment 	



Sl. No.	Particulars	Technical Specification	Image
		3. Pipe-work and connections for the plant 4. Sludge discharge pipework upto 100meters 5. Commissioning Spares 6. First-Fill Lubricants & Flocculants 7. Set of Maintenance Tools 8. Set of Civil & GA drawings 9. CDE expert to provide assistance for erection & commissioning (local arrangement made by client at their cost) 4 weeks 10. Operation & Maintenance Manual (in English)	

4.18 Equipment material details, plate thickness and liner details

All major equipments are built up with different plate thickness. Plate thickness varies from 6 to 10mm in the different segments. Similarly the liners thickness varies according to the wear zones. All are rubber liners only and liners thickness would be 5 to 10mm. All plates and structures are of IS2062MS and screen decks are made of PU. All Piping is made of ERW with or without rubber lining. Rubber slurry hoses and Flexi hoses are used as necessary.

4.19 Plant & Facility Details

4.19.1 Waste Characteristics & properties

Sl. No.	Particulars	Detail
1.	Total Quantity of Incoming C&D Waste-	125 Tons/day
2.	Composition of waste (Assumption)	
3.	Soil/Sand silt gravel-	43%
4.	Masonry bricks-	25%
5.	Concrete-	30%
6.	Bitumen & Asphalt-	2%

4.19.2 Operational Details

Sl. No.	Particulars	Detail
1.	Plant Operation Time-	One Shift
2.	Power Requirement -	350 kW (Peak Load)
3.	Manual Labor-	10 persons shift
4.	Technician-	02 persons
5.	Area Required-	Approx. 8642 Sq Meters

4.19.3 Civil Structure Details

Proposed Civil Structures are Guard Room, Weight Bridge Room, HT-LT & MEP Room, Generator Room, Office Building, Worker Retiring Room, Toilet Block, Septic Tank, Vehicle Parking & Work Shop Shed, Product Storage Shed, Over Head Tank, Road (5.0m Wide), Drain Length and Boundary Wall.

4.19.4 Dust & Noise Control

- Nozzles to be deployed at strategic locations to spray mist and water.
- Noise Control- Plant operation planned in one working shift (day shift) Recommended having a buffer zone of 10m around the plant to curb noise and dust from incoming vehicles.

4.19.5 Mass Balance

Total Quantity of Incoming C&D Waste-		125
Tons/day Input based on assumed composition of C&D waste	%	Qty. in TPD
Soil/Sand silt gravel-	45%	56.25
Masonry bricks-	25%	31.25
Concrete-	30%	37.5

4.19.6 Estimated Output (Tons/day)

Estimated Output (Tons/day)

Coarse sand @ 11%	13.13	MT/day
20 to 40 gravel @ 5%	5.63	MT/day
10 to 20 gravel @ 5%	5.63	MT/day
up to 10 mm aggregate @ 5%	5.63	MT/day
Brick bats for selling @ 23%	28.13	MT/day

4.20 Project Cost

Abstract of Capital cost for C&D Waste Processing Plant at Dhanbad Nagar Nigam			
Sl. No.	Particulars	Total Cost in Lacs	Total Rs. In Lacs
A	Site development works		
1	Estimate of Internal road	5.08	
2	Estimate of Surface drain.	4.08	
3	Estimate of Building	31.96	
4	Estimate of Vehicle parking and workshop shed.	14.51	
5	Estimate of Horticulture works.	11.33	
6	Estimate Water Supply facility.	5.02	
7	Estimate of Overhead Tank	5.02	
8	Estimate of Boundary Wall	35.75	
9	Estimate of Entry Gate	0.89	
10	Estimate of Product Storage Shed	27.14	
10	Estimate of internal electrification	0.69	
11	Estimate of external Electrification.	19.34	
12	Estimate of site development	3.86	
13	Estimate of starter and panel shed	0.16	
		Total	164.84
B	Processing Plant		
1	Estimate of Machineries for Processing of C&D Waste	466.38	
2	Material Handling Automobiles	42.34	
		Total	508.72
C	Estimate of HT Line	14.01	14.01
D	Carriage of construction materials	14.26	14.26
E		Total	701.83
		Add GST 12%	84.22
F		Total	786.05
G	Labour cess @ 1% of E (Excluding item B2)		1.93



Abstract of Capital cost for C&D Waste Processing Plant at Dhanbad Nagar Nigam

Sl. No.	Particulars	Total Cost in Lacs	Total Rs. In Lacs
H	<i>Contingences @ 1% of (E)</i>		7.02
I	<i>Total (in Lacs)</i>		795.00
J	<i>DPR Preparation & Consultancy Charges 1.5% of (F)</i>		11.79
K	<i>Project Monitoring Consultancy Charges for Construction Period 2% of (F)</i>		15.72
L	<i>Net O&M Grant required for 1st Year for Transportation & Processing of C&D Waste</i>		167.68
	<i>Total for C&D Waste Processing & Operation & Maintenance of One Year in Lacs (I+J+K+N)</i>		990.19



4.21 Operation & Maintenance Cost

125MT of C&D waste /day						
1	Inflow of C&D waste in MT/Day		125	MT/day		
	Inflow of C&D waste in Cum/Day		80.6	Cum/day		
	concrete	20%	25	MT/day		
	Sand + Earth	40%	50	MT/day		
	Brick bats +Earth	40%	50	MT/day		
2	Product Output					
	Particulars	unit	Output in MT	Density (MT/Cum)	Output in cum	
	Coarse sand	MT/day	23.75	1.6	14.8	
	20 to 40 gravel	MT/day	5.625	1.45	3.9	
	6 to 20 gravel	MT/day	5.625	1.55	3.6	
	Brick bats for selling	MT/day	50	1.25	40.0	
	earth for filling	MT/day	40	1.6	25.0	
3	Project Revenues					
	Particulars	Quantity	Unit	Rate	Revenue /day	Revenue /Year
	Coarse sand	14.8	Cum	292.64	4331	15,80,815.00
	20 to 40 gravel	3.9	Cum	1236.83	4824	17,60,760.00
	6 to 20 gravel	3.6	Cum	1273.68	4585	16,73,525.00
	Brick bats for selling	40.0	Cum	426.00	17040	62,19,600.00
	earth for filling	25.0	Cum	166.6456	4166	15,20,590.00
	Total Revenue From Operations					12755290



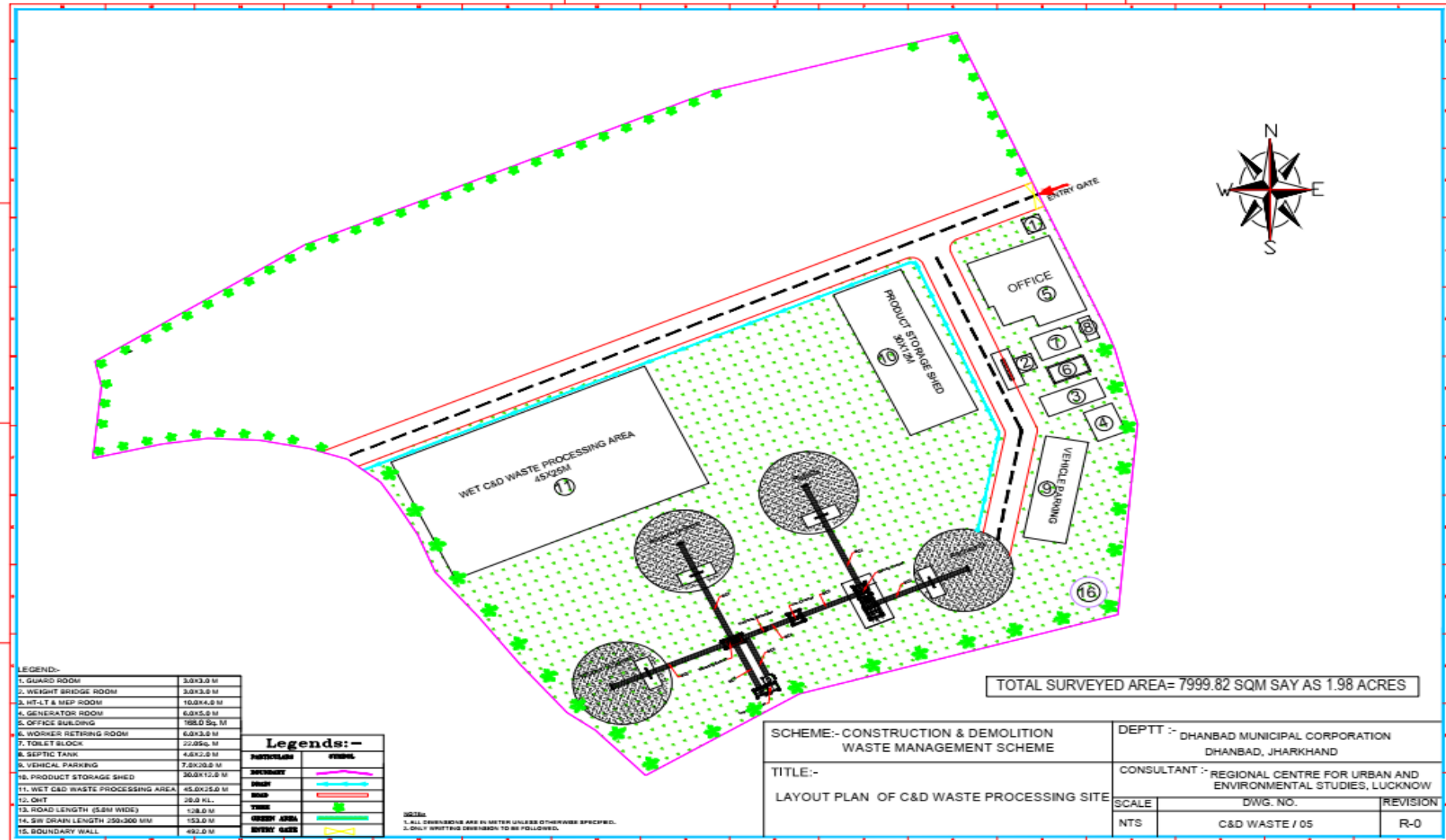
4 Operation & Maintenance Cost							
4.1	O&M costing For C&D Waste Plant	Quantity	Unit	Rate	cost/day	Cost/Year	Ref/JSR 2021 BCD
	Electricity (unit/Hr) @ 250 KW for 4 Hrs	1000	KW-Hr	8	8000	29,20,000.00	
	Labour	8	per day	300.36	2402.88	8,77,051.20	JSR/BCD
	Driver	2	per day	414.8	829.6	3,02,804.00	JSR/BCD
	Supervisor	2	per day	479.16	958.32	3,49,786.80	JSR/BCD
	Technician	1	per day	479.16	479.16	1,74,893.40	JSR/BCD
	Electrician	1	per day	479.16	479.16	1,74,893.40	JSR/BCD
	Plant in charge	1	per day	1500	1500	5,47,500.00	
	Mechanical engineer	1	per day	1000	1000	3,65,000.00	
	Plant Maintenance & Spare parts @ 10% of capital cost per year (AMC charge)	1	per day	8384	8384	30,60,160.00	
	Water charge (KL)	10	KL	200	2000	7,30,000.00	
	POL (lit)	50	Litre	95	4750	17,33,750.00	
	Total cost per day for Plant Operation				30783.12	1,12,35,838.80	
4.2	Transportation of C&D Waste (Lead 25 kms)	Cum	80.6	475.08	38291.448	13976378.52	
4.3	Total Cost For Project O&M				69074.568	2,52,12,217.00	
4.4	Add Profit @ 10% of 'X' (b)					25,21,222.00	
4.5	Add Overhead Charge @ 5% of 'X' (d)					12,60,611.00	
4.6	Add Environment Management Charge @ 1% of 'X' ©					2,52,122.00	
4.7	Add Labour Cess @ 1% of 'X' (e)					2,52,122.00	
4.8	Add Contingencies @ 1% of 'X' (f)					25,212.00	
5.1	Total O&M cost with Profit and other charges in Rs.					2,95,23,506.00	



5.2	Net Yearly O&M Grant Required Transportation & Processing of C&D Waste in Rs.					1,67,68,216.00	
6.1	O&M Grant Required for 1st Year of Operation					1,67,68,216.00	
6.2	O&M Grant Required for 2nd Year of Operation					1,72,71,262.00	
6.3	O&M Grant Required for 3rd Year of Operation					1,77,89,400.00	
6.4	O&M Grant Required for 4th Year of Operation					1,83,23,082.00	
6.5	O&M Grant Required for 5th Year of Operation					1,88,72,774.00	



4.22 Layout Plan





Abstract of Capital cost for C&D Waste Processing Plant at Dhanbad Nagar Nigam

Sl. No.	Particulars	Total Cost in Lacs	Total Rs. In Lacs
A	Site development works		
1	Estimate of Internal road	5.08	
2	Estimate of Surface drain.	4.08	
3	Estimate of Building	31.96	
4	Estimate of Vehicle parking and workshop shed.	14.51	
5	Estimate of Horticulture works.	11.33	
6	Estimate Water Supply facility.	5.02	
7	Estimate of Overhead Tank	5.02	
8	Estimate of Boundary Wall	35.75	
9	Estimate of Entry Gate	0.89	
10	Estimate of Product Storage Shed	27.14	
10	Estimate of internal electrification	0.69	
11	Estimate of external Electrification.	19.34	
12	Estimate of site development	3.86	
13	Estimate of starter and panel shed	0.16	
	Total		164.84
B	Processing Plant		
1	Estimate of Machineries for Processing of C&D Waste	466.38	
2	Material Handling Automobiles	42.34	
	Total		508.72
C	Estimate of HT Line	14.01	14.01
D	Carriage of construction materials	14.26	14.26
E		Total	701.83
		Add GST 12%	84.22
F		Total	786.05
G	Labour cess @ 1% of E (Excluding item B2)		1.93
H	Contingensis @ 1% of (E)		7.02
I	Total (in Lacs)		795.00
J	DPR Preparation & Consultancy Charges 1.5% of (F)		11.79
K	Project Monitoring Consultancy Charges for Construction Period 2% of (F)		15.72
L	Net O&M Grant required for 1st Year for Transportation & Processing of C&D Waste		167.68
	Total for C&D Waste Processing & Operation & Maintenance of One Year in Lacs (I+J+K+N)		990.19

Abstract Cost of Vehicle & Equipment Required For

SI No	Item No	Particulars	Qty Req	Available Qty	Total to be Procured	Unit
1	NS	Tractor with Trolley attachment for Transportation of C&D Waste to Processing Site	5	5	0	Each
2	NS	Supply of back hoe cum loader of JCB/Tata make fitted with 0.26 cum Excavator bucket, 1.1 cum loader bucket	2	2	0	Each

Abstract of cost of Internal Road work

Sl. No.	J.S.R DSR 2021	Description of work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
1	3.1 (ii)	Excavation in soil by manual means (Excavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankment site with all lifts and leads upto 1000meters.)	178.50	Sqm	262.00	46767.00
2	4.12	Wet Mix Macadam (Providing, laying, spreading and compacting graded stone aggregates to WMM specification including premixing the materials with water at OMC in mechanical mix plant carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/basecourse on well prepared surface and compacting with vibratory roller to achieve desired density. with vibratory roller)	76.500	Cum	1574.00	120411.00
3	RCD 6.2	Cement Concrete Pavement (Construction of unreinforced, dowel jointed, Plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum, coarse and fine aggregate conforming to IS: 383, maximum size of coarse aggregate not exceeding 25mm mixed in a batching and mixing plant as per approved mix design, transported to site laid with a fixed or lip form paver spread compacted and finished in a continuous operation including provision of contraction, expansion construction and longitudinal joints, joint filter, separation membrane sealant primer joint sealant debonding strip dowel bar tie rod admixture as approved curing compound finishing to lines and grades as per drawing)	76.50	sqm	4461.00	341267.00
					Total	5,08,445.00
					Say In Lacs	5.08

Detail Measurement of Internal Road work

Sl. No.	JSR DSR 2021	Description Of Work	No	L	B	H	Qty (in m2/m3)
1	2	3	4	5	6	7	8
1	3.1 (ii)	Excavation in soil by manual means (Excavation for roadway in soil using manual means including loading in truck for carrying of cut earth to embankment site with all lifts and leads upto 1000meters.) Internal Road		170.00	3.50	0.3	178.50 178.50
2	4.12	WMM(Providing, laying, spreading and compacting graded stone aggregates to WMM specification including premixing the materials with water at OMC in mechanical mix plant carriage of mixed material by tipper to site , laying in uniform layers with paver in sub-base/basecourse on well prepared surface and compacting with vibratory roller to achieve desired density. with vibratory rollar Internal Road		170.00	3.00	0.15	76.50 76.50
3	RCD 6.2	Cement Concrete Pavement (Construction of un-reinforced , dowel jointed , Plain cement concrete pavement over a prepared sub base with 43 grade cement @ 400 kg per cum , coarse and fine aggregate confirming to IS: 383, maximum size of coarse aggregate not exceeding 25mm mixed in a batching and mixing plant as per approved mix design , transported to site laid with a fixed or lip form paver spread compacted and finished in a continuous operation including provision of contraction , expansion construction and longitudinal joints , joint filter , separation membrane sealant primer joint sealant debonding strip dowel bar tie rod admixture as approved curing compound finishing to lines and grades as per drawing Internal Road		170.00	3.00	0.15	76.50 76.50

Estimate of Drains

Sl. No.	JSR/ DSR 2021	Description Of Work	No	L	B	H	Quantity	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7	8	9	10	11
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E\I.								
		250 x 300mm size	170	0.75	0.575		73.31			
			170				73.31	Cum	139.58	10233.00
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).								
		250 x 300mm size	170	0.75	0.10		12.75			
							12.75	Cum	415.58	5299.00
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.								
		250 x 300mm size	170	0.75			127.5			
							127.5	Sqm	322.35	41100.00
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.								
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)								
		250 x 300mm size	170	0.75	0.10		12.75			
							12.75	Cum	3750.94	47824.00
5	5.2.2	Providing designation 75 A Brick work in CM (1:4) in foundatoin & plinth								
			2	170	0.25	0.25	21.25			

Sl. No.	JSR/ DSR 2021	Description Of Work	No	L	B	H	Quantity	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7	8	9	10	11
							21.25	Cum	5262.05	111819.00
6	5.3.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level. 1:2:4 (1 Cement :2 Coarse Sand (zone - III) : 4 graded stone aggregate 20mm nominal size). over brick work	4.25	170	0.25	0.05	9.03	Cum	4492.36	40566.00
7	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering complete. 1:1.5:3 (1 cement : 1.5 coarse sand(zonelll) : 3 graded stone aggregate 20 mm nominal size)	60%	170	0.75	0.075	5.74			
							5.74	Cum	5127.91	29434.00
8	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	1%	of item no			0.45	MT	79086.94	35668.00
9	5.7.2	Providing 12mm thick cement plaster (1:4) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	170	0.85			144.5			
							144.50	Sqm	162.13	23428.00
10	5.7.11	providing 1.5 mm cement punning including curing , carriage of water with all leads and lifts as per building specification and direction	170	0.85			144.5			
							144.50	Sqm	51.66	7465.00

Sl. No.	JSR/ DSR 2021	Description Of Work	No	L	B	H	Quantity	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7	8	9	10	11

12	5.6.2	Providing designation 75A one brick on edge soling ----- E/I (qty between road flank & drain)	170		0.25		42.50	sqm	525.92	22352.00
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11	3.3.8	Supplying materials and labours for construction inspection chamber of designation class 75 B bricks size 750 mm deep, 600 x 450 internal dimension having 250 mm wall thickness in cement mortar (1:6) including 12 mm cement plaster (1:4) with punning on inside and cement plaster (1:6) with 600 x 475 mm G.I. cover with frame (Weight not less than 36 kg.) along with earth work in excavation and 80 mm thick P.C.C (1:3:6) in foundation and refilling all complete.	4				4	Nos.	8247.34	32989.00
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Total Amount 408177.00

Say Rs.(in lacs) 4.08

Estimate of Building and Sheds

Sl. No.	JSR/ DSR 2018	Description	No.	L	B	H	Qty	Unit	Rate	Amount in Rs.
1	2	3	4	5	6	7	8	9	10	11

1		Providing all materials labs T & P and construct following utility buildings at solid waste disposal site, including internal water supply, electric conection plumbing and sanitary fittings all complete.								
		Security / Guard Room	1						174759.21	174759.21
		Office, Lab & Canteen Building								
			1						1730338.20	1730338.20
		Wash/Toilet block	1						469179.00	469179.00
		Weigh bridge room	1						188627.18	188627.18
		HT - LT Panel/ MEP room	1						491933.54	491933.54
										3054837.13

2	As per detailed estimate	Providing all materials labours T & P etc and construction of a septic tank and soak pit .								
							1	No.	140926.32	140926.32
									Total Rs.	3195763.45
									Say Rs.(In lacs)	31.96

Estimate of Guard Room (3 x 3 M)

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.				
		For Walls	Cum	12.59	139.58	1757.31
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).				
			cum	3.77	50.82	191.59
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).				
			Cum	3.46	415.58	1437.91
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.				
			Sqm	12.22	322.35	3939.12
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)				
			Cum	1.90	3460.94	6575.79
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.				
			Cum	6.37	5069.99	32295.84
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).				
			Sqm	3.25	269.23	875.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	8.83	5193.02	45854.37
8(i)	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel	Cum	0.10	6092.63	609.26
(ii)	5.3.11	63 mm RCC M200 ----- do --- in chhajja	Cum	0.08	6092.63	460.60
(iii)	5.3.11	35 mm thick precast RCC M200 --- in shelves	Cum	0.04	6092.63	262.29
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab	Cum	1.37	6092.63	8346.90
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	MT	0.11	79086.94	8699.56
11	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	89.20	153.24	13669.01

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
12	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with celean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.	Sqm	9.00	170.27	1532.43
13	5.6.14.3	Providing and laying hydraulically machiine pressed terrazo tilles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, roualty and taxes all complete as per building specification and direction of E/l. (c) any light colour with 100% white cement	Sqm	9.00	1038.00	9342.00
14	5.6.16.3	Providing and laying hydraulically machiine pressed terrazo tilles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement palster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, roualty and taxes all complete as per building specification and direction of E/l. (c) any light colour with 100% white cement	Sqm	1.80	1164.76	2096.57
15	5.6.20	Providing and laying 25mm thick kota stone in risers of steps, skirting and pillars of approves size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/l.	Sqm	2.76	1721.38	4755.31
16	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/l. Inner Walls	Sqm	30.63	94.01	2879.53
17	5.8.3	White washing three coats over new surface in ceiling.	Sqm	9.00	15.81	142.29

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
18	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface mcluding preparing the plastered surface smooth with sand paper, soaping, curing and taxes all complete as per building specification and direction of E/I.	Sqm	51.10	102.42	5233.66
	5.4.51	Supplying fitting and fixing oxidised iron fittings of approved quality and make to doors and windows all complete as per building specification and direction of E/I				
19	5.4.51.1	100 mm butt hinge	Nos	4.00	31.95	127.80
20	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formaldehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	Sqm	1.89	1497.39	2830.07
21	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick palin glass panes with Aluminimum beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all storys and taxes all complete as per building specification and direction of E/I.	Sqm	1.08	4012.62	4333.63
22	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (where material is not supplied by deppt.)	No.	1.00	138.80	138.80
23	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I.	cum	0.04	61811.77	2472.47

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
24	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/l. For Door & Window Frame	Sqm	1.00	61.90	61.90
25	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/l.	Sqm	4.73	88.68	419.01
All DSR Items						
26	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cemnt: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm	12.75	602.58	7682.90
2	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	M	3.30	282.66	932.78
3	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	No.	1.00	102.50	102.50
4	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	No.	1.00	42.34	42.34

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7

5 DSR 22.6 Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.

Sqm	9.00	517.63	4658.67
Total			<u>174759.21</u>
Say in Lacs			<u>1.75</u>

Detailed Measurement of Guard Room (3 x 3 M)

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.						
		For Walls	4	3.25	0.875	1.075	12.23	Cum
			1	1.2	0.7	0.425	0.36	Cum
							12.59	
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).						
							3.77	
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).						
	i)	Below lean concrete.	4	3.25	0.875	0.150	1.71	
	ii)	Below flooring.	1	3.00	3.00	0.186	1.67	
	iii)	In Steps	1	1.20	0.70	0.100	0.08	
						Total	3.46	Cum
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.						
		Below wall foundation	4	3.25	0.875		11.38	
		In Steps foundation	1	1.20	0.70		0.84	
							12.22	Sqm
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size) In lean concrete In flooring In Steps	4 1 1	3.25 3.00 1.20	0.875 3.00 0.70	0.10 0.075 0.100	1.14 0.68 0.08	
						Total	1.90	Cum
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I. In Walls In Walls In Walls In Walls In Walls In Steps In Steps	4 4 4 4 4 1 1	3.25 3.25 3.25 3.25 3.25 1.20 1.2	0.75 0.625 0.50 0.38 0.25 0.60 0.30	0.15 0.15 0.15 0.30 0.30 0.30 0.15	1.46 1.22 0.98 1.46 0.98 0.22 0.05	
						Total	6.37	Cum
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).	4	3.25	0.25		3.25	Sqm
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I. In Walls In parapet wall in C.M. (1:6) Deduct for Door Window W1 W2	4 4 1 1 1	3.25 3.25 0.90 0.90 0.30	0.25 0.25 0.25 0.25 0.25	2.80 0.15 2.100 1.200 0.300	9.10 0.49 0.47 0.27 0.02	
						Total	9.59	Cum
							0.76	Cum
							8.83	Cum
								Net Brick Work

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
8(i)	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel						
		In lintel Beam for door opening	1	1.20	0.25	0.15	0.05	Cum
		In lintel Beam for window opening	1	1.20	0.25	0.15	0.05	Cum
							0.10	Cum
(ii)	5.3.11	In Sunshed 63 mm chhajja in RCC M200	2	1.20	0.50		1.20	sqm
(iii)	5.3.11	In Counter Slab 35 mm shelves	1	1.45	0.85		1.23	sqm
							0.00	
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab						
			1	3.70	3.70	0.10	1.37	Cum
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						
							0.11	MT
11	5.7.3	Providng 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	2 x 4	3.25		3.50	91.00	
		In Steps	1	1.20		0.60	0.72	
		In Steps	2	0.60		0.30	0.36	
		In Steps	2	0.30		0.15	0.09	
							92.17	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		In Steps	2	1.20		0.45	1.08	
		In Steps	2	0.60		0.30	0.36	
		In Steps	2	0.30		0.15	0.09	
		In counter slabe	1	1.45		0.85	1.23	
							2.76	Sqm
16	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.						
		Inner Walls	4	3.00		2.80	33.60	Sqm
		deduction for wall (door & winndow)				(-)	2.97	
							30.63	
17	5.8.3	White washing three coats over new surface in ceiling.	1	3.00		3.00	9.00	Sqm
18	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface mcluding preparing the plastered surface smooth with sand paper, soaping, curing and taxes all complete as per building specification and direction of E/I.						
		Outer Walls	4	3.50		3.50	49.00	
		Parepet Walls	4	3.50		0.15	2.10	
						Total	51.10	Sqm
19	5.4.51	Supplying fitting and fixing oxidised iron fittings of approved quality and make to doors and windows all complete as per building specification and direction of E/I						
	5.4.51.1	100 mm butt hinge	4				4.00	Nos
20	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formaldehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.						
			1		0.90	2.10	1.89	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
21	5.5.18	Supplying, fitting and fixing fully glazed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all stories and taxes all complete as per building specification and direction of E/I.	1		0.90	1.20	1.08	Sqm
22	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (where material is not supplied by dept.)	1				1.00	No.
23	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I.						
		Door Frame	1	0.100	0.075	5.10	0.04	cum
							0.04	cum
24	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I.						
		For Door & Window Frame					1.00	Sqm
25	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	1x2.5		0.90	2.10	4.73	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

All DSR Items

1	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	2 2	5.00 3.50	0.75 0.75		7.50 5.25		
							Total	12.75	Sqm
2	12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	1				3.30	No.	
3	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	1				1.00	No.	
4	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	1				1.00	No.	
5	DSR 22.6	Providing and laying water proofing treatment on roofs of slab applying cement slurry mixed with water proofing cement component consisting of applying a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm.....	1	3.00	3.00		9.00	Sqm	

Estimate Of Office Block

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.				
		For Walls	Cum	91.33	139.58	12747.84
1(b)	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).				
			cum	30.44	50.82	1547.07
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).				
			Cum	39.92	415.58	16589.95
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.				
			Sqm	90.17	322.35	29065.25
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)				
			Cum	23.26	3714.85	86407.41
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.				
			Cum	46.24	5069.99	234436.34

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).	Sqm	24.18	269.23	6509.98
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.	Cum	70.83	5193.02	367821.61
8	5.3.11 (a)	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam	Cum	1.25	6092.63	7615.79
(b)	5.3.11	Poviding RCC M 200 in RCC Chhajja	Cum	1.21	6092.63	7354.29
(c)	5.3.11	Providing RCC M20 with nominal mix 1:1.5:3 in all type of beam -----do ---- do-----	cum	1.17	6092.63	7128.38
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size). In Roof Slab area 171.43 Sqm	Cum	17.14	6092.63	104427.68

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
10	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of centering, shuttering complete. 1:1.5:3 (1 cement: 1.5 coarse sand(zonelll): 3 graded stone aggregate 20 mm nominal size). In slab of different size	cum	0.65	5105.75	3318.74
11	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/l	MT	1.68	79086.94	132866.06
12	5.7.3	Providng 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.	Sqm	622.19	153.24	95344.40
13	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with celean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.	Sqm	142.48	170.27	24260.07
14	5.6.19	Providing and laying 25 mm thick kotah stone slab flooring of approved size, texture and colour over 19mm thick base of lime mortar (1:1:1) (lime putty : surkhi : coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing to granolithic finish with approved quality of carborundum stone including cost of curing, taxes and royalty all complete as per building specification and direction of E/l. (iv) 600mmX600 mm	Sqm	42.58	1671.24	71161.40

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
15	5.6.23	Providing and laying 6mm precast white glazed tiles in walls over 12mm, cement mortar (1:3) and jointed with grey cement slurry, flush pointed with white cement including rubbing, polishing and cost of curing, taxed and royalty all complete as per building specification and direction of E/I.				
	5.6.23.2	With commercial grade white 15x15 cms tiles In Toilet	Sqm	17.70	1214.41	21495.06
	5.6.14	Providing and laying hydraulically machine pressed terrazzo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.				
16	5.6.14.3	Any light colour with 100% white cement	Sqm	103.08	1038.00	106997.04
	5.6.16	Providing and laying hydraulically machine pressed precast terrazzo tiles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement plaster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I				
17	5.6.16.3	Any light colour with 100% white cement	Sqm	14.11	1164.76	16434.76
18	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.				
			Sqm	12.64	1721.38	21758.24

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
19	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.	Sqm	431.58	94.01	40572.84
20	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling Qty. Same as plaster in ceiling.	Sqm	142.48	15.81	2252.61
21	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I.	Sqm	208.09	102.42	21312.58
	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.				
22	5.4.51.1	100 mm butt hinge.	Nos	36.00	31.95	1150.20
23	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	Sqm	17.64	1497.39	26413.96

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
24	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel section and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all stories and taxes all complete as per building specification and direction of E/I.	Sqm	17.64	4012.62	70782.62
25	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by deppt.)	No.	11.00	138.80	1526.80
26	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I.	cum	0.35	61811.77	21634.12
27	5.5.14	Supplying, fitting and fixing collapsible gate of approved size and make, property fabricated with vertical double channels 20 x 10 x 2 mm at 100 mm centres and braced with M.S. flat diagonals 20 x 3 mm with top and bottom rail of T. iron 40 x 40 x 6 mm with 38 mm dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat of red lead paint, carriage, hoisting and taxes all complete as per building specification and direction of E/I. At Entrance Gate	Sqm	3.15	4891.58	15408.48

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
28	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I.				
		For Door & Window Frame	Sqm	4.00	61.90	247.60
29	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including preparing the surface after cleaning, removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.				
			Sqm	17.64	88.68	1564.32
30	DWS 3.2.1 (B)	Supplying, fitting and fixing vitreous white glazed earthen ware I.W.C of parry Hindustan or any other ISS approved make with 100mm H.C.I 'P' trap 15 litres C.I pull and let go flushing cistern of names or other I.S.S equivalent make, complete with all fittings, C.I. or CC brackets 32mm alkathene/PVC telesopic flush, pipe about 2M long with one brasscoupling and clamps G.I. chain and pull including supplying and fixing a pair of vitreous white glazed earthenware ware footrest to be fixed in floor 15mm C.I. body brass spindle stopcock of weight not less than 50gm, 15mm PVC connection pipe 450mm long and the exposed pipe and cistern with two coats of approved paint over a coat of red oxide primer etc. all complete as per specification and direction of E/I.				
		A- 510mm long with 12.5 ltr. Low level PVC cistem	Nos	1.00	4910.38	4910.38

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
31	3.2.3	Supplying, fitting and fixing flat back or angular, lipped front vitreous white glazed earthen ware urinal of 'Hindustan "Parry" or any other approved ISS make with 5 liters capacity C.I automatic fulsiing cistern of reliance for any other ISS approved make with all fittings with CI or RS brackets, standare size GI flush pipe with fitting clamps, 15mm C.I. brass spindle stop cock of approved quality weight not less than 400gm, 15mm PVC / Alkthene pipe 450mm longwith brass coupling at both ends and doing plumber joints including painting of exposed part with two coats of approved paintover a priming coat of red oxide, cutting wall and floor, making good the same etc. all complete as per specification and direction of E/I.				0.00
		Flat back or standing corner (600mm x 350mm)	Nos	2.00	3590.98	7181.96
32	DWS 3.2.5	Supplying, fitting and fixing vitreous white glazed earthen ware wah hand basin of parry or Hindustan or any other ISS approved make supported on painted C.I. or R.S. brackets 32mm C.I. brass waste, 15mm dia C.I. body brass spindle stop cock of approved quality of weight not less than 350 gm, 32mm PVC waste pipe 750mm long wtih brass coupling at one end and making plumber joints etc. all complete as per specification and as per direction of E/I.				
			Nos	1.00	1854.46	1854.46
33	DWS 3.1.21 (b)	Providing and fixing 600 x 450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.				
			Nos.	1.00	1211.91	1211.91
34	DWS 3.1.20	Supplying tools and making connection of new G.I. distribution branch 15 mm to 50 mm dia with existing G.I. main by providing and fixing G.I. Tee including cutting of pipe at two places and threading their ends, providing long screw and one G.I. Nipple, all complete as per specification and direction of E/I.				
		50mm dia.	No.	1.00	873.10	873.10
35	3.1.6	Providing and fixing brass/C.I. Stop cock of approved quality all complete as per specification and direction of E/I.				
		15mm dia	No	1.00	255.43	255.43

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
36	JSR 122 P 37	Providing and placing on terrace (at all floor levels) +10% CP +5% polyethylene water storage tank ISI : 12701 marked with OHC cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	ltr.	500.00	6.41	3205.00
37	DWS 3.1.5.1	Providing and fixing male ended 15 mm dia brass bib cock of approved quality (Wt. not less than 350 gms.) with extra socket all complete as per specification and direction of E/I.	Nos.	1.00	311.98	311.98
All DSR Items						
38	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm	42.87	602.58	25832.60
39	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	m	13.20	282.66	3731.11
40	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	No.	4.00	102.50	410.00
41	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	No.	4.00	42.34	169.36

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
42	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	Sqm	171.43	517.63	88737.31
43	DSR 18.49.1	Providing and fixing C.P. brass bib cock of approved quality conforming to IS : 8931. 15 mm nominal bore	No.	1.00	383.83	383.83
44	DSR 18.65	Providing and fixing PTMT soap Dish Holder having length of 138 mm, breadth 102mm, height of 75mm with concealed fitting arrangements. Weighing not less than 106 gms.	Nos.	1.00	85.53	85.53
45	DSR 11.39	Providing and laying rectified Glazed Ceramic floor tiles 300 x 300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand) including grouting the joints with white cement and matching pigment etc., complete. In Toilet	Sqm	5.40	1010.24	5455.30

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7

46	DSR 18.11	Providing and fixing G.I.pipes complete with G.I.fittings and clamps,including cutting and making good the walls etc. (Internal work): Concealed pipe including painting with anti corrosive bitumastic paint,cutting chases and making good the wall.				
	18.11.1	15 mm dia pipes	M	7.00	428.92	3002.44
	18.11.2	20 mm dia pipes	M	5.00	478.33	2391.65

47	DSR 17.37.1	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10 x 10 x 10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone sggregate 20 mm nominal size) including cost of cutting holes and making good the walls etc.				
		100 mm dia Pipe	Nos	8.00	272.67	2181.36

Total **1730338.20**

Say in Lacs **17.30**

Detailed Measurement of Office Block

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.						
		For Walls	1	96.730	0.875	1.075	90.99	
		step	1	2.00	0.400	0.425	0.34	
						Total	91.33	Cum
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).					30.44	cum
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).						
	i)	Below lean concrete.	1	96.73	0.875	0.150	12.70	
	ii)	Below flooring						
		In I.C. & Staff Room	2	5.00	4.00	0.186	7.44	
		In Toilet	1	2.70	2.00	0.186	1.00	
		In Canteen & Lab	2	6.00	4.00	0.186	8.93	
		In Store	1	4.00	2.02	0.186	1.50	
		In Lobby Area 34 Sq M	1		34.00	0.186	6.32	
		Varandah	1	4.00	1.750	0.186	1.30	
	iii)	In Steps	1	4.00	0.70	0.150	0.42	
			1	2.00	0.70	0.100	0.30	
						Total	39.92	Cum
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.						

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		Below wall foundation	1	96.73	0.875		84.64	
			1	1.50	0.47		0.71	
		In Steps foundation	1	4.00	0.70		2.80	
			1	2.89	0.70		2.02	
							90.17	Sqm
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.						
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)						
	i)	Below lean concrete.	1	96.73	0.875	0.100	8.46	
			1	1.50	0.47	0.100	0.07	
	ii)	Below flooring						
		In I.C. & Staff Room	2	5.00	4.00	0.100	4.00	
		In Toilet	1	2.70	2.00	0.100	0.54	
		In Canteen & Lab	2	6.00	4.00	0.100	4.80	
		In Store	1	4.00	2.02	0.100	0.81	
		In Lobby Area 34 Sq M	1		34.00	0.100	3.40	
		Varandah	1	4.00	1.750	0.100	0.70	
	iii)	In Steps	1	4.00	0.70	0.100	0.28	
			1	2.89	0.70	0.100	0.20	
						Total	23.26	Cum
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	1	96.73	0.75	0.15	10.88	
		In Walls	1	96.73	0.625	0.15	9.07	
		In Walls	1	96.73	0.50	0.15	7.25	
		In Walls	1	96.73	0.38	0.30	10.88	
		In Walls	1	96.73	0.25	0.30	7.25	
		In Steps	1	4.00	0.60	0.30	0.72	
		In Steps	1	4.00	0.30	0.15	0.18	
		In Steps	1	2.89	0.60	0.30	0.52	
		In Steps	1	2.89	0.30	0.15	0.13	
						Total	46.24	Cum

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonell) : 4 graded stone aggregate 20mm nominal size).	1	96.73	0.25		24.18	Sqm
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	1	96.73	0.25	3.20	77.38	
		In parapet wall in C.M. (1:6)	1	48.01	0.25	0.27	3.24	
						Total	80.62	Cum
		Deduction for						
		Door D1	2	1.20	0.25	2.100	1.26	
		D2	5	0.90	0.25	2.100	2.36	
		D3	2	0.75	0.25	2.100	0.79	
		Entrance Gate	1	1.50	0.25	2.100	0.79	
		Window 'W1'	1	1.80	0.25	1.200	0.54	
		W2	8	1.50	0.25	1.200	3.60	
		W3	1	0.90	0.25	1.200	0.27	
		Ventilator 'V'	2	0.75	0.25	0.500	0.19	
						Total	9.80	Cum
		Net Brick Work					70.83	Cum
8	5.3.11 (a)	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)						
		In Lintel Beam						
		Door D1	2	1.50	0.25	0.15	0.11	
		D2	5	1.30	0.25	0.15	0.24	
		D3	2	1.05	0.25	0.15	0.08	
		Entrance Gate	1	1.80	0.25	0.15	0.07	
		Window 'W1'	1	2.10	0.25	0.15	0.08	
			8	1.80	0.25	0.15	0.54	
			1	1.20	0.25	0.15	0.05	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		Ventilator 'V'	2	1.05	0.25	0.15	0.08 1.25	
(b)	5.3.11	Providing RCC M 200 in RCC Chhajja	1	38.33	0.50		19.16 0.000	sqm
©	5.3.11 (c)	Providing RCC M20 with nominal mix 1:1.5:3 in all type of beam -----do ---- do----- Lab, Canteen & Lobby Beam	3	4.46	0.25	0.35	1.17	
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size).						
		In Roof Slab area 171.43 Sqm	1	171.43		0.10	17.14	Cum
10	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of centering, shuttering complete. 1:1.5:3 (1 cement: 1.5 coarse sand(zonelll): 3 graded stone aggregate 20 mm nominal size). In slab of different size						
		Kitchen	1	4.00	0.50	0.08	0.16	
		Lab	1	9.40	0.60	0.08	0.45	
		Office	1	1.80	0.30	0.08	0.04	
							0.65	
11	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						
							1.68	MT

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
12	5.7.3	Providng 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.						
		In Walls outersface	1	54.19		3.57	193.46	
		In Parepet Walls	1	54.19		0.27	14.63	
		In Walls innerface	1	140.40		3.20	449.28	
		In Steps	1	4.00		0.45	1.80	
		In Steps	2	0.60		0.30	0.36	
		In Steps	2	0.30		0.15	0.09	
			1	2.89		0.45	1.30	
			2	0.60		0.30	0.36	
			2	0.30		0.15	0.09	
						Total	661.37	Sqm
		Deduction for						
		Door D1	2	1.20		2.100	5.04	
		D2	5	0.90		2.100	9.45	
		D3	2	0.75		2.100	3.15	
		Entrance Gate	1	1.50		2.100	3.15	
		Window 'W1'	1	1.80		1.200	2.16	
		W2	8	1.50		1.200	14.40	
		W3	1	0.90		1.200	1.08	
		Ventilator 'V'	2	0.75		0.500	0.75	
						Total	39.18	Sqm
		Net Plaster					622.19	Sqm
13	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with celean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.						
		In I.C. & Staff Room	2	5.00	4.00		40.00	
		In Toilet	1	2.70	2.00		5.40	
		In Canteen & Lab	2	6.00	4.00		48.00	
		In Store	1	4.00	2.02		8.08	
		In Lobby Area 34 Sq M	1		34.00		34.00	
		Varandah	1	4.00	1.750		7.00	
						Total	142.48	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
14	5.6.19	Providing and laying 25 mm thick kotah stone slab flooring of approved size, texture and colour over 19mm thick base of lime mortar (1:1:1) (lime putty : surkhi : coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, taxes and royalty all complete as per building specification and direction of E/I. (iv) 600mmX600 mm						
		In Lobby					34.00	
		In Laboratory Platform	1	6.00	0.60		3.60	
			1	3.40	0.60		2.04	
		In Canteen Counter	1	1.80	0.30		0.54	
		In Canteen Kitchen	1	4.00	0.60		2.40	
							42.58	Sqm
15	5.6.23	Providing and laying 6mm precast white glazed tiles in walls over 12mm, cement mortar (1:3) and jointed with grey cement slurry, flush pointed with white cement including rubbing, polishing and cost of curing, taxed and royalty all complete as per building specification and direction of E/I.						
	5.6.23.2	With commercial grade white 15x15 cms tiles						
		In Toilet	2	2.70		1.50	8.10	
			2	2.00		1.50	6.00	
			2	1.20		1.50	3.60	
						Total	17.70	Sqm
	5.6.14	Providing and laying hydraulically machine pressed terrazo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
16	5.6.14.3	Any light colour with 100% white cement						
		In I.C. & Staff Room	2	5.00	4.00		40.00	
		In Canteen & Lab	2	6.00	4.00		48.00	
		In Store	1	4.00	2.02		8.08	
		Varandah	1	4.00	1.750		7.00	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

Total 103.08 Sqm

5.6.16 Providing and laying hydraulically machine pressed precast terrazo tilles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement palster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I

17 5.6.16.3 Any light colour with 100% white cement

In I.C. & Staff Room	2x2	(5 + 4)	0.15	5.40	
In Canteen & Lab	2x2	(6 + 4)	0.15	6.00	
Varandah	1x2	1.75	0.15	0.53	
	1x1	2.50	0.15	0.38	
In Store Room	1x2	(2.02 + 4)	0.15	1.81	
			Total	14.11	Sqm

18 5.6.20 Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approves size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, roulty and taxes all complete as per building specification and direction of E/I.

In Steps	1	4.00	0.45	1.80	
In Steps	2	0.60	0.30	0.36	
In Steps	2	0.30	0.15	0.09	
In Steps	1	1.00	0.45	0.90	
In Steps	2	0.60	0.30	0.36	
In Steps	2	0.30	0.15	0.09	
In Loby Skirting	1	30.12	0.15	9.04	
			Total	12.64	Sqm

19 5.8.15 Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		Inner Walls	1	140.40		3.20	449.28	
		Deduct for tiles				-	17.70	
						Total	431.58	Sqm
20	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling						
		Qty. Same as plaster in ceiling.vide item no 12					142.48	Sqm
21	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I.						
		Outer Walls						
		Qty.Same as plaster in outer surface vide item no 11					193.46	
		Parepet Walls					14.63	
						Total	208.09	Sqm
22	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.						
	5.4.51.1	100 mm butt hinge.	9x4				36.00	Nos
23	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.						
		D1	2		1.20	2.10	5.04	
		D2	5		0.90	2.10	9.45	
		D3	2		0.75	2.10	3.15	
						Total	17.64	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
24	5.5.18	Supplying, fitting and fixing fully glazed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all stories and taxes all complete as per building specification and direction of E/I.						
		W1	1	1.80	1.20		2.16	
		W2	8	1.50	1.20		14.40	
		W3	1	0.90	1.20		1.08	
						Total	17.64	Sqm
25	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by dept.)	11				11.00	No.
26	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I.						
		Door Frame	2	5.40	0.10	0.075	0.081	
			5	5.10	0.10	0.075	0.191	
			2	4.95	0.10	0.075	0.074	
							0.347	cum

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
27	5.5.14	Supplying, fitting and fixing collapsible gate of approved size and make, property fabricated with vertical double channels 20 x 10 x 2 mm at 100 mm centres and braced with M.S. flat diagonals 20 x 3 mm with top and bottom rail of T. iron 40 x 40 x 6 mm with 38 mm dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat of red lead paint, carriage, hoisting and taxes all complete as per building specification and direction of E/I. At Entrance Gate	1	1.50		2.10	3.15	Sqm
28	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame					4.00	Sqm
29	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including preparing the surface after cleaning, removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.						
		D1	2		1.20	2.10	5.04	
		D2	5		0.90	2.10	9.45	
		D3	2		0.75	2.10	3.15	
						Total	17.64	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

30	DWS 3.2.1 (B)	Supplying, fitting and fixing vitreous white glazed earthen ware I.W.C of parry Hindustan or any other ISS approved make with 100mm H.C.I 'P' trap 15 litres C.I pull and let go flushing cistern of names or other I.S.S equivalent make, complete with all fittings, C.I. or CC brackets 32mm alkathene/PVC telescopic flush, pipe about 2M long with one brasscoupling and clamps G.I. chain and pull including supplying and fixing a pair of vitreous white glazed earthenware ware footrest to be fixed in floor 15mm C.I. body brass spindle stop cock of weight not less than 50gm, 15mm PVC connection pipe 450mm long and the exposed pipe and cistern with two coats of approved paint over a coat of red oxide primer etc. all complete as per specification and direction of E/I.						
		A- 580mm long with 10 ltr. Low level PVC cistem	1				1.00	Nos
31	3.2.3	Supplying, fitting and fixing flat back or angular, lipped front vitreous white glazed earthen ware urinal of 'Hindustan "Parry" or any other approved ISS make with 5 liters capacity C.I automatic flushing cistern of reliance for any other ISS approved make with all fittings with CI or RS brackets, standare size GI flush pipe with fitting clamps, 15mm C.I. brass spindle stop cock of approved quality weight not less than 400gm, 15mm PVC / Alkthene pipe 450mm longwith brass coupling at both ends and doing plumber joints including painting of exposed part with two coats of approved paintover a priming coat of red oxide, cutting wall and floor, making good the same etc. all complete as per specification and direction of E/I.						
	(a)	Flat back or standing corner (600mm x 350mm)	2				2.00	Nos

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
32	DWS 3.2.5	Supplying, fitting and fixing vitreous white glazed earthen ware wash hand basin of parry or Hindustan or any other ISS approved make supported on painted C.I. or R.S. brackets 32mm C.I. brass waste, 15mm dia C.I. body brass spindle stop cock of approved quality of weight not less than 350 gm, 32mm PVC waste pipe 750mm long with brass coupling at one end and making plumber joints etc. all complete as per specification and as per direction of E/I.	1				1.00	Nos
33	DWS 3.1.21 (b)	Providing and fixing 600 x 450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	1				1.00	Nos.
34	DWS 3.1.20	Supplying tools and making connection of new G.I. distribution branch 15 mm to 50 mm dia with existing G.I. main by providing and fixing G.I. Tee including cutting of pipe at two places and threading their ends, providing long screw and one G.I. Nipple, all complete as per specification and direction of E/I.						
		50mm dia.	1				1.00	No.
35	3.1.6	Providing and fixing brass/C.I. Stop cock of approved quality all complete as per specification and direction of E/I. 15mm dia	1				1.00	No
36	JSR 122 P 37 +10% CP +5% OHC	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.					500.00	ltr.
37	DWS 3.1.5.1	Providing and fixing male ended 15 mm dia brass bib cock of approved quality (Wt. not less than 350 gms.) with extra socket all complete as per specification and direction of E/I.	1				1.00	Nos.

All DSR Items

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
38	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	2 2	15.68 12.90	0.75 0.75		23.52 19.35	
						Total	42.87	Sqm
39	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	4	3.30			13.20	m
40	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	4				4.00	No.
41	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	4				4.00	No.
42	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	1				171.43	Sqm
43	DSR 18.49.1	Providing and fixing C.P. brass bib cock of approved quality conforming to IS : 8931. 15 mm nominal bore	1				1.00	No.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
44	DSR 18.65	Providing and fixing PTMT soap Dish Holder having length of 138 mm, breadth 102mm, height of 75mm with concealed fitting arrangements. Weighing not less than 106 gms.	1				1.00	Nos.
45	DSR 11.39	Providing and laying rectified Glazed Ceramic floor tiles 300 x 300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand) including grouting the joints with white cement and matching pigment etc., complete. In Toilet	1	2.00	2.70		5.40	Sqm
46	DSR 18.11	Providing and fixing G.I.pipes complete with G.I.fittings and clamps,including cutting and making good the walls etc. (Internal work): Concealed pipe including painting with anti corrosive bitumastic paint,cutting chases and making good the wall.						
	18.11.1	15 mm dia pipes					7.00	
	18.11.2	20 mm dia pipes					5.00	
						Total	12.00	M
47	DSR 17.37.1	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10 x 10 x 10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone sggregate 20 mm nominal size) including cost of cutting holes and making good the walls etc. 100 mm dia Pipe	4x2				8.00	Nos

Estimate of Toilet Block

SI. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/l. For Walls	Cum	29.36	139.58	4098.00
1(b)	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/l (Mode of measurement compacted volume).	cum	9.79	50.82	497.00
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/l. (Mode of measurement compacted volume).	Cum	7.31	415.58	3038.00
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/l.	Sqm	28.67	322.35	9242.00
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	Cum	4.63	3714.85	17200.00
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.	Cum	14.83	5069.99	75188.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).	Sqm	7.60	269.23	2046.00
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	16.09	5193.02	83556.00
7 (b)	5.2.23	Providing designation 125 mm thick reinforced designation 75A brick work in CM (1:4) in supestructure with approved quality of clean coarse sand of FM 2 to 2.5 including the cost of screening, carriage of material, scaffolding raking out joints to 15 mm depth curing taxes and royalty (but excluding cost of reinforcement) all complete as per building specification and direction of E/I.	sqm	4.38	668.26	2927.00
8	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam	Cum	0.50	6092.63	3046.00
	5.3.11	Rcc M200 -----in Sunshed (Chhajja)	Cum	0.24	6092.63	1485.00
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab	Cum	2.69	6092.63	16389.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	MT	0.27	79086.94	21353.00
11	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	168.24	153.24	25781.00
12	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	9.59	170.27	1633.00
13	5.6.19	Providing and laying 25 mm thick kotah stone slab flooring of approved size, texture and colour over 19mm thick base of lime mortar (1:1:1) (lime putty : surkhi : coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing to granolithic finish with approved quality of carborundum stone including cost of curing, taxes and royalty all complete as per building specification and direction of E/I. (iv) 600mmX600 mm In Lobby 600 mmX600mm	Sqm	7.98	1671.24	13336.00
	5.6.23	Providing and laying 6mm precast white glazed tiles in walls over 12mm, cement mortar (1:3) and jointed with grey cement slurry, flush pointed with white cement including rubbing, polishing and cost of curing, taxed and royalty all complete as per building specification and direction of E/I.				
14	5.6.23.2	With commercial grade white 15x15 cms tiles	Sqm	39.45	1214.41	47908.00
15	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing to granolithic finish with approved quality of carborundum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.	Sqm	2.25	1721.38	3873.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
16	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.	Sqm	66.28	94.01	6231.00
17	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling	Sqm	9.59	15.81	152.00
18	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I.	Sqm	75.45	102.42	7728.00
	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.				
19	5.4.51.1	100 mm butt hinge.	Nos	4.00	31.95	128.00
20	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	Sqm	6.30	1497.39	9434.00
21	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all storys and taxes all complete as per building specification and direction of E/I.	Sqm	2.74	4012.62	10995.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
22	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by deppt.)	No.	1.00	138.80	139.00
23	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I. Door Frame	cum	0.150	61811.77	9272.00
24	5.5.14	Supplying, fitting and fixing collapsible gate of approved size and make, property fabricated with vertical double channels 20 x 10 x 2 mm at 100 mm centres and braced with M.S. flat diagonals 20 x 3 mm with top and bottom rail of T. iron 40 x 40 x 6 mm with 38 mm dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat of red lead paint, carriage, hoisting and taxes all complete as per building specification and direction of E/I. At Entrance Gate	Sqm	3.15	4891.58	15408.00
25	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering complete. 1: 1.5 :3(1 cement: 1.5 coarse sand(zonelll) : 3 graded stone aggregate 20 mm nominal size).	Sqm	2.10	243.84	512.00
26	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame	Sqm	1.50	61.90	93.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
27	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	Sqm	6.30	88.68	559.00
28	DWS 3.2.1 (B)	Supplying, fitting and fixing vitreous white glazed earthen ware I.W.C of parry Hindustan or any other ISS approved make with 100mm H.C.I 'P' trap 15 litres C.I pull and let go flushing cistern of names or other I.S.S equivalent make, complete with all fittings, C.I. or CC brackets 32mm alkathene/PVC telesopic flush, pipe about 2M long with one brasscoupling and clamps G.I. chain and pull including supplying and fixing a pair of vitreous white glazed earthenware ware footrest to be fixed in floor 15mm C.I. body brass spindle stop cock of weight not less than 50gm, 15mm PVC connection pipe 450mm long and the exposed pipe and cistern with two coats of approved paint over a coat of red oxide primer etc. all complete as per specification and direction of E/I. 510 mm long with 12.5 lit low level PVC cistern	Nos	2.00	4910.38	9821.00
29	DWS 3.2.3 (a)	Supplying, fitting and fixing flat back or angular, lipped front vitreous white glazed earthen ware urinal of 'Hindustan "Parry" or any other approved ISS make with 5 liters capacity C.I automatic flushing cistern of reliance for any other ISS approved make with all fittings with CI or RS brackets, standare size GI flush pipe with fitting clamps, 15mm C.I. brass spindle stop cock of approved quality weight not less than 400gm, 15mm PVC / Alkthene pipe 450mm longwith brass coupling at both ends and doing plumber joints including painting of exposed part with two coats of approved paintover a priming coat of red oxide, cutting wall and floor, making good the same etc. all complete as per specification and direction of E/I.	Nos	2.00	3590.98	7182.00
		(a) flat back or standing corner				

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
30	DWS 3.2.5	Supplying, fitting and fixing vitreous white glazed earthen ware wash hand basin of parry or Hindustan or any other ISS approved make supported on painted C.I. or R.S. brackets 32mm C.I. brass waste, 15mm dia C.I. body brass spindle stop cock of approved quality of weight not less than 350 gm, 32mm PVC waste pipe 750mm long with brass coupling at one end and making plumber joints etc. all complete as per specification and as per direction of E/I.	Nos	1.00	1854.16	1854.00
31	DWS 3.1.21 (b)	Providing and fixing 600 x 450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Nos.	1.00	1211.91	1212.00
32	DWS 3.1.20	Supplying tools and making connection of new G.I. distribution branch 15 mm to 50 mm dia with existing G.I. main by providing and fixing G.I. Tee including cutting of pipe at two places and threading their ends, providing long screw and one G.I. Nipple, all complete as per specification and direction of E/I. : 50 mm dia pipe	No.	1.00	873.10	873.00
33	DWS 3.1.6	Providing and fixing brass/C.I. Stop cock of approved quality all complete as per specification and direction of E/I. 15 mm dia pipe	No	2.00	255.43	511.00
34	JSR 122 P 37 +10% CP +5% OHC	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	ltr.	1000.00	6.41	6410.00
35	DWS 3.1.5.1	Providing and fixing male ended 15 mm dia brass bib cock of approved quality (Wt. not less than 350 gms.) with extra socket all complete as per specification and direction of E/I.	Nos.	5.00	311.98	1560.00
All DSR Items						
36	DSR 11.39	Providing and laying rectified Glazed Ceramic floor tiles 300 x 300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand) including grouting the joints with white cement and matching pigment etc., complete.	Sqm	9.59	1010.24	9688.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
37	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cemnt: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm	17.71	602.58	10672.00
38	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	No.	6.60	282.66	1866.00
39	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	No.	2.00	102.50	205.00
40	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	No.	2.00	42.34	85.00
41	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	Sqm	27.55	517.63	14261.00
42	DSR 17.37.1	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10 x 10 x 10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone sggregate 20 mm nominal size) including cost of cutting holes and making good the walls etc. 100 mm dia Pipe	Nos	4.00	272.67	1091.00

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
43	DSR 18.11	Providing and fixing G.I.pipes complete with G.I.fittings and clamps,including cutting and making good the walls etc. (Internal work): Concealed pipe including painting with anti corrosive bitumastic paint,cutting chases and making good the wall.				
	18.11.1	15 mm dia nominal bore	M	7.50	428.92	3217.00
	18.11.2	20 mm dia nominal bore	M	10.00	478.33	4783.00
44	DSR 18.49.1	Providing and fixing C.P. brass bib cock of approved quality conforming to IS : 8931. 15 mm nominal bore				
			No.	1.00	383.83	384.00
45	DSR 18.65	Providing and fixing PTMT soap Dish Holder having length of 138 mm, breadth 102mm, height of 75mm with concealed fitting arrangements. Weighing not less than 106 gms.				
			Nos.	3.00	85.53	257.00
					Total	<u>469179.00</u>
					Say in Lacs	<u>4.69</u>

Detailed Measurement of Toilet Block

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.						
		For Walls	1	30.41	0.875	1.075	28.60	
			1	1.75	0.375	0.575	0.38	
		step	1	2.00	0.40	0.475	0.38	
						Total	29.36	Cum
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).					9.79	cum
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).						
	i)	Below lean concrete.	1	30.41	0.875	0.150	3.99	
	ii)	Below flooring	1	1.75	0.375	0.100	0.07	
		In Bath Room	2	1.50	1.50	0.186	0.84	
		In W.C	1	2.575	1.50	0.186	0.72	
		In Lobby Area 7.98 Sq M	1		7.98	0.186	1.48	
	iii)	In Steps	1	2.00	0.70	0.150	0.21	
						Total	7.31	Cum

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/l. Below wall foundation	1	30.41	0.875		26.61	
			1	1.75	0.375		0.66	
		In Steps foundation	1	2.00	0.70		1.40	
							28.67	Sqm
4	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.						
	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)						
	i)	In lean concrete	1	30.41	0.875	0.100	2.66	
			1	1.75	0.375	0.100	0.07	
	ii)	Below flooring						
		In Bath Room	2	1.50	1.50	0.100	0.45	
		In W.C	1	2.575	1.50	0.100	0.39	
		In Urinal	1	1.40	0.850	0.100	0.12	
		In Lobby	1		7.98	0.100	0.80	
	iii)	In Steps	1	2.00	0.70	0.100	0.14	
						Total	4.63	Cum
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.						
		In Walls	1	30.41	0.75	0.15	3.42	
		In Walls	1	30.41	0.625	0.15	2.85	
		In Walls	1	30.41	0.50	0.15	2.28	
		In Walls	1	30.41	0.375	0.30	3.42	
		In Walls	1	30.41	0.25	0.30	2.28	
		In Walls	1	1.75	0.25	0.30	0.13	
		In Steps	1	2.00	0.60	0.30	0.36	
		In Steps	1	2.00	0.30	0.15	0.09	
						Total	14.83	Cum

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonell) : 4 graded stone aggregate 20mm nominal size).	1	30.41	0.25		7.60	
			1	1.75	0.25		0.44	
							8.04	Sqm
7 (a)	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.						
		In Walls	1	30.41	0.25	2.50	19.01	
		In parapet wall in C.M. (1:6)	1	17.86	0.25	0.15	0.67	
						Total	19.68	Cum
		Deduct for						
		Door	4	0.75	0.25	2.100	1.58	
		RCC Jali	1	1.00	0.25	2.100	0.53	
		Entrance Gate	1	1.50	0.25	2.100	0.79	
		Window 'W'	1	1.03	0.25	1.200	0.31	
		Ventilator 'V'	4	0.75	0.25	0.500	0.38	
						Total	3.59	Cum
		Net Brick Work					16.09	Cum
7 (b)	5.2.23	Providing designation 125 mm thick reinforced designation 75A brick work in CM (1:4) in supestructure with approved quality of clean coarse sand of FM 2 to 2.5 including the cost of screening, carriage of material, scaffolding raking out joints to 15 mm depth curing taxes and royalty (but excluding cost of reinforcement) all complete as per building specification and direction of E/l.	1	1.75	2.50		4.38	sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
8	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam						
		In lintel Beam at entrance	1	1.80	0.25	0.15	0.07	
		In lintel Beam for window opening W	1	1.535	0.25	0.15	0.06	
		For Door D	4	1.05	0.25	0.15	0.16	
		For Jali	1	1.30	0.25	0.15	0.05	
		In Ventilation V	4	1.05	0.25	0.15	0.16	
							0.50	cum
(ii)	5.3.11	In Sun Shade V	4	1.05	0.50		2.10	
		W	1	1.535	0.50		0.77	
		Sun Shade at entrance	1	2.00	0.50		1.00	
							3.87	sqm
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab						
		In Roof Slab area 26.93 Sqm	1		26.93	0.10	2.69	Cum
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL))} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						
							0.27	MT

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
11	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls outerface	1	20.96		3.20	67.07	
		In Parepet Walls	1	20.96		0.40	8.38	
		In Walls innerface	1	42.29		2.50	105.73	
		In Steps	1	2.00		0.45	0.90	
		In Steps	2	0.60		0.30	0.36	
		In Steps	2	0.30		0.15	0.09	
						Total	182.53	Sqm
		Deduction for						
		Door	4	0.75		2.100	6.30	
		RCC Jali	1	1.00		2.100	2.10	
		Entrance Gate	1	1.50		2.100	3.15	
		Window 'W'	1	1.03		1.200	1.24	
		Ventilator 'V'	4	0.75		0.500	1.50	
						Total	14.29	Sqm
		Net Plaster					168.24	Sqm
12	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.						
		In Bath Room	2	1.50	1.50		4.50	
		In Toilet	2	1.50	1.30		3.90	
		In Lobby	1		7.98		0.00	
		In Urinal	1	1.40	0.85		1.19	
						Total	9.59	Sqm
13	5.6.19	Providing and laying 25 mm thick kotah stone slab flooring of approved size, texture and colour over 19mm thick base of lime mortar (1:1:1) (lime putty : surkhi : coarse sand) laid over and jointed with grey cement slurry mixed with pigment to match the shade of slab including rubbing and polishing to granolithic finish with approved quality of carborundum stone including cost of curing, taxes and royalty all complete as per building specification and direction of E/I. (iv) 600mmX600 mm						

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		In Lobby					7.98	Sqm
14	DSR 11.39	Providing and laying rectified Glazed Ceramic floor tiles 300 x 300 mm or more (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand) including grouting the joints with white cement and matching pigment etc., complete.						
		In Bath Room	2	1.50	1.50		4.50	
		In Toilet	2	1.50	1.30		3.90	
		In Urinal	1	1.40	0.85		1.19	
							9.59	Sqm
15	5.6.23	Providing and laying 6mm precast white glazed tiles in walls over 12mm, cement mortar (1:3) and jointed with grey cement slurry, flush pointed with white cement including rubbing, polishing and cost of curing, taxed and royalty all complete as per building specification and direction of E/I.						
	5.6.23.2	With commercial grade white 15x15 cms tiles						
		In Bath Room	2 x4	1.50		1.500	18.00	
		In Toilet	4	1.50		1.500	9.00	
			4	1.30		1.500	7.80	
		In Urinal	1	1.40		1.500	2.10	
			2	0.85		1.500	2.55	
						Total	39.45	Sqm
16	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
		In Steps	2	2.00		0.45	1.80	
		In Steps	2	0.60		0.30	0.36	
		In Steps	2	0.30		0.15	0.09	
							2.25	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
17	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.						
		Inner Walls	1	42.29		2.50	105.73	
		Deduct for tiles				-	39.45	
						Total	66.28	Sqm
18	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling Qty. Same as plaster in ceiling.					9.59	Sqm
19	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I. Outer Walls Qty.Same as plaster in outer surface Parepet Walls					67.07 8.38	
						Total	75.45	Sqm
20	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cemnt: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	2 2	7.70 4.105	0.75 0.75		11.55 6.16	
						Total	17.71	Sqm
21	DSR 12.40.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	2				6.60	m

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
22	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	2				2.00	No.
23	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	2				2.00	No.
24	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/l.						
	5.4.51.1	100 mm butt hinge.	4				4.00	Nos
25	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/l.	4		0.75	2.10	6.30	Sqm
26	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick palin glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all storys and taxes all complete as per building specification and direction of E/l.	4		0.75	0.50	1.50	
			1		1.03	1.20	1.24	
						Total	2.74	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
27	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by dept.)	1				1.00	No.
28	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I.						
		Door Frame	4	5.10	0.10	0.08	0.150	
						=	0.150	cum
29	5.5.14	Supplying, fitting and fixing collapsible gate of approved size and make, property fabricated with vertical double channels 20 x 10 x 2 mm at 100 mm centres and braced with M.S. flat diagonals 20 x 3 mm with top and bottom rail of T. iron 40 x 40 x 6 mm with 38 mm dia steel pulleys complete with bolts, nuts, locking arrangements, stoppers, handles, including applying a priming coat of red lead paint, carriage, hoisting and taxes all complete as per building specification and direction of E/I.						
		At Entrance Gate	1	1.50		2.10	3.15	Sqm
30	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering complete. 1: 1.5 :3(1 cement: 1.5 coarse sand(zonelll) : 3 graded stone aggregate 20 mm nominal size). 25 MM	1	1.00		2.10	2.10	Sqm
31	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I.						
		For Door & Window Frame					1.50	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

32	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	4		0.75	2.10	6.30	Sqm
33	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	1	6.40	4.305		27.55	
			1	1.75	0.355		0.62	
							26.93	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

34 12.2.1 Supplying, fitting and fixing vitreous white glazed earthen ware I.W.C of parry Hindustan or any other ISS approved make with 100mm H.C.I 'P' trap 15 litres C.I pull and let go flushing cistern of names or other I.S.S equivalent make, complete with all fittings, C.I. or CC brackets 32mm alkathene/PVC telescopic flush, pipe about 2M long with one brasscoupling and clamps G.I. chain and pull including supplying and fixing a pair of vitreous white glazed earthenware ware footrest to be fixed in floor 15mm C.I. body brass spindle stopcock of weight not less than 50gm, 15mm PVC connection pipe 450mm long and the exposed pipe and cistern with two coats of approved paint over a coat of red oxide primer etc. all complete as per specification and direction of E/I.

A- 510mm long with 12.5 ltr. Low level PVC cistem

2

2.00 Nos

35 12.2.3 Supplying, fitting and fixing flat back or angular, lipped front vitreous white glazed earthen ware urinal of 'Hindustan "Parry" or any other approved ISS make with 5 liters capacity C.I automatic flushing cistern of reliance for any other ISS approved make with all fittings with CI or RS brackets, standare size GI flush pipe with fitting clamps, 15mm C.I. brass spindle stopcock of approved quality weight not less than 400gm, 15mm PVC / Alkthene pipe 450mm longwith brass coupling at both ends and doing plumber joints including painting of exposed part with two coats of approved paintover a priming coat of red oxide, cutting wall and floor making good the same etc all Flat back or standing corner (600mm x 350mm)

2

2.00 Nos

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
36	12.2.5	Supplying, fitting and fixing vitreous white glazed earthen ware wah hand basin of parry or Hindustan or any other ISS approved make supported on painted C.I. or R.S. brackets 32mm C.I. brass waste, 15mm dia C.I. body brass spindle stop cock of approved quality of weight not less than 350 gm, 32mm PVC waste pipe 750mm long wtih brass coupling at one end and making plumber joints etc. all complete as per specification and as per direction of E/I.	1				1.00	Nos
37	DSR 17.31	Providing and fixing 600 x 450 mm beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	1				1.00	Nos.
38	DSR 17.37.1	Providing and fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10 x 10 x 10 cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone sggregate 20 mm nominal size) including cost of cutting holes and making good the walls etc. 100 mm dia Pipe	4				4.00	Nos
39	DSR 18.11	Providing and fixing G.I.pipes complete with G.I.fittings and clamps,including cutting and making good the walls etc. (Internal work): Concealed pipe including painting with anti corrosive bitumastic paint,cutting chases and making good the wall.						
	18.11.1	15 mm dia piles					7.50	
	18.11.2	20 mm dia piles					10.00	
							Total	17.50 M
40	12.1.20	Supplying tools and making connection of new G.I. distribution branch 15 mm to 50 mm dia with existing G.I. main by providing and fixing G.I. Tee including cutting of pipe at two places and threading their ends, providing long screw and one G.I. Nipple, all complete as per specification and direction of E/I. 50mm dia.	1				1.00	No.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
41	12.1.6	Providing and fixing brass/C.I. Stop cock of approved quality all complete as per specification and direction of E/l. 15mm dia	2				2.00	No
42	JSR item no 122 P-30	Providing and placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank	2	500			1000.00	ltr.
43	12.1.5.1	Providing and fixing male ended 15 mm dia brass bib cock of approved quality (Wt. not less than 350 gms.) with extra socket all complete as per specification and direction of E/l.	5				5.00	Nos.
44	DSR 18.49.1	Providing and fixing C.P. brass bib cock of approved quality conforming to IS : 8931. 15 mm nominal bore	1				1.00	No.
45	DSR 18.65	Providing and fixing PTMT soap Dish Holder having length of 138 mm, breadth 102mm, height of 75mm with concealed fitting arrangements. Weighing not less than 106 gms.	3				3.00	Nos.

Estimate of Weigh Bridge Room (3 x 3 M)

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I. For Walls	Cum	12.59	139.58	1757.31
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).	cum	3.78	50.82	192.10
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	Cum	3.51	415.58	1457.13
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	Sqm	12.22	322.35	3939.12
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	Cum	1.9	3714.85	7058.22
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	6.37	5069.99	32295.84

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonell) : 4 graded stone aggregate 20mm nominal size).	Sqm	3.25	269.23	875.00
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	9.88	5193.02	51307.04
8	5.3.11 (i)	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam	Cum	0.14	6092.63	822.51
(ii)	5.3.11	63 mm RCC M200 ----- do --- in chhajja	Cum	0.13	6092.63	796.46
(iii)	5.3.11	35 mm thick precast RCC M200 --- in shelves	Cum	0.04	6092.63	261.98
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab	Cum	1.369	6092.63	8340.81
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	MT	0.13	79086.94	10281.30

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
11	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	89.94	153.24	13782.41
12	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	9	170.27	1532.43
	5.6.14	Providing and laying hydraulically machine pressed terrazo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.				
13	5.6.14.3	Any light colour with 100% white cement	Sqm	9	1038.00	9342.00
	5.6.16	Providing and laying hydraulically machine pressed precast terrazo tiles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement plaster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I				
14	5.6.16.3	Any light colour with 100% white cement	Sqm	1.8	1164.76	2096.57
15	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.	Sqm	2.76	1721.38	4751.01

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
16	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I. Inner Walls	Sqm	33.6	94.01	3158.74
17	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling	Sqm	9	15.81	142.29
18	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I.	Sqm	52.05	102.42	5330.96
	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.				
19	5.4.51.1	100 mm butt hinge.	Nos	4	31.95	127.80
20	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	Sqm	1.89	1497.39	2830.07

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
21	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all stories and taxes all complete as per building specification and direction of E/I.	Sqm	2.16	4012.62	8667.26
22	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by deppt.)	No.	1	138.80	138.80
23	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I. Door Frame	cum	0.0383	61811.77	2364.30
24	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame	Sqm	1	61.90	61.90
25	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	Sqm	4.73	88.68	419.01
All DSR Items						
26	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cemnt: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm	12.75	602.58	7682.90

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7

27	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	m	6.60	282.66	1865.56
28	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	No.	2.00	102.50	205.00
29	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	No.	2.00	42.34	84.68
30	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	Sqm	9.00	517.63	4658.67

Total 188627.18

Say in Lacs 1.89

Detailed Measurement of Weigh Bridge Room (3 x 3 M)

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/l. For Walls	4 1	3.25 1.2	0.875 0.700	1.075 0.425	12.230 0.360	Cum Cum
							12.590	
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/l (Mode of measurement compacted volume).					3.78	
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/l. (Mode of measurement compacted volume).						
	i)	Below lean concrete.	4	3.25	0.875	0.150	1.706	
	ii)	Below flooring.	1	3.00	3.00	0.186	1.674	
	iii)	In Steps	1	1.20	0.70	0.150	0.126	
						Total	3.506	Cum
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/l. Below wall foundation In Steps foundation	4 1	3.25 1.20	0.875 0.70		11.380 0.840	
							12.220	Sqm
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
8	5.3.11 (i)	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam						
		In lintel Beam for door opening	1	1.20	0.25	0.15	0.045	
		In lintel Beam for window opening	2	1.20	0.25	0.15	0.090	
							0.135	Cum
(ii)	5.3.11	In Sunshed 63 mm chhajja	2	1.20	0.50		1.20	
			1	1.75	0.50		0.88	sqm
(iii)	5.3.11	In Counter Slab 35 mm selves	1	1.45	0.85		1.23	sqm
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab						
			1	3.70	3.70	0.10	1.369	Cum
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						
							0.126	MT
11	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	4	3.50		3.90	54.600	
		In Walls	4	3.00		3.20	38.400	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		In Steps	1	1.20		0.45	0.540	
		In Steps	2	0.60		0.30	0.360	
		In Steps	2	0.30		0.15	0.090	
						Total	93.990	Sqm
		Deduct for						
		Door D	1	0.90		2.10	1.890	
		W	2	0.90		1.20	2.160	
						Total	4.050	Sqm
		Net Plaster					89.940	Sqm
12	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	1	3.00	3.00		9.000	Sqm
	5.6.14	Providing and laying hydraulically machine pressed terrazzo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
13	5.6.14.3	Any light colour with 100% white cement	1	3.00	3.00		9.000	Sqm
	5.6.16	Providing and laying hydraulically machine pressed precast terrazzo tiles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement plaster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I						
14	5.6.16.3	Any light colour with 100% white cement	4	3.00		0.150	1.800	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
15	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
		In Steps	2	1.20		0.45	1.080	
		In Steps	2	0.60		0.30	0.360	
		In Steps	2	0.30		0.15	0.090	
		In counter slabe	1	1.45		0.85	1.230	
							2.760	Sqm
16	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.						
		Inner Walls	4	3.00		3.20	38.400	Sqm
		deduction for doors and windows				(-)	4.800	
							33.600	Sqm
17	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I.						
		In Ceiling	1	3.00		3.00	9.000	Sqm
18	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper, scaffolding, curing and taxes all complete as per building specification and direction of E/I.						
		Outer Walls	4	3.50		3.75	52.500	
		Parepet Walls	4	3.00		0.15	3.600	
		deduction for door and window	1	0.90		2.10	1.890	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
			2	0.90		1.20	2.160	
						Total	52.050	Sqm
19	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.						
	5.4.51.1	100 mm butt hinge.	4				4.000	Nos
20	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.						
			1		0.90	2.10	1.890	Sqm
21	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all storys and taxes all complete as per building specification and direction of E/I.						
			2		0.90	1.20	2.160	Sqm
22	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by deppt.)						
			1				1.000	No.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
23	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I. Door Frame	1	5.10	0.10	0.08	0.038 0.038	m3
24	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame					1.000	Sqm
25	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	1x2.5		0.90	2.10	4.725	Sqm
26	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	2 2	5.00 3.50	0.75 0.75		7.500 5.250	
						Total	12.750	Sqm

All DSR Items

27	DSR 12.40.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	2				6.600	m
28	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	2				2.000	No.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
29	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	2				2.000	No.
30	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	1	3.00	3.00		9.000	Sqm

Estimate of HT-LT Panel Room (5 x 4 M) 2 Rooms

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I. For Walls	Cum	28.70	139.58	4005.95
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).	cum	8.50	50.82	431.97
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	Cum	9.14	415.58	3798.40
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	Sqm	32.51	322.35	10477.99
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	Cum	5.58	3714.85	20728.86
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	14.99	5069.99	75999.15
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).	Sqm	6.75	269.23	1817.30

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7

7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	Cum	25.42	5193.02	132006.57
8 (a)	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Lintel Beam	Cum	0.28	6092.63	1705.94
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Chajja	Cum	0.31	6092.63	1899.99
10	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab In Roof Slab	Cum	4.34	6092.63	26442.01

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
11	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	MT	0.36	79086.94	28471.30
12	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	239.28	153.24	36667.27
13	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	Sqm	28.00	170.27	4767.56
	5.6.14	Providing and laying hydraulically machine pressed terrazo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.				
14	5.6.14.3	Any light colour with 100% white cement	Sqm	28.00	1038.00	29064.00
	5.6.16	Providing and laying hydraulically machine pressed precast terrazo tiles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement plaster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I				
15	5.6.16.3	Any light colour with 100% white cement	Sqm	4.50	1164.76	5241.42

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
16	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.	Sqm	4.14	1721.38	7126.51
17	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I. Inner Walls	Sqm	126.00	94.01	11845.26
18	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I. In Ceiling	Sqm	28.00	15.81	442.68
19	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper, scaffolding, curing and taxes all complete as per building specification and direction of E/I.	Sqm	117.69	102.42	12053.81
	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.				
20	5.4.51.1	100 mm butt hinge.	Nos	8.00	31.95	255.60
21	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formaldehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	Sqm	8.19	1497.39	12263.62

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
22	5.5.18	Supplying, fitting and fixing fully glazed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick plain glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all stories and taxes all complete as per building specification and direction of E/I.	Sqm	5.76	4012.62	23112.69
23	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by dept.)	No.	2.00	138.80	277.60
24	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening.... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I. Door Frame	cum	0.130	61811.67	8035.52
25	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame	Sqm	5.76	61.90	356.54
26	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	Sqm	16.38	88.68	1452.58

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
27	5.3.30.1	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of centering, shuttering complete. 1:1.5:3 (1 cement: 1.5 coarse sand(zonelll): 3 graded stone aggregate 20 mm nominal size). In slab of different size	cum	0.32	5105.75	1633.84
All DSR Items						
28	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cement: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	Sqm	20.63	602.58	12431.23
29	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	M	6.60	282.66	1865.56
30	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	No.	6.60	102.50	676.50
31	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	No.	2.00	42.34	84.68
32	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.				

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Total Rate	Amount
1	2	3	4	5	6	7
			Sqm	28.00	517.63	14493.64

Total **491933.54**

Say in Lacs **4.92**

Detailed Measurement of HT-LT Panel Room (3.5 x 4 M) 2 Rooms

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.						
		For Walls	2	7.50	0.875	1.075	14.11	
			3	4.00	0.875	1.075	11.29	
		For Cable Trench	1	6.00	1.06	0.350	2.23	
		For steps	2	1.80	0.7	0.425	1.07	
						Total	28.70	Cum
b	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).					8.50	
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).						
	i)	Below lean concrete.	2	7.50	0.875	0.150	1.97	
			3	4.00	0.875	0.150	1.58	
	ii)	Below flooring.	2	3.50	4.00	0.186	5.21	
	iii)	In Steps	2	1.80	0.70	0.150	0.38	
						Total	9.14	Cum
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.						
		Below wall foundation	2	7.50	0.875		13.13	
			3	4.00	0.875		10.50	
		In Steps foundation	2	1.80	0.70		2.52	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		In Cable Trench	1	6.00	1.06		6.36	
							32.51	Sqm
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.						
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)						
		In lean concrete	2	7.50	0.875	0.100	1.31	
			3	4.00	0.875	0.100	1.05	
		In flooring	2	3.50	4.00	0.075	2.10	
		In Steps	2	1.20	0.70	0.100	0.17	
		For Cable Trench	1	6.00	1.06	0.150	0.95	
						Total	5.58	Cum
5	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	2	7.50	0.750	0.15	1.69	
		In Walls	2	7.50	0.625	0.15	1.41	
		In Walls	2	7.50	0.500	0.15	1.13	
		In Walls	2	7.50	0.375	0.30	1.69	
		In Walls	2	7.50	0.250	0.30	1.13	
		In Walls	3	4.00	0.750	0.15	1.35	
		In Walls	3	4.00	0.630	0.15	1.13	
		In Walls	3	4.00	0.500	0.15	0.90	
		In Walls	3	4.00	0.375	0.30	1.35	
		In Walls	3	4.00	0.250	0.30	0.90	
		In Steps	2	1.80	0.600	0.30	0.65	
		In Steps	2	1.80	0.300	0.15	0.16	
		For Cable Trench	2	6.00	0.250	0.500	1.50	
						Total	14.99	Cum
6	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).						
			2	7.50	0.25		3.75	
			3	4.00	0.25		3.00	
						Total	6.75	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.						
		In Walls	2	7.50	0.25	4.20	15.75	
			3	4.00	0.25	4.20	12.60	
		In parapet wall in C.M. (1:6)	2	7.50	0.25	0.15	0.56	
			3	4.00	0.25	0.15	0.45	
						Total	28.91	Cum
		Deduct for						
		Door D1	1	0.90	0.25	2.100	0.47	
		D2	2	1.50	0.25	2.100	1.58	
		Window W1	2	0.90	0.25	1.20	0.54	
		W2	2	1.50	0.25	1.20	0.90	
						Total	3.49	Cum
		Net Brick Work					25.42	Cum
8	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)						
(a)		In Lintel Beam						
		In lintel Beam for door & window opening	1	7.50	0.25	0.15	0.28	Cum
b							0.00	
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)						
		In Chajja						

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
			1	7.50	0.50		3.75	
			2	1.20	0.50		1.20	
							4.95	Cum
10	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Roof Slab						
		In Roof Slab	1	7.70	4.70	0.12	4.34	Cum
11	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						
							0.36	MT
12	5.7.3	Providng 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.						
		In Walls	2	7.50		4.77	71.55	
			2	7.50		4.20	63.00	
			2	4.50		4.77	42.93	
			4	4.00		4.20	67.20	
		In Steps	1x2	1.80		0.45	1.62	
		In Steps	2x2	0.60		0.30	0.72	
		In Steps	2x2	0.30		0.15	0.18	
							247.20	Sqm
		Deduct for						
		Door D1	1	0.90		2.10	1.89	
		D2	1	1.50		2.10	3.15	
		Window W1	1	0.90		1.20	1.08	
		W2	1	1.50		1.20	1.80	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
						Total	7.92	Sqm
		Net Plaster					239.28	Sqm
13	5.7.6	Providing 6mm thick cement plaster (1:4) in ceiling with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	2	4.00	3.50		28.00	Sqm
	5.6.14	Providing and laying hydraulically machine pressed terrazo tiles 20mm thick of approved texture with down marble chips of approved shade, size and quality, laid on 19mm, thick bed of lime mortar (1:1:1) (lime: surkhi: sand) with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
14	5.6.14.3	Any light colour with 100% white cement	2	4.00	3.50		28.00	Sqm
	5.6.16	Providing and laying hydraulically machine pressed precast terrazo tiles 20mm thick in skirting of approved texture with 4 mm down marble chips of approved shade, size and quality, over 12mm thick cement plaster (1:3) base with neat cement slurry mixed with pigment to match the shade of tiles between joints, including rubbing and polishing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I						
15	5.6.16.3	Any light colour with 100% white cement	2	15.00		0.150	4.50	Sqm
16	5.6.20	Providing and laying 25mm thick kotah stone in risers of steps, skirting and pillars of approved size, texture and colour laid over 12mm thick cement mortar (1:3) and joined with grey cement slurry mixed with pigment to match the shade of slab including rubbing to granolithic finish with approved quality of carborandum stone including cost of curing, royalty and taxes all complete as per building specification and direction of E/I.						
		In Steps	2	1.80		0.90	3.24	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
		In Steps	2x2	0.60		0.30	0.72	
		In Steps	2x2	0.30		0.15	0.18	
							4.14	Sqm
17	5.8.15	Providing two coats of dry distemper of approved shade and make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors and taxes all complete as per building specification and direction of E/I.						
		Inner Walls	2x2	3.50		4.20	58.80	
			4	4.00		4.20	67.20	
						Total	126.00	Sqm
18	5.8.3	White washing three coats over new surface with approved quality of lime including cost of cleaning surface thoroughly and removing the scale of smoke and mosh marks with jhama rubbing, scaffolding, washing, of floors and taxes all complete as per building specification and direction of E/I.						
		In Ceiling	2	4.00		3.50	28.00	Sqm
19	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/I.						
		Outer Walls	2	7.75		4.62	71.61	
			2	4.5		4.62	41.58	
		Parepet Walls	2x2	3.50		0.15	2.10	
			2x2	4.00		0.15	2.40	
						Total	117.69	Sqm
20	D.S.R 4.17	Making plinth protection 50 mm thick of cement concrete 1:3:6 (1 cemnt: 3 coarse sand: 6 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.						
			2	9.25	0.75		13.88	
			2	4.50	0.75		6.75	
						Total	20.63	Sqm

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
21	DSR 12.41.2	Providing and fixing on wall face unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm dia	2	3.30			6.60	m
22	DSR 12.42.6.2	Providing and fixing on wall face unplasticised - PVC moulded fittings / accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 13592 Type A. 110 mm shoe.	2				2.00	No.
23	DSR 12.44	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter.	2				2.00	No.
24	5.4.51	supplying, fitting and fixing oxidised iron fitting of approved quality and make to doors and windows all complete as per building specification and direction of E/I.						
	5.4.51.1	100 mm butt hinge.	2x4				8.00	Nos
25	5.4.38	Supplying fitting and fixing 35mm thick solid core type non-decorative single leaf flush shutters in doors and windows with black board core blended with high quality phenol formal dehyde synthetic resin both side commercial veneered of standard make with oxidised iron fittings such as hinges, tower bolts, handle, cleats and sand blocks and taxes all complete as per building specification and direction of E/I.	2		1.50	2.10	6.30	Sqm
			1		0.90	2.10	1.89	Sqm
							8.19	Sqm
26	5.5.18	Supplying, fitting and fixing fully glaxed steel door, windows or ventilations of standard rolled 'Z' and mullion steel sections and size as per IS-1038 joints met and welded with 100x16x3mm M.S. lugs fixed in cement concrete (1:2:4) blocks 15x10x10cm, size including cost of oxidised iron fittings, with hinges, handle per steps, catch springs, 3mm thick palin glass panes with Aluminium beads and inner frame fixed with lugs with 20mm long 6.3mm G.I. counter sunk machine screw and nuts and applying a coat of red lead paint carriage to work site hoisting and placing in position in all storys and taxes all complete as per building specification and direction of E/I.	2		1.50	1.20	3.60	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
			2		0.90	1.20	2.16	
						Total	5.76	Sqm
27	5.5.13	Providing and fixing fan hook of 16mm dia M.S. bar 1 metre long bent to required size and shape placed in position and fixed in R.C.C. slab/ beam at the time of casting all complete as per building specification and direction of E/I. (Where material is not supplied by dept.)	2				2.00	No.
28	5.4.1	Supply, fitting and fixing good quality well dressed and well seasoned sal wood work in chaukhats in doors, windows opening... Including wedge over all clamps complete including application of two coats of wood preservative of approved quality on the surface butting walls and lintels all complete as per building specification and direction of E/I. Door Frame	1	5.10	0.10	0.075	0.04	
			2	5.70	0.10	0.075	0.09	
							0.130	cum
29	5.8.45	Providing two coats of synthetic enamel paint of approved shade and make over steel surface including cleaning the surface thoroughly cost of scaffolding and taxes all complete as per building specification and direction of E/I. For Door & Window Frame					5.76	Sqm
30	5.8.36	Providing french spirit polishing over new wooden surface to give desired texture and gloss with approved make and shade of ready mixed french polish including cleaning the surface after removing dirt scales, smokes, grease and sand papering, including cost of scaffolding and taxes all complete as per building specification and direction of E/I.	2x2		1.50	2.10	12.60	Sqm
			2		0.90	2.10	3.78	Sqm
							16.38	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
31	DSR 22.6	Providing and laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured.	2	3.50	4.00		28.00	Sqm
32	5.3.30.1	Providing precast RCC (M-200) (1:1.5:3) slab of desired size with approved quality of stone chips (12mm to 6mm size) graded and clean coarse sand of F.M. 2.5 to 3 including screening, curing, shuttering, carrying slab to site and laying the slab in position (but including the cost of reinforcement) taxes, and royalty all complete as per building specification and direction of E/I.						
		In Cable trench cover	1	7.00	0.60	0.075	0.3200	cum

Estimate of Septic Tank

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.	Cum	25.94	139.58	3621.26
2	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	Sqm	9.20	322.35	2965.62
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
3	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	Cum	0.92	3714.85	3417.66
	5.3.9	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
4	5.3.9.1	1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size)	Cum	6.15	5094.36	31330.31
5	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Top Slab	Cum	0.73	6092.63	4447.62

Sl. No.	JSR/ DSR 2021	Description of Work	Unit	Qty.	Rate	Amount
1	2	3	4	5	6	7
6	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	MT	0.81	79086.94	64060.42
7	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).	cum	4.72	50.82	239.87
All DSR Items						
8	DSR 19.15.1	Providing M.S. foot rests inclding fixing in manholes with 20x20x10cm cement concrete blocks 1:3:6 (1cement: 3coarse sand: 6 graded stone aggregate 20mm nominal size) as per standard design: With 20x20 mm square bar	each	8.00	407.83	3262.64
9	DSR 19.19.3.1	Providing and fixing in position pre-cast RCC manhole cover and frame of required shape and approved qrality . HD 20 Circular shape 560mm internal dia.	each	1.00	1320.87	1320.87
10	DSR 17.35.2	Providing and Fixing soil ,waste and vent pipe: 75 mm dia sand cast iron socket & spigot pipe	m	1.80	823.49	1482.28
11	DSR 19.32	Making soak pit 2.5 m diameter 3.00 m deep with 45X45 cm dry brick honey comb shaft with bricks and SW drain pipe 100 mm diameter, 1.8 m long complete as per standard design. With common burnt clay FPS (non moduler) brick of class designation 75	No	1.00	24777.77	24777.77
Total						140926.32
Say in Lacs						1.41

Detailed Measurement of Septic Tank

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.	1	4.60	2.00	2.82	25.94	Cum
2	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	1	4.60	2.00		9.20	Sqm
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						
3	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	1	4.60	2.00	0.10	0.92	Cum
	5.3.9	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						
4	5.3.9.1	1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size)	1	4.60	2.00	0.15	1.38	Cum
			2	4.30	0.15	2.50	3.23	
			2	1.40	0.15	2.50	1.05	
		Partition walls	1	1.40	0.10	1.90	0.27	
			1	1.40	0.10	1.60	0.22	
							Total	6.15 Cum

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
5	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Top Slab	1	4.30	1.70	0.10	0.73	Cum
6	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL))} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I					0.81	MT
7	5.1.7	Filling in foundation trenches and plinth in layers not exceeding 150 mm thick well watered, rammed fully compacted and fine dressed with earth obtained from excavation of foundation trenches within a lead of 50 m and lift of 1.5 m all complete as per building specification and direction of E/I (Mode of measurement compacted volume).					2(4.6+1.7)X0.15X2.5	4.72 cum
8	DSR 19.15.1	Providing M.S. foot rests inclding fixing in manholes with 20x20x10cm cement concrete blocks 1:3:6 (1cement: 3coarse sand: 6 graded stone aggregate 20mm nominal size) as per standard design: With 20x20 mm square bar	8				8.00	Nos.
9	DSR 19.19.3.1	Providing and fixing in position pre-cast RCC manhole cover and frame of required shape and approved qrality . Circular shape 560mm internal dia.	1				1.00	No.
10	DSR 17.35.2	Providing and Fixing soil ,waste and vent pipe: 75 mm dia sand cast iron socket & spigot pipe					1.8 m	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B (m)	H (m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
11	DSR 19.32	Making soak pit 2.5 m diameter 3.00 m deep with 45X45 cm dry brick honey comb shaft with bricks and SW drain pipe 100 mm diameter, 1.8 m long complete as per standard design. With common burnt clay FPS (non moduler) brick of class designation 75					1.00	No

Abstract of cost of Vehicle Parking Shed

Sl. No.	JSR/ DSR 2021	Description of work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E/I.	87.23	Cum	139.58	12175.00
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	16.70	Cum	415.58	6940.00
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	167.00	Sqm	322.35	53832.00
4	5.3.1.6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level. 1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	23.70	Cum	3714.85	88042.00
5	5.3.9.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level. 1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size). In Foundation Plinth	5.63	Cum	5094.36	28656.00
(b)	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size)	8.78	cum	5891.97	51702.00
.(C)	5.3.11	Providing RCC M 200 with -do- in beams of all type with approved....	9.225	cum	6092.63	56205.00

Sl. No.	JSR/ DSR 2021	Description of work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
(d)	5.3.11	Providing RCC M200 with -do- in plinth beam	9.225	cum	6092.63	56205.00
6 (a)	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	1.38	MT	79086.94	109140.00
(b)	5.5.5	Do ---10 mm dia -- do	3.20	MT	76041.94	243334.00
7	5.6.9	Providing 50 mm thick cement concrete flooring 1:2:4 with 20 mm to 6 mm size graded stone chips finished with flooring coat of neat cement in panels including cost of curing , taxes, royalty all complete as per building specification and direction of E/I.	140.00	Sqm	484.57	67840.00
11	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.	4.692	MT	23608.56	110769.00
12	5.8.45	Providing two coats of synthetic enamel paint of approved shade and made over steel surface including cleaning the surface thoroughly, scaffolding and taxes all complete as per building specification and direction of E/I.	392.40	Sqm	61.90	24290.00
8	5.6.13	Extra for Providing and fixing 30x4mm glass strips in joints of flooring, complete job as per specifications and direction of E/I.	234.00	RM	33.24	7778.00
9(b)	5.9.10	Labour for fitting and fixing GCI sheet roofing in proper slope including the cost of 'J' or 'L' hooks, limpet and bitumen washers, carriage of sheets to work site and taxes all complete as per building specification and direction of E/I.	151.20	Sqm	153.44	23200.00

Sl. No.	JSR/ DSR 2021	Description of work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
10	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.	4687.88	Kg	78.23	366733.00
All DSR Items						
	DSR 12.50	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineerin-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required	151.20	M ²	593.65	89760.00
13(1)	DSR 12.4.1	Providing ridges or hips of width 60cm over all width plain G.S. sheet fixed with polymer coated J. or L hooks, bolts and nuts 8 mm dia. G.I. limpet and bitumen washers complete (0.80mm thick with zinc coating not less than 275gm/m ²)	20.00	M	726.78	14536.00
14	D.S.R. 12.7.1	Providing and fixing 15 cm wide 45 cm over all semicircular plain G.S sheet gutter with iron brackets 40 x 3 mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipes complete. 0.8 mm thick with zinc coating not less than 275 gm/Sqm.	20.00	M	717.68	14354.00
15	DSR 12.41.2	Providing & fixing on wall face unplasticised Rigid PVC pipes rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion (i) Single socketed pipes. 110 mm diameter	66.00	M	282.66	18656.00

Sl. No.	JSR/ DSR 2021	Description of work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
16	DSR 12.38.1	Providing & fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including cost of cutting holes and making good the wall etc.				
		For 100 mm dia pipe	24.00	Nos	272.67	6544.00
					Total	<u>1450691.00</u>
					Say in Lacs	<u>14.51</u>

Detailed Estimate of Vehicle Parking and Workshop Shed 1 Nos 20X7 m

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E/I.						
	(l)	For Vehicle Parking & Workshop shed.	1	20.00	7.00	0.30	42.00	
	(v)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	1.50	1.50	1.675	45.23	
						Total	87.23	Cum
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).						
	(l)	For Vehicle Parking & Workshop shed.	1	20.00	7.00	0.10	14.00	
	(v)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	1.50	1.50	0.10	2.70	
						Total	16.70	M ³
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.						
	(l)	For Vehicle Parking & Workshop shed.	1	20.00	7.00		140.00	
	(v)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	1.50	1.50		27.00	
						Total	167.00	Sqm

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
4	5.3.1.6	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level. 1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size) in foundation & Plinth						
	(I)	For Vehicle Parking & Workshop shed.	1	20.00	7.00	0.15	21.00	
	5.3.10(v)	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size) For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	1.50	1.50	0.10	2.70	
						Total	23.70	Cum
5	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size)						
	(I)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	1.25	1.25	0.30	5.63	Cum
	(ii)	5.3.10 same as above but in columns upto plinth level.						
	(I)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	0.375	0.30	1.00	1.35	Cum
	(iii)	Same as above but in superstructure.						
	(I)	For foundation pillars						
	(a)	For Vehicle Parking & Workshop shed.	12	0.375	0.30	5.50	7.43	Cum

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit	
1	2	3	4	5	6	7	8	9	
(iv)	5.3.11	Same as above but in Tie beams.&plinth beam							
	(a)	For Vehicle Parking & Workshop shed. In Plinth Beam	4	20.00	0.30	0.375	9.00		
			12	7.00	0.30	0.375	9.45		
	(a)	For Vehicle Parking & Workshop shed.	2	20.00	0.30	0.375	4.50		
			2	7.00	0.30	0.375	1.58		
			Total (1:1.5:3)					38.93	Cum
6	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I							
			1.50% of item					4.58	MT
		8 mm (30%)					1.38		
	5.5.5(a)	10 to 12 mm (70%)					3.20		
7	5.6.9	Providing 50 mm thick cement concrete flooring 1:2:4 with 20 mm to 6 mm size graded stone chips finished with flooring coat of neat cement in panels including cost of curing , taxes, royalty all complete as per building specification and direction of E/I.							
	(a)	For Vehicle Parking & Workshop shed.	1	20.00	7.00		140.00	Sqm	
8	5.6.13	Extra for Providing and fixing 30x4mm glass strips in joints of flooring, complete job as per specifications and direction of E/I.							
	(a)	For Vehicle Parking & Workshop shed.	4	20.00			80.00		
			22	7.00			154.00		
			Total					234.00	RM
9(a)	Page 18 Sl. No.1 f-(I) of JSR	Supply of corrugated G.C.I. sheet 1.6 mm thick with zinc coating not less than 350 Gm/Sqm. (3 x 0 .885 M size of each sheet)							
	(a)	For Vehicle Parking & Workshop shed.	1	21.00	7.20		151.20	Sqm	

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9

@ 6.66 kg/Sqm

1006.99 Kg.

9(b)	5.9.10	Labour for fitting and fixing GCI sheet roofing in proper slope including the cost of 'J' or 'L' hooks, limpet and bitumen washers, carriage of sheets to work site and taxes all complete as per building specification and direction of E/I.						
		Same as in item 10a.					151.20	Sqm
10	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.					4687.88	Kg
11	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.						
	(i)	For Vehicle Parking & Workshop shed Qty. as per Analysis attached.	1				4.688	MT
12	5.8.45	Providing two coats of synthetic enamel paint of approved shade and made over steel surface including cleaning the surface thoroughly, scaffolding and taxes all complete as per building specification and direction of E/I.						
		in roofing		1x2X151.20			302.40	
		Vehicle Parking & Workshop shed		3X1X6X5Sqm			90.00	
						Total	392.40	Sqm

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9

	DSR 12.50	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineerin-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required						
	(a)	For Vehicle Parking & Workshop shed.	1	21.00	7.20		151.20	Sqm
13	D.S.R. 12.4.1	Providing ridges or hips of width 60cm over all width plain G.S. sheet fixed with polymer coated J. or L hooks, bolts and nuts 8 mm dia. G.I. limpet and bitumen washers complete (0.80mm thick with zinc coating not less than 275gm/m ²)						
	(a)	For Vehicle Parking & Workshop shed.	1	20.00			20.00	M
14	D.S.R. 12.7.1	Providing and fixing 15 cm wide 45 cm over all semicircular plain G.S sheet gutter with iron brackets 40 x 3 mm size, bolts, nuts and washers etc. including making necessary connections with rain water pipes complete. 0.8 mm thick with zinc coating not less than 275 gm/Sqm.						
	(a)	For Vehicle Parking & Workshop shed.	1	20.00			20.00	M

Sl. No.	JSR/ DSR 2021	Description	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
15	DSR 12.41.2	Providing & fixing on wall face unplasticised Rigid PVC pipes rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion (i) Single socketed pipes. 110 mm diameter.	12	5.50			66.00	M
16	DSR 17.37.1	Providing & fixing M.S holder-bat clamps of approved design to Sand Cast iron/cast iron (spun) pipe embedded in and including cement concrete blocks 10x10x10cm of 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including cost of cutting holes and making good the wall etc. 100 mm dia Pipe	2 x 12				24.00	Nos

Weight Analysis of 7.0 M Span Truss for Vehicle Parking Shed

Sl. No.	Description	No.	L	B	H	Qty.	Unit in M	Qty. in Kg.	Unit in Kg
1	2	3	4	5	6	7	8		9

(a) For 7.0M Span Truss

Detail of one truss as per design & drawing.

A - B (50 x 50 x 6)	2x2	3.90				15.60			
B - C (50 x 50 x 6)	2x2	3.70				14.80			
G - H (50 x 50 x 6)	2	0.40				0.80			
E - F (50 x 50 x 6)	2	0.75				1.50			
A - C (50 x 50 x 6)	1	1.15				1.15			
E - C (50 x 50 x 6)	2	1.45				2.90			
G - F (50 x 50 x 6)	2	1.27				2.54			
						Total	39.29	M	
For 39.29 M @ 4.5Kg/m							176.81	Kg.	
For 6 Truss	6	176.81							1060.86 Kg.
Bracings (50 x 50 x 6)									
Vehicle Parking Shed	24	4.65				111.60			
Tie runner	4	20.00				80.00			
Cleat angle	48	0.10				4.80			
						Total	196.40	M	
Wt of angle 50X50X6=4.5 kg/sqm	4.5	196.40							883.80 Kg.
Purlins channel ISMC100									
Vehicle parking shed	2x4	20.00				160.00			
						Total	160.00	M	
Wt of purlin channel 100=9.2 kg/m	9.2	160.00							1472.00 Kg.
U Bolt 16 dia @ 1.58 kg/m	24	0.83				19.92	M	31.47	Kg.
Gusset plate 12mm thick @12 noX6 truss	72	0.40	0.40	0.012				1099.00	kg
Plate 12 mm thick @ 2noX 6 truss	12	0.35	0.20	0.012				79.13	kg
sag rod 16 dia @ 1.58 kg/m	30	1.30				39.00	M	61.62	Kg.
Total wt of structural steel								4687.88	Kg.
Bill of Qty.									
Angle iron of 50 x 50 x 6 (as per IS:226)								1944.66	
ISMC channel size ISMC 100 (as per IS: 227)								1472.00	
MS Plate 12 mm thick								1178.13	
MS Sag Rod & Bolt 16mm dia HYSD bars confirming to IS: 1786								93.09	
								4687.88	Kg

Abstract of cost of Horticulture works

Sl. No.	JSR/ DSR 2021	Description	Qty	Unit	Rate	Amount in Rs.
1	2	3	4	5	6	7
1	RCD 11.1	Spreading of sludge, dump manure or/and good earth in required thickness (cost of sludge, farm-yard manure or/and good earth to be paid for separately).	315.00	m ³	24.20	7623.00
2	RCD 11.2	Grassing with 'Doob' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for moving including supplying good earth if needed (good earth shall be paid separately) (ii) In Rows 7.5 cm apart in either direction	105000.00	m ²	17.30	18165.00
3	RCD 11.14	Half brick circular tee guard in 2nd class designation bricks, internal diameter 1.25 meter and height 1.2 meter above ground and 0.20 m below ground bottem two course laid dry and top three cources in cement mortar 1:6 and the intermediate cources being in dry honey comb masonry as per design complete	450.00	each	2173.00	977850.00
4	NS	Tree	450.00	Each	170.00	76500.00
5	DSR 2.3	Supplying and stacking of sludge at site including royalty and carriage up to 1 Km	145.00	m ³	202.82	29408.90
6	DSR 2.4.1	Supplying and stocking at site dump manure from approved source.Including carriage up to 1Km screened through I.S. sieve of 4.75 mm (manure measured in stocks will be reduced by 8% for payment)	80.00	m ³	144.82	11585.60
7	DSR 2.5	Rough dressing the ground including breaking clods.	1050.00	100m ²	67.38	707.49
8	DSR 2.14.3	Digging holes in all kinds of soil, and refilling the same, with the excavated earth, mixed with manure & sludge in the ratio of 2%---- all leads & lifts (cost of manure,sludge or extra good earth if needed to be paid separately)				

1	2	3	4	5	6	7
		hole 0.60 meter dia and 0.60 metre deep.	450.00	each	25.25	11362.50

Total **1133202.49**

Say in Lacs **11.33**

ESTIMATE OF WATER SUPPLY FACILITY

Sl. No.	JSR/ DSR 2021	Description	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
1	3.1.1.1 DWS 2021	Earth work in excavation (As per IS:3114/1965 for laying of different types and sizes of pipes so as to give one meter average cover over the socket of pipe with disposal of excavated earth within initial lead and lift as per specification and direction of Engineer in charge. 215 x 0.5 x 1.0M(CLASSIFICATION OF soli item-B)	107.50	Cum	138.11	14846.83
2	3.1.1.2 DWS 2021	Earth work in back filling the trenches after laying different types and size of pipes with earth removed during excavation within initial lead and lift as per specification and direction of Engineer in charge.	96.75	Cum	86.32	8351.46
3	DWS 2021 pg 12 [K] +10%	Supply of G.I. Pipes (Tata mark) or equivalent.				
	vi	50mm dia	65.00	M	454.25	29526.25
	iv	32mm dia	120.00	M	196.65	23598.00
	i	15mm dia	95.00	M	104.65	9941.75
4	DWS 2021 3.1.2	Laying of G.I. Pipes of approved make in trenches with red lead and yarn with socket and screw joints and cutting pipes to sizes and threading ends where necessary etc. all complete as per specification and direction of Engineer in charge.				
	vi	50mm dia	65.00	M	49.41	3211.65
	iv	32mm dia	120.00	M	19.40	2328.00
	i	15mm dia	95.00	M	12.49	1186.55
5	3.1.12 DWS 2021	Providing and fixing gun metal full way valve of approved quality, all complete as per specification and direction of E/I.				
	f	50 mm dia. And wt not less than 1.5 kg	1	Nos.	1370.36	1370.36
	d	32 mm dia. And wt not less than 700 gms	3	Nos.	711.87	2135.61
6	PHE Deptt.	Estimate for construction of high yield tube well (HYDT) of 200 mmX 150 mm X 125m deep bore well by hydraulic rig machine with MS casing pipe (model estimate attached) with submersible pump etc	1	each	279766.05	279766.05

Sl. No.	JSR/ DSR 2021	Description	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7

All DSR Items

7	DSR 18.12.8	Providing and laying 80 mm dia G.I. pipes complete with GI fittings including trenching and refilling	20.00	M	812.48	16249.60
8	DSR 18.13.2	Making connection of GI distribution branch with GI main branch of following sizes by providing and fixing tee, including cutting and threading pipe etc complete (50 to 80 mm nominal bore)	3	each	1338.11	4014.33
9	DSR 18.31.1	Providing and fixing C.I. Sluice Valve as per I.S.14846 with cap, bolts, nuts, rubber etc. complete, IVC or Kirloskar make. 100 mm dia Class I	2	Nos.	3622.54	7245.08
10	DSR 18.49.1	Providing and fixing C.P. brass bib cock of approved quality conforming to IS : 8931. 15 mm dia.	3	Nos.	383.83	1151.49
11	DSR 18.59.1	Providing and fixing C.I. Double acting air valve of approved quality with bolts, nuts, rubber insertions etc. complete (the tail pieces, tapers etc. if required will be paid separately). 50 mm dia.	1	Nos.	4571.83	4571.83

All NS Items

12	NS	Providing and fixing fire hydrant with Tee & nozzle etc as follows.				
	1	4.5 kg capacity extinguisher CO2 type.	2	Nos.	5896.00	11792.00
	2	FH Tee	2	Nos.	9009.00	18018.00
	3	FH Post	2	Nos.	12285.00	24570.00
	4	Brass Nozzle (Branch pipe)	1	No.	2310.00	2310.00
	5	Male & Female couplings	2	each	2290.00	4580.00
	6	Rubber hose pipe 65 mm dia in 30m length	3	No.	10342.00	31026.00

Total 501790.84

Say in Lacs 5.02

Annexure for Water Supply - I

Construction of 200X165 mm diaX180 M deep High Yield Drilled Tube Well with mechanical Rotary Rig Machine with 2000 mm NB dia UPVC blue casing pipes along with supply and installation of single phase submersible motor pump set

SN	JSR/ DSR 2021	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6	7
1	DWS	Suppling Submersible pump sets confirming to IS 2018 SI 8034 and motor confirming to IS 9283. Pump shall No 136 P-be suitable for various delivery head and discharge 44 (1) with stainles steel pump shaft and PM-1-1-5 polypropylene/noryl impeller. Motor suitable for + 10% working on 415 V + 10%,3PH , 50HZ A.C. supply with cable gaurd , thrust water proof winding shall be provided. The pump set shall be suitable for direct coupling . Pump shall have proper outlet as per manufacturer design . Anti thrust straem lined non-return valve shall be provided with pump . 3 metre submersible copper conductor cable in single /double run shall be provided with each pump.	1	Each set	17907.80	17907.8
2	DWS	Cost of drilling 200 mmX 165 mm X 180 m deep bore well in all kind of soil and rock in rural or any other area for installation of pump set with Hydraulic DTH Rig machine, all complete including supplyig all material, tools drilling rig and air compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site including cost of flushing charges, Geological investigation etc all complete.				
		(1) From 0-50 meter	50	P/M	863.82	43191
		(2) From 51 -125 meter onwards	130	P/M	990.22	128728.6
3	DWS	Cost of PVC insulated copper submersible cable (2.5 sq mmX3 core) of finolex or equivelent make including lowering and making water proof joints including all taxes and transporation to work site +10% etc as per specification and direction E/I	75	pm	86.25	6468.75

SN	JSR/ DSR 2021	Particulars	Quantity	Unit	Rate	Amount
4	DWS P-44 (viii) CB 4-3 +10%	Suppling XLPE/PVC insulated ,armoured cable 1100 v grade with ISI Marked three core ,solid /stranded aluminium conductor with 6 mm thick 25 mm width M.S spacer with G.I earth wire 6 sqmm ,complete in an approved manner.	25	mtr	104.50	2612.5
5	DWS 3.1.13 (i)	Providing 32 mm dia GI elbow confirming IS specification including cost of all material labour jointing material all complete job	4	each	156.43	625.72
6	3.1.13	supply and fixing GI Reducing teeplain 32 mm dia	2	each	175.80	351.6
7	SOR Energy 3.6+3.7	Earthing with copper earth plate 600 mm X600 mm X 3mm thick including accessories and providing masonry enclosure with cover plate having loaking arrangement and watering pipe etc as required salt charcol for GI of copper plate earth electrode as required	1	set	9167.00	9167
Total JSR Items						<u>209052.97</u>
8	DSR 23.3.3	Supplying, assembling, lowering and fixing in vertical position in bore well,unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.	24	P/M	858.63	20607.12
9	DSR 23.13.3	Providing and fixing GI or CI cap for 200 mm NB dia UPVC pipe	1	Each	248.36	248.36
Total DSR Items						<u>20855.48</u>
10	NS	Cost of Transportatio and other miscellaneous charges for setting the Rig Machine at site all complete job as per direction of E/I	1	job	5940	5940.00

SN	JSR/ DSR 2021	Particulars	Quantity	Unit	Rate	Amount
11	NS	Cost of 32 mm dia UPVC (schedule 80) of approved make including lowering of pipe in the bore and transportation to work site etc. as per specification and direction of E/I	60	pm	299.46	17967.60
12	NS	Supplying installing and commissioning of panel board suitable for motor pump set as mentioned in the item No-5, having Voltmeter, ammeter, phase indicating lamps, straters, main switch fuses inter connection in the panel board including cost of wires atc all complete job as per specification and direction of E/I	1	per job	3750	3750.00
13	NS	Supplying and commissioning of 5 KVA servo stabiliser of sen & Pandit or pagaria or approved eqivelent Make (Range 90 V-300 V) single phasse with cable, change over switch for submersible pump etc all complete as per specification and direction of E/I	1	each	15000	15000.00
14	NS	Supplying, fitting & commissioning of automatic electronic sensor device to stop the motor at the time of over flow of water from over head tank etc and when the water level in bore well goes down the specified depth.	1	each	7200	7200.00
Total NS Items						<u>49857.60</u>

Abstract of cost of Overhead Tank

Sl. No.	JSR/ DSR 2021	Description of Work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.				
		0.00 to 1.50 M depth	36.93	Cum	139.58	5154.69
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.				
2	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	3.69	Cum	3714.85	13707.80
	5.3.9	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of cenetering and shuttering - all work upto plinth level.				
3	5.3.9.1	1:1.5:3 (1 cement : 1.5 coarse sand (zonell)) : 3 graded stone aggregate 20 mm nominal size)				
	5.3.9.1	In Foundation	5.90	cum	5094.36	30056.72
	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)				
		In Beam	4.98	Cum	6092.63	30341.30

Sl. No.	JSR/ DSR 2021	Description of Work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonell) : 3 graded stone aggregate 20 mm nominal size) In Column	6.90	Cum	5891.97	40654.59
	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Slab			6092.63	
			5.93	Cum		36129.30
4	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.	15.86	Kg	78.23	1240.88
5	As per analysis	Steel Ladder balcony to top	2.47	M	2494.07	6160.35
	As per analysis	Steel ladder inside tank from bottom dome to top dome M.H.	2.10	M	2494.07	5237.55
6	DSR 19.19.3.1	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality. Circular shape 560mm internal diameter	1.00	No.	1248.91	1248.91

Sl. No.	JSR/ DSR 2021	Description of Work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7
7	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering complete. 1: 1.5 :3(1 cement: 1.5 coarse sand(zonelll) : 3 graded stone aggregate 20 mm nominal size). 25 mm thick in jali	1.12	Cum	5105.75	5718.44
8	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Stair case	2.07	Cum	6092.63	12611.74
9	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I				
	5.5.4	8 mm & 10 mm	1.05	MT	79086.94	83041.29
	5.5.5	12 mm	1.95	MT	76041.94	148281.78
10	DWS 2018 Page -7 item - 9A(viii) + 15%	Supply of G.I. fittings (conforming to IS:1979) 80mm Dia	24.00	each	293.19	7036.56

Sl. No.	JSR/ DSR 2021	Description of Work	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7

Total Rs. 426621.90

Add 12% Gst 51194.63

Total 477816.53

Say Rs.(in lacs) 4.78

Detailed Measurement of Overhead Tank (20000 Ltrs.)

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.						
		0.00 to 1.50 M depth	1	0.785(5.6X5.6-2.1X2.1)*1.65			34.91	Cum
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						
2	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	1	0.785(5.6X5.6-2.1X2.1)0.15			3.17	Cum
	5.3.9	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of cenetering and shuttering - all work upto plinth level.						
3	5.3.9.1	1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size)						
	5.3.5.1	Below G.L. in raft foundation	1	3.14x4x1.75X(0.15)			3.30	
			1	3.14x4x(1.75+0.3)/2X(0.10)			1.29	
			1	3.14x4x0.3X(0.35)			1.32	
							5.90	
	5.3.11	In beam in 2nd Bracings (bottom)	4	(3.14*4/4)- 0.3	0.20	0.40	0.91	
		in 1st Bracings (Top)	4	(3.14*4/4)- 0.3	0.20	0.40	0.91	
		in Stair Qty.					0.90	
		Top Ring Beam	1	3.14x4x0.30		0.60	2.26	
		In beam					4.98	

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
	5.3.10	In column						
		in column	4	3.14x0.3x0.3/4		8.30	2.35	
		Ventilator column	4	4x0.25x0.25x0.45			0.45	
		Vertical wall	1	3.14x4.15x2.1x0.15			4.10	
		Total in column					6.90	
	5.3.11	In slab						
		Bottom Dome	1	2X3.14X5.854x0.3X0.15			1.65	
		Balcony	1	3.14(4+0.3+0.9)x0.9x0.15			2.20	
		Top Dome -(ventilator + M.H.)	1	2X3.14X4.25x0.5X0.125 -3.14*0.75*0.125			1.37	
		Ventilator roof	1	3.14(0.75+0.25+0.25+0.15+0.15)x0.1			0.49	
		Landing for ladder	1	1.40	1.00	0.15	0.21	
							5.93	Cum
4	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.						
			16	1.5			24.00	
		Staircase flight	6	3.144			18.87	
							42.87	M
							15.8619	
5	As per Analysis	Steel Ladder balcony to top	1	2.47			2.47	M
6	As per Analysis	Steel ladder inside tank from bottom dome to top dome M.H.	1	2.10			2.10	M
7	DSR 19.19.3.1	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.						
		Circular shape 560mm internal diameter	1				1.00	No.

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
8	5.3.4	Providing and fixing at or near ground level precast cement concrete in kerbs, edgings etc. as per approved pattern and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), including the cost of required centering, shuttering complete. 1: 1.5 :3(1 cement: 1.5 coarse sand(zonelll) : 3 graded stone aggregate 20 mm nominal size). 25 MM thick in Jali	4	0.53	0.53		1.12	Sqm
9	5.3.11	Reinforced cement concrete work in beams, suspended floors , roofs having slope upto 15 degree landings, balconies, shelves, chajja, lintels, bands, plain window sills, staircase & spiral stair cases above plinth level upto floor five level excluding the cost of centering , shuttering finishing and reinforcement, with 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size) In Stair case						
		Staircase landing at ground level	4	0.9*1.2/2		0.22	0.48	
		Staircase flight slab	3	3.144	0.90	0.12	1.02	
		Staircase Trade + Rise	30	0.17*0.253/2		0.90	0.58	
							2.07	Cum
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I						3
								MT

Sl. No.	JSR/ DSR 2021	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9

11 Page -22 Supply of G.I. fittings (conforming to item - IS:1879) 9A(viii)
80mm

24.00 Nos

Analysis of Steel ladder (length 2.0 M)

Sl. No.	JSR/ DSR 2021	Description of Work	Qty.	Unit	Rate in Rs.	Amount in Rs.
1	2	3	4	5	6	7

- 1 Pg.-20 SL Labour for fabricating, erecting, hoisting
 - and fixing in position structural steel work
 3b(i)*10 in R.S. joists, channels, angles, Tees, flats,
 % CP+5% plates, lattice members, built up
 OHC compound sections in columns, girders,
 + staircase, or trusses including cost of
 5.5.28 gusset plates, holding down bolts, anchor
 plates at all heights and depths, bolting,
 welding (machining wherever necessary)
 with applying a priming coat of red lead
 paint all complete as per building
 specification and direction of E/I.

Main Frame 1x2x2.0(75x75x6)	27.20	Kg	56716.55	1542.69
Horizontal step 1x10x0.75(50x50x6)	33.75	Kg		
Railing posts 4x0.20(50x50x6)	3.60	Kg		
	37.35	Kg	58077.89	2169.21

- 2 5.3.25 Providing G.I. pipe hand rails with 40mm
 G.I. pipe of I.T.C. or equivalent make
 properly fitted and fixed in position to rail
 posts with all necessary accessories and
 taxes all complete as per building
 specification and direction of E/I.

2 x 2.0	4.00	M	319.06	1276.24
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Total Rs. **4988.14**

Rate per RM **2494.07**

Detailed Estimate of Boundary Wall (length- 492.00 Mtrs)

Sl. No.	JSR/ DSR 2021	Item of Work	No.	L	B	H	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	2	3	4	5	6	7	8	9	10	11
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E/I.	1	492.00	0.90	0.90	398.52	Cum	139.58	55625.00
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.								
2	5.3.1.5	1:3:6 (1 Cement :3 Coarse Sand (zone - III) : 6 graded stone aggregate 40mm nominal size)	1	492.00	0.90	0.15	66.420	Cum	4004.85	266002.00
3	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.								
		Cement mortar 1:6 (1 cement : 6 coarse sand)	1	492.00	0.750	0.25	92.25			
			1	492.00	0.625	0.25	76.88			
			1	492.00	0.500	0.25	61.50			
			1	492.00	0.375	0.30	55.35			
							Total		285.98	Cum 5069.99 1449916.00

Sl. No.	JSR/ DSR 2021	Item of Work	No.	L	B	H	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	2	3	4	5	6	7	8	9	10	11
4	5.3.5	Providing and laying damp-proof course 50mm thick with cement concrete 1:2:4 (1 cement : 2 coarse sand(zonelll) : 4 graded stone aggregate 20mm nominal size).	1	492.00	0.375		184.50	Sqm	269.23	49673.00
5	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l.	1	419.9	0.25	1.50	157.46			
			206	0.375	0.375	1.50	43.45			
							200.92	Cum	5193.02	1043359.00
7	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/l.	2	419.9	1.80		1511.64			
		1 : 6 (1cement : 6 coarse sand)	412	0.375	1.80		278.10			
			1	492.00	0.125		61.50			
			412	0.125	1.80		92.70			
						Total	1943.94	Sqm	153.24	297889.00
9	5.8.24	Providing two coat of snowcem of approved shade and make over a coat of cement of primer on new surface including preparing the plastered surface smooth with sand paper,scaffolding, curing and taxes all complete as per building specification and direction of E/l.								
							1943.94	Sqm	102.42	199098.00

Sl. No.	JSR/ DSR 2021	Item of Work	No.	L	B	H	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	2	3	4	5	6	7	8	9	10	11
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.								
11	5.3.1.2	1:2:4 (1 Cement :2 Coarse Sand (zone - III) : 4 graded stone aggregate 20mm nominal size)								
			1.00	492.00	0.525	0.05	12.92			
			1.00	492.00	0.525	0.03/2	3.87			
							16.7895	Cum	4492.36	75424.00
13	5.5.23	Drilling 6mm. Dia holes in M.S. Angle iron for fixing of stables etc. as per building specification and direction of E/I.								
			824				824	Each	8.30	6839.00
14	5.5.24	Labour for cutting of M.S. Angle iron posts to required length, one end splitted as fish tailed in a length of 150mm complete as per building specification and direction of E/I.								
			206				206	Each	25.92	5340.00
15	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.								
							0.8343	MT	23608.56	19697.00

Sl. No.	JSR/ DSR 2021	Item of Work	No.	L	B	H	Qty.	Unit	Rate (Rs.)	Amount (Rs.)
1	2	3	4	5	6	7	8	9	10	11
17	5.5.21	Labour for fitting barbed wire fencing in four rows. Horizontal upto height of 1.25M and two diagonals including fixing of posts in cement concrete at 2.5 M centers including cost of staples (but excluding the cost of cement concrete, angle iron posts, its cutting and making 'holes, nuts and bolts) all complete as per building specification and direction of E/I.		492.00			492.00	M	47.69	23463.00
12	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.	206	0.9		4.5	834.3	Kg	78.23	65267.00
16	Pg. 47 M-215 Item-31 add 15% CP	Barbed wire of 4 point, 2 ply 12 SWG, 150mm apart 9.38 kg per 100m. (327 x 4X2.4)+(327x 2 x 2.474)		2996.888			281.00	MT	63.25	17773.00
									Total	3575365.00
									Say Rs.	35.75

Estimate of Entry Gate

Sl. No	JSR/ DSR 2021	Description of work	No.	L	B	H	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10	11
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design, building specification and direction	2	2.00	1.00	1.200	4.80			
			1	0.88	0.88	0.875	0.67			
							5.47	M ³	139.58	764.00
2	5.6.1	Providing designation 75A one brick flat soiling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	2	2.00	1.00		4.00			
			1	0.875	0.875		0.77			
							4.77	M ²	329.83	1573.00
3	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	2	2.00	1.00	0.10	0.40			
			1	0.88	0.88	0.10	0.08			
							0.48	M ³	415.58	199.00
	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.								

Sl. No	JSR/ DSR 2021	Description of work	No.	L	B	H	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10	11
4	5.3.1.6	1:4:8 (1 Cement :4 Coarse Sand (zone - III) : 8 graded stone aggregate 40mm nominal size)	2	2.00	1.00	0.15	0.60			
			1	0.88	0.88	0.10	0.08			
							0.68	M ³	3714.85	2526.00
5	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonell) : 3 graded stone aggregate 20 mm nominal size) In Column	2	0.20	0.20	2.375	0.19	M ³	5891.97	1119.47
6	5.2.3	Providing designation 75A brick work in C.M. (1:6) in foundation and plinth with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.								
		Main Gate								
		Ist offset	2	1.75	0.875	0.25	0.77			
		IIst offset	2	1.63	0.750	0.25	0.61			
		IIIst offset	2	1.50	0.625	0.375	0.70			
		Wicket Gate								
		Ist offset	1	0.63	0.625	0.300	0.12			
		IIst offset	1	0.50	0.500	0.375	0.09			
							Total	M ³	5069.99	11610.00

Sl. No	JSR/ DSR 2021	Description of work	No.	L	B	H	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10	11
7	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.								
			2	1.50	0.625	1.50	2.81			
			1	0.375	0.375	1.500	0.21			
							3.02	M ³	5193.02	15683.00
8	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.								
			2 x 2	1.50	1.65		9.90			
			2 x 2	0.375	1.65		2.48			
			2 x 2	0.625	1.65		4.13			
							16.51	M ²	153.24	2530.00
9	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I								
							0.0149	MT	79086.94	1180.00

Sl. No	JSR/ DSR 2021	Description of work	No.	L	B	H	Qty.	Unit	Rate	Amount
1	2	3	4	5	6	7	8	9	10	11

10	5.5.30	S/F/F MS grill gate with MS grill made of 20X6 MS flats or 16 mm square bars fitted on ---- do ---E/I (Entry gate 4M wide and 1.5M height and wicket gate 1 M wide and 1.5 M height.	1				500.00	Kg.	104.62	52310.00
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Total 89494.47

Say Rs.(in lacs) 0.89

Abstract of Shed of Storage Shed

Sl. No.	JSR 2021 DSR 2021	Description of work	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E\l.	191.03	Cum	139.58	26,663.97
2	5.1.10	Providing coarse clean sand in filling in foundation trenches including ramming & watering in layers not exceeding 150mm thick with all leads & lifts including cost of all materials, labour, royalty & taxes all complete as per building specs.and direction of E/l.	37.35	Cum	415.58	15,521.91
3	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - all work upto plinth level.				
	5.3.1.5	1:3:6 (1 Cement :3 Coarse Sand (zone - III) : 6 graded stone aggregate 20mm nominal size)	37.35	Cum	4004.35	1,49,562.47
4	5.3.9	Providing and laying in position specified grade of reinforced cement concrete, excluding cost of centering shuttering finishing and reinforcement - all work upto plinth level				
	5.3.9.1	1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)	7.27	Cum	5094.36	37,036.00
5	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string course, fillets, columns, pillars, piers abutment, post and struts etc. above plinth level up to floor five level excluding cost of centring , shuttering finishing and reinforcement: 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)	1.25	Cum	5891.97	7,364.96
6	5.3.17	Centering and Shuttering including strutting, propping etc. and removal of form for				

Sl. No.	JSR 2021 DSR 2021	Description of work	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7
	5.3.17.1	Foundation, footing, bases of columns, etc for mass concrete	16.20	M ²	184.61	2,990.68
7	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I				
		8 mm & 10 mm-----	0.67	M.T	79086.94	52,988.25
8	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.	11083.42	Kg	78.23	8,67,055.63
9	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.	11.08	M.T	23608.56	2,61,663.49
10	5.8.45	Providing two coats of synthetic enamel paint of approved shade and made over steel surface including cleaning the surface thoroughly, scaffolding and taxes all complete as per building specification and direction of E/I.	144.00	M.T	61.90	8,913.60

Sl. No.	JSR 2021 DSR 2021	Description of work	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7
11	DSR 12.50	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineerin-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required	498.75	M ²	593.65	2,96,082.94
12	DSR 12.51.1	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete :				
	12.51.1	Ridges plain (500 - 600mm)	30.00	M	398.33	11,949.90
	12.51.6	Gutter (600 mm over all girth)	60.00	M	981.77	58,906.20
13	DSR 12.41	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.				
	12.41.2	110 mm diameter	108.00	M	282.66	30,527.28
14	5.6.9	Providing 50 mm thick cement concrete flooring 1:2:4 with 20 mm to 6 mm size graded stone chips finished with flooring coat of neat cement in panels including cost of curing , taxes, royalty all complete as per building specification and direction of E/I.	346.50	Sqm	484.57	1,67,904.00

Sl. No.	JSR 2021 DSR 2021	Description of work	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7
15	5.6.13	Extra for Providing and fixing 30x4mm glass strips in joints of flooring, complete job as per specifications and direction of E/I.	340.00	RM	33.24	11,302.00
16	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.	11.08	MT	23608.56	2,61,663.00
17	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	57.91	Cum	5193.02	3,00,727.79
18	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	241.50	Sqm	153.24	37,007.00
19	5.7.2	Providing 12mm thick cement plaster (1:3) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	231.60	Sqm	158.79	36,776.00
20	5.8.15	Providing two coats of dry distemper of approved shade & make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors & taxes all complete as per building specification & direction of E/I.	231.60	Sqm	94.01	21,773.00

Sl. No.	JSR 2021 DSR 2021	Description of work	Qty	Unit	Rate	Amount
1	2	3	4	5	6	7
21	5.8.24	Providing two coats of snocem of approved shade and make over new wooden surface including preparing the plastered surface smooth with sand paper, scaffolding , curing and taxes all complete as per building specification and direction of E/I	231.60	Sqm	102.42	23,720.00
22	DSR 10.6	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters				
	10.6.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover	9.00	Sqm	2659.78	23,938.00
23	10.7	Providing and fixing ball bearing for rolling shutters	4.00	Each	374.99	1,500.00
					Total	27,13,538.07
					Say	27.14

Deatil of Shed for Storage Shed

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earth work in excavation in foundation trenches in ordinary soil (vide classification of soil Item-A) and disposal of excavated earth as obtained to a distance up to 50M. Including all lifts with leveling ramming the foundation trenches removing roots of trees shrubs all complete as per approved design and per building specification and direction of E\I. For Shed For Shed Footing	1.00 12.00	30.00 1.50	11.55 1.50	0.45 1.30	155.93 35.10	
						Total	191.03	Cum
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. For Shed For Shed Footing	1.00 12.00	30.00 1.50	11.55 1.50	0.10 0.10	34.65 2.70	
						Total	37.35	Cum
3	5.3.1	Providing and laying in position cement concrete of specified grade excluding the cost of cenetering and shuttering - all work upto plinth level.						
	5.3.1.5	1:3:6 (1 Cement :3 Coarse Sand (zone - III) : 6 graded stone aggregate 20mm nominal size) For Shed For Shed Footing	1.00 12.00	30.00 1.50	11.55 1.50	0.10 0.10	34.65 2.70	
						Total	37.35	Cum
4	5.3.9	Providing and laying in position specified grade of reinforced cement concrete, excluing cost of centering shuttering finishing and reinforcement - all work upto plinth level						
	5.3.9.1	1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)						

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
		For Shed Footing	12.00	1.50	1.50	0.15	4.05	
		For Trapezoidal Shape $V = h/3 (A1+A2+v(A1 \times A2))$	12.00	1.50	1.50	0.20	3.22	
						Total	7.27	Cum
5	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string course, fillets, columns, pillars, piers abutment, post and struts etc. above plinth level up to floor five level excluding cost of centring , shuttering finishing and reinforcement: 1:1.5:3 (1 Cement : 1.5 Coarse Sand (zone - III) : 3 graded stone aggregate 20 mm nominal size)						
		For Shed Pedestal	12.00	0.35	0.35	0.85	1.25	
						Total	1.25	Cum
6	5.3.17	Centering and Shuttering including strutting, propping etc. and removal of form for						
	5.3.17.1	Foundation, footing, bases of columns, etc for mass concrete						
		For Shed Footing	48.00	1.50	1.50	0.15	16.20	
						Total	16.20	Sqm
7	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)} (excluding carriage of bars to work site) all complete as per building specification and direction of E/I 8 mm & 10 mm-----						
							0.67	M.T
8	5.5.35	Structural Steel work in single section, fixed with or without connecting plate, including cutting hoisting fixing in position and applying a priming coat of approved steel primer all complete.						

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
		For Truss					1696.20	
		For Gusset					78.00	
		For Purlin					6264.00	
		Bracing					1545.22	
		Tie Runner					960.00	
		ISHB 150/27.1					540.00	
							Total 11083.42	Kg
9	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.					11.08	M.T
10	5.8.45	Providing two coats of synthetic enamel paint of approved shade and made over steel surface including cleaning the surface thoroughly, scaffolding and taxes all complete as per building specification and direction of E/I.					144.00	M²

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
11	DSR 12.50	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required					498.75	M ²
12	12.51.1	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete : Ridges plain (500 - 600mm)						
	12.51.1	Ridges plain (500 - 600mm)					30.00	M
	12.51.6	Gutter (600 mm over all girth)					60.00	M
13	12.41	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes.						
	12.41.2	110 mm diameter					108.00	M

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
14	5.6.9	Providing 50 mm thick cement concrete flooring 1:2:4 with 20 mm to 6 mm size graded stone chips finished with flooring coat of neat cement in panels including cost of curing , taxes, royalty all complete as per building specification and direction of E/l. Shed.	1.00	30.00	11.55		346.50	Sqm
15	5.6.13	Extra for Providing and fixing 30x4mm glass strips in joints of flooring, complete job as per specifications and direction of E/l. Shed.	4.00	30.00			120.00	
			20.00	11.00			220.00	
							340.00	Rm
16	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/l.					11.08	MT
17	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/l. For Shed	2.00	10.35	0.25	3.00	15.53	
			2.00	28.25	0.25	3.00	42.38	
						Total	57.91	M³

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
18	5.7.3	Providng 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I. For Shed	2.00 2.00	12.00 28.25		3.00 3.00	72.00 169.50	Total 241.50 M ²
19	5.7.2	Providng 12mm thick cement plaster (1:3) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I. For Shed	2.00 2.00	10.35 28.25		3.00 3.00	62.10 169.50	Total 231.60 M ²
20	5.8.15	Providing two coats of dry distemper of approved shade & make over a primer coat of washing over new surface including preparing the plastered surface by rubbing smooth with pumice stone or fine sand paper applying putty wherever required, scaffolding washing floors & taxes all complete as per building specification & direction of E/I. For Shed	2.00 2.00	10.35 28.25		3.00 3.00	62.10 169.50	Total 231.60 M ²
21	5.8.24	Providing two coats of snocem of approved shade and make over new wooden surface including preparing the plastered surface smooth with sand paper, scaffolding , curing and taxes all complete as per building specification and direction of E/I For Shed	2.00 2.00	10.35 28.25		3.00 3.00	62.10 169.50	Total 231.60 M ²

Sl. No.	JSR 2021 DSR 2019	Item of Work	No.	L	B	H	Qty.	Unit
1	2	3	4	5	6	7	8	9
22	DSR 10.6	Supplying and fixing rolling shutters of approved make, made of required size M.S. laths, interlocked together through their entire length and jointed together at the end by end locks, mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation complete, including the cost of providing and fixing necessary 27.5 cm long wire springs manufactured from high tensile steel wire of adequate strength conforming to IS: 4454 - part 1 and M.S. top cover of required thickness for rolling shutters						
	10.6.1	80x1.25 mm M.S. laths with 1.25 mm thick top cover					9.00	
							Total	9.00 M²
23	10.7	Providing and fixing ball bearing for rolling shutters					4.00	
							Total	4.00 No

ESTIMATE OF INTERNAL ELECTRIFICATION IN ALL BUILDINGS

Sl. No.	JSR/ DSR 2018	Description	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7
1	1.1	Wiring for light point/fan point/ exhaust fan point/ call bell point with 1.5 sq. mm FR PVC insulated copper conductor single core cable in surface / recessed PVC conduit, piano type switch, phenolic laminated sheet with suitable size PVC/MS box etc. as required.				
		Group A	28	Nos.	455.00	12740.00
		Group B	17	Nos.	512.00	8704.00
		Group C	1	Nos.	602.00	602.00
2	1.5	Wiring for light / power plug with 2 x 4 sq.mm Sq.mm FR PVC insulated copper conductor single core cable in surface/ recessed PVC conduit alongwith 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing etc. as required.	10	Nos.	151.00	1510.00
3	1.6	Wiring for light/ power plug with 4 X 4 sq. mm FR PVC insulated copper conductor single core cable in surface/ recessed PVC conduit alongwith 2 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing etc. as required.	11	Nos.	248.00	2728.00
4	1.21	S/F PVC conduit:- Supplying and fixing of following sizes of PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
	1.21.2	25 mm	185	m	93.00	17205.00
5	1.22	S/F PVC/G.I. boxes:- Supplying and fixing of following sizes of PVC/G.I box on surface / recess with suitable size of phenolic laminated sheet cover in front including painting etc. as required.				
	1.22.1	75x75x50mm	1	Nos.	95.00	95.00
	1.22.3	147x93x47mm deep/ (5" x7")	5	Nos.	125.00	625.00

Sl. No.	JSR/ DSR 2018	Description	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7
6	1.28.2	S/F Modular base & cover plate:- Supply and fixing following size/ modules, GI box along with modular base & cover plate for modular switches in recess etc. as required. 4/5 module	6	Nos.	81.00	486.00
8	1.24	S/F Modular type switch/socket:- Supply and fixing following modular switch / socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.				
	1.24.4	3 pin 5/6 amp socket outlet	21	Nos.	77.00	1617.00
	1.24.6	Telephone socket outlet	5	Nos.	73.00	365.00
9	1.31	S/F light plug point with modular type accessories:- Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection, painting etc as required(For light plugs to be uysed in non residential buildings).	3	Nos.	287.00	861.00
10	1.32	S/F power plug point with modular type accessories :- Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 15/16 amps modular socket outlet and 15/16 amps modular switch, connection, painting etc as required (For light plugs to be used in non residential buildings)	5	Nos.	359.00	1795.00

Sl. No.	JSR/ DSR 2018	Description	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7
11	1.25	S/F Modular type electronic fan regulator :- Supply and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc as required	14	Nos.	256.00	3584.00
12	1.38	Supply and fixing call bell/ buzzer suitable for D.C/ A.C single phase 230 volts complete as required.	1	Nos.	263.00	263.00
13	1.33	S/F ceiling rose :- Supply and fixing 2 pin, 5 amp. Ceiling rose on the existing junction box/ wooden block including connection etc as required.	25	Nos.	41.00	1025.00
14	1.34	S/F Batten holder :- Supply and fixing batten/ angle holder including connection etc as required	3	Nos.	55.00	165.00
15	1.44	ITC Ceiling fan :- Installation, testing and comissioning of ceiling fan, including wiring the down rods of standard length(upto 30 cm) with 1.5sq mm FR PVC insulated, copper conductor single core cable, etc. as required.	14	Nos.	93.00	1302.00
16	1.41	ITC fluorescent fitting with down rods:- Installation , testing and commissioning of pre-wired, flourescent fitting/compact flourescent fitting of all types, comlete with all accessories and tube etc directly on ceiling/wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc as required.	24	Nos.	94.00	2256.00

Sl. No.	JSR/ DSR 2018	Description	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7
17	1.42	ITC fluorescent fitting with down rods:- Installation , testing and commissioning of pre-wired, flourescent fitting/compact flourescent fitting of all types, complete with all accessories and tube etc. including supply and fixing ball and socket arrangement 2 no. down rods of 20mm dia x 1.6 mm thick steel conduit/GI pipe upto 30 cm length, painting and wiring the down and connection with 1.5 sq. mm PVC insulated, copper conductor, single core cable and earthing etc as required.	1	Nos.	210.00	210.00
18	1.49	ITC exhaust fan upto 510 mm. sweep :- Installation of exhaust fan upto 510 mm sweep in the existing opening, including making the hole to suit the size of the above fan making good the damage, connection, testing, commissioning etc. as required.	3	Nos.	58.00	174.00
19	1.46	Extra for cutting and threading of G.I pipe heavy guage down rod for ceiling fan etc. as required.	10	Nos.	25.00	250.00
20	2.8.1	Distribution Boards S/F S.P. MCB DB :- Supply and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper busbar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator) 2 way, single door	4	Nos.	347.00	1388.00

Sl. No.	JSR/ DSR 2018	Description	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7
21	2.11.1	S/F "B< series, S.P. MCB :- Supply and fixing 6 amps to 32 amps rating 240 volts, 10KA, 'B' curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connection testing and commissioining etc. as required. 6/32 amps, single pole "B" series	9		163.00	1467.00
22	3.17	Providing and fixing 4 mm dia copper wire on surface or in recess for loop earthing etc. as required.	75	m	105.00	7875.00
					Total	69292.00
					Say Rs (In Lacs)	0.69

ESTIMATE OF ELECTRIFICATION FOR MSW DISPOSAL SITE

Sl. No.	RUIDP JSR	Description	Qty.	Unit	Rate In Rs.	Amount
1	2	3	4	5	6	7

A Campus Electrification

All RUIDP Scheduled Items

1	RUIDP 58.16.3	Supply and erection of hot dipped galvanised steel swaged tubular pole /GI Conical Pole conforming to IS: 2713-1980 (part I to II) with galvanised base plate of size 400mm x 400mm x 7mm in position including excavation of the pit and filling the same with C.C. of M- 10/M-20 grade (1:3:6)/ grade(1:1.5:3) from base plate to 50cm above ground level, with the help of steel frame not less than 40 cm dia up to 114.3mm outer dia and 50 cm beyond 114.3mm outer dia around the pole. Duly finished with cement plaster, Earthing terminals , cable entry, GI cable sleeve complete as required. The pole shall be galvanised using ISI mark tube for structural purpose. 9Mtr Group 2	8	Nos	20000.64	160005.12
2	RUIDP 58.17.2	Add for supply and fixing of hot dipped galvanised Overhang of following size over the existing poles 88.9mm OD x 3.25mm thickness Group 2	8	Nos	919.68	7357.44
3	RUIDP 58.3.3	P & F IP-54/65 protected street light luminaire on existing bracket suitable for HPSV/ MH LAMP, made out from powder coated single piece die cast aluminium housing, electrochemically brightened and anodized POT optics aluminium reflector, heat resistant and toughened glass cover and accessories like copper ballast, electronic ignitor, capacitor, holder prewired up to terminal block etc. as required including making connection testing etc. as required (without lamp) 1 x 250 Watt	8	nos	4582.08	36656.64
4	RUIDP 58.9 58.9.1.3 58.9.2.3	P & F High pressure sodium vapour/ High pressure mercury vapour/ Metal halide/ Halogen lamp as required 250 Watt	8	Nos	250.56	2004.48

All JSR Items

Sl. No.	RUIDP JSR	Description	Qty.	Unit	Rate In Rs.	Amount
1	2	3	4	5	6	7
6	JSR 2021 Page 93/1906	Supply and laying of following sizes Al. conductor PVC insulated armoured seathed cable of 1100 V grade at a depth of 750 mm B. G. L				
		3.5 core (95 Sqm)	15	M	391.00	5865.00
		3.5 core(50 sqm)	75	M	238.05	17853.75
		3.5 core(35 sqm)	100	M	185.15	18515.00
		2 core 10 sqm	90	M	87.78	7900.16
8	JSR Energy Page 55 M - 906 Energy Dept	3.5 Earthing with G.I. earth plate 600mm X 600mm X 6mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc (but without charcoal or coke and salt) as required.				
			11	set	3109.00	34199.00
		Silent type D.G set of capacity 100 KVA with AMP Panel IS/IEC - 60034-1	1	Each	1207500.00	1207500.00
(iii)	JSR 3.6	Copper Earth Plate Electrode :- Earthing with copper earth plate 600 mm x 600 mm x 3mm thick including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc required . (but without charcoal or coke and salt)				
			1	Nos	9045.00	9045.00
1	Part A Pg 105 M1059	Power Transformer (with off Load Tap Changers) Any ISI Mark 160 KVA	1	No	259900.00	259900.00
2	JSR Page 41+15% (CP+OCH) M- 331	Supply and laying of 3.5 x 120 mm ² Al. armoured cable.	100.00	M	489.90	48990.00
7	DWS 2018 pg 12 [K] +10% vi	Supply of G.I. Pipes (Tata mark) or equivalent for cable 50mm dia	50.00	M	338.20	16910.00

Sl. No.	RUIDP JSR	Description	Qty.	Unit	Rate In Rs.	Amount
1	2	3	4	5	6	7

DWS 2018 3.1.2 Laying of G.I. Pipes of approved make in trenches with red lead and yarn with socket and screw joints and cutting pipes to sizes and threading ends where necessary etc. all complete as per specification and direction of Engineer in charge.
50mm Dia

vi	50mm dia	50.00	M	22.22	1111.00
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5	NS	Supply and fixing of junction box of size 280 X 170 X 130 mm with hinges and locking arrangement & MS clamp made of 50 X 6 mm flat complete in all respect.	8	Nos	5568.00	44544.00
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9	NS	Supply and fixing of feeder pillar of M.S cubicle box of size 100 x 75 x 40 cm made from 2 mm M.S sheet using angle of size 40 x 40 x 6 mm duly hinged and locking arrangement, painting two coats of enameled paint over red oxide primer providing aluminium Bus-bar or suitable size with 100 A/415 V TPN rewirable type main switch with cement concrete foundation providing 1 Mtr GI pipe on 100 mm dia complete in all respects as per direction of E/I.	1	Nos	40500.00	40500.00
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	b)	Supply and making of earth main hole of size 1' x 1' and 2' deep with 1' x 1' CI chamber brick work etc.	8	Nos	1840.00	14720.00
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Total 1933576.59

Say in Lacs 19.34

Estimate of Site Development

Sl. No.	JSR/ DSR 2018	Description Of Work	No	L	B	H	Qty.	Unit	Rate In Rs.	Amount In Rs.
1	2	3	4	5	6	7	8	9	10	11
1	WRD 7.1.43.3	E/W in excavation and filling in canal by the hydraulic excavator as per designed section in ordinary soil (vide clasification of soil item - A) and making the banks with excavated earth in proper profile and clod breaking and laying earth in 225 mm layers with inital leads of 10 m and all lifts all complete as per specification and direction of E/I	1				1830.00	cum	75.00	137250.00
	WRD 7.1.10	Extra for earth work in hard soil (vide classification of soil item-B) all complete as per specification and direction of E/I					1830.00	cum	12.00	21960.00
2	WRD 7.1.24	E/W in filling in flood embankment ,canal banks 9 canal discharge above 28 cumecs) as well as special repair of embankment and canal banks in ordinary soil in proper profile (vide classifictaion of soil item - A) obtained from borrow area or any other sourcs free from logs , roots, or any other indredients etc. with inital lead of 30 m and initial lift of 1.5 m including breaking clods to maximum 50 mm cube placing the earth in layer not exceeding 225 mm thick complete as per specification and direction f E/I								
		Filling in Surface Laveling	1				2270.00	cum		
							2270.00		100.00	227000.00
									Total	386210.00
									Say Rs. In Lac	3.86

DETAILS OF SITE CUTTING & FILLING

Section At	Cutting Area In Sqm	Filling Area In Sqm.	Section To Section Distance	Cutting Volume In Cum	Filling Volume In Cum
1-1'	32.0	24.0	10.0	320.0	240.0
2-2'	28.0	32.0	10.0	280.0	320.0
3-3'	27.0	33.0	10.0	270.0	330.0
4-4'	28.0	33.0	10.0	280.0	330.0
5-5'	21.0	66.0	10.0	210.0	660.0
6-6'	21.0	81.0	10.0	210.0	810.0
7-7'	17.0	86.0	10.0	170.0	860.0
8-8'	9.0	55.0	10.0	90.0	550.0
TOTAL	183.00	410.00		1830.00	4100.00

Abstract of cost of Starter & Panel Shed

Sl. No.	JSR/ DSR 2018	Description of Work	Qty.	Unit	RATE IN Rs.	AMOUNT IN Rs.
1	2	3	4	5	6	7
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.	1.03	Cum	139.58	144.00
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	0.26	Cum	415.58	108.00
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	2.56	Sqm	322.35	825.00
4	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonelll) : 3 graded stone aggregate 20 mm nominal size) In Column	0.45	Cum	5891.97	2651.00
4(ii)	5.3.11	Do in Roof slab	0.15	Cum	6092.63	914.00

Sl. No.	JSR/ DSR 2018	Description of Work	Qty.	Unit	RATE IN Rs.	AMOUNT IN Rs.
1	2	3	4	5	6	7
5	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	0.68	Cum	5193.02	3531.00
6	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	11.52	Sqm	153.24	1765.00
8(a)	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.	0.023	mt	23608.56	543.00
8(b)	Pg 18 item 3b(i) +10% CP+5% OHC	supply of angle iron 50X50X6	0.023	mt	58077.89	1336.00
9	5.6.9	Providing 50mm thick cement concrete flooring (1:2:4) with 20mm to 6mm size graded stone chips finished with flooring coat of neat cement in panels, including cost of curing, finishing the surface smooth by rubbing with carborundum stone, taxes and royalty all complete.	1.20	Sqm	484.57	581.00

Sl. No.	JSR/ DSR 2018	Description of Work	Qty.	Unit	RATE IN Rs.	AMOUNT IN Rs.
1	2	3	4	5	6	7

10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I	0.05	MT	79086.94	3954.00
					Total Rs.	16352.00
					Amt in lacs	0.16

Detailed Measurement of Starter & Panel Shed

Sl. No.	JSR/ DSR 2018	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
1	5.1.1	Earthwork in excavation in foundation trenches in ordinary soil (vide classification of soil item A) and disposal of excavated earth as obtained to a distance upto 50M including all lifts, evelling , ramming the foundation trenches, removing roots of trees , surbs all complete as per approved design, building specification and direction of E/I.	2	0.80	0.80	0.575	0.74	
			1	1.50	0.85	0.225	0.29	
							1.03	Cum
2	5.1.10	Providing coarse clean sand in filling in foundation trenches or in plinth including ramming and watering in layers not exceeding 150mm thick with all leads and lifts including cost of all materials, labour, royalty and taxes all complete as per building specification and direction of E/I. (Mode of measurement compacted volume).	2	0.80	0.80	0.100	0.13	
			1	1.50	0.85	0.100	0.13	
							0.26	
3	5.6.3	Providing designation 75B one brick flat soling joints filled with local sand including cost of watering taxes royalty all complete as per building specification and direction of E/I.	2	0.80	0.80		1.28	
			1	1.50	0.85		1.28	
							2.56	Sqm
4	5.3.10	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, poists and struts etc. above plinth level up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement : 1.5 coarse sand (zonell) : 3 graded stone aggregate 20 mm nominal size) In Column	2	0.80	0.80	0.10	0.13	

Sl. No.	JSR/ DSR 2018	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
			2	0.25	0.25	2.55	0.32 0.45	
4(ii)	5.3.11	In roof slab	2	0.85	0.25	0.15	0.06	
			1	1.50	0.60	0.10	0.09	
							0.15	Cum
5	5.2.11	Providing designation 75A Brick work in C.M (1:6) in superstructure with approved quality of clean coarse sand of F.M. 2 to 2.5 including providing 10mm thick mortar joints, cost of screening materials, raking out joints to 15mm depth, curing, taxes and royalty all complete as per building specification and direction of E/I.	1	1.50	0.25	1.80	0.68	Cum
6	5.7.3	Providing 12mm thick cement plaster (1:6) with clean coarse sand of F.M. 1.5 including screening, curing with all leads and lifts of water, scaffolding taxes and royalty all complete as per building specification and direction of E/I.	2	2.00		2.10	8.40	Sqm
			2	2.00		0.60	2.40	
			2x2x					
			0.5	0.60		0.60	0.72	
							11.52	
8	5.5.28	Labour for fabricating, erecting, hoisting and fixing in position structural steel work in R.S. joists, channels, angles, Tees, flats, plates, lattice members, built up compound sections in columns, girders, staircase, or trusses including cost of gusset plates, holding down bolts, anchor plates at all heights and depths, bolting, welding (machining wherever necessary) with applying a priming coat of red lead paint all complete as per building specification and direction of E/I.						
		50 x 50 x 6 Angle						
			LS				5.00	
							5.00	m
			.@ 4.5 kg/m				22.50	kg

Sl. No.	JSR/ DSR 2018	Description of Work	No	L (m)	B(m)	H(m)	Qty.	Unit
1	2	3	4	5	6	7	8	9
9	5.6.9	Providing 50mm thick cement concrete flooring (1:2:4) with 20mm to 6mm size graded stone chips finished with flooring coat of neat cement in panels, including cost of curing, finishing the surface smooth by rubbing with carborundum stone, taxes and royalty all complete.	1	2.00	0.60		1.20 1.20	Sqm
10	5.5.4	Providing Tor steel reinforcement of 8mm. Dia rods as per approved design & drawing with cutting, bending and binding with annealed wire with cost of wire removal of rust, placing the rods in position {TMT Fe 500 (only valid for Tata(Tiscon), Sail, JSPL, Electrosteels Ltd. Bokaro and vizag (RINL)) (excluding carriage of bars to work site) all complete as per building specification and direction of E/I					0.06	MT

**ABSTRACT OF COST OF C&D WASTE PROCESSING PLANT OF
150 TON PER DAY CAPACITY**

Sr. No.	Description of Work	Qty	Unit	Rate	Amount
1	2	3	4	5	6
A	C&D Waste Processing Unit (Dry Process)				
A-1	Feeding Conveyor (BC – 1) (15M)	1	Lot	8,10,000.00	8,10,000.00
A-2	Vibratory/Grizzly Feeder	1	Lot	13,20,000.00	13,20,000.00
A-3	Belt Conveyor (BC – 2) (20M)	1	Lot	10,80,000.00	10,80,000.00
A-4	Belt Conveyor (BC – 3) (8M)	1	Lot	4,32,000.00	4,32,000.00
A-5	Jaw Crusher PE 500 X 750 Inclusive of Vibrating Pan Feeder	1	Lot	27,00,000.00	27,00,000.00
A-6	Belt Conveyor (BC – 4) (8M)	1	Lot	4,32,000.00	4,32,000.00
A-7	Magnetic Separator	1	Lot	4,20,000.00	4,20,000.00
A-8	Vibrating Screen	1	Lot	12,60,000.00	12,60,000.00
A-9	Belt Conveyor (BC – 5) (8M)	1	Lot	4,32,000.00	4,32,000.00
A-10	Impact Crusher	1	Lot	22,20,000.00	22,20,000.00
A-11	Belt Conveyor (BC – 6) (8M)	1	Lot	4,32,000.00	4,32,000.00
A-12	Belt Conveyor (BC – 7) (20M)	1	Lot	10,80,000.00	10,80,000.00
A-13	Belt Conveyor (BC – 8) (20M)	1	Lot	10,80,000.00	10,80,000.00
A-13	Open Top Container	1	Lot	5,40,000.00	5,40,000.00
B	C&D Waste Processing Unit (Wet Process) attached as Annexure - 1	1	Lot	2,85,00,000.00	2,85,00,000.00
C	Sub Panel for Electricity Connection of Machines	1	Lot	10,50,000.00	10,50,000.00
D	Brick Making Machine & Pavor Block Making Unit as Annexure - 1	1	Lot	28,50,000.00	28,50,000.00
				Total Rs.	<u>4,66,38,000.00</u>
				Say Rs. (in lacs)	<u>466.38</u>

Annexure for Technical Specification of Machines (Wet Process & Brick and Pavor Making)

Sl. No.	Particulars	Technical Specification
Technical Specification for Wet Process		
1.	Hopper & Feeder	10 tons holding capacity Hopper Belt feeder with 4 kw direct drive motor & Gearbox with VFD 800 mm wide belt for belt feeder Self-Supporting structure Head drum comes with diamond lagged rubber Static Grizzly Bar with 80mm opening
2.	Feed Conveyor	Feed boot to receive material 800mm belt (estimated length 12meters) Fully adjustable skirting rubbers Troughing rollers as standard Direct coupled motor and gearbox Polyurethane spring tensioned primary belt scraper Guarded to specification Lagged head drum Crowned tail and head drums to assist belt tracking Fitted with permanent magnet for secondary protection against ferrous metal Fitted with Belt weigher
		Consisting of following components and features: Rinsing Screen Double Deck Rinsing cum Sizing Screen with 3 discharge outlet Wiremesh for all 2 decks 0.8 Mtr x 1.6 Mtr Self-supported Structure includes walkways, access stair and toe plates Series of spray lines with 5 nozzles in each Rubber lining for the front chute and funnel to reduce noise and improve durability 4.2 Kw motor Separation Sizes : 20mm Top Deck and 5mm for Bottom deck

Sl. No.	Particulars	Technical Specification
3.	Waste recycling station	Series of spray lines with 5 nozzles in each
		Hydro cyclone(s)
		Hot vulcanised rubber lined modular cyclone c/w overflow discharge chamber
		Rubber lined Cyclone Apex & spigot.
		High Performance Cyclones
		CDE adjustable apex per cyclone
		Hot vulcanised rubber lined custom twin cyclone feed manifold
		Custom cyclone support frames
		Dewatering screen
		Fully modular polyurethane panels – non bolted
		200 x 2400 Dewatering screen
		Adjustable offset 3.6kW vibrating motors
		Replaceable modular polyurethane liners along screen sides and front dam bar
		Splash protection cover over rear of dewatering screens
		Replaceable modular back splash panels
		High-efficiency 'Marsh Mallow' rubber screen mounts.
		Rubber lined Sump
		Automatic sump level controls
		Feed / overflow points each side
		Skid mounted with integrated base for pumps and motors
		Heavy-duty rubber lined slurry pumps
		Rubber lined pipe-work between pump and cyclone
		Complete with stainless steel impellers, safety guarded motors and drives
		High Rate Thickener
		Mild steel bolted sectional construction CDE Thickener tank (6m diameter) for rapid assembly on site
		Steel support structure and necessary bracings
		QuadRake four-arm rake system with angled scrapers for conditioning of sludge
		Direct drive motor and gearbox and heavy duty shaft
Peripheral weir for collection and discharge of recycled water to your recycled water storage point		
Central diffuser drum for receiving pre-dosed effluent		

Sl. No.	Particulars	Technical Specification
		De-aeration chamber fitted to side of Thickener for primary treatment Conical bottom section complete with flushing valves, connections, and pipe-work Heavy-duty centrifugal sludge pump to discharge thickened sludge to your settlement area or buffer tank for Filter Press Pneumatic and electrically operated valves for control of sludge / fresh water discharge fitted to base of Thickener Compressor for pneumatics Scraper support bridge and walkway Access stairs and all necessary handrails Multiple dosing points for polyelectrolyte (de-aeration chamber and internal feed pipe) Automatic flushing of sludge pipe-work after de-sludging cycle Requires constant uninterrupted power supply of 400V Fully Automatic Polyelectrolyte Dosing Station Loading hopper for (powder based) polyelectrolyte complete with screw-feeder Powder educter system with cone to transfer powder to make-up tank Mixing tank with lid incorporating: o Stirrer unit twin propellers Level electrodes Transfer pump to convey matured polyelectrolyte to storage tank Storage tank incorporating level electrodes Dosing pump complete with: In line dilution facility Variable speed gearboxes Plant will require a clean water supply for polyelectrolyte make-up (~4m3/hr)
4.	Wing Conveyor	Feed boot to receive material 650mm belt Fully adjustable skirting rubbers Troughing rollers as standard Energy saving troughing rollers made from PU. Energy saving return rollers made from PU. Direct coupled motor and gearbox 20° Elevation

Sl. No.	Particulars	Technical Specification
		Polyurethane spring tensioned primary belt scraper Guarded to specification Lagged head drum Crowned tail and head drums to assist belt tracking Fitted with belt weigher
5.	Cylindrical steel water tank	Complete with water recycle pump and motor for feeding the fluidising sump Complete with water recycle pump and motor for feeding the compact plants Mounted on steel stanchions / skid chassis incorporating pump base Ultra sonic probe for measuring water level Mounted with Sieve Bend for protection from lightweights
6.	Additional Items & Services	<ol style="list-style-type: none"> 1. PLC Control Panel for CDE supplied items 1 Nos 2. Electric wiring for all CDE supplied equipment 3. Pipe-work and connections for the plant 4. Sludge discharge pipework upto 100meters 5. Commissioning Spares 6. First-Fill Lubricants & Flocculants 7. Set of Maintenance Tools 8. Set of Civil & GA drawings 9. CDE expert to provide assistance for erection & commissioning (local arrangement made by client at their cost) 4 weeks 10. Operation & Maintenance Manual (in English)

Sl. No.	Particulars	Technical Specification
Technical Specification for Brick & Pavor Making Machine		
1	VIBRO-PRESS BRICK/BLOCK MACHINE	Vibro-Press Manual Brick/Block Making Machine. Heavy Sructure Body. Electric Vibrator of 2HP 3PH. For Mould Vibration with Hollow/Solid Block Mould. Brick Production 1500 -2000 Approx/Shift of standard.
2	Pan Type Concrete Mixer	Pan Mixer having capacity of 300 Kgs. Complete with quality Worm Reduction Gear Box of Elecon/Roto-Reva powered by 7.5 H.P. Electric Motor with starter.
3	BELT CONVEYOR	1 No. Belt Conveyor for loading and unloading the material of the Pan Mixer, and powered by 2 H.P. Electric Motor of Havells/ABB/BBL/Siemens make fitted with
4	MOULD	(08Cavity). 08 Bricks/Stroke with Frog (Name in Brick).
5	Crusher Machine.	Building waste Crusher machine heaving capacity of 5 to 7 tons/day. Powered by 15 H.P electric motor. Vibratory screen, powered by 3 H.P Electric Motor.

AUTOMOBILES & EQUIPMENTS REQUIRED AT SLF SITE

Sl. No.	NS	Description	QTY.	UNIT	RATE Rs.	IN	AMOUNT IN Rs.
1	2	3	4	5	6		7
3	NS	Supply of back hoe cum loader of JCB/Tata make fitted with 0.26 cum Excavator bucket, 1.1 cum loader bucket for speading waste and daily cover.	1	Nos	30,50,000.00		3050000.00
5	NS	Supply and installation of electronic weigh bridge machine of approved make and specification of 30 ton capacity including all equipment machinery, mechanical, electrical, instrumentation, all civil work as also hookup with computers performance testing supply of spare parts for startup, commissioning including all labs, materials the complete with all taxes.	1	No.	1034000.00		1034000.00
6	NS	Lab equipments for Q.C. Lab.	1	Lot	150000.00		150000.00
					Total		4234000.00
					Say Rs.(In Lacs)		42.34

HT Line Estimate on Site					
External Power Connection Estimate					
As per Cost Data Book Fy 2017-2018 Page No 123 Serials No. 38					
1 KM 11 KV Overhead Line on 9 Mtr PSC Pole with Polymer insulators & 100 sq.mm. (DOG) Conductor With 60 mtr Average					
S.No	Particulars	Unit	Qty	Rate(INR)	Amount (INR)
1	2	3	4	5	6
1	PSC Pole 400kg W.L(9mtr)	Nos	20.00	5104.00	102080.00
2	ACSR Dog conductor (100 sq.mm) Including 5% sag	KMS	3.18	59183.00	188202.00
3	11 kv pole top barcket 50x8 mm flat[GALVANIZED]	Nos	14.00	149.00	2086.00
4	11 KV V cross arm (75x40x6) [galvanized]	Nos	14.00	774.00	10836.00
5	11 KV Back clamp for top bracket [Galvanized]	Nos	14.00	138.00	1932.00
6	11 KV Back clamp for V cross arm [Galvanized]	Nos	14.00	138.00	1932.00
7	11 KV Back clamp for V cross arm [Galvanized]	Nos	14.00	138.00	1932.00
8	11 KV Insulator (Polymer)with pin Including support for ju	Nos	60.00	183.00	10980.00
9	11 KV Disc insulator (polymer) 45 KN with H/W	Nos	12.00	422.00	5064.00
10	11 KV 3 pin type AB switch 800 Amp	Set	1.00	18106.00	18106.00
11	11 KV Lightening Arrester (9 kv, 10KA, ClassII)	Set	1.00	2245.00	2245.00
12	Stay Set Complete complete (1800x16mm) with stay wire	Set	8.00	1135.00	9080.00
13	11 KV Angle stay Clamp (50x 10 mm) [Galvanized]	Set	8.00	138.00	1104.00
14	P G clamp for 100 sq. mm Conductor	Nos	9.00	260.00	2340.00
15	Aluminium winding wire	KG	5.00	301.00	1505.00
16	Gi Wire No.10 for earthing	KG	85.00	89.00	7565.00
17	Gi stay wire no 7/10	KG	60.00	89.00	5340.00
18	Stone Base Plate for 11 KV	Nos	17.00	292.00	4964.00
19	Anti- Clamping Device(Barbed wire)	KG	40.00	81.00	3240.00
20	11 KV Back Clamp for line DP Channel[Galvanized]	Pair	6.00	312.00	1872.00
21	11 KV D.P Channel support clamp(50x6mm) [Galvanized]	Pair	6.00	177.00	1062.00
22	11 KV D.P Channel support clamp(100x50x6mm) 1.3 Mete	Pair	3.00	2289.00	6867.00
23	Earthing (Chemical) with GI earthing pipe 20 mm 2.5 mtrs	Set	17.00	1169.00	19873.00
24	Earth Clamp for earth wire (50x 6 mm) [Galvanized]	Pair	17.00	113.00	1921.00
25	Danger Board 11 KV	Nos	17.00	63.00	1071.00
A	Sub Total (INR)				413199.00
B	Sundries Charges including nut bolts, Paints etc. (INR)			3.00%	12396.00
C	Contigencies Charges (INR)			3.00%	12396.00
D	Store Charges (INR)			3.00%	12396.00
E	Transportation Cost (INR)			4.00%	16528.00
F	T & P Cost (INR)			2.00%	8264.00
G	Over Head Cost (INR)			10.00%	41320.00
I	Labour Cost (For Hard Soil) (INR)				184192.00
J	TOTAL (I= A+B+C+D+E+F+G+H) (INR)				700691.00
Total In Lacs for 2 KMS					14.01

Cost of Carriage**Lead On****Hauling Charges**

SL No	Item	Unit	Lead in Km	Multiplying Factor	Surfaced Road	Unsurfaced Road	Kuctha Road	Surfaced Road	Unsurfaced Road	Kuctha Road	Loading & Unloading Charges	Rate (Rs.)	Total Qty	Total Amount
1	Sand	Per M ³	25.0	1.6	24.00	0.0	1.0	8.1	9.7	19.4	133.0	475.08	1078.63	5,12,437.20
2	Chips	Per M ³	15.0	1.6	14.00	0.0	1.0	8.1	9.7	19.4	133.0	345.48	1077.40	3,72,219.88
3	Metals	Per M ³	20.0	1.74	19.00	0.0	1.0	8.1	9.7	19.4	133.0	434.54	776.94	3,37,610.20
4	Boulder	Per M ³	20.0	1.67	19.00	0.0	1.0	8.1	9.7	19.4	215.0	504.41	0.00	-
5	Moorum	Per M ³	10.0	1.33	9.00	0.0	1.0	8.1	9.7	19.4	133.0	255.76	0.00	-
6	Bitumen	Per M ³	130.0	1.0	130.00	0.0	0.0	8.1	9.7	19.4	279.0	1332.00	0.00	-
7	Cement	Per MT	5.0	1.0	5.00	0.0	0.0	8.1	9.7	19.4	279.0	319.50	458.09	1,46,359.96
8	Steel	Per MT	5.0	1.0	5.00	0.0	0.0	8.1	9.7	19.4	279.0	319.50	117.85	37,651.76
9	Bricks	Per 1000 Nos	25.0	4.0	22.00	1.0	2.0	8.1	9.7	19.4	279.0	1185.80	16409.40	19,458.27
10	A.C Pipe	Per 100 Mt.	5.0	0.8	5.00	0.0	0.0	8.1	9.7	19.4	133.0	165.40	0.00	-
11	Emulsion	Per MT	130.0	1.0	130.00	0.0	0.0	8.1	9.7	19.4	279.0	1332.00	0.00	-
12	Hume Pipe	Per M	5.0	0.8	5.00	0.0	0.0	8.1	9.7	19.4	279.0	311.40	0.00	-

Total Amount 14,25,737.27

Say Rs. (in lacs) 14.26

Operation & Maintenance Cost

125MT of C&D waste /day

1 Inflow of C&D waste in MT/Day		125	MT/day	
Inflow of C&D waste in Cum/Day		80.6	Cum/day	
concrete	20%	25	MT/day	
Sand+Earth	40%	50	MT/day	
Brick bats +Earth	40%	50	MT/day	

2 Product Output				
<i>Particulars</i>	<i>unit</i>	<i>Output in MT</i>	<i>Density (MT/Cum)</i>	<i>Output in cum</i>
Coarse sand	MT/day	23.75	1.6	14.8
20 to 40 gravel	MT/day	5.625	1.45	3.9
6 to 20 gravel	MT/day	5.625	1.55	3.6
Brick bats for selling	MT/day	50	1.25	40.0
earth for filling	MT/day	40	1.6	25.0

3 Project Revenues						
<i>Particulars</i>	<i>Quantity</i>	<i>Unit</i>	<i>Rate</i>	<i>Revenue /day</i>	<i>Revenue /Year</i>	<i>Ref/JSR</i>
Coarse sand	14.8	Cum	292.64	4331	15,80,815.00	JSR/BCD
20 to 40 gravel	3.9	Cum	1236.83	4824	17,60,760.00	JSR/BCD
6 to 20 gravel	3.6	Cum	1273.68	4585	16,73,525.00	JSR/BCD
Brick bats for selling	40.0	Cum	426.00	17040	62,19,600.00	JSR/BCD
earth for filling	25.0	Cum	166.6456	4166	15,20,590.00	JSR/BCD
Total Revenue From Operations					12755290	

4 Operation & Maintenance Cost	
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4.1	O&M costing For C&D Waste Plant	Quantity	Unit	Rate	cost/day	Cost/Year	Ref/JSR 2021 BCD
	Electricity (unit/Hr) @ 250 KW for 4 Hrs	1000	KW-Hr	8	8000	29,20,000.00	
	Labour	8	per day	300.36	2402.88	8,77,051.20	JSR/BCD
	Driver	2	per day	414.8	829.6	3,02,804.00	JSR/BCD
	Supervisor	2	per day	479.16	958.32	3,49,786.80	JSR/BCD
	Technician	1	per day	479.16	479.16	1,74,893.40	JSR/BCD
	Electrician	1	per day	479.16	479.16	1,74,893.40	JSR/BCD
	Plant incharge	1	per day	1500	1500	5,47,500.00	
	Mechanical engineer	1	per day	1000	1000	3,65,000.00	
	Plant Maintenance & Spare parts @ 10% of capital cost per year (AMC charge)	1	per day	8384	8384	30,60,160.00	
	Water charge (KL)	10	KL	200	2000	7,30,000.00	
	POL (lit)	50	Liter	95	4750	17,33,750.00	
	Total cost per day for Plant Operation				30783.12	1,12,35,838.80	
4.2	Transportation of C&D Waste (Lead 25 kms)	Cum	80.6	475.08	38291.448	13976378.52	
4.3	Total Cost For Project O&M				69074.568	2,52,12,217.00	
4.4	Add Profit @ 10% of 'X' (b)					25,21,222.00	
4.5	Add Overhead Charge @ 5% of 'X' (d)					12,60,611.00	
4.6	Add Environment Management Charge @ 1% of 'X' ©					2,52,122.00	
4.7	Add Labour Cess @ 1% of 'X' (e)					2,52,122.00	
4.8	Add Contigenciess @ 1% of 'X' (f)					25,212.00	
5.1	Total O&M cost with Profit and other charges in Rs.					2,95,23,506.00	
5.2	Net Yearly O&M Grant Required Transportation & Processing of C&D Waste in Rs.					1,67,68,216.00	

6.1	<i>O&M Grant Required for 1st Year of Operation</i>	<i>1,67,68,216.00</i>
6.2	<i>O&M Grant Required for 2nd Year of Operation</i>	<i>1,72,71,262.00</i>
6.3	<i>O&M Grant Required for 3rd Year of Operation</i>	<i>1,77,89,400.00</i>
6.4	<i>O&M Grant Required for 4th Year of Operation</i>	<i>1,83,23,082.00</i>
6.5	<i>O&M Grant Required for 5th Year of Operation</i>	<i>1,88,72,774.00</i>