

REGIONAL DEVELOPMENT MASTER PLAN

— 2020 - 2030 —

HAFIZABAD



The Urban Unit

Urban Planning & Management Institute (U.P.M.I.)



Table of Contents

Section- District Profile	1
1.1. HISTORY OF HAFIZABAD	1
1.2. GEOGRAPHIC LOCATION.....	1
1.3. DEMOGRAPHY	2
1.4. WATER AND SANITATION SECTOR DEVELOPMENT PORTFOLIO	3
Section- WATER SUPPLY SYSTEM	4
2.1. INTRODUCTION	4
2.2. DESIGN CRITERIA.....	5
2.2.1. Population Projections.....	5
2.2.2. Design Period	5
2.2.3. Water Consumption.....	6
2.2.4. Tube Well Design	6
2.2.5. Overhead Reservoir	7
2.2.6. Water Filtration Plant	7
2.3. WATER DEMAND ESTIMATIONS	8
2.4. EXISTING WATER SUPPLY NETWORK.....	9
2.4.1. Tube Wells	9
2.4.2. Overhead Reservoir	10
2.4.3. Water Supply Network.....	11
2.5. Asset Condition Assessment – Water Supply	13
2.6. CHALLENGES IN SERVICE DELIVERY	15
2.7. RECOMMENDATIONS – WATER SUPPLY.....	16
2.7.1. Short Term Plan (0-3 YEARS).....	16
2.7.2. Medium Term Plan (3-5 Years)	17
2.7.3. Long Term Plan (5-10 Years)	17
Section – SEWERAGE SYSTEM	35
3.1. INTRODUCTION	35
3.2. DESIGN CRITERIA.....	35
3.2.1. Components of Sewerage System	35

3.2.2.	Design Flows	36
3.2.3.	Conveyance Network.....	37
3.2.4.	Waste Water Treatment Plant.....	40
3.3.	Existing Sewerage Network.....	48
3.3.1.	Disposal Stations	49
3.3.2.	Sewage Generation.....	49
3.4.	Asset Condition Assessment – Sewerage System.....	51
3.5.	RECOMMENDATIONS - SEWERAGE.....	53
3.5.1	Short Term Plan (0-3 YEARS).....	53
3.5.2.	Medium Term Plan (3-5 years).....	53
3.5.3.	Long Term Plan (5-10 years)	54
Section - ENVIRONMENTAL CONSIDERATIONS & GREEN SPACES.....		76
4.1.	CLIMATIC CONDITIONS.....	76
4.2.	PUBLIC PARKS AND GREEN SPACES.....	77
4.3.	Hotspot analysis – air quality.....	78
4.4.	RECOMMENDATIONS - ENVIRONMENT.....	80
Annexure 1: WATER SUPPLY SYSTEM (Bill of Quantity)		81
Annexure 2: SEWERAGE SYSTEM (Bill of Quantity)		197

List of Figures

Figure 1: Map of Hafizabad city	1
Figure 2: Representation of UF Filtration Process	8
Figure 3: Diameter wise Length of Water Supply Network	11
Figure 4: Layout Map of Existing Water Supply Network	12
Figure 5: Asset Condition Assessment – Water Supply	14
Figure 6: Layout Map of Development Projects with DNI Zones	18
Figure 7: Layout Map of Existing Sewerage Network	50
Figure 8: Asset Condition Assessment – Sewerage System	52
Figure 9: Layout Map of Development Projects	55
Figure 10: Layout Map of Proposed WWTP	56
Figure-11: Climatic Conditions of Hafizabad City	76
Figure-12: Wind Speed and Direction of Hafizabad City	77
Figure 13: Hotspot Analysis of AOD and NO₂ in District Hafizabad	78
Figure 14: Hotspot Analysis of SO_x and CO in District Hafizabad	79
Figure 15: Layout Map of Environmental Development of Hafizabad	80

List of Tables

Table 1: Demographic Profile Hafizabad City	2
Table 2: Water and Sanitation Projects from ADP	3
Table 3: Existing and Future Demands	8
Table 4: Maximum Water Demand Calculations	9
Table 5: Details of Installed Tube Wells in Hafizabad City	10
Table 6: Deficits in Water Supply and Water Demands	10
Table 7: Details of OHRs in Hafizabad City	11
Table 8: Pipe replacement projects	13
Table 9: PHED Peak Factor Criteria	36
Table 10: Comparison of Different Material Properties	37
Table 11: Spacing Criteria of Manholes	39
Table 12: Criteria for Manhole Diameter Size	39
Table 13: Design Parameters for Primary Screens	42
Table 14: Design Criteria for Inlet Chambers	43
Table 15: Design Criteria for Primary Screens	43
Table 16: Design Criteria for Grit and Grease Removal	44
Table 17: Design Criteria for Activated Sludge System	45
Table 18: Design Criteria for AE/OD	45
Table 19: Design Criteria for AE/OD Loading	46
Table 20: Design Criteria for Sequencing Batch Reactor	47
Table 21: Description of Sewerage Network	48
Table 22: List of Disposal Stations	49
Table 23: Sewage Flow Estimations	49
Table 24: Rating Chart for Asset Condition Assessment	50

Acronyms

AC	Asbestos Cement
ADP	Annual Development Plan
AQI	Air Quality Index
DDC	District Development Committee
DNI	Distribution Network
ICT	Information Communication Technology
LG&CD	Local Government and Community Development
MC	Municipal Corporation
MS	Mild Steel
NEQS	National Environmental Quality Standards
NO_x	Nitrogen Oxides
PCGIP	Punjab Cities Governance Improvement Project
PDSSP	Punjab Devolved Social Services Program
PEQS	Punjab Environmental Quality Standards
PRCC	Plain Reinforced Cement Concrete
PSLM	Pakistan Social and living Standards Measurement
PVC	Poly Vinyl Chloride
RCC	Reinforced Cement Concrete
RSPM	Respirable Suspended Particulate Matter
SPM	Suspended Particulate Matter
TDS	Total Dissolved Solids
UCs	Union Councils
WHO	World Health Organization

Executive Summary

The Development Plan has been prepared with the coordination of Municipal Committee and public health officials. Its objective is to help resolve the escalating problems resulting from the substandard condition of the existing infrastructure. The Urban Unit has not only made an effort to compile all the information by drawing maps through GIS but has also collected data through extensive field surveys and condition assessment of assets for a concrete analysis which assisted the team to chalk down the given recommendations.

Currently, the situation of water supply and waste water sectors in Hafizabad is complex to understand. Institutional framework related to water governance is weak and water supply and sanitation schemes have been managed poorly. In short, the long list of issues observed by the team calls immediate corrective actions to be taken in this regard.

The report is divided into four main sections. The first section gives an overview of Hafizabad explaining its history, demography and population projections. The second section explains about the water supply system. Despite the present water demand is 25.9 MGD, the capacity of the existing water supply system is only 4.2 MGD (at 10 hours a day) which merely meets the 17% of the water demand at present. The MC owns 19 tube wells, out of which 11 are in functional condition. However, due to poor maintenance mechanism, more than 50% of pumping stations have less than 60% efficiency and there is only one OHR in Hafizabad city. There are 4 Disposal Stations in Hafizabad city with majority in poor or failing condition. The same section then briefs there is no waste water treatment plants in the city. Proposals for water, sewerage and drainage have therefore been included in this Plan which need to be implemented on immediate basis with majority recommendations revolving around rehabilitation of poor water supply and sewerage assets. The last section of the Report will try to elaborate on the cost estimates of the interventions proposed both for water supply and sewerage.

The proclivity of the development plan is towards the extensive rehabilitation and upgradation of ongoing schemes and the already existing service structure. Moreover, it also caters to the extension of service network to the unserved areas of the city. Hence, a robust implementation of these projects in true letter and spirit will allow bring revolutionary changes in the service delivery of the District Hafizabad.

1

INTRODUCTION

- 1.1. History of city
- 1.2. Geographic conditions and physical features
- 1.3. Demography
- 1.4. WSS Sector Development Portfolio

1.

SECTION- DISTRICT PROFILE

1.1. HISTORY OF HAFIZABAD

Hafizabad City is a historic city as its history goes back to 327 B.C when Alexendar the Great invaded a territory in Hindustan called Sandal Bar (current location of Hafizabad). Later on during Mughal's era, King Akbar ordered his advisor Hafiz Meerak to build a town owing to fulfill the desire of Sarmast who quenched King's thirst. Hafizabad was named after King's advisor Hafiz Meerak.

Hafizabad was declared a district in 1993, comprising of two tehsils namely Hafizabad and Pindi Bhattian. Formerly, it was a tehsil of Gujranwala District. Major villages are Sukheke Mandi, Jalalpur Bhattian and Kot Hassan Khan. The area has a centuries old civilization, glimpses of which can be seen from the history of towns, like Dulla Bhatti and Kolo Tarar. It is also known as city of rice as it has the biggest market of rice in Pakistan.

1.2. GEOGRAPHIC LOCATION

The district of Hafizabad is situated at 800 feet above sea level in central Punjab. The district is located between 32°-20' north latitudes and 73°-12' and 73°-46' east longitude. The river Chenab forms the northern and northwestern boundary of the district. The district spread over an area of 2367 square kilometer. It is surrounded by Gujranwala to the East, Jhang, Sargodha and river Chenab to the West, Faisalabad to the South, Mandi Baha-ud-Din to the North West, and district Sheikhpura to the South East. Location map of Hafizabad city is presented in **Figure-1**.

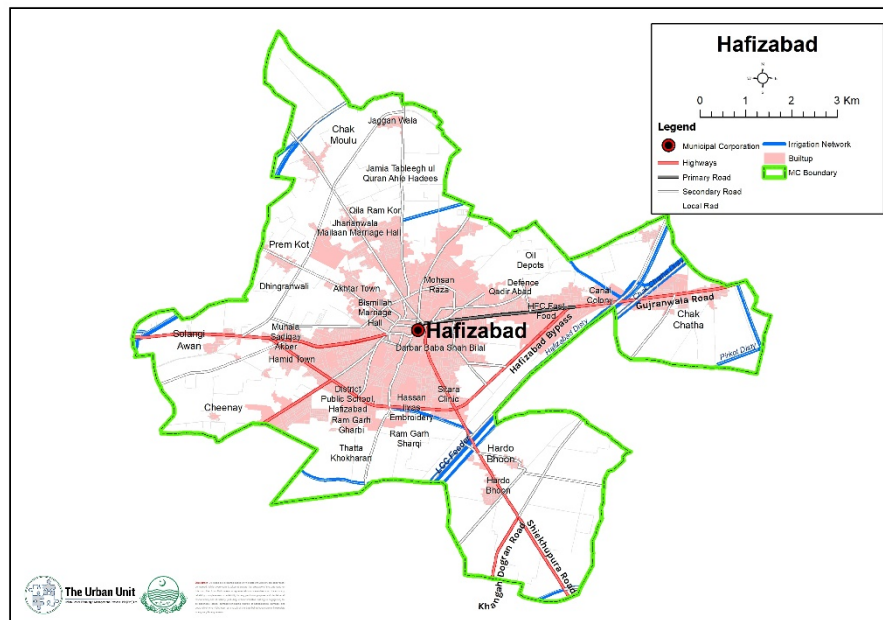


Figure 1: Location Map of Hafizabad City

1.3. DEMOGRAPHY

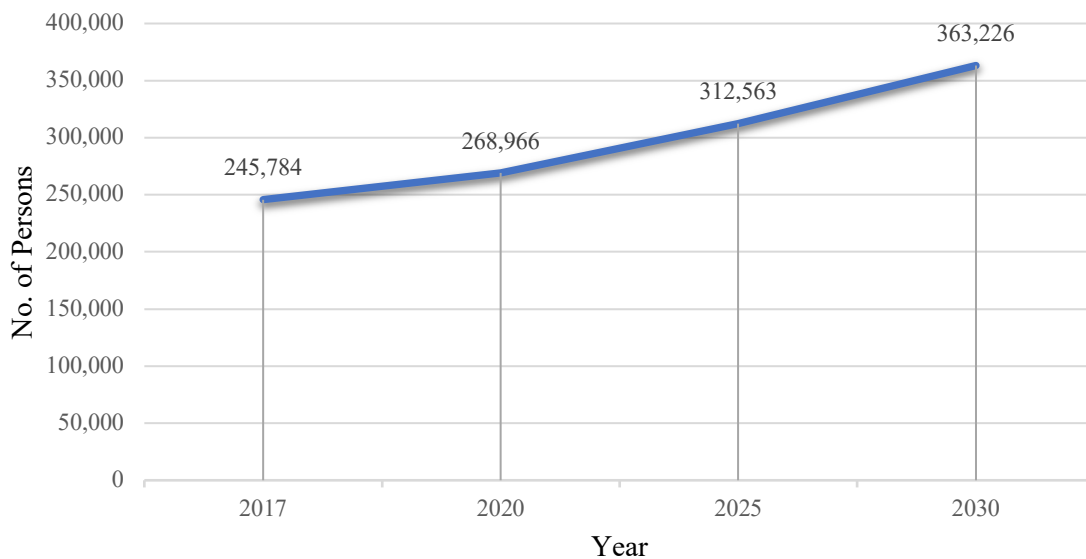
According to 6th population and housing census 2017 of Pakistan, the total population of Hafizabad District is 1,156,957 whereas the population of two tehsils namely Hafizabad and Pindi Bhattian tehsils is 245,784 and 493,222 respectively. Most of the population dwells in villages and is engaged in agriculture. The major portion of the population belongs to Jatt clan. The main crops of the district are wheat and rice.

The demographic profile of district mentioned in Table 1 whereas, the chart in Figure 2 shows population projections of the Hafizabad city based on Population Census 2017.

Table 1: Demographic Profile of District Hafizabad

District Hafizabad at a Glance	
Tehsils	02 (Hafizabad & Pindi Bhattian)
Total Union Councils (UCs)	46
Area	2367 Sq. km.
Population (As per 2017 Census)	1,156,957
Urban Population	402,851
Rural Population	754,106
Male	584,823
Female	572,083
Average Household size	6.6
Average Annual Growth Rate (1998 – 2017)	1.74
Average Urban Annual Growth Rate (1998 – 2017)	3.05

Population Projections



1.4. WATER AND SANITATION SECTOR DEVELOPMENT PORTFOLIO

If we look at the existing development portfolio of water and sanitation sector of Hafizabad district, there were 5 projects approved since 2014 in this sector worth PKR 509.956 million. It is pertinent to mention here that out of these 5 projects, none of the projects were related to Rehabilitation of Urban Water Supply Scheme of the Hafizabad City. Instead, all the projects are related to sewerage and drainage projects. This shows that the key consideration of this district for development in water and sanitation is majorly focused towards Sanitation and drainage. The list of projects in detail is presented in **Table 2:**

Table 2: Water and Sanitation Projects from ADP

Sr. No.	GS. No.	Project Name	Approval Status	Cost (PKR Million)
Sanitation and Drainage				
1.	1302	Urban Sewerage Scheme / Drainage Scheme Eastern Side, (Ghari Awan & Allied Abadies). Hafizabad City	Approved 19-04-2014	219.535
2.	1303	Urban Drainage Scheme Jalapur Bhattian, Hafizabad	Approved 19-12-2015	96.640
3.	1304	Provision of Sanitation / Drainage in City Pindi Bhattian District Hafizabad	Approved	167.781
4.	1305	Urban Drainage Scheme, Kaleke Mandi, District Hafizabad	Approved	10
5.	1306	Urban Drainage Scheme Ramkey Chatha i/c Allied Abadies District Hafizabad	Approved	10

2

Water Supply

- 2.1. Introduction
- 2.2. Design Criteria
- 2.3. Water Demand Estimations
- 2.4. Existing Water Supply Network
- 2.5. Asset Condition Assessment
- 2.6. Challenges in Service Delivery
- 2.7. Recommendations

2.

SECTION- WATER SUPPLY SYSTEM

2.1. INTRODUCTION

The Water Supply system in Hafizabad is composed of Tube Well Stations, Overhead Reservoirs (OHRs), Water Filtration Plants and Water Supply Pipelines. The Government had provided piped water supply system in the town in different phases over the past two decade. The Whole water supply scheme comprises of all the components in maintained and operated by the PHED Hafizabad.

Hafizabad city solely relies on the groundwater and most of the times the water is directly pumped into the pipe network through tube wells. During a meeting with the Deputy Commissioner Hafizabad and his team, it was informed that generally there is no major issue of water quality with respect to source as ground water is clean and safe as tested by Public Health Water Quality Lab. However there is a dire need to improve the condition of existing assets especially in the city area so that clean water is delivered to the consumers, as pipelines are getting old and rusty and Municipal Committee is getting complaints of sewerage water mixing. That is the reason that most of the households are using their own bore wells for ground water supply. The detail of existing work, tube well installed in Hafizabad city for water supply scheme and distribution laid under these works is as below;



2.2. DESIGN CRITERIA

Design Criteria for water supply system has been based on “Technical and Service Delivery Standards for Water Supply and Sanitation Sectors” by PDSSP and PHED Design Criteria 2008.

2.2.1. POPULATION PROJECTIONS

As per PHED design criteria 2008, the population projections are to be calculated according to the following expression:

$$P_n = P_o (1+r)^n$$

Where:

P_n = Projected population by the end of nth year

P_o = Population of base year, year of known population

r = Population growth rate per year to be taken from related District Census Reports.

n = No. of years, counted from base year i.e. design period

2.2.2. DESIGN PERIOD

Component	Criteria
<i>Tube Well</i>	The former standard for design period of tube wells and treatment work in case of urban and rural water supply schemes was 10 years. However, PHED notes that majority of drinking water tube wells installed in the province, about 15 to 20 years back, are still in satisfactory working condition. For optimal utilization of resources, PHED advises to adopt a design period of 15 years as far as tube wells are concerned. Furthermore, the design of tube wells should be based on maximum day demand.
<i>Slow Sand Filter Plants</i>	According to the guidelines, the design life of slow sand filter plant may be considered around 20 years
<i>Rapid Sand Filter Plants</i>	According to the guidelines, the design life of slow sand filter plant may be considered around 25 years
<i>Tube Well Pump Houses</i>	The design period of tube well pump house is suggested as 25 years
<i>Pumping Machinery</i>	PHED recommends that it is not possible for pumping machinery to work for 10 years without proper maintenance and repair and replacement of the pumping unit is necessary after every 10 years of its operation.
<i>Distribution System</i>	The existing standard for the design period of distribution system is 20 years. It is added that the water distribution network capacities should be based on peak hour demands
<i>Rising Mains</i>	The existing standard for the design period of distribution system is 25 years. Furthermore, the size of rising mains should be based on maximum day demands

2.2.3. WATER CONSUMPTION

Component	Criteria								
	In the previous Design Criteria of PHED a figure of 50 gpcd was recommended for all cities exceeding population count of 100,000 persons. However, in the revised criteria, the standards are listed in the table below:								
<i>Domestic Water Consumption</i>	<table border="1"> <thead> <tr> <th style="background-color: #0056b3; color: white;">Design Population (Thousands)</th> <th style="background-color: #0056b3; color: white;">Per Capita Consumption Per Day (Inclusive of unaccounted water)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">100,000 – 200,000</td> <td style="text-align: center;">50 gallons</td> </tr> <tr> <td style="text-align: center;">200,000 – 300,000</td> <td style="text-align: center;">55 gallons</td> </tr> <tr> <td style="text-align: center;">300,000 – 400,000</td> <td style="text-align: center;">60 gallons</td> </tr> </tbody> </table>	Design Population (Thousands)	Per Capita Consumption Per Day (Inclusive of unaccounted water)	100,000 – 200,000	50 gallons	200,000 – 300,000	55 gallons	300,000 – 400,000	60 gallons
	Design Population (Thousands)	Per Capita Consumption Per Day (Inclusive of unaccounted water)							
	100,000 – 200,000	50 gallons							
	200,000 – 300,000	55 gallons							
300,000 – 400,000	60 gallons								
<i>Institutional Water Consumption</i>	For institutions such as hospitals, hostels, schools etc. an allowance @ 10 gallons per boarder and @ 5 gallons per day scholar is to be made								
<i>Maximum Day Demand</i>	Maximum day demand is to be taken as 1.5 times the average day demand								
<i>Peak Hour Demand</i>	Peak hour demand to be taken as 1.5 times the maximum day demand								

2.2.4. TUBE WELL DESIGN

Component	Criteria
<i>Terminal Pressure</i>	Keeping in view the trends of multi-story building construction, PHED recommends to adopt at least 12 meters minimum terminal pressure
<i>Flow Velocity in Pipes</i>	Distribution Mains (0.5 to 2 m/s) Rising Mains (0.3 to 1.5 m/s)
<i>Minimum Pipe Size</i>	For plain areas the 3 inches (80 mm) standard of minimum pipe size is recommended
<i>Earth Cover on Pipes</i>	An earth cover of 3 feet (about one meter) should be provided over laid water supply pipe lines of all sizes except in hilly areas. Road cuts are to be backfilled with pit/river sand.
<i>Sluice Valves</i>	Sluice valves will be located at main control points for balancing and regulating the flows. These valves are recommended for pipes up to 250mm
<i>Butterfly Valves</i>	For pipes having diameter 300mm and above, butterfly valve shall be used at main control points
<i>Non Return Valve</i>	It is recommended to use Non Return Valves outside delivery main of the tube well and in the rising main after 2000m
<i>Air Valves and Washouts</i>	Air Valves are to be provided at the summits and after 2000m intervals in straight to facilitate escape of trapped air. Washouts are recommended to be used at lowest points to wash out all kinds of debris
<i>Chlorination</i>	0.1 PPM residual at the farthest end of the distribution system should be provided as per PHED design criteria. Hypo-chlorination may be provided where chlorine gas is not easily available

2.2.5 OVERHEAD RESERVOIR

According to PHED, overhead reservoir should be provided in all urban and rural water schemes except in cases of hilly/semi hilly areas. Capacity of overhead reservoirs in case of communities having population more than 10,000 persons should be based on around 1/10th of average day demand. Furthermore, minimum capacity of overhead reservoir should be 10,000 gallons.

2.2.6. WATER FILTRATION PLANT

Component	Criteria								
<i>Rate of Filtration</i>	PHED standard for rate of filtration is 30 gallons per Sq. ft of sand area per day								
<i>Filter Sand</i>	Depth = 30 – 36 inches								
<i>Effective Size of Sand (d₁₀)</i>	From top of Gravel to 1 feet = 0.30 – 0.35 mm 1 to 2 feet = 0.25 – 0.30 mm Top Layer 9 inches = 0.18 – 0.22 mm								
<i>Uniformity Co-efficient of Sand</i>	It must not be greater than 2.5 of Sand = (d ₆₀ /d ₁₀)								
<i>Depth of Water Over Sand</i>	3 – 4 feet								
<i>Velocity of Water</i>	0.75 ft/sec in drainage system								
<i>Sedimentation Tank</i>	Minimum number of sedimentation cum storage tanks in case of slow sand filtration plant should be two								
<i>Filter Gravel</i>	<table border="1"> <thead> <tr> <th>Size Range</th> <th>Depth</th> </tr> </thead> <tbody> <tr> <td>3 to 1 inches</td> <td>6 inches</td> </tr> <tr> <td>1 to 3/8 inches</td> <td>3 inches</td> </tr> <tr> <td>3/8 to 3/16 inches</td> <td>3 inches</td> </tr> </tbody> </table>	Size Range	Depth	3 to 1 inches	6 inches	1 to 3/8 inches	3 inches	3/8 to 3/16 inches	3 inches
	Size Range	Depth							
	3 to 1 inches	6 inches							
	1 to 3/8 inches	3 inches							
3/8 to 3/16 inches	3 inches								
<i>Outlet System</i>	The outlet system will be provided with telescopic arrangement of pipes to adjust required flow of filtered water according to varying resistance in filter media. The difference in inlet and outlet will be kept 24 – 30 inches								

The raw water will be taken from overhead water tank supply line for the treatment process. The pump will be conditioned to function in feeding raw water to Pre-Filtration Vessel to aid removal of suspended solid following Ferric Hydroxide Vessel which removes the Arsenic component from water by chemical oxidation method and then to Activated Carbon Vessel for removing color, taste, and odor from the water by absorption method. This treated water will then pass from the Ultrafiltration membranes for removing bacteria and viruses from the water. Before moving to ultrafiltration membranes, a cartridge filter will be pre-emptively placed for the protection of ultrafiltration membranes to further remove suspended solid that is left from pre-filtration system.

The main purpose of a Pre-Filtration System is to reduce load from UF membrane and to expand life time of UF membrane while removing the contamination. Pore size of UF membrane ranges from **0.002 to 0.1** microns. The filtrate water from UF will be stored in Filtrate Water Storage Tank where the water will be then transferred to filling unit. A typical UF membrane is displayed in **Figure 2**.

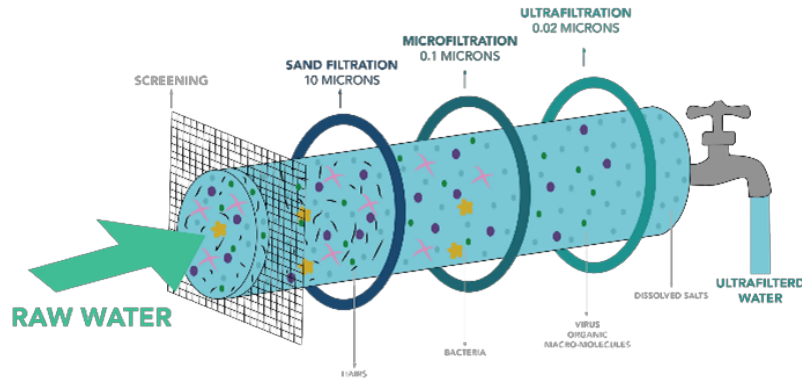


Figure 2: Representation of UF Filtration Process

2.3. WATER DEMAND ESTIMATIONS

Based on the current and projected populations for the Municipal Committee and as per design criteria of Public Health Engineering Department, the proposed water demand of 55 gallons per capita per day, the current (2021) water demand and future (2025 and 2030) water demands are shown in **Table 3** below, for the existing and potential future service areas.

Industrial water demand is assumed to be only 15% of the total water consumption as it is assumed that larger industrial establishments rely on private water supplies. Commercial and institutional demands have been assumed to be 15% and 10% of the total water consumption respectively.

At present, the water losses are assumed to be around 30%. However, the target would be to reduce these losses to around 10% by the year 2030.

Table 3: Existing and Future Water Demands

Description	2021	2025	2030
	Existing Urban Boundary	Existing Urban Boundary	Existing Urban Boundary
Population	268,966	312,563	363,226
Domestic (GD)	1,344,8300	15,628,150	18,161,300
Commercial (GD)	2,017,245	2,291,977	2,724,195
Institutional (GD)	1,344,830	1,527,985	1,816,130
Industrial (GD)	2,017,245	2,291,977	2,724,195
Losses (GD)	4,034,490	4,583,955	5,448,390
Total (Gallons Per Day)	25,961,943	30,170,144	35,060,390
Total (MGD)	25.9	30.1	35

As per PDSSP and PHED criteria, tube wells shall be designed on Max Day Demand rather than Average Day Water Demand. Max day demand is taken as 1.5 times of the average day demand i.e.

$$\text{Max Day Demand} = 1.5 \times \text{Average Day Water Demand}$$

Detailed calculations of average and maximum water demands (per day) with respect to projected populations is mentioned in the **Table 4**.

Table 4: Maximum Water Demand Calculations

Year	Average Day Water Demand		Maximum Day Water Demand	
	MGD	Cusecs	MGD	Cusecs
2021	25.9	48	38.85	72
2025	30.1	55.5	45.15	84
2030	35	65	52.5	97.5

2.4. EXISTING WATER SUPPLY NETWORK

The piped water system in Hafizabad is supplied by tube wells constructed at various locations in the city which pump water directly into the water supply system. If one or two tube wells are dysfunctional, other tube wells in the vicinity are designed to feed the system thus catering for emergency needs.

The present water demand is **25.9 MGD**. The capacity of the existing water supply system is **4.2 MGD** which is 17% of the water demand at present. However since the water supply system was installed in 90's and the relevant bodies have shown negligence to repair and maintenance of already installed system, thereby most residential and commercial units do not rely on the Municipal Committee for water supplies rather they have water bores installed in their own property and extract water directly from ground.

It is however, necessary to check the efficiency and condition of the existing water supply network to figure out the scope of improvement and further extension of the network. For this purpose, a detailed discussion was carried out with the staff of Municipal Committee. Asset condition was determined keeping in view the physical parameters as well as the performance parameters.

2.4.1. TUBE WELLS

The MC Hafizabad owns 19 tube wells that had been installed previously, out of which 11 are providing portable water to the city. As per the information provided by MC Hafizabad, rehabilitation of 06 tube wells was approved in the project named "Rehabilitation/Augmentation of Urban Water Supply" but this approved project could not reach completion due to shortage of funding. Tube wells are installed in different schemes, details of the installed tube wells are given in **Table 5**.

Table 5: Details of Installed Tube Wells in Hafizabad City

Sr #	Scheme Name	Discharge Capacity (cusec)	Machinery Condition	Civil Structure Condition	Chlorinator Available	Operational Hours (Avg.)
1	Jinnah Hall 1	1.5	Good	N/A	Yes	10
2	Moh. Bijli	1.5	Fair	Good	Yes	10
3	Moh. Hassain Pura	1.5	Fair	Fair	No	10
4	Family Park	1.5	Fair	Good	Yes	10
5	Mian da Kot	1.5	Fair	Fair	Out of order	10
6	Moh. Ali Town	1.5	Fair	Good	No	10
7	Moh. Mughal Pura	1.5	Poor	Poor	No	0
8	Makhdom Colony	1.5	Poor	Good	No	0
9	Moh. Taj Pura	1.5	Good	Good	Out of order	10
10	Muslim High School	1.5	Good	Good	Yes	10
11	Moh. Kashmir Nagar	1.5	Good	Good	Out of order	10
12	Genral Bus Stand	1.5	Failing	Fair	No	0
13	Moh. Peer Kalay Shah	1.5	Failing	Good	No	0
14	Kasoki Road	1.5	Failing	Good	No	0
15	Bus Stand Tarar	1	Failing	Fair	No	0
16	Moh. Sherpura	1	Failing	Fair	No	0
17	Moh. Kareem Pura	1	Failing	Fair	No	0
18	Jinnah Hall 2	1	Excellent	Excellent	Yes	10
19	Jinnah Hall 3	1	Excellent	Excellent	Yes	10

Table 6: Deficits in Water Supply and Water Demands

Year	Population	Average Day Water Demand	Maximum Day Water Demand	TMA Hafizabad Supply (at 10 hrs)	Deficit (avg)
		MGD	MGD	MGD	MGD
2021	268,966	25.9	38.85	4.2	21.7
2025	312,563	30.1	45.15		25.8
2030	363,226	35	52.5		30.8

2.4.2. OVERHEAD RESERVOIR

There is only one Overhead Reservoir (OHR) in Hafizabad City with a total capacity of approximately 50,000 Gallons. As mentioned earlier, water supply system of the city is based on direct pumping. Therefore, the only OHR is being used to store water for filtration plant. The general condition of its civil

structure and connected pipes are not satisfactory and continue to await rehabilitation work. The OHR details are mentioned in the **Table 7**.

Table 7: Details of OHRs in Hafizabad City

Sr. #	Name	Construction Year	Source	Capacity (Gallons)	Type of Construction	Piping Condition	Status
1	Jinnah Hall	1976	Tube well	50000	Brick	C	Functional

2.4.3. WATER SUPPLY NETWORK

There is a network of pipelines extended to approximately 15.34 km ranging from 3” dia to 12” dia mainly PVC pipes executed in different phases. The present functional network of water supply scheme pipeline comprises of three main phases. Phase-I was executed in 1971-72, Phase-II in 1978 and Phase-III in 2008-09. In addition to above, the MC Hafizabad has also enhanced distribution network of 3” dia in different years in the new localities. The network map of the pipeline is shown in the figure below and diameter wise length can be seen in **Figure 3**.

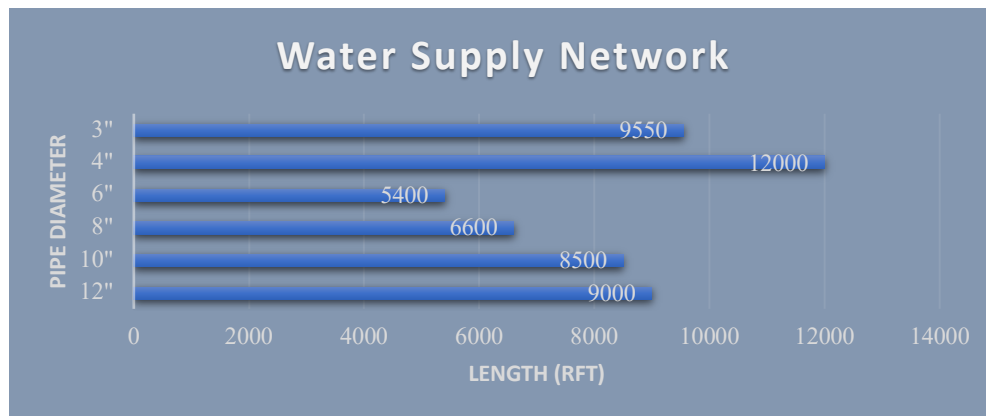


Figure 3: Diameter wise lengths of Water Supply Network

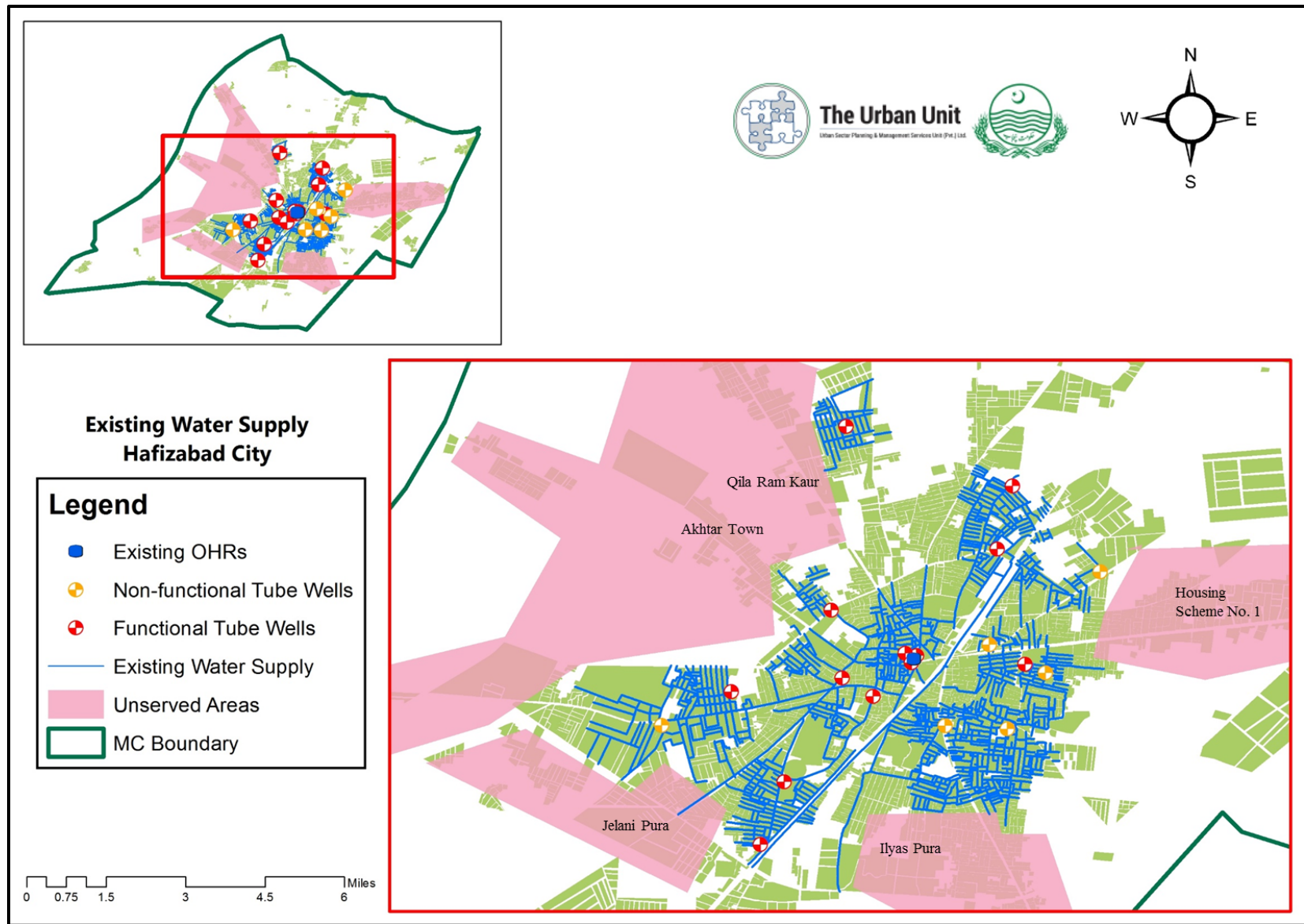


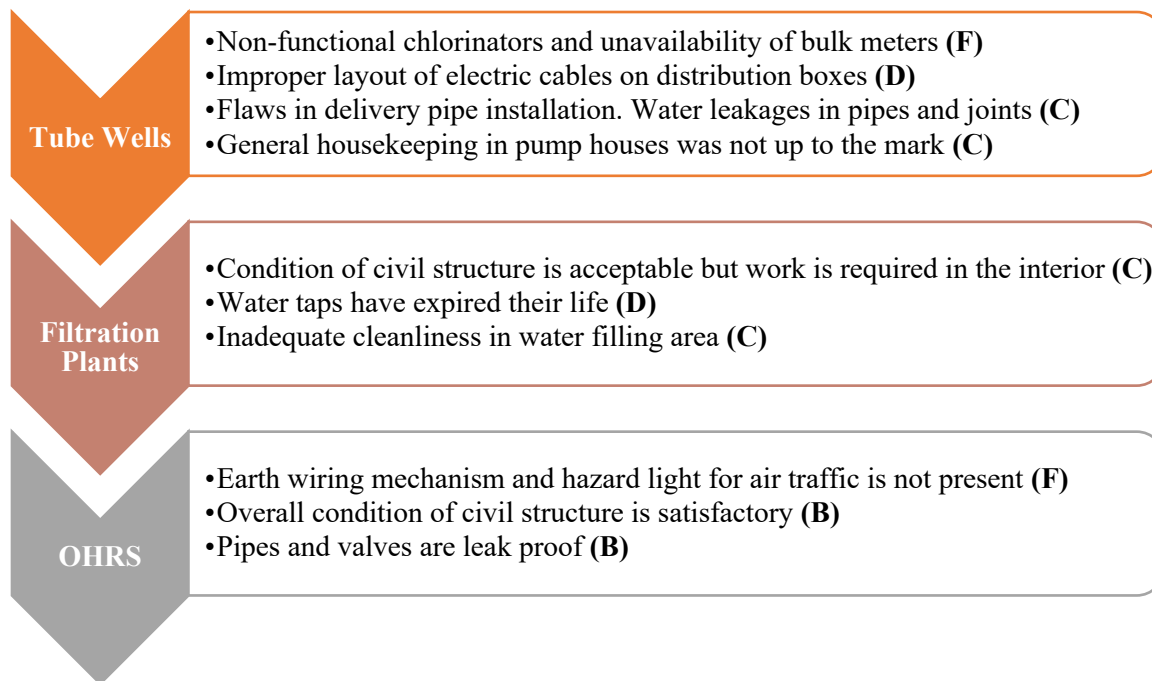
Figure 4: Layout Map of Existing Water Supply Infrastructure

2.5. ASSET CONDITION ASSESSMENT – WATER SUPPLY

The team performed condition assessment of the infrastructure by physically visiting each facility individually. Ten tube wells, five filtration plants and three OHRs were examined in this regard on the basis of criteria mentioned in **Table 8**.

Table 8: Rating Chart for Asset Condition Assessment

Rating Chart		
Excellent	A	No noticeable defects. Some aging or wear may be visible.
Good	B	Only minor deterioration or defects are evident.
Fair	C	Some deterioration or defects are evident, but function is not significantly affected.
Poor	D	Serious deterioration in at least some portion of the structure. Function is inadequate.
Failed	F	No longer functional. General failure or complete failure of a major structural component.





Family Park – Hafizabad



Primary School – Hafizabad



High School – Hafizabad



Primary School – Hafizabad



Jinnah Hall – Hafizabad

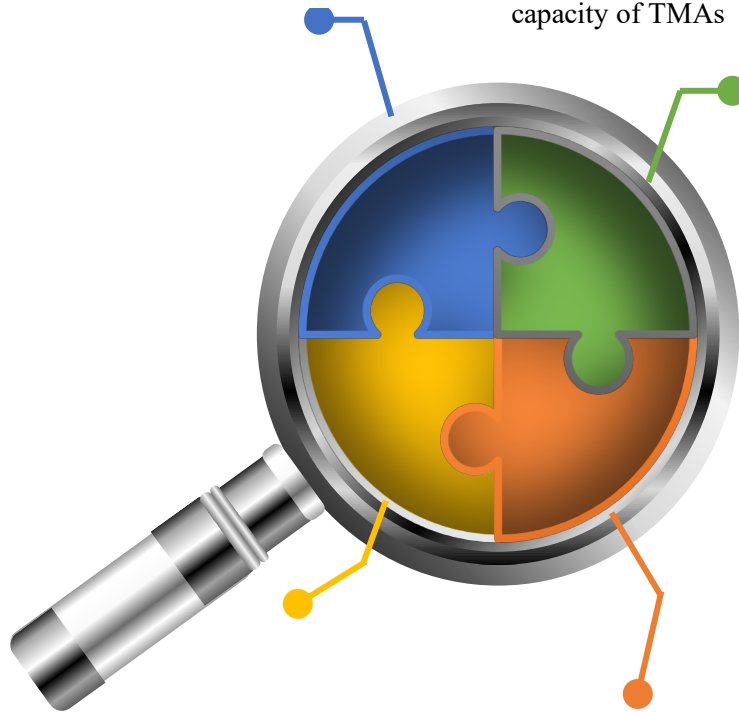


Family Park - Hafizabad

Figure 5: Asset Condition Assessment – Water Supply

2.6. CHALLENGES IN SERVICE DELIVERY

- The underground water supply distribution network has expired its life and is being contaminated with sewerage water
- There is a need to properly define service area zones and DNI zones for efficient service delivery
- Majority of the water supply schemes and the only overhead reservoirs (OHRs) in the city area need major rehabilitation
- Low budget allocation for extension of existing water supply schemes and construction of new water supply schemes
- Poor technical, financial and human resources capacity of TMAs



- Institutional framework related to water governance is weak and poorly managed i.e., ambiguity about roles and functions of the involved departments
- There is unclear jurisdiction of service areas which results in overlapping of their functions and leave a lot of areas as un-served
- Absence of institutional mechanism to generate reliable data on time series and geographical basis
- Resource allocation is not based on need assessment, criteria and data
- Technology based planning and monitoring of staff and equipment of MC is missing

2.7. RECOMMENDATIONS – WATER SUPPLY

During the Stakeholder Consultation with the Deputy Commissioner and officers of the Municipal Committees, A0 size maps were used to define areas where water supply pipelines are in poor conditions, areas unserved at the moment, conditional assessment of infrastructure, future DNI zones, and proposed location of OHRs etc.

The proposed interventions for water supply of Hafizabad are divided into three phases i.e. Short Term (0-3 Years), Medium Term (3-5 Years), Long Term (5-10 Years). These projects are aimed at improving the existing water supply service and to prioritize the areas for DNI zones. Rehabilitation of existing water supply setup includes replacement of old damaged delivery system, revival of inefficient machinery and civil structures, installation of new chlorinator, pressure gauges and bulk water meters. In addition, these projects include construction of OHRs and extending water supply lines in the unserved areas of Hafizabad city. Implementation of the proposed projects in true letter and spirits will enhance the capacity of the existing system. The detailed bill of quantities for the following projects can be seen in Annexure 1.

2.7.1. SHORT TERM PLAN (0-3 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Rehabilitation of abandoned tube wells (06) in moh. Farooq Azam, Misri Khan, Sharif Pura, Iqbal town, Peer Kalay Shah and Siddique Akbar respectively	51.98
2	Upgradation of 5 tube wells (1 cusec to 1.5 cusec) in Moh. Karimpura, Sherpura, Bus stand , Jinnah Hall 2 and Jinnah Hall 3	27.22
3	Construction of 2 OHRs (50,000 gals each) for water storages in Misri Shah Chowk and Garhi Awan	37.75
4	Replacement of existing Water Supply lines in Main Bazar, post office road, Moh. Misri Khan, People Colony and Qazi Pura	76.63
5	Extension of Water Supply Network to Khan pura, Garhi Awan, Qadirabad and Siraj Ganj.	34.68
6	Rehabilitation of existing OHR in Jinnah Hall	1.88
Total (Million PKR)		230.14

2.7.2. MEDIUM TERM PLAN (3-5 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Development of DNI Zones (I and II) for 24 x7 Water Supply	429.62
2	Extension of water supply network in the unserved Areas (Ilyas pura, Jelani pura, Faisal Town and Housing Colony)	47.85
3	Construction of 9 OHRs (100,000 gal each) in the Areas namely, Khan pura, Mian Kot Chowk, Mughalpura, Municipal Park, Main Bazar, Nawab Colony, Siddique Akbar, Kashmir Nagar and Ilyaspura	169.88
4	Construction of 4 Tube wells (2 cusec each) in the unserved areas (Ilyas pura, Defence Colony, Nawab Colony and Moh. Rashidpura)	35
5	Construction of 4 Water Filtration Plants with the tube wells in the unserved areas (Ilyas pura, Defence Colony, Nawab Colony and Rashidpura)	21.86
Total (Million PKR)		704.21

2.7.3. LONG TERM PLAN (5-10 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Development of DNI Zones (III and IV) for 24 x7 Water Supply	671.83
2	Extension of Water supply network in the unserved Areas (Thatta Khokhran, Qela Gulab Singh, Phool Town, Sadaqat Colony and Zulfiqar Colony)	72.50
3	Construction of 9 Tube wells (2 cusec each) in the unserved areas (Thatta Khaokharaan, Faisal Town, Siddique Akbar, Hafizabad Bypass Road, Quaidabad, Kolo Tarar Road, Ali Town, Jariyanwala and Moh. Azizabad)	78
4	Construction of 9 Water Filtration Plants with the tube wells in the unserved areas (same as above)	49.18
5	Construction of 6 OHRs (150,000 gal) in Moh. Hassan Town, Azizabad, Zulfiqar Colony, Trauma Center Road, Thatta Khokharan and Faisal Town	210
6	Rehabilitation of Water Supply Network in Moh. Mughal Pura, Moh. Taj pura, Moh. Bahawalpura Sharki, Moh. Bahawalpura Gharbi, Ali town and Quaid abad	94.31
7	Rehabilitation of existing filtration plants in Moh. Bijli, MC Family Park, Moh. Mian da Kot and Moh. Hussain Pura	19.58
Total (Million PKR)		1195.4

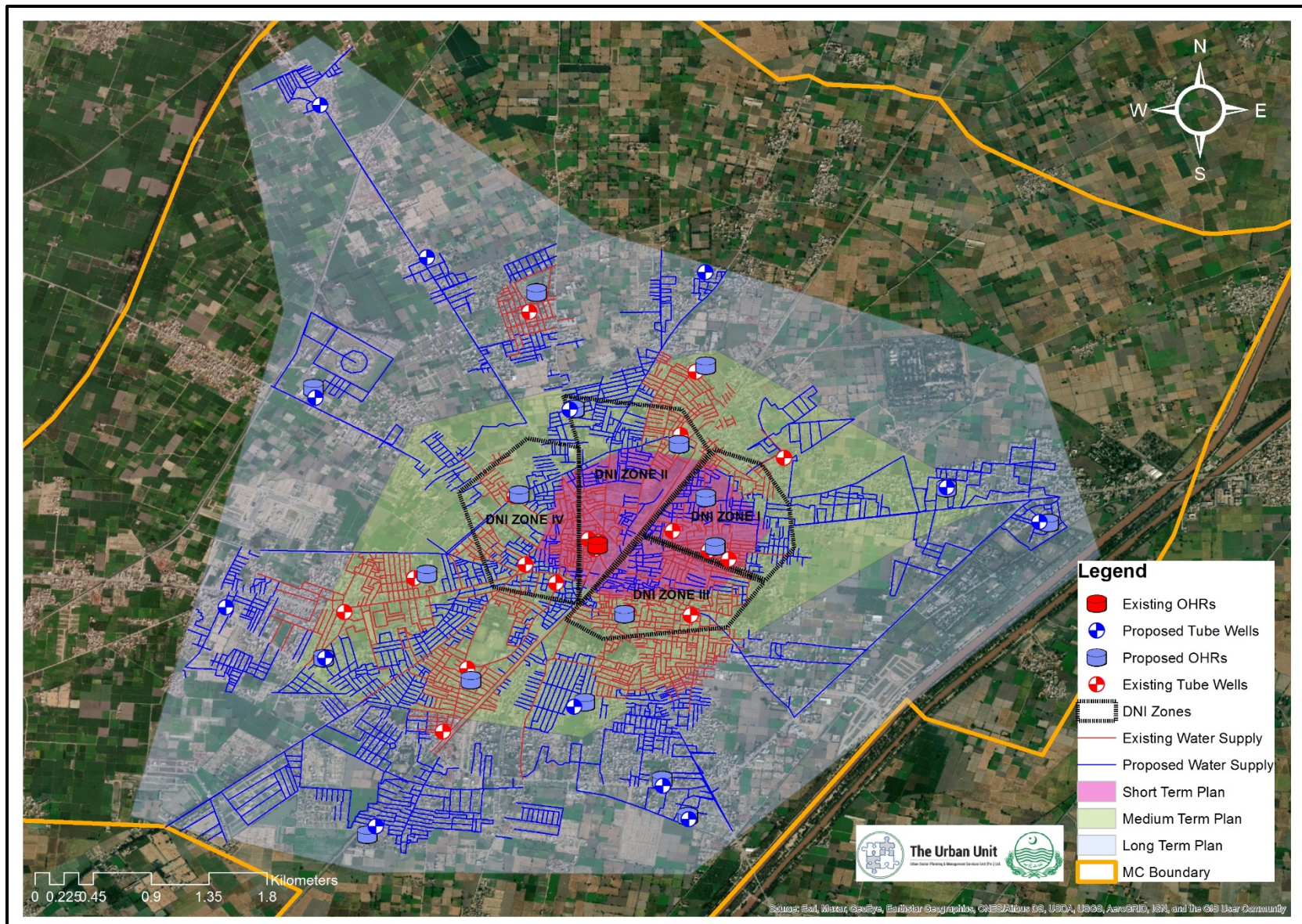


Figure 6: Layout Map of Development Projects with DNI Zones

ENVIRONMENTAL MANAGEMENT PLAN OF WATER SUPPLY

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
Planning Phase				
1.	Disturbance to existing Utilities	<ul style="list-style-type: none"> • Disturbance/damage to existing utilities on the sites (Telephone lines, electric poles and wires, water lines within proposed project sites) • Site flooding, nuisance, pollution • Blockage of access 	<ul style="list-style-type: none"> • Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase • Conduct detailed site surveys with the construction drawings and discuss with the respective agencies during the construction phase before ground clearance; • Require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. Where required temporary arrangements will be made to avoid any interruption of utility services. 	
Construction Phase				
Physical Impacts				
2.	Dismantling, Excavation, and filling operations	<ul style="list-style-type: none"> • Dust which may affect visibility • Noise from machineries/ equipment • Soil erosion • Contamination of surface water • Vibration (Shock waves can be produced due to heavy machinery working) 	<ul style="list-style-type: none"> • Waste should be properly disposed off • Updated and tuned machinery should be used to control noise. • Water sprinkling should be carried out at consecutive intervals as per instruction • Provision for personal protective equipment, earmuffs, Mask etc to labour. • Avoiding construction activities during nights. • Use of vibratory roller should be prohibited 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
		<ul style="list-style-type: none"> • Solid waste may be generated due these activities • Safety hazards to labour and nearby resident population. • Solid waste may cause disturbance in mobility • Temporary blockage of road may restrict mobility • Conflict with public and public complaints • Economic losses • Livelihoods loss. • loss of shopkeepers • Temporary loss of structures and private property • Economic loss of permanent and mobile vendors due to obstruction of passage 	<ul style="list-style-type: none"> • Removal of excess matter/ debris/sludge from the site immediately. • Adequate safety precautions such as helmets, safety shoes, gloves, etc. should be provided to the labour • Provide appropriate signage near the construction activities to sensitize the community and minimize accidents. • Public Consultation to aware nearby residents. • Public must be informed about project major activities, duration of scheme, time and schedule, anticipated impacts and their proposed Mitigation Measures. The contact Nos. of focal person of Grievance Redress Committee should be displayed at different locations and residents should also be informed about it. • Emergency contact numbers should be displayed • Construction work should be done only on 4-5 feet length of street/road, rest of the streets/road should not be affected. In this way the business of the shop's keepers will not be affected. Water supply lines where about 10 days will require to work make a schedule to work in portions so that the alternate road may be used safely. Contractor would be instructed that labour must not damage the property and structures of the residents. In case of damage compensation should be provided. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
3.	Civil work, Laying of water distribution network/pipes	<ul style="list-style-type: none"> • Solid wastes • Noise and vibration disturbances to residents and businesses • Road side visibility can be reduced and dusty environment leads to respiratory diseases. • Safety issues • Health problems or immediate risk may take place • Spillage of fuel and oil • Traffic jams and congestion may take place and cause inconvenience to the people where the construction of interchanges will take place. • Reduced pedestrian access to residences and businesses • Temporary Sewer system interruption Conflicts. • Dissatisfaction for the project 	<ul style="list-style-type: none"> • Immediately transport the accumulated construction waste to a site identified by the implementing authority • Broken Pipes should be disposed of properly • Removal of excess materials • Cleaning of sites upon completion of schemes. • Establish schedule and others specific restrictions • Limit work to day light hours as possible • Use of less noise generating equipment • Regular water sprinkling with the help of water bowsers • Cordon off construction area • The Private Contractor should ensure provision of appropriate housing, water supply, and sanitation facilities to construction labour. • PPEs should be provided to workers • Availability of safe drinking water and food for the workers. • Availability of alternate water supply lines • proper maintenance of machinery • Traffic management plan should be prepared in advance of start of work on-site and communicated to the field staff. • Use alternate traffic routing • Establish coordination procedures for cut-off • Alternate water supply line will be make sure and public will be informed about it. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
4.	Mechanical Works – Pumps replacement and repair	<ul style="list-style-type: none"> • Design according to approved specification • Handling and storage 	<ul style="list-style-type: none"> • Pump replacement should be installed based on approved design specifications • Pump repairs should be done according to approved design specifications • Waste and redundant material shall be handed over to the Municipality offices / custodian department from which they were issued • General housekeeping shall be observed at site • Record of all wastes should be maintained 	
5.	Backwash Pipeline Construction	<ul style="list-style-type: none"> • The backwash pipeline for transportation of backwash to injection wells will be part of construction scope of work. 	<ul style="list-style-type: none"> • It is suggested that backwash from treatment plants should be injected in deep wells, injection depth should be two to three times greater than suction level. 	
6.	Land Acquisition	<ul style="list-style-type: none"> • Land will be acquired within the Hafizabad city. In case of non-availability of state/ Government Land private land will be required. In this Tehsil, mostly State Lands are available and at remaining locations, donation of private land will be acquired 	<ul style="list-style-type: none"> • Land Acquisition is not done at any site hence no mitigation is required. 	
7.	Contractor Camps	<ul style="list-style-type: none"> • Contractor camp will be established near the Project site to carry out the Project activities. Though the number of labour and size of camp will not be large, even then this will have an impact on the surrounding environment. 	<ul style="list-style-type: none"> • Ensure that camp size is as per standard specifications • Ensure that Contractor camp is established at least 500m away from settlements to void / minimize the construction impacts 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> Contractor should ensure provision of appropriate housing, water supply, and sanitation facilities to construction labour. 	
8.	Installation of Batching Plant	<ul style="list-style-type: none"> Batching plant will be installed at Project area for construction activities. Batching plant operation will be a source of nuisance for surrounding community. 	<ul style="list-style-type: none"> Ensure that location of batching plant must be at least 500 meters away from the settlement. Ensure that batching plant material is stocked on specified area in compliance with specifications of installation of batching plant. Ensure that the batching plant is installed with zero emissions. Ensure that the batching material does not contaminate the land or natural drainage. 	
9.	Dust	<ul style="list-style-type: none"> The earthen portions of road/tracks may prone to dust emissions due to moving machinery. Machinery consisting of bulldozers, dumpers, generators and vehicles will be used during the construction phase. This construction machinery will generate lot of dust, smoke and other potential pollutants in the air. 	<ul style="list-style-type: none"> All sections of the access tracks that are prone to dust emission and where sensitive receptor are located within 500 m should be identified and marked on the map of the project area. Wind breaks or barriers (either natural or constructed) should be installed at susceptible Construction sites that reduce wind velocity and reduce the possibility of suspended particles. Wind breaks can be trees or shrubs left in place during site clearing or constructed barriers such as a wind fence or sediment wall. Ensure that the access tracks which are prone to dust emissions and marked on the map should be maintained by water spraying daily. Ensure that all equipment, generators and vehicles used during the project are properly tuned and maintained in good working condition, 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<p>in order to minimize the exhaust emissions. Ensure that the batching plant design meets requirements of zero emissions.</p> <ul style="list-style-type: none"> • Ensure that dust emissions due to vehicular traffic are minimized by reduced speed, vehicular traffic minimized through good traffic management and water sprinkling when required. • Ensure that dust emissions at the construction sites are minimized by implementing best management practices. 	
10.	Noise	<ul style="list-style-type: none"> • Noise will be produced from constructional activities. This can disrupt the daily activities of settlements. 	<ul style="list-style-type: none"> • Construction activities should be prohibited from 9pm to 8am. • Noise barriers should be installed where possible to keep the noise levels within permissible limits. • Ensure prohibition of use of vehicle horns anywhere inside the fenced areas or on the access roads is strictly observed. • Noise-reducing devices (silencers and baffles) should be used for the machinery • Engines should be turned off when they are not in use • Contractor obligation is to use appropriate and fit machinery. 	
11.	Vehicle Movements	<ul style="list-style-type: none"> • Traffic congestion • Conflicts 	<ul style="list-style-type: none"> • Alternative routes should be provided. • Sign boards and posters should also be displayed at project site and adjacent areas as well. Inform the residents about timing, schedule and construction work duration. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
12.	Vibration	<ul style="list-style-type: none"> Shock waves can be produced due to heavy machinery working. Loss to nearby structures can be resulted. 	<ul style="list-style-type: none"> Use of vibratory rollers should be prohibited. 	
13.	Solid Waste Generation	<ul style="list-style-type: none"> The Contractor camp will generate solid waste. Improper disposal of solid waste will contaminate land and can sprout numerous diseases. 	<ul style="list-style-type: none"> Ensure following steps while disposal of solid waste: <ul style="list-style-type: none"> Solid waste should be segregated according to its type. Material suitable for recycling should be stored separately and sold afterwards. Combustible waste to be burnt at designated burn pit only as demarcated by Resident Engineer. Non- combustible, non-recyclable garbage sent to the designated landfill site in Project area as demarcated by Resident Engineer. Contaminated soil should be sent to burn pit or landfill. Medical waste (if any) should be transported to nearby hospital incineration plant. Solid residue from the septic tanks should be transported to municipal sewage facilities as demarcated by Resident Engineer. 	
14.	Waste Water Discharge	<ul style="list-style-type: none"> The Contractor camp will produce waste water. Unmanaged disposal of this water will contaminate land and will lead to water borne diseases. 	<ul style="list-style-type: none"> Water from washing areas and kitchen is released in sumps. Ensure septic tanks of appropriate design have been used for sewage treatment and outlets are released into sumps. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • Ensure that the outlets released into sumps must not make a pond of stagnant water. • Ensure that latrines, septic tanks, and sumps are built at a safe distance from water body, stream, or dry streambed and the bottom of the sump is above the ground water level. • Ensure that sumps are: <ul style="list-style-type: none"> – In absorbent soil. – Down slope and away from the camp. – Downstream from the camp water source and above the high watermark of nearby water body (if any). • Ensure that effective drainage is in place at the site. 	
15.	Construction material storage, handling and use	<ul style="list-style-type: none"> • Project activities will generate construction waste. Improper disposal of that waste could create nuisance to the surrounding community. • Water may also be contaminated due to the oil spillages if the water source is nearby the storage yard. • Land accusation for storage of Construction material • Accidents/Injuries expected if neglected 	<ul style="list-style-type: none"> • Ensure that the site selected for waste material disposal is demarked by Resident Engineer before starting the work. • Ensure that all trucks used for the transportation of waste material are airtight and watertight. • Loads/heaps shall have appropriate cover to prevent spillage and contractor should be responsible for any clean up resulting from any failure. • Materials shall not be loaded to a higher level than the side and tail boards and shall be covered with a good quality tarpaulin; 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • No land should be acquired for the storage of materials & machinery as no widening of road involved under scope of work. • If land acquired for storage of machinery & materials on temporarily basis: Contractor is liable to compensate the land owner according to market rate. • Ensure that photographs of selected area are taken. • Ensure that the movement of waste lifting machinery and vehicles is limited to the work area. • Ensure that waste material is properly disposed-off in a manner that does not affect the natural drainage. • Ensure that the dumping area has been leveled properly after disposal of waste material. • Contractor should use night vision reflective signboards/ reflective tapes to cordon off the area during construction/demolition activities. 	
16.	Soil Erosion	<ul style="list-style-type: none"> • Construction activities will lead to soil erosion. Soil erosion from construction sites can cause pollutants generation and also depletion of the soil quality. 	<ul style="list-style-type: none"> • Ensure that surface run-off controls are installed and maintained so as to minimize erosion. • Ensure adherence to the speed limit of 40 km/hr. at the access roads. • Ensure that vegetation clearing is minimized and no trees are felled without prior permission of Consultant's Environmentalist. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> Loose soil and side slopes will be planted with grass to retain the upper soil and reduce the rainwater velocity. 	
17.	Land Contamination	<ul style="list-style-type: none"> The construction machinery including cranes, trucks, loaders/dumper and batching plants will be used during the construction period. There are chances of land contamination due to release/spill of lubricants, oil, chemicals and toxic materials 	<ul style="list-style-type: none"> Ensure that the maintenance of vehicle and other equipment takes place only in designated areas underlined with concrete slabs and a system to collect runoff in to mud pit. Ensure that no contaminated effluent is released in to the environment. Ensure machinery wash and other potentially contaminated effluents are released in mud pit. Ensure that fuels, oils, and other hazardous substances are handled and stored according to standard safety practices such as secondary containment. Fuel tanks should be labeled according to impervious lining and dykes etc. Ensure spills are avoided during fuel and oil transfer operations. Appropriate arrangements, such as concrete base or drip pans, should be used to avoid spills. Ensure fuels, oil and chemical storage are daily checked for leakage. Ensure that shovels, plastic bags, sand bags and absorbent materials, are kept available near fuel and oil storage areas. Ensure that operating vehicles are checked regularly for any fuel, oil, or battery fluid leakage. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • Ensure that leak /spill record is maintained for each vehicle and such vehicles are operated after proper repair. • Soil contaminated by minor spill (covering an area up to 01 m² and 7.5 mm deep) will be collected and disposed at burn pit. • Ensure that soil contaminated by moderate spills or leaks (up to 200 liters) is controlled using shovels, sand and mud. The contaminated soil if any will be removed from the site and disposed-off at landfill or burn pit as required. 	
18.	Wastage of Water	<ul style="list-style-type: none"> • Water may be wasted during daily activities of labour camps. 	<ul style="list-style-type: none"> • Avoiding undue wastage of water through conservation techniques and selection of adequate water supply sources to ensure that water usage does not affect local consumption. 	
19.	Occupational Health and Safety	<ul style="list-style-type: none"> • Risk may occur from: <ul style="list-style-type: none"> – drinking contaminated water – fire hazards – chemical spillages – falls – communicable diseases – Different construction activities – Inadequate Personal Protective Equipment (PPEs) 	<ul style="list-style-type: none"> • Providing basic medical training to specified work staff and basic medical service and supplies to workers; • Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for labourers; • Protection devices (ear muffs) will be provided to the workers operating in the vicinity of high noise generating machines; • Provision of adequate sanitation, washing, cooking and dormitory facilities including lighting up to satisfaction; • Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
			<p>adequate footwear for bituminous pavement works, protective goggles, gloves etc.;</p> <ul style="list-style-type: none"> • Ensure strict use of wearing these protective clothing during work activities; • Availability of safe drinking water for the workers; • Elaboration of a contingency planning in case of major accidents; • Close consultation with local communities to identify optimal solutions for diversions to maintain community integrity & social links; • Provision of proper safety signage at sensitive/ accident-prone spots; and • Cordon-off the constructed area 	
Biological Impacts				
20.	Flora	<ul style="list-style-type: none"> • The construction may involve cutting and removal of trees. • There is no protected or reserved forest in the vicinity of the construction area. Therefore, no effect is envisaged. 	<ul style="list-style-type: none"> • Ensure that during aligning the access roads, minimum vegetation is lost. If any tree is uprooted, ensure that the Contractor has planted at least three-fold of trees lost. • Ensure that endangered trees species (if any) indicated in (EIA) are not cut. • Ensure that trees and shrubs are not used as fuel during construction or operation. • After completion of construction phase the vegetation of the area should be restored through plantation. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
21.	Fauna	<ul style="list-style-type: none"> The construction activities may disturb the habitats of native animal species. 	<ul style="list-style-type: none"> Natural habitats should be maintained to the maximum extent and undue interference should be avoided during construction phase of the Project. Endangered species if any should be documented and activities should be carried out to reduce negative impacts on endangered species. Contractor's staff should be strictly prohibited from buying any wild animals/birds. Ensure that safe driving practices are observed so that the accidental killing of reptiles or small animals crossing the roads could be avoided. Ensure that damage to the natural topography and landscape is kept as minimum as possible. Ensure that a no-hunting, no trapping, no harassing wildlife policy is strictly observed. Ensure that the general awareness of the crew is enhanced regarding the wildlife, through environmental training, notices boards etc. 	
22.	Agricultural Land and crop destruction.	<ul style="list-style-type: none"> No agricultural land is involved anywhere in the Project implementation 	<ul style="list-style-type: none"> No action is required 	
Socio-Economic Impacts				
23.	Job Opportunities	<ul style="list-style-type: none"> The project will open job opportunities which the local population can avail. Contractor should hire skilled and unskilled 	<ul style="list-style-type: none"> Ensure that at least up to 95% of unskilled, up to 43% of semi-skilled employment and up to 100% of skilled jobs are provided to people from local communities, provided that the persons with required qualifications are available. 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
		labour force from the local communities.	<ul style="list-style-type: none"> • Ensure that guidelines are prepared and implemented to sensitize non-local labourers to local norms and customs in order to minimize cultural tensions 	
24.	Communicable Diseases	<ul style="list-style-type: none"> • Presence of labour at Project site may pose hazard of communicable diseases, which can also spread to the surrounding community 	<ul style="list-style-type: none"> • Good design and construction management to avoid stagnant water. • Proper management and disposal of rubbish and wastes from camp site. • Ensure that field crew is medically screened before employed on site. • Ensure Project staff interaction with local community is minimized. • When operating in residential areas, display Project contact details in prominent locations. This will give local residents a point of contact and should allow you to address any nuisance issues that may arise. • Ensure that periodic awareness campaigns for HIV/AIDS are undertaken for the project staff. 	
25.	Any Discharge or diversion of water to a Graveyard or Archaeological area	<ul style="list-style-type: none"> • If Graveyard/ Archaeological sites are found in the Project area then due precautions are necessary. 	<ul style="list-style-type: none"> • If during construction such sites are found and discharge or diversion of water likely to damage the site then it is a Contractor's obligation not to let it happen 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
26.	Public access	<ul style="list-style-type: none"> Problems for pedestrians. Normal mode of transport may be disturbed during project execution. Impediment of access to houses and business 	<ul style="list-style-type: none"> Alternate access route should be made sure. Construction should start from middle of the street and later on from either right or left side. Wooden blocks/ramps shall be provided at door step of each house. Cordon off open Manholes 	
Operational Phase				
27.	Water Intake	<ul style="list-style-type: none"> Water source for treatment plants will be ground water in Tehsil Dera Ghazi Khan 	<ul style="list-style-type: none"> The population of Tehsil Dera Ghazi Khan use ground water for their daily activities. The ground water is collected through hand pumps and motor pumps. This water is contaminated by chemical and biological contaminants. Thus treatment of this water by RO and UF plants will lead a positive impact on health of the local community. Also, water will not be depleted or wasted by installation of water treatment plants. Because community will use this treated water instead of directly using the ground water. So there is no negative impact envisaged in using ground water as source intake. 	
28.	Water Pollution	<ul style="list-style-type: none"> Pollution by Stored Water Treatment Chemicals – Chlorine 	<ul style="list-style-type: none"> Safe Storage facilities to be provided. Chemical Storage areas to be constructed with hardened cement screed floor finish with approved epoxy floor coating. Water treatment should be done at a minimum disinfection / chlorination. 	
29.	Seepage/Spill water	<ul style="list-style-type: none"> Increase moisture content in soil which affects the structures / 	<ul style="list-style-type: none"> Ensure proper technical design, construction and operation of the structure and system to minimize 	

Sr. No.	Component	Description	Recommended Mitigation Measure	Implementation Responsibility
		foundation of buildings in nearby areas. Contaminate the water	seepage and appropriate implementation techniques. In case of failure of nearby building structures, foundation, monetary compensation shall be provided.	
30.	Energy Consumption	<ul style="list-style-type: none"> Solar panels can be used for power supply along with the option of supply from local grid station (if required). As the solar energy is renewable energy source so no impact is envisaged. 	<ul style="list-style-type: none"> No action is required 	
31.	Disposal of Back Wash	<ul style="list-style-type: none"> The quantity and composition of the filter backwash water are functions of the process and the efficiency of the treatment units preceding the filter. The backwash generated from the treatment plants may contaminate the receiving body as well as the ground water. 	<ul style="list-style-type: none"> It is suggested that backwash from treatment plants be injected deep in the aquifer. 	
32.	Air Emissions	<ul style="list-style-type: none"> The air may be polluted due to vehicular emissions and dust producing activities. 	<ul style="list-style-type: none"> Monitoring of NO_x and Total Suspended Particulate (TSP) emissions from air should be carried out effectively. 	
33.	Aesthetic/ Scenic Quality	<ul style="list-style-type: none"> The Project construction and operational activities may affect aesthetic/scenic quality of the area. 	<ul style="list-style-type: none"> The standing lush green crops and trees in filed present a good scenic view of Project area. This should be conserved at all costs. 	

3

Sewerage

- 3.1. Introduction
- 3.2. Design Criteria
- 3.3. Existing Sewerage Network
- 3.4. Asset Condition Assessment
- 3.5. Recommendations

3.

SECTION – SEWERAGE SYSTEM

3.1. INTRODUCTION

The existing sewerage system of Hafizabad city is composed of Disposal Stations, and Sewerage Pipe Network and drainage system. The city has a major sewerage and drainage issues. During our discussion with MC Hafizabad team, it was pointed out that sewerage and drainage issues are off serious nature and major streets in the city center face waste water flooding which require replacement and new schemes.

3.2. DESIGN CRITERIA

The main objective of the present section is to propose a workable, technically sound, sustainable and financially viable solution for the provision and development of sewage collection system in Hafizabad. The design criteria for different components have been based on Technical and Service Delivery Standards for Public Health works namely “Punjab Devolved Social Services Program (PDSSP)” and Public Health and Engineering Department (PHED) Design Criteria 2008.

3.2.1. COMPONENTS OF SEWERAGE SYSTEM

1. Conveyance Network

Lateral (smaller) sewer pipes are used to collect the sewage directly from the interception points and convey sewage up to sub-main or main/trunk sewers. As the sewage is conveyed under gravity flow, therefore pipes are sloped towards final disposal point. To raise hydraulic grade line, the sewage is pumped through a disposal/pumping station.

2. Manholes

Manholes are generally provided in the sewer pipes at suitable distances for connection of lateral lines and inspection and maintenance purposes. For closed drains, inspection chambers are provided for removal of sludge and maintenance works.

3. Pumping/Disposal Stations

In plain areas, the trunk sewer lines usually go well beneath the natural surface level (NSL) at the end and sewage is pumped through a pumping/disposal station to dispose of into Sewage Treatment Plant. A disposal/pumping station is generally composed of a collection well and pumps with suction and delivery pipe lines.

4. Sewage Treatment Plant (STP)

Sewage from the Hafizabad city will be collected at disposal stations at different locations as per the master plan. This sewage contains hazardous chemicals and pollutants, so they cannot be disposed of directly into any water body as per provisions of the Pakistan Environmental Protection Laws. This acts as the driving force behind construction of the sewage treatment plants that are to be located after disposal stations and/or sullage carriers. These treatment plants will treat the sewage according to the prescribed standards given in Punjab Environmental Quality Standards (PEQS) and the treated product will be later on disposed into the water body.

3.2.2. DESIGN FLOWS

Flow calculations will be based on the following list of parameters.

1. Average Domestic Sewage Flow

Sewage production is based on the water consumption. The sewage production will be taken as 85% (for population more than 100,000) of the water consumption according to PHED criteria. Water consumption per capita per day for Hafizabad city will be adopted as 55 gallons (PHED).

2. Peak Flow

Peak flow will be estimated by multiplying the average daily flow by the peak factor to calculate the peak flow. Peak Factor depends upon the population as it decreases with increase in population. PHED criterion provides different peak factors according to population as shown in **Table 9**.

Table 9: PHED Peak Factor Criteria

Population	Peak Factor
5000	4.5
5000-10,000	4
10,000-25,000	3.5
25,000-50,000	3
50,000-100,000	2.5
More than 100,000	2

3. Non-domestic Sewage Allowance

The non-domestic sewage allowance will be taken as 5% of average sewage flow that will cover institutional, commercial and small industrial discharges.

4. Storm Water Allowance

An allowance of storm water flow will be considered in the partially combined sewerage system which shall be equivalent to the 33% of peak sewage flow as per PHED design criteria.

5. Infiltration Allowance

As per the given PHED criteria, an allowance for infiltration rate equals to 5% of average flow will be used.

6. Design Calculations

Total sewage flow shall be the sum of all the above flows and sewers/conduits shall be designed on this total sewage flow.

$$\text{Total flow} = \text{Average domestic sewage flow} + \text{Peak flow} + \text{Infiltration rate} + \text{Non-domestic flow} + \text{Storm water flow}$$

3.2.3. CONVEYANCE NETWORK

Components of sewerage system mentioned previously will be designed considering above design flows and on the criteria listed as follows.

1. Pipe Materials

Selection of a viable pipe material is based on the capital cost to be incurred on the installation of collection network, design life and operation and maintenance expenditure. In this regard, following are the pipe materials which can be considered:

- RCC Sewer Pipes
- RCC Drains/conduits
- High Density Polyethylene (HDPE) Pipes
- Corrugated High Density Polyethylene (HDPE) Pipes

RCC sewer pipes are most commonly used successfully for local sewerage schemes. HDPE pipes are relatively less common for gravity sewers in Pakistan due to higher capital cost and non-availability of larger diameters in local market. However, HDPE pipes are being used for gravity sewerage system in developed countries.

The **Table 10** shows the comparison of above mentioned types used for sewage conveyance.

Table 10: Comparison of Different Material Properties

Sr. No	Evaluation Criteria	RCC Sewer Pipes	RCC Drains/Conduits	HDPE Pipes
1	Available unit Length	2.4 m	Precast conduits up to 1.8 m length are common	6 or 12m
2	Diameters/Sizes Available	225 to 1830 mm	Can be casted in any required size	Available up to 1600 mm
3	Type of Joint	Bell & Spigot Joint, Tongue & Groove Joint	Expansion Joint with Sealant	Butt fusion welding process.
4	Weight	Heavy	Heavy	Light

5	Handling	Difficult due to heavy weight	Precast conduits are difficult to handle due to heavy weight	Easy mobility but jointing requires trained labour
6	Roughness Coefficient	0.011-0.013	0.011-0.013	0.011
7	Corrosion resistance	Subject to H ₂ S corrosion due to acids, highly septic sewage and by highly acidic sewage.	Subject to H ₂ S corrosion due to acids, highly septic sewage and by highly acidic sewage.	Highly Corrosion resistant
8	Structural Life	Around 25 years	Around 25 years	More than 50 years
9	Local Availability	Easily available	Easily available	Larger diameters are manufactured on special orders or imported
10	Requirements of Special Equipment for Jointing	Not required	Not required	Equipment for Butt fusion welding is required
11	Previous Local Experience	Commonly practiced and successful under many local circumstances for urban sewerage schemes	Commonly practiced when RCC sewer dia. above 72" is required. It is successful for both urban and industrial developments. Used in industrial estates of PIEDMC.	Smaller diameters up to 27" have been successfully used in local projects. Larger diameters are not common.
12	Operational Problems	Effluent may erode and deteriorate	Cleaning is relatively easy and repairing work is easier in case of	Resistant against chemicals of

the strength and cause crown failures.	drains/sullage carrier	industrial effluents and lesser operational problems
--	------------------------	--

2. Manhole

Manholes will be provided at each junction of the sewers with varying diameter, gradient or alignments. As per PHED criteria, size & depths of manholes and spacing of manholes are tabulated within **Table 11** and **Table 12**.

Table 11: Spacing Criteria of Manholes

Sewer Size (mm)	Spacing (m)
310	30
380	45
460	60
530 -610	75
690 -1070	90
1220 -1520	120
Above 1520	150

Table 12: Criteria for Manhole Diameter Size

Size of Sewer (mm)	Sewer Depth (m)	Diameter of Manhole (m)	Remarks
225-530	1.25-2.25	1.25 dia	-Masonry 1:3 Cement Sand Mortar
610-760	2.5-6.0	1.5 dia	-Up to 2.25m depth
840-1070	2.5-6.0	2 dia	225mm Masonry.
1220-1370	2.5-6.0	2.25 dia	-From 2.25m to 4.75m
1520	2.5-6.0	2.5 dia	Depth 350 to 225mm Masonry
1680	2.5-6.0	2.5 dia	-From 4.75m and above
1830	2.5-6.0	2.75 dia	450mm to 350mm.

For manholes under sub soil water, RCC core-wall will be designed and floor will be designed as per actual depth of water encountered. Furthermore, it may be noted that the traffic flow is also taken into considerations when deciding manhole covers and their designs.

3. Sewer Pipes

- i. The Master Plan has been prepared for primary, secondary and tertiary sewer pipes. Primary sewerage network include 72", 54", 48" and 36" diameter pipes, secondary sewer pipes are of 30", 27", 24" and 18" diameters and tertiary pipes comprise of 15", 12" and 9".

- ii. Reinforced cement concrete pipes conforming to ASTM Specification C-76 shall be used.
- iii. A minimum cover of 1 m over the crown of sewers has been proposed from the finished road level.
- iv. Pipe roughness coefficient (n) of RCC pipes will be 0.015 and 0.013 for old and new pipes respectively.
- v. Bedding materials for the design of sewers above sub-soil water level having diameter 310mm and greater will be crushing stone (6mm to 25mm). For sewers below sub-soil water level, decision to be taken as per site conditions.
- vi. Minimum gradient for sewers will be recommended to attain the self-cleansing velocity (0.75 m/sec).
- vii. For sewer joints, rubber ring joint in addition to jute wrapping with cement slurry is recommended.

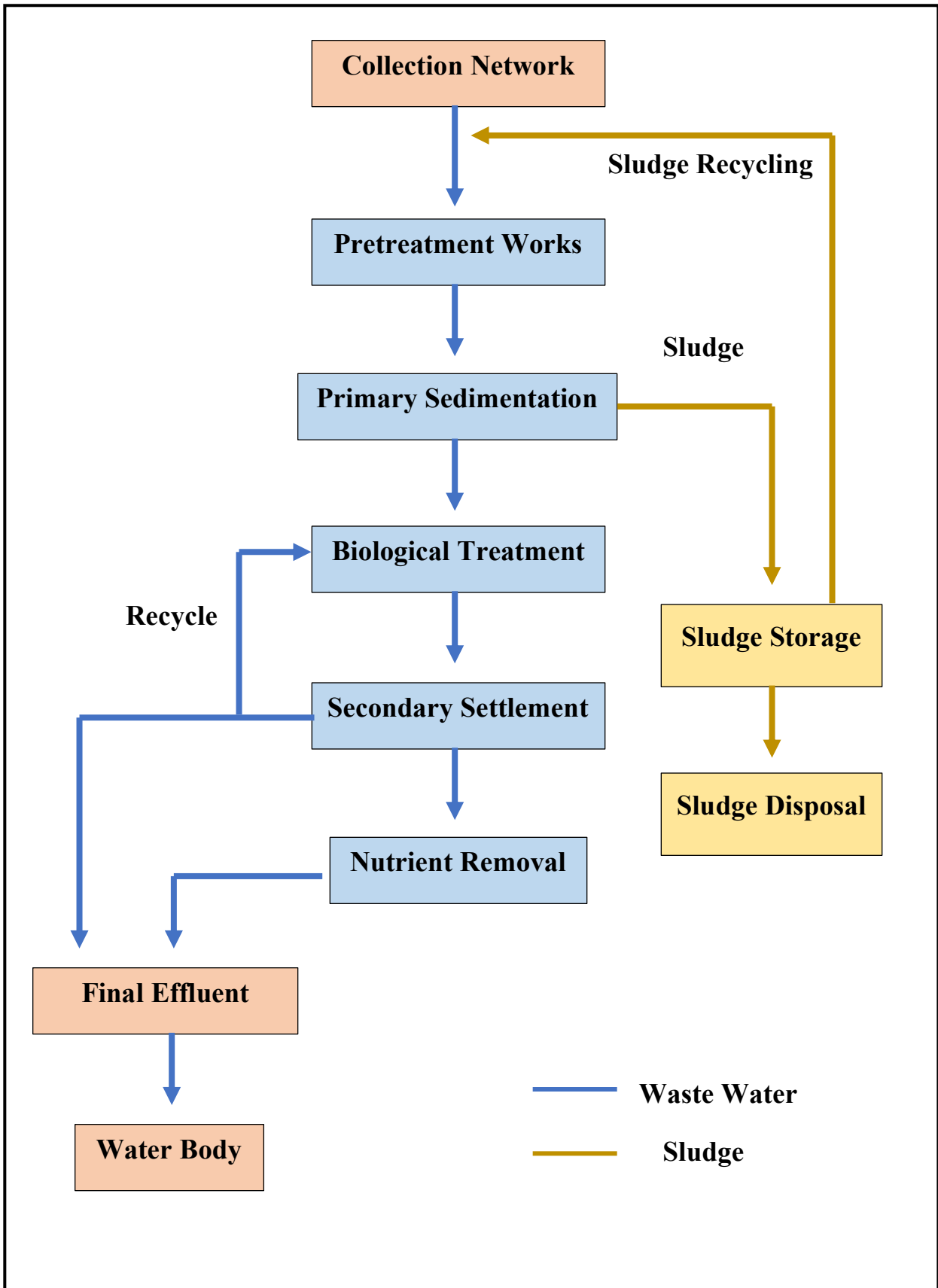
3.2.4. WASTE WATER TREATMENT PLANT

The process design of the sewage treatment plants (STPs) shall be carried out at average sewage flows, whereas the hydraulic design of all the wastewater conveyance and transfer components shall be carried out at peak flows. Urban waste water is categorized in terms of its physical, biological and chemical constituents. The most common parameters used for measuring the sewage, entering or leaving the treatment plant are as follows:

- ❖ Biochemical Oxygen Demand (BOD)
- ❖ Chemical Oxygen Demand (COD)
- ❖ Total Suspended Solids (TSS)
- ❖ pH

Waste Water Treatment Plant (WWTP) shall be designed primarily to bring the BOD, COD, pH and TSS values of sewage/wastewater within the National Environmental Quality Standards (NEQS) limits. The process designs of component facilities are primarily based upon the design guidelines and methods as laid down by the Environment Protection Agency.¹ The same has been displayed in the following layout.

¹www.epa.ie/pubs/advice/water/wastewater/EPA_water_%20treatment_manual_primary_secondary_tertiary1.pdf



1. Pretreatment Process

Pre-treatment process will be comprised of primary screens, inlet chambers, grit and grease removal system and balancing tanks. The criterion to be considered for the selection and the design of these components is as follows:

i. Primary Screens

Upon reaching the sewage treatment plant, sewage flows through the primary screening facility which is the first stage of treatment. The screens shall be provided upstream of all inlet pump stations and shall be designed to protect downstream processes and equipment. The purpose of primary screens is to protect equipment from rags, wood and other debris.

Design parameters for the primary screens are summarised in the **Table 13**.

Table 13: Design Parameters for Primary Screens

Description	Unit	Design Criteria	
		Manually Raked	Mechanically Raked
Maximum clear spacing	mm	25	25
Slope to the vertical		30°- 45°	30°- 45°
Max approach velocity at feed channel	m/s	1	1
Max velocity at screen face	m/s	1	1
Min freeboard	mm	150	150
Screen skipping storage facility	day	7	7
Min channel width	mm	500	500
Min channel depth	mm	500	500
RC staircase with riser details	unit	Anti-skid and non-corrosive	Anti-skid and non-corrosive

ii. Inlet Chambers

Provision for inlet chamber before the primary screen channel is necessary for proper operation and maintenance of the plant. A penstock shall be installed upstream to isolate the pump station in the event of flooding in relation to the bypass and emergency overflow. Design criterion for inlet chambers and secondary screens has been summarised in **Table 14** and **Table 15**.

Table 14: Design Criteria for Inlet Chambers

Description	Unit	Design Criteria	
		PE≤50,000	PE>50,000
No. of pumps	Nos	4 (2sets)	6 (3 sets)
Pump design flow		Each at Q _{peak}	Each at Q _{peak}
Min retention time at Q_{ave}	min	30	30
Min pass through openings	mm	75	75
Min suction and discharge openings	Mm	100	100
Pumping cycle	min	6	6-15
Lifting device*	mm	Mechanical and block	Mechanical

*Motorized hoists shall be provided when the lifting weight exceeds 100 kg.

Table 15: Design Criteria for Primary Screens

Description	Unit	Design Criteria	
		Manually Raked	Mechanically Raked
Maximum clear spacing	mm	12	12
Slope to the vertical		30° - 45°	15° - 45°
Max approach velocity at feed channel	m/s	1	1
Max velocity at screen face	m/s	1	1
Min freeboard	mm	150	150
Screen skipping storage facility	day	7	7
Min channel width	mm	500	500
Min channel depth	mm	500	500
RC staircase with riser details	unit	Anti-skid and non-corrosive	Anti-skid and non-corrosive

iii. **Grit and Grease Removal**

In grit removal system, grit or discrete particles that have subsiding velocities or specific gravities substantially greater than those of organic putrescible solids, e.g. eggshells, sands, gravel are removed by gravitate settlement or centrifugal separation. This same principle applies to oil and grease removal system, where free oils and grease globules lighter than water rise through the liquid and are later skimmed from the top surface.

Table 16: Design Criteria for Grit and Grease Removal

Description	Unit	Design Criteria
		>PE 50,000
Grease removal		Mechanical
Chamber type		Aerated type
Min detention time (Q_{peak})	min	3
Max gravity flow through velocity	m/s	0.20
Max centrifugal flow through velocity	m/s	<1
Aeration requirement	l/s/length of tank	10
Chamber dimension: (Depth x width) (Length x width)	-	Manufacturer specification
Estimated grit quantity	m ³ /10 ³ m ³ of sewage	0.03
Washing and dewatering of grit	-	Yes

2. **Biological Treatment Process**

Biological treatment is the heart of the sewage treatment process. It is inclusive of different processes whereby the dissolved and non- settle-able organic materials that continue to remain in the sewage are finally removed by living organisms. For reasons of long term whole life economics, ease of operation and maintenance, consistent effluent standards and standardization, the following types of biological treatment processes are recommended:

- ❖ Activated Sludge System
- ❖ Extended Aeration (EA)/Oxidation Ditch (OD) System
- ❖ Sequencing Batch Reactor

i. Activated Sludge System

The design parameters to be considered while designing sewage wastewater treatment plant based on conventional activated sludge system are as follows in **Table 17**.

Table 17: Design Criteria for Activated Sludge System

Description	Unit	Design Criteria
Organic Loading	Kg BOD ₅ /day/m ³	
Low rate		0.08 – 0.15
Intermediate rate		0.15 – 0.5
High rate		0.5 - 2
Acceptable Media		HDPE, PVC, stone, slag, coke
Hydraulic Loading	m ³ /day/m ²	
Low rate		1 – 4
Intermediate rate		4 – 10
High rate		10 – 40
Sludge Yields	Kg sludge	
Low-rate filters		0.5
Intermediate filters		0.6 – 0.8
High-rate filters		1
Minimum depth of media	m	1.5

ii. Extended Aeration (EA)/Oxidation Ditches (OD)

The Extended Aeration process is similar to the Conventional Activated sludge process except that it operates in the endogenous respiration phase of the growth curve, which requires a low organic loading and long aeration time.

EA plants shall be designed as either plug flow or completely mixed. Anoxic zone at the head of the reactor must be provided for de-nitrification. The anoxic zone is free from dissolved oxygen.

For Oxidation Ditches, the minimum velocity within the channel shall be sufficient to keep the activated sludge in suspension. The minimum velocity within the channel shall not be less than 0.3 m/s.

Table 18: Design Criteria for AE/OD

Description	Unit	Design Criteria
Minimum number of aeration tanks	Nos	2
F/M Ratio		0.05 – 0.1
Hydraulic Retention Time	Hours	18 - 24

Oxygen requirement	KgO/Kg	2
Mixed Liquor Suspended Solids (MLSS)	mg/l	2500 - 5000
Dissolved Oxygen (DO)	mg/l	2
Sludge yield	Kg sludge produced/ kg BOD5 consumed	0.4 (at 24 hrs HRT) 0.6 (at 18 hrs HRT)
Sludge age	day	>20
Waste activated sludge, Q_{WAS}	m ³ /day	Refer to equation
Return activated sludge flow, Q_{RAS}	m ³ /day	$(MLSS / CUMMLSS) \times Q_{av}$
RAS pump rating	Hrs/day	24
Recirculation ratio, Q_{RAS}/I_{inflow}		0.5 - 1
MLSS recycle ratio		4-5 times of Q_{avg}
Volumetric loading	kg BOD5 /m3.d	0.1– 0.4
Minimum mixing requirement	W/ m3	20

Table 19: Design Criteria for AE/OD Loading

Description	Unit	Design Criteria
Organic Loading	Kg BOD ₅ /day/m ³	
Low rate		0.08 – 0.15
Intermediate rate		0.15 – 0.5
High rate		0.5 - 2
Recirculation of flow to head of plant		>1
Acceptable Media		HDPE, PVC, stone, slag, coke
Hydraulic Loading	m ³ /day/m ²	
Low rate		1 – 4
Intermediate rate		4 – 10
High rate		10 – 40
Sludge Yields	Kg sludge	
Low-rate filters		0.5
Intermediate filters		0.6 – 0.8
High-rate filters		1
Minimum depth of media	m	1.5

iii. **Sequencing Batch Reactor**

Sequencing Batch Reactors system is suspended activated sludge system. In this system, the sewage flows into one or more reactors where biological oxidation and its clarification take place within the same reactors sequentially on cyclical mode. Detailed design parameters are shown in **Table 20**.

Table 20: Design Criteria for Sequencing Batch Reactor

Description		Unit	Continuously fill Intermittently decent	Intermittently fill Intermittently decent
Number of reactors		Nos	2	2
F/M Ratio			0.05- 0.08	0.05 – 0.30
Hydraulic Retention Time		Hours	18 - 24	18 - 24
Mixed Suspended Solids (MLSS)	Liquor Solids	mg/l	3000 - 4500	3000 - 4500
Dissolved Oxygen (DO)		mg/l	0 – 6.50	0 – 6.50
Sludge yield		Kg sludge produced/ kg BOD5 consumed	0.75 – 0.85	0.75 – 0.85
Cycle time		hrs	4 - 8	4 - 8
Waste activated sludge		kg sludge/day	WAS = total sludge/sludge age	WAS = total sludge/sludge age
Decant time		hrs	>1	>1
Decant volume		m ³	Max 0.5	Max 0.5
Decanting device loading rate		m ³ /m/hr	≤20 for decant drawdown from TWL	≤20 for decant drawdown from TWL
Minimum number of decanter			2 nos. independent decanter per tank	2 nos. independent decanter per tank
Max decanter length		m	4	4

3.3. EXSITING SEWERAGE NETWORK

The sewerage scheme Hafizabad was first introduced in 1963. Egg shaped sewer of 22”, 24”, 27”, 30” and 36” was connected with different types of drains –I, II and III. The city has 61% coverage of sewerage system but only the main and branch sewers have been laid and the lateral sewers have not been provided in most of the city. Unserved and Flooded areas are 25% & 24% respectively. Detailed sewerage structure is mentioned in the **Table 21**.

Table 21: Description of Sewerage Network

Description	Numbers
Collecting Tank 25” with 6” working dept.	5
Pump House 10’-15’ dia	1
Centrifugal Horizontal type sullage pump 8”x8” coupled with 50 BHP electric motor.	(11) 50BHP and (2) 100BHP & (1) 30BHP
Pumping Machinery (3-cusec sullage pump Horizontal type coupled with 30 BHP electric motor)	1
Sludge Carrier of Different Sizes	108200Rft
RCC Sewer pipe	
36”i/d	24000 Rft
30”i/d	9500 Rft
27”i/d	7500 Rft
24”i/d	15000 Rft
18”i/d	35000 Rft
15”i/d	15000 Rft
12”i/d	45000 Rft
Diesel Generator and capacity	2 (200Kv)
Mud Sucking and Sewer jecting Machine Combine	1

3.3.1. DISPOSAL STATIONS

There are a 4 Disposal Stations in Hafizabad city with installed pump capacity of 65 cusec that operates for an average 10 hours per day. A summary is given in the table below:

Table 22: List of Disposal Stations

Sr.#	Name	No of Installed Pumps	Discharge Capacity (Cusec)	Status	Condition	Ultimate Disposal
1	Kolo Tarar Road	3	15	Functional	Good	Seepage Drain
2	Madhrian Wala Road	4	16	Functional	Fair	Seepage Drain
3	Housing Colony	1	02	Functional	Poor	Fields
4	Kasoki Road	3	15	Functional	Good	Seepage Drain

3.3.2. SEWAGE GENERATION

Table 23: Sewage Flow Estimations

Year	Population	Per Capita (gpcd)	Average Flow	Peak Flow (PF 2) (MGD)	Storm Water (33% of Peak flow)	Non-Domestic Flow (5% avg flow)	Infiltration (5% avg flow)	Total Flow (Peak + storm + non-domestic + infiltration)
			MGD		MGD	MGD	MGD	MGD
2021	268,966	46.75	12.5	25	8.25	0.62	0.62	34.49
2025	312,563	46.75	14.6	29.2	9.6	0.73	0.73	40.26
2030	363,226	46.75	16.9	33.8	11	0.84	0.84	46.48

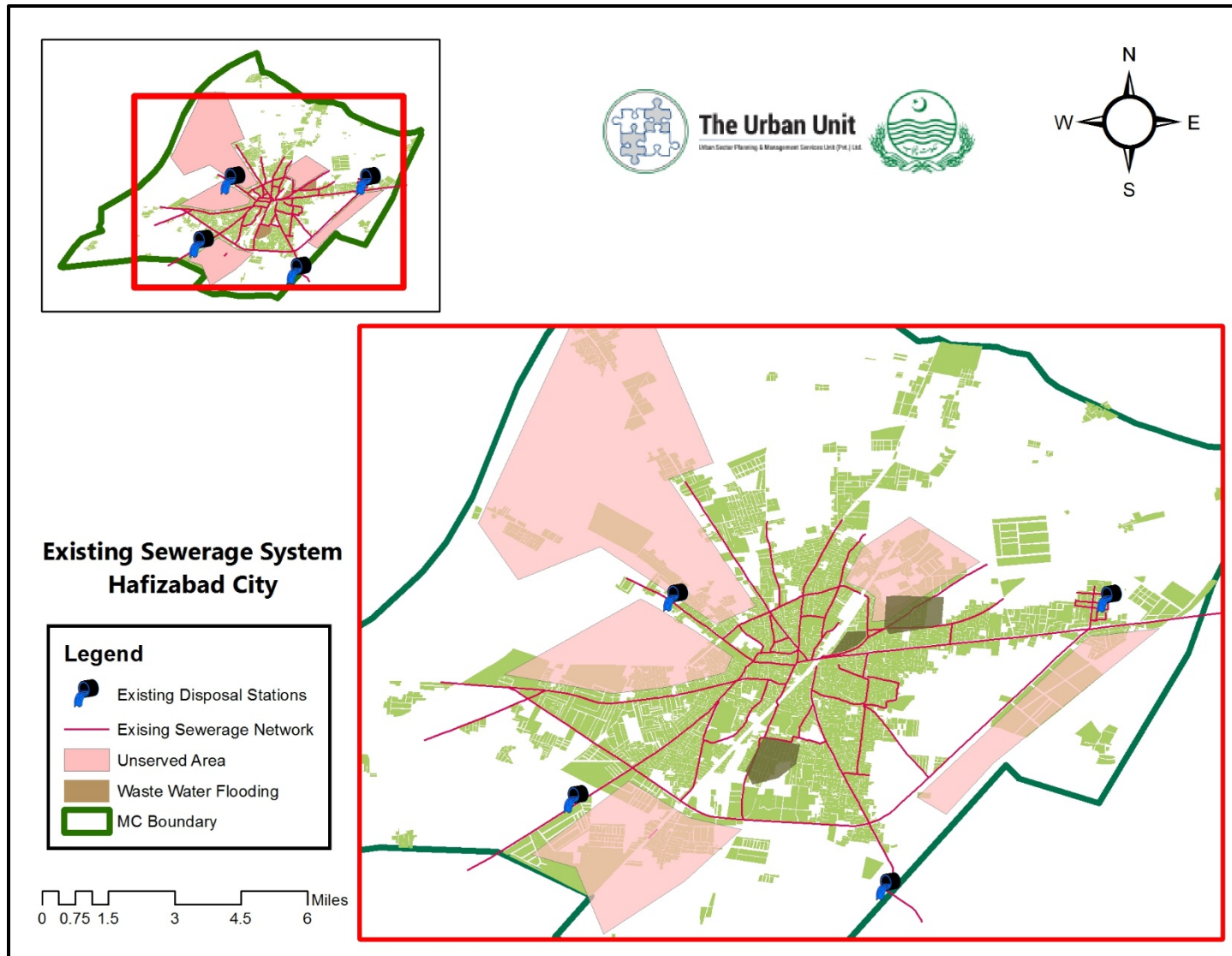


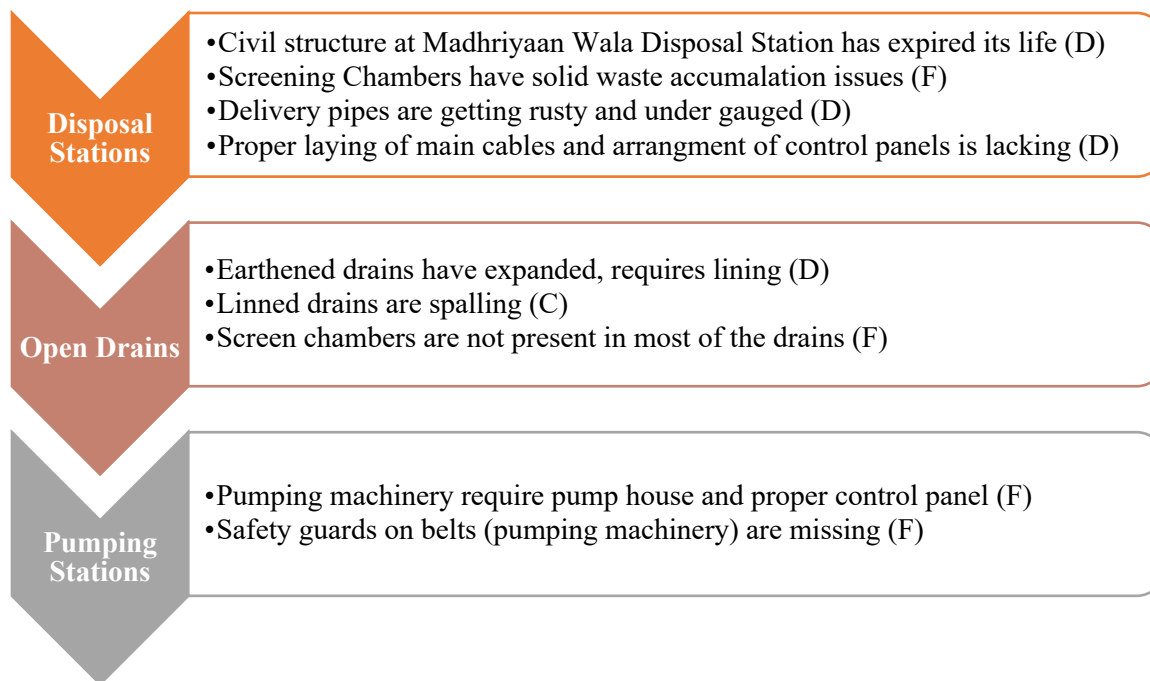
Figure 7: Layout Map of Existing Sewerage System

3.4. ASSET CONDITION ASSESSMENT – SEWERAGE SYSTEM

The team performed condition assessments of the infrastructure by physically visiting each facility. 04 disposal stations and drains were examined in this regard on the basis of criteria mentioned in **Table 24**.

Table 24: Rating Chart for Asset Condition Assessment

Rating Chart		
Excellent	A	No noticeable defects. Some aging or wear may be visible.
Good	B	Only minor deterioration or defects are evident.
Fair	C	Some deterioration or defects are evident, but function is not significantly affected.
Poor	D	Serious deterioration in at least some portion of the structure. Function is inadequate.
Failed	F	No longer functional. General failure or complete failure of a major structural component.





Madhriyaan Wala - Disposal Station



Madhriyaan Wala - Disposal Station



Madhriyaan Wala - Disposal Station



Kasoki - Disposal Station

Figure 8: Asset Condition Assessment – Sewerage System

3.5. RECOMMENDATIONS - SEWERAGE

Recent projects by MC is in a process of upgrading the sewerage system of Hafizabad as a whole. In addition to the existing portfolio of Sewerage system, the proposed project identified by the participants during the stakeholder consultant with the official of Deputy Commissioner, Chief Officer and Municipal committee Hafizabad are divided in to three phases i.e. Short (0-3 years), Medium (3-5 years) and Long (5-10 years) term. These projects aim to capacitate the existing sewerage structure through rehabilitation and upgradation. As majority of the delivery lines have expired their lives, replacement of existing network is indispensable. Implementation of these projects will add efficiency to the sewerage system of Hafizabad city. The detailed bill of quantities for the following projects can be seen in Annexure 2.

3.5.1 SHORT TERM PLAN (0-3 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Rehabilitation of Jharianwala disposal station (Civil and Mechanical work)	14.7
2	Upgradation of Sewerage lines in Moh. Akhtar town, Moh. Tariqपुरa, DHQ Hospital and Moh. Misri Khan	22.9
3	Upgradation of Trunk line on kasoki road to 54" Diameter pipe (03 km)	63.8
4	Upgradation of Trunk line on Gujranwala road to 54" Diameter pipe (04 km)	83.9
5	Upgradation of sewerage pipes on Misri Khan Road (15" to 24") (1.5 km)	11.3
Total (Million PKR)		196.6

3.5.2. MEDIUM TERM PLAN (3-5 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Construction of Drainage Nullah from DHQ Hospital to Slaughter house	14.7
2	Extension of sewerage lines around vanike road (Moh. Farooq Azam, Moh. Siraj Ganj, Qadirabad and Teacher Mohalla)	57.1
3	Replacement of drains with sewerage lines in Anarkali Bazar, Moh. Garhi Awan, Sharif Pura, Majid Pura and Faisal Town	59.7
4	Upgradation of trunk line on Jalalpur Bhattian Road (Fowara Chowk to Ghorah Chowk) from 18" to 54" diameter pipe (3.1 km)	38.4
5	Laying of 36" trunk line from Fowara Chowk to Raja Chowk (450m)	8.1
6	Upgradation of Sewer Pipes on Darbar Road (12" to 24") (1 km)	8.7
7	Provision of Sucker & Jetting Machinery Vehicles (05)	35
Total (Million PKR)		221.7

3.5.3. LONG TERM PLAN (5-10 YEARS)

Sr. #	Project	Cost (Million PKR)
1	Construction of trunk line from Jalal pur bhattian road towards madriyan wala road	98
2	Laying of Sewerage Network in Unserved Areas a) Moh. Rehmatabad b) Gari Ghoas c) Baqar Town d) Ali Town e) Qela Shab Singh f) Mughal Pura	64.8
3	Replacement of drainage system with sewerage lines (15” Diameter) in Habib Ganj, Usman Ganj, Khan Pura and Nasir Pura	27.78
4	Laying of 36” Sewerage pipe on Jalalpur Bhattian Road From Qafal Garha Chowk to Ghorah Chowk (2.5 km)	40
5	Construction of Disposal Station on Alipur Chatha Road (32.102516°, 73.701258°)	63
6	Construction of Waste Water Treatment Plant (32.045020°, 73.693560°)	233
Total (Million PKR)		526.58

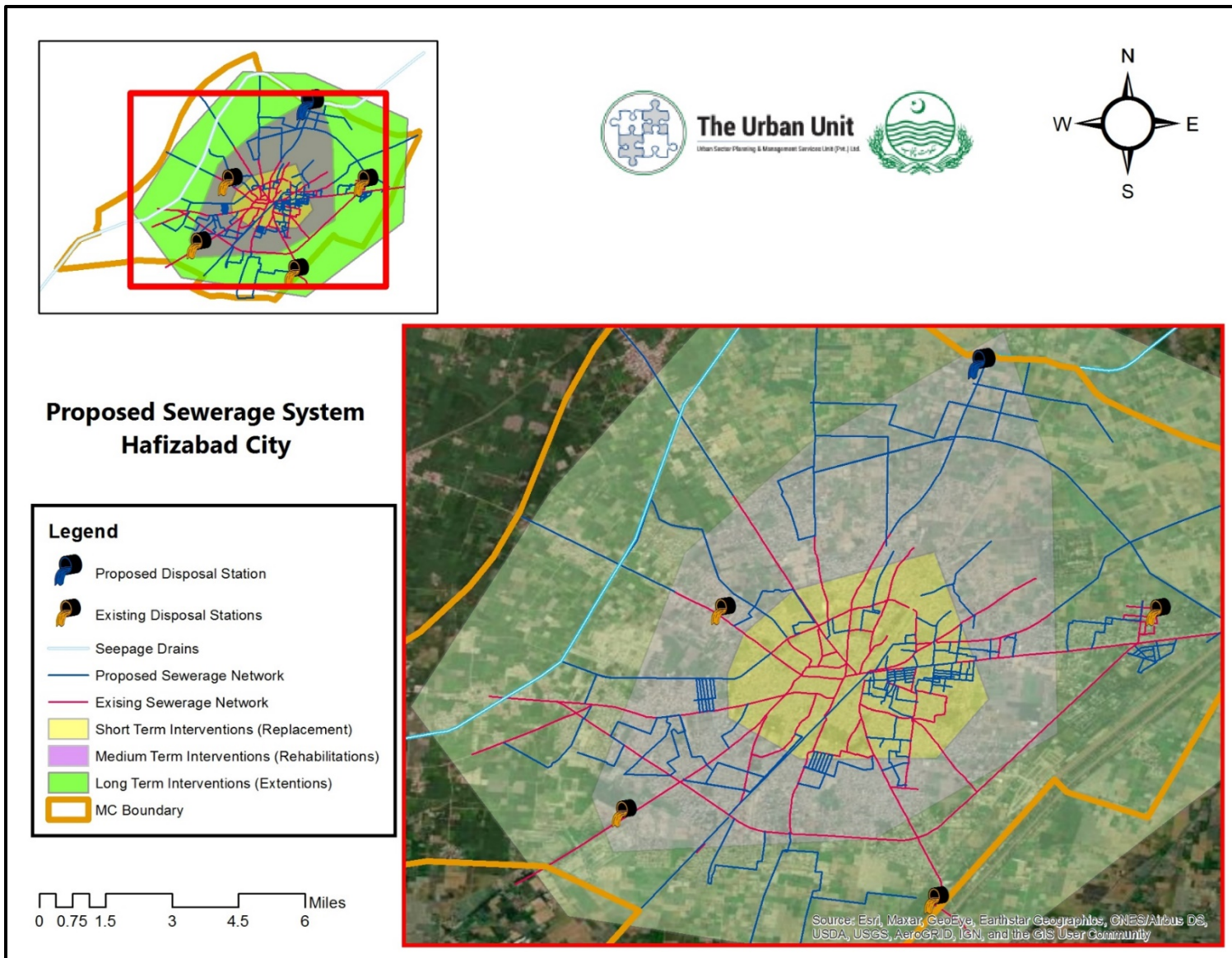


Figure 9: Layout Map of Development Projects

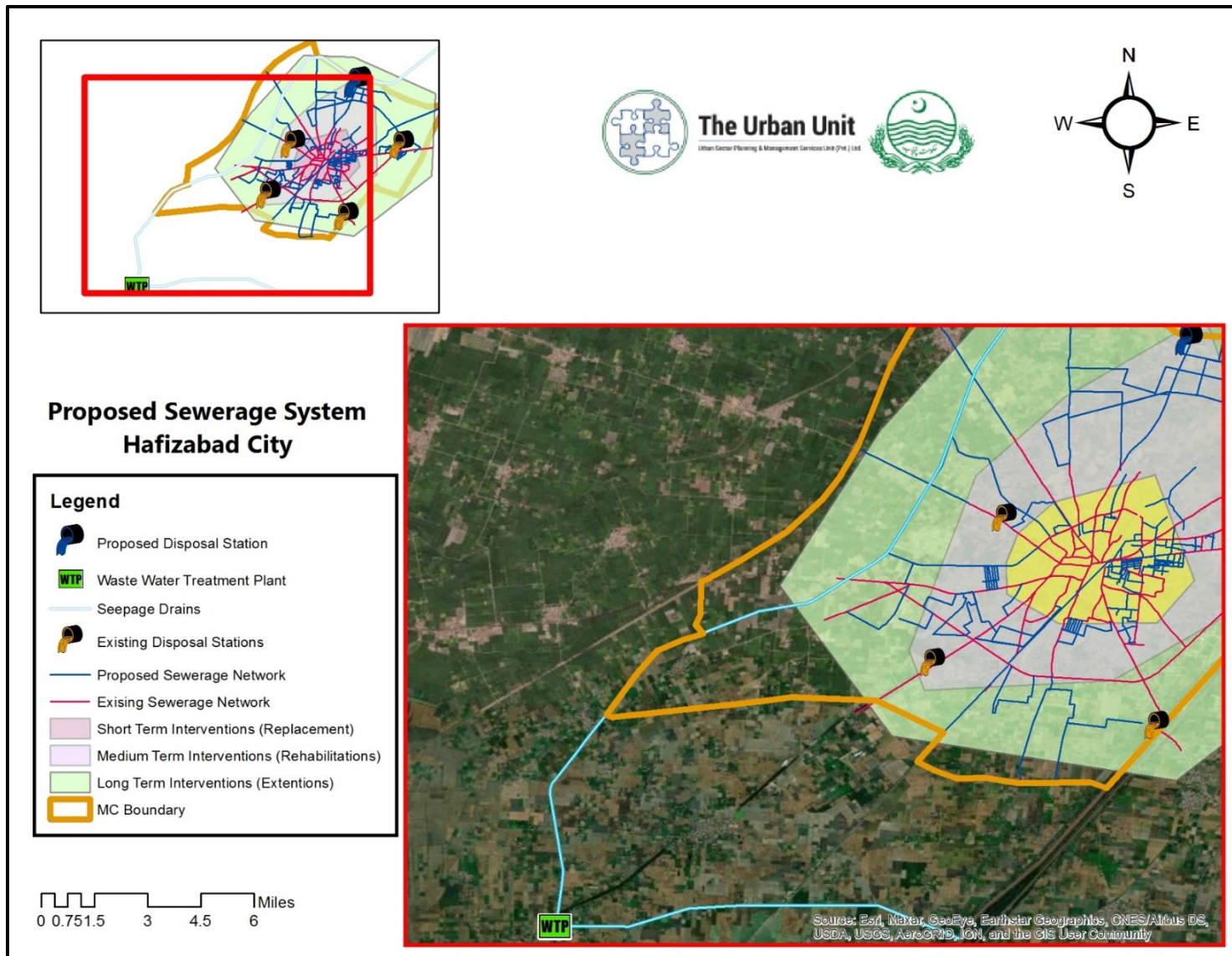


Figure 10: Layout Map of Proposed WWT

ENVIRONMENTAL MANAGEMENT PLAN FOR SEWERAGE

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
Planning Phase				
1.	Design	<ul style="list-style-type: none"> • Inadequate design may not meet the quantity of sewage generated, pumping equipment and accessories, selection of proper pipe material 	<ul style="list-style-type: none"> • Correct generation of wastewater by considering population corresponding to the Project Area • The selection of machinery for at least 10 years for smooth functioning of disposal station. • Sewers shall be laid away from water supply lines and drains (at least 1m, wherever possible); • In all cases, the sewer line should be laid deeper than the water pipeline (the difference between top of the sewer and bottom of water pipeline should be at least 300 mm) • In unavoidable, where sewers are to be laid close to storm water drains or canals or natural streams, appropriate pipe material shall be selected (stoneware pipes shall be avoided) • For shallower sewers, use small inspection chambers in lieu of manholes; • Ensure sufficient hydraulic capacity to accommodate peak flows & adequate slope in gravity mains to prevent buildup of solids and hydrogen sulphide generation • Equip pumping stations with a backup power supply, such as a diesel generator, to ensure uninterrupted operation during power outages, and conduct regular maintenance to minimize service interruptions. 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • Establish routine maintenance program, including: <ul style="list-style-type: none"> – Regular cleaning of grit chambers and sewer lines to remove grease, grit, and other debris that may lead to sewer backups. Cleaning should be conducted more frequently for problem areas. – Inspection of the condition of sanitary sewer structures and identifying areas that need repair or maintenance. Items to note may include cracked/deteriorating pipes; leaking joints or seals at manhole; frequent line blockages; lines that generally flow at or near capacity; and suspected infiltration or exfiltration; – Monitoring of sewer flow to identify potential inflows and outflows • Conduct repairs prioritized based on the nature and severity of the problem. Immediate clearing of blockage or repair is warranted where an overflow is currently occurring or for urgent problems that may cause an imminent overflow (e.g. pump station failures, sewer line ruptures, or sewer line blockages); • Review previous sewer maintenance records to help identify “hot spots” or areas with frequent maintenance problems and locations of potential system failure, and conduct preventative 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<p>maintenance, rehabilitation, or replacement of lines as needed;</p> <ul style="list-style-type: none"> • When a spill, leak, and/or overflow occurs, keep sewage from entering the storm drain system by covering or blocking storm drain inlets or by containing and diverting the sewage away from open channels and other storm drain facilities (using sandbags, inflatable dams, etc.). Remove the sewage using vacuum equipment or use other measures to divert it back to the sanitary sewer system • Develop Emergency Response Plan for all emergencies such as leaks, overflows, bursts 	
2.	Utilities	<ul style="list-style-type: none"> • Disturbance/damage to existing utilities on the sites (Telephone lines, electric poles and wires, water lines within proposed project sites) 	<ul style="list-style-type: none"> • Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase • Conduct detailed site surveys with the construction drawings and discuss with the respective agencies during the construction phase before ground clearance; Require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. 	
3.	Selection of poor construction materials	<ul style="list-style-type: none"> • Health and hygiene in the service area 	<ul style="list-style-type: none"> • Selection of construction material safe for human use 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
4.	Inadequate buffer zone	<ul style="list-style-type: none"> Noise and vibration due to running of heavy-duty pumps resulting in inconvenience to local people 	<ul style="list-style-type: none"> Provision of buffer zone in the form of raised walls and plantation and oiling of parts of machinery causing noise and vibration 	
Construction Phase				
Physical Impacts				
5.	Improper construction techniques and monitoring	<ul style="list-style-type: none"> Impacts due to excess excavated earth, excess construction materials, solid waste etc. Occupational hazards which can occur to workers and public during work. Public inconvenience, traffic jams. 	<ul style="list-style-type: none"> Prepare and submit a Method Statement for pipeline and sewer works which cover the following: <ul style="list-style-type: none"> Work description; No. of workers (skilled & unskilled); Details of Plant, equipment & machinery, vehicles Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing) PPE (helmet, gloves, boots, etc.) details for each type of work Details of materials at each site (type & quantity) Risks/hazards associated with the work (for example, Trench excavation will have risks such as trench collapse, persons/vehicles falling into trench, structural risk to nearby buildings, damage to buildings, infrastructure etc.) Construction waste/debris generated (details & quantity) 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> - Detail the sequence of work process (step-by step) including specific details of each work - Contractor's supervision & management arrangements for the work - Typical site layout plan including pipe trenching, placement of material, excavated earth, barricading etc. • The supervisory/ monitoring staff should be experienced and qualified enough to handle the excavated material and its disposal in designated places without harming local environment. Also, additional training may be provided. Supervision and training for the contractor's staff shall also be required. 	
6.	Dismantling, Excavation, and Filling Operations	<ul style="list-style-type: none"> • Dust which may affect visibility • Noise from machineries/ equipment • Soil erosion • Contamination of surface water • Vibration (Shock waves can be produced due to heavy machinery working) • Solid waste/ pipe cuttings/ sludge may be generated due these activities • Safety hazards to labour and nearby resident population. 	<ul style="list-style-type: none"> • Waste should be properly disposed off • Updated and tuned machinery should be used to control noise. • Water sprinkling should be carried out at consecutive intervals as per instruction • Provision for personal protective equipment, earmuffs, Mask etc. to labour. • Avoiding construction activities during nights. • Use of vibratory roller should be prohibited • Removal of excess matter/ debris/sludge from the site immediately. • Adequate safety precautions such as helmets, safety shoes, gloves, etc. should be provided to the labour 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
		<ul style="list-style-type: none"> • Temporary blockage of road may restrict mobility • Conflict with public and public complaints • Economic losses <ul style="list-style-type: none"> – Livelihoods loss. – loss of shopkeepers – Temporary loss of structures and private property – Economic loss of permanent and mobile vendors due to obstruction of passage 	<ul style="list-style-type: none"> • Provide appropriate signage near the construction activities to sensitize the community and minimize accidents. • Public Consultation to aware nearby residents. • Public must be informed about project major activities, duration of scheme, time and schedule, anticipated impacts and their proposed Mitigation Measures. The contact Nos. of focal person of Grievance Redress Committee should be displayed at different locations and residents should also be informed about it. • Emergency contact numbers should be displayed • Construction work should be done only on 4-5 feet length of street, rest of the streets should not be affected. In this way the business of the shops keepers will not be affected. Sewer lines where about 10 days will require to work make a schedule to work in portions so that the alternate road may be used safely. Contractor would be instructed that labour must not damage the property and structures of the residents. In case of damage compensation should be provided. 	
7.	Civil work, Laying of sewer lines/network	<ul style="list-style-type: none"> • Solid wastes • Noise and vibration disturbances to residents and businesses • Road side visibility can be reduced and dusty environment leads to respiratory diseases. • Safety issues 	<ul style="list-style-type: none"> • Immediately transport the accumulated construction waste to a site identified by the implementing authority • Broken Pipes should be disposed of properly • Removal of excess materials • Cleaning of sites upon completion of schemes. • Establish schedule and others specific restrictions 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
		<ul style="list-style-type: none"> • Health problems or immediate risk may take place • Spillage of fuel and oil • Traffic jams and congestion may take place and cause inconvenience to the people where the construction of interchanges will take place. • Reduced pedestrian access to residences and businesses • Temporary Sewer system interruption Conflicts. • Dissatisfaction for the project • Scattered construction material may obstruct mobility. 	<ul style="list-style-type: none"> • Limit work to day light hours as possible • Use of less noise generating equipment • Regular water sprinkling with the help of water bowsers • Cordon off construction area • PPEs should be provided to workers • Availability of safe drinking water and food for the workers. • Availability of alternate sewer lines 	
8.	Civil Works – Rehabilitation and Repair	<ul style="list-style-type: none"> • Contamination of soil and ground water • Pollution and general nuisance 	<ul style="list-style-type: none"> • Rehabilitation and repair wastes shall be stored at designated site • Recyclable wastes should be recycled as far as reasonably practical • General housekeeping shall be maintained at site • Record of all wastes should be maintained • Trainings should be provided to personnel for identification, segregation and management of solid waste 	
9.	Air pollution	<ul style="list-style-type: none"> • Dust and exhaust emissions may cause nuisance to the local resident 	<p>Gaseous Emissions</p> <ul style="list-style-type: none"> • All vehicles, machinery, equipment and generators, used during construction activities, shall be in good condition and shall be properly 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<p>tuned and maintained by the Contractor in order to minimize the exhaust emissions;</p> <ul style="list-style-type: none"> • Open burning of solid waste from Contractor’s camps shall not be allowed. <p>Dust Emission</p> <ul style="list-style-type: none"> • The construction contractor of the proposed Project will ensure regular spraying of water on all temporary service and access roads to minimize the dust generation. • Use tarpaulins to cover sand and other loose material when transported by vehicles; • Clean wheels and undercarriage of vehicles prior to leaving construction site 	
10.	Noise and vibration	<ul style="list-style-type: none"> • Disturbances to local residents in the form of increased noise levels and vibration due to movement of construction machinery 	<ul style="list-style-type: none"> • Selection of up to-date and well maintained plant or equipment with reduced noise levels ensured by suitable in-built damping techniques or with appropriate muffling devices; • Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in its use; • Preferably, restricting construction vehicle movements during night time; • Use Silenced Plants and equipment; • Physically separate the noise sources and the sensitive receivers (both existing and planned) as far as practicable. • Machinery with low noise level or machinery with noise shielding and absorption should be used; 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • Contractors should comply with submitted work schedule, keeping noisy operations away from sensitive points; • implement regular maintenance and repairs; and employ strict implementation of operation procedures; • Locating the concrete mixing and materials shipment yards away from residential areas, particularly schools and homes will also help reduce local noise levels. Such activity taking place near or through villages will broadcast continuous noise in the 70–80 dB(A) range or above; • The plants and equipment used for construction will strictly conform to noise standards specified in the PEQs/ NEQS; • Vehicles and equipment used will be fitted, as applicable, with silencers and properly maintained; • In populated areas, the construction activities will be restricted to be carried out between 6:00 a.m. and 20:00 p.m; • Hedges and high boundary walls should be used as noise barriers in sensitive areas such as schools, hospitals and mosques; • Public hearings should be held to discuss appropriate solutions and materials to control noise (e.g. mud or brick walls, bushes, etc.) ; and 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> In accordance with the Environmental Monitoring Plan noise measurements will be carried out at locations and schedule specified to ensure the effectiveness of mitigation measures. 	
11.	Water Quality	<ul style="list-style-type: none"> Impacts on surface drainage and water quality due to contaminated runoff from construction areas in monsoon 	<ul style="list-style-type: none"> Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets Stockpiles shall be provided with temporary bunds Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with Implementing Agency on designated disposal areas Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies Place storage areas for fuels and lubricants away from any drainage leading to water bodies Dispose any wastes generated by construction activities in designated sites 	
12.	Disposal of soil	<ul style="list-style-type: none"> Negative impacts including change of land use and loss of aesthetic values may be caused on the receiving lands due to improper disposal of soil. 	<ul style="list-style-type: none"> The soil will be disposed of in an environment acceptable manner by transporting in enclosed containers and dumping at sites approved by the executing agency. Where possible, material should be reused on site for profiling to minimize the amount of virgin soil used and soil disposed of. Prepare and implement Waste Management Plan – it should present how the surplus waste generated will temporarily stocked at the site, transported and disposed properly 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
13.	Accidental damage to utilities excavated areas in	<ul style="list-style-type: none"> • Damage to existing utilities like sui gas, telephone etc. causing inconvenience to the local people 	<ul style="list-style-type: none"> • Coordination between different utility departments shall be maintained to get the details of existing underground utilities before starting construction of the proposed Project; • The contractor will also be provided those utility maps and Supervision Consultant will supervise the construction activities to avoid any accidental damage to the lines; • Provision shall be made in the cost estimate for restoration/replacement of damaged utilities and relocation to minimize the negative impact and restoration of excavated road to its original condition. 	
14.	Nuisance/ disturbance to sensitive areas	Schools, hospitals and religious places) due construction work in the proximity (within 250 m of such place)	<ul style="list-style-type: none"> • No material should be stocked in this area; material shall be brought to the site as and when required • Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles at such areas • No work should be conducted near the religious places during religious congregations • Material transport to the site should be arranged considering school timings; material should be in place before school starts; • Notify concerned schools, hospitals etc. 2 weeks prior to the work; conduct a 30 minutes awareness program at on nature of work, likely disturbances and risks and construction work, mitigation 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			measures in place, entry restrictions and dos and don'ts	
15.	Transportation and Access	<p>Vehicle Traveler's</p> <ul style="list-style-type: none"> • Open excavation for laying of Force Main may disrupt the flow of traffic • The operation of excavator and movement of vehicles carrying construction materials hampering the existing traffic movement. <p>Driver's Stress</p> <ul style="list-style-type: none"> • The lower speeds, possible delays and queuing would exacerbate levels of stress 	<ul style="list-style-type: none"> • Inclusion of further access routes to facilitate the accessibility of vehicles and pedestrians to and from the proposed Project site • The construction activities shall be phased to confine the disruption of traffic. Traffic diversion/re-routine plans, if found necessary, shall be made with the help of traffic police for smooth flow of traffic • The vehicles carrying the construction materials will not be allowed to enter into the Project area during rush hours which could be possible at night hours. Continuous and coordinated monitoring of traffic shall be required to minimize the impact • Contractors to manage their sites, deliveries and waste such that they are reducing the amount of traffic on the local roads 	
16.	Solid and Hazardous Waste	<ul style="list-style-type: none"> • Construction activities generating waste materials like excavated soil and domestic waste from workers. 	<ul style="list-style-type: none"> • Construction debris and demolition material will not be allowed to accumulate during construction phase. • All such material is to be disposed off on daily basis. 	
17.	Fauna	<ul style="list-style-type: none"> • Construction area may represent a barrier to the species and result in the splitting up of populations 	<ul style="list-style-type: none"> • Special measures will be adopted to minimize impacts on birds, such as avoiding noise generating activities during the critical periods of breeding; • Staff working on the project should be given clear orders, not to shoot, snare or trap any bird; and 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> The Contractor will make arrangements to minimize the vibration, noise pollution through good engineering practices. 	
18.	Flora	<ul style="list-style-type: none"> Loss of habitat 	<ul style="list-style-type: none"> It will be appropriate to collect seed and samplings from the plants growing within the proposed Project site prior to site clearance. These will be planted in areas within the proposed disposal station to create areas of natural vegetation as part of the overall landscaping design 	
19.	Health and Safety of workers	<ul style="list-style-type: none"> Construction machinery and equipment and storage of flammable materials may cause minor and severe injuries to workers 	<ul style="list-style-type: none"> Well-maintained machinery and equipment and training of the workers in the construction safety shall be taken Provision of protective clothing for labourers handling hazardous materials, e.g. helmet, adequate footwear, protective goggles, gloves etc. The flammable and combustible substances will be properly stored in designated areas and material safety data sheets (MSDS) will be used for proper handling Firefighting equipment will be placed at an easily accessible place and inspected on regular basis 	
20.	Contractor Camps	<ul style="list-style-type: none"> Contractor camp will be established near the Project site to carry out the Project activities. Though the number of labour and size of camp will not be large, even then this will have an impact on the surrounding environment. 	<ul style="list-style-type: none"> Ensure that camp size is as per standard specifications Ensure that Contractor camp is established at least 500m away from settlements to void / minimize the construction impacts 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> Contractor should ensure provision of appropriate housing, water supply, and sanitation facilities to construction labour. 	
• Socio-Economic Impacts				
21.	Public access	<ul style="list-style-type: none"> Problems for pedestrians. Normal mode of transport may be disturbed during project execution. Impediment of access to houses and business 	<ul style="list-style-type: none"> Leave space for access between mounds of excavated soil Provide wooden planks/footbridges for pedestrians and metal sheets for vehicles to allow access across trenches to premises where required Consult affected business people to inform them in advance when work will occur Address livelihood issues, if any; implement the Resettlement Plan (RP) to address these issues Provide sign/caution/warning boards at work site indicating work schedule and traffic information; prevent public entry into work sites through barricading and security; Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints. 	
22.	Employment	<ul style="list-style-type: none"> Employment generation 	<ul style="list-style-type: none"> Ensure that at least up to 95% of unskilled, up to 43% of semi-skilled employment and up to 100% of skilled jobs are provided to people from local communities, provided that the persons with required qualifications are available. Ensure that guidelines are prepared and implemented to sensitize non-local labourers to 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			local norms and customs in order to minimize cultural tensions	
23.	Community Health and Safety	<ul style="list-style-type: none"> • Danger due to deep excavations, hindrance to traffic and chances of accident • Open Manhole covers 	<ul style="list-style-type: none"> • Provide wooden bracing for all deep excavations (> 2m); identify buildings at risk prior to start of excavation work and take necessary precautions for safe conduct of work • Plan material and waste routes to avoid times of peak-pedestrian activities • Manhole shall not be open more than 24 hrs, during this period barriers should be provided and reflective tapes should be used. Public should be informed timely 	
Operational Phase				
24.	O&M deficiencies	<ul style="list-style-type: none"> • Deficiency in operation and maintenance procedures as well as intrusion of contamination from leaking pipes may cause communicable diseases in the service area, which will be a major public health hazard. 	<ul style="list-style-type: none"> • Regularly checking the water quality at source • Leaking pipes shall be immediately repaired by the TMA staff; • Pumping Machinery shall be maintained properly; • Stagnation of water shall be prevented through an efficient and effective O&M programme. • Generators shall be maintained and tuned properly so that emissions can be controlled. 	
25.	Air Pollution	<ul style="list-style-type: none"> • Minor significance of impact on air quality generating from standby generators installed at pumping station 	<ul style="list-style-type: none"> • Air quality monitoring will be carried out on regular basis for parameters like CO, CO₂, NO₂, SO₂ and PM₁₀. 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
26.	Groundwater	<ul style="list-style-type: none"> Contamination of groundwater source may occur in case of corrosion or leakage of Force Main. 	<ul style="list-style-type: none"> The impact should be minimized by regular checks for leaks and corrosion etc. and maintenance of damaged pipes should be done periodically Moreover, monitoring of groundwater will be conducted on regular basis. 	
27.	Surface water	<ul style="list-style-type: none"> The surface water may get contaminated by disposal of wastewater from the disposal station. 	<ul style="list-style-type: none"> The water must be treated before disposing according to PEQS. The wastewater will directly go into the Wastewater Treatment Plant before disposing it. 	
28.	Odour	<ul style="list-style-type: none"> Generation of odour which causes nuisance to the residential community in the surroundings of the disposal station and the people passing by this area for schools, mosque and shops etc. 	<ul style="list-style-type: none"> Screening of wastewater should be regularly done and screening waste should be disposed off safely. Installation of ventilating shafts after enclosure of collection chambers parallel to the wind direction. Vegetation barrier may also help reducing odour in the surroundings of the area. A landscape will be properly designed with provision of new trees/ plantations around the boundary, roadside and stretches of open land. The vegetation for the attenuation of air pollution & Odour Problems would be most needed in the areas where ground level concentrations of the pollutants are expected to rise. 	
29.	Breeding Ground for Disease Vector	<ul style="list-style-type: none"> In Rainy days the wastewater will become stagnant which will be acts as breeding grounds for disease vectors 	<ul style="list-style-type: none"> After the construction of the Proposed Project, the wastewater will be disposed off properly which will eliminate the breeding grounds for disease vectors. 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • Regular checks for any spots which may serve as breeding grounds and spray of insecticides if any such spots are found 	
30.	Solid Waste	<ul style="list-style-type: none"> • Solid waste generating from the screens installed in the disposal station or sludge during maintenance/cleaning of disposal station 	<ul style="list-style-type: none"> • Regular inspection and maintenance will be scheduled and implemented to ensure removal of solid waste and sludge when accumulated • The solid waste shall be disposed off safely and dumping or burning of municipal solid waste in the surroundings should be strictly prohibited • Implementation of sludge handling and storage procedures should be ensured 	
31.	Occupational Health and Safety Issues	<ul style="list-style-type: none"> • Operation of machinery and equipment, handling of fuel, noise odor, exposure to disease vectors etc. 	<ul style="list-style-type: none"> • The issues related to operation of machinery and equipment will be controlled by efficient management, staff training, maintenance of machinery and equipment, and other preventive measures • Proper storage and handling of fuel • First Aid Kits should be provided • Provision of safe drinking water • Provision of PPE's to the employees including masks, gloves etc. • The issues related to operation of machinery and equipment will be controlled by efficient management, staff training, maintenance of machinery and equipment, and other preventive measures; 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
32.	Seepage/ Spill water	<ul style="list-style-type: none"> • Increase moisture content in soil which affects the structures / foundation of buildings in nearby areas. Contaminate the water 	<ul style="list-style-type: none"> • Ensure proper technical design to minimize, the seepage and chances of possible failure of the structure. • Ensure proper design, construction and operation of the structure and system to minimize seepage and appropriate implementation techniques. In case of failure compensation shall be provided to nearby building structures, foundation, monetary 	
33.	Sewerage	<ul style="list-style-type: none"> • General maintenance and repair work of sewer system (nuisance and disturbance to people, disruption services etc.) 	<ul style="list-style-type: none"> • Ensure that all necessary equipment and tools are available for regular maintenance, especially for sewer network • Ensure there is no overflow of sewers due to blockages or leaks; in case of occurrence, attend to these at the earliest • Implement all necessary mitigation measures suggested during construction (to avoid disturbance and inconvenience to people, business and traffic) • Ensure operation and maintenance of sewer network as per the standard operating procedures to avoid, over flows, blockages, etc. and immediately conducting the maintenance work in case of such occurrences 	
34.	Emergency Preparedness and Response	<ul style="list-style-type: none"> • The operation of the disposal station may encounter emergencies like operation failure 	<ul style="list-style-type: none"> • An Emergency Response Plans for floods, earthquakes, and manmade disasters will be developed by management • Responsible person to implement the Emergency Response Plan should be clearly designated 	

Sr. No.	Component	Project Impact	Recommended Mitigation Measure	Implementation Responsibility
			<ul style="list-style-type: none"> • The staff should be trained timely and concise response procedures • Emergency numbers should be clearly posted so that a quick action is taken when an emergency arises • Firefighting systems should be calibrated and maintained regularly • Regular drills for fire emergencies should be carried out. 	

4

Environmental Consideration & Green Spaces

- 4.1. Climate Conditions
- 4.2. Public Parks and Green Spaces
- 4.3. Hotspot Analysis – Air Quality
- 4.4. Recommendations

4.

SECTION - ENVIRONMENTAL CONSIDERATIONS & GREEN SPACES

4.1. CLIMATIC CONDITIONS

The "mean daily maximum" (solid red line) shows the maximum temperature of an average day for every month for Hafizabad. Likewise, "mean daily minimum" (solid blue line) shows the average minimum temperature. Hot days and cold nights (dashed red and blue lines) show the average of the hottest day and coldest night of each month of the last 30 years. The general weather condition is too hot in summer and moderate in winters. Temperature varies from mean minimum temperature of 04 degree Celsius to mean maximum temperature of 45 degree Celsius and average rainfall is 35 mm/year as shown in **Figure-11**.

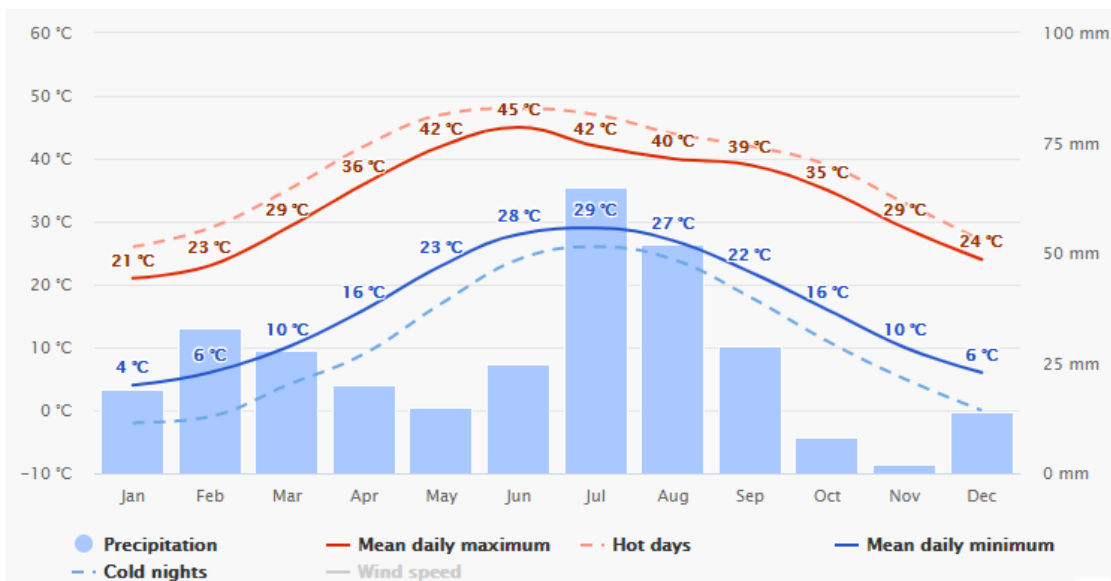
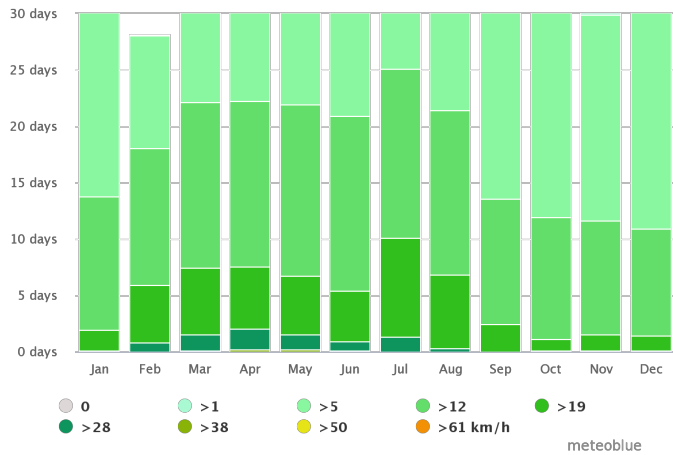
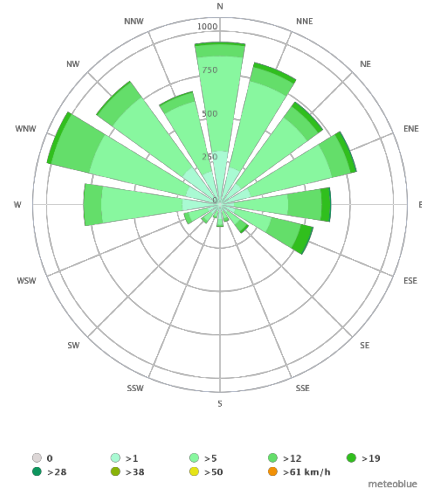


Figure-11: Climatic Conditions of Hafizabad City

Wind speed in most of the days are within the range of 5 km/hr to 12 km/hour, whereas wind directions are mostly towards North East and North North East as shown in **Figure12**.



Wind Speed



Wind Directions

Figure-12: Wind Speed and Direction of Hafizabad City

4.2. PUBLIC PARKS AND GREEN SPACES

Hafizabad has one proper Public Park namely **Municipal Park** located on College Road. It's a well maintained Park, managed by dedicated staff for maintenance but the management feels that the staff is inadequate and may require more staff for proper management. The park is equipped with following facilities;

- Walking tracks
- Swings for children
- Section dedicated for animals, birds
- Spaces available for gatherings
- Cafeteria for visitors
- Artificial Pond

The provision of an urban green space is necessary to strengthen the efforts of the local authority to create a livable city and encourage urban development towards a sustainability framework. The application of urban green space standards varied in many cities.

4.3. HOTSPOT ANALYSIS – AIR QUALITY

The satellite images of MODIS and sentinel 5P Tropomi were used to remotely sense the average concentrations of the particulate matters i.e. Aerosols Optical Depth (AOD), carbon monoxide (CO), Sulphur dioxide (SO₂), and Nitrogen dioxide (NO₂) during year 2020. The hotspots as shown in Figure 13 and Figure 14 were identified using Getis-Ord-Gi statistical analysis. It shows the areas contributing towards the high concentrations of these aerosols with in Hafizabad district. Thus, there is a need to control and monitor air pollution with identification of the contributing factors. Hafizabad, being an agricultural district, may have major pollutants released from the agricultural fields by the use sprays and fertilizers and burning of the harvested fields. These areas should be monitored to lower the air quality index of Hafizabad district.

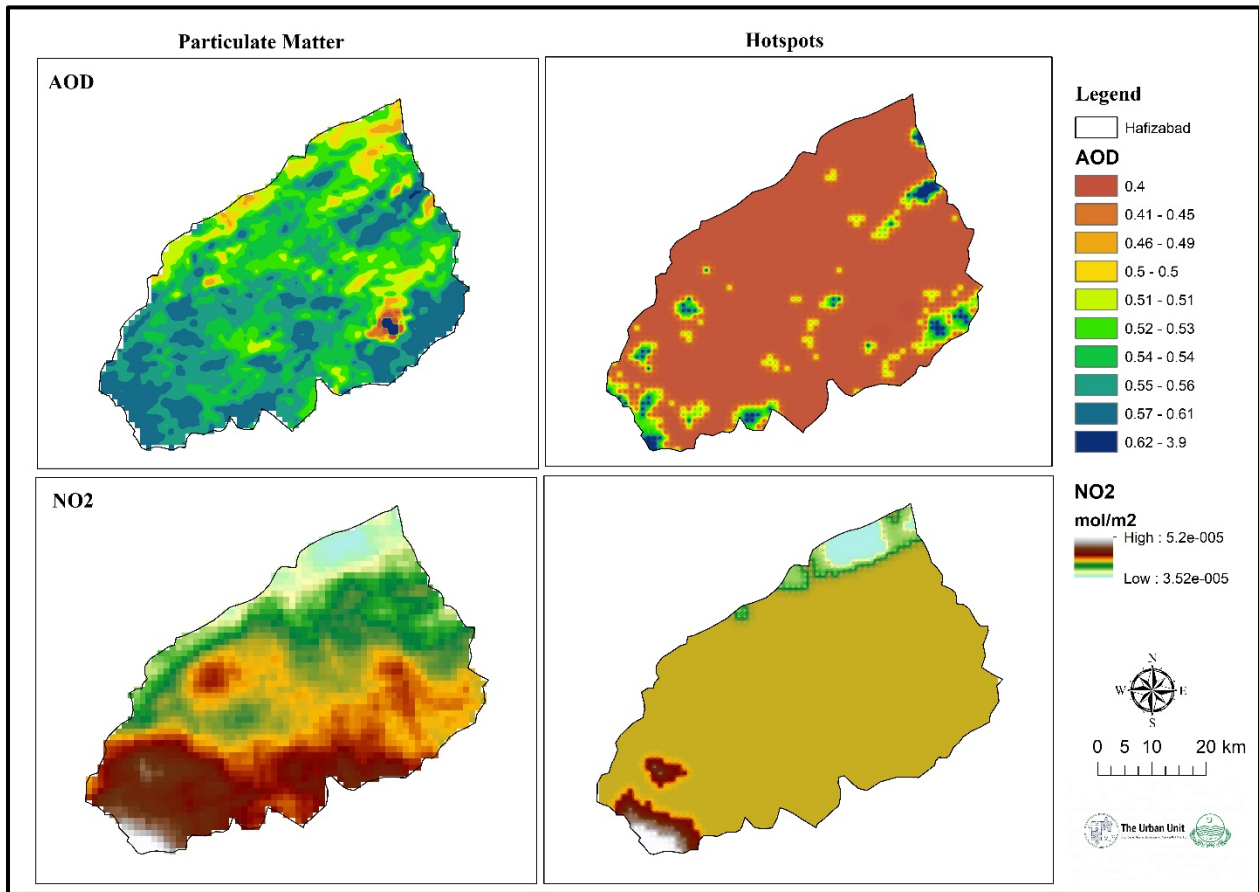


Figure 13: Hotspot Analysis of AOD and NO₂ in District Hafizabad

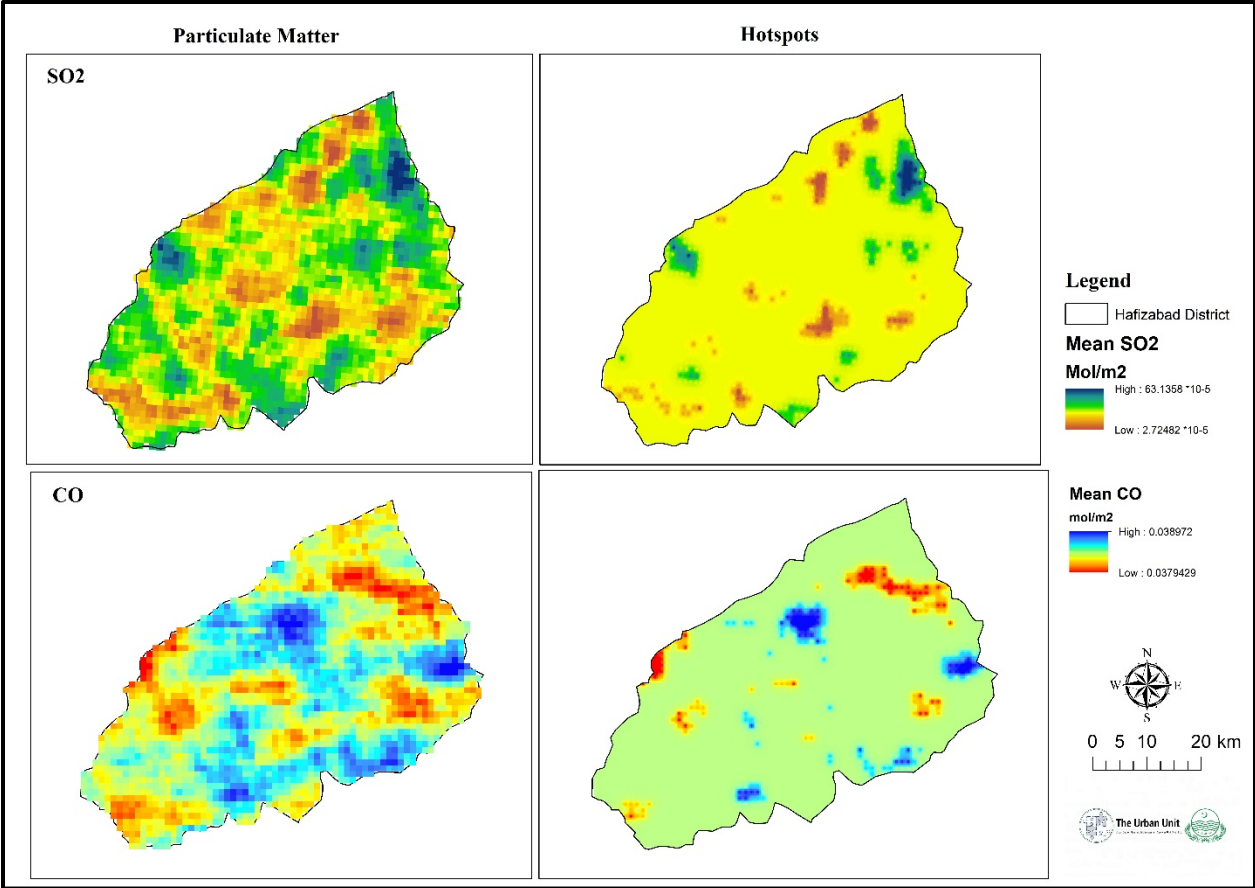


Figure 14: Hotspot Analysis of SO₂ and CO in District Hafizabad

4.4. RECOMMENDATIONS - ENVIRONMENT

Based on the baseline environmental assessment of Hafizabad, it was observed that the Hafizabad city has only one Municipal Park, which is well maintained, but to make the city more livable there is a need to develop more parks, recreational parks and green spaces in the city.

The environmental projects that is proposed based on baseline environmental assessment and above observations are as under;

Sr. #	Project	Cost (Million PKR)
1	Rehabilitation of existing public park in Hafizabad city	7
2	Plantation of trees along AKN Seepage Drain	8
4	Development of Riverine Forest along Chenab River	6
5	Construction of public park in Hafizabad city	23
Total (Million PKR)		44

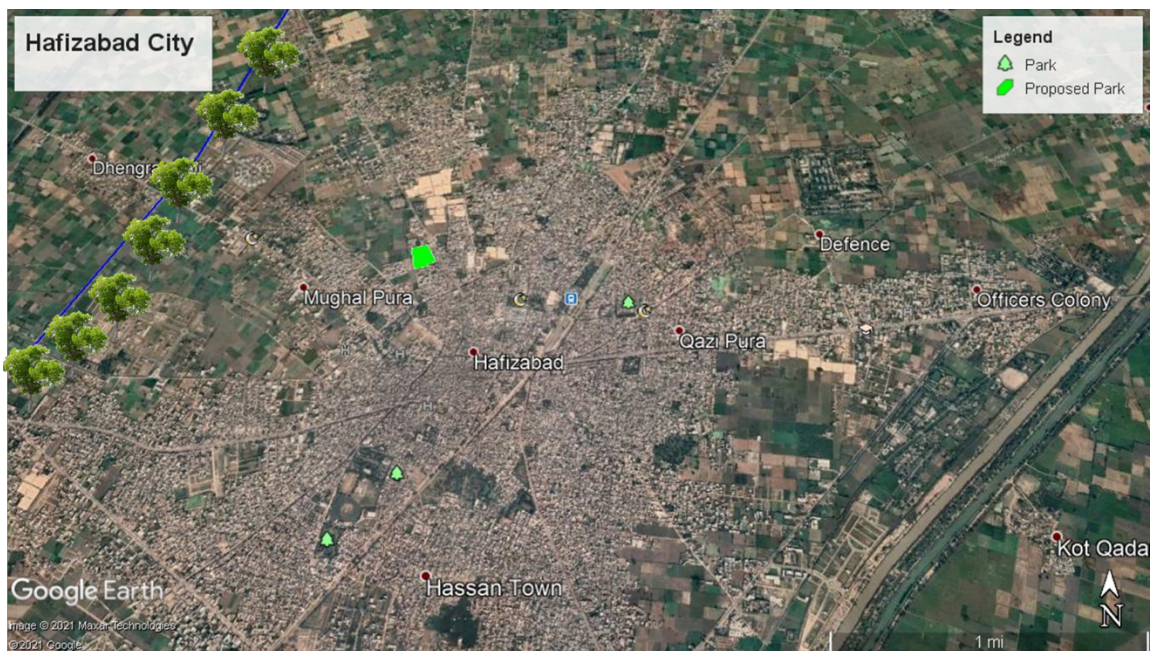


Figure 15: Layout Map of Environmental Development of Hafizabad

ANNEXURE 1: WATER SUPPLY SYSTEM (BILL OF QUANTITY)

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantit y	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Short Term							
Replacement of abandoned tube wells (06) in moh. Farooq Azam, Misri Khan, Sharif Pura, Iqbal town, Peer Kalay Shah and Siddique Akbar respectively							
Construction of Tube Well Boring							
(Abstract of Cost Sub Head-A)							
1	Ch:- 23/6-a	Boring for tubewell in shingle, gravel and rock, including sinking and withdrawing of casing pipe:- a) from ground level to 200 ft. (60 m) below ground level:-				-	
	i	12" to 18" (300 to 450 mm) i/d	Rft.	400	1,232	492,880	
2	Ch:-23/7	Providing strong substantially built box of deodar wood 4'x2½'x9" (1200x750x225 mm), with compartments, lock and locking arrangement, for preserving samples of strata from bore hole.	Job	1	17,250.75	17,251	

3	Ch:- 23/9-e	Providing and installing, brass strainer in tubewell bore hole, including sockets, special sockets, studs, etc. complete:- 6" i/d, 3/16" (150 mm i/d 5 mm) thick	Rft.	80	2,760	220,828	
4	Ch:- 23/10-g	Providing and installing M.S. Bail plug in tubewell bore hole:) 8" i/d, 2 ft. (200 mm i/d 600 mm) long	Each	2	3,390	6,780	
5	Ch:- 23/14-g	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with strainer, etc. complete:- 8" i/d, 3/16" (200 mm i/d 5 mm) thick	Per Rft.	250	1,697	424,188	
6	Ch:-23/8	Furnishing sample of water from bore hole.	Per Set	2	170.70	341	
7	Ch:- 23/18	Shrouding with graded pea gravel 3/8" to 1/8" (10 to 3 mm), around tubewell in bore hole.	Per Cft.	800	99.85	79,880	
8	Ch:- 23/17	Testing and developing of tubewell of size 6" (150 mm) i/d and above continuously.					
	i	upto 1.5 cs. Discharge	Per Hours	72	1,158	83,351	
(Total Sum of Sub Head A) Amount R.s						1,325,498	
Construction of Pump House							
(Abstract of Cost Sub Head-B)							
1	Ch:- 4/13	Dismantling brick work lime or cement mortar	%Cft	388	3,020	11,719	
2	Ch:- 4/19-c	Dismantling cement concrete 1:2:4 Plain	%Cft	900	7,818	70,358	

3	Ch:- 4/29	Dismantling brick or flagged flooring without concrete foundation.	%Sft	1,800	604	10,874	
4	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m) in ordinary soil.	%Cft	1,200	7,492.30	8,991	
5	Ch:6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- d) Ratio 1: 6:12	%Cft	225	12,095.15	27,214	
6	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio Ratio 1:5	%Cft	650	23,755.65	154,412	
7	Ch:6/33-a-i	Providing and laying damp proof course of cement concrete 1:2:4(using cement, sand and shingle), including bitumen coating :- (b) with 2 coats of bitumen: i) 1½" thick (40 mm)	%Sft	69	5,050.75	3,485	
8	Ch:7/5-i	Pacca brick work in ground floor:- cement, sand mortar:- Ratio 1:5	%Cft	650	25,269.40	164,251	
9	Ch:6/6-a	Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					

		Type C (nominal mix 1: 2: 4)	Per Cft	222	376.45	83,571.90	
10	Ch:6/9-b	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):- (b) Deformed bars (Grade-40)	%Kg	400	16,422.35	65,689.40	
11	Ch:- 11/4-b	Cement Neru plaster 1:2 (cement and sand) upto 20' (6.00 m) height:-½" (13 mm) thick	%Sft	775	2,320.60	17,984.65	
12	Ch:- 11/8-b	Cement pointing struck joints, on walls, upto20' (6.00 m) hieght:-ratio 1:3	%Sft	1,500	2,192.35	32,885.25	
13	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8" (50x50x10 mm) and ¾" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	Per Sft.	150	1,243.85	186,578	
14	Ch:- 25/42	Providing and fixing steel windows using M.S. sheet (16SWG) moulded tubular pipe 1½"x1½" (40x40mm)for frame and 1¼"x1¼" (30x30mm) for leaves including M.S. square bars ¼"x¼" (6x6 mm) welded around each panel of frame, 5 mm	Per Sft.	64	394.35	25,238	

		thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects. For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass					
15	Ch:11/2 3-iii	Distempering:-a) new surface:-iii) three coats	%Sft	775	777.20	6,023.30	
16	Ch:9/20- a	Cast iron rain water downpipe fixed in position, excluding heads and shoes, but including painting and clamps, etc:- a) 4" dia (100 mm) cast iron down pipe.	Per Rft.	20	229.90	4,598.00	
17	Ch:9/21	Rain water down pipe cast iron head fixed in place, including cost of clamp holdfast and painting.	Each	1	579.00	579.00	
18	Ch:9/22	Shoes, bends or offsets for cast iron rain water down pipe, including fixing and painting.	Each	1	336.70	336.70	
19	Ch:9/16	Bottom Khuras of brick masonry in cement mortar 1:6, 4'x2'x4½" (1200x600x113 mm) over 3" (75 mm) cement concrete 1:4:8.	Each	1	956.80	956.80	
20	Ch:- 10/15-e	Providing and laying topping of cement concrete 1:2:4, including surface finishing and dividing in panels:-e) 2"(50 mm) thick	%Sft	325	5,380.70	17,487.28	

21	Ch:9/15	Khuras on roof 2'x2'x6" (600 x 600 x 150 mm)	Each	1	547.60	547.60	
22	Ch:13/5- c	Preparing surface and painting of doors and windows any type (including edges):-i) priming coat.	%Sft	338	836.60	2,827.71	
23	Ch:-9/5	Single layer of tiles 9"x4½"x1½" (225x113x40 mm) laid over 4"(100 mm) earth and 1" (25 mm) mud plaster without Bhoosa, grouted with cement sand 1:3 on top of RCC roof slab, provided with 34 lbs. per %Sft. or 1.72 Kg/Sq.m bitumen coating sand blinded.	%Sft	400	7,665.05	30,660.20	
24	Ch :- 6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 20.1 -do- 50 mm) gauge, in foundation and plinth:- (d) Ratio 1: 6:12	%Cft	100	12,095.1 5	12,095.15	
25	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. i) cement, sand mortar:- Ratio 1:5	%Cft	425	24,496.8 5	104,111.61	
(Total Sum of Sub Head B) Amount R.s						1,043,474	
INTERNAL ELECTRIFICATION							
(Abstract of Cost Sub Head-C)							
1	Ch:- 24/12	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 660/1100 volts grade cable, in prelaid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches,etc (rate for cable only):-				-	

	a)	19/2.11 mm (19/0.083")	Per Rft.	120	332.15	39,858	
	b)	37/2.11 mm (37/0.083")	Per Rft.	120	580.50	69,660	
2	Ch:-24/5	Supply and erection of G.I. flexible pipe for wiring, including				-	
	a)	80 mm i/d	Per Rft.	25	360.25	9,006	
3	Ch:- 24/68	Earthing of iron clad/aluminum switches, etc. with G.I. wire No.8 SWG in G.I. pipe 15 mm (½") dia, recessed or on surface of wall and floor, complete with 1.5 metre long G.I. pipe, 50 mm (2") dia with reducing socket 4 to 5 metre below ground level, and 2 metre away from building plinth.	Job	2	6,194	12,388	
4	Ch:- 24/10	Supply and erection of single core PVC insulated copper conductor cables, in pre-laid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing an capping/G.I.wire/trenches (rate for cables only):-250/440 volts, PVC insulated cotton braided and compounded cables:-				-	
	a)	3/0.74 mm (3/0.029")	Per Rft.	510	12.50	6,375	
	b)	7/0.74 mm (7/0.029")	Per Rft.	85	16.80	1,428	
5	Ch:- 24/19	Supply and erection of iron/aluminum clad, 500 volts' main switches with triple pole and neutral link and HRC fuses, on	Each	1	20,335.80	20,336	

		angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles. (500Amp)					
6	Ch:- 24/18-a	Supply and erection of iron/aluminum clad, 500 volts main switches with KitKat fuses, on angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles, etc. 15/20 Amp.	Each	1	1,720		1,720
7	Ch:- 24/20	Supply and erection of iron/aluminum clad, branch distribution board, 250 volt, on angle iron frame of suitable size with 3 mm (1/8") M.S. sheet covering: 8 way, 15 Amp per way	Each	2	1,025		2,050
8	Ch:- 24/43	Supply and erection of tube light, including rod, choke, starter with frame, flexible wire, including connection from ceiling rose, etc., complete. double rod (80 watts) with two chokes and 2 starters.	Each	4	1,319.05		5,276
9	Ch:- 24/76	Rewinding of A.C. ceiling fan, capacitor type, including cost of wire, leather ide paper cotton tape, soldering, etc.1400 mm (56") sweep, 250-275 RPM	Each	1	1,213.05		1,213
10	Ch:- 24/69	Earthing of Metallic cases, etc. with G.I. wire No. 8 mm (½") dia G.I. pipe, best quality:-SWG, in on	Rft.	60	88.60		5,316

		surface, including clamps, etc.					
11	Ch:24/7 2	Supply and erection of 600x600x3 mm (2'x2'x1/8") copper plate, including revitting to copper tape and placing in mixture of salt and charcoal, etc.	Each	1	4,789	4,789	
12	Ch:24/3 7	Supply and erection of 3 pin 10/15 Amp. Wall socket with shoe, open type.	Each	4	152.750	611.000	
13	Ch:24/3 0	Supply and erection of ceiling rose, bakelite.	Each	4	41.600	166.400	
(Total Sum of Sub Head C) Amount R.s						180,192	
PUMPING MACHINERS							
(Abstract of Cost Sub Head-D)							
1	Ch:- 23/17-ii	Testing and developing of tube well of size 6" (150 mm) i/d and above continuously.	Per Hour s.	72	1,399	100,738.800	
2		Providing, installing, testing and lowering vertical shaft water lubricated deep well turbine pump of 0.7 to 1.50 cusecs capacity against a pumping head of 350 ft. including lowering of about 170 ft length bowl assembly 04 stage and shaft complete (KSB) and AC electric motor 150 BHP 30 H.P squirrel cage induction motor of 1450 RPM alongwith flow meter, gate valves, check valves, air release valves, pressure gauge,	Per Set.	1	5,750,000	5,750,000	

		CI bends tail pieces etc. up to duck foot bend and earthing, testing complete.					
3	Ch:- 23/14-j	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with strainer, etc. complete:- 12" i/d, ¼" (300 mm i/d 6 mm) thick	Per Rft.	20	2,770	55,406	
4	Ch:- 23/33-b	Providing and fixing, air valve 2½ (65mm) dia of B.S.S. quality and weight (complete with jointing material).	Each	1	8,011	8,011	
5	Ch:- 25/10	Fabrication of heavy steel work, with angle, tees, flat iron round iron and sheet iron for making trusses, girders, tanks, etc., including cutting, drilling, rebitting, handling, assembling and fixing, but excluding erection in position.	%Kg	152	18,013	27,436	
6	Ch :- 6/3-c	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:-(c) Ratio 1:4:8	%Cft	64	12,937.5 5	8,280	

7	Ch:-6/9	Fabrication of mild steel reinforcement for cement concrete,including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-	%Kg	152	16,422.35	24,962	
8		HYPO CHLORINATOR					
		Providing fixing & testing of Hypo Chlorinator (Chemical metering pump) capacity 0-30 gallons / day at 100 PSI max injection pressure fitted with 1/60 HP air cooled heavy duty electric motor 220 V, 50 Hz single phase AC complete with all accessories like bleed valve assembly, suction tubing, discharge tubing, foot valve and strainer assembly with weight back check valve assembly solution tank injection fitting wall brackets etc complete in all respect to the entire satisfaction of the Engineer in charge.	Job	1.00	85,000.00	85,000.00	
9		WATER FLOW METERS					

		Making and fixing and water level indicator gauge painted in quarter FT readings enamel coated on 6" wide 1/4" thick M.S. plate fitted on outer wall of pump house on top of G.S.T. complete with float, guide, steel wire string, pullyes pointer and 1 No. line bracket bulb as per approved design.	Job	1.00	55,000.00	55,000.00	
	(Total Sum of Sub Head D) Amount R.s					6,114,833	
	a+b+c+d = Total Sub Head Amount R.s					8,663,998	
Total Amount of Rehabilitation of abandoned tube wells (06) in moh. Farooq Azam, Misri Khan, Sharif Pura, Iqbal town, Peer Kalay Shah and Siddique Akbar respectively						51,983,986.41	PKR
						51.983	Millions

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Short Term							
Upgradation of 5 tube wells (1 cusec to 1.5 cusec)							
Construction of Tube Well Boring							
(Abstract of Cost Sub Head-A)							
(Total Sum of Sub Head A) Amount R.s						-	
Construction of Pump House							
(Abstract of Cost Sub Head-B)							
(Total Sum of Sub Head B) Amount R.s						-	
INTERNAL ELECTRIFICATION							
(Abstract of Cost Sub Head-C)							
(Total Sum of Sub Head C) Amount R.s						-	
PUMPING MACHINERS							
(Abstract of Cost Sub Head-D)							
VERTICAL TURBINE PUMP							
1	N.S	Supplying, installation, testing* & commissioning of vertical shaft deep well turbine pump with lowering of 170ft.and multistage bowl assembly impeller of led free bronze capable to discharge of 1.5 -Cfs clear water against a total head of 210 ft. Pump approved by HUD & PHE Department and entire satisfaction of Engineering in charge.	Each	1	3,400,000	3,400,000	

2	N.S	P/F suitable intermediate motor stool to couple with 1.5-cfs vertical turbine pump with vertical solid shaft electric motor 150-BHP complete in all respect	Each	1	150,000	150,000	
3	N.S	Providing/fixing base plate size 3'x3'x1.5" with centre hole 19" i/d including drilling of foundation bells , discharge head bolts water level measurement holes etc. duly finished as required by the Engineer.	Each	1	25,000	25,000	
4	N.S	Supplying/installation of vertical Solid shaft squirrel cage induction type electric motor of 150-BHP (IE2) high efficiency class -F insulation A.C.400-V 3-phase 50 Hz, 4-pole, strictly according to WASA standard specifications for electric motor IP-55 approved by HUD & PHE Department, suitable to operate the V.T. Pump to discharge 4-Cfs at 210 ft. head (3-thermal sensors, one in each phase to be embedded in the motor winding.	Each	1	1,299,000	1,299,000	
5	N.S	Supplying and installation of floor mounted Star Delta electric Panel as per WASA standard electric specification suitable to operate 150-BHP Squirrel cage motor containing the standard protection	Each	1	305,000	305,000	

		accessories manufactured by Siemens, PEL, Alstom's, PEMPAK, ELECTRECH,IES SWITCHGEAR etc. approved by Engineer In charge.					
6	Ch:- 23/14 -j	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tube well bore hole, including jointing/welding with strainer, etc. complete:- 12" i/d, ¼" (300 mm i/d 6 mm) thick	Rft	20	2,770	55,406	
7	Ch:- 23/33 -b	Providing and fixing, air valve 2½ (65mm) dia of B.S.S. quality and weight (complete with jointing material).	Each	1	8,011	8,011	
8	Ch:- 25/10	Fabrication of heavy steel work, with angle, tees, flat iron round iron and sheet iron for making trusses, girders, tanks, etc., including cutting, drilling, rebitting, handling, assembling and fixing, but excluding erection in position.	%Kg	152	18,013	27,436	
9	Ch :- 6/3-c	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:-(c) Ratio 1:4:8	%Cft	64	12,937.55	8,280	
10	Ch:- 6/9	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also	%Kg	152	16,422.35	24,962	

		includes removal of rust from bars):-					
		HYPO CHLORINATOR					
11	N.S	Providing fixing & testing of Hypo Chlorinator (Chemical metering pump) capacity 0-30 gallons / day at 100PSI max injection pressure fitted with 1/60 HP air cooled heavy duty electric motor 220 V, 50 Hz single phase AC complete with all accessories like bleed valve assembly, suction tubing, discharge tubing, foot valve and strainer assembly with weight back check valve assembly solution tank injection fitting wall brackets etc complete in all respect to the entire satisfaction of the Engineer in charge.	Job	1.00	85,000.00	85,000.00	
		WATER FLOW METERS					
12	N.S	Making and fixing and water level indicator gauge painted in quarter FT readings enamel coated on 6" wide 1/4" thick M.S. plate fitted on outer wall of pump house on top of G.S.T. complete with float, guide, steel wire string, pulleys pointer and 1 No. line bracket bulb as per approved design.	Job	1.00	55,000.00	55,000.00	
	(Total Sum of Sub Head D) Amount R.s					5,443,094	
	a+b+c+d = Total Sub Head Amount R.s					5,443,094	

Total Amount of Upgradation of 5 tube wells (1 cusec to 1.5 cusec) in Moh. Karimpura, Sherpura, Bus stand , Jinnah Hall 2 and Jinnah Hall 03	27,215,470.73	PKR
	27	Millions

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD)							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Short Term							
Construction of 2 OHRs (50,000 gals each)							
1	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dabbling, dressing, refilling around structure with excavated earth, watering and ramming lead up to one chain (30 m) and lift up to 5 ft. (1.5 m)					
		b) In ordinary soil.	%Cft.	36,000.00	7,492.30	269,722.80	
2	Ch:- 3-13 (b) 3-16(i)	Re-handling of earthwork: b)Upto a lead of 50 ft. (15 m).for earthwork soft, ordinary, hard and very hard.	%Cft.	27,000.00	2,487.40	67,159.80	

		Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars).					
3	Ch:-6/9(c)	Deformed steel bars (Grade 60)	%Kg.	32,00 0.00	16,422. 35	5,255,152.00	
4	Ch:6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
		(i) Ratio 1: 4: 8	%Cft	2,000. 00	17,941. 60	358,832.00	
5	Ch:6/6-i-2	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					

		(a) (i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,938.00	405.70	4,437,546.60	
6	Ch:6/6-ii-2	(a)(ii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other than those mentioned in 5(a) (i) above not requiring form work (i.e. horizontal					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,892.50	300.85	3,277,008.63	
7	Ch:6/6-i-1	Reinforced cement concrete type A nominal mix 1:1:2 (cylinder strength 4000 psi) in roof slab, beams lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.					
		Type A (nominal mix 1:1:2) Bowl Concrete	Per Cft.	5,200.00	460.20	2,393,040.00	
8	Ch:-6/13 (a)	Extra labour for laying concrete plain or reinforced: a) above 20' (6 m) upto 40'(12 m) height	%Cft.	1,751.00	2,842.75	49,776.55	

9	Ch:-6/13 (b)	b) For every additional 10'(3 m) height.	%Cft.		1,776.70	-	
	"	c) 40'-50' height		450.00	42.07	18,931.50	
	"	d) 50'-60' height		450.00	59.35	26,707.50	
	"	e) 60'-70' height		450.00	76.10	34,245.00	
	"	f) 70'-80' height		1,300.00	90.66	117,858.00	
	"	g) 80'-90' height		1,300.00	106.50	138,450.00	
10	Ch:6/28	Providing embedding 10" (250 mm) wide ¼" (6 mm) thick rubber water stopper in expansion joints of R.C.C. roof slab complete in all respects.	P.Rft.	120.00	208.00	24,960.00	
11	Ch:-7/4	Pacca brick work in foundation and plinth cement, sand mortar Ratio 1:5 i) Plinth protection.	%Cft.	775.00	23,755.65	184,106.29	
12	Ch:-10/15(e)	Providing and laying topping of cement concrete 1:2:4, including surface finishing and dividing in panels:- (Under Floor) i) 2"(50 mm) thick	%Sft	150.00	6,313.80	9,470.70	
13	Ch:-10/39(a-ii)	½ (13mm) thick mosaic dado or skirting grey cement with one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips and 10% puddlo, laid over ½"(13 mm) thick cement plaster 1:3,	%Sft	575.00	12,785.85	73,518.64	

		including rubbing and polishing, complete with finishing.					
1 4	Ch:-11/28	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof.	%Sft	575.0 0	285.15	1,639.61	
1 5	Ch:-7/30	Supplying and filling sand under floor; or plugging in wells. (Floor and Plinth protection)	%Cft.	1,000. 00	1,976.1 0	19,761.00	
1 6	Ch:- 10/9	Brick on edge flooring, laid in 1:6 cement mortar, over a bed of ¾" (20 mm) thick cement mortar 1:6.	%Sft	1,775. 00	10,258. 70	182,091.93	
1 7	Ch:-25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8 (50x50x10 mm) and ¾" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	P.Sft	11.00	1,243.8 5	13,682.35	
1 8	Ch:-25/42 (a)	Providing and fixing steel windows using M.S. sheet (16 SWG) moulded tubular pipe 1½"x1½" (40x40mm) for frame and 1¼"x1¼" (30x30mm) for leaves including M.S. square bars ¼"x¼" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes					

		fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects.					
		a) For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass panes 1/4" (6 mm) thick.	P.Sft	76.00	394.35	29,970.60	
1 9	Ch:-25/34	Providing/fixing stair railing consisting of M.S. Box section size 1-1/2"x3" of 16 SWG welded with M.S. flat 1"x1/8" continuously and welded over M.S. square bars 5/8"x5/8" punched in M.S. flat 2 3/4' high @ 5 1/2" c/c fixed in steps of stair I/C painting 3 coats complete.	P.Rft.	73.00	746.90	54,523.70	
2 0	Ch:-25/35	Providing and fixing terrace railing of 2" (50 mm) i/d conduit pipe 16 SWG, welded with 5/8"x5/8" (16x16 mm) square bar 2.75 ft. (838 mm) high fixed at 5" (125 mm) centre to centre, in reinforced cement concrete slab with suitable arrangement, complete in all respects, as per design and drawing.	P.Rft.	73.00	837.35	61,126.55	

27	Ch:-23/28 (b) (ii)	Providing and fixing Cast Iron special of B.S.S. Class 'B' (such as bend, tee cross collar, reducer, tail piece, flanged spigot, cap, flanged socket, taper, angle branch, plug etc.) for cast iron pipe line, complete:- b) C.I flanged specials, with flanged and flanged joints:-	P.Kg.	1,000.00	112.95	112,950.00	
		8" dia (Outlet & Wash Out)					
28	Ch:-23/30 e	Providing and fixing sluice valve of B.S.S. quality and weight, Class 'B', for cast iron pipe line, and Asbestos cement pipe line (including cost of jointing material)					
		8" (200 mm) i/d	Each	1.00	26,601.50	26,601.50	
		10" (250 mm) i/d	Each	1.00	34,459.30	34,459.30	
Total Amount (Rs) of Schedule Items						17,273,293	
NON-SCHEDULE ITEMS							
1	N-S	Providing, laying, cutting, jointing, testing and disinfecting Mild Steel pipe erecting in vertical position with M.S clamp with 3"x 3/8" flat iron with nut and bolts, with flanged and flanged joints, complete in all respects:-					
		i) 6" M.S blind pipe (inlet pipe	P.Rft	200.00	1,548.56	309,712.00	

		ii) 8" M.S blind pipe (washout and overflow pipe)	P.Rft	300.00	1,994.87	598,461.00	
		iii) 10" M.S blind pipe (outlet pipe)	P.Rft	170.00	2,992.31	508,692.70	
2	N-S	Providing and installing of aluminum indication gauge Level Indicator complete with Steel pulley, Steel Wire, Gauge Unit including all accessories such as G.I. Pipe, level indicator needle & anchoring arrangement with Float, jointing material as per drawing and/or directed by the Engineer complete in all respect.	Each	1.00	26,449.04	26,449.04	
3	N-S	Clean, test and disinfect overhead water tank.			80,000.00	80,000.00	
4	N-S	Providing and fixing 4" dia GRP air vent on roof of overhead water tank.	P.Rft	14.00	1,315.73	18,420.22	
5	N-S	Providing making and fixing MS cover for roof tank as per drawing, complete in all respects.	Each	1.00	5,597.99	5,597.99	
6	N-S	MS ladder including painting.as per drawings complete in all respect.	Lft	19.00	1,279.93	24,318.67	
7	N-S	Providing and fixing cast iron rungs in underground structures or wherever directed by the Engineer In charge, to correct lines and levels as per drawing and specification.	No.	9.00	586.93	5,282.37	

8	N-S	Wiring of light or fan point from switch to the point with 3x3/0.91 mm (3/0.036") PVC insulated single core cables in PVC pipes concealed in walls, columns and slabs including accessories, PVC box, 10 Amp. Gang switch 1 or 2 way as required, one for each light or fan and installed as in specifications.	Each	8.00	1,398.05	11,184.40	
9	N-S	Circuit wiring from MCBs board to gang switches board with 3x7/0.91 mm (7/0.036") PVC insulated single core cables in appropriate size PVC conduit.	Each	3.00	2,587.70	7,763.10	
11	N-S	5 Amp 2/3 pin universal flush mounting switch socket unit away from switch board and wired with 3x7/0.74mm (7/0.029") single core cable from nearest circuit available in PVC concealed conduits or trunking including all conduit accessories as required complete in all respect.	Each	2.00	1,681.55	3,363.10	
12	N-S	The same as item No. 1.4 but wiring of 15/20A, 3-pin flush mounting switch socket unit wired with 1-core 3x7/0.91mm (7/0.036") starting from D.B.	Each	1.00	2,928.15	2,928.15	
TOTAL Amount (Rs) of Non Schedule Items						1,602,172.74	

Total Amount (Rs) of Schedule Items+Non Schedule		18,875,465.28										
Total For Construction of 2 OHRs (50,000 gals each) for water storages in Misri Shah Chowk and Garhi Awan		37,750,930.56										
<u>THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD</u>												
Regional Development Plan 2020-2030												
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD												
<u>Short-Term</u>												
<u>Replacement of existing Water Supply lines in Main Bazar, post office road, Moh. Misri Khan, People Colony and Qazi Pura</u>												
Sr.#	Item Code	DESCRIPTION	QTY	UNIT	RATE	AMOUNT						
1	Ch: - 4/4 5	Dismantling and removing road metalling.	21,474 .00	%Cft	1,421.40	305,231						
2	Ch: - 4/2 9	Dismantling brick or flagged flooring without concrete.	17,179 .200	%Sft	604.10	103,780						
3	Ch: - 3/4 4	Excavation of trenches in all kind of soil except cutting, rock, for water supply pipe lines up to 5' depth from ground level i/c trimming, dressing sides, leveling the beds of trenches to correct grate and cutting pits for joints etc. complete in all respect.	121,54 4.00	%Cft	5,340.20	649,069						
	i.	For 12" i/d	300 .00	X	3	X	5	=	3,750	Cft		
	ii.	For 10" i/d	2,8 33	X	2	X	5	=	28,330	Cft		
	ii.	For 8" i/d	2,2 00	X	2	X	4	=	17,600	Cft		
	iii.	For 6" i/d	1,8 00	X	2	X	4	=	14,400	Cft		

	iv.	For 4" i/d	4,000	X	2	X	4	=	32,000	Cft				
	v.	For 3" i/d	3,183	X	2	X	4	=	25,464	Cft				
								=	121,544	Cft				
4	Ch: - 7/3 0	Supplying and filling sand under floor; or plugging in wells.									4,806.59	%Cft	1,976.10	94,983
	i.	For 12" i/d	300	X	3	X	0.17	=	125.25	Cft				
	ii.	For 10" i/d	2,833	X	2	X	0.17	=	946.22	Cft				
	ii.	For 8" i/d	2,200	X	2	X	0.17	=	734.80	Cft				
	iii.	For 6" i/d	1,800	X	2	X	0.17	=	601.20	Cft				
	iv.	For 4" i/d	4,000	X	2	X	0.17	=	1,336.00	Cft				
	v.	For 3" i/d	3,183	X	2	X	0.17	=	1,063.12	Cft				
								=	4,806.59	Cft				
5	Ch: - 23/ 42- a	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working pressure pipe in trenches complete in all respects. PN-8 (SDR-21)												
	i.	12" i/d Pipe									300.00	P. Rft	1,881.10	564,330
	ii.	10" i/d Pipe									2,833.00	P. Rft	943.45	2,672,794
	ii.	8" i/d Pipe									2,200.00	P. Rft	750.05	1,650,110
	iii.	6" i/d Pipe									1,800.00	P. Rft	482.30	868,140

	iv.	4" i/d Pipe	4,000.00	P. Rft	234.20	936,800
		3" i/d Pipe	3,183.00	P. Rft	168.80	537,290
6	N-s	Providing and fixing HDPE specials i/c carriage from factory to site of work and all taxes complete in all respect.				
	1	Equal Tee 200x200x200 mm	100.00	P.No	9,582.00	958,200
	2	Equal Tee 315x315x315 mm	100.00	P.No	26,019.00	2,601,900
	3	Reducer Tee 315x90 mm	80.00	P.No	38,676.00	3,094,080
	4	Reducer Tee 315x110 mm	80.00	P.No	38,889.00	3,111,120
	5	Reducer Tee 315x160 mm	80.00	P.No	39,006.00	3,120,480
	6	Reducer Tee 315x200 mm	80.00	P.No	39,162.00	3,132,960
	7	Reducer Tee 315x250 mm	80.00	P.No	39,334.00	3,146,720
	8	Reducer Tee 250x200 mm	80.00	P.No	25,774.00	2,061,920
	9	Reducer Tee 200x90 mm	100.00	P.No	10,520.00	1,052,000
	10	Reducer Tee 200x110 mm	100.00	P.No	10,584.00	1,058,400
	11	Reducer Tee 200x160 mm	80.00	P.No	10,701.00	856,080
	12	Stab End 315 mm o/d	80.00	P.No	11,901.00	952,080
	13	Stab End 250 mm o/d	80.00	P.No	7,982.00	638,560
	14	Stab End 200 mm o/d	80.00	P.No	5,157.00	412,560

	15	Stab End 160 mm o/d	80.00	P.No	2,314.00	185,120
	16	Stab End 110 mm o/d	80.00	P.No	1,454.00	116,320
	17	Stab End 90 mm o/d	80.00	P.No	880.00	70,400
	18	Bend 315 mm (90)	80.00	P.No	21,211.00	1,696,880
	19	Bend 315 mm (45)	80.00	P.No	23,009.00	1,840,720
	20	Bend 200 mm (45)	80.00	P.No	6,942.00	555,360
	21	Reducer 315x200 mm	80.00	P.No	17,487.00	1,398,960
	22	Reducer 250x200 mm	80.00	P.No	11,112.00	888,960
	23	Reducer 200x160 mm	80.00	P.No	4,836.00	386,880
	24	M.S Flange 315 mm i/d	80.00	P.No	1,760.00	140,800
	25	M.S Flange 250 mm i/d	80.00	P.No	1,568.00	125,440
	26	M.S Flange 200 mm i/d	80.00	P.No	1,358.00	108,640
	27	M.S Flange 160 mm i/d	80.00	P.No	1,065.00	85,200
	28	M.S Flange 110 mm i/d	100.00	P.No	606.00	60,600
	29	Equal Tee 90 mm	100.00	P.No	1,940.00	194,000
	30	Equal Tee 110 mm	100.00	P.No	2,910.00	291,000
	31	Equal Tee 160 mm	100.00	P.No	6,791.00	679,100
	32	Elbow 90 degree 90 mm	100.00	P.No	1,463.00	146,300
	33	Elbow 90 degree 110 mm	100.00	P.No	2,264.00	226,400
	34	Elbow 90 degree 160 mm	100.00	P.No	5,336.00	533,600
	35	Elbow 90 degree 250 mm	100.00	P.No	16,979.00	1,697,900
	36	Elbow 45 degree 90 mm	100.00	P.No	1,422.00	142,200

	37	Elbow 45 degree 110 mm	100.00	P.No	2,102.00	210,200
	38	Elbow 45 degree 160 mm	100.00	P.No	5,174.00	517,400
	39	Elbow 45 degree 250 mm	100.00	P.No	16,170.00	1,617,000
	40	End Cap 90 mm	100.00	P.No	646.00	64,600
	41	End Cap 110 mm	100.00	P.No	970.00	97,000
	42	End Cap 160 mm	100.00	P.No	2,263.00	226,300
	43	End Cap 250 mm	100.00	P.No	8,085.00	808,500
	44	Cross 90 mm	100.00	P.No	3,234.00	323,400
	45	Cross 110 mm	100.00	P.No	5,660.00	566,000
	46	Reducer Tee 110 X 90 mm	100.00	P.No	2,426.00	242,600
	47	Reducer Tee 160 X 90 mm	100.00	P.No	5,821.00	582,100
	48	Reducer Tee 160 X 110 mm	100.00	P.No	5,821.00	582,100
	49	Reducer Tee 250 X 110 mm	100.00	P.No	19,404.00	1,940,400
	50	Reducer Spigot 250 X 110 mm	100.00	P.No	12,936.00	1,293,600
7	Ch: - 23/ 29	P/F cast iron specials of BSS Class-B (such as bend, tee, collar, reducer, tail piece, flanged socket, flanged spigot, cap, taper angle branch, plug, etc) for Asbestos cement pipe line, with comet joint and rubber ring, complete.				
i		3" to 6" i/d	2,000.00	P. Kg	111.40	222,800
ii		8" to 18" i/d	1,000.00	P. Kg	105.10	105,100
8	Ch: - 23/ 33	Providing and fixing Air Valve 2.5" (65 mm) dia of BSS quality and weight (complete with jointing material) Double	50.00	P. No.	8,010.55	400,528

9	Ch: - 23/ 31-	Providing and fixing sluice valve of BSS quality and weight class B or cast iron pipe line and Asbestos cement pipe line i/c cost of fitting of material.				
i		3" i/d Sluice Valve	50.00	P. No.	6,041.75	302,088
i		4" i/d Sluice Valve	40.00	P. No.	6,932.65	277,306
ii		6" i/d Sluice Valve	20.00	P. No.	11,697.10	233,942
iii		8" i/d Sluice Valve	20.00	P. No.	20,991.10	419,822
iv		10" i/d Sluice Valve	20.00	P. No.	26,470.55	529,411
v		12" i/d Sluice Valve	5.00	P. No.	32,849.75	164,249
10	N-s	Construction of Sluice Valve Chamber.	200.00	P. No.	30,000.00	6,000,000
11	Ch: - 23/ 41	Making connection for new water supply lines with running main i/c excavation of trenches and refilling complete but excluding the cost of pipe and specials.				
	i	Upto 6" i/d	2,000.00	P. No.	2,026.55	4,053,100
	ii	Upto 8" i/d	1,000.00	P. No.	2,559.55	2,559,550
	iii	Upto 10" i/d	500.00	P. No.	3,608.90	1,804,450
	iv	Upto 12" i/d	500.00	P. No.	4,941.40	2,470,700
12	Ch: - 3/1 3-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	97,235.2	%Cft	1,776.70	172,758
13	Ch: - 3/2 5	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-				-

		95% to 100% maximum modified AASHO dry density.	97,235.2	%Cft	788.25	76,646
14	Ch: - 21/ 12	Restoration of metaled road on laid service line including compaction.				-
		a) Carpeted road, with 2" (50 mm) carpet and 10" (250mm) depth of stone metal for sub-base and base.	17,179.2	%Sft	8,558.40	1,470,265
		c) Black topped Road with two coats of surfacing & 10" (250mm) depth of stone metal for sub base and base.	3,435.84	%Sft	4,119.20	141,529
		Total Amount (PKR)				76,625,810
		Total Amount (In Million)				77

<u>THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT</u>										
<u>PVT.LTD</u>										
Regional Development Plan 2020-2030										
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD										
<u>Short-Term</u>										
<u>Extension of Water Supply Network to Khan pura, Garhi Awan, Qadirabad and Siraj Ganj.</u>										
Sr.#	Item Code	DESCRIPTION					QTY	UNIT	RATE	AMOUNT
1	Ch: - 3/4 4	Excavation of trenches in all kind of soil except cutting, rock, for water supply pipe lines up to 5' depth from ground level i/c trimming, dressing sides, leveling the beds of trenches to correct grate and cutting pits for joints etc. complete in all respect.					55,896.00	%Cft	5,340.20	298,496
	i.	For 12" i/d	-	X	3	X	5	=	-	Cft
	ii.	For 10" i/d	-	X	2	X	5	=	-	Cft

	ii.	For 8" i/d	500.00	X	2	X	4	=	4,000.00	C ft					
	iii.	For 6" i/d	755.00	X	2	X	4	=	6,040.00	C ft					
	iv.	For 4" i/d	3,500.00	X	2	X	4	=	28,000.00	C ft					
	v.	For 3" i/d	2,232.00	X	2	X	4	=	17,856.00	C ft					
								=	55,896.00	C ft					
2	Ch: - 7/3 0	Supplying and filling sand under floor; or plugging in wells.										2,333.66	%C ft	1,976.10	46,115
	i.	For 12" i/d	-	X	3	X	0.17	=	-	C ft					
	ii.	For 10" i/d	-	X	2	X	0.17	=	-	C ft					
	ii.	For 8" i/d	500.00	X	2	X	0.17	=	167.00	C ft					
	iii.	For 6" i/d	755.00	X	2	X	0.17	=	252.17	C ft					
	iv.	For 4" i/d	3,500.00	X	2	X	0.17	=	1,169.00	C ft					
	v.	For 3" i/d	2,232.00	X	2	X	0.17	=	745.49	C ft					
								=	2,333.66	C ft					
3	Ch: - 23/ 42- a	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working pressure pipe in trenches complete in all respects. PN-8 (SDR-21)													
	i.	12" i/d Pipe									-	P. Rft	1,881.10	-	
	ii.	10" i/d Pipe									-	P. Rft	943.45	-	
	ii.	8" i/d Pipe									500.00	P. Rft	750.05	375,025	

	iii.	6" i/d Pipe	755.00	P. Rft	482.30	364,137
	iv.	4" i/d Pipe	3,500.00	P. Rft	234.20	819,700
		3" i/d Pipe	2,232.00	P. Rft	168.80	376,762
4	N-s	Providing and fixing HDPE specials i/c carriage from factory to site of work and all taxes complete in all respect.				
	1	Equal Tee 200x200x200 mm	50.00	P.N o	9,582.00	479,100
	2	Equal Tee 315x315x315 mm	50.00	P.N o	26,019.0 0	1,300,950
	3	Reducer Tee 315x90 mm	40.00	P.N o	38,676.0 0	1,547,040
	4	Reducer Tee 315x110 mm	40.00	P.N o	38,889.0 0	1,555,560
	5	Reducer Tee 315x160 mm	40.00	P.N o	39,006.0 0	1,560,240
	6	Reducer Tee 315x200 mm	40.00	P.N o	39,162.0 0	1,566,480
	7	Reducer Tee 315x250 mm	40.00	P.N o	39,334.0 0	1,573,360
	8	Reducer Tee 250x200 mm	40.00	P.N o	25,774.0 0	1,030,960
	9	Reducer Tee 200x90 mm	50.00	P.N o	10,520.0 0	526,000
	10	Reducer Tee 200x110 mm	50.00	P.N o	10,584.0 0	529,200
	11	Reducer Tee 200x160 mm	40.00	P.N o	10,701.0 0	428,040
	12	Stab End 315 mm o/d	40.00	P.N o	11,901.0 0	476,040
	13	Stab End 250 mm o/d	40.00	P.N o	7,982.00	319,280
	14	Stab End 200 mm o/d	40.00	P.N o	5,157.00	206,280

15	Stab End 160 mm o/d	40.00	P.N o	2,314.00	92,560
16	Stab End 110 mm o/d	40.00	P.N o	1,454.00	58,160
17	Stab End 90 mm o/d	40.00	P.N o	880.00	35,200
18	Bend 315 mm (90)	40.00	P.N o	21,211.0 0	848,440
19	Bend 315 mm (45)	40.00	P.N o	23,009.0 0	920,360
20	Bend 200 mm (45)	40.00	P.N o	6,942.00	277,680
21	Reducer 315x200 mm	40.00	P.N o	17,487.0 0	699,480
22	Reducer 250x200 mm	40.00	P.N o	11,112.0 0	444,480
23	Reducer 200x160 mm	40.00	P.N o	4,836.00	193,440
24	M.S Flange 315 mm i/d	40.00	P.N o	1,760.00	70,400
25	M.S Flange 250 mm i/d	40.00	P.N o	1,568.00	62,720
26	M.S Flange 200 mm i/d	40.00	P.N o	1,358.00	54,320
27	M.S Flange 160 mm i/d	40.00	P.N o	1,065.00	42,600
28	M.S Flange 110 mm i/d	50.00	P.N o	606.00	30,300
29	Equal Tee 90 mm	50.00	P.N o	1,940.00	97,000
30	Equal Tee 110 mm	50.00	P.N o	2,910.00	145,500
31	Equal Tee 160 mm	50.00	P.N o	6,791.00	339,550
32	Elbow 90 degree 90 mm	50.00	P.N o	1,463.00	73,150
33	Elbow 90 degree 110 mm	50.00	P.N o	2,264.00	113,200
34	Elbow 90 degree 160 mm	50.00	P.N o	5,336.00	266,800
35	Elbow 90 degree 250 mm	50.00	P.N o	16,979.0 0	848,950
36	Elbow 45 degree 90 mm	50.00	P.N o	1,422.00	71,100

	37	Elbow 45 degree 110 mm	50.00	P.N o	2,102.00	105,100
	38	Elbow 45 degree 160 mm	50.00	P.N o	5,174.00	258,700
	39	Elbow 45 degree 250 mm	50.00	P.N o	16,170.0 0	808,500
	40	End Cap 90 mm	50.00	P.N o	646.00	32,300
	41	End Cap 110 mm	50.00	P.N o	970.00	48,500
	42	End Cap 160 mm	50.00	P.N o	2,263.00	113,150
	43	End Cap 250 mm	50.00	P.N o	8,085.00	404,250
	44	Cross 90 mm	50.00	P.N o	3,234.00	161,700
	45	Cross 110 mm	50.00	P.N o	5,660.00	283,000
	46	Reducer Tee 110 X 90 mm	50.00	P.N o	2,426.00	121,300
	47	Reducer Tee 160 X 90 mm	50.00	P.N o	5,821.00	291,050
	48	Reducer Tee 160 X 110 mm	50.00	P.N o	5,821.00	291,050
	49	Reducer Tee 250 X 110 mm	50.00	P.N o	19,404.0 0	970,200
	50	Reducer Spigot 250 X 110 mm	50.00	P.N o	12,936.0 0	646,800
5	Ch: - 23/ 29	P/F cast iron specials of BSS Class-B (such as bend, tee, collar, reducer, tail piece, flanged socket, flanged spigot, cap, taper angle branch, plug, etc) for Asbestos cement pipe line, with comet joint and rubber ring, complete.				
i		3" to 6" i/d	1,000.00	P. Kg	111.40	111,400
ii		8" to 18" i/d	500.00	P. Kg	105.10	52,550
6	Ch: - 23/ 33	Providing and fixing Air Valve 2.5" (65 mm) dia of BSS quality and weight (complete with jointing material) Double	20.00	P. No.	8,010.55	160,211
7	Ch: - 23/ 31-	Providing and fixing sluice valve of BSS quality and weight class B or cast iron pipe line and Asbestos cement pipe line i/c cost of fitting of material.				

i		3" i/d Sluice Valve	20.00	P. No.	6,041.75	120,835
i		4" i/d Sluice Valve	10.00	P. No.	6,932.65	69,327
ii		6" i/d Sluice Valve	5.00	P. No.	11,697.1 0	58,486
iii		8" i/d Sluice Valve	5.00	P. No.	20,991.1 0	104,956
iv		10" i/d Sluice Valve	-	P. No.	26,470.5 5	-
v		12" i/d Sluice Valve	-	P. No.	32,849.7 5	-
8	N-s	Construction of Sluice Valve Chamber.	120.00	P. No.	30,000.0 0	3,600,000
9	Ch: - 23/ 41	Making connection for new water supply lines with running main i/c excavation of trenches and refilling complete but excluding the cost of pipe and specials.				
	i	Upto 6" i/d	1,000.00	P. No.	2,026.55	2,026,550
	ii	Upto 8" i/d	1,000.00	P. No.	2,559.55	2,559,550
	iii	Upto 10" i/d	-	P. No.	3,608.90	-
	iv	Upto 12" i/d	-	P. No.	4,941.40	-
10	Ch: - 3/1 3-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	44,716.80	%C ft	1,776.70	79,448
11	Ch: - 3/2 5	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-				
		95% to 100% maximum modified AASHO dry density.	44,716.80	%C ft	788.25	35,248
		Total Amount (PKR)				34,678,314
		Total Amount (In Million)				35

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Short Term							
Rehabilitation of Existing OHR in Jinnah Hall							
1	Ch:- 11/2 8	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof.	%Sft	575.00	285.15	1,639.61	
2	Ch:- 25/3 1	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8 (50x50x10 mm) and 3/4" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	P.Sft	11.00	1,243.85	13,682.35	
3	Ch:- 25/4 2 (a)	Providing and fixing steel windows using M.S. sheet (16 SWG) moulded tubular pipe 1 1/2"x1 1/2" (40x40mm) for frame and 1 1/4"x1 1/4" (30x30mm) for leaves including M.S. square bars 1/4"x1/4" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects.					
		a) For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass panes 1/4" (6 mm) thick.	P.Sft	76.00	394.35	29,970.60	

4	Ch:- 25/3 4	Providing/fixing stair railing consisting of M.S. Box section size 1-1/2"x3" of 16 SWG welded with M.S. flat 1"x1/8" continuously and welded over M.S. square bars 5/8"x5/8" punched in M.S. flat 2 3/4' high @ 5 1/2" c/c fixed in steps of stair I/C painting 3 coats complete.	P.Rft .	73.00	746.90	54,523.70	
5	Ch:- 25/3 5	Providing and fixing terrace railing of 2" (50 mm) i/d conduit pipe 16 SWG, welded with 5/8"x5/8" (16x16 mm) square bar 2.75 ft. (838 mm) high fixed at 5" (125 mm) centre to centre, in reinforced cement concrete slab with suitable arrangement, complete in all respects, as per design and drawing.	P.Rft .	73.00	837.35	61,126.55	
6	Ch:- 23/2 8 (b) (ii)	Providing and fixing Cast Iron special of B.S.S. Class 'B' (such as bend, tee cross collar, reducer, tail piece, flanged spigot, cap, flanged socket, taper, angle branch, plug etc.) for cast iron pipe line, complete:- b) C.I flanged specials, with flanged and flanged joints:- 8" dia (Outlet & Wash Out)	P.Kg .	1,000.0 0	112.95	112,950.00	
7	Ch:- 23/3 0 e	Providing and fixing sluice valve of B.S.S. quality and weight, Class 'B', for cast iron pipe line, and Asbestocement pipe line (including cost of jointing material)					
		8" (200 mm) i/d	Each	1.00	26,601.5 0	26,601.50	
		10" (250 mm) i/d	Each	1.00	34,459.3 0	34,459.30	
Total Amount (Rs) of Schedule Items						334,954	
NON-SCHEDULE ITEMS							

1	N-S	Providing, laying, cutting, jointing, testing and disinfecting Mild Steel pipe erecting in vertical position with M.S clamp with 3"x 3/8" flat iron with nut and bolts, with flanged and flanged joints, complete in all respects:-					
		i) 6" M.S blind pipe (inlet pipe)	P.Rft	200.00	1,548.56	309,712.00	
		ii) 8" M.S blind pipe (washout and overflow pipe)	P.Rft	300.00	1,994.87	598,461.00	
		iii) 10" M.S blind pipe (outlet pipe)	P.Rft	170.00	2,992.31	508,692.70	
2	N-S	Providing and installing of aluminium indication gague Level Indicator complete with Steel pully, Steel Wire, Gauge Unit including all accessories such as G.I. Pipe, level indicator needle & anchoring arrangement with Float, jointing material as per drawing and/or directed by the Engineer complete in all respect.	Each	1.00	26,449.04	26,449.04	
3	N-S	Clean, test and disinfect overhead water tank.			80,000.00	80,000.00	
4	N-S	Providing and fixing 4 " dia GRP air vent on roof of overhead water tank.	P.Rft	14.00	1,315.73	18,420.22	
5	N-S	Providing and fixing cast iron rungs in underground structures or wherever directed by the Engineer Incharge, to correct lines and levels as per drawing and specification.	No.	9.00	586.93	5,282.37	
TOTAL Amount (Rs) of Non Schedule Items						1,547,017.33	
Total Amount (Rs) of Schedule Items+Non Schedule						1,881,970.94	
Total For Rehabilitation of Existing OHR in Jinnah Hall						1,881,970.94	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD				
REGIONAL DEVELOPMENT PLAN 2020-2030				
ROUGH COST ESTIMATE				
FOR				
Development of DNI Zones (I and II) for 24 x7 Water Supply				
Sr. #	DESCRIPTION	AMOUNT Rs.	MILLION S	REMARK S
1	Construction of Over Head Reservoirs (1 X 100,000 Gallon)	274,500,000.00	274.5000	Ref Wasa Lhr
2	Laying/Replacement of Water Supply Distribution Network	516,201,379	516.2014	Ref Wasa Lhr
3	P/Installation of Control Valves and Bulk Flow Meters	73,971,797	73.9718	Ref Wasa Lhr
4	P/Installation of Water Meters	719,340,000	719.3400	Ref Wasa Lhr
5	SCADA Monitoring System	40,017,000	40.0170	Ref Wasa Lhr
6	Tubewell (1 X 4-CFS Capacity)	84,251,420	84.2514	Ref Wasa Lhr
		1,708,281,596.00	1,708.28	Ref Wasa Lhr
	2% PMC Charges	34,165,631.92	34.16563192	
	1% Detail Design Charges	17,082,815.96	17.08	
	Land Acquisition for OHR / TW	120,000,000	120.00	
	Lesco Connection Charges	900,000.00	0.90	
	2% Contingencies	34,165,631.92	34.17	
	0.25% Media Campaign	4,270,703.99	4.27	
	1.00% for Horticulture Charges	17,082,816	17.08	
	Restorartion of Road Cut	29,500,000	29.50	
	5% PRA	85,414,080	85.41	

		Total	2,050,863,275.79	2,050.86	
	Wasa LHR Area UC 99,100,101		11.6		
			176,798,558.26	176.80	
	DNI Zones (I and II)		2.43		
	Total Amount of DNI Zone II		429,620,496.57	429.62	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD)														
Regional Development Plan 2020-2030														
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD														
Medium-Term														
Extension of water supply network in the unserved Areas (Ilyas pura, Jelani pura, Faisal Town and Housing Colony)														
Sr .#	Ite m Co de	DESCRIPTION									QTY	UN IT	RATE	AMOUN T
1	Ch: - 3/4 4	Excavation of trenches in all kind of soil except cutting, rock, for water supply pipe lines up to 5' depth from ground level i/c trimming, dressing sides, leveling the beds of trenches to correct grate and cutting pits for joints etc. complete in all respect.									91,008.00	%C ft	5,340.20	486,001
	i.	For 12" i/d	-	X	3	X	5	=	-	C ft				
	ii.	For 10" i/d	-	X	2	X	5	=	-	C ft				
	ii.	For 8" i/d	810.00	X	2	X	4	=	6,480.00	C ft				
	iii.	For 6" i/d	1,241.00	X	2	X	4	=	9,928.00	C ft				
	iv.	For 4" i/d	5,000.00	X	2	X	4	=	40,000.00	C ft				
	v.	For 3" i/d	4,325.00	X	2	X	4	=	34,600.00	C ft				
								=	91,008.00	C ft				

2	Ch: - 7/3 0	Supplying and filling sand under floor; or plugging in wells.								3,799.58	%C ft	1,976.10	75,084
	i.	For 12" i/d	-	X	3	X	0.17	=	-	C ft			
	ii.	For 10" i/d	-	X	2	X	0.17	=	-	C ft			
	ii.	For 8" i/d	810.00	X	2	X	0.17	=	270.54	C ft			
	iii.	For 6" i/d	1,241.00	X	2	X	0.17	=	414.49	C ft			
	iv.	For 4" i/d	5,000.00	X	2	X	0.17	=	1,670.00	C ft			
	v.	For 3" i/d	4,325.00	X	2	X	0.17	=	1,444.55	C ft			
								=	3,799.58	C ft			
3	Ch: - 23/ 42- a	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working pressure pipe in trenches complete in all respects. PN-8 (SDR-21)											
	i.	12" i/d Pipe								-	P. Rft	1,881.10	-
	ii.	10" i/d Pipe								-	P. Rft	943.45	-
	ii.	8" i/d Pipe								810.00	P. Rft	750.05	607,541
	iii.	6" i/d Pipe								1,241.00	P. Rft	482.30	598,534
	iv.	4" i/d Pipe								5,000.00	P. Rft	234.20	1,171,000
		3" i/d Pipe								4,325.00	P. Rft	168.80	730,060
4	N-s	Providing and fixing HDPE specials i/c carriage from factory to site of work and all taxes complete in all respect.											
	1	Equal Tee 200x200x200 mm								70.00	P.N o	9,582.00	670,740
	2	Equal Tee 315x315x315 mm								70.00	P.N o	26,019.00	1,821,330

3	Reducer Tee 315x90 mm	40.00	P.N o	38,676.0 0	1,547,040
4	Reducer Tee 315x110 mm	40.00	P.N o	38,889.0 0	1,555,560
5	Reducer Tee 315x160 mm	40.00	P.N o	39,006.0 0	1,560,240
6	Reducer Tee 315x200 mm	40.00	P.N o	39,162.0 0	1,566,480
7	Reducer Tee 315x250 mm	40.00	P.N o	39,334.0 0	1,573,360
8	Reducer Tee 250x200 mm	40.00	P.N o	25,774.0 0	1,030,960
9	Reducer Tee 200x90 mm	70.00	P.N o	10,520.0 0	736,400
10	Reducer Tee 200x110 mm	70.00	P.N o	10,584.0 0	740,880
11	Reducer Tee 200x160 mm	40.00	P.N o	10,701.0 0	428,040
12	Stab End 315 mm o/d	40.00	P.N o	11,901.0 0	476,040
13	Stab End 250 mm o/d	40.00	P.N o	7,982.00	319,280
14	Stab End 200 mm o/d	40.00	P.N o	5,157.00	206,280
15	Stab End 160 mm o/d	40.00	P.N o	2,314.00	92,560
16	Stab End 110 mm o/d	40.00	P.N o	1,454.00	58,160
17	Stab End 90 mm o/d	40.00	P.N o	880.00	35,200
18	Bend 315 mm (90)	40.00	P.N o	21,211.0 0	848,440
19	Bend 315 mm (45)	40.00	P.N o	23,009.0 0	920,360
20	Bend 200 mm (45)	40.00	P.N o	6,942.00	277,680

21	Reducer 315x200 mm	40.00	P.N o	17,487.0 0	699,480
22	Reducer 250x200 mm	40.00	P.N o	11,112.0 0	444,480
23	Reducer 200x160 mm	40.00	P.N o	4,836.00	193,440
24	M.S Flange 315 mm i/d	40.00	P.N o	1,760.00	70,400
25	M.S Flange 250 mm i/d	40.00	P.N o	1,568.00	62,720
26	M.S Flange 200 mm i/d	40.00	P.N o	1,358.00	54,320
27	M.S Flange 160 mm i/d	40.00	P.N o	1,065.00	42,600
28	M.S Flange 110 mm i/d	70.00	P.N o	606.00	42,420
29	Equal Tee 90 mm	70.00	P.N o	1,940.00	135,800
30	Equal Tee 110 mm	70.00	P.N o	2,910.00	203,700
31	Equal Tee 160 mm	70.00	P.N o	6,791.00	475,370
32	Elbow 90 degree 90 mm	70.00	P.N o	1,463.00	102,410
33	Elbow 90 degree 110 mm	70.00	P.N o	2,264.00	158,480
34	Elbow 90 degree 160 mm	70.00	P.N o	5,336.00	373,520
35	Elbow 90 degree 250 mm	70.00	P.N o	16,979.0 0	1,188,530
36	Elbow 45 degree 90 mm	70.00	P.N o	1,422.00	99,540
37	Elbow 45 degree 110 mm	70.00	P.N o	2,102.00	147,140
38	Elbow 45 degree 160 mm	70.00	P.N o	5,174.00	362,180
39	Elbow 45 degree 250 mm	70.00	P.N o	16,170.0 0	1,131,900
40	End Cap 90 mm	70.00	P.N o	646.00	45,220
41	End Cap 110 mm	70.00	P.N o	970.00	67,900
42	End Cap 160 mm	70.00	P.N o	2,263.00	158,410
43	End Cap 250 mm	70.00	P.N o	8,085.00	565,950

	44	Cross 90 mm	70.00	P.N o	3,234.00	226,380
	45	Cross 110 mm	70.00	P.N o	5,660.00	396,200
	46	Reducer Tee 110 X 90 mm	70.00	P.N o	2,426.00	169,820
	47	Reducer Tee 160 X 90 mm	70.00	P.N o	5,821.00	407,470
	48	Reducer Tee 160 X 110 mm	70.00	P.N o	5,821.00	407,470
	49	Reducer Tee 250 X 110 mm	70.00	P.N o	19,404.0 0	1,358,280
	50	Reducer Spigot 250 X 110 mm	70.00	P.N o	12,936.0 0	905,520
5	Ch: - 23/ 29	P/F cast iron specials of BSS Class-B (such as bend, tee, collar, reducer, tail piece, flanged socket, flanged spigot, cap, taper angle branch, plug, etc) for Asbestos cement pipe line, with comet joint and rubber ring, complete.				
i		3" to 6" i/d	1,000.00	P. Kg	111.40	111,400
ii		8" to 18" i/d	1,000.00	P. Kg	105.10	105,100
6	Ch: - 23/ 33	Providing and fixing Air Valve 2.5" (65 mm) dia of BSS quality and weight (complete with jointing material) Double	50.00	P. No.	8,010.55	400,528
7	Ch: - 23/ 31-	Providing and fixing sluice valve of BSS quality and weight class B or cast iron pipe line and Asbestos cement pipe line i/c cost of fitting of material.				
i		3" i/d Sluice Valve	50.00	P. No.	6,041.75	302,088
i		4" i/d Sluice Valve	20.00	P. No.	6,932.65	138,653
ii		6" i/d Sluice Valve	15.00	P. No.	11,697.1 0	175,457
iii		8" i/d Sluice Valve	10.00	P. No.	20,991.1 0	209,911
iv		10" i/d Sluice Valve	-	P. No.	26,470.5 5	-
v		12" i/d Sluice Valve	-	P. No.	32,849.7 5	-

8	N-s	Construction of Sluice Valve Chamber.	250.00	P. No.	30,000.0 0	7,500,000
9	Ch: - 23/ 41	Making connection for new water supply lines with running main i/c excavation of trenches and refilling complete but excluding the cost of pipe and specials.				
	i	Upto 6" i/d	2,000.00	P. No.	2,026.55	4,053,100
	ii	Upto 8" i/d	1,500.00	P. No.	2,559.55	3,839,325
	iii	Upto 10" i/d	-	P. No.	3,608.90	-
	iv	Upto 12" i/d	-	P. No.	4,941.40	-
10	Ch: - 3/1 3-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	72,806.40	%C ft	1,776.70	129,355
11	Ch: - 3/2 5	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-				
		95% to 100% maximum modified AASHO dry density.	72,806.40	%C ft	788.25	57,390
		Total Amount (PKR)				47,852,605
		Total Amount (In Million)				48

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD)							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Medium Term							
Construction of 9 OHRs (100,000 gal each)							
1	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dabbling, dressing, refilling around structure with excavated earth, watering and ramming lead up to one chain (30 m) and lift up to 5 ft. (1.5 m)					
		b) in ordinary soil.	%Cft	36,000.00	7,492.30	269,722.80	
2	Ch:- 3-13 (b) 3-16(i)	Re-handling of earthwork: b)Upto a lead of 50 ft. (15 m).for earthwork soft, ordinary, hard and very hard.	%Cft	27,000.00	2,487.40	67,159.80	
		Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings,					

		including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars).					
3	Ch:-6/9(c)	Deformed steel bars (Grade 60)	%Kg .	32,000.0 0	16,422.35	5,255,152.00	
4	Ch:6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
		(i) Ratio 1: 4: 8	%Cft .	2,000.00	17,941.60	358,832.00	
5	Ch:6/6-i-2	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and					

		placing in position, etc.):-					
		(a) (i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,938.00	405.70	4,437,546.60	
6	Ch:6/6-ii-2	(a)(ii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other than those mentioned in 5(a) (i) above not requiring form work (i.e. horizontal					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,892.50	300.85	3,277,008.63	
7	Ch:6/6-i-1	Reinforced cement concrete type A nominal mix 1:1:2 (cylinder					

		strength 4000 psi) in roof slab, beams lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.					
		Type A (nominal mix 1:1:2) Bowl Concrete	Per Cft.	5,200.00	460.20	2,393,040.00	
8	Ch:- 6/13 (a)	Extra labour for laying concrete plain or reinforced: a) above 20' (6 m) upto 40'(12 m) height	%Cft .	1,751.00	2,842.75	49,776.55	
9	Ch:- 6/13 (b)	b) for every additional 10'(3 m) height.	%Cft .		1,776.70	-	
	"	c) 40'-50' height		450.00	42.07	18,931.50	
	"	d) 50'-60' height		450.00	59.35	26,707.50	
	"	e) 60'-70' height		450.00	76.10	34,245.00	
	"	f) 70'-80' height		1,300.00	90.66	117,858.00	
	"	g) 80'-90' height		1,300.00	106.50	138,450.00	
10	Ch:6/2 8	Providing embedding 10" (250 mm) wide ¼" (6 mm) thick rubber water stopper in expansion joints of R.C.C. roof slab complete in all respects.	P.Rft .	120.00	208.00	24,960.00	
11	Ch:-7/4	Pacca brick work in foundation and plinth cement, sand mortar Ratio 1:5	%Cft .	775.00	23,755.65	184,106.29	

		i) Plinth protection.					
12	Ch:- 10/15(e)	Providing and laying topping of cement concrete 1:2:4, including surface finishing and dividing in panels:- (Under Floor) i) 2"(50 mm) thick	%Sft	150.00	6,313.80	9,470.70	
13	Ch:- 10/39(a -ii)	½ (13mm) thick mosaic dado or skirting grey cement with one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips and 10% puddlo, laid over ½"(13 mm) thick cement plaster 1:3, including rubbing and polishing, complete with finishing.	%Sft	575.00	12,785.85	73,518.64	
14	Ch:- 11/28	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof.	%Sft	575.00	285.15	1,639.61	
15	Ch:- 7/30	Supplying and filling sand under floor; or plugging in wells. (Floor and Plinth protection)	%Cft	1,000.00	1,976.10	19,761.00	
16	Ch:- 10/9	Brick on edge flooring, laid in 1:6 cement	%Sft	1,775.00	10,258.70	182,091.93	

		mortar, over a bed of ¾" (20 mm) thick cement mortar 1:6.					
17	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8 (50x50x10 mm) and ¾" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	P.Sft	11.00	1,243.85	13,682.35	
18	Ch:- 25/42 (a)	Providing and fixing steel windows using M.S. sheet (16 SWG) moulded tubular pipe 1½"x1½" (40x40mm) for frame and 1¼"x1¼" (30x30mm) for leaves including M.S. square bars ¼"x¼" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three					

		coats complete in all respects.					
		a) For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass panes ¼" (6 mm) thick.	P.Sft	76.00	394.35	29,970.60	
19	Ch:- 25/34	Providing/fixing stair railing consisting of M.S. Box section size 1-1/2"x3" of 16 SWG welded with M.S. flat 1"x1/8" continuously and welded over M.S. square bars 5/8"x5/8" punched in M.S. flat 2 ¾' high @ 5½" c/c fixed in steps of stair I/C painting 3 coats complete.	P.Rft .	73.00	746.90	54,523.70	
20	Ch:- 25/35	Providing and fixing terrace railing of 2" (50 mm) i/d conduit pipe 16 SWG, welded with 5/8"x5/8" (16x16 mm) square bar 2.75 ft. (838 mm) high fixed at 5" (125 mm) centre to centre, in reinforced cement concrete slab with suitable	P.Rft .	73.00	837.35	61,126.55	

		arrangement, complete in all respects, as per design and drawing.					
27	Ch:- 23/28 (b) (ii)	Providing and fixing Cast Iron special of B.S.S. Class 'B' (such as bend, tee cross collar, reducer, tail piece, flanged spigot, cap, flanged socket, taper, angle branch, plug etc.) for cast iron pipe line, complete:- b) C.I flanged specials, with flanged and flanged joints:-	P.Kg	1,000.00	112.95	112,950.00	
		8" dia (Outlet & Wash Out)					
28	Ch:- 23/30 e	Providing and fixing sluice valve of B.S.S. quality and weight, Class 'B', for cast iron pipe line, and Asbestoscement pipe line (including cost of jointing material)					
		8" (200 mm) i/d	Each	1.00	26,601.50	26,601.50	
		10" (250 mm) i/d	Each	1.00	34,459.30	34,459.30	
Total Amount (Rs) of Schedule Items						17,273,293	
NON-SCHEDULE ITEMS							

1	N-S	Providing, laying, cutting, jointing, testing and disinfecting Mild Steel pipe erecting in vertical position with M.S clamp with 3"x 3/8" flat iron with nut and bolts, with flanged and flanged joints, complete in all respects:-					
		i) 6" M.S blind pipe (inlet pipe	P.Rft	200.00	1,548.56	309,712.00	
		ii) 8" M.S blind pipe (washout and overflow pipe)	P.Rft	300.00	1,994.87	598,461.00	
		iii) 10" M.S blind pipe (outlet pipe)	P.Rft	170.00	2,992.31	508,692.70	
2	N-S	Providing and installing of aluminium indication gague Level Indicator complete with Steel pully, Steel Wire, Gauge Unit including all accessories such as G.I. Pipe, level indicator needle & anchoring arrangement with Float, jointing material as per drawing and/or directed by the Engineer complete in all respect.	Each	1.00	26,449.04	26,449.04	
3	N-S	Clean, test and disinfect overhead water tank.			80,000.00	80,000.00	

4	N-S	Providing and fixing 4 " dia GRP air vent on roof of overhead water tank.	P.Rft	14.00	1,315.73	18,420.22	
5	N-S	Providing making and fixing MS cover for roof tank as per drawing, complete in all respects.	Each	1.00	5,597.99	5,597.99	
6	N-S	MS ladder including painting.as per drawings complete in all respect.	Lft	19.00	1,279.93	24,318.67	
7	N-S	Providing and fixing cast iron rungs in underground structures or wherever directed by the Engineer Incharge, to correct lines and levels as per drawing and specification.	No.	9.00	586.93	5,282.37	
8	N-S	Wiring of light or fan point from switch to the point with 3x3/0.91 mm (3/0.036") PVC insulated single core cables in PVC pipes concealed in walls, columns and slabs including accessories, PVC box, 10 Amp. Gang switch 1 or 2 way as required, one for each light or fan	Each	8.00	1,398.05	11,184.40	

		and installed as in specifications.					
9	N-S	Circuit wiring from MCBs board to gang switches board with 3x7/0.91 mm (7/0.036") PVC insulated single core cables in appropriate size PVC conduit.	Each	3.00	2,587.70	7,763.10	
11	N-S	5 Amp 2/3 pin universal flush mounting switch socket unit away from switch board and wired with 3x7/0.74mm (7/0.029") single core cable from nearest circuit available in PVC concealed conduits or trunking including all conduit accessories as required complete in all respect.	Each	2.00	1,681.55	3,363.10	
12	N-S	The same as item No. 1.4 but wiring of 15/20A, 3-pin flush mounting switch socket unit wired with 1-core 3x7/0.91mm (7/0.036") starting from D.B.	Each	1.00	2,928.15	2,928.15	

TOTAL Amount (Rs) of Non Schedule Items	1,602,172.74	
Total Amount (Rs) of Schedule Items+Non Schedule	18,875,465.28	
Total For Construction of 9 OHRs (100,000 gal each)	703,865,167.0	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remark s
SCHEDULE ITEMS							
Medium Term							
Construction of 3 Tube wells (2 cusec each) in the unserved areas (Ilyas pura, Defence Colony and Moh. Rashidpura)							
Construction of Tube Well Boring (Abstract of Cost Sub Head-A)							
1	Ch:- 23/6-a	Boring for tubewell in shingle, gravel and rock, including sinking and withdrawing of casing pipe:- a) from ground level to 200 ft. (60 m) below ground level:-				-	
	i	12" to 18" (300 to 450 mm) i/d	Rft.	400	1,232	492,880	
2	Ch:-23/7	Providing strong substantially built box of deodar wood 4'x2½'x9" (1200x750x225 mm), with compartments, lock and locking arrangement, for	Job	1	17,250.75	17,251	

		preserving samples of strata from bore hole.					
3	Ch:- 23/9-e	Providing and installing, brass strainer in tubewell bore hole, including sockets, special sockets, studs, etc. complete:- 6" i/d, 3/16" (150 mm i/d 5 mm) thick	Rft.	80	2,760	220,828	
4	Ch:- 23/10-g	Providing and installing M.S. Bail plug in tubewell bore hole:) 8" i/d, 2 ft. (200 mm i/d 600 mm) long	Each	2	3,390	6,780	
5	Ch:- 23/14-g	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with strainer, etc. complete:- 8" i/d, 3/16" (200 mm i/d 5 mm) thick	Per Rft.	250	1,697	424,188	
6	Ch:-23/8	Furnishing sample of water from bore hole.	Per Set	2	170.70	341	
7	Ch:- 23/18	Shrouding with graded pea gravel 3/8" to 1/8" (10 to 3 mm), around tubewell in bore hole.	Per Cft.	800	99.85	79,880	
8	Ch:- 23/17	Testing and developing of tubewell of size 6" (150 mm) i/d and above continuously.					
	i	upto 1.5 cs. Discharge	Per Hours	72	1,158	83,351	
(Total Sum of Sub Head A) Amount R.s						1,325,498	
Construction of Pump House							
(Abstract of Cost Sub Head-B)							
1	Ch:- 4/13	Dismantling brick work lime or cement mortar	%Cft	388	3,020	11,719	
2	Ch:- 4/19-c	Dismantling cement concrete 1:2:4 Plain	%Cft	900	7,818	70,358	

3	Ch:- 4/29	Dismantling brick or flagged flooring without concrete foundation.	%Sft	1,800	604	10,874	
4	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m) in ordinary soil.	%Cft	1,200	7,492.30	8,991	
5	Ch:6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- d) Ratio 1: 6:12	%Cft	225	12,095.1 5	27,214	
6	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio Ratio 1:5	%Cft	650	23,755.6 5	154,412	
7	Ch:6/33- a-i	Providing and laying damp proof course of cement concrete 1:2:4 (using cement, sand and shingle), including bitumen coating :- (b) with 2 coats of bitumen: i) 1½" thick (40 mm)	%Sft	69	5,050.75	3,485	
8	Ch:7/5-i	Pacca brick work in ground floor:- cement, sand mortar:- Ratio 1:5	%Cft	650	25,269.4 0	164,251	
9	Ch:6/6-a	Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					

		Type C (nominal mix 1: 2: 4)	Per Cft	222	376.45	83,571.90	
10	Ch:6/9-b	Fabrication of mild steel reinforcement for cement concrete,including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):- (b) Deformed bars (Grade-40)	%Kg	400	16,422.35	65,689.40	
11	Ch:- 11/4-b	Cement Neru plaster 1:2 (cement and sand) upto 20' (6.00 m) height:-1/2" (13 mm) thick	%Sft	775	2,320.60	17,984.65	
12	Ch:- 11/8-b	Cement pointing struck joints, on walls, upto 20' (6.00 m) hiehg:- ratio 1:3	%Sft	1,500	2,192.35	32,885.25	
13	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8" (50x50x10 mm) and 3/4" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	Per Sft.	150	1,243.85	186,578	
14	Ch:- 25/42	Providing and fixing steel windows using M.S. sheet (16SWG) moulded tubular pipe 1 1/2"x1 1/2" (40x40mm)for frame and 1 1/4"x1 1/4" (30x30mm) for leaves including M.S. square bars 1/4"x1/4" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8"	Per Sft.	64	394.35	25,238	

		(10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects.For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass					
15	Ch:11/23 -iii	Distempering:-a) new surface:-iii) three coats	%Sft	775	777.20	6,023.30	
16	Ch:9/20- a	Cast iron rain water downpipe fixed in position, excluding heads and shoes, but including painting and clamps, etc:- a) 4" dia (100 mm) cast iron down pipe.	Per Rft.	20	229.90	4,598.00	
17	Ch:9/21	Rain water down pipe cast iron head fixed in place,including cost of clamp holdfast and painting.	Each	1	579.00	579.00	
18	Ch:9/22	Shoes, bends or offsets for cast iron rain water down pipe,including fixing and painting.	Each	1	336.70	336.70	
19	Ch:9/16	Bottom Khuras of brick masonry in cement mortar 1:6, 4'x2'x4½" (1200x600x113 mm) over 3" (75 mm) cement concrete 1:4:8.	Each	1	956.80	956.80	
20	Ch:- 10/15-e	Providing and laying topping of cement concrete 1:2:4,including surface finishing and dividing in panels:-e) 2"(50 mm) thick	%Sft	325	5,380.70	17,487.28	
21	Ch:9/15	Khuras on roof 2'x2'x6" (600 x 600 x 150 mm)	Each	1	547.60	547.60	
22	Ch:13/5- c	Preparing surface and painting of doors and windows	%Sft	338	836.60	2,827.71	

		any type (including edges):-i) priming coat.					
23	Ch:-9/5	Single layer of tiles 9"x4½"x1½" (225x113x40 mm) laid over 4"(100 mm) earth and 1" (25 mm) mud plaster without Bhoosa, grouted with cement sand 1:3 on top of RCC roof slab, provided with 34 lbs. per %Sft. or 1.72 Kg/Sq.m bitumen coating sand blinded.	%Sft	400	7,665.05	30,660.20	
24	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 20.1 -do-50 mm) gauge, in foundation and plinth:- (d) Ratio 1: 6:12	%Cft	100	12,095.15	12,095.15	
25	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. i) cement, sand mortar:- Ratio 1:5	%Cft	425	24,496.85	104,111.61	
(Total Sum of Sub Head B) Amount R.s						1,043,474	
INTERNAL ELECTRIFICATION							
(Abstract of Cost Sub Head-C)							
1	Ch:-24/12	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 660/1100 volts grade cable, in pre-laid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches,etc (rate for cable only):-				-	
	a)	19/2.11 mm (19/0.083")	Per Rft.	120	332.15	39,858	
	b)	37/2.11 mm (37/0.083")	Per Rft.	120	580.50	69,660	
2	Ch:-24/5	Supply and erection of G.I. flexible pipe for wiring, including				-	
	a)	80 mm i/d	Per Rft.	25	360.25	9,006	

3	Ch:- 24/68	Earthing of iron clad/aluminum switches, etc. with G.I. wire No.8 SWG in G.I. pipe 15 mm (1/2") dia, recessed or on surface of wall and floor, complete with 1.5 metre long G.I. pipe, 50 mm (2") dia with reducing socket 4 to 5 metre below ground level, and 2 metre away from building plinth.	Job	2	6,194	12,388
4	Ch:- 24/10	Supply and erection of single core PVC insulated copper conductor cables, in pre-laid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing and capping/G.I.wire/trenches (rate for cables only):-250/440 volts, PVC insulated cotton braided and compounded cables:-				-
	a)	3/0.74 mm (3/0.029")	Per Rft.	510	12.50	6,375
	b)	7/0.74 mm (7/0.029")	Per Rft.	85	16.80	1,428
5	Ch:- 24/19	Supply and erection of iron/aluminum clad, 500 volts main switches with triple pole and neutral link and HRC fuses, on angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles. (500Amp)	Each	1	20,335.80	20,336

6	Ch:- 24/18-a	Supply and erection of iron/aluminum clad, 500 volts main switches with kitkat fuses, on angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles, etc. 15/20 Amp.	Each	1	1,720	1,720
7	Ch:- 24/20	Supply and erection of iron/aluminum clad, branch distribution board, 250 volt, on angle iron frame of suitable size with 3 mm (1/8") M.S. sheet covering: 8 way, 15 Amp per way	Each	2	1,025	2,050
8	Ch:- 24/43	Supply and erection of tube light, including rod, choke, starter with frame, flexible wire, including connection from ceiling rose, etc., complete. double rod (80 watts) with two chokes and 2 starters.	Each	4	1,319.05	5,276
9	Ch:- 24/76	Rewinding of A.C. ceiling fan, capacitor type, including cost of wire, leatheride paper cotton tape, soldering, etc.1400 mm (56") sweep, 250-275 RPM	Each	1	1,213.05	1,213
10	Ch:- 24/69	Earthing of Metallic cases, etc. with G.I. wire No. 8 mm (1/2") dia G.I. pipe, best quality:- SWG, in on surface, including clamps, etc.	Rft.	60	88.60	5,316
11	Ch:24/72	Supply and erection of 600x600x3 mm (2'x2'x1/8") copper plate, including revitting to copper tape	Each	1	4,789	4,789

		and placing in mixture of salt and charcoal, etc.					
12	Ch:24/37	Supply and erection of 3 pin 10/15 Amp. Wall socket with shoe, open type.	Each	4	152.750	611.000	
13	Ch:24/30	Supply and erection of ceiling rose, bakelite.	Each	4	41.600	166.400	
(Total Sum of Sub Head C) Amount R.s						180,192	
PUMPING MACHINERS							
(Abstract of Cost Sub Head-D)							
1	Ch:- 23/17-ii	Testing and developing of tubewell of size 6" (150 mm) i/d and above continuously.	Per Hour s.	72	1,399	100,738.800	
2		Providing, installing, testing and lowering vertical shaft water lubricated deep well turbine pump of 0.7 to 1.50 cusecs capacity against a pumping head of 350 ft. including lowering of about 170 ft length bowl assembly 04 stage and shaft complete (KSB) and AC electric motor 150 BHP 30 H.P squirrel cage induction motor of 1450 RPM alongwith flow meter, gate valves, check valves, air release valves, pressure gauge, CI bends tail pieces etc. up to duck foot bend and earthing, testing complete.	Per Set.	1	5,750,000	5,750,000	
3	Ch:- 23/14-j	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with	Per Rft.	20	2,770	55,406	

		strainer, etc. complete:- 12" i/d, ¼" (300 mm i/d 6 mm) thick					
4	Ch:- 23/33-b	Providing and fixing, air valve 2½ (65mm) dia of B.S.S. quality and weight (complete with jointing material).	Each	1	8,011	8,011	
5	Ch:- 25/10	Fabrication of heavy steel work, with angle, tees, flat iron round iron and sheet iron for making trusses, girders,tanks, etc., including cutting, drilling, rebitting, handling, assembling and fixing, but excluding erection in position.	%Kg	152	18,013	27,436	
6	Ch :- 6/3-c	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:-(c) Ratio 1:4:8	%Cft	64	12,937.5 5	8,280	
7	Ch:-6/9	Fabrication of mild steel reinforcement for cement concrete,including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-	%Kg	152	16,422.3 5	24,962	
8		HYPO CHLORINATOR					

		Providing fixing & testing of Hypo Chlorinator (Chemical metering pump) capacity 0-30 gallons / day at 100 PSI max injection pressure fitted with 1/60 HP air cooled heavy duty electric motor 220 V, 50 Hz single phase AC complete with all accessories like bleed valve assembly, suction tubing, discharge tubing, foot valve and strainer assembly with weight back check valve assembly solution tank injection fitting wall brackets etc complete in all respect to the entire satisfaction of the Engineer in charge.	Job	1.00	85,000.00	85,000.00	
9		WATER FLOW METERS					
		Making and fixing and water level indicator gauge painted in quarter FT readings enamel coated on 6" wide 1/4" thick M.S. plate fitted on outer wall of pump house on top of G.S.T. complete with float, guide, steel wire string, pulleys pointer and 1 No. line bracket bulb as per approved design.	Job	1.00	55,000.00	55,000.00	
	(Total Sum of Sub Head D) Amount R.s					6,114,833	
	a+b+c+d = Total Sub Head Amount R.s					8,663,998	
Total Amount of Construction of 4 Tube wells (2 cusecs each) in the unserved areas						34,655,990.94	PKR
						34.6	Millions

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
Medium Term							
Construction of 4 Water Filtration Plants with the tube wells in the unserved areas (Ilyas pura, Defence Colony and Faisal Town							
2000 L/H Ultra Filtration (UF) Plant							
1		Design, Supply, Installation, testing & commissioning of 2000 L/H Ultra Filtration (UF) Plant for removal of other contaminants, including carriage, loading/unloading charges inclusive of conforming to standard specifications of filtration plants. Control PLC GSM/GPRS enabled. The specifications along with equipment and accessories properly mounted in the frame/skid are given below:-	LUMSUM	1	4,509,000	4,509,000	
1.1		Boring/drilling and instalation					
		Boring/drilling and instalation of Submersible Pump Submersible pump 2000 LPH Bore upto 300 ft					

1.2		Raw Water Feed Pump				
		Capacity 2200 LPH, 90 PSI pressure				
1.3		Raw water tank				
		Capacity 2000 Litre minimum Material FRP Automatic on off switch for pump				
1.4		Pressure Sand Filter				
		Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Sand Characteristics - ES00.5 mm				
1.5		Activated Carbon Filter				
		Affected size of Media 0.7 to 0.9 Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Base material coconut shell, effective size 0.5-1.8mm				
1.6		Jumbo Filter 02-No				
		Poristy 1 micron Size 20 Inches Material High pressure Plastic				
1.7		Ultra Filtration system				
		Frame stainless steel				
		UF Housing Pentair or Equivalent				
		Material FRP				
		UF Membrane				

		<p>Origion, Europe, Western Europe, USA, Japan Dow, filmtech, hydranotics, lewabrane or equivalent, NSF certified salt rejection - 95% capacity 2000 Litre/hour Bacterial removal efficiency 99.999 % Virus removal efficiency 99.999 % vessel material - FRP recovery 90% Permeate flux 100-350 L/m2h Transmembrane pressure < 1.0 bar Backwash duration 1 - 5 min. pressurer 2 - 4 bar</p>				
1.8		Automatic PLC Panel				
		<p>make Japan, USA, Europe Programming fully automatic with breaker, timer and relays complete in all respects HMI display for PLC - 10" minimum size with touch screen Fully automatic control of plant SCADA enabled</p>				
1.9		Anti Scalent + Injection System				
		<p>make Europe, USA, Japan Pressure 5 -7 bar tank size minimum 75 liter chemical anti sclanet food grade</p>				
1.1		Blending filter 10" size				
1.1 1		pressure gauges minimum size 2.5"				
1.1 2		flow meter for product water				

1.1 3		online TDS meter				
1.1 4		UV light. Lap life 12 months, imported.				
1.1 5		product water tank material FRP Capacity minimum 2000 LPH				
1.1 6		Pipe and 6 no taps outside room with fencing for taps area				
1.1 7		All fittings of PVC Sch.80pressure regulation switchauto on/off switch for pump				
1.1 8		Automatic back wash system for membrane				
1.1 9		Design of Fitratio n Plant				
		The contractor shall identify viable raw water source and type of plant, conduct complete water quality testing as per WHO guidelines / Punjab environmental quality standards for drinking water as per satisfaction of "The Consultant", The type of plant will be designed according to test results				
2		Prefabricated Room for Plant				
		Supply and installation of Prefabricated room size 12 ft x 12 ft + 3ft				
2.1		Wall panel	LU M SU M	1	955,2 22	955,222
		sandwich panel 100 mm layer medium density polystrene and 0.45 mm prepainted sheet on both sides				
2.2		Roof Panel				

		65 mm layer of medium density polystrene and 0.45 mm prepainted sheet on both sides					
2.3		Structure					
		G.I cold roll formed, framed size 28x110x28x1.75-1.85 mm thickness with 0.45mm cover					
2.4		Door					
		G.I cold roll formed door frame section 0.9 mm thickness with powder coated door leaf filled with polystyrene with both sides G.I sheet 0.5mm. Total thickness of leaf 36mm with all type of re-inforcement and powder coating					
2.5		Window					
		G.I cold roll formed window section 0.7 mm maximum strength width 84 mm powder coated including fan, exhaust fan, chair & table for operator					
2.6		Tiles for dispensing area					
2.7		Drainage for dispensing area					
2.8		Including civil foundation					
(Total Sum of) Amount R.s						5,464,222	
Total For Construction of 4 Water Filtration Plants with the tube wells in the unserved areas						21,856,888	
						21.8	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD				
REGIONAL DEVELOPMENT PLAN 2020-2030				
ROUGH COST ESTIMATE				
FOR				
Development of DNI Zones (III and IV) for 24 x7 Water Supply				
Sr. #	DESCRIPTION	AMOUNT Rs.	MILLION S	REMARK S
1	Construction of Over Head Reservoirs (1 X 100,000 Gallon)	274,500,000.00	274.5000	Ref Wasa Lhr
2	Laying/Replacement of Water Supply Distribution Network	516,201,379	516.2014	Ref Wasa Lhr
3	P/Installation of Control Valves and Bulk Flow Meters	73,971,797	73.9718	Ref Wasa Lhr
4	P/Installation of Water Meters	719,340,000	719.3400	Ref Wasa Lhr
5	SCADA Monitoring System	40,017,000	40.0170	Ref Wasa Lhr
6	Tubewell (1 X 4-CFS Capacity)	84,251,420	84.2514	Ref Wasa Lhr
		1,708,281,596.00	1,708.28	Ref Wasa Lhr
	2% PMC Charges	34,165,631.92	34.16563192	
	1% Detail Design Charges	17,082,815.96	17.08	
	Land Acquisition for OHR / TW	120,000,000	120.00	
	Lesco Connection Charges	900,000.00	0.90	
	2% Contingencies	34,165,631.92	34.17	
	0.25% Media Campaign	4,270,703.99	4.27	
	1.00% for Horticulture Charges	17,082,816	17.08	
	Restoration of Road Cut	29,500,000	29.50	
	5% PRA	85,414,080	85.41	
	Total	2,050,863,275.79	2,050.86	
	WASA LHR Area UC 99,100,101		11.6	

		176,798,558.26	176.80	
	DNI Zones DNI Zones (III and IV)	3.8		
	Total Amount of DNI Zones (III and IV)	671,834,521.38	671.83	

<u>THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD</u>														
Regional Development Plan 2020-2030														
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD														
<u>Long-Term</u>														
<u>Extension of water supply network in the unserved Areas (Ilyas pura, Jelani pura, Faisal Town and Housing Colony)</u>														
Sr .#	Item Code	DESCRIPTION									QTY	UNIT	RATE	AMOUNT
1	Ch:- 3/44	Excavation of trenches in all kind of soil except cutting, rock, for water supply pipe lines up to 5' depth from ground level i/c trimming, dressing sides, leveling the beds of trenches to correct grate and cutting pits for joints etc. complete in all respect.									110,72 8.00	%Cft	5,340.2 0	591,310
	i.	For 12" i/d	-	X	3	X	5	=	-	C ft				
	ii.	For 10" i/d	-	X	2	X	5	=	-	C ft				
	ii.	For 8" i/d	900. 00	X	2	X	4	=	7,200. 00	C ft				
	iii.	For 6" i/d	1,50 0.00	X	2	X	4	=	12,000 .00	C ft				
	iv.	For 4" i/d	6,50 0.00	X	2	X	4	=	52,000 .00	C ft				
	v.	For 3" i/d	4,94 1.00	X	2	X	4	=	39,528 .00	C ft				
								=	110,72 8.00	C ft				
2	Ch:- 7/30	Supplying and filling sand under floor; or plugging in wells.									4,622.8 9	%Cft	1,976.1 0	91,353

	i.	For 12" i/d	-	X	3	X	0.17	=	-	C ft					
	ii.	For 10" i/d	-	X	2	X	0.17	=	-	C ft					
	ii.	For 8" i/d	900.00	X	2	X	0.17	=	300.60	C ft					
	iii.	For 6" i/d	1,500.00	X	2	X	0.17	=	501.00	C ft					
	iv.	For 4" i/d	6,500.00	X	2	X	0.17	=	2,171.00	C ft					
	v.	For 3" i/d	4,941.00	X	2	X	0.17	=	1,650.29	C ft					
								=	4,622.89	C ft					
3	Ch:- 23/42-a	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working pressure pipe in trenches complete in all respects. PN-8 (SDR-21)													
	i.	12" i/d Pipe									-	P. Rft	1,881.10	-	
	ii.	10" i/d Pipe									-	P. Rft	943.45	-	
	ii.	8" i/d Pipe									900.00	P. Rft	750.05	675,045	
	iii.	6" i/d Pipe									1,500.00	P. Rft	482.30	723,450	
	iv.	4" i/d Pipe									6,500.00	P. Rft	234.20	1,522,300	
		3" i/d Pipe									4,941.00	P. Rft	168.80	834,041	
4	N-s	Providing and fixing HDPE specials i/c carriage from factory to site of work and all taxes complete in all respect.													
	1	Equal Tee 200x200x200 mm									100.00	P.No	9,582.00	958,200	

2	Equal Tee 315x315x315 mm	100.00	P.No	26,019.00	2,601,900
3	Reducer Tee 315x90 mm	80.00	P.No	38,676.00	3,094,080
4	Reducer Tee 315x110 mm	80.00	P.No	38,889.00	3,111,120
5	Reducer Tee 315x160 mm	80.00	P.No	39,006.00	3,120,480
6	Reducer Tee 315x200 mm	80.00	P.No	39,162.00	3,132,960
7	Reducer Tee 315x250 mm	80.00	P.No	39,334.00	3,146,720
8	Reducer Tee 250x200 mm	80.00	P.No	25,774.00	2,061,920
9	Reducer Tee 200x90 mm	100.00	P.No	10,520.00	1,052,000
10	Reducer Tee 200x110 mm	100.00	P.No	10,584.00	1,058,400
11	Reducer Tee 200x160 mm	80.00	P.No	10,701.00	856,080
12	Stab End 315 mm o/d	80.00	P.No	11,901.00	952,080
13	Stab End 250 mm o/d	80.00	P.No	7,982.00	638,560
14	Stab End 200 mm o/d	80.00	P.No	5,157.00	412,560
15	Stab End 160 mm o/d	80.00	P.No	2,314.00	185,120
16	Stab End 110 mm o/d	80.00	P.No	1,454.00	116,320
17	Stab End 90 mm o/d	80.00	P.No	880.00	70,400
18	Bend 315 mm (90)	80.00	P.No	21,211.00	1,696,880

19	Bend 315 mm (45)	80.00	P.No	23,009.00	1,840,720
20	Bend 200 mm (45)	80.00	P.No	6,942.00	555,360
21	Reducer 315x200 mm	80.00	P.No	17,487.00	1,398,960
22	Reducer 250x200 mm	80.00	P.No	11,112.00	888,960
23	Reducer 200x160 mm	80.00	P.No	4,836.00	386,880
24	M.S Flange 315 mm i/d	80.00	P.No	1,760.00	140,800
25	M.S Flange 250 mm i/d	80.00	P.No	1,568.00	125,440
26	M.S Flange 200 mm i/d	80.00	P.No	1,358.00	108,640
27	M.S Flange 160 mm i/d	80.00	P.No	1,065.00	85,200
28	M.S Flange 110 mm i/d	100.00	P.No	606.00	60,600
29	Equal Tee 90 mm	100.00	P.No	1,940.00	194,000
30	Equal Tee 110 mm	100.00	P.No	2,910.00	291,000
31	Equal Tee 160 mm	100.00	P.No	6,791.00	679,100
32	Elbow 90 degree 90 mm	100.00	P.No	1,463.00	146,300
33	Elbow 90 degree 110 mm	100.00	P.No	2,264.00	226,400
34	Elbow 90 degree 160 mm	100.00	P.No	5,336.00	533,600
35	Elbow 90 degree 250 mm	100.00	P.No	16,979.00	1,697,900

	36	Elbow 45 degree 90 mm	100.00	P.No	1,422.00	142,200
	37	Elbow 45 degree 110 mm	100.00	P.No	2,102.00	210,200
	38	Elbow 45 degree 160 mm	100.00	P.No	5,174.00	517,400
	39	Elbow 45 degree 250 mm	100.00	P.No	16,170.00	1,617,000
	40	End Cap 90 mm	100.00	P.No	646.00	64,600
	41	End Cap 110 mm	100.00	P.No	970.00	97,000
	42	End Cap 160 mm	100.00	P.No	2,263.00	226,300
	43	End Cap 250 mm	100.00	P.No	8,085.00	808,500
	44	Cross 90 mm	100.00	P.No	3,234.00	323,400
	45	Cross 110 mm	100.00	P.No	5,660.00	566,000
	46	Reducer Tee 110 X 90 mm	100.00	P.No	2,426.00	242,600
	47	Reducer Tee 160 X 90 mm	100.00	P.No	5,821.00	582,100
	48	Reducer Tee 160 X 110 mm	100.00	P.No	5,821.00	582,100
	49	Reducer Tee 250 X 110 mm	100.00	P.No	19,404.00	1,940,400
	50	Reducer Spigot 250 X 110 mm	100.00	P.No	12,936.00	1,293,600
5	Ch:- 23/29	P/F cast iron specials of BSS Class-B (such as bend, tee, collar, reducer, tail piece, flanged socket, flanged spigot, cap, taper angle branch, plug, etc) for Asbestos cement pipe line, with comet joint and rubber ring, complete.				

i		3" to 6" i/d	2,000.00	P. Kg	111.40	222,800
ii		8" to 18" i/d	1,000.00	P. Kg	105.10	105,100
6	Ch:- 23/33	Providing and fixing Air Valve 2.5" (65 mm) dia of BSS quality and weight (complete with jointing material) Double	100.00	P. No.	8,010.55	801,055
7	Ch:- 23/31-	Providing and fixing sluice valve of BSS quality and weight class B or cast iron pipe line and Asbestos cement pipe line i/c cost of fitting of material.				
i		3" i/d Sluice Valve	70.00	P. No.	6,041.75	422,923
i		4" i/d Sluice Valve	40.00	P. No.	6,932.65	277,306
ii		6" i/d Sluice Valve	30.00	P. No.	11,697.10	350,913
iii		8" i/d Sluice Valve	20.00	P. No.	20,991.10	419,822
iv		10" i/d Sluice Valve	-	P. No.	26,470.55	-
v		12" i/d Sluice Valve	-	P. No.	32,849.75	-
8	N-s	Construction of Sluice Valve Chamber.	350.00	P. No.	30,000.00	10,500,000
9	Ch:- 23/41	Making connection for new water supply lines with running main i/c excavation of trenches and refilling complete but excluding the cost of pipe and specials.				
	i	Upto 6" i/d	2,000.00	P. No.	2,026.55	4,053,100
	ii	Upto 8" i/d	1,500.00	P. No.	2,559.55	3,839,325
	iii	Upto 10" i/d	-	P. No.	3,608.90	-

	iv	Upto 12" i/d	-	P. No.	4,941.40	-
10	Ch:- 3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	88,582.40	%Cft	1,776.70	157,384
11	Ch:- 3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-				
		95% to 100% maximum modified AASHO dry density.	88,582.40	%Cft	788.25	69,825
		Total Amount (PKR)				72,496,091
		Total Amount (In Million)				72

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Long Term							
Construction of 9 Tube wells (2 cusec each) in the unserved areas							
Construction of Tube Well Boring							
(Abstract of Cost Sub Head-A)							

1	Ch:- 23/6-a	Boring for tubewell in shingle, gravel and rock, including sinking and withdrawing of casing pipe:- a) from ground level to 200 ft. (60 m) below ground level:-					-
	i	12" to 18" (300 to 450 mm) i/d	Rft.	400	1,232		492,880
2	Ch:-23/7	Providing strong substantially built box of deodar wood 4'x2½'x9" (1200x750x225 mm), with compartments, lock and locking arrangement, for preserving samples of strata from bore hole.	Job	1	17,250.75		17,251
3	Ch:- 23/9-e	Providing and installing, brass strainer in tubewell bore hole, including sockets, special sockets, studs, etc. complete:- 6" i/d, 3/16" (150 mm i/d 5 mm) thick	Rft.	80	2,760		220,828
4	Ch:- 23/10-g	Providing and installing M.S. Bail plug in tubewell bore hole:) 8" i/d, 2 ft. (200 mm i/d 600 mm) long	Each	2	3,390		6,780
5	Ch:- 23/14-g	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with strainer, etc. complete:- 8" i/d, 3/16" (200 mm i/d 5 mm) thick	Per Rft.	250	1,697		424,188
6	Ch:-23/8	Furnishing sample of water from bore hole.	Per Set	2	170.70		341
7	Ch:- 23/18	Shrouding with graded pea gravel 3/8" to 1/8" (10 to 3 mm), around tubewell in bore hole.	Per Cft.	800	99.85		79,880

8	Ch:- 23/17	Testing and developing of tubewell of size 6" (150 mm) i/d and above continuously.					
	i	upto 1.5 cs. Discharge	Per Hours	72	1,158	83,351	
(Total Sum of Sub Head A) Amount R.s						1,325,498	
Construction of Pump House							
(Abstract of Cost Sub Head-B)							
1	Ch:- 4/13	Dismantling brick work lime or cement mortar	%Cft	388	3,020	11,719	
2	Ch:- 4/19-c	Dismantling cement concrete 1:2:4 Plain	%Cft	900	7,818	70,358	
3	Ch:- 4/29	Dismantling brick or flagged flooring without concrete foundation.	%Sft	1,800	604	10,874	
4	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m) in ordinary soil.	%Cft	1,200	7,492.30	8,991	
5	Ch:6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- d) Ratio 1: 6:12	%Cft	225	12,095.15	27,214	
6	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio Ratio 1:5	%Cft	650	23,755.65	154,412	

7	Ch:6/33-a-i	Providing and laying damp proof course of cement concrete 1:2:4(using cement, sand and shingle), including bitumen coating :- (b) with 2 coats of bitumen: i) 1½" thick (40 mm)	%Sft	69	5,050.75	3,485	
8	Ch:7/5-i	Pacca brick work in ground floor:- cement, sand mortar:- Ratio 1:5	%Cft	650	25,269.40	164,251	
9	Ch:6/6-a	Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
		Type C (nominal mix 1: 2: 4)	Per Cft	222	376.45	83,571.90	
10	Ch:6/9-b	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):- (b) Deformed bars (Grade-40)	%Kg	400	16,422.35	65,689.40	
11	Ch:- 11/4-b	Cement Neru plaster 1:2 (cement and sand) upto 20' (6.00 m) height:-½" (13 mm) thick	%Sft	775	2,320.60	17,984.65	
12	Ch:- 11/8-b	Cement pointing struck joints, on walls, upto 20' (6.00 m) hieght:- ratio 1:3	%Sft	1,500	2,192.35	32,885.25	

13	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8" (50x50x10 mm) and 3/4" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	Per Sft.	150	1,243.85	186,578	
14	Ch:- 25/42	Providing and fixing steel windows using M.S. sheet (16SWG) moulded tubular pipe 1 1/2"x1 1/2" (40x40mm) for frame and 1 1/4"x1 1/4" (30x30mm) for leaves including M.S. square bars 1/4"x1/4" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects. For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass	Per Sft.	64	394.35	25,238	
15	Ch:11/23 -iii	Distempering:-a) new surface:-iii) three coats	%Sft	775	777.20	6,023.30	
16	Ch:9/20- a	Cast iron rain water downpipe fixed in position, excluding heads and shoes, but including painting and clamps, etc:- a) 4" dia (100 mm) cast iron down pipe.	Per Rft.	20	229.90	4,598.00	
17	Ch:9/21	Rain water down pipe cast iron head fixed in place, including cost of	Each	1	579.00	579.00	

		clamp holdfast and painting.					
18	Ch:9/22	Shoes, bends or offsets for cast iron rain water down pipe,including fixing and painting.	Each	1	336.70	336.70	
19	Ch:9/16	Bottom Khuras of brick masonry in cement mortar 1:6, 4'x2'x4½" (1200x600x113 mm) over 3" (75 mm) cement concrete 1:4:8.	Each	1	956.80	956.80	
20	Ch:-10/15-e	Providing and laying topping of cement concrete 1:2:4,including surface finishing and dividing in panels:-e) 2"(50 mm) thick	%Sft	325	5,380.70	17,487.28	
21	Ch:9/15	Khuras on roof 2'x2'x6" (600 x 600 x 150 mm)	Each	1	547.60	547.60	
22	Ch:13/5-c	Preparing surface and painting of doors and windows any type (including edges):-i) priming coat.	%Sft	338	836.60	2,827.71	
23	Ch:-9/5	Single layer of tiles 9"x4½"x1½" (225x113x40 mm) laid over 4"(100 mm) earth and 1" (25 mm) mud plaster without Bhoosa, grouted with cement sand 1:3 on top of RCC roof slab, provided with 34 lbs. per %Sft. or 1.72 Kg/Sq.m bitumen coating sand blinded.	%Sft	400	7,665.05	30,660.20	
24	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 20.1 -do-50 mm) gauge, in foundation and plinth:- (d) Ratio 1: 6:12	%Cft	100	12,095.15	12,095.15	
25	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. i) cement, sand mortar:- Ratio 1:5	%Cft	425	24,496.85	104,111.61	

		(Total Sum of Sub Head B) Amount R.s			1,043,474	
INTERNAL ELECTRIFICATION						
(Abstract of Cost Sub Head-C)						
1	Ch:- 24/12	Supply and erection of single core PVC insulated, PVC sheathed copper conductor, 660/1100 volts grade cable, in pre-laid G.I. pipe/M.S. conduits/PVC pipe/G.I. wire/trenches, etc (rate for cable only):-				-
	a)	19/2.11 mm (19/0.083")	Per Rft.	120	332.15	39,858
	b)	37/2.11 mm (37/0.083")	Per Rft.	120	580.50	69,660
2	Ch:-24/5	Supply and erection of G.I. flexible pipe for wiring, including				-
	a)	80 mm i/d	Per Rft.	25	360.25	9,006
3	Ch:- 24/68	Earthing of iron clad/aluminum switches, etc. with G.I. wire No.8 SWG in G.I. pipe 15 mm (½") dia, recessed or on surface of wall and floor, complete with 1.5 metre long G.I. pipe, 50 mm (2") dia with reducing socket 4 to 5 metre below ground level, and 2 metre away from building plinth.	Job	2	6,194	12,388

4	Ch:- 24/10	Supply and erection of single core PVC insulated copper conductor cables, in pre-laid PVC pipe/M.S. conduit/G.I pipe/wooden strip batten/wooden casing and capping/G.I.wire/trenches (rate for cables only):-250/440 volts, PVC insulated cotton braided and compounded cables:-					-
	a)	3/0.74 mm (3/0.029")	Per Rft.	510	12.50		6,375
	b)	7/0.74 mm (7/0.029")	Per Rft.	85	16.80		1,428
5	Ch:- 24/19	Supply and erection of iron/aluminum clad, 500 volts main switches with triple pole and neutral link and HRC fuses, on angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles. (500Amp)	Each	1	20,335.80		20,336
6	Ch:- 24/18-a	Supply and erection of iron/aluminum clad, 500 volts main switches with kitkat fuses, on angle iron board with 3 mm (1/8") thick M.S. sheet covering, including bonding to earth with necessary flexible pipe and thimbles, etc. 15/20 Amp.	Each	1	1,720		1,720
7	Ch:- 24/20	Supply and erection of iron/aluminum clad, branch distribution board, 250 volt, on angle iron frame of suitable size with 3 mm	Each	2	1,025		2,050

		(1/8") M.S. sheet covering: 8 way, 15 Amp per way					
8	Ch:- 24/43	Supply and erection of tube light, including rod, choke, starter with frame, flexible wire, including connection from ceiling rose, etc., complete. double rod (80 watts) with two chokes and 2 starters.	Each	4	1,319.05	5,276	
9	Ch:- 24/76	Rewinding of A.C. ceiling fan, capacitor type, including cost of wire, leatheride paper cotton tape, soldering, etc.1400 mm (56") sweep, 250-275 RPM	Each	1	1,213.05	1,213	
10	Ch:- 24/69	Earthing of Metallic cases, etc. with G.I. wire No. 8 mm (1/2") dia G.I. pipe, best quality:- SWG, in on surface, including clamps, etc.	Rft.	60	88.60	5,316	
11	Ch:24/72	Supply and erection of 600x600x3 mm (2'x2'x1/8") copper plate, including revitting to copper tape and placing in mixture of salt and charcoal, etc.	Each	1	4,789	4,789	
12	Ch:24/37	Supply and erection of 3 pin 10/15 Amp. wall socket with shoe,open type.	Each	4	152.750	611.000	
13	Ch:24/30	Supply and erection of ceiling rose, bakelite.	Each	4	41.600	166.400	
(Total Sum of Sub Head C) Amount R.s						180,192	
PUMPING MACHINERS							

(Abstract of Cost Sub Head-D)							
1	Ch:- 23/17-ii	Testing and developing of tubewell of size 6" (150 mm) i/d and above continuously.	Per Hours	72	1,399	100,738.800	
2		Providing, installing, testing and lowering vertical shaft water lubricated deep well turbine pump of 0.7 to 1.50 cusecs capacity against a pumping head of 350 ft. including lowering of about 170 ft length bowl assembly 04 stage and shaft complete (KSB) and AC electric motor 150 BHP 30 H.P squirrel cage induction motor of 1450 RPM alongwith flow meter, gate valves, check valves, air release valves, pressure gauge, CI bends tail pieces etc. up to duck foot bend and earthing, testing complete.	Per Set.	1	5,750,000	5,750,000	
3	Ch:- 23/14-j	Providing and installing M.S. blind pipe socketed/welded joint, M.S. reducer (where necessary), in tubewell bore hole, including jointing/welding with strainer, etc. complete:- 12" i/d, ¼" (300 mm i/d 6 mm) thick	Per Rft.	20	2,770	55,406	
4	Ch:- 23/33-b	Providing and fixing, air valve 2½ (65mm) dia of B.S.S. quality and weight (complete with jointing material).	Each	1	8,011	8,011	

5	Ch:- 25/10	Fabrication of heavy steel work, with angle, tees, flat iron round iron and sheet iron for making trusses, girders,tanks, etc., including cutting, drilling, rebitting, handling, assembling and fixing, but excluding erection in position.	%Kg	152	18,013	27,436
6	Ch :- 6/3-c	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:-(c) Ratio 1:4:8	%Cft	64	12,937. 55	8,280
7	Ch:-6/9	Fabrication of mild steel reinforcement for cement concrete,including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-	%Kg	152	16,422. 35	24,962
8		HYPO CHLORINATOR				
		Providing fixing & testing of Hypo Chlorinator (Chemical metering pump) capacity 0-30 gallons / day at 100 PSI max injection pressure fitted with 1/60 HP air cooled heavy duty electric motor 220 V, 50 Hz single phase AC complete with all accessories like bleed valve assembly, suction tubing, discharge tubing, foot valve and strainer	Job	1.00	85,000. 00	85,000.00

		assembly with weight back check valve assembly solution tank injection fitting wall brackets etc complete in all respect to the entire satisfaction of the Engineer in charge.					
9		WATER FLOW METERS					
		Making and fixing and water level indicator gauge painted in quarter FT readings enamel coated on 6" wide 1/4" thick M.S. plate fitted on outer wall of pump house on top of G.S.T. complete with float, guide, steel wire string, pullyes pointer and 1 No. line bracket bulb as per approved design.	Job	1.00	55,000.00	55,000.00	
	(Total Sum of Sub Head D) Amount R.s					6,114,833	
	a+b+c+d = Total Sub Head Amount R.s					8,663,998	
Total Amount for Construction of 9 Tube wells (2 cusec each) in the unserved areas (Thatta Khaokharaan, Faisal Town and Moh. Azizabad)						77,975,979.61	PKR
						77.9	Millions

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
Long Term							
Construction of 9 Water Filtration Plants with the tube wells in the unserved areas							
2000 L/H Ultra Filtration (UF) Plant							
1		Design, Supply, Installation, testing & commissioning of 2000 L/H Ultra Filtration (UF) Plant for removal of other contaminants, including carriage, loading/unloading charges inclusive of conforming to standarad specifications of filtration plants. Control PLC GSM/GPRS enabled. The specifications along with equipment and accessories properly mounted in the frame/skid are given below:-	LU M SU M	1	4,509,000	4,509,000	
1.1		Boring/drilling and instalation					
		Boring/drilling and instalation of Submersible Pump Submersible pump 2000 LPH Bore upto 300 ft					
1.2		Raw Water Feed Pump					

		Capacity 2200 LPH, 90 PSI pressure				
1.3		Raw water tank				
		Capacity 2000 Litre minimum Material FRP Automatic on off switch for pump				
1.4		Pressure Sand Filter				
		Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Sand Characteristics - ES00.5 mm				
1.5		Activated Carbon Filter				
		Affected size of Media 0.7 to 0.9 Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Base material coconut shell, effective size 0.5- 1.8mm				
1.6		Jumbo Filter 02- No				
		Poristy 1 micron Size 20 Inches Material High pressure Plastic				
1.7		Ultra Filtration system				
		Frame stainless steel				
		UF Housing Pentair or Equivalent				
		Material FRP UF Membrane				

		<p>Origion, Europe, Western Europe, USA, Japan Dow, filmtech, hydranutics, lewabrane or equivalent, NSF certified salt rejection - 95% capacity 2000 Litre/hour Bacterial removal efficiency 99.999 % Virus removal efficiency 99.999 % vessel material - FRP recovery 90% Permeate flux 100-350 L/m2h Transmembrane pressure < 1.0 bar Backwash duration 1 - 5 min. pressurer 2 - 4 bar</p>				
1.8		Automatic PLC Panel				
		<p>make Japan, USA, Europe Programming fully automatic with breaker, timer and relays complete in all respects HMI display for PLC - 10" minimum size with touch screen Fully automatic control of plant SCADA enabled</p>				
1.9		Anti Scalent + Injection System				
		<p>make Europe, USA, Japan Pressure 5 -7 bar tank size minimum 75 liter chemical anti sclanet food grade</p>				

1.1		Blending filter 10" size					
1.1		pressure gauges minimum size 2.5"					
1.1		flow meter for product water					
1.1		online TDS meter					
1.1		UV light. Lap life 12 months, imported.					
1.1		product water tank material FRP Capacity minimum 2000 LPH					
1.1		Pipe and 6 no taps outside room with fencing for taps area					
1.1		All fittings of PVC Sch.80pressure regulation switchauto on/off switch for pump					
1.1		Automatic back wash system for membrane					
1.1		Design of Fitratio Plant					
		The contractor shall identify viable raw water source and type of plant, conduct complete water quality testing as per WHO guidelines / Punjab environmental quality standards for drinking water as per satisfaction of "The Consultant", The type of plant will be designed according to test results					
2		Prefabricated Room for Plant	LU M SU M	1	955,222	955,222	
		Supply and installation of Pre-					

		fabricated room size 12 ft x 12 ft + 3ft				
2.1		Wall panel				
		sand witch panel 100 mm layer medium density polystyrene and 0.45 mm preprinted sheet on both sides				
2.2		Roof Panel				
		65 mm layer of medium density polystyrene and 0.45 mm preprinted sheet on both sides				
2.3		Structiure				
		G.I cold roll formed, framed size 28x110x28x1.75- 1.85 mm thickness with 0.45mm cover				
2.4		Door				
		G.I cold roll formed door frame section 0.9 mm thickness with powder coated door leaf filled with polystyrene with both sides G.I sheet 0.5mm. Total thickness of leaf 36mm with all type of re-enforcement and powder coating				
2.5		Window				
		G.I cold roll formed window section 0.7 mm maximum strength width 84 mm powder coated including fan, exhaust fan, chair & table for operator				
2.6		Tiles for dispensing area				

2.7		Drainage for dispensing area					
2.8		Including civil foundation					
(Total Sum of) Amount R.s						5,464,222	
Total For Construction of 9 Water Filtration Plants with the tube wells in the unserved areas						49,177,998	
						49.17	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No .	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Long Term							
Construction of 6 OHRs (150,000 gal)							
1	Ch: 3/21-b	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m)					
		b) in ordinary soil.	%Cft	36,000.00	7,492.30	269,722.80	
2	Ch:- 3-13 (b) 3-16(i)	Rehandling of earthwork: b)Upto a lead of 50 ft. (15 m).for earhtwork soft, ordinary, hard and very hard.	%Cft	27,000.00	2,487.40	67,159.80	

		Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars).					
3	Ch:- 6/9(c)	Deformed steel bars (Grade 60)	%Kg .	32,000.0 0	16,422.3 5	5,255,152.00	
4	Ch:6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
		(i) Ratio 1: 4: 8	%Cft .	2,000.00	17,941.6 0	358,832.00	
5	Ch:6/6- i-2	Providing and laying reinforced cement concrete (including prestressed concrete), using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication and placing in position, etc.):-					
		(a) (i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid					

		in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,938.00	405.70	4,437,546.60	
6	Ch:6/6-ii-2	(a)(ii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other than those mentioned in 5(a) (i) above not requiring form work (i.e. horizontal					
		(2) Type B (nominal mix 1: 1½: 3)	Per Cft.	10,892.50	300.85	3,277,008.63	
7	Ch:6/6-i-1	Reinforced cement concrete type A nominal mix 1:1:2 (cylinder strength 4000 psi) in roof slab, beams lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects.					
		Type A (nominal mix 1:1:2) Bowl Concrete	Per Cft.	5,200.00	460.20	2,393,040.00	
8	Ch:-6/13 (a)	Extra labour for laying concrete plain or reinforced: a) above 20' (6 m) upto 40'(12 m) height	%Cft	1,751.00	2,842.75	49,776.55	
9	Ch:-6/13 (b)	b) for every additional 10'(3 m) height.	%Cft		1,776.70	-	
	"	c) 40'-50' height		450.00	42.07	18,931.50	
	"	d) 50'-60' height		450.00	59.35	26,707.50	
	"	e) 60'-70' height		450.00	76.10	34,245.00	

	"	f) 70'-80' height		1,300.00	90.66	117,858.00	
	"	g) 80'-90' height		1,300.00	106.50	138,450.00	
10	Ch:6/28	Providing embedding 10" (250 mm) wide ¼" (6 mm) thick rubber water stopper in expansion joints of R.C.C. roof slab complete in all respects.	P.Rft	120.00	208.00	24,960.00	
11	Ch:-7/4	Pacca brick work in foundation and plinth cement, sand mortar Ratio 1:5 i) Plinth protection.	%Cft	775.00	23,755.65	184,106.29	
12	Ch:-10/15(e)	Providing and laying topping of cement concrete 1:2:4, including surface finishing and dividing in panels:- (Under Floor) i) 2"(50 mm) thick	%Sft	150.00	6,313.80	9,470.70	
13	Ch:-10/39(a-ii)	½ (13mm) thick mosaic dado or skirting grey cement with one part of cement and marble powder in the ratio of 3:1 and two parts of marble chips and 10% puddlo, laid over ½"(13 mm) thick cement plaster 1:3, including rubbing and polishing, complete with finishing.	%Sft	575.00	12,785.85	73,518.64	
14	Ch:-11/28	Extra for lime, mud or cement plaster and pointing from 20' (6.00 m) and above for each additional 10' (3.00 m) height or part thereof.	%Sft	575.00	285.15	1,639.61	
15	Ch:-7/30	Supplying and filling sand under floor; or plugging in wells. (Floor and Plinth protection)	%Cft	1,000.00	1,976.10	19,761.00	
16	Ch:-10/9	Brick on edge flooring, laid in 1:6 cement mortar, over a bed of ¾" (20 mm) thick cement mortar 1:6.	%Sft	1,775.00	10,258.70	182,091.93	

17	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8 (50x50x10 mm) and 3/4" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	P.Sft	11.00	1,243.85	13,682.35	
18	Ch:- 25/42 (a)	Providing and fixing steel windows using M.S. sheet (16 SWG) moulded tubular pipe 1 1/2"x1 1/2" (40x40mm) for frame and 1 1/4"x1 1/4" (30x30mm) for leaves including M.S. square bars 1/4"x1/4" (6x6 mm) welded around each panel of frame, 5 mm thick glass panes fixed with double M.S. square tubular pipe 3/8"x3/8" (10x10mm) (22 SWG) beading with U' shaped rubber lining, brass fitting, holdfast, including painting three coats complete in all respects.					
		a) For openable panels fixed with wire gauze 24 SWG, 12x12 mesh and glass panes 1/4" (6 mm) thick.	P.Sft	76.00	394.35	29,970.60	
19	Ch:- 25/34	Providing/fixing stair railing consisting of M.S. Box section size 1-1/2"x3" of 16 SWG welded with M.S. flat 1"x1/8" continuously and welded over M.S. square bars 5/8"x5/8" punched in M.S. flat 2 3/4' high @ 5 1/2" c/c fixed in steps of stair I/C painting 3 coats complete.	P.Rft	73.00	746.90	54,523.70	

20	Ch:- 25/35	Providing and fixing terrace railing of 2" (50 mm) i/d conduit pipe 16 SWG, welded with 5/8"x5/8" (16x16 mm) square bar 2.75 ft. (838 mm) high fixed at 5" (125 mm) centre to centre, in reinforced cement concrete slab with suitable arrangement, complete in all respects, as per design and drawing.	P.Rft .	73.00	837.35	61,126.55	
27	Ch:- 23/28 (b) (ii)	Providing and fixing Cast Iron special of B.S.S. Class 'B' (such as bend, tee cross collar, reducer, tail piece, flanged spigot, cap, flanged socket, taper, angle branch, plug etc.) for cast iron pipe line, complete:- b) C.I flanged specials, with flanged and flanged joints:-	P.Kg .	1,000.00	112.95	112,950.00	
		8" dia (Outlet & Wash Out)					
28	Ch:- 23/30 e	Providing and fixing sluice valve of B.S.S. quality and weight, Class 'B', for cast iron pipe line, and Asbestoscement pipe line (including cost of jointing material)					
		8" (200 mm) i/d	Each	1.00	26,601.50	26,601.50	
		10" (250 mm) i/d	Each	1.00	34,459.30	34,459.30	
Total Amount (Rs) of Schedule Items						17,273,293	
NON-SCHEDULE ITEMS							

1	N-S	Providing, laying, cutting, jointing, testing and disinfecting Mild Steel pipe erecting in vertical position with M.S clamp with 3"x 3/8" flat iron with nut and bolts, with flanged and flanged joints, complete in all respects:-					
		i) 6" M.S blind pipe (inlet pipe)	P.Rft	200.00	1,548.56	309,712.00	
		ii) 8" M.S blind pipe (washout and overflow pipe)	P.Rft	300.00	1,994.87	598,461.00	
		iii) 10" M.S blind pipe (outlet pipe)	P.Rft	170.00	2,992.31	508,692.70	
2	N-S	Providing and installing of aluminium indication gague Level Indicator complete with Steel pully, Steel Wire, Gauge Unit including all accessories such as G.I. Pipe, level indicator needle & anchoring arrangement with Float, jointing material as per drawing and/or directed by the Engineer complete in all respect.	Each	1.00	26,449.04	26,449.04	
3	N-S	Clean, test and disinfect overhead water tank.			80,000.00	80,000.00	
4	N-S	Providing and fixing 4 " dia GRP air vent on roof of overhead water tank.	P.Rft	14.00	1,315.73	18,420.22	
5	N-S	Providing making and fixing MS cover for roof tank as per drawing, complete in all respects.	Each	1.00	5,597.99	5,597.99	
6	N-S	MS ladder including painting.as per drawings complete in all respect.	Lft	19.00	1,279.93	24,318.67	
7	N-S	Providing and fixing cast iron rungs in underground structures or wherever directed by the Engineer Incharge, to correct lines and levels as	No.	9.00	586.93	5,282.37	

		per drawing and specification.					
8	N-S	Wiring of light or fan point from switch to the point with 3x3/0.91 mm (3/0.036") PVC insulated single core cables in PVC pipes concealed in walls, columns and slabs including accessories, PVC box, 10 Amp. gang switch 1 or 2 way as required, one for each light or fan and installed as in specifications.	Each	8.00	1,398.05	11,184.40	
9	N-S	Circuit wiring from MCBs board to gang switches board with 3x7/0.91 mm (7/0.036") PVC insulated single core cables in appropriate size PVC conduit.	Each	3.00	2,587.70	7,763.10	
11	N-S	5 Amp 2/3 pin universal flush mounting switch socket unit away from switch board and wired with 3x7/0.74mm (7/0.029") single core cable from nearest circuit available in PVC concealed conduits or trunking including all conduit accessories as required complete in all respect.	Each	2.00	1,681.55	3,363.10	
12	N-S	The same as item No. 1.4 but wiring of 15/20A, 3-pin flush mounting switch socket unit wired with 1-core 3x7/0.91mm (7/0.036") starting from D.B.	Each	1.00	2,928.15	2,928.15	
TOTAL Amount (Rs) of Non Schedule Items						1,602,172.74	
Total Amount (Rs) of Schedule Items+Non Schedule						18,875,465.28	

Total For Construction of 6 OHRs (50,000 gal)	113,252,791.68	
--	-----------------------	--

**THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT
PVT.LTD**

Regional Development Plan 2020-2030

**MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT
HAFIZABAD**

Long-Term

**Replacement of Water Supply Network in Moh. Mughal Pura, Moh. Taj pura, Moh.
Bahawalpura Sharki, Moh. Bahawalpura Gharbi, Ali town and Quaid abad**

Sr .#	Item Code	DESCRIPTION	QTY	UN IT	RATE	AMOUNT							
1	Ch:- 4/45	Dismantling and removing road metalling.	61,300.00	%C ft	1,421.40	871,318							
2	Ch:- 4/29	Dismantling brick or flagged flooring without concrete.	27,585.000	%Sf t	604.10	166,641							
3	Ch:- 3/44	Excavation of trenches in all kind of soil except cutting, rock, for water supply pipe lines up to 5' depth from ground level i/c trimming, dressing sides, leveling the beds of trenches to correct grate and cutting pits for joints etc. complete in all respect.	259,350.00	%C ft	5,340.20	1,384,981							
	i.	For 12" i/d	700.00	X	3	X	5	=	8,750.00	Cft			
	ii.	For 10" i/d	5,500.00	X	2	X	5	=	55,000.00	Cft			
	ii.	For 8" i/d	4,300.00	X	2	X	4	=	34,400.00	Cft			
	iii.	For 6" i/d	4,400.00	X	2	X	4	=	35,200.00	Cft			
	iv.	For 4" i/d	8,000.00	X	2	X	4	=	64,000.00	Cft			

	v.	For 3" i/d	7,750 .00	X	2	X	4	=	62,000. 00	Cft					
								=	259,350 .00	Cft					
4	Ch:- 7/30	Supplying and filling sand under floor; or plugging in wells.								10,295.55	%C ft	1,976.10	203,450		
	i.	For 12" i/d	700.0 0	X	3	X	0. 17	=	292.25	Cft					
	ii.	For 10" i/d	5,500 .00	X	2	X	0. 17	=	1,837.0 0	Cft					
	ii.	For 8" i/d	4,300 .00	X	2	X	0. 17	=	1,436.2 0	Cft					
	iii.	For 6" i/d	4,400 .00	X	2	X	0. 17	=	1,469.6 0	Cft					
	iv.	For 4" i/d	8,000 .00	X	2	X	0. 17	=	2,672.0 0	Cft					
	v.	For 3" i/d	7,750 .00	X	2	X	0. 17	=	2,588.5 0	Cft					
								=	10,295. 55	Cft					
5	Ch:- 23/42 -a	Providing, laying, cutting, jointing, testing and disinfecting High Density Polyethylene Pipe (HDPE-100) working pressure pipe in trenches complete in all respects. PN-8 (SDR-21)													
	i.	12" i/d Pipe								700.00	P. Rft	1,881.10	1,316,770		
	ii.	10" i/d Pipe								5,500.00	P. Rft	943.45	5,188,975		
	ii.	8" i/d Pipe								4,300.00	P. Rft	750.05	3,225,215		
	iii.	6" i/d Pipe								4,400.00	P. Rft	482.30	2,122,120		
	iv.	4" i/d Pipe								8,000.00	P. Rft	234.20	1,873,600		
		3" i/d Pipe								7,750.00	P. Rft	168.80	1,308,200		
6	N-s	Providing and fixing HDPE specials i/c carriage from factory to site of work and all taxes complete in all respect.													

1	Equal Tee 200x200x200 mm	100.00	P.No	9,582.00	958,200
2	Equal Tee 315x315x315 mm	100.00	P.No	26,019.00	2,601,900
3	Reducer Tee 315x90 mm	80.00	P.No	38,676.00	3,094,080
4	Reducer Tee 315x110 mm	80.00	P.No	38,889.00	3,111,120
5	Reducer Tee 315x160 mm	80.00	P.No	39,006.00	3,120,480
6	Reducer Tee 315x200 mm	80.00	P.No	39,162.00	3,132,960
7	Reducer Tee 315x250 mm	80.00	P.No	39,334.00	3,146,720
8	Reducer Tee 250x200 mm	80.00	P.No	25,774.00	2,061,920
9	Reducer Tee 200x90 mm	100.00	P.No	10,520.00	1,052,000
10	Reducer Tee 200x110 mm	100.00	P.No	10,584.00	1,058,400
11	Reducer Tee 200x160 mm	80.00	P.No	10,701.00	856,080
12	Stab End 315 mm o/d	80.00	P.No	11,901.00	952,080
13	Stab End 250 mm o/d	80.00	P.No	7,982.00	638,560
14	Stab End 200 mm o/d	80.00	P.No	5,157.00	412,560
15	Stab End 160 mm o/d	80.00	P.No	2,314.00	185,120
16	Stab End 110 mm o/d	80.00	P.No	1,454.00	116,320
17	Stab End 90 mm o/d	80.00	P.No	880.00	70,400
18	Bend 315 mm (90)	80.00	P.No	21,211.00	1,696,880

19	Bend 315 mm (45)	80.00	P.No	23,009.0 0	1,840,720
20	Bend 200 mm (45)	80.00	P.No	6,942.00	555,360
21	Reducer 315x200 mm	80.00	P.No	17,487.0 0	1,398,960
22	Reducer 250x200 mm	80.00	P.No	11,112.0 0	888,960
23	Reducer 200x160 mm	80.00	P.No	4,836.00	386,880
24	M.S Flange 315 mm i/d	80.00	P.No	1,760.00	140,800
25	M.S Flange 250 mm i/d	80.00	P.No	1,568.00	125,440
26	M.S Flange 200 mm i/d	80.00	P.No	1,358.00	108,640
27	M.S Flange 160 mm i/d	80.00	P.No	1,065.00	85,200
28	M.S Flange 110 mm i/d	100.00	P.No	606.00	60,600
29	Equal Tee 90 mm	100.00	P.No	1,940.00	194,000
30	Equal Tee 110 mm	100.00	P.No	2,910.00	291,000
31	Equal Tee 160 mm	100.00	P.No	6,791.00	679,100
32	Elbow 90 degree 90 mm	100.00	P.No	1,463.00	146,300
33	Elbow 90 degree 110 mm	100.00	P.No	2,264.00	226,400
34	Elbow 90 degree 160 mm	100.00	P.No	5,336.00	533,600
35	Elbow 90 degree 250 mm	100.00	P.No	16,979.0 0	1,697,900
36	Elbow 45 degree 90 mm	100.00	P.No	1,422.00	142,200
37	Elbow 45 degree 110 mm	100.00	P.No	2,102.00	210,200
38	Elbow 45 degree 160 mm	100.00	P.No	5,174.00	517,400
39	Elbow 45 degree 250 mm	100.00	P.No	16,170.0 0	1,617,000
40	End Cap 90 mm	100.00	P.No	646.00	64,600

	41	End Cap 110 mm	100.00	P.No	970.00	97,000
	42	End Cap 160 mm	100.00	P.No	2,263.00	226,300
	43	End Cap 250 mm	100.00	P.No	8,085.00	808,500
	44	Cross 90 mm	100.00	P.No	3,234.00	323,400
	45	Cross 110 mm	100.00	P.No	5,660.00	566,000
	46	Reducer Tee 110 X 90 mm	100.00	P.No	2,426.00	242,600
	47	Reducer Tee 160 X 90 mm	100.00	P.No	5,821.00	582,100
	48	Reducer Tee 160 X 110 mm	100.00	P.No	5,821.00	582,100
	49	Reducer Tee 250 X 110 mm	100.00	P.No	19,404.0 0	1,940,400
	50	Reducer Spigot 250 X 110 mm	100.00	P.No	12,936.0 0	1,293,600
7	Ch:- 23/29	P/F cast iron specials of BSS Class-B (such as bend, tee, collar, reducer, tail piece, flanged socket, flanged spigot, cap, taper angle branch, plug, etc) for Asbestos cement pipe line, with comet joint and rubber ring, complete.				
i		3" to 6" i/d	2,000.00	P. Kg	111.40	222,800
ii		8" to 18" i/d	1,000.00	P. Kg	105.10	105,100
8	Ch:- 23/33	Providing and fixing Air Valve 2.5" (65 mm) dia of BSS quality and weight (complete with jointing material) Double	70.00	P. No.	8,010.55	560,739
9	Ch:- 23/31 -	Providing and fixing sluice valve of BSS quality and weight class B or cast iron pipe line and Asbestos cement pipe line i/c cost of fitting of material.				
i		3" i/d Sluice Valve	50.00	P. No.	6,041.75	302,088
i		4" i/d Sluice Valve	50.00	P. No.	6,932.65	346,633
ii		6" i/d Sluice Valve	25.00	P. No.	11,697.1 0	292,428

iii		8" i/d Sluice Valve	25.00	P. No.	20,991.1 0	524,778
iv		10" i/d Sluice Valve	25.00	P. No.	26,470.5 5	661,764
v		12" i/d Sluice Valve	15.00	P. No.	32,849.7 5	492,746
10	N-s	Construction of Sluice Valve Chamber.	300.00	P. No.	30,000.0 0	9,000,000
11	Ch:- 23/41	Making connection for new water supply lines with running main i/c excavation of trenches and refilling complete but excluding the cost of pipe and specials.				
	i	Upto 6" i/d	2,000.00	P. No.	2,026.55	4,053,100
	ii	Upto 8" i/d	1,500.00	P. No.	2,559.55	3,839,325
	iii	Upto 10" i/d	500.00	P. No.	3,608.90	1,804,450
	iv	Upto 12" i/d	500.00	P. No.	4,941.40	2,470,700
12	Ch:- 3/13- a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	207,480.00	%C ft	1,776.70	368,630
13	Ch:- 3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-				
		95% to 100% maximum modified AASHO dry density.	207,480.00	%C ft	788.25	163,546
14	Ch:- 21/12	Restoration of metalled road on laid service line including compaction.				-
		a) Carpetted road, with 2" (50 mm) carpet and 10" (250mm) depth of stone metal for sub-base and base.	49,040.00	%Sf t	8,558.40	4,197,039
		c) Black topped Road with two coats of surfacing & 10" (250mm) depth of stone metal for sub base and base.	9,808.00	%Sf t	4,119.20	404,011
		Total Amount (PKR)				94,310,185
		Total Amount (In Million)				94

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
Long Term							
Rehabilitation of existing filtration plants in Moh. Bijli, MC Family Park, Moh. Mian da Kot and Moh. Hussain Pura							
2000 L/H Ultra Filtration (UF) Plant							
1		Design, Supply, Installation, testing & commissioning of 2000 L/H Ultra Filtration (UF) Plant for removal of other contaminants, including carriage, loading/unloading charges inclusive of conforming to standard specifications of filtration plants. Control PLC GSM/GPRS enabled. The specifications along with equipment and accessories properly mounted in the frame/skid are given below:-	LUM SUM	1	4,509,000	4,509,000	
1.1		Boring/drilling and instalation					
		Boring/drilling and instalation of Submersible Pump Submersible pump 2000 LPH Bore upto 300 ft					
1.2		Raw Water Feed Pump					
		Capacity 2200 LPH, 90 PSI pressure					
1.3		Raw water tank					
		Capacity 2000 Litre minimum Material FRP Automatic on off switch for pump					
1.4		Pressure Sand Filter					

		Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Sand Characteristics - ES00.5 mm				
1.5		Activated Carbon Filter				
		Affected size of Media 0.7 to 0.9 Material FRP, make Pentair or Equivalent Filtration Rate 7.5 m/h with automatic back wash system Base material coconut shell, effective size 0.5-1.8mm				
1.6		Jumbo Filter 02-No				
		Porosity 1 micron Size 20 Inches Material High pressure Plastic				
1.7		Ultra-Filtration system				
		Frame stainless steel				
		UF Housing Pentair or Equivalent				
		Material FRP				
		UF Membrane				
		Origin, Europe, Western Europe, USA, Japan Dow, filmtech, hydranitics, lewabrane or equivalent, NSF certified salt rejection - 95% capacity 2000 Litre/hour Bacterial removal efficiency 99.999 % Virus removal efficiency 99.999 % vessel material - FRP recovery 90% Permeate flux 100-350 L/m2h Transmembrane pressure < 1.0 bar Backwash duration 1 - 5 min. pressurer 2 - 4 bar				
1.8		Automatic PLC Panel				

		make Japan, USA, Europe Programming fully automatic with breaker, timer and relays complete in all respects HMI display for PLC - 10" minimum size with touch screen Fully automatic control of plant SCADA enabled				
1.9		Anti Scalent + Injection System				
		make Europe, USA, Japan Pressure 5 -7 bar tank size minimum 75 liter chemical anti sclanet food grade				
1.1		Blending filter 10" size				
1.1		pressure gauges minimum size 2.5"				
1.1		flow meter for product water				
1.1		online TDS meter				
1.1		UV light. Lap life 12 months, imported.				
1.1		product water tank material FRP Capacity minimum 2000 LPH				
1.1		Pipe and 6 no taps outside room with fencing for taps area				
1.1		All fittings of PVC Sch.80 pressure regulation switch auto on/off switch for pump				
1.1		Automatic back wash system for membrane				
1.1		Design of Fitrations Plant				
		The contractor shall identify viable raw water source and type of plant, conduct complete water quality testing as per WHO guidelines / Punjab environmental quality standards for drinking water as per satisfaction of "The Consultant", The type of plant will be designed according to test results				

ANNEXURE 2: SEWERAGE SYSTEM (BILL OF QUANTITY)

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD)							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
Rehabilitation of Jharianwala disposal station (Civil and Mechanical work)							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Short Term							
1		Designing, providing and constructing Sewerage Screening Chamber comprising all the civil works including, but may not be limited to, all the earthwork, PCC works, RCC works, brick masonry, plastering, painting & polishing works, plinth protections, water proof & chemical resistant coatings, stairs, ladders, railings, gratings and sluice gates; hydraulic testing; and commissioning, complete in all respects, in accordance with the Contract (but excluding the manually-cleaned bar screens & their	Job	1.00	311,050.00	311,050.00	

		hoisting arrangements)					
2		Designing, providing and constructing Sewerage Pumping Station, comprising Wet Well & Dry Well, comprising all the civil works including, but may not be limited to, all the earthwork, PCC works, RCC works, brick masonry, plastering, roofing, flooring, dado, skirting, painting & polishing works, windows, , doors, railings, ladders, stairs, plinth protection, roof drainage, water proof & chemical resistant coatings, access hole covers, sluice gates and hydraulic testing; and commissioning; all the plumbing works including, but may not be limited to, water supply piping and taps; all the building electrification works, including, but may not be limited to, distribution boards, wiring, switch socket units, ceiling fans,	Job	1.00	330,150.00	330,150.00	

		exhaust fans, light fixtures and earthing; and all the telecommunication works, complete in all respects, in accordance with the Contract (but excluding pumps, flow meters and piping works)					
3		Designing, providing, installing, testing and commissioning all the Process Piping Works for the gravity and forced transmission of wastewater, supernatants, filtrates, treated effluents and sludge, including, but may not be limited to, all the earthwork, piping, fittings, valves, specials, internal & external treatments for piping, pipe beddings, pipe encasements, backing blocks, clamps, supports & anchors for exposed piping, inspection chambers and manholes, complete in all respects, in accordance with the Contract	Job	1.00	300,100.25	300,100.25	

4		Designing, providing and executing all the Land Grading and Site Development Works including, but may not be limited to, demolishing the existing structures, all the area excavation, disposal of surplus/unsuitable excavated materials, disposal of debris and surplus excavated material to a designated site as per the direction of the Client's representative and earth filling with materials excavated from within site and/or with imported earth, complete in all respects, in accordance with the Contract	Job	1.00	183,238.00	183,238.00	
5		Designing, providing, constructing and testing all the External Sewerage Works in the Site including, but may not be limited to, all the earthwork, sewer pipes, pipe beddings, pipe encasements, inspection chambers and manholes, complete in all respects, in accordance with the Contract	Job	1.00	1,941,225.00	1,941,225.00	
6		Designing, providing, installing, testing and commissioning all the External Illumination Works for the Site, including, but may not be limited to, all the light poles, earthwork	Job	1.00	172,904.20	172,904.20	

		& foundations for light poles, mercury vapor lamps & holders, service terminal boxes and automatic switching devices, complete in all respects, in accordance with the Contract					
7		<p>Designing, providing, installing, testing and commissioning all the External and Pumping Station (mechanical equipment)</p> <p>Electrification Works, including, but may not be limited to, all the earthwork, metering panel, HT switchgear panels, LT switchgear panels, power factor improvement (PFI) plants, transformer protection panels, transformers, transformer platforms, HT & LT power and control cables, cable trays, earthing systems, electrical protection works, provisions for manual and/or automatic switching controls for different Plant (mechanical equipment) and provisions for connection to standby electricity generation facilities, complete in all respects, in accordance with the Contract (but excluding the electric supply connection charges and standby electricity generation facilities)</p>	Job	1.00	291,058.50	291,058.50	

8		<p>Designing, providing, installing, testing and commissioning the standby electricity generation facilities, including, but may not be limited to, standby low-voltage diesel electric generator sets, control/instrument panels, synchronized auto main failure (AMF) panels, underground fuel storage tank, electric & manual fuel transfer pumps, fuel day tanks, fuel piping network, all the internal wiring & cable works and earthing systems, complete in all respects, in accordance with the Contract (but excluding the Generator Building and cranes)</p>	Job	1.00	1,451,000.00	1,451,000.00	
9		<p>Designing, providing, installing, testing and commissioning all the Raw Sewage Pumps in the Dry Well (vertical-shaft, solids-handling, centrifugal type with overhead motors), and Bildge Pumps including, but may not be limited to, the pumps, motors, motor starters, shafts, intermediate shaft support mechanisms, automatic liquid level controlled switching devices, support base/frame, pressure gauges, all jointing, fixing & installation accessories, all</p>	Job	1.00	331,015.00	331,015.00	

		painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract					
10		Designing, providing, installing, testing and commissioning all the Mechanically-Hoisted, Manually-Cleaned, Bar Screens in the Sewerage Screening Chamber, including, but may not be limited to, the screen panels, guide rails, overhead support frames, hoisting ropes, pulleys & drums, motors, gear boxes, motor starters, brakes, bearings, support base/frame, standby manual hoisting assemblies and controls & safety mechanisms; all jointing, fixing & installation accessories; all painting & coatings; and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract	Job	1.00	750,129.10	750,129.10	

11		<p>Designing, providing, installing, testing and commissioning all the On-line Real-time Sewerage Flow Meters in the Dry Well (Electromagnetic type) including, but may not be limited to, the electronic displays, and telemetry cables; all jointing, fixing & installation accessories, all painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract</p>	Job	1.00	119,363.20	119,363.20	
12		<p>Designing, providing, installing, testing and commissioning Electrically-operated, Top-Running, Overhead Bridge Cranes including, but may not be limited to, all its moving components, motors, gear boxes, motor starters, drive controls, safety mechanisms, cables, cables collapsing mechanisms, operation-control equipment, and side rails; all jointing, fixing & installation accessories, all painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in</p>	Job	1.00	8,582,980.00	8,582,980.00	

		accordance with the Contract: a) Dry well b) Electric generator building					
Rehabilitation of Jharianwala disposal station (Civil and Mechanical work) Total Amount (Rs)						14,764,213.25	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Short Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of Sewerage lines in Moh. Akhtar town, Moh. Tariqpura, DHQ Hospital and Moh. Misri Khan							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to				-	

		correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	132,591.45	6,221.15	824,871.31	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	60,440.28	10,463.85	632,438.04	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	-	13,306.60	-	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	22,146.00	12,095.15	2,678,591.92	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct					

		alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	9,624.84	459.55	4,423,093.37	
		380 mm (15") i/d	P.Rf t	7,054.53	576.30	4,065,524.26	
		460 mm (18") i/d	P.Rf t	2,528.87	713.25	1,803,717.24	
		530 mm (21") i/d	P.Rf t	-	876.05	-	
		610 mm (24") i/d	P.Rf t	1,885.83	1,090.00	2,055,551.43	
		690 mm (27") i/d	P.Rf t	-	1,295.65	-	
		760 mm (30") i/d	P.Rf t	-	1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	-	2,509.05	-	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t		5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
5	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	106,073.16	1,776.70	188,460.19	
6	Ch:-3/25	compaction by mechanical means at					

		optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	106,073.16	788.25	83,612.17	
		MANHOLES					
		EXCAVATION					
7	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	26,518.29	6,221.15	164,974.26	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	12,088.06	10,463.85	126,487.61	
		c) above 15.0 ft. (4.5 m) depth	%Cf t		13,306.60	-	
		P.C.C 1:4:8					

8	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	2,000.00	17,941.60	358,832.00	
9	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	1,500.00	23,378.60	350,679.00	
10	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	2,500.00	24,119.80	602,995.00	
11	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	1,000.00	19,996.90	199,969.00	
12	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6,	Per Set	200.00	9,053.90	1,810,780.00	

		of 1977, complete in all respect.					
13	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	1,000.00	1,861.20	18,612.00	
14	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	200.00	10,984.90	2,196,980.00	
15	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	21,214.63	1,776.70	37,692.04	
16	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified	%Cft	37,214.63	788.25	29,334.43	

		AASHO dry density.					
TOTAL Amount (Rs) of Schedule Items						22,653,195.27	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	200.00	1,236.00	247,200.00	
TOTAL Amount (Rs) of Non Schedule Items						247,200.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						22,900,395.27	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Short Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of Trunk line on kasoki road to 54" Diameter pipe (03 Km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	144,488.20	6,221.15	898,882.77	
		b) 7-01 ft. to 15.0 ft. (2.15	%Cft	102,244.10	10,463.85	1,069,866.93	

		to 4.5 m) depth					
		c) above 15.0 ft. (4.5 m) depth	%Cft	48,425.20	13,306.60	644,374.77	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½" to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cft	14,606.30	12,095.15	1,766,653.89	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rft	-	459.55	-	

		380 mm (15") i/d	P.Rf t	-	576.30	-	
		460 mm (18") i/d	P.Rf t	-	713.25	-	
		530 mm (21") i/d	P.Rf t	-	876.05	-	
		610 mm (24") i/d	P.Rf t	-	1,090.00	-	
		690 mm (27") i/d	P.Rf t	-	1,295.65	-	
		760 mm (30") i/d	P.Rf t		1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t		2,509.05	-	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	9,842.52	5,442.85	53,571,359.98	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	115,590.5 6	1,776.70	205,369.75	
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					

		95% to 100% maximum modified AASHO dry density.	%Cf t	115,590.5 6	788.25	91,114.26	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	115,590.5 6	6,221.15	719,106.21	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	81,795.28	10,463.8 5	855,893.54	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	38,740.16	13,306.6 0	515,499.81	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and	%Cf t	750.00	17,941.6 0	134,562.00	

		curing complete (including screening and washing of stone aggregate): 1:4:8					
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	1,000.00	23,378.60	233,786.00	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	1,500.00	24,119.80	361,797.00	
15	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobri) soffit of arches cement plastered.	%Sft	2,000.00	19,996.90	399,938.00	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" l/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No.	Per Set	100.00	9,053.90	905,390.00	

		6, of 1977, complete in all respect.					
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	1,000.00	1,861.20	18,612.00	
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	100.00	10,984.90	1,098,490.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	92,472.45	1,776.70	164,295.80	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section,					

		complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	92,472.45	788.25	72,891.41	
TOTAL Amount (Rs) of Schedule Items						63,727,884.11	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	100.00	1,236.00	123,600.00	
TOTAL Amount (Rs) of Non Schedule Items						123,600.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						63,851,484.11	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Short Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of Trunk line on Gujranwala road to 54" Diameter pipe (04 km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	250,000.0 0	6,221.15	1,555,287.50	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	110,000.0 0	10,463.8 5	1,151,023.50	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	50,000.00	13,306.6 0	665,330.00	
		Brick Ballast					

2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1:6:12	%Cft	21,808.50	12,095.15	2,637,770.79	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rft	-	459.55	-	
		380 mm (15") i/d	P.Rft	-	576.30	-	
		460 mm (18") i/d	P.Rft	-	713.25	-	
		530 mm (21") i/d	P.Rft	-	876.05	-	
		610 mm (24") i/d	P.Rft	-	1,090.00	-	
		690 mm (27") i/d	P.Rft	-	1,295.65	-	
		760 mm (30") i/d	P.Rft		1,583.95	-	

		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t		2,509.05	-	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	13,123.40	5,442.85	71,428,697.69	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	200,000.0 0	1,776.70	355,340.00	
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	200,000.0 0	788.25	157,650.00	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to					

		templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	123,917.3 3	6,221.15	770,908.30	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	91,958.67	10,463.8 5	962,241.68	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	20,000.00	13,306.6 0	266,132.00	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cf t	2,000.00	17,941.6 0	358,832.00	
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cf t	1,500.00	23,378.6 0	350,679.00	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cf t	2,000.00	24,119.8 0	482,396.00	
15	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobri) soffit of arches cement plastered.	%Sf t	2,000.00	19,996.9 0	399,938.00	

16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	100.00	9,053.90	905,390.00	
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	1,000.00	1,861.20	18,612.00	
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	100.00	10,984.90	1,098,490.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	99,133.86	1,776.70	176,131.14	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					

		95% to 100% maximum modified AASHO dry density.	%Cf t	99,133.86	788.25	78,142.27	
TOTAL Amount (Rs) of Schedule Items						83,818,991.86	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	100.00	1,236.00	123,600.00	
TOTAL Amount (Rs) of Non Schedule Items						123,600.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						83,942,591.86	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Short Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of sewerage pipes on Misri Khan Road (15" to 24") (1.5 km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	50,000.00	6,221.15	311,057.50	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	20,000.00	10,463.85	209,277.00	
		c) above 15.0 ft. (4.5 m) depth	%Cft	-	13,306.60	-	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cft	2,000.00	12,095.15	241,903.00	
		Pipe Laying					

3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	-	459.55	-	
		380 mm (15") i/d	P.Rf t	1,027.31	576.30	592,040.50	
		460 mm (18") i/d	P.Rf t	230.32	713.25	164,272.17	
		530 mm (21") i/d	P.Rf t	200.00	876.05	175,210.00	
		610 mm (24") i/d	P.Rf t	150.00	1,090.00	163,500.00	
		690 mm (27") i/d	P.Rf t	-	1,295.65	-	
		760 mm (30") i/d	P.Rf t		1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t		2,509.05	-	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	-	5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single	%Cf t	40,000.0 0	1,776.70	71,068.00	

		throw of kassi, phaorah or shovel.					
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	40,000.0 0	788.25	31,530.00	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	20,000.0 0	6,221.15	124,423.00	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	7,540.00	10,463.8 5	78,897.43	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	-	13,306.6 0	-	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cf t	2,000.00	17,941.6 0	358,832.00	
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cf t	1,500.00	23,378.6 0	350,679.00	

14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	2,000.00	24,119.80	482,396.00	
15	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	2,000.00	19,996.90	399,938.00	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	350.00	9,053.90	3,168,865.00	
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	2,000.00	1,861.20	37,224.00	
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	350.00	10,984.90	3,844,715.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	16,000.00	1,776.70	28,427.20	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	16,000.00	788.25	12,612.00	

TOTAL Amount (Rs) of Schedule Items						10,846,866.80	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	350.00	1,236.00	432,600.00	
TOTAL Amount (Rs) of Non Schedule Items						432,600.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						11,279,466.80	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remark s
SCHEDULE ITEMS							
Construction of Drainage Nullah from DHQ Hospital to Slaughter house (2km) Size 3'x3.50'							
		EXCAVATION				-	

1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					-
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	6,561.68	6,221.15	40,821.20	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	-	10,463.85		-
		c) above 15.0 ft. (4.5 m) depth	%Cft	-	13,306.60		-
		P.C.C 1:4:8					
2	Ch:6/5 -f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	4,921.26	17,941.60	882,952.78	
3	Ch:6/6 -a-3	Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other	P.Cft	33,355.79	271.55	90,577.65	

		than those mentioned in 5(a) (i) above not requiring form work (i.e. horizontal shuttering) complete in all respects:- Type C (nominal mix 1: 2: 4)					
4	Ch:6/9	Fabrication of mild steel reinforcement for cement concrete, including cutting, bending, laying in position, making joints and fastenings, including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars):-('c) Deformed bars (Grade-60)	%K G	83,389.48	16,422.3 5	13,694,512.24	
Total Amount (Rs)						14,708,863.87	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Extension of sewerage lines around vanike road (Moh. Farooq Azam, Moh. Siraj Ganj, Qadirabad and Teacher Mohalla)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	332,256.00	6,221.15	2,067,014.41	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	120,540.00	10,463.85	1,261,312.48	

		c) above 15.0 ft. (4.5 m) depth	%Cft	-	13,306.60	-	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cft	62,357.08	12,095.15	7,542,182.42	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rft	18,624.84	459.55	8,559,043.37	
		380 mm (15") i/d	P.Rft	15,654.53	576.30	9,021,704.26	
		460 mm (18") i/d	P.Rft	9,128.87	713.25	6,511,167.24	

		530 mm (21") i/d	P.Rf t	1,520.00	876.05	1,331,596.00	
		610 mm (24") i/d	P.Rf t	1,000.00	1,090.00	1,090,000.00	
		690 mm (27") i/d	P.Rf t	953.02	1,295.65	1,234,777.77	
		760 mm (30") i/d	P.Rf t	1,424.54	1,583.95	2,256,401.72	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	1,641.73	2,509.05	4,119,187.67	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t		5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
5	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	265,804.80	1,776.70	472,255.39	
6	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	265,804.80	788.25	209,520.63	
		MANHOLES					
		EXCAVATIO N					

7	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	116,289.60	6,221.15	723,455.05	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	42,189.00	10,463.85	441,459.37	
		c) above 15.0 ft. (4.5 m) depth	%Cft		13,306.60	-	
		P.C.C 1:4:8					
8	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	2,750.00	17,941.60	493,394.00	
9	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	2,500.00	23,378.60	584,465.00	

10	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	3,500.00	24,119.80	844,193.00	
11	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	3,200.00	19,996.90	639,900.80	
12	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	350.00	9,053.90	3,168,865.00	
13	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	3,200.00	1,861.20	59,558.40	
14	Ch:21/8	Constructing standard gully grating chamber, 3'x2½'	Each	350.00	10,984.90	3,844,715.00	

		(900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.					
15	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	93,031.68	1,776.70	165,289.39	
16	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	93,031.68	788.25	73,332.22	
TOTAL Amount (Rs) of Schedule Items						56,714,790.58	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers, including carriage and setting the same in work,	Nos	350.00	1,236.00	432,600.00	

		to correct lines and levels as per drawing and specification					
TOTAL Amount (Rs) of Non Schedule Items						432,600.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						57,147,390.58	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Replacement of drains with sewerage lines in Anarkali Bazar, Moh. Garhi Awan, Sharif Pura, Majid Pura and Faisal Town							
		DISMANTTLING					
1	Ch:- 4/45	Dismantling and removing road metalling.	%Cft	50,000.00	1,421.40	710,700.00	
2	Ch:- 4/46	Dismantling and removing road pavement, etc., including screening and stacking of byproducts upto one chain lead (30 metre).	%Cft	20,000.00	1,897.55	379,510.00	
3	Ch:- 4/29	Dismantling brick or flagged	%Cft	10,000.00	604.10	60,410.00	

		flooring without concrete.					
		EXCAVATION				-	
4	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	150,000.00	6,221.15	933,172.50	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	80,000.00	10,463.85	837,108.00	
		c) above 15.0 ft. (4.5 m) depth	%Cft	20,000.00	13,306.60	266,132.00	
		Brick Ballast					
5	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cft	30,000.00	12,095.15	3,628,545.00	
		Pipe Laying					

6	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rft	15,000.00	459.55	6,893,250.00	
		380 mm (15") i/d	P.Rft	13,641.00	576.30	7,861,308.30	
		460 mm (18") i/d	P.Rft	10,000.00	713.25	7,132,500.00	
		530 mm (21") i/d	P.Rft	8,454.00	876.05	7,406,126.70	
		610 mm (24") i/d	P.Rft	5,000.00	1,090.00	5,450,000.00	
		690 mm (27") i/d	P.Rft	-	1,295.65	-	
		760 mm (30") i/d	P.Rft	-	1,583.95	-	
		840 mm (33") i/d	P.Rft	-	1,888.20	-	
		910 mm (36") i/d	P.Rft	-	2,509.05	-	
		1070 mm (42") i/d	P.Rft	-	3,237.70	-	
		1220 mm (48") i/d	P.Rft	-	4,344.70	-	
		1370 mm (54") i/d	P.Rft	-	5,442.85	-	

		1520 mm (60") i/d	P.Rft		6,234.65		
		1680 mm (66") i/d	P.Rft		7,532.65		
		1830 mm (72") i/d	P.Rft		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	120,000.00	1,776.70	213,204.00	
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	120,000.00	788.25	94,590.00	
9	Ch:-21/12	Restoration of metalled road on laid service line including compaction.					
		a) Carpetted road, with 2" (50 mm) carpet and 10" (250mm) depth of stone metal for sub-base and base	%Sft	40,000.00	8,874.30	3,549,720.00	
		c) Black topped Road with two coats of surfacing & 10" (250mm) depth of stone metal for sub base and base.	%Sft	8,000.00	4,381.15	350,492.00	
		MANHOLES					
		EXCAVATION					

10	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	52,500.00	6,221.15	326,610.38	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	28,000.00	10,463.85	292,987.80	
		c) above 15.0 ft. (4.5 m) depth	%Cft	10,000.00	13,306.60	133,066.00	
		P.C.C 1:4:8					
11	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	3,000.00	17,941.60	538,248.00	
12	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	2,200.00	23,378.60	514,329.20	
13	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	3,200.00	24,119.80	771,833.60	

14	Ch:9/7	Concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	3,000.00	19,996.90	599,907.00	
15	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	500.00	9,053.90	4,526,950.00	
16	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	3,000.00	1,861.20	55,836.00	
17	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	500.00	10,984.90	5,492,450.00	
18	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	42,000.00	1,776.70	74,621.40	

19	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	42,000.00	788.25	33,106.50	
20	Ch:-21/12	Restoration of metalled road on laid service line including compaction.					
		a) Carpetted road, with 2" (50 mm) carpet and 10" (250mm) depth of stone metal for sub-base and base	%Sft	20,000.00	8,874.30	1,774,860.00	
		c) Black topped Road with two coats of surfacing & 10" (250mm) depth of stone metal for sub base and base.	%Sft	4,000.00	4,381.15	175,246.00	
TOTAL Amount (Rs) of Schedule Items						59,126,714.38	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including	Nos	500.00	1,236.00	618,000.00	

		carriage and setting the same in work, to correct lines and levels as per drawing and specification					
TOTAL Amount (Rs) of Non Schedule Items						618,000.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						59,744,714.38	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of trunk line on Jalalpur Bhattian Road (Fowara Chowk to Ghorah Chowk) from 18" to 54" diameter pipe (3.1 km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including				-	

		shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	244,488.2 0	6,221.15	1,520,997.77	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	102,244.1 0	10,463.8 5	1,069,866.93	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	48,425.20	13,306.6 0	644,374.77	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½" to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	14,606.30	12,095.1 5	1,766,653.89	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary,					

		testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	-	459.55	-	
		380 mm (15") i/d	P.Rf t	-	576.30	-	
		460 mm (18") i/d	P.Rf t	4,141.00	713.25	2,953,568.25	
		530 mm (21") i/d	P.Rf t	2,583.00	876.05	2,262,837.15	
		610 mm (24") i/d	P.Rf t	1,200.00	1,090.00	1,308,000.00	
		690 mm (27") i/d	P.Rf t		1,295.65	-	
		760 mm (30") i/d	P.Rf t	716.00	1,583.95	1,134,108.20	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	-	2,509.05	-	
		1070 mm (42") i/d	P.Rf t	-	3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	1,528.00	5,442.85	8,316,674.80	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	195,590.5 6	1,776.70	347,505.75	
8	Ch:-3/25	compaction by mechanical means at optimum					

		moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	195,590.5 6	788.25	154,174.26	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	223,917.3 3	6,221.15	1,393,023.30	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	111,958.6 7	10,463.8 5	1,171,518.68	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	63,976.38	13,306.6 0	851,308.10	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and	%Cf t	3,200.00	17,941.6 0	574,131.20	

		curing complete (including screening and washing of stone aggregate): 1:4:8					
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	2,750.00	23,378.60	642,911.50	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	3,540.00	24,119.80	853,840.92	
15	Ch:9/7	Concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	2,000.00	19,996.90	399,938.00	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	500.00	9,053.90	4,526,950.00	
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with	%Sft	1,000.00	1,861.20	18,612.00	

		1/8" (3 mm) thick cement finish					
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	500.00	10,984.90	5,492,450.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	179,133.86	1,776.70	318,267.14	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	179,133.86	788.25	141,202.27	
TOTAL Amount (Rs) of Schedule Items						37,862,914.86	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole	Nos	500.00	1,236.00	618,000.00	

		chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification					
TOTAL Amount (Rs) of Non Schedule Items						618,000.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						38,480,914.86	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remark s
SCHEDULE ITEMS							
Laying of 36" trunk line from Fowara Chowk to Raja Chowk (450m)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	

		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	33,218.55	6,221.15	206,657.58	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	19,931.13	10,463.85	208,556.35	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	9,965.57	13,306.60	132,607.79	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	1,109.50	12,095.15	134,195.64	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	-	459.55	-	
		380 mm (15") i/d	P.Rf t	-	576.30	-	
		460 mm (18") i/d	P.Rf t	-	713.25	-	
		530 mm (21") i/d	P.Rf t	-	876.05	-	
		610 mm (24") i/d	P.Rf t	-	1,090.00	-	
		690 mm (27") i/d	P.Rf t	-	1,295.65	-	
		760 mm (30") i/d	P.Rf t	-	1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	1,476.38	2,509.05	3,704,311.24	

		1070 mm (42") i/d	P.Rf t	-	3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	-	5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	26,574.84	1,776.70	47,215.52	
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	26,574.84	788.25	20,947.62	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	26,574.84	6,221.15	165,326.07	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	15,944.90	10,463.85	166,845.08	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	7,972.45	13,306.60	106,086.23	
		P.C.C 1:4:8					

12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	1,000.00	17,941.60	179,416.00	
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	850.00	23,378.60	198,718.10	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	1,420.00	24,119.80	342,501.16	
15	Ch:9/7	Concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	1,500.00	19,996.90	299,953.50	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	100.00	9,053.90	905,390.00	
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	1,000.00	1,861.20	18,612.00	
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	100.00	10,984.90	1,098,490.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	21,259.87	1,776.70	37,772.41	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					

		95% to 100% maximum modified AASHO dry density.	%Cf t	21,259.87	788.25	16,758.09	
TOTAL Amount (Rs) of Schedule Items					7,990,360.38		
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	100.00	1,236.00	123,600.00	
TOTAL Amount (Rs) of Non Schedule Items					123,600.00		
TOTAL Amount (Rs) of Schedule Items+Non Schedule					8,113,960.38		
THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Medium Term</u>							
S. No.	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Upgradation of Sewer Pipes on Darbar Road (12" to 24") (1 km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole				-	

		chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	73,818.90	6,221.15	459,238.45	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	51,673.23	10,463.8 5	540,700.93	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	-	13,306.6 0	-	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	2,465.55	12,095.1 5	298,212.12	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from					

		factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	1,500.00	459.55	689,325.00	
		380 mm (15") i/d	P.Rf t	900.00	576.30	518,670.00	
		460 mm (18") i/d	P.Rf t	500.00	713.25	356,625.00	
		530 mm (21") i/d	P.Rf t	-	876.05	-	
		610 mm (24") i/d	P.Rf t	380.84	1,090.00	415,115.60	
		690 mm (27") i/d	P.Rf t		1,295.65	-	
		760 mm (30") i/d	P.Rf t	-	1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	-	2,509.05	-	
		1070 mm (42") i/d	P.Rf t	-	3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	-	5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi,	%Cf t	59,055.12	1,776.70	104,923.23	

		phaorah or shovel.					
8	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	59,055.12	788.25	46,550.20	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	59,055.12	6,221.15	367,390.76	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	41,338.58	10,463.85	432,560.74	

		c) above 15.0 ft. (4.5 m) depth	%Cft	-	13,306.60	-	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	2,000.00	17,941.60	358,832.00	
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	1,500.00	23,378.60	350,679.00	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	2,000.00	24,119.80	482,396.00	
15	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	2,000.00	19,996.90	399,938.00	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing	Per Set	150.00	9,053.90	1,358,085.00	

		37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.					
17	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	1,000.00	1,861.20	18,612.00	
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	100.00	10,984.90	1,098,490.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	47,244.10	1,776.70	83,938.59	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					

		95% to 100% maximum modified AASHO dry density.	%Cf t	179,133.8 6	788.25	141,202.27	
TOTAL Amount (Rs) of Schedule Items					8,521,484.89		
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	150.00	1,236.00	185,400.00	
TOTAL Amount (Rs) of Non Schedule Items					185,400.00		
TOTAL Amount (Rs) of Schedule Items+Non Schedule					8,706,884.89		

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Long-Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Construction of trunk line from Jalal pur bhattian road towards madriyan wala road							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:				-	
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	303,865.00	6,221.15	1,890,389.74	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	124,581.50	10,463.85	1,303,602.13	

		c) above 15.0 ft. (4.5 m) depth	%Cft	79,114.50	13,306.60	1,052,745.01	
		Brick Ballast					
2	Ch :-6/3	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- (b) Ratio 1: 4: 8	%Cft	21,980.00	12,095.15	2,658,513.97	
		Pipe Laying					

3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	16,000.00	459.55	7,352,800.00	
		380 mm (15") i/d	P.Rf t	26,000.00	576.30	14,983,800.00	
		460 mm (18") i/d	P.Rf t	10,000.00	713.25	7,132,500.00	
		530 mm (21") i/d	P.Rf t	-	876.05	-	

		610 mm (24") i/d	P.Rf t	1,475.00	1,090.00	1,607,750.00	
		690 mm (27") i/d	P.Rf t	1,274.00	1,295.65	1,650,658.10	
		760 mm (30") i/d	P.Rf t	1,283.00	1,583.95	2,032,207.85	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	1,475.00	2,509.05	3,700,848.75	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	4,691.00	4,344.70	20,380,987.70	
		1370 mm (54") i/d	P.Rf t	-	5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65	-	
		1680 mm (66") i/d	P.Rf t		7,532.65	-	
		1830 mm (72") i/d	P.Rf t	-	8,559.10	-	
4	Ch:-3/13- a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	63,291.60	1,776.70	1,124,501.86	

5	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cf t	63,291.60	788.25	498,896.04	
6	Ch:- 21/12	Restoration of metalled road on laid service line including compaction.					
		MANHOLES					
		EXCAVATION					
7	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on					

		both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	Cft	243,092.00	6,221.15	1,512,311.80	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	Cft	99,665.20	10,463.85	1,042,881.70	
		c) above 15.0 ft. (4.5 m) depth	Cft	63,291.60	13,306.60	842,196.00	
		P.C.C				-	
8	Ch:6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):	Cft	3,000.00	17,941.60	538,248.00	

9	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	Cft	2,500.00	23,378.60	584,465.00	
10	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	Cft	3,274.00	24,119.80	789,682.25	
11	Ch:9/7	Concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	Sft	2,000.00	19,996.90	399,938.00	

12	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	2,000.00	9,053.90	18,107,800.00	
13	Ch:21/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	Sft	10,000.00	1,861.20	186,120.00	
14	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	500.00	10,984.90	5,492,450.00	

15	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	Cft	194,473.60	1,776.70	345,521.25	
16	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	Cft	194,473.60	788.25	153,293.82	
TOTAL Amount (Rs) of Schedule Items						97,365,108.96	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers, including carriage and setting the same in work,	Nos	500.00	1,236.00	618,000.00	

		to correct lines and levels as per drawing and specification					
TOTAL Amount (Rs) of Non Schedule Items						618,000.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						97,983,108.96	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Long Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Laying of Sewerage Network in Unserved Areas							
a) Moh. Rehmatabad							
b) Gari Ghos							
c) Baqar Town							
d) Ali Town							
e) Qela Shab Singh							
f) Mughal Pura							
		EXCAVATION				-	

1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					-
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	432,256.00	6,221.15	2,689,129.41	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	140,540.00	10,463.8 5	1,470,589.48	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	-	13,306.6 0	-	
		Brick Ballast					
2	Ch :- 6/3-d	Cement concrete brick or stone ballast 1½ " to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	80,000.00	12,095.1 5	9,676,120.00	
		Pipe Laying					

3	Ch:2 1/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary, testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	20,624.84	459.55	9,478,143.37	
		380 mm (15") i/d	P.Rf t	18,654.53	576.30	10,750,604.26	
		460 mm (18") i/d	P.Rf t	10,128.87	713.25	7,224,417.24	
		530 mm (21") i/d	P.Rf t	2,000.00	876.05	1,752,100.00	
		610 mm (24") i/d	P.Rf t	1,320.00	1,090.00	1,438,800.00	
		690 mm (27") i/d	P.Rf t	1,000.00	1,295.65	1,295,650.00	
		760 mm (30") i/d	P.Rf t	1,424.54	1,583.95	2,256,401.72	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	1,641.73	2,509.05	4,119,187.67	
		1070 mm (42") i/d	P.Rf t		3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t		5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		

		1830 mm (72") i/d	P.Rft		8,559.10		
5	Ch:- 3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	345,804.80	1,776.70	614,391.39	
6	Ch:- 3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	345,804.80	788.25	272,580.63	
		MANHOLES					
		EXCAVATION					
7	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cft	151,289.60	6,221.15	941,195.30	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cft	49,189.00	10,463.85	514,706.32	
		c) above 15.0 ft. (4.5 m) depth	%Cft		13,306.60	-	
		P.C.C 1:4:8					

8	Ch:6/ 5-f	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate): 1:4:8	%Cft	2,750.00	17,941.60	493,394.00	
9	Ch:7/ 4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	2,500.00	23,378.60	584,465.00	
10	Ch:7/ 7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	3,500.00	24,119.80	844,193.00	
11	Ch:9/ 7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	3,200.00	19,996.90	639,900.80	
12	Ch:2 1/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	350.00	9,053.90	3,168,865.00	
13	Ch:2 1/9	Extra for making and finishing benching floor work in manhole chamber, with 1/8" (3 mm) thick cement finish	%Sft	3,200.00	1,861.20	59,558.40	

14	Ch:2 1/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	350.00	10,984.90	3,844,715.00	
15	Ch:- 3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	121,031.68	1,776.70	215,036.99	
16	Ch:- 3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	121,031.68	788.25	95,403.22	
TOTAL Amount (Rs) of Schedule Items						64,439,548.19	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification	Nos	350.00	1,236.00	432,600.00	

TOTAL Amount (Rs) of Non Schedule Items	432,600.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule	64,872,148.19	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
<u>Long Term</u>							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remark s
SCHEDULE ITEMS							
Laying of 36" Sewerage pipe on Jalalpur Bhattian Road From Qafal Garha Chowk to Ghorah Chowk (2.5 km)							
		EXCAVATION				-	
1	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on				-	

		both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	184,547.2 5	6,221.15	1,148,096.12	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	73,818.90	10,463.8 5	772,429.90	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	36,909.45	13,306.6 0	491,139.29	
		Brick Ballast					
2	Ch :-6/3-d	Cement concrete brick or stone ballast 1½" to 2" (40 mm to 50 mm) gauge, in foundation and plinth:- Ratio 1: 6:12	%Cf t	12,290.85	12,095.1 5	1,486,596.36	
		Pipe Laying					
3	Ch:21/3	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79, Class III, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and grade, jointing with rubber ring, cutting pipes where necessary,					

		testing, etc. complete:-					
		310 mm (12") i/d	P.Rf t	-	459.55	-	
		380 mm (15") i/d	P.Rf t	-	576.30	-	
		460 mm (18") i/d	P.Rf t	-	713.25	-	
		530 mm (21") i/d	P.Rf t	-	876.05	-	
		610 mm (24") i/d	P.Rf t	-	1,090.00	-	
		690 mm (27") i/d	P.Rf t	-	1,295.65	-	
		760 mm (30") i/d	P.Rf t	-	1,583.95	-	
		840 mm (33") i/d	P.Rf t	-	1,888.20	-	
		910 mm (36") i/d	P.Rf t	8202.1	2,509.05	20,579,479.01	
		1070 mm (42") i/d	P.Rf t	-	3,237.70	-	
		1220 mm (48") i/d	P.Rf t	-	4,344.70	-	
		1370 mm (54") i/d	P.Rf t	-	5,442.85	-	
		1520 mm (60") i/d	P.Rf t		6,234.65		
		1680 mm (66") i/d	P.Rf t		7,532.65		
		1830 mm (72") i/d	P.Rf t		8,559.10		
7	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cf t	147,637.8 0	1,776.70	262,308.08	
8	Ch:-3/25	compaction by mechanical means at					

		optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHTO dry density.	%Cf t	147,637.8 0	788.25	116,375.50	
		MANHOLES					
		EXCAVATION					
11	Ch: 3/42	Earthwork excavation of trenches in open cutting for sewers and manhole chambers, etc. below sub-soil water level to correct section and dimensions according to templates and levels, including shoring, timbering and shuttering of M.S. sheets on both sides of the trenches:					
		a) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	%Cf t	147,637.8 0	6,221.15	918,476.90	
		b) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	%Cf t	59,055.12	10,463.8 5	617,943.92	
		c) above 15.0 ft. (4.5 m) depth	%Cf t	29,527.56	13,306.6 0	392,911.43	
		P.C.C 1:4:8					
12	Ch:6/5-f	Cement concrete plain including placing, compacting,	%Cf t	2,345.00	17,941.6 0	420,730.52	

		finishing and curing complete (including screening and washing of stone aggregate): 1:4:8					
13	Ch:7/4-i	Pacca brick work in foundation and plinth in:- Ratio 1:6	%Cft	3,000.00	23,378.60	701,358.00	
14	Ch:7/7-i	Pacca brick work other than building upto 10ft. (3 m) height. Ratio 1:6	%Cft	2,587.00	24,119.80	623,979.23	
15	Ch:9/7	concrete in haunches and over crown, with ½" (13 mm) cement plaster 1:6 on top (except earth filling mud plaster and gobi) soffit of arches cement plastered.	%Sft	2,500.00	19,996.90	499,922.50	
16	Ch:21/15 A	Providing and fixing 6" thick R.C.C. manhole cover with tee shaped C.I. frame of 22" I/d (frame weighing 37.324 Kg. or one maund as per Standard Drawing STD/PD No. 6, of 1977, complete in all respect.	Per Set	500.00	9,053.90	4,526,950.00	
17	Ch:21/9	Extra for making and finishing benching floor work in manhole	%Sft	3,500.00	1,861.20	65,142.00	

		chamber, with 1/8" (3 mm) thick cement finish					
18	Ch:21/8	Constructing standard gully grating chamber, 3'x2½' (900x750 mm), with chinaware trap as per PHED Drawing STD/PD No. 3 of 1977, complete in all respects.	Each	500.00	10,984.90	5,492,450.00	
19	Ch:-3/13-a	Rehandling of earthwork, lead upto a single throw of kassi, phaorah or shovel.	%Cft	118,110.24	1,776.70	209,846.46	
20	Ch:-3/25	compaction by mechanical means at optimum moisture content and dressing to designed section, complete in all respects:-					
		95% to 100% maximum modified AASHO dry density.	%Cft	118,110.24	788.25	93,100.40	
TOTAL Amount (Rs) of Schedule Items						39,419,235.60	
NON-SCHEDULE ITEMS							
1	N.S	Providing and fixing malleable iron step with outer dimensions 300 X 200 mm and weight not less than 4kg, in	Nos	500.00	1,236.00	618,000.00	

		manhole chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification					
TOTAL Amount (Rs) of Non Schedule Items						618,000.00	
TOTAL Amount (Rs) of Schedule Items+Non Schedule						40,037,235.60	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
Construction of Disposal Station on Alipur Chatha Road (32.102516°, 73.701258°)							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Long Term							
1		Designing, providing and constructing Sewerage Screening Chamber comprising all the civil works including, but may not be limited to, all the earthwork, PCC works, RCC	Job	1.00	63,500.00	63,500.00	

		works, brick masonry, plastering, painting & polishing works, plinth protections, water proof & chemical resistant coatings, stairs, ladders, railings, gratings and sluice gates; hydraulic testing; and commissioning, complete in all respects, in accordance with the Contract (but excluding the manually-cleaned bar screens & their hoisting arrangements):					
--	--	--	--	--	--	--	--

2	<p>Designing, providing and constructing Sewerage Pumping Station, comprising Wet Well & Dry Well, comprising all the civil works including, but may not be limited to, all the earthwork, PCC works, RCC works, brick masonry, plastering, roofing, flooring, dado, skirting, painting & polishing works, windows, , doors, railings, ladders, stairs, plinth protection, roof drainage, water proof & chemical resistant coatings, access hole covers, sluice gates and hydraulic testing; and commissioning; all the plumbing works including, but may not be limited to, water supply piping and taps; all the building electrification works, including, but may not be limited to, distribution</p>	Job	1.00	196,837.00	196,837.00	
---	---	-----	------	------------	------------	--

		boards, wiring, switch socket units, ceiling fans, exhaust fans, light fixtures and earthing; and all the telecommunication works, complete in all respects, in accordance with the Contract (but excluding pumps, flow meters and piping works)					
3		Designing, providing, installing, testing and commissioning all the Process Piping Works for the gravity and forced transmission of wastewater, supernatants, filtrates, treated effluents and sludge, including, but may not be limited to, all the earthwork, piping, fittings, valves, specials, internal & external treatments for piping, pipe beddings, pipe	Job	1.00	36,010.25	36,010.25	

		encasements, backing blocks, clamps, supports & anchors for exposed piping, inspection chambers and manholes, complete in all respects, in accordance with the Contract					
4		Designing, providing and executing all the Land Grading and Site Development Works including, but may not be limited to, demolishing the existing structures, all the area excavation, disposal of surplus/unsuitable excavated materials, disposal of debris and surplus excavated material to a designated site as per the direction of the Client's representative and earth filling with materials excavated from within site and/or with imported earth, complete in all respects, in accordance with the Contract	Job	1.00	210,987.01	210,987.01	

5		Designing, providing, installing, testing and commissioning all the External Illumination Works for the Site, including, but may not be limited to, all the light poles, earthwork & foundations for light poles, mercury vapor lamps & holders, service terminal boxes and automatic switching devices, complete in all respects, in accordance with the Contract	Job	1.00	710,541.00	710,541.00	
6		Designing, providing, installing, testing and commissioning all the External and Pumping Station (mechanical equipment) Electrification Works, including, but may not be limited to, all the earthwork, metering panel, HT switchgear panels, LT switchgear panels, power factor improvement (PFI) plants, transformer	Job	1.00	753,123.25	753,123.25	

		protection panels, transformers, transformer platforms, HT & LT power and control cables, cable trays, earthing systems, electrical protection works, provisions for manual and/or automatic switching controls for different Plant (mechanical equipment) and provisions for connection to standby electricity generation facilities, complete in all respects, in accordance with the Contract (but excluding the electric supply connection charges and standby electricity generation facilities)					
7		Designing, providing, installing, testing and commissioning the standby electricity generation facilities, including, but may not be limited to,	Job	1.00	201,723.00	201,723.00	

		standby low-voltage diesel electric generator sets, control/instrument panels, synchronized auto main failure (AMF) panels, underground fuel storage tank, electric & manual fuel transfer pumps, fuel day tanks, fuel piping network, all the internal wiring & cable works and earthing systems, complete in all respects, in accordance with the Contract (but excluding the Generator Building and cranes)					
8		Designing, providing, installing, testing and commissioning all the Raw Sewage Pumps in the Dry Well (vertical-shaft, solids-handling, centrifugal type with overhead motors), and Bildge Pumps including, but may not be limited to, the pumps, motors, motor starters, shafts, intermediate shaft support	Job	1.00	879,110.00	879,110.00	

		mechanisms, automatic liquid level controlled switching devices, support base/frame, pressure gauges, all jointing, fixing & installation accessories, all painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract					
9		Designing, providing, installing, testing and commissioning all the Mechanically-Hoisted, Manually-Cleaned, Bar Screens in the Sewerage Screening Chamber, including, but may not be limited to, the screen panels, guide rails, overhead support frames, hoisting ropes, pulleys & drums, motors, gear boxes, motor starters, brakes, bearings, support base/frame, standby manual	Job	1.00	710,101.00	710,101.00	

		hoisting assemblies and controls & safety mechanisms; all jointing, fixing & installation accessories; all painting & coatings; and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract					
10		Designing, providing, installing, testing and commissioning all the On-line Real-time Sewerage Flow Meters in the Dry Well (Electromagnetic type) including, but may not be limited to, the electronic displays, and telemetry cables; all jointing, fixing & installation accessories, all painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract	Job	1.00	850,251.50	850,251.50	

11		Designing, providing, installing, testing and commissioning Electrically-operated, Top-Running, Overhead Bridge Cranes including, but may not be limited to, all its moving components, motors, gear boxes, motor starters, drive controls, safety mechanisms, cables, cables collapsing mechanisms, operation-control equipment, and side rails; all jointing, fixing & installation accessories, all painting & coatings and a complete set of special tools, test equipment & spare parts, complete in all respects, in accordance with the Contract: a) Dry well b) Electric generator building	Job	1.00	58,356,985.00	58,356,985.00	
TOTAL Amount (Rs)						62,969,169.01	

THE URBAN UNIT (URBAN SECTOR PLANNING & MANAGEMENT SERVICES UNIT PVT.LTD							
Regional Development Plan 2020-2030							
MRS, 1st BI-ANNUAL-2021 (1st JANUARY-2021 to 30th JUNE -2021) DISTRICT HAFIZABAD							
ROUGH COST ESTIMATE SEWERAGE OF HAFIZABAD CITY							
S. No	Item Code	Description	Unit	BOQ Quantity	Unit Rate (Rs)	Total Amount (Rs)	Remarks
SCHEDULE ITEMS							
Long-Term							
Construction of Waste Water Treatment Plant (32.045020°, 73.693560°)							
1	Ch:- 22/1	Excavation of well in dry upto 20'(6 m) below ground level, and disposal of soil within one chain (30 m)a) in ordinary soil or sand :-					
		a) 0.0 m to 1.5 m depth	Cft	18,992.3 4	5.41	102,671.62	
		b)1.5 m to 3.0 m depth	Cft	18,992.3 4	5.65	107,231.68	
2	Ch:- 22/2	Dry sinking of well, including loading, and removing excavated material within one chain (30 m):- a) in ordinary soil :-					
		i) from 10' to 15'(3.0 to 4.5 m) depth	Cft	13,346.3 7	29.10	388,424.03	
		ii)from 15.1' to 20'(4.5 to 6.0 m) depth	Cft	13,346.3 7	36.38	485,530.21	
		iii) from 20.1' to 25'(6.0 to 7.5 m) depth	Cft	13,346.3 7	43.66	582,636.38	

		iv) from 25.1' to 30'(7.5 to 9.0 m) depth	Cft	13,346.3 7	50.93	679,742.55	
		v)from 30.1' to 35'(9.0 to 10.5 m) depth	Cft	8,897.81	58.21	517,912.41	
3	Ch:- 22/3	Wet sinking of well in ordinary soil (value of C upto 5), for depths below spring level, including charges of machinery, shoring, kentledge and removal of excavated spoil within one chain (30 m):- a) in ordinary soil :-					
		i) from 0' to 10'(0 to 3.0 m) depth	Cft	24,844.0 9	44.31	1,100,727.26	
		ii) above 10' to 20'(3.0 to 6.0 m) depth	Cft	11,666.2 0	94.15	1,098,360.69	
4	Ch :- 3/21(b)	Excavation in foundation of building, bridges and other structures, including dagbelling, dressing, refilling around structure with excavated earth, watering and ramming lead upto one chain (30 m) and lift upto 5 ft. (1.5 m) (Plinth protection and Ramp)					
		b) in ordinary soil.	Cft	1,176.51	7.69	9,044.00	
5	Ch :- 3/42	Earthwork excavation in open cutting for sewers and manholes as shown in drawings including shuttering and imbering, dressing to correct section and dimensions according to templates and levels, and removing surface water, in all types of soil except					

		shingle, gravel and rock:-					
		i) 0 ft. to 7.0 ft. (0 to 2.10 m) depth	Cft	2,455.09	6.37	15,640.79	
		ii) 7-01 ft. to 15.0 ft. (2.15 to 4.5 m) depth	Cft	2,805.82	10.71	30,050.20	
		iii) above 15.0 ft. (4.5 m) depth	Cft	8,864.61	13.62	120,738.25	
6	Ch :- 21/5	Providing and laying R.C.C. pipe sewers, moulded with cement concrete 1:1½:3 conforming to ASTM Specification C-76-79 (Latest version), Class IV, Wall B, including carriage of pipes from factory to site of work, lowering in trenches to correct alignment and pipes where necessary, testing, et c. complete:-					
		(xiv) 1680 mm (66") i/d	Rft	32.81	8,806.05	288,908.89	
7	Ch:- 26/42	Spraying anti-termite liquid mixed with water in the ratio of 1:40.	Sft	1,245.83	2.42	3,016.14	
8	Ch:-22/8	Providing, making and laying R.C.C. well curb in position, using coarse sand, including all kinds of form, moulds, including curing, shuttering, rendering and finishing the exposed surface, (including screening and washing of aggregate :-					

		(a) Ratio 1:1.5:3 (Shall have minimum compressive cylinder strength of 21MPa/ 3000psi at 28 days)	Cft	2,351.96	500.45	1,177,037.78	
9	Ch:-22/9	Providing and fixing structural steel for cutting edge.	Kg	44.980	157.51	7,084.80	
10	Ch:-6/5	Cement concrete plain including placing, compacting, finishing and curing complete (including screening and washing of stone aggregate):					
		(f) Ratio 1:2:4 (Plugging in well) (Shall have minimum compressive cylinder strength of 14MPa/ 2000psi at 28 days)	Cft	11,938.8 7	219.22	2,617,208.45	
		(h) Ratio 1:3:6 (Plith protection & Ramp) (Shall have minimum compressive cylinder strength of 10MPa/ 1500psi at 28 days)	Cft	247.59	193.84	47,992.85	
11	Ch :- 6/6	Providing and laying reinforced cement concrete (including prestressed concrete using coarse sand and screened graded and washed aggregate, in required shape and design, including forms, moulds, shuttering, lifting, compacting, curing, rendering and finishing exposed surface, complete (but excluding the cost of steel reinforcement, its fabrication placing in position, etc)					

	(a)(i) Reinforced cement concrete in roof slab, beams, columns lintels, girders and other structural members laid in situ or precast laid in position, or prestressed members cast in situ, complete in all respects:-					
	1) Type A (nominal mix 1:1:2) (Shall have minimum compressive cylinder strength of 28MPa/ 4000psi at 28 days)	Cft	7,587.44	450.65	3,419,280.92	
	(2) Type B (nominal mix 1: 1½: 3) (Shall have minimum compressive cylinder strength of 21MPa/ 3000psi at 28 days)	Cft	7,587.44	401.20	3,044,081.89	
	(a)(ii) Reinforced cement concrete in slab of rafts / strip foundation, base slab of column and retaining walls; etc and other structural members other than those mentioned in 5(a)(i) above not requiring form work (i.e. horizontal shuttering) complete in all respects:-				-	
	(1) Type A (nominal mix 1: 1: 2) (Shall have minimum compressive cylinder strength of 28MPa/ 4000psi at 28 days)	Cft	11,614.6 3	349.15	4,055,247.65	

12	Ch :-6/9	Providing and Fabrication of mild steel reinforcement for cement concrete, including cutting, laying in position making joints and fastenings including cost of binding wire and labour charges for binding of steel reinforcement (also includes removal of rust from bars)					-
		C) Deformed bars (Grade 60)	Kg	1,540.95	157.82	243,193.12	
13	Ch:-7/4	Pacca brick work in foundation and plinth in:- i) Cement, sand mortar:- Ratio 1 : 4	Cft	686.97	208.79	143,431.24	
14	Ch:-6/2	Dry rammed brick or stone ballast, 1½" to 2" (40 mm to 50mm) gauge.	Cft	79.47	41.14	3,269.75	
15	Ch:-10/8	Flat brick flooring laid in 1:6 cement mortar, over a bed of 3/4" (20 mm) thick cement mortar, 1:6.	Sft	161.46	64.16	10,358.87	
15	Ch :- 7/7,8&1 0	Pacca brick work other than building including steining of well. i) cement, sand mortar:- Ratio 1:4					-
		i) Upto 3.0 m height	Cft	4,722.99	211.82	1,000,445.08	
		(ii) Above 3 m upto 6 m height	Cft	5,167.32	216.42	1,118,313.11	
		(iii) Above 6 m upto 9 m height	Cft	4,231.69	223.31	944,997.56	
		(iv) Above 9 m upto 12 m height	Cft	2,398.23	234.80	563,114.73	

16	Ch:-11/8	Cement plaster 1:3 upto 20' (6.00 m) height:- b) ½" (13 mm) thick (inner side)	Sft	5,844.21	20.35	118,914.98	
17	Ch:- 11/8,28	Cement plaster 1:3 including extra for lime, mud or cement plaster and pointing from 20'(6.00m) and above for each additional 10'(3.00m) height or part thereof				-	
		i) Above 6 m upto 9 m height	Sft	2,638.79	20.35	53,692.87	
		(ii) Above 9 m upto 12 m height	Sft	2,638.79	23.29	61,448.29	
18	Ch:- 11/16	Cement pointing flush upto 20' (6.00 m) height:-					
		b) ratio 1:3 (outer side)	Sft	1,031.41	19.68	20,297.05	
19	Ch :- 25/44	Providing and fixing windows consisting of M.S. box section frame 2"x1½" (50x40mm), leaves frame 1-½"x1" (40x25mm) box section frame for glazing 3/8"x3/8" (10x10mm) using 16 SWG sheet 'U' shaped rubber supported with 1"x1/8" (25x3mm) M.S. flat for fixing 3/16" (5 mm) thick glass panes M.S. box section ½"x½"(13x13mm) of 16 SWG for fixing 24 SWG wire gauze on outer side by means of ¾"x1/8" (20x3mm) M.S. flat and screws I/C all C.P. fitting and painting 3 coats complete in all respect. (Windows and Ventilators)	Sft	279.00	559.15	156,004.46	

20	Ch:- 25/31	Making and fixing steel grated door with 1/16" thick (1.5mm) sheeting, including angle iron frame 2"x2"x3/8" (50x50x10 mm) and 3/4" (20 mm) square bars 4" (100 mm) centre to centre, with locking arrangement.	Sft	51.67	1,209.60	62,496.65
21	Ch:26/3 7	Supplying and laying polythene sheet over D.P.C under floors and on roofs, etc. (i) 300 gauge (0.003" thick)	Sft	3,327.58	3.45	11,480.16
22	Ch;-9/5	Single layer of tiles 225 x 113 x 40 mm laid over 100mm earth and 25mm mud plaster without bhoosa grouted with cement sand 1:3 on top of RCC roof slab provided with 1.72kg/sq.m bitumen coating sand blinded.	Sft	3,327.58	70.73	235,353.29
23	Ch:- 25/35	Providing and fixing terrace railing of 2" (50mm) i/d conduit pipe 16 SWG, welded with 5/8"x5/8" (16x16mm) suitable arrangement, complete in all respects, as per design and drawing.	Rft	279.03	812.70	226,769.34
24	Ch:-13/9	Bitumen coating to plastered or cement concrete surface. (ii) 6.35kg per sq.m (Applying in two coats as 3.17 Kg/Sq.m)	Sft	1,031.41	7.17	7,392.61
25	Ch:10/9	Brick on edge flooring, laid in 1:6 cement mortar, over a bed of 3/4" (20 mm) thick cement mortar 1:6. (Plinth protection)	Sft	1,010.42	89.74	90,670.75

26	Ch:- 18/19	Providing and laying dry brick pavement/soiling in streets or roads, etc. sand grouted, laid in proper camber, including preparation, watering, compaction of bed to proper camber, and sand cushion.	Cft	4,026.48	175.21	705,475.53	
27	Ch:- 3/13(a) & 24(d)	Rehandling of earthwork, lead upto a single throw of kassi, pharaoh or shovel, including ramming earth work behind retaining walls.	Cft	57,197.2 1	3.27	187,269.38	
28	Ch:-3/17	Transportation of earth all types when the total distance, including the lead covered in the item of work, is more than 300m					
		a) upto 400m	Cft	57,197.2 1	3.33	190,644.01	
		b) for every 100m additional lead or part thereof, beyond 400m upto 1.6km (for 1200m)	Cft	57,197.2 1	0.04	2,322.21	
A-Total Amount (Civil & Mechanical Works)						26,055,924.48	
NON MRS ITEMS							
ELECTRICAL WOKS							
1		Wiring of light or fan point from switch to the point with 1.5 mm ² PVC insulated single core stranded cables in PVC pipes 25 mm concealed/surface on walls, columns and slabs including accessories, PVC box, 10 Amp. gang switch 1 or 2 way as required,	Eac h	52.00	1,215.00	63,180.00	

		one for each light or fan and installed as in specifications.					
2		Circuit wiring from MCBs board to gang switches board with 2.5 mm ² PVC insulated single core stranded cables in PVC pipes 25 mm concealed/surface on walls, columns and slabs including accessories.	Each	11.00	1,927.00	21,197.00	
3		The same as item No. 1.1 but from one light point to another light point.	Each	35.00	836.00	29,260.00	
4		10/13 Amp 3 pin universal flush mounting switch socket unit away from switch board and wired with 4 mm ² single core stranded cable from nearest circuit available in PVC concealed conduits or trunking including all conduit accessories as required complete in all respect.	Each	10.00	2,641.00	26,410.00	
5		The same as item No.1.4 but wiring from one socket to another socket with 2.5 mm ² single core stranded cable	Each	8.00	1,739.00	13,912.00	

6	15/20A, 3-pin flush mounting switch socket unit wired with 6 mm ² single corestranded cable wires starting from D.B in 25 mm PVC concealed/ surface conduits or trunking including all conduit acce	Eac h	12.00	3,224.00	38,688.00	
B-Total Amount (Electrical Works)					192,647.00	
Total Amount (A+B)					26,248,571.48	
NON MRS ITEMS						
1	Designing, manufacturing, testing at manufacturer's workshop, supplying at site, installation, testing, commissioning, guarantee and maintenance for one year during defect Liability Period of each item of following equipment: Close coupled, non-clogging, vertical shaft, centrifugal type, sewage cum strom water pumps of 1019 m ³ /h (10 cusecs) capacity, 26m (85ft) rated head with suitable AC induction, totally enclosed, 6 pole, 3-Ph, 400 V, 50 Hz, insulation class H, ingress protection IP 68, cooling jacketed motors to be installed in dry well, alongwith control and monitoring system for level monitoring,					

		<p>mechanical seal monitoring, temperature and vibration monitoring, automatic control for alternate operation of pumping units at predetermined time, electrical cable upto 15 m and control cable upto 15m, motor control unit, pressure gauges at suction and discharge side, 2 Nos sluice valve, 01 No non-return valve including factory inspection during casting of pumps and final inspection at test bed, erection & maintenance tools and spare parts as per Specifications. All equipment shall be from internationally reputed manufacturers approved from HUD & PHED.</p>					
--	--	--	--	--	--	--	--

		<p>a) Pump Capacity = 1019 m³/h (10 cusecs) Head = 26 m (85 ft) Min. Free Particle Size = 100 mm Min. Efficiency = 80% Maximum speed = 1000 rpm Casing: Cast Iron ASTM A 48 Class 35 (EN-GJL- 250) Impeller: Duplex Stainless Steel ASTM A 890 or better Shaft and Sleeve: Stainless Steel ASTM A 276 Type 316 or better Mechanical Seal: Two mechanical seals with oil resevoir and Moisture in Oil sensors</p>					
		<p>b) Motor With Cooling Jacket Ratied power suitable for Pump described in "a)" Insulation Class = H Ingress Protection = IP 68 Min. Efficiency = 90%</p>					

		<p>c) Motor Control Unit (MCU) MCU with painted metallic box, auto star delta starter, circuit breaker, magnetic contactor, on/off switch, control fuse, auto level control with ultrasonic level sensor, control wire, under/over voltage relay, electronic over current relay, indication lamps, digital ampere meter, volt meter, hour run meter, dry running protection, high temperature protection, phase reversal protection, alongwith wiring and necessary items for moisture in oil monitoring for mechanical seals and level switches for dry running protection, temperature and vibration monitoring of pump units, controller for alternate operation of pumps at predetermined time, complete in all respects. All the equipment shall be from internationally reputed manufacturers.</p>					
2		<p>d) 2 No's Sluice valve (rising type) and 1 No. Non return valve of B.S.S. 5163 quality and weight with each pumping set.</p>	No's	4.00	22,080,000.00	88,320,000.00	

3		<p>Providing at site, installing, testing and commissioning submersible sump pump 500 litre/min capacity including all accessories with suitable motor and delivery pipe (Head 11m), complete in all respects as per drawings and specifications. The pump and motor should be of some approved manufacturer of HUD and PHE Department, Government of Punjab.</p>	No's	1.00	109,600.00	109,600.00	
4		<p>Providing and fixing motorized operated penstock switch) as per B.S.S 7775 of below mentioned size with SS shutter and frame/channel with interior brass channel on bottom and two sides through which gate travels i/c non-magnetic SS spindle with square thread SS head stock and wheel etc complete in all respect as per drawing and directed by the engineer incharge Penstock Gate Size with clear opening (2000mm x 2000mm)</p>	No's	1.00	2,502,500.00	2,502,500.00	

5	Providing at site, laying, cutting, fixing, jointing, testing and commissioning Ductile iron (D.I) (cast on flange) Pipe class-K9 conforming to specifications (ISO2531 and BS 4772) and relevant ANSI/AWWA standards with all accessories, Nut, Bolts, washers, jointing material and lubricants complete in all respect as per drawings and specifications.					
	i) 450mm (18" i/d)	Rft	446.19	26,380.15	11,770,528.00	
	ii) 900mm (36" i/d)	Rft	32.81	70,687.03	2,319,100.00	
6	Providing at site, laying, cutting, fixing, jointing, testing and commissioning Ductile iron (cast on flange) specials (such as bend, tee, cross collar, reducer, tail piece, flanged spigot, cap, flanged socket, taper, angle branch, plug etc) class-K12 conforming to specifications (ISO2531 and BS 4772) and relevant ANSI/AWWA standards with all accessories, Nut, Bolts, washers, jointing material and lubricants complete in all respect as per drawings and specifications.					
	Bend 90° 450 mm (18" i/d)	No's	12.00	159,945.00	1,919,340.00	

		Puddle Flange 450 mm (18" i/d)	No's	12.00	21,404.00	256,848.00	
		Reducer Suction 400mm x 450mm (10 Cusecs)	No's	4.00	101,155.00	404,620.00	
		Delivery 450mm x 300mm (10 Cusecs)	No's	4.00	101,155.00	404,620.00	
		Tee 900mm (36" i/d) 01No	No's	1.00	675,944.00	675,944.00	
		Reducing Tee 900mm (36" i/d) 450mm (18" i/d)	No's	4.00	455,373.00	1,821,492.00	
		Short Double Flanged Pipe 900mm (36" i/d) 1 m long	No's	3.00	277,715.00	833,145.00	
		Dead End 900mm (36" i/d)	No's	2.00	7,135.00	14,270.00	
		Flanged Bellmouth 450 mm (18" i/d)	No's	4.00	159,945.00	639,780.00	
7		Provide, install and maintain chain pulley block of 10 tons capacity including girder and all appurtenances as per drawings and direction of the engineer incharge.	No's	1.00	1,594,880.00	1,594,880.00	
8		Providing and fixing malleable iron step with dimensions 300mmx 200mm and weight not less than 6kg, in chambers , including carriage and setting the same in work, to correct lines and levels as per drawing and specification.	No's	46.00	1,236.00	56,856.00	
9		Providing and embedding 10" (240 mm) wide ¼" (6 mm) thick PVC water stopper at joints of R.C.C. walls, roof slab	Ft	1,620.78	400.82	649,636.30	

		etc complete in all respects as per drawing, specification and direction of engineer incharge.					
10		Supplying and laying of HDPE Geomembrane liner 0.75mm thick under the slab of Dry well complete in all respect as per drawing and specification or direction by the Engineer incharge	Sft	1,845.49	35.40	65,322.45	
11		Lowering of sub-soil water table, by installation of sufficient tubewells in area of waste water disposal station and pumping out water (for plugging of wells below sub-soil water level, concreting and curing) including disposal of pumped out water. This will include all the charges related to hiring of pumps, generator, fuel and other equipment and labour charges till completion of works as per satisfaction of the engineer incharge.	Job	1.00	4,808,514.00	4,808,514.00	
12		Providing and fabrication of SS (stainless steel) Screen with angle, tees, flat steel, including, cutting, drilling, rivitting, handling, assembling and fixing, including erection and fitting in position as per drawings, specification or direction by the	Per Kg	7,439.00	932.00	6,933,148.00	

		Engineer incharge. (Screen)					
A-Total Amount (Civil & Mechanical Works						126,100,143.7	
NON MRS ITEMS							
1		Supply, installation, testing and commissioning of the following items of work (unless specifically stated otherwise) including all material, labour, tools, accessories, etc. required for proper completion of each item as per specification, drawings and as directed by the Engineer					
		<u>POWER CABLE</u>					
2		Copper conductor PVC/PVC 600/1000V cables including sockets and connections at both ends with Cu/Brass glands. The cable shall be drawn in cable trench or clipped on the wall or pulled in cable tray/PVC pipes or as required or as shown on drawings. (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished					

		prior to manufacturing)					
		4 core 10 mm2	Rft	328.08	236.22	77,500.00	
		1 core 150 mm2 for Motor	Rft	3,280.80	684.89	2,247,000.00	
		1-core 300 mm2 PVC - (2 Nos. per Phase & Nuetral)	Rft	2,788.68	1,393.56	3,886,200.00	
3		PVC insulated 450/750 Volt grade (Green - Yellow) unarmoured copper cable laid direct in ground, pulled in PVC pipe already laid, on surface of wall or cable trays etc. as required or as shown on drawings (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing) as earth continuity conductor (ECC/CPC). (Imported copper shall be used. Verified documentary evidence for source of copper & PVC shall be furnished prior to manufacturing)					
		1 core 10 mm2	Rft	328.08	66.75	21,900.00	
		1 core 70 mm2	Rft	656.16	321.57	211,000.00	

		1 core 95 mm2	Rft	3,280.80	438.61	1,439,000.00	
		1 core 300 mm2	Rft	1,312.32	1,362.47	1,788,000.00	
		<u>LIGHT FITTINGS AND FANS</u>					
4		Fluorescent lamp fittings with electronic control gear and complete with all components including P.F. correction capacitors, specifications should meet the ambient conditions at site.					
5		Philips TMS-015/136 complete with electronic ballast (EBC-136) & TLD 36W/54 or approved equivalent	Eac h	30.00	1,732.00	51,960.00	
6		Philips GMP-015/118 complete with electronic ballast (EBC-118) & TLD 18W/54 or approved equivalent.	Eac h	3.00	2,077.00	6,231.00	
7		1x26 watt energy saving lamp with holder and all accessories. The fitting shall be approved by the engineer.	Eac h	16.00	735.00	11,760.00	
8		Surface mounted downlighter Philips type FBS 120 Lunar 14/18 with 1x18W energy saving or approved equivalent. The fitting shall be approved by the engineer.	Eac h	5.00	1,584.00	7,920.00	

9	Water tight luminaire suitable for 1x18W CFL Lamp, IP65, die cast alluminium and stainless steel body. Sunlight type OD-7009 or approved equivalent. The fitting shall be approved by the engineer.	Eac h	14.00	5,789.00	81,046.00
10	Locally manufactured Hanging Light 150 Watt High Bay type complete in all respect. The fitting shall be approved by the Engineer.	Eac h	2.00	6,787.00	13,574.00
11	56" ceiling fan sweep (Climax, Pak, Millat) make or approved equivalent.	Eac h	5.00	5,819.00	29,095.00
12	Wall Bracket fan 24" sweep make (Royal, Pak, GFC or approved equivalent) capacitor type, copper winding complete with all required accessories etc.	Eac h	2.00	7,077.00	14,154.00
13	Exhaust fan 12" sweep make (Royal, Pak, Millat or approved equivalent) capacitor type ,copper winding complete with Plastic body and all accessories etc.	Eac h	4.00	3,933.00	15,732.00
14	Exhaust fan 24" sweep make (Royal, Pak, Millat or approved equivalent) capacitor type ,copper winding complete with Metal body and all accessories etc.	Eac h	8.00	7,015.00	56,120.00
	<u>uPVC PIPE</u>				

15		PVC pipe conduit with accessories suitable for laying single/multi-core cables.					
		50 mm dia (Class-B)	Rft	328.08	107.29	35,200.00	
		150 mm dia (Class-B)	Rft	656.16	583.70	383,000.00	
		250 mm dia (Class-D)	Rft	656.16	2,677.40	1,756,800.00	
		<u>CABLE/LADDER TRAYS</u>					
16		Perforated cable /ladder tray with cover (14 SWG & covered 16 SWG) G.I Sheet including installation accessories such as wall support bracket assembly, saddles or straps secured with brass or cadmium nuts, rawal plugs, bolts & washer, cable ladder for horizontal run of cable as and provided specification or as required.					
		300 mm x 100 mm	Rft	328.08	1,366.74	448,400.00	
		<u>DISTRIBUTION BOARDS</u>					
17		D.Bs with TP incoming adjustable moulded case circuit breaker and SP miniature outgoing circuit breakers, Panel box SWG 16 powder coated RAL colour 7032, IP class 44 and with all accessories. alongwith all installation and operational accessories as per specification or as shown on the drawings.					
		<u>DB- Pump house</u>					

		MATERIAL					
		01 No. 16 Amps (Adj.) MCCB TP, RC=18kA, Icu=100%Ics	Each	1	36,780.00	36,780.00	
		03 Nos. outgoing 10A, MCB, SP, RC:10 kA, Icu=100%Ics					
		01 Nos.outgoing 20A, MCB, SP, RC:10 kA, Icu=100%Ics					
		02 Nos. Spare 10/20A, MCB, SP, RC:10 kA, Icu=100%Ics					
18		Indication lights, push buttons, digital ammeter with selector switch, digital voltmeter with selector switch, Panel box SWG 16 powder coated RAL colour 7032, IP class 44 and with all accessories					
		<u>D B- Sub-Station & Staff Building</u>					
		MATERIAL					
		01 No. 25 Amps (Adj.) MCCB TP, RC=25kA, Icu=100%Ics	Each	2.00	48,092.00	96,184.00	
		05 No. outgoing 10A, MCB, SP, RC:10 kA, Icu=100%Ics					
		03 No.outgoing 20A, MCB, SP, RC:10 kA, Icu=100%Ics					
		04 No. Spare 10/20A, MCB, SP, RC:10 kA, Icu=100%Ics					
19		Indication lights, push buttons, digital ammeter with selector switch, digital voltmeter with selector switch, Panel box SWG 16 powder coated RAL colour 7032, IP class 44 and with all accessories					

		<u>D B- Operator</u>					
		<u>Quadtor</u>					
		MATERIAL					
		01 No. 32 Amps (Adj.) MCCB TP, RC=25kA, Icu=100%Ics	Eac h	1.00	53,024.00	53,024.00	
		07 Nos. outgoing 10A, MCB, SP, RC:10 kA, Icu=100%Ics					
		04 Nos.outgoing 20A, MCB, SP, RC:10 kA, Icu=100%Ics					
		04 Nos. Spare 10/20A, MCB, SP, RC:10 kA, Icu=100%Ics					
20		Indication lights, push buttons, digital ammeter with selector switch, digital voltmeter with selector switch, Panel box SWG 16 powder coated RAL colour 7032, IP class 44 and with all accessories.					
		<u>LV SWITCHGEAR/ MAIN PANEL BOARD (MPB)</u>					
21		LV Switchgear Panel/Main Panel Board of 14 SWG, IP class 54 & RAL 7032 including I/C and O/G following electrical items, foundation/base frame with all installation and operational accessories as per site requirements, as per tender specifications and drawings and as directed by the Engineer.					
		<u>MPB INCOMING</u>					
		01 No. 1000 Amps TP (adj.) ACB, RC= 66	No's	1.00	1,238,777.00	1,238,777.00	

		kA, Icu=100%Ics				
		01 No. VSS (07 position)				
		01 No. 0-500 Volts AC DIGITAL Voltmeter				
		03 Nos. 1200/5 Amps Current Transformers				
		01 No. ASS (R-Y-B-OFF)				
		01 No. 0-1200 Amps AC DIGITAL Ammeter				
		06 Nos. RYB and ON OFF TRIP LED indication lights				
		01 No. 14 SWG steel sheet Panel RAL 7032, IP= 54 and all other accessories,				
		01 No. U-O-V Relay 415 VAC OUTGOING				
		04 Nos. 400 Amp MCCB TP, (Adj.) RC=50kA , Icu=100%Ics				
		01 No. spare 400 Amp MCCB TP, (Adj.) RC=50kA , Icu=100%Ics				
		02 Nos. 32 Amp MCCB TP, (Adj.) RC=25kA,Icu=100%Ics				
		02 Nos. 25 Amp MCCB TP, (Adj.) RC=25kA, Icu=100%Ics				
		01 No. 16 Amp MCCB TP, (Adj.) RC= 25kA, Icu=100%Ics				
		01 No. Spare 32 Amp MCCB TP, (Adj.) RC=25kA, Icu=100%Ics				
		01 No. Spare 25 Amp MCCB TP, (Adj.)				

		RC=25kA, Icu=100%Ics					
		01 Panel light with limit switch					
		02 Nos. Exhaust fan 6" & Louver 8" sweep with thermosttae relay and all accessories etc.					
		01 No. 32 amp welding socket with 4x10 mm ² PVC insulated cables in PVC pipes concealed in walls, columns and slabs including accessories.					
		All other accessories required for completion of the qulaity works					
		Electrolytic copper bus bar with electrical grade PVC mountings 3 for each, nuts, bolts and washers, control MCB etc. (1600 Amps. R+Y+B N, 50 Hz, 415 V, AC)					
		Contractor shall submit the genuine certificate from the manufacturer/authoriz ed agent clear by indicating the project name make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and voltmeters/ ammeter alongwith warranties.					
		<u>DIESEL GENERATOR & FOUNDATION</u>					

		Prime rating at 50 oC, 400 Volts three phase four wire, 50 Hz skid mounted Brand new DG set including day fuel tank 2000 litre suitable for 12 hrs. of continuous operation at rated capacity alongwith remote fuel monitoring facility and all required accessories (this fuel tank shall be placed adjacent to each DG set and is separate from the underground bulk fuel storage tank)					
		800 kVA	No's	1.00	33,789,500.00	33,789,500.00	
		RCC Foundation as per manufacturer's recommendation (at height of one meter above finished floor level). Contractor shall submit the detail foundation design.					
		800 kVA	No's	1.00	262,500.00	262,500.00	
		<u>AMF/ATS/MCO PANEL</u>					
		AMF/ATS/MCO panel for following DG sets ratings including all installation and operational accessories complete in all respect for proper operation for the DG sets of the ratings as mentioned below and complete with all components/accessories or as per specifications and drawings:	No's	1.00	2,010,101.00	2,010,101.00	

		AMF/ATS Suitable for 800 kVA MATERIAL				
		02 Nos. 1250 Amps 4- P (adj.) ACB, RC=66kA, Icu=100%Ics - 02 Nos. 1250 Amps. Manual Change over (MCO) 4 Pole - 02 Nos. VSS (07 position) - 02 Nos. 0-600 Volts AC DIGITAL Voltmeter - 06 Nos. 1200/5 Amps Current Transformers - 02 Nos. ASS (R-Y-B- OFF) - 02 Nos. 0-1200 Amps AC DIGITAL Ammeter - 06 Nos. RYB and ON OFF TRIP LED indication lights - 01 No. U-O-V Relay 415 VAC,3 - 01 No. Timer Relay with Base 220-240 VAC - 12 Nos. 2 Amps, MCB for control - 01 No Battery Charger 12/24 V - 12 No. Line up Terminals 2.5 mm - 01 No Emergency Stop Switch - 01 No. Panel light with limit switch 01 No. Exhaust fan 6" & Louver 8" sweep with thermosttae relay and all accessories etc. 14 SWG steel sheet Panel RAL 7032, IP= 54/44 and all other accessories, -				

		<p>Electrolytic copper bus bar with electrical grade PVC mountings 3 for each, nuts, bolts and washers, control MCB etc. (1600 Amps. R+Y+B N, 50 Hz, 415 V, AC) - Contractor shall submit the genuine certificate from the manufacturer/authorized agent clear by indicating the project name make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and voltmeters/ammeter alongwith warranties</p>					
		<p><u>POWER FACTOR IMPROVEMENT PANEL (PFI)</u></p>					
		<p>14 SWG steel sheet clad IP 54 colour RAL 7032 powder coated power factor improvement panel (PFI) including Cu busbar, heavy duty incoming and outgoing circuit breaker to capacitor, magnetic contactors, continuous digital p.f controller, on & off pushbuttons etc. complete with all components/</p>					

		accessories as per specifications and drawings.					
		PFI - 200 kVAR					
		06 steps with continuous digital power factor and capacitor controller with all accessories etc.	No's	1.00	1,075,598.00	1,075,598.00	
		01 No. Manual/OFF/Auto selector switch - 02 No. 50 kVAR capacitor - 04 Nos. 25 kVAR capacitor 02 No. 150A Magnetic contactor (AC-3) - 04 Nos. 110A Magnetic contactor (AC-3) - 02 No. 100A MCCB, TP (Adj.) RC= 25 kA Circuit breaker, Icu=100%Ics - 04 Nos. 63A MCCB, TP (Adj.) RC= 25 kA Circuit breaker, Icu=100%Ics - 21 Nos. Indication light - (for magnetic contactor and phase) - 15 Nos. Push Buttons (ON/OFF) - 12 Nos. Auxiliary contractor (NO/NC) - 01 No. Panel light with limit switch - 02 Nos. Exhaust fan 6" & Louver 8" sweep					

		<p>with thermosttae relay and all accessories etc.</p> <ul style="list-style-type: none"> - 14 SWG steel sheet Panel RAL 7032, IP=54 <p>and all other accessories,</p> <ul style="list-style-type: none"> - Electrolytic copper bus bar with electrical grade <p>PVC mountings 3 for each, nuts, bolts and washers, control MCB etc. (1600 Amps. R+Y+B N, 50 Hz, 415 V, AC)</p> <ul style="list-style-type: none"> - All other accessories required for completion of the quality works 					
		<p>Contractor shall submit the genuine certificate from the manufacturer/authorized agent clear by indicating the project name make/model/rating of MCCB, MCB, magnetic contactors, terminal blocks and voltmeters/ ammeter alongwith warranties.</p>					
		<u>EARTHING AND BONDING</u>					

		Bore type, earthing up to permanent water level/moist soil by arrangement of earth pit/point comprising of concrete/brickwork housing with lifting cover 50mm perforated GI pipe, appropriate bare copper stranded conductor as per details in drawing. The earthing and bonding shall be complete with fixing clamps etc. & all metal works shall be bonded to the proposed earthing network.					
		MATERIAL					
		Drilling of earth bore 3" dia 100 ft. deep or up to permanent water table. (01 No.)					
		Supply and installation of G.I pipe 2" dia 14 SWG to be installed in pre-made bore including all accessories like tees, bends, sockets etc. Pipe shall be connected to tinned copper spike as per detail shown on drawing, complete in all respects. (80 Rft.)					
		Supply and installation of tinned copper spike to be manufactured as per detail shown on drawing. Spike shall be connected/screwed at bottom of G.I pipe including all accessories like nuts and					

		bolts complete in all respect. (01 No.).					
		Supply and installation of 70 mm ² bare stranded electrolytic copper conductor lead in pre-laid G.I pipe and connected to tinned copper spike as shown on drawing. 2 Nos. of leads to be installed including all accessories like brass nuts, bolts, washers etc complete in all respect. (200 No.)					
		Supply and installation of tinned earth test link in earthing pit consisting of copper plate (12"x2"x1/2") with fixing arrangement on the wall of man hole including brass nuts, bolts washers lugs etc. complete in all respect. (01 No.)					
		Construction of earthing pit (manhole) of internal size 18"x18"x24" deep with 9" thick brick wall with cement mortar, internal plaster 1:4, RCC 4" thick cover with lifting hooks including all accessories complete in all respect. (01 No.)					

		Testing and commissioning of the earthing system alongwith all testing accessories complete in all respect. (01 No.)					
		Earth point comprising of 10 ft. 5/8" dia. (16 mm dia) copper coated M.S. rods driven in ground. The earthing rods shall be completed with fixing, clamps etc.	No's	8.00	9,120.00	72,960.00	
		<u>TRANSFORMER</u>					
		11/0.415 kV pad mounted Transformer (without HT & LT comparment) complete with all accessories as per WAPDA specifications and practice alongwith RCC foundation including all civil works as per approved design and specification. a) 630 kVA	No's	1.00	1,878,778.00	1,878,778.00	
		Provision for the cost of security deposit and obtaining of 11 kV electrical connection with installation material from WAPDA shall be finalized as per site requirement	Lu m Sum	1.00	28,000,000.0 0	28,000,000.00	
B-Total Amount (Civil & Mechanical Works)						81,095,794.00	
G-Total Amount (Civil & Mechanical Works)						233,444,509.23	

