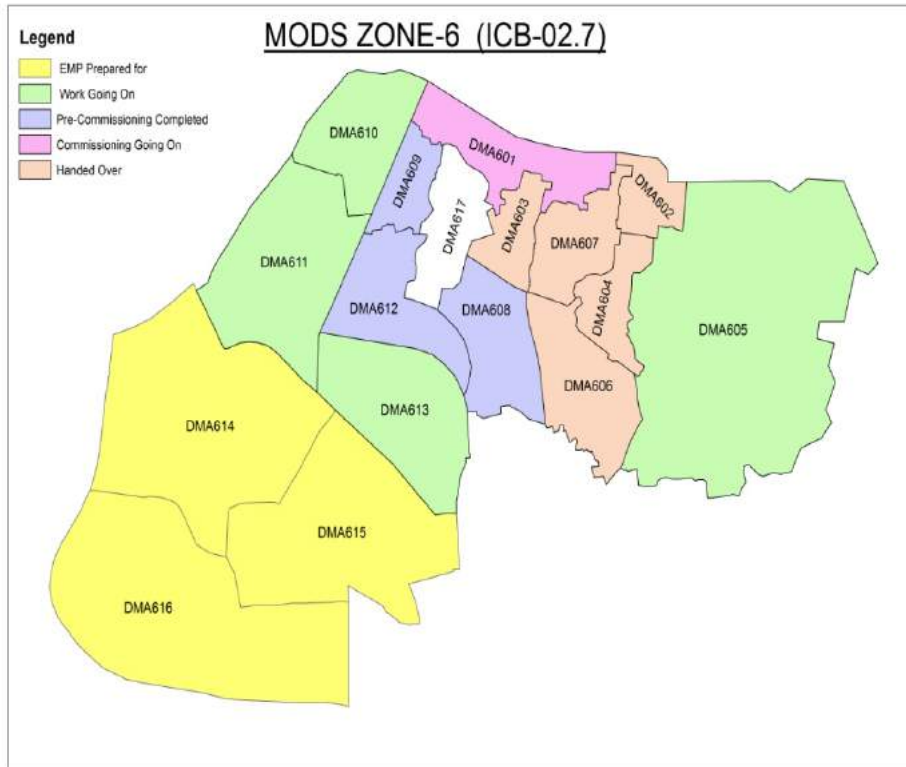


**INITIAL ENVIRONMENTAL EXAMINATION (IEE) for DMA 614, 615 and 616
 DISTRIBUTION NETWORK IMPROVEMENT PACKAGE NO. ICB 02.7
 DHAKA ENVIRONMENTALLY SUSTAINABLE WATER SUPPLY PROJECT
 LOAN NO.: 3051 BAN(SF)**

Detailed Initial Environmental Examination DMA 614, 615 and 616



APRIL 2018

Updated by Management and Supervision Consultants (MSC) for ICB 02.7 of Dhaka Environmentally Sustainable Water Supply Project (DESWSP) of Dhaka Water Supply and Sewerage Authority (DWASA), Government of Bangladesh (GoB) for the Asian Development Bank (ADB)

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CURRENCY EQUIVALENTS

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ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	Affected Person
DMA	–	District Metering Area
EMP	–	Environmental Management Plan
GRC	–	Grievance Redressal Committee
GRM	–	Grievance Redress Mechanism
IEE	–	Initial Environmental Examination
NRW	–	Non-Revenue Water
O&M	–	Operations And Maintenance
PMU	–	Project Management Unit
REA	–	Rapid Environmental Assessment
SPS	–	Safeguard Policy Statement
HDD		Horizontal Directional Drilling

WEIGHTS AND MEASURES

km	–	Kilometer
km ²	–	square kilometer
m ²	–	square meter
mm	–	Millimeter
m ³ /day	–	cubic meter per day

NOTE

In this report, "\$" refers to US dollars.

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1. EXECUTIVE SUMMARY

Background: Dhaka Environmentally Sustainable Water Supply Project (DESWSP) is the part of Water Supply Sector Development Program into Dhaka Metropolitan Area and jointly financed by Asian Development Bank (ADB) and the Government of Bangladesh (GoB). The aim of the Project is to improve the water supply network of Dhaka city by forming District Metering Areas (DMAs); rehabilitation of water lines; and replacement of service connections. The package No. ICB 02.7 is organized as a part of DESWSP and the implementation process is similarly as all contracts under Dhaka Water Supply Sector Development Project (DWSSDP).

Program Description: The project is expected to contribute to the sustained economic growth and public health improvement in urban water supply sector, particularly in Dhaka Metropolitan Area, through the improvement of living standard in the basic human needs by improving the water supply. The supply of clean water will impact on reduction in child mortality and improvement of general health, conversion to economic activity by saving time to fetch and to store water and conservation of precious natural resources the surface and ground water.

Implementation Arrangements: Dhaka Water Supply and Sewerage Authority (DWASA) is both the Executing Agency (EA) and the Implementing Agency (IA). A Project management unit (PMU) has been established for effective execution and implementation. The PMU will be assisted by Management and Supervision Consultants (MSC) in (i) construction of distribution network system and quality management; (ii) capacity building and institutional strengthening; and (iii) project management and implementation support.

Project Investments: The draft IEE was prepared during outline design for rehabilitation of distribution networks in 16 DMAs (DMA 601 to 616) as covered by Package No. ICB 02.7. This report is prepared based on the draft IEE and approved Environmental Management Plan (EMP) for 01 (one) DMA (DMA No. 615). Under the Package No. ICB 02.7, the following works were planned during outline design: (i) Survey and Documentation including Detailed Design, Specifications, Design Report and Design Control Services; (ii) Supply, Laying and Commissioning of Distribution, Transmission, and Reticulation Pipes; (iii) Rehabilitation of Service Connections; and (iv) Rehabilitation of Production Tubewells (PTWs). Package No. ICB 02.7 is expected to have the following benefits: (i) Rehabilitation of Distribution Network which will result in substantial reduction in water losses in the project area; and (ii) proper accounting for use of water and system losses by installation of metered connections. For efficient and effective execution, the package is being implemented through a design-built contract, i.e. the civil works contractors also prepare the detailed designs.

Legal Framework: The legal framework and principles adopted for addressing environmental issues in the proposed project have been guided by the existing legislation and policies of the GoB and ADB.

ADB requires the consideration of environmental issues in all aspects of its operations, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement (SPS), 2009. According to the SPS, Environmental Assessment (EA) is required for all projects under a program loan modality. This IEE report was prepared to meet the following objectives: to (i) assess the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic, and physical cultural resources in the project's area of influence; (ii) identify mitigation measures and any residual negative impacts that cannot be mitigated; (iii) describe the process undertaken during project design to engage stakeholders, and the planned information disclosure measures and the process for carrying out consultation with affected people and facilitating their participation during project implementation; (iv) describe the project's grievance redressal mechanism for resolving complaints about environmental performance; (v) present the set of mitigation measures to be undertaken to avoid, reduce, mitigate, or compensate for adverse environmental impacts; (vi) describe the monitoring measures and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures; and (vii) identify who is responsible for carrying out the mitigation and monitoring measures.

Environmental Management Plan: The project site is located in the built-up area of Dhaka City and is not within or adjacent to environmentally sensitive areas such as protected areas, wetlands, buffer zones of protected area, and special areas for protecting biodiversity.

Planning principles and design considerations were reviewed and incorporated into the site planning process whenever possible; thus, environmental impacts due to the project design or locations are not significant. However, the social impacts (access disruptions) due to construction

activities are not avoidable, as residential and commercial establishments exist along the project corridor. Resettlement Plan (RP) of DMA 614 and 615 has been developed and DMA 616 is under processing in accordance with ADB SPS, 2009 and Bangladesh laws and regulations.

An environmental management plan (EMP) was developed during project preparation and the EMP has now been updated based on survey and detailed design of DMA 614, 615 & 616 to provide specific actions deemed necessary to assist in mitigating the environmental impacts, guide the environmentally-sound execution of the proposed project, and ensure efficient lines of communication between the implementing agency, project management unit, consultants, and contractors. The EMP also provides a proactive, feasible, and practical working tool to enable the measurement and monitoring performance on-site.

Public Consultation: The public participation process included (i) identifying interested and affected parties (stakeholders); (ii) informing and providing the stakeholders with sufficient background and technical information regarding the proposed development; (iii) creating opportunities and mechanisms whereby they can participate and raise their viewpoints (issues, comments, and concerns) with regard to the proposed development; (iv) giving the stakeholders feedback on process findings and recommendations; and (v) ensuring compliance to process requirements with regards to the environmental and related legislation. The IEE includes the activities undertaken during detailed design stage to engage the stakeholders, and planned information disclosure measures and processes for carrying out consultation with affected people and facilitating their participation during implementation stage.

Grievance Redressal Mechanism: The program's grievance redressal mechanism provides the citizens with a platform for redressal of their grievances and describes the informal and formal channels, time frame, and mechanisms for resolving complaints about environmental performance.

Categorization: As per ADB SPS 2009 the project package no. ICB-02.7 is classified as **Environmental Category B** and does not require further Environmental Impact Assessment (EIA). As per Bangladesh laws, the proposed project requires a Location Clearance Certificate and an Environmental Clearance Certificate (ECC) from the Department of Environment (DoE).

A. INTRODUCTION

a). Purpose of the Report

The ongoing Dhaka Water Supply Sector Development Project (DWSSDP) covers approximately 80% of the area and 70% of the population of Dhaka City and is jointly financed by Asian Development Bank (ADB) and the Government of Bangladesh (GoB). The aim of the Project is to improve the water supply network of Dhaka City by dividing the network into approximately 100 District Metering Areas (DMAs);¹ rehabilitation or replacement of water lines between diameter 75 mm to 560 mm; construction / rehabilitation of 39 overhead reservoirs; and replacement of approximately 175,000 connections serving more than 8 million people.

The project will contribute to sustained economic growth and public health improvement, in urban water supply sector, particularly in Dhaka Metropolitan Area, through the improvement of living standard in the basic human needs by improving the water supply. The supply of clean water will impact on reduction in child mortality and improvement of general health, conversion to economic activity by saving time to fetch and to store water and conservation of precious natural resources the surface and ground water.

Dhaka Water Supply and Sewerage Authority (DWASA) will be designated as the both Executing Agency (EA) and the Implementing Agency (IA). The project will implement network rehabilitation in Zones-2 and Zone-6 covering 31 hydraulic areas (DMAs). Dhaka Environmentally Sustainable Water Supply Project (DESWSP) was formed as a part of DWSSDP and the implementation process of all contracts are similar. The implementation contracts (packages) under DESWSP will approximately take about 30 to 36 months, with for Package No. ICB 02.7 about 36 months.

DWSSDP has been classified by ADB as **Environment Category B** (some negative impacts but less significant than category A). The IEE was prepared similarly as to previous IEEs under DWSSDP. The environmental impacts of the investments under Package No. ICB 02.7 were identified and assessed as part of the planning and design process, and actions will be taken to reduce those impacts to acceptable levels. An environmental assessment using ADB's Rapid Environmental Assessment (REA) Checklist for Water Supply (Appendix 1) was conducted and results of the assessment show that the project is unlikely to cause significant adverse impacts. Thus, this IEE was prepared in accordance with ADB SPS's requirements for environment **Category B** projects.

The activities under the Package No. ICB 02.7 includes (i) survey and documentation including detailed design, specifications, preparation of quality assurance and design report, and design control services (ii) supply, laying and commissioning of distribution, transmission, and reticulation pipes; (iii) rehabilitation of service connections; and (iv) rehabilitation of production tubewells (PTWs) headworks. The proposed project is expected to have the following benefits: (i) rehabilitation of distribution network which will result in substantial reduction in water losses in the project area; and (ii) proper accounting for use of water and system losses by installation of metered connections.

2. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK

a). ADB Policy

ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans.

Screening and categorization: The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project; the sensitivity, scale, nature, and magnitude of its potential impacts; and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impacts, and are assigned to one of the following four categories:

- (i) **Category A:** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.

¹A DMA is defined as a geographical area served by water distribution network which can be isolated hydraulically from neighboring areas.

- (ii) **Category B:** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- (iii) **Category C:** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- (iv) **Category FI:** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

Environmental management plan: An EMP, which addresses the potential impacts and risks identified by the environmental assessment, shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the project's impact and risks.

Public disclosure: ADB will post the following safeguard documents on its website so affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

- (i) For environmental category A projects, draft EIA report at least 120 days before Board consideration;
- (ii) Final or updated EIA and/or IEE upon receipt; and
- (iii) Environmental monitoring reports submitted by the Project Management Unit (PMU) during project implementation upon receipt.

This project, as explained above has been classified by ADB as Category B, because it is not expected to have major negative environmental impacts. Under ADB procedures such projects require an IEE to identify and mitigate the impacts and to determine whether further study or a more detailed EIA may be required.

b). National Laws

The implementation of the projects will be governed by Government of Bangladesh environmental acts, rules, regulations, and standards. These regulations impose restrictions on the activities to minimize/mitigate likely impacts on the environment. It is the responsibility of DWASA to ensure projects are consistent with the legal framework, whether national, state, or municipal/local. Compliance is required in all stages of the project, including design, construction, and operation and maintenance.

The main provisions for environmental protection and pollution control in Bangladesh are contained in the Environmental Conservation Rules (ECR) 1997. This legislation also provides the principal mechanism for assessing and mitigating the environmental impacts of projects, both existing and proposed. Projects are classified as **Green**, **Orange** and **Red** depending on their location and environmental impacts, and Schedule 1 of the law indicates that "water, power and gas distribution line laying/relaying/extension" are considered as **Red Category** activities.

Rule 7 states that the proponent of such projects must obtain a Location Clearance Certificate and an Environmental Clearance Certificate (ECC) from the DoE. For proposed Red Category projects this requires submission to the relevant DoE Divisional Officer of the following:

- (i) Completed application for ECC, and the appropriate fee, shown in Schedule 13 of the Rules;
- (ii) Report on the feasibility of the project;
- (iii) Report on the IEE for the project, Terms of Reference (TOR) for an EIA of the project, and its process flow diagram; or an EIA prepared from a previously approved TOR, layout plan, process flow diagram, and design and time schedule;
- (iv) No Objection Certificate (NOC) from the local authority;
- (v) Emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution; and
- (vi) Outline of the relocation and rehabilitation plan (where applicable).

Discussions with DoE in August 2006 suggested that the IEE, Resettlement Framework and other study reports prepared during DWSSDP preparation in 2006 should fulfill a substantial proportion of the national EIA requirements. Upon submission of the necessary documents including draft IEE for ICB 02.7, Environmental Clearance Certificate is obtained and is available at Project Management Unit (PMU) office.

3. DESCRIPTION OF THE PROJECT

A. Existing Condition and Need for the Project

At present DWASA provides around 2.0 million cubic meters of water per day to the population of Dhaka. Approximately 85% of this water comes from over 600 deep tube wells (production tube wells) spread throughout the city area. The aggregate transmission and distribution network length is around 3,000 km with over 250,000 service connections. The project is needed because DWASA presently provides an inadequate water supply service to the residents of Dhaka, which has insufficient pressure, suffers significant losses, is rapidly depleting the groundwater resource, and delivers insufficient cost recovery to the government. The project will address all of these issues by refurbishing the existing network to repair leaks, increase capacity and pressure, remove illegal connections and provide a new system of metering to streamline leak detection and aid cost recovery.

In the Package No. 02.7 of Dhaka Environmentally Sustainable Water Supply Project (DWSWSP) area are divided into 16 DMAs (DMA 601 - 616), which is characterized by high population density, narrow roads, and high traffic congestion at most times of the day. Among these the DMAs 614, 615 and 616 are designated as densely populated with high water demand. The water supply situation is characterized by the deep tube wells, inadequately sized, leaking and low-quality pipes, low workmanship, low operating pressures, inaccurate and inadequate data about location of pipes and service connections, and inaccurate and inadequate data about location of other utility lines.

The network in the 03 DMAs (DMA 614, 615 and 616) are currently supplied by limited surface water and ground water from deep tubewells. There is no clear distinction between transmission mains and distribution mains which mean laterals and reticulation are often connected to large diameter pipes resulting in loss of pressure and increased leakage. The pipes are mainly buried towards the centre of roads and streets, with larger diameter pipes (>150 mm) generally located in main roads and smaller pipes in minor roads. The pipes are built from a range of asbestos cement (AC), ductile iron (DI), steel (MS) and polyvinyl chloride (PVC) pipe. The majority of newer pipe is PVC.

B. Proposed Components

Package No. ICB 02.7 includes (i) rehabilitation and extension of 376-km (as per outline design) distribution network in 16 DMAs (DMA 601 to 616); (ii) replacement of all fittings of all production tube wells;² (iii) service connections including installations of meter chamber, domestic meters and floating valve; and (iv) installations of valves, bulk meters and loggers, etc. For efficient and effective execution the package will be implemented through a design-built contract, i.e. the civil works contractors will also prepare the detail designs. The package is being implemented in groups containing 3-4 DMAs in each group. Appendix 7 shows an implementation plan of package ICB 02.7 where DMA 614, 615 & 616 are considered as 5th Group. The main activities (the works) of the contract is expected, as a minimum, to comprise the following steps:

- (i) Survey;³
- (ii) Resettlement plan implementation;⁴
- (iii) Design comprising of (a) detailed survey of area (location of water pipes, service connections, valves, tube wells, bulk meters, and other utility lines); (b) detailed network modeling of areas and updating of basic model (outline design) with additional information obtained from survey; and (c) submission of detailed design package of area including design drawings (1:2000) and expected work methodologies for each DMA;
- (iv) Pipe works comprising of (a) disconnection of cross connections between DMAs; (b) installation of bulk meters and valves at all needed cross connections between DMAs; (c) repair/rehabilitation or replacement of existing pipes according to outline design;⁵ (d) extension of network to areas not

² The Contractor will be responsible to replace all fittings from existing tube well head to the delivery main, e.g. 200/250 mm diameter pipe, non-return valve, pressure meter, flow meter, gate valve, washout pipe with valve, air release valve, bends, flange adapter, support, among others as indicated in the detailed design and drawings for production tube wells.

³ To establish (i) location of existing water and other utility infrastructure; (ii) location of service connections; and (iii) location of existing valves, meters, and production tube wells

⁴ The Contractor will be responsible in implementing the Resettlement Plan (RP) prepared by DWASA and/or resettlement NGO. No civil works will be allowed to begin until all compensation to affected persons is paid.

⁵ The term "pipe replacement" means that the existing pipe will be replaced, either by the traditional open trench method, where the existing pipe will be abandoned and a new pipe will be installed or by pipe bursting, where the

adequately served;⁶ and (e) pressure testing of each section of rehabilitated/replaced or new laid pipe.

- (v) Service connections⁷ comprising of (a) installing a meter chamber for each existing connection; (b) connecting the meter chamber with the water pipes, using new materials; (c) installing water meter in meter chamber; (d) pressure testing of each service connection; and (e) installing float valves at the first reservoir of the household.
- (vi) Other works such as (a) repair of roads according to given requirements wherever needed; (b) repair of other utility lines in case they are damaged during the work; and (c) provision of alternative sources of water for people while being disconnected from water supply system during the implementation.

Due to the significant pressure on the transport network in Dhaka, it is foreseen that any open trenching in or near roads, particularly in the larger roads, will only be permitted during the night. For this reason and to minimize public disturbance, it is expected that trenchless techniques⁸ will be used for replacement and rehabilitation as well as network extension and service connections. In situations where the contractors prefer the traditional trenching technology,⁹ the case must be justified and approved by the Project Manager.

C. Summary of the Components of DMA 614, 615 and 616 of Packages No. ICB 02.7.

a). Principal elements of DMA 614

The mandatory Works under this DMA 614 comprises the following:

- Network replacement by new mains totalling 42.39 km of HDPE pipelines including 3,624m of primary pipes (OD \geq 315mm) and 38,767 m of secondary mains (OD 110, 160, 200 and 250mm) including installation of buried Gate Valves (including surface box), and Wash Out, Data Loggers (DLs), Non Return Valves;
- Installation of 19 RCC gate valve chambers for pipeline of 315mm diameter and above including installation of gate valves with necessary fittings, fixtures all complete, 9 RCC Interconnection chamber for isolation of DMA where required including installation of Pressure Sustaining Valves, Air Release Valves, Non Return Valves, Bulk Water Meters and Data Loggers with all fittings, fixtures all complete, Construction of 4 RCC Air Release Valve Chamber for pipeline including installation of data loggers with necessary fittings, fixtures all complete;
- Installation of 7.319km of tertiary lines (reticulation lines OD 75);
- Replacement of 2971 service connections (OD 20-50mm);
- Installation of 2971 new domestic meters including stop cock and float valve at consumers reservoir;
- Refurbishment of 12 nos. existing wells;

existing pipe will be used as a host pipe which will be cut open, expanded and a new pipe will be installed inside the old pipe.

⁶ The term "pipe extension" means the laying of a new pipe where no distribution pipes previously existed. Laying pipes in un-served and underserved area and replacing spaghetti lines (bunch of small diameter coil pipes) with new reticulation pipe lines will be considered as extension work. Areas which have recently been developed on an ad-hoc basis are considered partly served, as the secondary or tertiary water lines do not reach all houses. In these areas water supply is often supplied through long coil pipes laid by the owner of the house on the side of the road.

⁷ The term "service connection" means the pipe between the water distribution network, the distribution or reticulation pipe, and the water meter installed in the meter chamber inside the boundary of the consumer/ customer. It is assumed that all existing service connections need to be replaced. This is due to the long tradition of the use of substandard quality materials and low-quality workmanship when connecting customers to the water network.

⁸ This involves the use of horizontal direction drilling (HDD) which involves a hydraulic machinery to drill a horizontal tunnel for a new pipe or to insert a flexible plastic lining inside an existing pipe, so no trenches are dug, and excavation is limited to the entry and exit points.

⁹ The size of trenches will depend on the diameter of the pipe, but most will be 0.3 to 0.7 m in width and 1.4 to 1.8 m deep.

b). Pipe Laying and Interconnection Work Program (DMA-614)									
Name of Works: Pipe Laying and Interconnection Work Program									
Tentative Day: 90 Days									
S/L No.	Road ID	Road Name	Location And Direction	Type of road Surface	Pipe Dia (mm)	Road Length (m)	Method (OT,HDD, PB)	Working Day	Remarks
1	614110001	R # 1, Siddeshwari Rd. - A	N-W	CC	200	384.35	HDD	01-04 Days	
2	614110001	R # 1, Siddeshwari Rd. - A	N-W	CC	250	81.4	HDD		
3	614110001	R # 1, Siddeshwari Rd. - A	N-W	CC	200	84.25	HDD		
4	614110002	R # 2, Siddeshwari, S/R-1	N-S	CC	110	77.95	PB		
5	614110003	R # 3, Siddeshwari Lane, Main Rd.	N-S	BC	160	185.67	HDD		
6	614110003	R # 3, Siddeshwari Lane, Main Rd.	N-S	BC	200	74.36	HDD		
7	614110003	R # 3, Siddeshwari Lane, Main Rd.	N-S	BC	250	157.3	HDD		
8	614110004	R # 4, Anarkoli market Goli Rd.	E-W	CC	110	271.17	OT		
9	614110009	R # 9 to 17, Siddeshwari Circular Rd	N-S	CC	110	528.42	OT		
10	614110011	R # 9 to 17, Siddeshwari Circular Rd	N-S	Kacha	110	72.77	OT	05-09 Days	
11	614110011	R # 9 to 17, Siddeshwari Circular Rd	N-S	HBB	110	64.31	OT		
12	614110010	R # 10, Siddeshwari Circular Rd. S/R-3	N-S	CC	110	67.08	PB		
13	614110012	R # 12, Siddeshwari Circular Rd. S/R-5	N-S	CC	110	57.58	PB		
14	614110018	R # 18, Siddeshwari Lane S/R-2	E-W	CC	110	52.06	OT		
15	614110019	R # 19, Siddeshwari Lane S/R-6	E-W	CC	110	70.88	OT		
16	614110020	R # 20, Siddeshwari Lane- No-3	E-W	CC	110	166.34	OT		
17	614110023	R # 23, New Baily Rd., Main Rd.-A	E-W	BC	200	405.03	HDD		
18	614110023	R # 23, New Baily Rd., Main Rd.-A	E-W	BC	315	22.93	HDD		
19	614110024	R # 24, Siddeshwari Lane, S/R-1	E-W	CC	110	155.07	HDD		
20	614110026	R # 26, Siddeshwari Lane, S/R-3	N-S, E-W	CC	110	97.53	HDD		
21	614110026	R # 26, Siddeshwari Lane, S/R-3	N-S, E-W	CC	200	60	HDD		
22	614110027	R # 27 & 28, Siddeshwari Lane S/R.-4 & 7	N-S, E-W	CC	110	97.11	OT		
23	614110029	R # 29, New Baily Rd. S/R-1	N-S	CC	110	100.52	PB		
24	614110030	R # 30, New Baily Rd. S/R-2	N-W	CC	200	208.56	HDD		
25	614110033	R # 33, New Baily Rd. S/R-5	N-W	CC	110	98.45	PB		
26	614110034	R # 34, New Baily Rd. S/R-6	N-W	CC	110	126.58	PB		
27	614110035	R # 35, New Baily Rd. S/R-7	N-W	CC	110	119.24	OT		
28	614110035	R # 35, New Baily Rd. S/R-7	N-W	CC	110	119.24	OT		
29	614110038	R # 38, Siddeshwari Rd. (Main rd.) – B	N-S	BC	250	479.01	HDD		
30	614110039	R # 39, Siddeshwari Rd. S/R-2	N-E	HBB	110	83.86	OT		
31	614110041	R # 41, Siddeshwari Rd. S/R-4	N-E	CC	110	113	OT	10-13 Days	
32	614110042	R # 42, Siddeshwari Rd. S/R-5	N-S	CC	110	56.83	OT		
33	614110043	R # 43, Siddeshwari, S/R-6	E-W	CC	110	71.46	PB		
34	614110044	R # 44, Siddeshwari Rd. S/R-7	N-E	CC	110	51.26	OT		
35	614110045	R # 45, Siddeshwari Rd. S/R-8	N-W	CC	110	46.28	OT		

36	614110046	R # 46, Siddeshwari Rd. S/R-9	N-W	CC	110	255.5	OT		
37	614110046	R # 46, Siddeshwari Rd.S/R-9	N-W	CC	160	162.32	HDD		
38	614110052	R # 52, Siddeshwari, S/R-15	N-W	CC	110	99.04	PB		
39	614110053	R # 53, Siddeshwari Rd. S/R-16	N-W	CC	110	294.5	OT		
40	614110057	R # 57, Siddeshwari,S/R-20	N-S	CC	110	161.22	OT		
41	614110057	R # 57, Siddeshwari, S/R-20	N-S	CC	110	87.29	PB		
42	614110058	R # 58, New Circular Rd.S/R-2	E-W	Kacha	110	82.4	OT		
43	614110059	R # 59, New Circular Rd.S/R-1	E-W	Kacha	110	98.6	OT		
44	614110060	R # 60, Siddeshwari Circular Main Rd.	N-S	BC	160	369.2	HDD		
45	614110061	R # 61, New Kakrail Rd.	N-S	BC	315	198.98	HDD		
46	614110061	R # 61, New Kakrail Rd.	N-S	BC	200	227.49	HDD		
47	614110061	R # 61, New Kakrail Rd.	N-S	BC	160	112.02	HDD		
48	614110062	R # 62, anzuman Mofidul Islam Rd.	E-W	BC	160	333.33	HDD		
49	614110063	R # 63, Shaheed Captin Monsur Ali Saroni, Ramna	N-S	BC	400	203.35	OT		
50	614110063	R # 63, Shaheed Captin Monsur Ali Saroni, Ramna	N-S	BC	160	666.45	HDD		
51	614110064	R # 63/1,Shaheed Captin Monsur Ali Saroni,Ramna	N-S	CC	110	47	HDD		
52	614110065	R # 65, Shaheed Captin Monsur Ali Saroni, Ramna	N-S	BC	400	139.51	OT		
53	614110065	R # 65, Shaheed Captin Monsur Ali Saroni, Ramna	N-S	BC	315	303.32	HDD		
54	614110065	R # 65, Shaheed Captin Monsur Ali Saroni, Ramna	N-S	BC	160	439.84	HDD		
55	614110066	R # 66,Shaheed Captin Mansur Ali Saroni,Moghbazar	N-S	BC	250	354.44	HDD		
56	614110066	R # 66,Shaheed Captin Mansur Ali Saroni,Moghbazar	N-S	BC	160	40.84	HDD		
57	614110066	R # 66,Shaheed Captin Mansur Ali Saroni,Moghbazar	N-S	BC	160	389.04	HDD		
58	614110067	R # 67, Shaheed Sangbadik Selina Parvin Rd. Moghbazar. (Outer Circular Road)	W-S	BC	160	915.03	HDD		
59	614110068	R # 68, New Circular Road, Siddeshwari	W-S	BC	110	314.93	HDD		
60	614110069	R # 69, Siddeshwari Outer Circular Rd.	N-S	CC	110	95.65	OT		
61	614110070	R # 70, Elephant Rd. Wirless, Boro Moghbazar	N-W	BC	160	294.88	HDD		
62	614110070	R # 70, Elephant Rd. Wirless, Boro Moghbazar	N-W	BC	200	87.87	HDD		
63	614110071	R # 71, Ramna Model Thana Rd.	N-W	BC	250	196.57	HDD		
64	614110075	R # 75, Circuit House Rd.	E-W	BC	250	499.85	HDD		
65	614110077	R # 77, New Baily Rd. S/R-10	N-S	BC	200	169.28	HDD		
66	614110078	R # 78, New Baily Rd. S/R-11	E-W	BC	160	155.58	HDD		
67	614110081	R # 81, New Baily Rd. S/R-12	N-S	BC	200	178.87	HDD		
68	614110084	R # 84, Kakrail Rd. S/R-1	S-W	CC	110	73.23	OT		
69	614110085	R # 85, Kakrail Rd. S/R-2	S-W	BC	110	102.68	OT		
70	614110086	R # 86, Kakrail Rd. S/R-3	E-W	CC	160	176.41	OT		
71	614110086	R # 86, Kakrail Rd. S/R-3	E-W	CC	110	56.54	OT		
72	614110087	R # 87, Kakrail Rd. S/R-4	N-S	BC	110	56.89	OT		
73	614110088	R # 88, Kakrail Rd. S/R-5	N-S, E-W	CC	110	97.45	OT		
74	614110089	R # 89, Kakrail Rd. S/R-6	N-S	CC	110	34.79	OT		
75	614110090	R # 90, Kakrail Rd. S/R-7	N-S	CC	110	97.53	OT		
76	614110091	R # 91, Kakrail Rd. S/R-8	E-W	BC	160	65.34	HDD		
77	614110091	R # 91, Kakrail Rd. S/R-8	E-W	BC	110	191.62	HDD		

78	614110092	R # 92, Kakrail Rd. S/R-9	N-S	BC	110	62.34	HDD	31-34 Days	
79	614110093	R # 93, Judges Complex Rd., Park Avenue	N-S	BC	110	144.86	OT		
80	614110094	R # 94, Judges Complex Rd.-1	E-W, N-S	BC	110	146.61	OT		
81	614110095	R # 95, Judges Complex Rd.-2	E-W	BC	110	57.82	OT		
82	614110096	R # 96, anzuman Mofidul Islam Rd. S/R-1	N-S	CC	110	71.99	OT		
83	614110098	R # 98, Baily Square Baily Rd.	W-E, N-S	CC	160	49.54	HDD		
84	614110098	R # 98, Baily Square Baily Rd.	W-E, N-S	CC	110	85	HDD		
85	614110101	R # 101, Baily Square, Officer Quarter Rd. S/R-3	S-W	CC	110	63.05	HDD		
86	614110105	R # 105, Outer Circular Road, S/R-2	E-S	CC	110	326.98	OT		
87	614110108	R # 108, Outer Circular Road, S/R-5	N-S, E-W	CC	110	103.33	OT		
88	614110110	R # 110, Outer Circular Road, S/R-7	E-W	CC	160	219.69	OT		
89	614110110	R # 110, Outer Circular Road, S/R-7	E-W	CC	110	32.61	OT		
90	614110111	R # 111, Bara Mogh Bazar Rd. S/R-1	E-W	CC	160	88.3	OT		
91	614110111	R # 111, Boro Moghbazar Rd. S/R-1	E-W	CC	160	135.28	HDD		
92	614110112	R # 112, Boro Moghbazar Rd. S/R-2	N-S	CC	110	40.18	PB	35-38 Days	
93	614110114	R # 114, Ramna Century Avenue	E-W, N-W	CC	110	100.52	OT		
94	614110114	R # 114, Ramna Century Avenue	E-W, N-W	CC	160	146.92	OT		
95	614110115	R # 115, Ramna Century Avenue, S/R-1	W-E	HBB	110	41.22	PB		
96	614110116	R # 116, Ramna Century Avenue, S/R-2	E-S	HBB	110	323.51	OT		
97	614110117	R # 117, Ramna Century Avenue, S/R-3	N-S	HBB	110	43.65	PB		
98	614110118	R # 118, Ispahani Colony Main Rd.	E-W	BC	160	301.43	PB		
99	614110123	R # 123, Mogbaza Kazi Office Lane	E-W	BC	160	65.21	OT		
100	614110123	R # 123, Mogbaza Kazi Office Lane	E-W	BC	110	156.02	OT		
101	614110124	R # 124, Mogbazar Kazi Office Lane, S/R-1	N-S	CC	110	33.62	PB		
102	614110125	R # 125, Mogbazar Kazi Office Lane, S/R-2	N-S	CC	110	42.12	PB		
103	614110126	R # 126, Elephant Rd. S/R-3	E-W	HBB	110	81.64	PB		
104	614110127	R # 127, Elephant Rd. S/R-4	N-W	HBB	110	177.43	OT		
105	614110129	R # 129, Siddeshwari, S/R-22	N-S	BC	110	130.89	PB		
106	614110135	R # 135, Motsho Bhaban to Shahbugh Rd.	N-S	BC	160	106.59	HDD	39-42 Days	
107	614110135	R # 135, Motsho Bhaban to Shahbugh Rd.	N-W	BC	110	576.59	HDD		
108	614110136	R # 136, Kazi Nazrul Islam Avenue	N-S	BC	110	181.1	HDD		
109	614110136	R # 136, Kazi Nazrul Islam Avenue	N-S	BC	250	138.48	HDD		
110	614110136	R # 136, Kazi Nazrul Islam Avenue	N-S	BC	315	259.64	HDD		
111	614110136	R # 136, Kazi Nazrul Islam Avenue	N-S	BC	200	62.63	HDD		
112	614110136	R # 136, Kazi Nazrul Islam Avenue	N-S	BC	160	84.94	HDD		
113	614110137	R # 137, Heyar Main Rd.	W-E, S-E	BC	315	279.41	HDD		
114	614110137	R # 137, Heyar Main Rd.	W-E, S-E	BC	110	214.12	HDD		
115	614110137	R # 137, Heyar Main Rd.	W-E, S-E	BC	315	582.18	HDD		
116	614110137	R # 137, Heyar Main Rd.	W-E, S-E	BC	160	202.89	HDD		
117	614110137	R # 137, Heyar Main Rd.	W-E, S-E	BC	110	79.8	HDD		
118	614110137	R # 137/1, Heyar Main Rd.	N-S	CC	110	87.77	HDD	43-47	

119	614110138	R # 138, Kazi Nazrul Islam Avenue	N-S	BC	160	342.83	HDD	Days		
120	614110138	R # 138, Kazi Nazrul Islam Avenue, Rd.-1	N-S	BC	110	102.51	HDD			
121	614110138	R # 138, Kazi Nazrul Islam Avenue, Rd.-1	N-S	BC	160	527.12	HDD			
122	614110138	R # 138, Kazi Nazrul Islam Avenue Rd.-1	N-S	BC	160	229.97	HDD			
123	614110138	R # 138, Kazi Nazrul Islam Avenue, Rd.-1	N-S	BC	160	134.15	HDD			
124	614110138	R # 138, Kazi Nazrul Islam Avenue Rd.-1	N-S	BC	110	102.51	HDD			
125	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	160	144.2	HDD			
126	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	200	218.29	HDD			
127	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	250	276.75	HDD			
128	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	315	208.02	HDD			
129	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	200	380.76	HDD			
130	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	250	105.91	HDD			
131	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	315	29.86	HDD			
132	614110139	R # 139, New Eskaton Main Rd.	E-S	BC	160	451.6	HDD	48-51 Days		
133	614110140	R # 140, Eskaton Garden Rd.	E-S	BC	200	764.51	HDD			
134	614110140	R # 140, Eskaton Garden Rd.	E-S	BC	250	148.64	HDD			
135	614110140	R # 140/1, Eskaton Garden Rd.	E-S	CC	160	53.57	OT			
136	614110140	R # 140/1, Eskaton Garden Rd.	E-S	Katcha	110	70	HDD			
137	614110141	R # 141, Old Elephant Rd., Eskaton Garden Rd.	E-S	BC	250	761.28	HDD			
138	614110141	R # 141, Old Elephant Rd., Eskaton Garden Rd.	E-S	BC	315	145.21	HDD			
139	614110141	R # 141/1, Old Elephant Rd., Eskaton Garden Rd.	E-S	CC	160	50.51	HDD			
140	614110141	R # 141/2, Old Elephant Rd., Eskaton Garden Rd.	E-S	CC	160	61.61	HDD			
141	614110142	R # 142, Mintu Main Rd.	E-S	BC	250	687.59	HDD			
142	614110142	R # 142/1, Mintu Main Rd.	E-S	CC	110	29	HDD			
143	614110143	R # 143, Baily Main Rd.	E-S	BC	200	81.66	HDD			
144	614110143	R # 143, Baily Main Rd.	E-S	BC	160	438	HDD		52-55 Days	
145	614110144	R # 144, New Eskaton Rd. S/R-1	N-S	CC	110	96.89	OT			
146	614110145	R # 145, New Eskaton Rd. S/R-2	N-S	Katcha	110	68.84	HDD			
147	614110146	R # 146, New Eskaton Rd. S/R-3	N-S	CC	110	71.07	OT			
148	614110148	R # 148, New Eskaton Rd. S/R-5	N-S	CC	160	99.96	OT			
149	614110149	R # 149, New Eskaton Rd. S/R-6	E-W	CC	110	97.79	PB			
150	614110150	R # 150, New Eskaton Rd. S/R-7	S-E	CC	110	65.05	OT			
151	614110151	R # 151, New Eskaton Rd. S/R-8	N-S	CC	160	93.75	HDD			
152	614110151	R # 151, New Eskaton Rd. S/R-8	N-S	CC	110	16.9	HDD			
153	614110152	R # 152, New Eskaton Rd. S/R-9	E-W	CC	110	34.24	OT	56-59 Days		
154	614110153	R # 153, New Eskaton Rd. S/R-10	S-W	CC	160	77.51	OT			
155	614110153	R # 153, New Eskaton Rd. S/R-10	S-W	CC	110	95.29	OT			
156	614110154	R # 154, New Eskaton Rd. S/R-11	E-W	CC	160	114.8	OT			
157	614110154	R # 154, New Eskaton Rd. S/R-11	E-W	CC	110	42.91	OT			
158	614110154	R # 154a, New Eskaton Rd. S/R-37	E-W	CC	110	23.69	OT			

159	614110155	R # 155, Eskaton Garden Rd. S/R-6	N-S	CC	160	73.9	OT																
160	614110155	R # 155, Eskaton Garden Rd. S/R-6	N-S	CC	160	95.67	HDD																
161	614110156	R # 156, Eskaton Garden Rd. S/R-7	E-W	CC	110	30.22	OT																
162	614110157	R # 157, New Eskaton Rd. S/R-12	N-S	Katcha	110	17.76	OT																
163	614110158	R # 158, New Eskaton Rd. S/R-13	E-W	Katcha	110	37.69	OT																
164	614110159	R # 159, New Eskaton Rd. S/R-14	N-S	CC	110	58.1	OT																
165	614110160	R # 160, New Eskaton Rd. S/R-15	N-S	CC	110	67	OT																
166	614110161	R # 161, New Eskaton Rd. S/R-16	N-S	CC	110	72.5	OT																
167	614110162	R # 162, Eskaton Garden Rd. S/R-1	E-S	CC	110	236.66	HDD																
168	614110162	R # 162a, Eskaton Garden Rd. S/R-1		Katcha	110	38.25	OT																
169	614110164	R # 164, Eskaton Garden Rd. S/R-3	N-E	CC	110	114.64	OT																
170	614110165	R # 165, Eskaton Garden Rd. S/R-4	N-S	CC	110	57.69	OT																
171	614110166	R # 166, Eskaton Garden Rd. S/R-5	N-E	CC	110	52.9	OT																
172	614110168	R # 168, Shahid Tajuddin Ahmed Saroni	N-S	BC	110	224.45	HDD														60-63 Days		
173	614110168	R # 168, Shahid Tajuddin Ahmed Saroni	N-S	BC	200	201.84	HDD															60-63 Days	
174	614110169	R # 169, Eskaton Garden Rd. S/R-8	N-S	CC	110	85.85	HDD																60-63 Days
175	614110170	R # 170, Eskaton Garden Rd. S/R-9	N-S	CC	110	68.62	HDD																
176	614110171	R # 171, Eskaton Garden Rd. S/R-10	N-E	BC	110	448.26	HDD	60-63 Days															
177	614110172	R # 172, Eskaton Garden Rd. S/R-11	N-S	CC	160	87.78	HDD		60-63 Days														
178	614110173	R # 173, Eskaton Garden Rd. S/R-12	N-S	CC	110	33.92	OT			60-63 Days													
179	614110175	R # 175, Nazrul Academi Rd.	E-W	BC	110	136.31	PB				60-63 Days												
180	614110176	R # 176, Eskaton Garden Rd. S/R-14	N-S	BC	160	137.89	HDD					60-63 Days											
181	614110177	R # 177, Eskaton Garden Rd. S/R-15	N-S	BC	200	141.7	OT						60-63 Days										
182	614110178	R # 178, Eskaton Garden Rd. S/R-16	N-S	CC	110	30.78	OT							60-63 Days									
183	614110180	R # 180, PWD Officec Quater Rd.	E-W	BC	110	55	HDD								60-63 Days								
184	614110181	R # 181, Minto Rd. S/R-1	N-S	BC	200	129.24	HDD									60-63 Days							
185	614110182	R # 182, Eskaton Garden Rd. S/R-17	N-S	CC	110	99.62	HDD										60-63 Days						
186	614110184	R # 184, Mintu Main Rd. S/R-2	N-S	BC	110	62.3	HDD											60-63 Days					
187	614110185	R # 185, Mintu Main Rd. S/R-3	N-S	BC	160	123.83	HDD												60-63 Days				
188	614110186	R # 186, Dilu Road, S/R-33	N-S	Kacha	110	64.28	PB													60-63 Days			
189	614110186	R # 186, Mintu Main Rd. S/R-4	N-S	BC	160	68.65	HDD														60-63 Days		
190	614110187	R # 187, Mintu Main Rd. S/R-5	N-S	BC	160	129.38	HDD															60-63 Days	
191	614110188	R # 188, Mintu Main Rd. S/R-6	N-S	BC	160	73.31	HDD																60-63 Days
192	614110190	R # 190, Baily Rd. S/R-1	N-S	BC	160	73.7	HDD																
193	614110191	R # 191, Montri Para Heyar Rd.	E-W	BC	315	260.38	HDD	64-67 Days															
194	614110201	R # 201, Baily Rd. S/R-3	N-S	BC	160	123.67	HDD		64-67 Days														
195	614110204	R # 204, Baily Rd. S/R-6	N-S	BC	160	114.97	HDD			64-67 Days													
196	614110208	R # 208, Shahbug Avenue Rd.	E-W	BC	400	118.09	OT				64-67 Days												
197	614110208	R # 208, Shahbug Avenue Rd.	E-W	BC	250	197.61	HDD					64-67 Days											

198	614110208	R # 208, Shahbug Avenue Rd.	E-W	BC	315	166.91	HDD	68-71 Days	
199	614110209	R # 209, New Elephent Rd.	N-E	BC	315	327.59	HDD		
200	614110209	R # 209, New Elephent Rd.	N-E	BC	200	261.3	HDD		
201	614110209	R # 209, New Elephent Rd.	N-E	BC	160	225.31	HDD		
202	614110209	R # 209, New Elephent Rd.	N-E	BC	110	102.31	HDD		
203	614110210	R # 210, Poribugh Link Rd.	N-S	BC	200	326.5	HDD		
204	614110210	R # 210, Poribugh Link Rd.	N-S	BC	250	53.27	HDD		
205	614110210	R # 210, Poribugh Link Rd.	N-S	CC	160	287.19	HDD		
206	614110210	R # 210, Poribugh Link Rd.	N-S	CC	110	131.45	HDD		
207	614110210	R # 210a, Poribugh Link Rd. S/R-3	N-S	CC	110	78.27	PB		
208	614110211	R # 211, Bangla Motor Link Rd. (SS)	E-W	BC	110	104.44	HDD		
209	614110211	R # 211, Bangla Motor Link Rd.(SS)	E-W	BC	160	120.8	HDD		
210	614110211	R # 211, Bangla Motor Link Rd.(NS)	E-W	BC	110	191.84	HDD		
211	614110211	R # 211, Banglamotor Liunk Rd.	E-W	BC	110	191.84	HDD		
212	614110212	R # 212, Poribugh DPDC Rd.	S-W	BC	110	82.76	HDD	72-74 Days	
213	614110213	R # 213, Poribugh DPDC S/R-1	E-W	CC	110	89.03	HDD		
214	614110214	R # 214, Poribugh Rd. S/R-1	E-W	BC	250	101.6	HDD		
215	614110215	R # 215, Poribugh Link Rd. S/R-2	E-W	CC	110	65.42	OT		
216	614110216	R # 216, Mymensing Lane	N-E	CC	110	143.8	OT		
217	614110217	R # 217, Mymensing Lane, S/R-1	E-W	CC	110	34.01	OT		
218	614110218	R # 218, Mymensing Lane, S/R-2	E-W	CC	110	35.34	OT		
219	614110219	R # 219, Mymensing Rd.	S-W	BC	110	186.01	HDD		
220	614110220	R # 220, Mymensing Rd. S/R-1	N-S	BC	110	40.71	OT		
221	614110221	R # 221, Mymensing Rd. S/R-2	N-S	BC	110	71.33	HDD		
222	614110222	R # 222, Mymensing Rd.-3	E-W	HBB	110	46.21	OT		
223	614110223	R # 223, Poribugh Main Rd.	E-W	BC	250	303.64	HDD		
224	614110224	R # 224, Poribugh Rd. S/R-1	N-S	CC	110	82.17	PB		
225	614110225	R # 225, Poribugh Rd.-2	N-S	CC	110	177.3	PB		
226	614110226	R # 226, Poribugh Rd.-3	E-W	CC	110	39.09	PB		
227	614110227	R # 227, Mymensing Rd.-4	E-W	CC	110	30.73	OT	75-77 Days	
228	614110228	R # 228, Mymensing Rd.-4	N-S	CC	110	30.42	OT		
229	614110228	R # 228, Mymensing Rd.-4	N-S	CC	110	56.95	PB		
230	614110229	R # 229, Nobbab Habibullah Rd.	E-W	BC	160	387.06	HDD		
231	614110229	R # 229, Nobbab Habibullah Rd.	E-W	BC	250	113.46	HDD		
232	614110230	R # 230, Nobbab Habibullah Rd. S/R-1	N-S	Katcha	110	74.89	OT		
233	614110231	R # 231, Nobbab Habibullah Rd. S/R-2	N-S	CC	110	52.46	OT		
234	614110232	R # 232, Nobbab Habibullah Rd. S/R-3	N-S	CC	110	32.68	OT		
235	614110234	R # 234, Nobbab Habibullah Rd. S/R-5	N-S	CC	110	37.03	OT		
236	614110235	R # 235, Nobbab Habibullah Rd. S/R-6	E-W	CC	160	56.32	OT		

237	614110236	R # 236, Nobbab Habibullah Rd. S/R-7	E-W	CC	110	40.62	OT		
238	614110237	R # 237, Nobbab Habibullah Rd. S/R-8	E-W	BC	110	100.53	OT		
239	614110238	R # 238, Nobbab Habibullah Rd. S/R-9	E-W	CC	110	72.28	OT		
240	614110239	R # 239, PG Hospital Rd. (inside)	E-W	BC	250	207.33	HDD		
241	614110239	R # 239, PG Hospital Rd. (inside)	E-W	BC	110	110.02	HDD		
242	614110241	R # 241, Ispahani Girls School Rd.	N-S	CC	110	101.95	HDD		
243	614110242	R # 242, Freedom Fighter Goli	N-S	BC	110	113.28	HDD		
244	614110243	R # 243, Shanti Kunja Goli	N-S	BC	110	94.97	HDD		
245	614110243	R # 243, Shanti Kunja Goli	N-S	BC	110	56.02	PB		
246	614110244	R # 244, Shanti Kunja Goli, S/R-1	E-W	CC	110	77.36	PB		
247	614110246	R # 246, Dilu Main Road Rd-A	N-S	BC	110	110.70	OT		
248	614110246	R # 246, Dilu Main Road-A	N-S	BC	160	105	HDD		
249	614110246	R # 246, Dilu Main Road-A	N-S	BC	200	228.43	HDD		
250	614110247	R # 247, Dilu Road S/R-1	E-W	BC	110	123.10	OT		
251	614110248	R # 248, Dilu Road S/R-2	E-W	CC	110	67.30	OT		
252	614110249	R # 249, Dilu Road S/R-3	E-W	CC	110	122.10	OT		
253	614110250	R # 250, Dilu Road S/R-4	E-W	CC	110	122.30	OT		
254	614110251	R # 251, Dilu Road S/R-5	E-W	CC	110	51.05	OT		
255	614110252	R # 252, Dilu Road, S/R-6	E-W	BC	110	71.34	PB		
256	614110253	R # 253, Dilu Road S/R-7	E-W	CC	110	66.10	OT		
257	614110254	R # 254, Dilu Road S/R-8	E-W	Kacha	110	85.80	OT		
258	614110255	R # 255, Dilu Road S/R-9	E-W	CC	110	76.40	OT		
259	614110256	R # 256, Dilu Road, S/R-10	E-W	Kacha	110	58.42	PB		
260	614110257	R # 257, Dilu Main Road Rd-B	E-W	BC	110	99.00	OT		
261	614110257	R # 257, Dilu Main Road-B	E-W	BC	110	189.35	HDD		
262	614110258	R # 258, Dilu Road S/R-11	N-S	Kacha	110	32.10	OT		
263	614110259	R # 259, Dilu Road S/R-12	N-S	CC	110	42.90	OT		
264	614110260	R # 260, Dilu Road S/R-13	N-S	CC	110	45.10	OT		
265	614110261	R # 261, Dilu Road, S/R-14	N-S	CC	110	35.76	PB		
266	614110262	R # 262, Dilu Road S/R-15	N-S	Kacha	110	45.50	OT		
267	614110264	R # 264, Dilu Main Road Rd-C	E-W	BC	200	103.00	OT		
268	614110264	R # 264, Dilu Main Road Rd-C	E-W	BC	250	68.20	OT		
269	614110264	R # 264, Dilu Main Road-C	E-W	BC	250	49.89	HDD		
270	614110265	R # 265, Dilu Road, S/R-17	N-S	CC	110	86.87	HDD		
271	614110266	R # 266, Dilu Road S/R-18	N-S	BC	110	75.60	OT		
272	614110267	R # 267, Dilu Road, S/R-19	N-S	BC	315	111.5	HDD		
273	614110268	R # 268, Dilu Road S/R-20	E-W	BC	315	84.10	OT		
274	614110268	R # 268, Dilu Road S/R-20	E-W	BC	110	88.30	OT		

275	614110271	R # 271, New Eskaton Road S/R-18	N-S	BC	110	177.90	OT	84-86 Days
276	614110271	R # 271, New Eskaton Road, S/R-18	N-S	BC	110	165.81	HDD	
277	614110271	R # 271, New Eskaton Road, S/R-18	N-S	BC	160	72.52	HDD	
278	614110272	R # 272, New Eskaton Road, S/R-19	E-W	BC	110	78.5	HDD	
279	614110273	R # 273, New Eskaton S/R-20	N-S	CC	110	64.98	PB	
280	614110275	R # 275, New Eskaton Road, S/R-22	N-E	BC	160	125.51	HDD	
281	614110275	R # 275, New Eskaton Road, S/R-22	N-E	BC	250	248.38	HDD	
282	614110275	R # 275, New Eskaton Road, S/R-22	N-E	BC	110	68.66	PB	
283	614110276	R # 276, New Eskaton Road, S/R-23	E-W	BC	110	37.03	PB	
284	614110277	R # 277, New Eskaton Road S/R-24	E-W	BC	110	55.90	OT	
285	614110278	R # 278, New Eskaton Road, S/R-25	E-W	BC	160	363.71	HDD	87-88 Days
286	614110281	R # 281, New Eskaton Road, S/R-28	N-S	Kacha	110	92.47	PB	
287	614110282	R # 282, New Eskaton Road, S/R-29	N-S	CC	110	57.46	HDD	
288	614110283	R # 283, New Eskaton Road S/R-30	N-S	BC	110	56.30	OT	
289	614110283	R # 283, New Eskaton Road, S/R-30	N-S	BC	110	48.61	HDD	
290	614110284	R # 284, New Eskaton Road, S/R-31	N-E	CC	110	56.75	HDD	
291	614110285	R # 285, New Eskaton Road S/R-32	N-E	CC	110	140.83	OT	
292	614110285	R # 285, New Eskaton Road S/R-32	N-E	CC	160	70.53	OT	
293	614110287	R # 287, New Eskaton Road S/R-34	E-W	CC	110	42.00	OT	
294	614110288	R # 288, New Eskaton Road S/R-35	E-W	BC	110	39.40	OT	
295	614110289	R # 289, New Eskaton Road, S/R-36	E-W	BC	160	146.29	HDD	89-90 Days
296	614110291	R # 291, Hatir Jheel Road	N-E	BC	110	160.5	HDD	
297	614110292	R # 292, New Elephant Rd.-01	N-E	BC	110	102.31	HDD	
298	614110293	R # 293, New Elephant Rd.S/R-01	E-W	CC	110	26.37	HDD	
299	614110293	R # 293, New Elephant Rd.-01	E-W	CC	110	118.41	PB	
300	614110294	R # 294, New Elephant Rd.S/R-02	E-W	CC	110	124.83	HDD	
301	614110295	R # 295, New Elephant Rd.S/R-03	N-E	CC	110	108.09	HDD	

R # 139, New Eskaton Main Rd.		BC	160	144.2	HDD
		BC	200	218.29	HDD
		BC	250	276.75	HDD
		BC	315	208.02	HDD

c) The priority work of Dhaka Mass Rapid Transit Development Project (DMRTDP) within the boundary of DMA 614

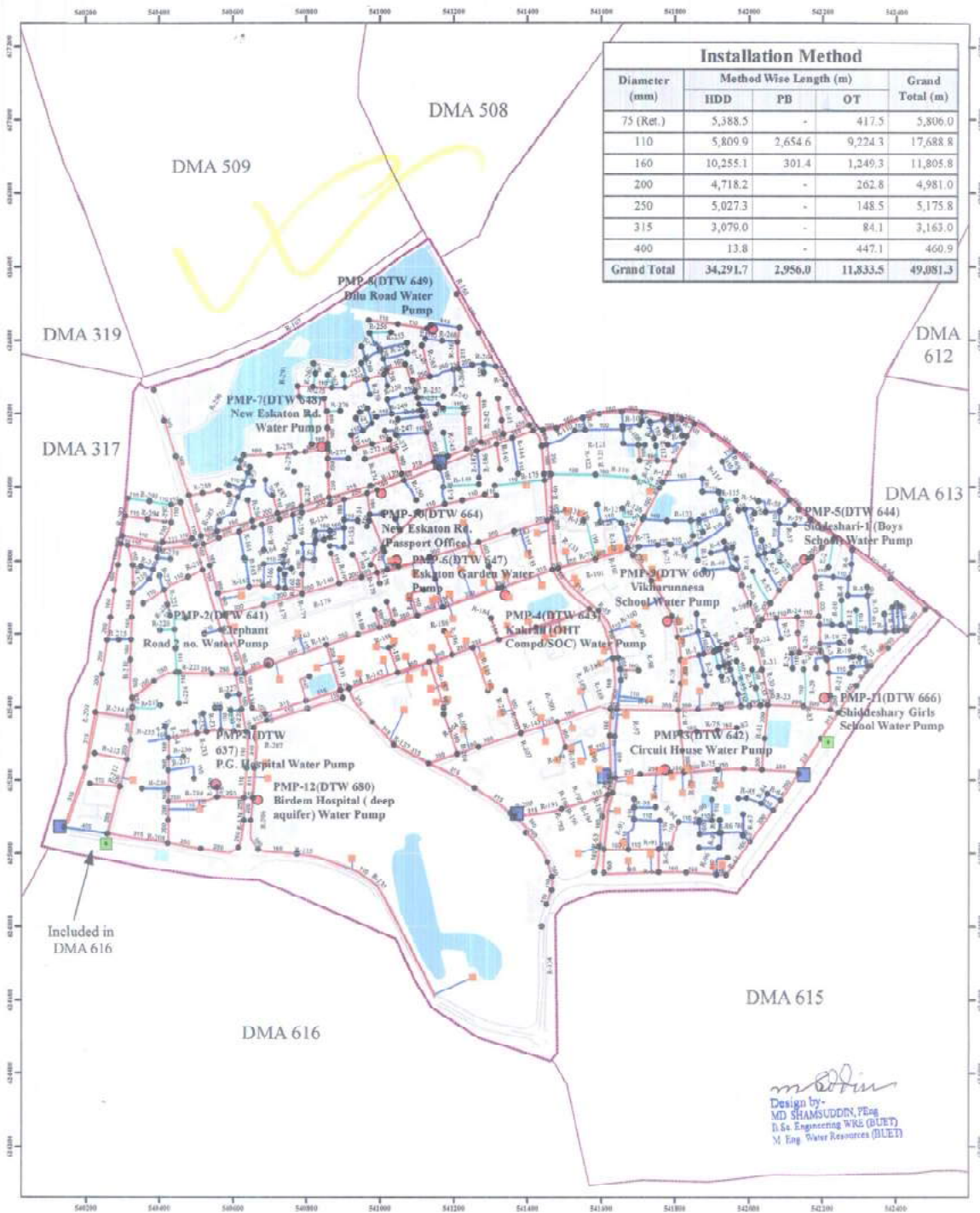
DMA	ROAD	Location		dia	length
		from	to		
614	Airport rd (East prtn)	Sonarga htl	Bangla motr	160	246
	Same (West side)	do	do	110	120
	road crong Banla mtr			200	40
	BM to Old Elpnt rs (E)			160	370
	BM to Old Elpnt rs (W)			160	370
	Elpnt rd crossng			250	45
	OE rd to Shtn Rpsh(E)			160	135
	(W)			160	169
	Mntu rd crss			315	10
	Mntu rd crss to Shkr E			315	261
	Mntu rd crss to Shkr E			75	190
	W			110	181
	HTI Shkura rd crssng			315	25
	Shakra to Shahbg E			160	251
	W			250	246
					2659

d). Site Environmental Plan (SEP) of DMA 614

Implementation of proposed scheme under water supply project will not create any significant adverse impacts on environment. Some of the minor impacts can be mitigated easily. But the project will create a lot of positive impacts on socio-economic environment of the project area.

e). DMA 614 area Map





- Legend**
- Ground Tank
 - Inter-DMA Chamber
 - SWTP
 - PTW Location
 - Junction
 - Road
 - Structure
 - Waterbody
 - DMA Boundary
 - Installation Method
 - HDD
 - OT
 - PB

Dhaka Environmentally Sustainable Water Supply Project (DESWSP)

DMA 614 - Detail Design - Pipe Installation Method (Main & Reticulation Pipes)

N	Drawing No.	Signatures		Date
	DD-02.7-614-05	Submitted By	Contract Manager	16/1/18
100 50 0 100 200 300 M		Approved By	Project Manager	

CLIENT: Dhaka Water Supply and Sewerage Authority (WASA)

Management Supervision Consultant (MSC): [Logos]

CONTRACTOR: BPL-FSL, CRFG JV. [Logos]

f). Existing PTW data of 614 (source: MODS Zone 6):

DMA #	PTW ID #	Location	Installation Year	Well Depth (m)	Designed Q m ³ /hr	Dia of pipe (mm)	
						Delivery Pipe	Main Pipe
614	642	Circuit House Water Pump	2007	185	200	200	200
614	643	Kakrail (OHT Compd/SOC) water pump	2010	307	200	200	200
614	680	Birdem Hospital (deep aquifer)water pump	2007	312	200	200	200
614	647	Eskaton Garden Water Pump	2012	234	200	200	200
614	641	Elephant Road 2 no. Water pump	2005	144	200	200	200
614	637	PG. Hospital Water Pump	2000	139	200	200	200
614	649	Dilu Road Water Pump	2010	243	200	200	200
614	648	New Eskaton Rd water pump	2004	279	200	200	200
614	664	New Eskaton Rd.(Passport office)	2009	239	200	200	200
614	666	Shiddeshary- Girls School	2012	257	200	200	200
614	644	Siddeshari-1(Boys School)	2005	279	200	200	200
614	660	Vikharunnesa School Water Pump	2000	157	200	200	200

According to field observation the production o tube wells are 48 to 150m³/ hour

g). Principal elements of DMA 615

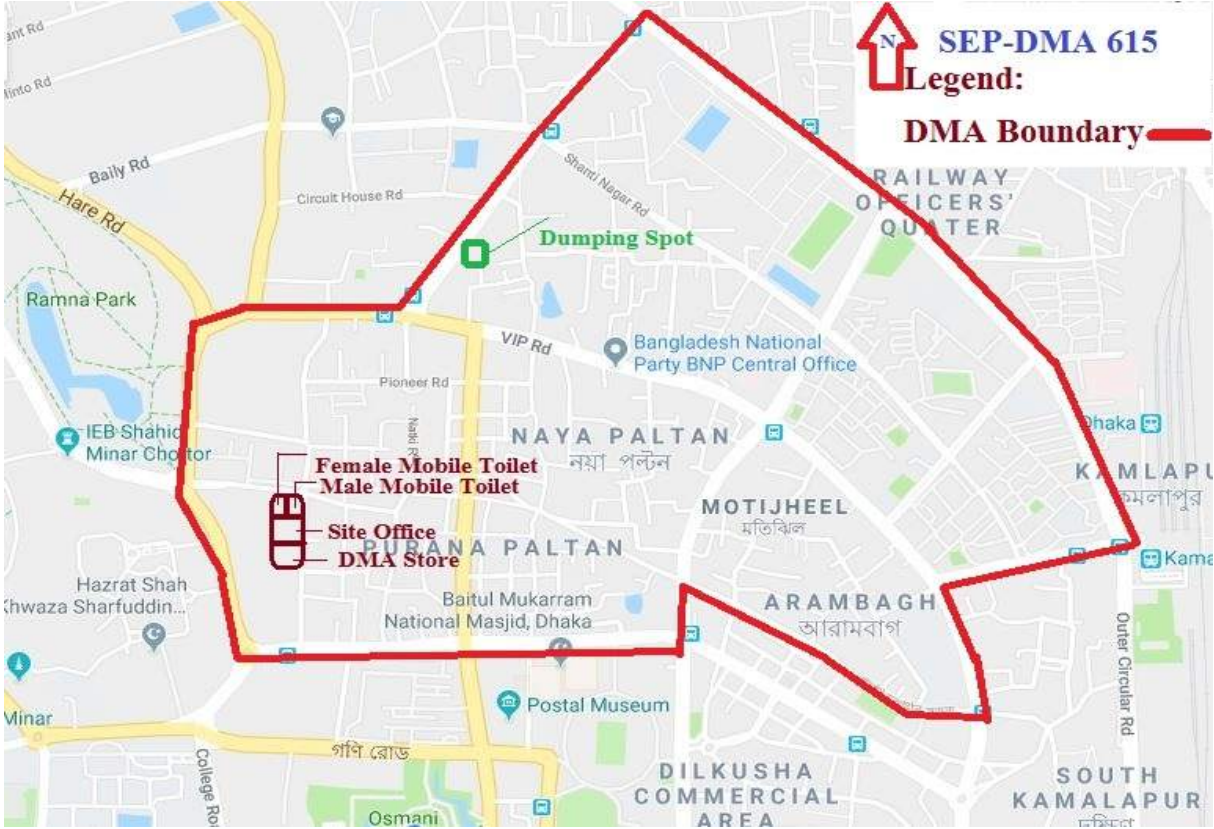
The mandatory Works under this DMA 615 comprises the following:

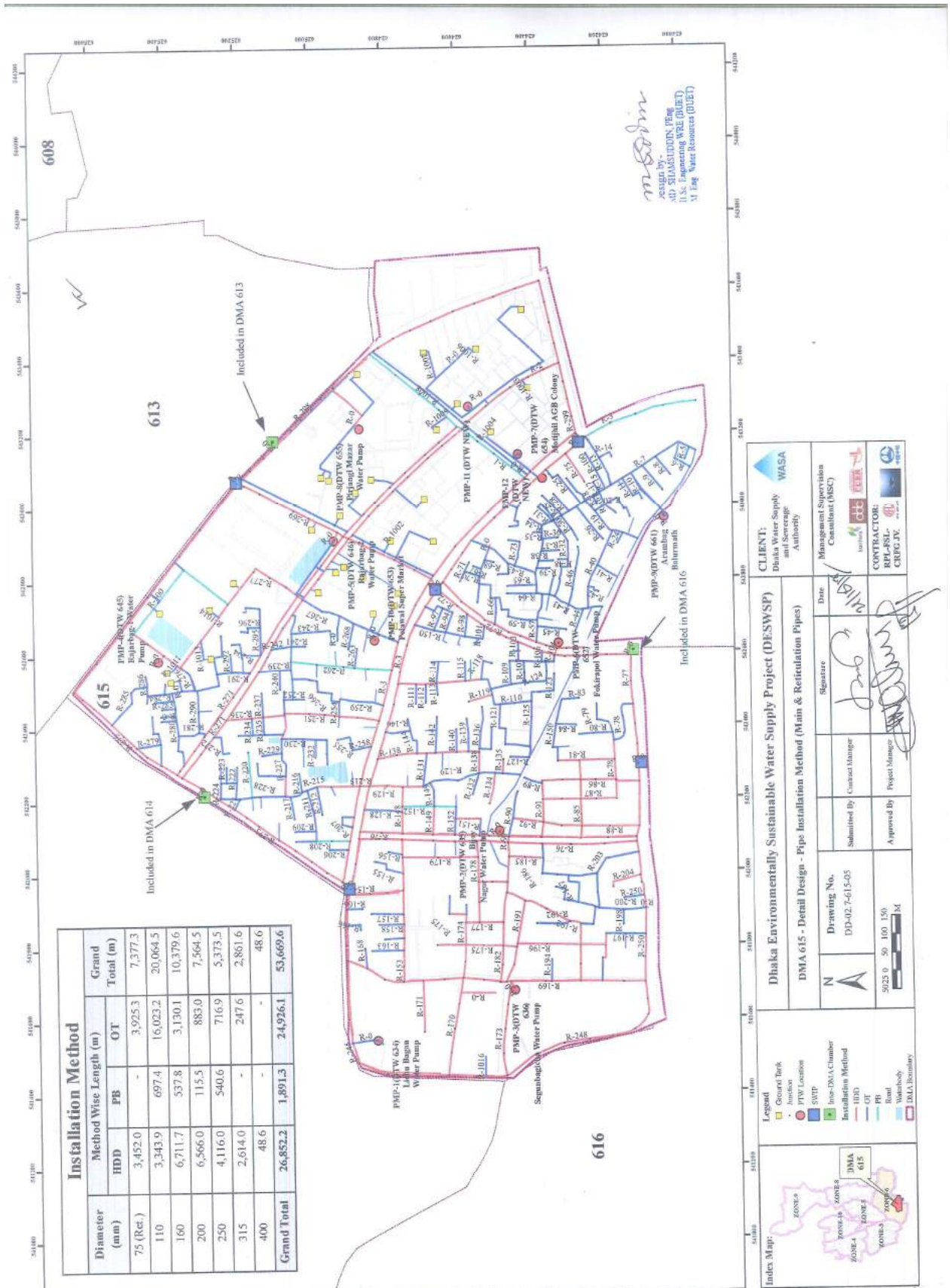
- Network replacement by new mains totalling 54.00 km with installation of 10.166 km of tertiary lines (Reticulation lines OD 75), 43.86 km of HDPE pipelines including 2,919m of primary pipes (OD >=315mm) and 40,941 m of secondary mains (OD 110, 160, 200 and 250mm) including installation of buried Gate Valves (including surface box), and Wash Out, Data Loggers (DLs), Non Return Valves;
- Installation of 100 gate valve out of which 20 nos. will be with RCC chambers for pipeline of 315mm diameter and above including installation of gate valves with necessary fittings, fixtures all complete, 8 RCC Interconnection chamber for isolation of DMA where required including installation of Pressure Sustaining Valves, Air Release Valves, Non Return Valves, Bulk Water Meters and Data Loggers with all fittings, fixtures all complete, Construction of 4 RCC Air Release Valve Chamber for pipeline including installation of data loggers with necessary fittings, fixtures all complete;
- Installation of 10.166 km of tertiary lines (reticulation lines OD 75);
- Replacement of 3461 service connections (OD 20-50mm);
- Installation of 3461 new domestic meters including stop cock and float valve at consumers reservoir;
- Refurbishment of 10 nos. existing wells;

h). Implementation Schedule

The project CB 02.7 is to be implemented over a period of more than 03 years. The detailed design stage has to be completed in 18 months, and the construction will cover 30months.

i). DMA 615 Area Map





Installation Method				
Diameter (mm)	Method Wise Length (m)			Grand Total (m)
	HDD	PB	OT	
75 (Ret.)	3,452.0	-	3,925.3	7,377.3
110	3,343.9	697.4	16,023.2	20,064.5
160	6,711.7	537.8	3,130.1	10,379.6
200	6,566.0	115.5	885.0	7,566.5
250	4,116.0	540.6	716.9	5,373.5
315	2,614.0	-	247.6	2,861.6
400	48.6	-	-	48.6
Grand Total	26,852.2	1,891.3	24,926.1	53,669.6

Legend

- Ground Tank
- Junction
- PTW Location
- SWTP
- Inse-DMA Chamber
- Installation Method
- HDD
- OT
- PI
- Waterbody
- DMA Boundary

Index Map: Shows the location of DMA 615 within the larger project area, including zones 608, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700.

CLIENT: WASA
Dhaka Water Supply and Sewerage Authority

Management Supervision Consultant (MSC): [Logos]

CONTRACTOR: RPLPSL, CRFG JV

Dhaka Environmentally Sustainable Water Supply Project (DESWSF)
DMA 615 - Detail Design - Pipes Installation Method (Main & Retention Pipes)

Drawing No.: DD-02-7-615-05

Submitted By: [Signature]
Contract Manager: [Signature]

Approved By: [Signature]
Project Manager: [Signature]

Date: [Date]

Scale: 50:1, 100:1, 150:1

j). Existing PTW data of DMA 615

(Source: MODS Zone 6):

DMA #	PTW ID #	Location	Installation Year	Well Depth (m)	Designed Q m ³ /hr	Dia of pipe (mm)	
						Delivery Pipe	Main Pipe
615	645	Rajarbag-1 Water Pump	1995	171	200	200	200
615	646	Rajarbag-2 Water Pump	1999	152	200	200	200
615	653	Polawal Super Market	1998	151	200	200	200
615	654	Motijhil AGB Colony	1997	103	200	200	200
615	661	Arambag Balurmath	2000	173	200	200	200
615	652	Fokirapol Water Pump	1994	157	200	200	200
615	635	Bijoy Nagor Water Pump	1994	159	200	200	200
615	634	Lichu Bagan Water Pump	1996	152	200	200	200
615	636	Segunbagicha Water Pump	1991	146	200	200	200
615	655	Pirjangi Mazar Water Pump	1984	162	200	200	200

According to field observation the production of tube wells are 60 to 126m³/ hour

k). **Road cutting Plan (DMA 615):****DMA: 615****Name of Work: Pipe laying & Interconnection work program****Tentative Day: 90 days**

Si#	Road Name With Road ID	Type of Road	Diameter (mm)	Length (m)	Method	Working day	Remarks
1	Road ID-197,Segunbagicha Area	BC	110	152	OT	01-07 days	
2	Road ID-198,Segunbagicha Area	CC	110	30	OT		
3	Road ID-200,Segunbagicha Area	BC	110	119	OT		
4	Road ID-205,Segunbagicha Area	CC	110	50	OT		
5	Road ID-194,Segunbagicha Area	Katcha	110	51	OT		
6	Road ID-192,Segunbagicha Area	Katcha	110	82	OT		
7	Road ID-101,Segunbagicha Area	Katcha	110	51	OT		
8	Road ID-187,186,203,Segunbagicha Area	CC	110	512	OT		
9	Road ID-203,Segunbagicha Area	CC	160	101	OT		
10	Road ID-175,Segunbagicha Area	Katcha	110	48	OT		
11	Road ID-166,Kakrail Area	Katcha	110	85	OT		
12	Road ID-155,156,157,158,163,164 Kakrail Area	CC	110	402	OT		
13	Road Id-248,DVIP Road to High cot Main Road	BC	160	622	HDD		
14	Road Id-245,DVIP Road to High cot Main Road	BC	250	142	HDD		
15	Road Id-169,V VIP Road to Press Club Road	BC	315	135	HDD		
16	Road Id-171,Segunbagicha Area	BC	250	241	HDD		
17	Road Id-170,Segunbagicha Area	BC	160	198	HDD		
18	Road Id-173,Segunbagicha Area	BC	110	125	HDD		
19	Road Id-154	BC	160	614	HDD	15-21 days	
20	Road Id-153,178,179	BC	160	90	HDD		
21	Road Id-175	BC	250	75	HDD		
22	Road Id-177	BC	200	93	HDD		
23	Road Id-182	BC	110	302	HDD		
24	Road Id-185	BC	160	89	HDD		
25	Road Id-191	BC	110	203	HDD		
26	Road Id-192	BC	250	170	HDD		
27	Road Id-204	CC	160	76	HDD		
28	Road Id-76,Naitangal mor to Purana Paltan main Road	BC	110	1234	HDD		
29	Road ID-128,Bijoy nagor Area	CC	110	95	OT		
30	Road ID-129,151,Bijoy nagor Area	BC	110	101	OT		
31	Road ID-129,Bijoy nagor Area	BC	110	246	OT		
32	Road ID-146,147,144,142,140,139,136,137 Paltan area	CC	110	498	OT		
33	Road ID-111,114,113,117,118 Paltan area	CC	110	215	OT		

34	Road ID-115, Paltan area	HBB	110	45	OT		
35	Road ID-112, Paltan area	Katcha	110	47	OT		
36	Road ID-110, Paltan area	CC	160	72	OT		
37	Road ID-126, Paltan area	Katcha	110	60	OT		
38	Road ID-121,125, Paltan area	CC	110	211	OT		
39	Road ID-109,103,104,100,107,108,105, Paltan area	CC	200	454	OT		
40	Road ID-100,93,97,94,91, Paltan area	CC	110	412	OT	31-39 days	
41	Road ID-78, Paltan area	CC	160	138	OT		
42	Road ID-79,80, Paltan area	CC	110	161	OT		
43	Road ID-82,83,84, Paltan area	CC	110	196	OT		
44	Road ID-5,6,8,9 Arambag area	CC	110	282	OT		
45	Road ID-11,12,16,21,18,19,24,41,42 Arambag area	CC	110	418	OT		
46	Road ID-26,27,30,32,36,37,38,39,56,53,48, Arambag area	CC	110	619	OT		
47	Road ID-44,43,60 Arambag area	CC	110	246	OT		
48	Road ID-19,40 Arambag area	CC	160	305	OT		
49	Road ID-13 Arambag area	CC	250	141	OT		
50	Road ID-15,17,75,19 Arambag area	CC	110	231	OT		
51	Road ID-73,74,35,34,33,31,29,28 Arambag area	CC	110	378	OT		
52	Road ID-43 Arambag area	CC	160	197	OT		
53	Road ID-71,70,67,68,69,67,66,64,65,64,62,61,59,57 Arambag area	CC	110	835	OT		
54	Road ID-270,Modhumoti Koyatar Traffice police	BC	110	172	OT	40-48 days	
55	Road ID-267,Santinagor pিরer Goli	BC	250	285	OT		
56	Road ID-241,243,242,263,227,Santinagor Area	CC	110	424	OT		
57	Road ID-239,240,227,253,266,259,237,Santinagor Area	CC	110	482	OT		
58	Road ID-231,232,258,Bazar Road,Santinagor Area	CC	110	329	OT		
59	Road ID 229,228,235,233,234,224,226,223,225,224,221,Santinagor Area	CC	110	393	OT		
60	Road ID- 227 Santinagor Area	CC	160	90	OT	49-58 days	
61	Road ID- 211,Santinagor Bazar Road Area	CC	160	115	OT		
62	Motijhil Govt. Colony Road Area	BC	110	364	OT		
63	Motijhil Govt. Colony Road Area	CC	200	191	OT		
64	Road Id-295,296,297,291,292,285 Chimilibag Area	CC	110	541	OT		
65	Road Id-290 Chimilibag Area	CC	250	178	OT		
66	Road Id-280 Chimilibag Area	CC	160	168	OT		
67	Road Id-281,277,278,282,284,283,286,287 Chimilibag Area	CC	110	441	OT		
68	Road Id-285 Chimilibag Area	BC	110	155	OT	59-67 days	
69	Road Id-88 Purana Paltan Area	BC	110	331	HDD		
70	Road Id-87 Purana Paltan Area	BC	110	145	HDD		
71	Road Id-86 Purana Paltan Area	BC	160	209	HDD		
72	Road Id-81 Purana Paltan Area	BC	160	140	HDD		

73	Road Id-91 Purana Paltan Area	BC	160	137	HDD		
74	Road Id-128,152,149 Purana Paltan Area	BC	110	234	HDD		
75	Road Id-129, Bijoy Nagor Area	BC	160	282	HDD		
76	Road Id-138, Bijoy Nagor Area	BC	160	216	HDD		
77	Road Id-135, Bijoy Nagor Area	CC	110	38	HDD		
78	Road Id-110, Paltan Area	CC	160	227	HDD		
79	Road Id-119, Paltan Area	CC	110	64	HDD		
80	Road Id-03 ,Naitangel mor to Fokirapol mor Main Road Area	BC	200	619	HDD	68-75 days	
81	Road Id-72 ,Fokirapol mor to Dainik Bangla mor Main Road	BC	250	449	HDD		
82	Road Id-72 ,Fokirapol mor to Dainik Bangla mor Main Road	BC	160	372	HDD		
83	Road Id-03, Fokirapol Mor to Motijhil Main Road	BC	200	450	HDD		
84	Road Id-03,Kakrail Mor to Motijhil Main Road	BC	315	1322	HDD		
85	Road Id-271 ,Santinagor mor to A.G.B. Colony Katcha Bazar Road Main Road	BC	250	1049	HDD		
86	Road Id-269	BC	315	216	HDD		
87	Road Id-257,Santinagor	CC	200	228	HDD		
88	Road Id-273,Santinagor mor to Kakrail Mor Main Road	BC	200	418	HDD		
89	Road Id-215,Santinagor Bazar Road	CC	160	172	HDD		
90	Road Id-227,Santinagor Area	CC	160	98	HDD		
91	Road Id-299	BC	315	148	HDD		
92	Road Id-271 ,Santinagor mor to A.G.B. Colony Katcha Bazar Road Main Road	BC	200	774	HDD		
93	Road Id-298 ,Malibag Mor to Komlapur Main Road	BC	250	1288	HDD		
94	Road Id-299	BC	250	210	HDD		
95	Road Id-269,Rajar Bag Mor To Fokirapol main Road	BC	315	300	HDD		
96	Road Id-277,278 Rajarbag Area	BC	200	250	HDD		
97	Road Id-275,Malibag Mor to Santinogor mor Main Road	BC	160	355	HDD		
98	Road ID-151,Bijoy Nogor Area	BC	110	55	PB		
99	Road ID-152, Bijoy Nagor Area	BC	110	131	PB	86-90 days	
100	Road ID-03, Kakrail to Motijhil Road	BC	110	302	PB		
101	Road ID-208, Santinogor Area	CC	160	90	PB		
102	Road ID-222, Santinogor Area	CC	110	115	PB		
103	Road ID-262, Santinogor Arambag Road	CC	160	245	PB		
104	Road ID-302, Motijhil TNT Colony Area	BC	160	140	PB		
105	Road Id-01,Pir Jongli Majar to Arambag Road	BC	250	180	PB		
106	Road Id-01,Pir Jongli Majar to Arambag Road	BC	250	285	PB		
107	Road Id-300,Rajarbag Ploice line Area	BC	110	322	PB		

I). Principal elements of DMA 616

The mandatory Works under this DMA 616 comprises the following:

- Network replacement by new mains to totaling 16.25km of HDPE pipe lines including 10,487m of primary pipes (OD \geq 315mm) and 5,763m of second dary mains (OD110,160,200 and 250mm) including installation of buried Gate Valves (including surface box), and Wash Out, Data Loggers (DLs), Non Return Valves;
- Installation of 35 RCC gate valve chambers for pipeline of 315mm diameter and above including installation of gate valves with necessary fittings, fixtures all complete, 10 RCC Interconnection chamber for isolation of DMA where required including installation of Pressure Sustaining Valves, Pressure Reducing Valves, Air Release Valves, Non Return Valves, Bulk Water Meters and Data Loggers with all fittings, fixtures all complete, Construction of 8 RCC Air Release Valve Chamber for pipeline including installation of data loggers with necessary fittings, fixtures all complete;
- Installation of 4.16km of tertiary lines (reticulation lines OD75);
- Replacement of 4774 service connections (OD20-50mm);
- Installation of 4774 new domestic meters including stopcock and float valve at consumers reservoir;
- Refurbishment of 6 nos. existing wells;

Network replacement by new mains primary pipes of 315mm and secondary mains of 250, 200, 160 and 110mm OD and installation of Gate Valves and Wash out.

Installation of gate valves chambers, RCC interconnection chambers for isolation of DMA including installation of PSV, PRV, ARV, NRV, Bulk water meter, data loggers etc.

Most of the pipe line alignments are along the wide main roads of DMA 616. Substantial progress for installation of pipe can be made, if HDD permissions are allowed during the rainy season.

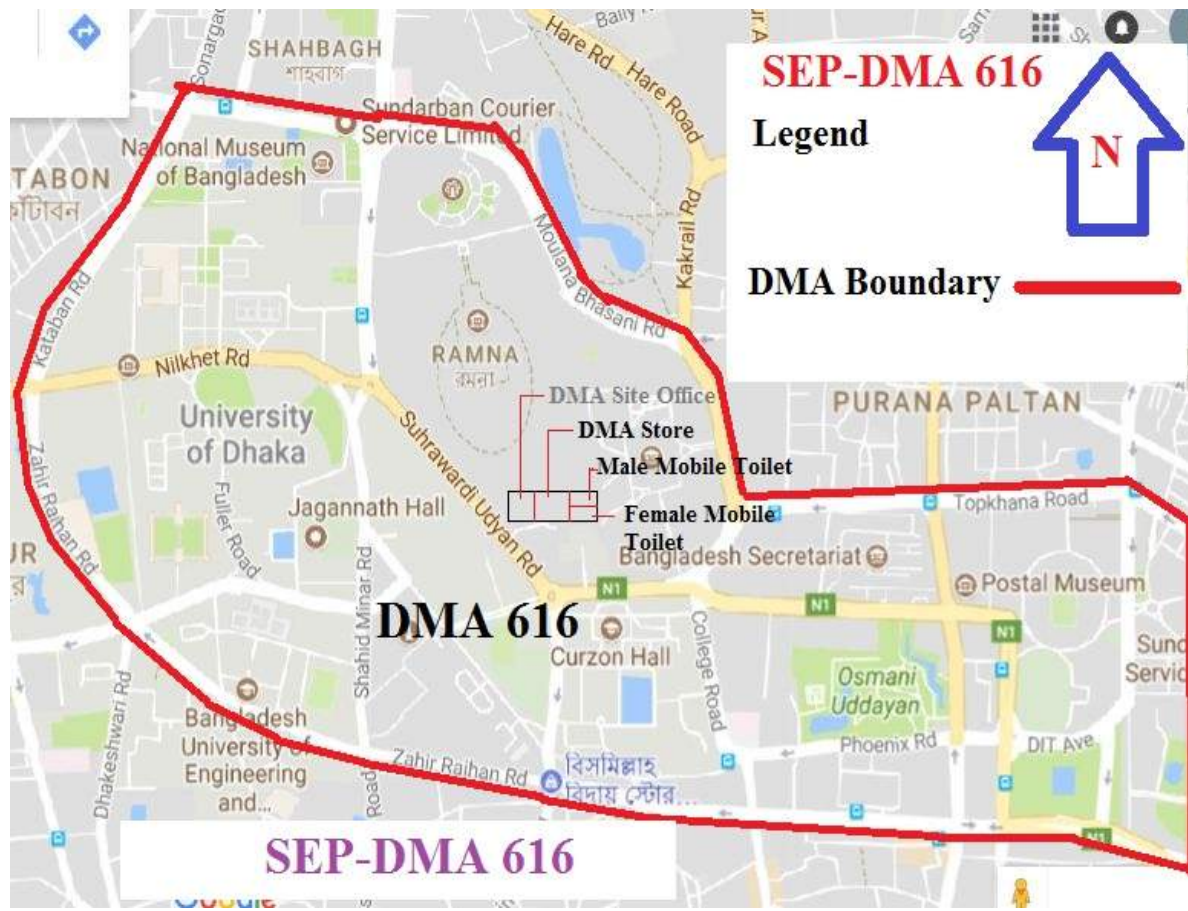
Individual traffic plan will be fully complied; in addition Traffic plan for the roadways of the priority work for The priority work of Dhaka Mass Rapid Transit Development Project (DMRTDP) within the boundary of DMA 616

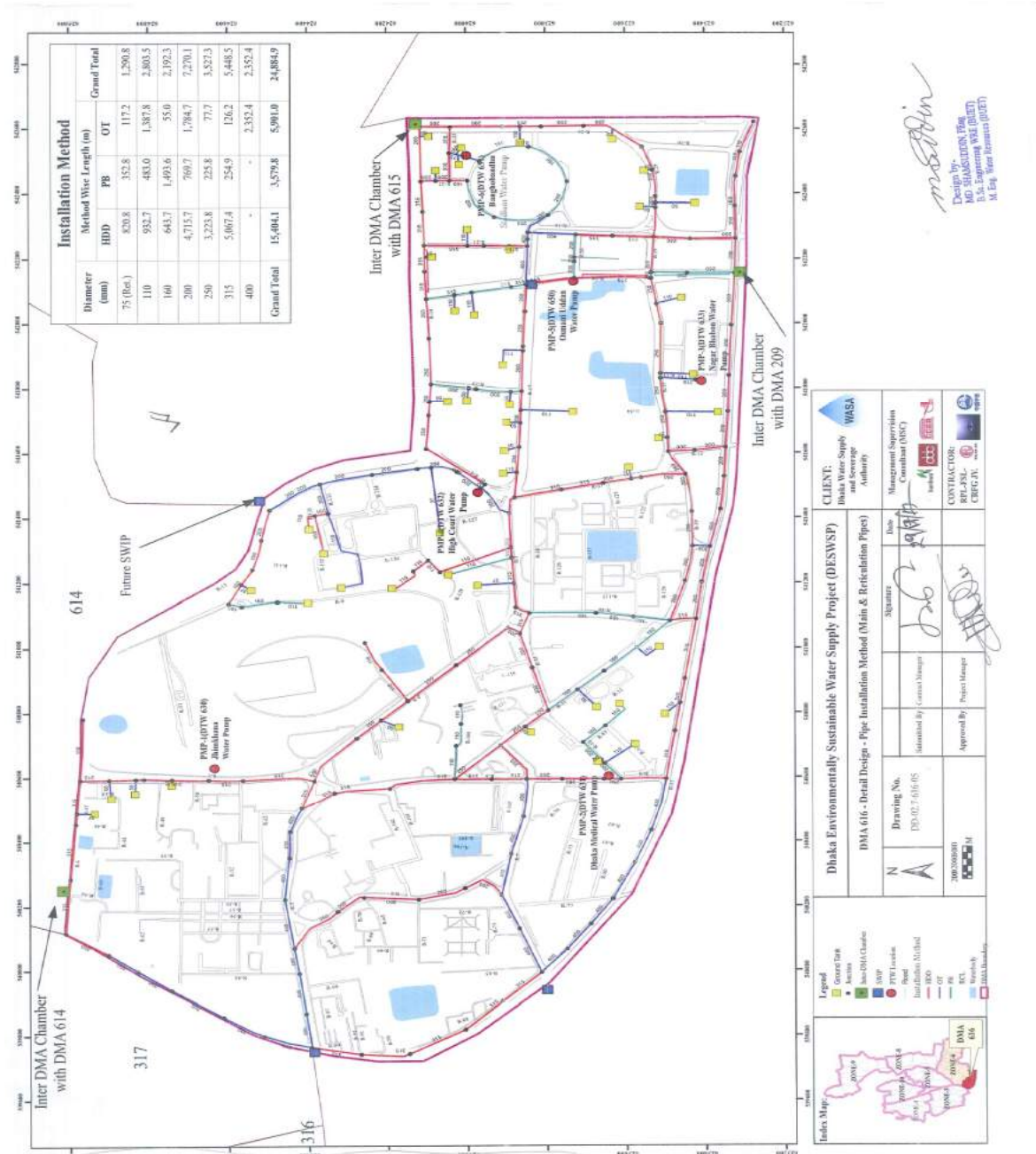
m). Road Cutting Plan (DMA :616)							
Name of Work : Pipe laying & Interconnection work program							
Tentative Day: 90 days							
Si #	Road Name With Road ID	Type of Road	Diameter (mm)	Length (m)	Method	Working day	Remarks
1	Road ID-31, Nilkhet to Katabon Main Road	BC	400	1276	OT	1-9 days	
2	Road ID-05, Nilkhet Main Road	BC	400	751	OT		
3	Road ID-07, Polashi Main Road	BC	400	625	OT		
4	Road ID-14, Bangabandhu Avenue Road	BC	400	160	OT	10-19 days	
5	Road ID-18, Bangabandhu Avenue Road	BC	400	121	OT		
6	Road ID-24, Bangabandhu Avenue Road	katcka	315	37	OT		
7	Road ID-35, Dhaka South City Corporation	CC	315	83	OT		
8	Road ID-6, Shahbag main Road	BC	315	666	HDD	20-25 days	
9	Road ID-31, Nilkhet to Polashi mor Main Road	BC	315	793	HDD		
10	Road ID-8, Fular Road	BC	250	622	HDD		
11	Road ID-9, Dhaka Medical Main Road	BC	315	930	HDD		
12	Road ID-1, Kazi Nazrul Islam Avenue Road	BC	315	680	HDD		
13	Road ID-2, Suhrawardi Udyan Road	BC	250	681	HDD		
14	Road ID-41, University street Road	BC	200	247	HDD		
15	Road ID-108, Shipbari Road	Katcha	110	210	HDD	26-34	

16	Road ID-11,Sir Sayed Road	BC	250	315	HDD	days	
17	Road ID-7,Polashi Road	BC	250	128	HDD		
18	Road ID-31,Nilkhet to Polashi Main Road	BC	315	186	HDD		
19	Road ID-31,Gulistan to Nilkhet Main Road	BC	200	1442	HDD		
20	Road ID-18,Bangabandhu Avenue Road	BC	250	400	HDD		
21	Road ID-16,Shahid Nazrul islam Soroni Road	BC	315	295	HDD	35-43 days	
22	Road ID-21,Baitul Mokarom Road	CC	315	258	HDD		
23	Road ID-26,Rajuk Avenue (DIT) Road	BC	200	859	HDD		
24	Road ID-33,Fonix Road	BC	250	620	HDD		
25	Road ID-39,Secretarial Road	BC	200	455	HDD		
26	Road ID-32,Secretarial Road	CC	200	159	HDD	44-55 days	
27	Road ID-37,Collage Road	BC	315	435	HDD		
28	Road ID-23,Bangabandhu National Stadium Road	CC	315	140	HDD		
29	Road ID-22,Bangabandhu National Stadium Road	BC	200	55	HDD		
30	Road ID-17,Abdul Goni Road	BC	250	657	HDD		
31			200	467	HDD		
32	Road ID-38,Carjon hall Road	BC	315	447	HDD	56-65 days	
33	Road ID-14,Topkhana Road	BC	315	361	HDD		
34			250	461	HDD		
35			200	350	HDD		
36	Bangladesh Supreme Court Road	CC	110	195	HDD		
37	Road ID-13,Moulana Bhasani Road	BC	200	635	HDD		
38			160	247	HDD		
39	Road ID-133,Bangladesh Supreme Court Road	CC	110	265	HDD	66-74 days	
40	Road ID-108,Shibbari Road	Katcha	110	231	PB		
41	Road ID-10,Dhaka Medical Road	BC	200	140	PB		
42			160	165	PB		
43	Road ID-11,Sir Sayed Road	BC	160	414	PB		
44	Road ID-40,Shahidullah Hall Road	BC	160	354	PB		
45	Road ID-16,Shahid Nazrul islam Soroni Road	BC	250	208	PB		
46			315	253	PB		
47	Road ID-20,Bangabandhu Avenue Road	BC	200	121	PB	75-83 days	
48	Road ID-15,Secretary Link Road	CC	200	229	PB		
49	Road ID-25,Bangabandhu National Stadium OutSide Road	CC	200	225	PB		
50			160	418	PB		
51	Bangladesh Shishu Academy	CC	110	144	PB	84-90 days	
52	Bangladesh Supreme court link Road	CC	160	48	PB		

616	Shahbg to TSC	Shabag	TSC	315	592.4	0	
		Do	do	50	120.9		0
	TSC to Doel Chattar	TSC	Doel Chattar	250	685.9		0
	Doel Chattar Crossing			315	141	0	
	Doel chattar to High court	Doel Chattar	High Court	315	354.2		0
	High court to Kadom Fuara (High court side)	High court more	Kadom fuara	200	289		0
	Road Crossing in front of EED Bhaban			200	20	0	
	High court to Kadom Fuara (EED bhaban side)	High court PTW	Kadom fuara	200	264		0
	Kadom Fuara to Palton			250	463.7	0	
	Palton to dainik bangla			315	362.9	0	
				200	168		0
				75	150		0
					3612	0	0

n). DMA 616 area Map





The existing water supply system consists of one single operated pumping system from 6 nos. of existing production tube wells. The existing DMA 616, DWASA PTWs are :

o). Existing PTW of DMA 616
data(source:MODSZone6):

DMA	PTWID	Location	Installation Year	Well Depth (m)	Design eq Q m ³ /hr	Dia of pipe (mm)	
						Delivery Pipe	Main Pipe
616	630	Jhimkhana Water Pump	2007	213.9	201	200	200
616	631	Dhaka Medical Water Pump	1998	140	201	200	200
616	632	High Court Water Pump	2012	234	201	200	200
616	633	Nagar Bhabon Water Pump	1998	165	201	200	200
616	650	Osmani Uddan Water Pump	2005	300	201	200	200
616	651	Banghobandhu	2004	167	201	200	200

D. DESCRIPTION OF THE ENVIRONMENT

a). Methodology Used for the Baseline Study

Data collection and stakeholder consultations: Data for this study has been collected through detailed survey, discussion with stakeholder agencies, and field visits to the proposed subproject sites.

Data analysis and interpretation: The data collected has been analyzed and interpretations made to assess the physical, biological, and socioeconomic features of the project area. The relevant information is presented in the succeeding paragraphs.

b). Physical Characteristics

Location: The service areas of DMA 615 of Package no. ICB 02.7 is under the jurisdiction of Dhaka South City Corporation (DSCC) lying in DWASA operation Zone 6.

The existing water network is located in DMA 615 is known as Bijoynagar, Shegunbagicha, Shantinagar, Topkhana, under Motijheel and Ramna Thana in Dhaka city. The DMA is bounded by DMA 613 at the East and North, Zone-1 area at the South, DMA 614 at the west and DMA 616 at west and south, covers a total area 2.23 km². The existing water supply system consists of ten single operated pumping system fed from 10 nos. of existing production wells (please refer Table 2.1 for details). There is an existing surface water transmission line along Outer Circular road & DIT road and the interconnection chamber of the distribution system containing 250 & 300 mm dia PRV will be connected with this line.

The main production facilities supplying DMA 615 are 10 nos. of ground water wells which are all operating average 15 to 24 hours per day. Production Tube Wells at Meradia under Ramna Thana are feeding directly the existing network. The pump installation level varies from 67 to 110 m below ground level.

Topography and Soil: The project area is at the northern edge of the delta in the centre of the country, between the confluences of the rivers and the project area is flat and low lying particularly around the delta, which floods extensively in the rainy season. The influence of the rivers is evident in the soils, which are almost entirely alluvial, and generally fertile, with a predominantly loam and silt consistency.

Climate: The climate of Dhaka is humid-tropical, with a typical three season pattern. Dhaka is within the monsoon climate zone, with temperature ranging of 21°C to 37°C during summer season and 10°C to 31°C in winter season. About 80% of the average annual rainfall of 1850 mm occurs in May-September as hot air rises over the Indian subcontinent, creating low pressure areas into which rush the cooler moisture-laden winds from the Indian Ocean and the Bay of Bengal. The rain is often accompanied by strong winds, sometimes exceeding 100 kilometers per hour. Temperature and rainfall both decline post-monsoon, returning rapidly to the winter lows.

Air Quality: The main causes of the poor air quality in the project area are: (i) poor roads and traffic management leading to severe traffic congestion; (ii) use of high sulphur diesel by buses and trucks, and inadequate control of emissions; (iii) heavy industrialization, and use of cheaper high-sulphur fuels (coal, wood, and tires) by smaller industries like brick kilns; and (iv) poor solid waste management, so burning is the common method of treating garbage.

Geology and Seismology: According to the National Seismic Zoning Map produced by the Geological Survey of Bangladesh (GSB), Dhaka lies at the end of the Dauki fault in an area of medium seismic risk. This means that shocks of moderate intensity are possible, with a probable maximum magnitude of 6.5-7 on the Richter scale. Seismic events in Bangladesh are relatively infrequent but historically have been severe, such as the earthquakes of 1930 and 1950 that caused widespread damage throughout the country, and the earthquake in 2004 that damaged large parts of Dhaka City.

c). Ecological Resources

Rivers: Dhaka City, where the 16 DMAs are located, is enclosed between the Turag-Buriganga River in the west and the Balu-Sitalakhya River in the east, both of which drain into the Meghna in the south, along with the Dhaleswari, old Brahmaputra and other rivers outside the city limits. The Ministry of Environment and Forests estimates that 80% of the sewage produced by the 15 million people in Dhaka and surrounding areas enters the rivers untreated, and most of the 7,000 industries dispose of their waste to drainage ditches and rivers without treatment (Dhaka Environment Program, 2005). It is not surprising that the ecology of the rivers has deteriorated under such pressure, and declining fish catches

(26,476 tons in 1983 to 84 to 6,095 tons in 1996 to 97 in North Central Region) are just one indicator of the malaise.

Other Aquatic Habitats: There are a variety of other aquatic habitats in the city, including man-made lakes in residential areas (e.g. Gulshan), permanent and ephemeral pools in natural lowlands (known as bheels), and flooded borrow pits excavated for building material. These are of little ecological value as the water is frequently polluted, and these areas are often characterized by dense growths of the water hyacinth *Echicornica crassipes*, which out-competes other plants through its rapid growth, although species such as water chestnut and lotus can be seen in places.

Terrestrial Ecology: There are few natural terrestrial habitats in the subproject areas as in other parts of Dhaka city, because of the seasonal flooding and the urbanization of the city, and agricultural development in the outlying areas, which destroyed the natural habitats many years ago. Terrestrial plants are now mainly limited to trees, shrubs and flowers grown alongside roads and in parks and gardens in the city, and the crops and fruit trees planted in agricultural areas. The terrestrial fauna is very limited as a result, and mainly consists of animals able to live close to man, such as lizards and geckoes, scavenging birds like house sparrows and crows, and mice, rats and other rodents. There are more animals in the farming areas, but even these are species commonly found close to man, such as cattle egrets.

Protected Areas and Endangered Species: There are no areas in or around the DMA 615 that are designated and protected for nature conservation, and no rare or endangered species. This is because as explained above terrestrial habitats have been destroyed to provide land for urbanization, and aquatic habitats are damaged and degraded by water pollution, infilling, and other anthropogenic activities.

d). Economic Development

Industry: Manufacturing is the most important activity, and because of the low cost of labor, many factories have links with major companies in Europe, to which they supply low cost garments and other products. The main industries are leather tanneries, and textile production; but there are factories manufacturing a wide range of other products including fertilizers, pesticides, chemicals, pharmaceuticals, rubber, plastics, cement, and foodstuffs including salt, sugar, and rice. There are also heavier industries including iron and steel mills, ship repair yards, power plants, oil refineries, and pulp and paper mills.

Water supply: The main features of the existing water supply system are as follows:

- (i) Around 100% of the water supply is from groundwater via 10 Production Tube Wells (PTWs) in DMA 615
- (ii) This water is treated by injection of liquid chlorine, but not at all PTWs;
- (iii) Water is distributed network of underground pipes in the city (dia. 100-450 mm), mainly buried in roads;
- (iv) Water pressure in the area supplied is good near the ring main but poor near the extremities;
- (v) Water is treated to Bangladesh drinking water standards, but leaking pipes, low pressure and inadequate treatment/disposal of wastewater often cause contamination; and
- (vi) As indicated above, other problems are loss of water through leaks and illegal house connections, a rapidly reducing groundwater table, and inadequate cost recovery.

Sanitation: Most of the area of the Dhaka city is not connected to the sewerage system, and most of the people are using water-operated toilets. This area is not operating as soak ways because of the high level of water table, and the contents discharge into natural drains and low ground, causing unsightly areas, health risks, and water pollution; People living in the slums and other poor areas, use pit latrines, open latrines or other unsanitary methods.

Drainage: The drainage system of Dhaka city consists of surface and underground elements, maintained by Dhaka South City Corporation (DSCC) and Dhaka Water Supply and Sewerage Authority (DWASA) respectively. Surface drains are mainly brick and concrete channels (covered and uncovered), built by the Roads and Highways Department (RHD) alongside roads, and the Rajdhani Unnoyan Kortripokkho (RAJUK) Planning Authority in residential areas. Underground drains are brick-sided tunnels or AC pipes, built by DWASA. The system covers most of the area of the city but does not facilitate properly because drains are blocked with refuse & building rubble and the design is inadequate to cope with the volume of wet season flows.

Solid waste: Solid waste management is the responsibility of DNCC and DSCC, who are providing a system through vans operation by Non-Government Organization (NGO). It is the process of collecting refuse from houses and business places each day, and depositing at the designated points throughout the city. DSCC takes the collected refuses from these designated points and transported to dumpsites. However, the sites are not engineered or selected carefully and often simply areas of open ground around the city, where the refuse creates an unsightly appearance, hygiene problems and health hazard. Dumping areas may be covered with sand and soil when full, but this creates a further hazard as these areas may then be built upon and there is a risk of subsidence as the refuse decomposes, and liberated gases can explode if ignited.

Road Network: The project areas are heavily congested throughout of the day, because roads are not engineered and insufficient for the volume of traffic, and problems are exacerbated by driver indiscipline and ineffective policing of traffic laws. There are a multitude of smaller cross-linking roads, many of which are narrow and suitable for only one or two vehicle widths, which also become congested as drivers seek alternative routes. The problem is compounded by the very large population of Dhaka, which creates a large volume of pedestrian traffic, and the vast array of public and private transport vehicles seeking customers. These include large numbers of buses, taxis, auto rickshaws, private cars, and bicycle rickshaws. These operate throughout the city at both regulated and unregulated stops, and the buses and taxis provide links to surrounding districts and also long routed.

e). Social and Cultural Resources

Population and Communities: Dhaka is the capital and largest city in Bangladesh and one of the most densely populated cities in the world (approx. 29000 people per sq. km). As per recent censuses, the population has grown dramatically over the years in the city. According to Bangladesh Bureau of Statistics (BBS), the population amounted to about 6.5 million in 1991, 6.7 million in 2001 and 14.5 million in 2011. This is one of the fastest rates (annually 4.7%) of population increase seen anywhere in the world and if growth continues at the same rate, by 2025 the city will accommodate over 25 million people. At present it is estimated that 54.4% of the population is male and 45.6% female, significantly different from the natural 1:1 ratio. There are around 3 million households in the Dhaka city, so average household size is 4.83 persons for each household as per census 2011.

Classification of roads by size and by surface type:¹⁰ There is no standard classification of roads based on traffic volume, tonnage, location and function they have to perform. However, depending on use the roads are classified as VIP Roads, Main Roads and other roads. For road restoration purposes the roads are also classified as Asphalt/Bituminous Road, Reinforced Concrete Cement (RCC)/ Concrete Cement (CC) road, Brick Pavement, Macadam and Earthen road depending on construction and surface type.

E. The priority work of Dhaka Mass Rapid Transit Development Project (DMRTDP) within the boundary of DMA 615

DMA615	Topkhana Road	From :Kadom Fuara	To: Palton	Dia in mm 110	Length in meter 15.00
		Do	Do	160	145.8
		Do	Do	200	268.2
	Motijeel rd	Palton	Dainik bangla	250	527.9
		Do	Do	75	496.7
					1453.6

As there is no control on movement of heavy traffic, DWASA considers all types of roads as heavy-duty road for design purpose. Dhaka city roads are with foot paths, underground/surface drainage, sewer line, gas, electricity, telephone and other utility services. In order to be systematic and for convenience of work the roads are classified based on width and are defined as Table 2 below.

¹⁰ Categories of roads as per surface types are important for road restoration purposes. The pavement restoration, where required, will be carried out by Dhaka City Cooperations (DNCC/DSCC) when all backfill has been settled for 6 weeks. For this purpose, DNCC/DSCC will have to be paid as per surface types of the roads. DWASA will apply for the road cutting permission and the contractor must pay therefore. The road cutting plans necessary for the application must be prepared by the contractor.

F. Road Classification in Dhaka City

Road Classification		Description
A.	By Width	
1.	<2-meter width	The tertiary roads in unplanned areas are usually narrow and mostly less than 2 m, where no vehicles or only one car can pass at a time. These categories of roads will be treated as tertiary roads / lane / access road. The tertiary roads may be of earth, brick pavement, macadam or RCC / CC type. These types of roads have no footpath; have no proper drains and normally a limited number of other utility services beneath.
2.	4-meter width	The internal roads of a planned area and the branch of main roads are within 2-4 m width and are classified as secondary roads. The secondary roads are usually of bituminous surfacing, although RCC / CC and Brick Pavement and Macadam type may constitute a secondary road. These roads may be with or without foot path and in most have all types of utility services beneath.
3.	>4-meter width	The main roads and VIP roads of Dhaka city are larger than 4 m and are of Asphalt / Bituminous surfacing. These are heavy tonnage roads; traffic volume is large and traffic congestion is a common feature with these categories of roads. These roads are always with foot path and all other utility services beneath.
4.	Major roads	Main roads are the major roads of Dhaka city allowing all types of traffic including three-wheeler rickshaws and heavy truck/lorries.
5.	VIP roads	These are also the main roads of Dhaka city allowing all types of traffic including heavy truck/lorries except the three-wheeler rickshaws and pushcart.
B.	By Surface Type	
1.	Asphalt and Bituminous Road	Major roads of Dhaka city are of asphalt/bituminous flexible pavement consisting of wearing course, base course, sub-base and sub-grade. The pavement structure of roads >4 m (main and VIP) have all these elements, however, narrower roads depending on site and traffic conditions may not have the same design.
2.	RCC / CC	Special and access roads are of rigid pavement type and are made of RCC / CC. Usually a rich mixture of cement, sand and coarse aggregate is laid in a single layer for this type of roads.
3.	Macadam / Brick Pavement	Areas less important and under developed have macadam and brick pavement (200 mm) without base and sub-base course and usually designed for light traffic.
4.	Earth / Kacha Road	There is also earth / kacha roads in areas newly developed and sometimes concrete rubbish is used for surfacing.

G. Land Use

Present land use is mainly urban in the centre however other land uses as well, including residential units between and above shops in the increasing numbers of tall buildings and some industry.

H. Power Sources and Transmission

Power in the subproject areas is provided by Dhaka Electric Supply Authority (DESA) and Dhaka Electric Supply Company (DESCO) through a network of electricity pylons and poles, mainly located beside roadways. This provides connections to individual houses, and revenue collection is by individual household meters. The supply is erratic and power cuts are frequent, generally lasting 1-2 hours each day. Hotels, businesses and the wealthier residents increasingly use their own generators to augment the DESA/DESCO supply.

I. Other Economic Development:

There are few other economic activities in the city, other than those already described. There are no exploitable mineral resources, although mining of sand from river beds to raise the level of land for building is a major activity in floodplain areas. There is also little tourism, because the poor infrastructure and widespread flooding in the months of the northern summer discourage visitors from Europe and elsewhere. As a result, tourism is mainly limited to domestic activity, or Bangladeshi's living abroad who returns for short-term visits.

a). Health Facilities:

Citizens of Dhaka suffer many of the diseases associated with poor sanitation, including dysentery, diarrhea, whooping cough, gastro-enteritis, and tuberculosis. There are a variety of medical facilities, both public and private-sector, covering general health care and specialized services (including cardiac and cholera hospitals, and eye hospitals). There are 16 public hospitals with more than 5,000 beds, and although patients are required to pay for the service, charges are significantly less than in the private sector, and some services are provided free to the poor.

b). Educational Facilities:

Dhaka provides a large number of educational institutions, run by the public and private sectors. There are over 12,000 primary and secondary schools, several hundred colleges and technical institutes, and 133 Universities (thirty nine state-funded and 94 in the private sector). Generally, boys and girls are educated together, and there are no major differences in enrolment between the genders in schools, although boys outnumber girls in higher education. Current figures indicate that there are more than 5 million students studying in the Dhaka city.

c). Physical and Cultural Heritage:

There are several sites of cultural interest in Dhaka dating from various periods of the city's history. Most of the older sites are in the old part of the city and include:

- (i) The 12th century Dhakeshwari temple, which is the oldest Hindu temple in the City and is believed to be the origin of the name of Dhaka;
- (ii) Three sites from the Mughal period: the ruins of Bara Katra (enclosed quadrangle building) built on the banks of the Buriganga River in 1644; the smaller Chota Katra (palace), built nearby in 1663; and the three-storied Lalbagh Fort, built in 1678;
- (iii) The 18th century Star Mosque, which has many interesting architectural features including a three domed (Mughal style) structure, mosaic floors and decorated walls; and
- (iv) Other mosques such as: The Baitul Mukarram, the largest mosque in the city; the Chawkbazar Masjid built in 1676; the seven-domed Mughal Satgambuj mosque built in the 17th century; and Begum Bazar mosque built in 1701.

d). Indigenous Peoples:

There are no indigenous people in the mentioned DMAs.

J. Details of DMA-614, 615 and 616

The existing water network is located in DMA 614 is known as Eskaton, Malibagh area under Ramna Thana in Dhaka city. The DMA is bounded by DMA 615 at the East, Zone 05 at the west, DMA 611 & 613 at the north and DMA 616 at the south covering a total area of about 3.10 km². The existing water supply system consists of eleven single operated pumping system fed from 12 nos. of existing production wells. There is an existing surface water transmission line along the Shahbag Avenue Road and New Eskaton Main Road and the interconnection chamber of the distribution system containing 250 & 300 mm dia PRV will be connected with this line.

The main production facilities supplying DMA 614 are 12 nos. of ground water wells which are all operating average 15 to 24 hours per day. Production Tube Wells at Maghbazar under Ramna Thana are feeding directly the existing network. The pump installation level varies from 67 to 110 m below ground level.

The DMA-615 is located in the main Dhaka City. It could be called as heart of the town. The DMA is a mixture of residential and commercial area but the major portion of the area is commercial. Most of the roads are well constructed and much wider. A few roads are narrow but those are in the residential areas.

The area of the DMA is 8.32 km² having populations 1.74 lakh with the water demand of 408 L/s, production 332.50 L/s as surveyed on 2013. Replacement of service connection of 3,461 nos (OD 20-50mm) as surveyed (2013). The estimated demand of water as per 2030 scenario is 488 L/s according to the detailed design of the DMA. The existing water supply system consists of ten single operated pumping systems fed from 10 nos. of existing production wells. There is an existing surface water transmission line along Outer Circular road & DIT road and the interconnection chamber of the distribution system containing 250 & 300 mm dia PRV will be connected with this line.

The main production facilities supplying DMA 615 are 10 nos. of ground water wells which are all operating average 15 to 24 hours per day. Production Tube Wells at Meradia under Ramna Thana are feeding directly the existing network. The pump installation level varies from 67 to 110 m below ground level according to the detailed design of the DMA.

The DMA 616 consist of Dhaka university, BUET , university Hostels and residences, Dhaka medical college hospital, Secretariat, supreme court, press club, GPO , stadium, Nagar Bhaban, Banga Bhaban, Ramna park and many other public properties under Dhanmondi and Shahbagh Thana of DSCC. The DMA is bounded by Zone 2 at the east & south , DMA 614 & 15 at the north and west and 317 at the west, covering a total area of About 2.85. The existing water supply system consists of onesingleoperatedpumpingsystemfed from 6nos. of existing production wells.Most of the public properties havetheirownwatersupplysystemandarenotconnectedwith DWASAnetwork.ThisDMA willhave provision for future connectivity with the public places and will also serve water to the adjacent DMA's. There is surface water source at present adjacent to this DMA from Saidabad Phase-II and in future when Saidabad phase-III will be in operation, the DMA will also be connected with the future transmissionmain.

The main production facilities supplying DMA 616 are 06 nos. of ground water wells which are all operating average 15 to 24 hours per day. Production Tube Wells 630, 631, 632, 633, 650 and 651 at University and Gulistan area under Dhanmondi & Shahbag Thana are feeding directly the existing network. The pump installation level varies from 67 to 110 m below ground level.

Bangladesh is inhabited predominantly by a single ethnic group, Bengali, who constitute more than 98% of the population of the country. According to the 2011 census over 90% of the country is Muslim. Other religions are Hindu (9.2%), Buddhist (0.7%) and Christian (0.3%).

K. Site Specific Existing Condition of DMA in the Project Area

Table provides description of the 16 DMAs (DMA-601 to DMA-616) under ICB 02.7.

Table: Description of Existing Condition of DMA in the Project Area

SI.	DMA	Existing Conditions
Construction Batch-1		
1.	602	The area is low lying and has been substantially developed since the satellite imagery presented in the preliminary design. The contractor shall not, initially, rehabilitate the area, which should be subject of detailed leak detection Programme as detailed in these requirements.
2.	603	The area is a fragmented and unplanned area with significant levels of informal slum housing. There area is also very low lying which results in large areas of water surrounding the developed areas
3.	604	The area is well developed with low lying areas to the East. The area is well structured and consists predominantly of long straight pipelines.
Construction Batch-2		
4.	606	This is a large area of unplanned residential housing and basic industrial units.
5	609	The area is generally unplanned multi-storey housing with some informal slum settlements to the south.
6.	612	DMA 612 is a formally planned area with significant residential housing as well government buildings. There is little informal settlement. To the north is an area of reclaimed land which has begun to be developed.
Construction Batch-3		
7.	601	DMA 601 is located to the south of a water course which forms the northerly boundary. The area comprises newly built residential blocks in orderly developments. There is little industry and only low-level commerce. The area has been in filled in recent years and is low lying, especially to the south. Sub surface water may be present as a result. There are 6 production tube wells in the area which is well served.
8.	605	This area is in the south-eastern part of the zone which is largely peri-urban in nature. The network serves some outlying districts. Some informal settlements are present in the area.
9.	607	The area is just beside DMA 603 and unplanned area with significant levels of informal slum housing. It is also very low lying which results in large areas of water surrounding the developed areas.

SI.	DMA	Existing Conditions
10.	608	This is a planned but very densely developed area There are small slum areas to the north and east.
Construction Batch-4		
11.	610	This is a planned but very densely developed area
12.	611	This is a large DMA. The area is a densely developed mix of planned and unplanned housing with informal slum settlements at many road sides, near Noor Masjid and on the west periphery bordering the water course / low lying land.
13.	613	This is a mixed area with government buildings to the south east and residential buildings in the remaining. The development of the area is unplanned and includes several areas of informal slum settlement. Any work close to the lines may require additional permission of the rail authorities.
Construction Batch-5		
14.	614	This is a mixed-use DMA with residential housing in the east, north and west and park areas which include government buildings and a hospital in the south. There are small areas of slum along the railway to the north and along the main north south road.
15.	615	This area is mixed use with little residential housing. The areas to the east are government, military or other official buildings which are not currently served by DWASA. To the west is Ramna park which also includes officers' clubs, cathedral and other public buildings not served by DWASA.
16	616	This area is not residential but houses many official offices as well as Dhaka University. Most public buildings are not served by the DWASA network and the area is largely a network of transmission mains to export water to other DMAs.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION

A. Magnitude and Significance of Impacts

The implementation of the project will affect most of the city as branches of the distribution network are located in most roads and streets and the construction process will continue for more than 03 years. However, the construction work is in fact expected to cause insignificant negative impacts; Because of:

- (i) Most network construction will be conducted by small teams working on short lengths at a time so most of the impacts will be localized within short duration; and
- (ii) Large population and overcrowded conditions in much of the city, the environment of Dhaka is heavily degraded, and contains few sensitive features.

Methodology: Issues for consideration have been raised by the following means: (i) input from interested and affected parties; (ii) desktop research of information relevant to the proposed project; (iii) site visit and professional assessment by environment specialist engaged by the implementing agency; and (iv) evaluation of proposed design scope and potential impacts based on the environment specialist's past experience. Categorization of the project and formulation of mitigation measures have been guided by ADB's REA Checklist for Water Supply (Appendix 1) and ADB SPS 2009.

B. Planning and Design Phase

Outline design of ICB 02.7 was done by Design and Management Consultants in 2010. Based on the on-going packages and DWASA experience in implementing similar projects, planning principles and design considerations have been reviewed and incorporated into the site planning process whenever possible (salient design features are presented in Table 4). The outline design of DMAs 614, 615 and 616 have been updated incorporating information gathered through detailed survey. The updated models were checked for performance of the system for existing and future (2030) scenario. Considering the rapidly depleting groundwater level and keeping consistency with future water supply plan of DWASA, surface water from transmission main was considered for future water source. To overcome the possible risks and uncertainties, at least one Inter-DMA connection chamber with valves is considered as contingency plans to satisfy consumer needs in the event of key facility fails. To ensure the robustness of the models' risk analysis, sensitivity analysis, surge analysis etc. were carried out and optimized the models until satisfactory. As a result, some measures, design consideration and criteria are needed to be included in the detailed design of DMA-615. This means that some impacts and their significances are reduced and/or controlled by the integration of measures and considerations. To minimize traffic disturbance and public life hazards, trenchless technologies is being used wherever possible for laying pipes during implementation of these DMAs. The introduction of trenchless technologies requires the use

of High-Density Polyethylene (HDPE) pipe which satisfies project requirement as pipe material, design life, tensile strength, joint strength etc.

The construction of DMA-614, 615 and 616 are being implemented through a design-built contract, i.e. the civil works contractors also prepare the detail designs. Thus, the contractor conducts detailed survey of the DMA areas, update the model designs with additional information obtained from survey; and submit the detailed design and expected work methodologies for these DMAs.

C. Environment-Related Design Features of the Package

Activity	Design Consideration
Contractor's responsibility	<p>The contractors shall:</p> <ul style="list-style-type: none"> – Be familiar with the present traffic congestion of Dhaka city, rules and regulation of Dhaka City Corporations (DNCC/DSCC) & other concerning authorities i.e. Housing society, RAJUK etc. for preparation of road cutting plans before execution of works; – Arrange for temporary water supply to every household as and when their water supply is disconnected or disrupted; – Protect all underground and overground utility services viz. telephone, electricity, gas, sewer, drainage, etc. from damage during execution of the contract.
Pipe replacement rehabilitation, ¹¹ and network extension ¹²	<ul style="list-style-type: none"> – In all cases, Asbestos Cement (AC) pipes shall be replaced. Existing AC pipes, where intact, shall be left in-situ and not disturbed. Where the AC pipe is damaged and where there is a risk of asbestos particles becoming airborne, the contractor shall follow the AC Pipe Handling Protocol¹³, all necessary procedures, guidelines and laws as laid out locally to contain and remove hazardous material. – The network expansion into different residential / industrial areas will be through trenchless or conventional trenching methods whereby the pipelines will be laid with a minimum cover depth of 1.0 meters.
Working hours and times	<ul style="list-style-type: none"> – All work in major and minor roads that are heavily used by traffic will only be permitted at night between 7:00 PM and 7:00 AM. – All the minor roads and alley with less traffic may be considered for both day and night working provided alternative passageway can be maintained.
Road cutting ¹⁴	<ul style="list-style-type: none"> – Unnecessary road cutting should be avoided. – The contractor has to take all necessary safeguards to avoid incidents at site, prevent loss/damage to all existing utilities like pipelines, telephone, gas, electric cables, poles etc. & any government or private property during construction period. – DWASA will apply for the road cutting permission and the contractor shall give full effort and cost for collection of road cutting permission for required days after preparing the road cutting plans necessary works and documents by the contractor. – No temporary or permanent works must proceed before the design and drawings are approved by the Project Manager and road cutting permission obtained from DCC by PMU – The contractor shall prepare a traffic management scheme (road closure program or diversions) and incorporate detail of traffic diversions and

¹¹The term pipe replacement is understood to mean that the existing pipe will be replaced, either by the traditional open trench method, where the existing pipe will be abandoned and a new pipe will be installed or by pipe bursting, where the existing pipe will be used as a host pipe which will be cut open, expanded and a new pipe will be installed inside the old pipe.

¹² The term pipe extension is understood to mean the laying of a new pipe where no distribution pipes previously existed. Laying pipes in un-served and underserved area and replacing spaghetti lines (bunch of small diameter coil pipes) with new reticulation pipe lines will be considered as extension work.

¹³ Asbestos Cement (AC) Pipe Handling Protocol is the guideline which is needed to be followed during execution of existing AC pipe. The AC Pipe Handling Protocol is available in the IEE of Batch-5 (DMA-615).

¹⁴Most of the roads are owned and maintained by DNCC/DSCC. Some narrow roads having width even less than 2 m are privately-owned.

Activity	Design Consideration
Road excavation	<p>pedestrian routes, all traffic signs (for the regulation and for information) and road markings shall be ensured prior to start of road cutting.</p> <ul style="list-style-type: none"> – All excavations shall be done to the minimum dimension as required for safety and working facility. – The excavation must be carried out in the most expeditious and efficient manner. – The excavation shall be executed in such manner, that the contractor does not damage or interfere with existing services or structures. If damage or interference is so caused the contractor shall make arrangements with the supply and/or building owner to execute the repairs at the contractor's own cost. – All trench and pit excavations and other work shall be carried out during night time and within the limits of any existing road area shall be completed as rapidly as possible and, in the case of roads capable of carrying two or more lanes of traffic, not more than one half of the width of the carriage way shall be obstructed at any one time. In single lane roads, the contractor shall Programme his work in such a manner that the minimum inconvenience is caused to those persons who have reasonable grounds for using the road. – Road drains and channels shall be kept free from obstructions at all times. – In case of excavation in VIP and other large roads, the trenches and pits maybe need to be covered by steel plates to allow traffic to pass during non-working periods. The contractor must liaise with the DNCC/DSCC or concerning authorities and the responsible police to familiarize and adhere to such rules. All costs involved to adhere to such rules shall be borne by the contractor. – Pits and trenches not backfilled at end of a night shift, the excavation must be covered with steel plates and in alleys with wooden plates. – It is preferable that trench excavation along roads be located in footpaths or verges adjacent to the road rather than in the carriage way itself. Trench excavation shall wherever practicable be carried out in such a way that every part of the excavation is at least 0.5m clear of existing edges of the carriage way. – Where trench excavation or any other part of the works obstructs any footpath or right-of-way, the contractor shall provide, at his own cost, a temporary footpath around the obstruction to the satisfaction of the Project Manager. – The contractor shall have particular regard to the safety of pedestrian, livestock, and shall ensure that all open excavation, access routes and steep or loose slopes arising from the contractor's operations are adequately fenced and protected.
Trenchless pipe installation	<ul style="list-style-type: none"> – Pipes shall be installed by the Horizontal Directional Drilling (HDD) methods where required. If the indicated survey information and/or the method is not feasible; the contractor shall inform the Project Manager and gain prior approval for an alternative method or for Open Trench (OT) method. – Excavation material shall be removed from the conduit as the work progresses. No accumulation of excavated material within the conduit will be permitted. – The contractor shall provide sediment and erosion control measures in accordance with local environmental legislation. – The contractor shall supply portable mud tanks or construct temporary mud pits to contain excess drill fluids during construction. Spent drilling fluids and cuttings shall be confined to the entrance and exit pits. – The contractor shall take all necessary precautions to minimize the damage to the adjacent properties. Any drilling fluid that enters the pipe shall be removed by flushing or other suitable methods. – The contractor shall be responsible for cleanup and restoration – Pits excavated to permit connection of bored pipe shall be backfilled, and disturbed areas shall be restored to their original state or better. Sections of sidewalks, curbs, and gutters or other permanent improvements

Activity	Design Consideration
	damaged during HDD operations shall be repaired or replaced at the contractor's expense.
Resettlement plan	The contractor shall: – Implement Resettlement Plans, prepared by the Management and Supervision Consultants (MSC). No civil works will begin until all compensation to Affected Persons (AP) is paid.
Preparation of catalogues, installation and O&M manuals	– The contractor shall supply catalogues and installation manuals for each type of pipes, valves etc. to DWASA at the time of submission the Operation and Maintenance manuals. – All catalogues and manuals shall be printed in the English language or accompanied by an English translation.

D. Construction Phase

Construction method: Existing pipes are buried within roads in Dhaka City, and this practice will be continued by this project. Larger pipes (200 mm and above) are normally located in main roads, and smaller pipes (<200 mm) are in minor roads, and in most cases the pipeline is situated near the centre of the road.

All work in major roads and on minor roads that are heavily used by traffic will only be permitted at night between 7:00 PM and 7:00 AM. All the minor roads and alley with less traffic may be considered for both day and night working provided alternative passageway can be maintained. In all cases the contractor shall take prior permission from DNCC/DSCC. Contractors in Dhaka are required to obtain permission from the police for construction work in roads. The work has to be conducted in amounts that can be completed in a single night, and the surface is reinstated for use in the morning.

Most of the pipe replacement/rehabilitation will be carried out by trenchless technology,¹⁵ where a flexible plastic tube is inserted into an existing pipe and inflated to seal the inner surface. Small chambers are due to open two ends of a pipe and a wire is inserted to pull through the plastic tube, which is expanded by air pressure and adheres to the inside of the pipe. The only excavation is hand digging to build two small chambers (roughly 1.5 m³) per length, and the machinery is also small, involving a rotating drum for the wire and plastic liner, and an air compressor and water pump. This approach can also be used to install new pipes by drilling a horizontal tunnel and inserting the pipe, or by installing a tube inside a faulty pipe and inflating until the pipe bursts below ground, leaving a new pipe with a larger diameter and capacity. At some locations trenches will be built to remove leaking pipes and install replacements, and this will be done using backhoe diggers, supplemented by manual labor where necessary. Excavated materials will be loaded onto trucks and taken offsite for dumping within 12-24 hours of excavations, and sand for infilling will be brought in on covered trucks and stored on sites/stores. Pipes are normally covered by 1.2 m of soil, and a clearance of at least 100 mm is left between the pipe and each side of the trench to allow backfilling, so trenches will be relatively small, between 0.3 and 0.7 m wide and 1.4 and 1.8 m deep. DNCC/DSCC and/or concerning authorities are responsible for re-applying the final asphalt surface to metalled roads, and this will be done after approximately 6 weeks, to allow settling of the compacted material.

Pipes will be of High Density Polyethylene HDPE (100-250 mm) and brought to site from stores with tightly plugged on trucks, offloaded manually or by crane, and positioned in the trench by crane or via a pipe-rig. After pipes have been joined, the trench will be backfilled with specified sand applied with a warning tape layer (150mm above pipe top) to the surface layer and compacted the backfilling materials by hand-operated vibrating compactor.

Chambers for network valves for diameter 250mm and above and all bulk meters will be built in the trenches that are dug to install new pipes or at the entry and exit points for the trenchless work, so no separate excavation will be needed. Most chambers will be around 1.5 m³ with concrete floors and brick sides, which will be built by hand by masons. Valves will be put in place by hand or via small cranes and will be attached to the pipe flanges, and each chamber will be closed by a removable steel manhole cover.

¹⁵This applies to all network construction in main roads, and an estimated 25% of the work in minor roads.

House connections will be provided when work is conducted on the distribution pipe in the vicinity, and short trenches will be dug between the pipe and each residence, and a short length of small-diameter High Density Polyethylene (HDPE) pipe will be attached. This will terminate at the boundary of the property with a meter and a small valve.

Impacts on Physical Resources: The excavated materials, sand handling, dust emission, unpleasant noise (>70dB-A) etc. are the key impacts on physical resources due to pipeline installation works. Network replacement by new mains totalling about 54.00 km with reticulation where 43.86 km of HDPE pipelines including 2,919m of primary pipes (OD \geq 315mm) and 40,941 m of secondary mains (OD 110, 160, 200 and 250mm) including installation of buried Gate Valves (including surface box), and Wash Out, Data Loggers (DLs), Non Return Valves;

Installation of 100 gate valve out of which 20 nos. will be with RCC chambers for pipeline of 315mm diameter and above including installation of gate valves with necessary fittings, fixtures all complete, 8 RCC Interconnection chamber for isolation of DMA where required including installation of Pressure Sustaining Valves, Air Release Valves, Non Return Valves, Bulk Water Meters and Data Loggers with all fittings, fixtures all complete, Construction of 4 RCC Air Release Valve Chamber for pipeline including installation of data loggers with necessary fittings, fixtures all complete;

Installation of 10.166 km of tertiary lines (reticulation lines OD 75);

Replacement of 3461 service connections (OD 20-50mm);

Installation of 3461 new domestic meters including stop cock and float valve at consumers reservoir; Refurbishment of 10 nos. existing wells;

Using and/or practicing of trenchless technology will be reduced the indicated impacts mostly on physical resources except the ground disturbance due to various chamber excavation for the entry and exit of the tunneling machinery and pipes. The use of this technology will generate waste material but since the contractor will be required to remove it quickly and dispose appropriately, this work will also not have major physical effects. The difficulties to increase the trenchless technology are found the narrower width in secondary and tertiary roads created machineries entrance, congestions, risk on other utility services and health risks to city dwellers.

There will however be much greater physical disturbance from the installation of the remainder of the pipes, as this will require the construction by Open Trench (OT) method. After excavation of trench, approximately 25% of the trench will be occupied by the pipe, 60% by backfilled sand and 15% by excavated soil replaced on top layer of roads.

This presents a significant waste management issue, as this is a very large quantity of waste, which could not be dumped without causing physical impacts (on air quality, topography, soil quality, etc.) at the disposal site. There will also be quite large physical changes as a result of trench construction; and as the work will almost certainly be conducted in the dry season, there is also a lot of potential for the creation of dust (during excavation, storage and transportation of soil, and the importation of sand for infilling). Although most actions will be the responsibility of the contractors appointed to conduct this work, DWASA will also need to discuss the waste management issue in detail with DNCC/DSCC, to explore ways of reducing the amount of material to be dumped, by finding alternative beneficial uses.

The source of sand for the infilling will be determined by the contractors, and it is likely that this will be purchased from vendors who dredge sediment from the rivers for use in building and as infill in the floodplains to raise the level of building land. This is a major operation that has been underway for some considerable time, and removes very large quantities of sand from the river, without any apparent ill effects. This is probably because of the enormous amounts of sediment that are carried by the rivers and deposited in the delta region, and it could be that the mining activity improves the flood retention capacity of the river and helps protect parts of the city from flooding. Therefore insignificant additional impacts will be taken places on the river beyond those operations.

Another physical impact that is commonly associated with large-scale excavation is the effect on local drainage patterns if surfacewater and groundwater collects in voids as they are being dug. This should however not a problem be in this case, given the relatively deep water table in Dhaka city, and the fact that the contractor will almost certainly conduct the excavation in the dry season to avoid difficult working conditions in the monsoon.

In overall terms, although a large volume of material will be removed during trench construction, a large volume of sand will be brought to the working sites, and a relatively large area will be affected, physical impacts are not expected to be significant. This is because:

- (i) The method of working, whereby small teams work on short lengths of the pipeline for a few days and complete the work before moving on to the next site, means that at each site the effects will be mainly localized and short in duration;
- (ii) Physical impacts will be mainly temporary as trenches will be refilled and compacted after pipes are installed; and
- (iii) The design criteria and mitigation measures described in the Environmental Management Plan (EMP) will reduce those impacts with more wide-ranging implications to acceptable levels.

Impacts on Ecological Resources: As most trenches and chambers for the trenchless works will be dug within roads, there will not be any direct ecological impacts from construction of the network improvements. Contractors will however be required to ensure that no roadside trees are damaged or removed in the course of the work; and to mitigate any accidental losses, contractors will be required to plant and maintain two trees of the same species for every one that is removed.

The use of river sand for construction work can have ecological impacts by removing benthic invertebrates that provide food for fish, birds and other organisms, and destroying their habitats. However, these impacts will not be significant in this case because:

- (i) The amount of sediment removed for this project is a very small proportion of the total dredging operation;
- (ii) The large volumes of sediment carried by the river and the wide seasonal variations in flow mean that the river is a very dynamic ecosystem in which sediment erosion and accretion are part of the natural cycle, to which the invertebrate populations must adapt to survive;
- (iii) Sediments are a sink for many contaminants discharged into water bodies, so the dredging operation may provide some ecological benefit by reducing the overall pollution load.

Impacts on Socio-Economic Resources: The network improvement works will involve about 43.86 km of pipe installation (plus installation 10.166 km of tertiary lines reticulation lines OD75) works in DMA-615 in the streets of Dhaka city, which house very large numbers of shops, businesses, industries, and other economic activities. As the network is located in roadways, people and activities will undoubtedly be disturbed about 3-4 months for each DMA during the construction period. The time of construction will be subjected to the availability of Road Cutting permission from concerning authorities. However, it is not expected that this will result in major impacts on the economy of the city, or on the income of its businesses and citizens. This is because:

- (i) the installation of distribution pipes and reticulation pipes will be conducted by trenchless methods as much as possible, which require small-scale excavation at access points only, and will thus result in minimal disruption;
- (ii) of the pipes that will require trenching, local by-laws require that works in roads are conducted at night, when most businesses are closed;
- (iii) work will mainly be carried out on individual short lengths of the network, so each location will be affected for only a short time (an average of 5-7 days as previously experienced of another DMAs of ICB-02.7).

As all work will be conducted in existing roads and Right-of-Ways (ROWs), there will be no need to acquire any land from private owners for the improvement of distribution network for DMA-615, so there will be no resulting impacts on the income and assets of landowners or their tenants.

There can be economic impacts however if roads have to be closed for short periods and customers are unable to gain access to shops, or if trenches are constructed near the sides of roads, and customers are impeded by the presence of trenches, excavated material, workers and machinery. Although resulting losses in income will be small and short-lived, they can still be significant for small traders and other businesses that exist on low profit margins. A separate Resettlement Plan has been prepared for DMA-615 to examine the social and economic issues in more detail and provide appropriate mitigation where necessary. This establishes that, in addition to the mitigation measures in this IEE, owners and tenants of affected businesses will also be compensated to reduce the economic impact due to construction works.

Trenches will inevitably restrict traffic flows to an extent and roads may have to be closed on occasion. Although works in roads will be conducted at night, and individual streets will be affected for relatively short periods only, traffic impacts can still be significant, given the congestion problem that exists in Dhaka already. DWASA and the design consultants have planned the work carefully by including in the

design and specifications requiring the contractors to submit a traffic management plan for approval of the Project Manager.

Impacts on Social and Cultural Resources: When construction is conducted in residential areas, people may be disturbed by the noise of the construction activities and by dust during dry and windy weather, and trenches may impede access to houses for residents and their vehicles. In this case the fact that work will be conducted at night creates another potential problem as people may be disturbed by on-site lighting, and their sleep may be disrupted by noise. However, these impacts will not be greatly significant because:

- (i) Disturbance at most locations will last for a few days only;
- (ii) Background noise in much of Dhaka is high, even at night, so residents are adapted to a relatively high noise environment;
- (iii) People will be more willing to tolerate short-term temporary disturbance if they are aware of the benefits they will gain from an improved water supply.

DWASA will inform residents fully about the work, its duration and impacts, the mitigation measures, and the benefits of the completed scheme. In addition, officials in charge of facilities of social and cultural importance (e.g. schools, hospitals, mosques, museums, etc.) will be involved in stakeholder meetings so that they can be informed about the work in advance, and can bring specific concerns and issues to the attention of DWASA, if necessary.

A potentially more significant impact is the effect on people and communities if water supplies are closed down for extended periods when work is conducted on the network. This would be inconvenient in the short term, and there could be health risks if the water supply was unavailable for several successive days or longer. The package design and specifications require the contractors to plan the construction program to keep the cessation of water supplies to the minimum possible (in both area and duration), provide alternative potable water to affected households and businesses for the duration of the shut-down, liaise with affected persons to inform them of any cessation well in advance, and to ensure that they are provided with an alternative supply.

There is inevitably a safety risk when substantial construction such as this is conducted in an urban area, and strict precautions are needed to ensure the safety of both workers and citizens. Contractors will be required to produce and implement site Health and Safety Plan.

An additional, particularly acute health risk presented by this work derives from the fact that some parts of the existing water supply system including Asbestos Cement (AC) pipes, a material that can be carcinogenic if fibers are inhaled. There is therefore a significant health risk for workers and the public if these pipes are uncovered and damaged or cut accidentally, or deliberately to conduct the necessary pipeline refurbishment. This is in fact not such a major problem as might be expected, because:

- (i) There are only a small number of AC pipes in the existing water supply system in DMA-615 (510 m).
- (ii) These pipes are all in the old part of the city and their location is well known and marked on maps prepared by DWASA;
- (iii) The design of the project involves the replacement of these pipes and this can be done without removing or disturbing them, so all AC pipes will be left in situ.

Given the dangerous nature of this material, additional measures will still be established to protect the health of all parties in the event (however unlikely) that AC pipes are encountered in the course of the work. During the detailed design phase, the Management and Supervision Consultants (MSC) have developed a protocol to be applied in any instance that AC pipes are found, to ensure that appropriate action is taken. The protocol is based on the approach recommended by some internationally recognized organizations. The AC pipe protocol is attached in Appendix 9.

Given the scale of the project it is likely that large numbers of local people will obtain at least temporary socio-economic benefits, by gaining employment in the construction workforce, and thus raising their levels of income. These benefits can bring wider social gains if they are directed at vulnerable¹⁶ groups.

¹⁶ Vulnerable groups as those without legal title to land and other assets; households headed by single earner females, the elderly or disabled; indigenous peoples (based on ADB OM); and households with incomes that are below the poverty line

Contractors will therefore be given targets for the numbers of women and other vulnerable persons they should employ in their workforces, and DWASA will ensure that vulnerable persons are represented as legitimate project stakeholders in the various consultation forums and administrative committees established by the project. Creating a workforce from mainly local people will bring additional benefits by avoiding problems that can occur if workers are imported; including social difficulties in host communities and issues of health and sanitation in poorly serviced temporary camps.

E. Operations and Maintenance Phase

The main operations and maintenance (O&M) activities of the rehabilitated pipes will be detection and repair of leaks and pipe bursts. The generally flat topography and the usage of good quality pipes should mean that pipeline breaks are very rare, and that leaks are mainly limited to joints between pipes and areas where residents continue to attach their own illegal house connections. Leak repair work will be similar to the pipe-laying work as earlier explained. Trenches will be dug to reveal the leaking area and the faulty connection will be refitted, or the pipe will be removed and replaced if necessary.

The bulk meters will allow automatic computerized monitoring of amounts of water flowing through individual parts of the network, which will pinpoint areas where there are leaks and/or where water is being taken out of the system illegally. DWASA will visit such areas with audio devices to locate individual leaks, which will then be repaired in essentially the same way that the pipes were installed. Trenches will be dug to reveal the leaking area and the faulty connection will be re-fitted, or the pipe will be removed and replaced if necessary. If illegal connections are found these will be removed and the pipe will be re-sealed, or a new properly fitted connection with a meter will be provided.

Impacts on Physical Resources: Generally, the main risk to the physical environment of operating an improved water supply system is that increased abstraction of surface or groundwater will deplete the water resource. However, that will not be the case here, as there will be no additional abstraction. The increase in supply will be obtained from the refurbishment of the distribution network (which will significantly reduce system losses from leakage), and the installation of a new metering system (which will improve leak detection and cost recovery). This is expected to both improve the supply of water to the consumer and reduce the decline in groundwater from over-abstraction.

If trenches are dug to locate and repair leaks or remove and replace lengths of pipe or illegal house connections, the work will follow the same procedure that occurred when the infrastructure was improved. In this case soil and backfilled sand will be removed to expose the leaking junction or pipe, and if necessary a new pipe will be brought to site and replaced. The trench will then be refilled and re-compacted properly. This work should be very infrequent, and will affect individual small locations for short periods only (an average of a few hours for most repairs). Physical impacts will therefore be negligible. Work will not be conducted during rainfall so there will be no effect on drainage, and the removed material will be replaced in the trench so there will be no waste. There should also be no need to cover excavated material to prevent dust as it will have been wetted by the leaking water.

Impacts on Ecological Resources: The distribution network is located within roads, so any repairs will have no ecological impacts.

Impacts on Socio-Economic Resources: If network repairs are conducted in areas where there are shops or other commercial activities, these could lose some business while the repairs are conducted if access is difficult for customers. However, these will not be significant and will not need to be compensated, because repairs will be much smaller in scale than the original trenching works and much shorter in duration, so any losses will be at the level of normal day-to-day fluctuations in business income.

Impacts on Social and Cultural Resources: If network repairs are conducted in residential areas people may be disturbed by construction noise, and there could be some interruption of access to houses and locations of social and cultural importance (such as mosques, schools and hospitals) by the trenches and excavated soil. However, these impacts should also not be significant because of the short-term and infrequent nature of the works.

DWASA (and the contractors during the defects liability period) will operate the same kinds of Health and Safety procedures as used in the construction phase to protect workers and the public. This will include application of the asbestos protocol if any AC pipes are encountered, and prohibition of the use of AC pipes for any repair and maintenance work.

The citizens of the city will be the major beneficiaries of the improved water supply, as they will be provided with a constant supply of better quality water, piped into their homes. This should produce major

improvements in the social capital of the city, and significant improvements in individual and community health and well-being. To augment these benefits, DWASA will conduct a public education and information campaign to raise awareness of the health risks of contaminated water and the continuing need to boil municipal water before consumption. Then diseases of poor sanitation, such as diarrhea and dysentery, will be greatly reduced.

People will then spend less on healthcare and lose fewer working days due to illness, so the economic conditions of individuals and the community as a whole should improve. There should be fewer deaths in infancy and at other stages of life, so the structure and well-being of families should also improve. The cultural resources of the city may also benefit, because if people are healthier and have more income, they should also have more time and money to spend on cultural pursuits.

F. Mitigation Measures

There are no impacts that are significant or complex in nature, or that need an in-depth study to assess the impact. Thus, the project is will not cause significant adverse impacts. In addition to the mitigation measures and specifications already considered in the package design, the potential adverse impacts that are associated with construction and O&M can be mitigated to acceptable levels with the specific mitigation measures discussed in the EMP.

5. ANALYSIS OF ALTERNATIVES

The cumulative impact assessment (CIA) examined the interaction between the project's residual effects (i.e., those effects that remain after mitigation measures have been applied) and those associated with other past, existing, and reasonably foreseeable future projects or activities. The interaction of residual effects associated with multiple projects and/or activities can result in cumulative impacts, both positive and negative. The project's potential cumulative effects were considered with respect to Valued Components (VCs) in environmental and socioeconomic categories, in four areas:

- (i) of any potential residual project effects that may occur incrementally over time;
- (ii) consideration of other known relevant projects or activities within the specified study area boundaries, even if not directly related to the project;
- (iii) potential overlapping impacts that may occur due to other developments, even if not directly related to the proposed project; and
- (iv) future developments that is reasonably foreseeable and sufficiently certain to proceed.

The project has identified the VCs as water quality, noise, traffic management, socio-economic and socio-community components, and human health. There are no foreseeable projects that will overlap with the project. The spatial boundary of the project is the area along the pipe alignment, existing right of ways, and building sites. The temporal boundary can be considered as the whole Dhaka City.

Given the water supply requirement in Dhaka will be met and the sources considered adequate, there are no significant cumulative impacts expected on the future water supply.

Air quality effects will occur during construction. Consequently, although emissions of common air contaminants and fugitive dust may be elevated in proximity to active work sites, this impact will be short-term and localized to the immediate vicinity of the alignment. Greenhouse Gas (GHG) emissions may increase as a result of project activities (i.e., vehicle and equipment operation, concrete production, disposal of excavated material, landfilling of residual wastes). Given the project's relatively minor contribution to common air contaminants and GHG emissions during construction, the overall significance rating of both these potential residual effects is considered to be negligible.

Noise levels during construction in the immediate proximity of most work sites are expected to increase. The duration of this exposure will be relatively brief. This exposure represents a temporary, localized, adverse residual effect of low to moderate significance for affected receptors. While building damage due to ground vibrations is unlikely, there may be annoyance to spatially located receptors during construction. Noise levels associated with the project O&M will be largely imperceptible, as the buildings are located in relatively small sites within the city proper.

Land use/traffic management concerns will occur spatially during construction. Site-specific mitigation measures will be implemented to address temporary disruptions to land use and access, traffic delays and detours, parking modifications, and increased volumes of construction-related traffic. Traffic movement along the alignment will be improved once construction is completed. Since the project will be the rehabilitation of existing pipelines and a building to be constructed adjacent to existing water supply

facilities, it will not conflict with existing or planned land use. However, following improvement in infrastructures and services, added residential developments, commercial, and business facilities and increased densities are expected to develop and enhance the project area. This can be considered a long-term cumulative benefit of the project.

Upon completion of the project, the socio-community will benefit from improved water supply system. This is considered a long-term cumulative benefit.

No adverse residual effects to human health will occur as a result of project construction or operation. While exposure to elevated noise levels and fugitive dust and common air pollutants will occur in proximity to project work sites during construction, due to their short-term, localized nature, these effects are expected to be minor and insignificant with no measurable effects on human health.

Therefore, the project will benefit the general public by contributing to the long-term improvement of water supply system and community livability in Dhakacity.

6. INFORMATION DISCLOSURE, CONSULTATION, AND PARTICIPATION

To ensure awareness and gain support from local community people towards project interventions, intensive population campaigns were conducted at different levels and category of people. The following methodologies were used for carrying out public information campaign and consultations in the DMA areas. The Resettlement Plans (RPs) for DMA 614 and 615 are submitted and DMA 616 is in implementing stage and in under review process.

a). Public Consultation Conducted (Planning, Design and Implementation Stage)

The public participation process included (i) identifying interested and affected parties (stakeholders); (ii) informing and providing the stakeholders with sufficient background and technical information regarding the proposed development; (iii) creating opportunities and mechanisms whereby they can participate and raise their viewpoints (issues, comments, and concerns) with regard to the proposed development; (iv) giving the stakeholders feedback on process findings and recommendations; and (v) ensuring compliance to process requirements with regards to the environmental and related legislation.

The following methodologies have been used for carrying out public consultation: Local communities, individuals, and owners and employees of commercial establishments who are directly or indirectly affected were given priority while conducting public consultation.

- (i) Walk-through informal group consultations were held in the proposed project area.
- (ii) The local communities were informed through public consultation, with briefing on project interventions, including its benefits.
- (iii) The environmental concerns and suggestions made by the participants were listed, and discussed, and incorporated in the EMP.
- (iv) Various forms of informal public consultations (consultation through adhoc discussion-site) have been used to discuss the project activities.

The discussion has been carried out in the public consultation meeting for information disclosure and awareness about anticipated issues can be raised during construction period of the project. A question and answer session has made for the conversation and information about the project. The participants, purpose, key issue interrogated etc. are briefly illustrated in the Table 5.

Details of Conducted Public Consultations for Information and Awareness

SL No	DMA No.	Address	Participants Type	Purpose of Consultation	Key Issue Discussed	Interrogation on Design & Resettlement Plan
1	615	Begum Rahima Ideal Girls High School, Segunbagicha	Teachers, House Owners, MSC & WASA Representative, Local Elites, Local Leader, Contractors & NGO Personnel etc.	Project Information Dissemination; Support Seeking from UP bodies and Construction Work Procedure & Ready to get House Connection.	Project Description, Support seeking for contractors and keeping ready by showing house connection papers, Environmental and Social Safeguard Issues.	Entitlement of APs; Implementation arrangement and Grievance Redress Mechanism incorporated in the RP based on the discussion.
2	615	Purana Paltan Girls College / Arambag High School & College / Shantinagar Ideal High School	Teachers, Retired Govt. Officials, House Owner's, Guardians, MSC & WASA Representatives, Contractors Personnel NGO Personnel etc.	Awareness Rising, Information Dissemination, Problem Solving, Conflict management, Support seeking for the Contractor.	Awareness Rising Indicator's, Grievance Raising Procedure, House Connection Process and problem solution process for Contractors Support.	Implementation arrangement and Grievance Redress Mechanism incorporated in the RP based on the discussion

Stakeholder consultation meeting on Project Information Disclosure and Awareness in DMA 615 was held at different locations to cover all the area of these DMAs. House Owner's, PMU Officials, Businessmen, Local Elites, Civil Society Personnel, Contractor's Personnel, MSC representatives and the NGO Representatives were present in the Meeting. The proceedings, pictures and list of participants of the stakeholder consultation meetings are attached in Appendix-3.

Key respondents included project-affected persons in DMA-615 who only include owners of houses/residences and commercial shops/establishments who will suffer temporary access disruptions during project implementation due to the laying of pipelines, shopkeepers/businessmen, and daily commuters consulted randomly. In addition to a number of informal consultations conducted regularly in the project corridor, house to house information dissemination, community level project information disclosure meeting on Resettlement Awareness and Support LIC's were conducted.

b). Future Consultation and Disclosure

This IEE and other relevant documents will be made available at public locations in the city and posted on the DWASA and ADB websites. The consultation process will be continued and expanded during the project implementation through a Non-Government Organization (NGO), to ensure stakeholders participate fully in project execution, as well as to implement comprehensive information, education, and communication plan.

The public consultation and disclosure program with all interested and affected parties will remain a continuous process throughout the project implementation, and shall include the following:

- (i) **Consultations during construction phase:** (a) public meetings with affected communities to discuss and plan work programs and allow issues to be raised and addressed once construction has started; and (b) smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts, and to provide a mechanism through which stakeholders can participate in project monitoring and evaluation.
- (ii) **Project disclosure:** (a) public information campaigns to explain the project to the wider city population and prepare them for disruptions they may experience once construction is underway; (b) public disclosure meetings at key project stages to inform the public of progress and future plans, and to provide copies of summary documents in local language; (c) formal disclosure of completed project reports by making copies available at convenient locations in the study areas, and informing the public of their availability; and (d) providing a mechanism through which comments can be made.

For the benefit of the community, the summary of this IEE will be translated in the local language and made available at (i) DWASA office, (ii) Project offices, and (iii) contractor's offices/campsites. It will be ensured that the hard copies of IEE are kept at places which are conveniently accessible to citizens, as a means to disclose the document and at the same time creating wider public awareness. An electronic version of the IEE will be placed in the official website of DWASA and the ADB website after approval of the IEE by ADB.

c). Involvement of Non-Government Organization (NGO)

The appointed Non-Government Organization (NGO), SAMAHAR, is responsible for ensuring that the required fieldwork and training associated with resettlement works are undertaken to a standard approved by the PMU in consultation with the Management and Supervision Consultant (MSC). The NGO is being worked under the guidance of MSC. The scopes of the work mainly include:

- (i) Liaisons with and advise the MSC and contractor on and before starting of any resettlement works.
- (ii) Providing suitably qualified teams of field staff including women to undertake all field-work activities related to resettlement works of the DMAs
- (iii) Managing the workload of field-workers accordingly in time and effective manner.
- (iv) Planning the work to be undertaken in conjunction with the MSC and contractor.
- (v) Advising residents and take mitigating measures on possible disturbances and measures to be undertaken during project implementation.
- (vi) Advising Affected Persons (APs) on the availability of grievance procedure to be followed under the project ICB-02.7
- (vii) Assisting the contractor to disseminate the information about the road closures and the alternative arrangements made for the same.

- (viii) Preparing the list of the potential APs of the project who are likely to be affected by the project work before, during and after implementation to the actual work and issue ID card for each AP considered entitled for compensation for being affected by the project works.
- (ix) Developing and keeping updated a sex-disaggregated database recording the APs and status of compensation payment.
- (x) Ensuring video-graph of the project roads/alignments preferably one month ahead of the actual project implementation works which will be considered as cut-off date of the project.
- (xi) Preparing the entitlement of the APs in the – of the road which will be blocked temporarily for not more than 05 days.
- (xii) Ensuring compensation payment by the PMU to each AP before physical works.
- (xiii) Keeping informed the consultant (MSC) and PMU about all the activities pursued under the resettlement activates of the package ICB-02.7.
- (xiv) Coordinating all field workers, activities in conducting community level information dissemination and meetings.
- (xv) Mobilizing APs to be supportive during construction times and construction created inconveniences, which may be brought about by the implementation of the rehabilitation Project.
- (xvi) Adopting participatory approaches at all stages of service delivery, ensuring the views of women and vulnerable groups are equally represented in project committees and other decision making bodies.
- (xvii) Submitting the regular monitoring and monthly and quarterly progress reports on the resettlement works from time to time to the consultant (MSC) and PMU office.
- (xviii) Caring out any other related task as may be assigned by the project Director.

7. GRIEVANCE REDRESS MECHANISM

A project-specific Grievance Redress Mechanism (GRM) has been established to receive, evaluate, and facilitate the resolution of Affected Persons (APs) concerns, complaints, and grievances about the social and environmental performance at the level of the project. The GRM is deliberated to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project.

DWASA has its own Grievance Redress Procedure (GRP), which it operates to address any dissatisfaction and complaints by residents regarding its activities. This is set out in the DWASA Resettlement Policy Framework (RPF), developed with World Bank assistance in January – March 2006 and approved by GoB in April 2006. This procedure will be applied to address any complaints or grievances during implementation of the DESWSP.

DWASA policy as set out in its RPF is to try to resolve complaints at project level through negotiations with community leaders and representatives of Affected Persons (AP). For this program these discussions will be conducted by the PIU, and will involve the AP and members of the relevant Zonal Level Coordination Committee (ZLCC), plus the Site Manager and Chief Engineer of the Construction Contractor if necessary. If a case cannot be resolved in this way it will be submitted to a Grievance Resolution Committee (GRC), led by the PMU Director, with two other members who are (i) a representative of the residents of the project area who is known to be a person of integrity and good judgment who commands respect, and (ii) a representative of a local NGO or CBO (in this case the NGO implementing the Resettlement Plan).

The GRC for DMA 615 under ICB Package 02.7 of MODs Zone 6 is formed as per following format.

A. Grievance Resolution Committee (GRC)

#	Name	Designation at GRC	Institution	Designation
1	Executive Engineer, DESWSP	Convener	DWASA	EE, DESWSP
2	Team Leader	Member	NGO	Team Leader
3	Resettlement & Awareness Expert	Member	MSC	Resettlement & Awareness Expert
4	Assistant Engineer	Member	DESWSP, DWASA	AE DESWSP
5	Safe Guard officer (Social and Gender)	Member Secretary	DESWSP, DWASA	Safe Guard Officer (S&G) DESWSP

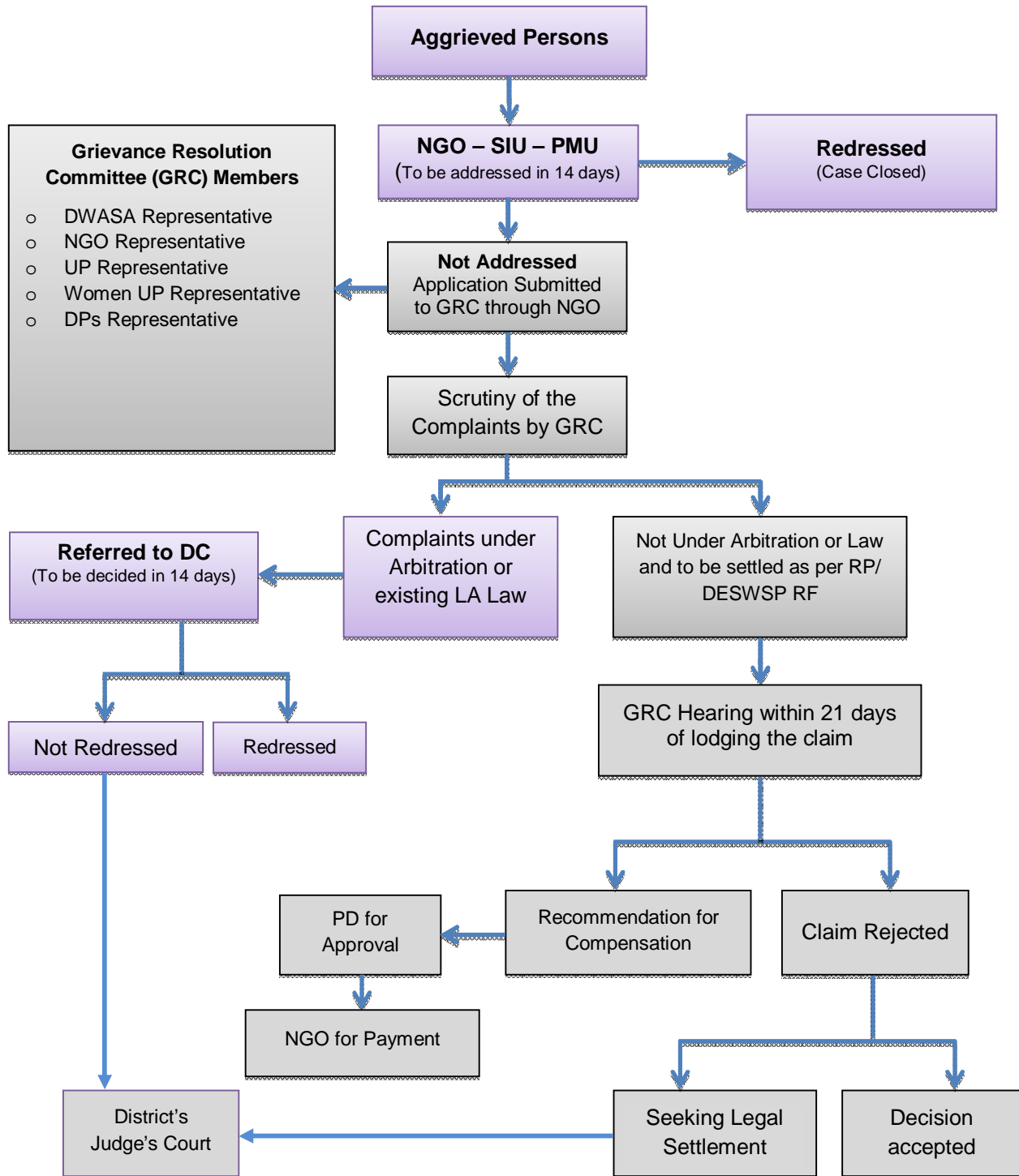
The Project Coordinator convenes a meeting of the GRC in the project area, and conducts proceedings informally to reach an amicable settlement between the parties. The report of the committee is recorded in writing, and attested copies are provided to the parties involved. For this program the GRC will be required to meet and reach a decision within 14 days of receiving a complaint (verbally or in writing) from an AP or his representative. There will also be an appeals procedure where, if a person is dissatisfied with the ruling of the GRC, he or his representative may attend their next meeting to re-present the case. The committee will then re-consider the case in private, after which their decision is final. If the appellant is still not satisfied, he has the right to take his case to the public courts.

The PMU Resettlement Specialist will keep a record of all grievance cases and will examine these for recurring complaints and solutions and action to address these will be incorporated in subsequent RPs and IEEs. APs will be made aware of the GRM via the public consultation meetings, and will be informed of the outcome of cases at subsequent meetings. DWASA will also publish the outcome of cases on public notice-boards in each hydraulic area. If the aggrieved AP is not satisfied with the decision of the GRC, he/she has the right to refer his/her petition to the court of law.

All costs involved in resolving the complaints (meetings, consultations, communication, and information dissemination) will be borne by the PMU; cost estimates for grievance redress are included in resettlement cost estimates.

In the foreseeable event of GRM is not in a position to resolve the issue, the affected person can also use the ADB Accountability Mechanism (AM) through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB Headquarters or the ADB Bangladesh Resident Mission (BRM). The complaint can be submitted in any of the official languages of ADB's DMCs. The ADB Accountability Mechanism information will be included in the PID to be distributed to the affected communities, as part of the project GRM.

B. Flow Chart of Grievance Redress Mechanism (GRM) for ICB 02.7.



Source: Resettlement Plan (RP)

8. ENVIRONMENTAL MANAGEMENT PLAN

A. Mitigation

The purpose of the Environmental Management Plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i) providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project; (iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the project; and (iv) ensuring that safety recommendations are complied with.

The draft IEE was prepared during project outline design and now it is being updated based on the Detailed Designs, Environmental Features of areas, Baseline Survey and Environmental Management Plan (EMP) prepared by contractor for the designated DMA(s) (DMA-615). The updated IEE report will be submitted to DWASA for review and forwarded to ADB for further review, approval, and disclosure prior to commencement of works. A copy of the EMP must be kept on work sites at all times. The EMP will be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

B. Monitoring and Implementation Arrangement including Performance Indicators

The project is being implemented through the Local Government Division (LGD) of the Ministry of Local Government, Rural Development and Cooperatives (MLGRDC). DWASA is both the Executing Agency (EA) responsible for the management, coordination and overall technical supervision of the program, and the Implementing Agency (IA) responsible for supervising construction of the infrastructure and conducting the non-infrastructure elements.

DWASA has established a Project Management Unit (PMU), responsible for day-to-day management of the program, including tendering and selection of contractors, construction supervision, monitoring and evaluation, and compliance with safeguards policies. The PMU is headed by a full-time Project Director (PD) in the rank of DMD or Chief Engineer (CE). In addition, there are 2 (two) dedicated Deputy Project Directors (DPDs).

The PMU is being assisted by the Management and Supervision Consultants (MSC), who is for tendering management of contractors and supervision of the construction works; and NGOs, who is for the conducting public awareness campaigns. The PMU is already appointed individual construction contractors to build the infrastructure of the hydraulic zones (DMAs). The contractor is being managed by the relevant Project Coordination Unit (PCU) and construction is being supervised by the MSC.

A PCU has been established in each of the four DWASA administrative (MODS) zones. Headed by the Zonal Executive Engineer and staffed by PWSS personnel, the PCU is responsible for coordinating all activities at the local level in the zone, and engaging civil society.

DWASA is being assisted by an inter-ministerial Project Steering Committee (PSC), to provide policy guidance and coordination in the implementation of the program. The PSC meeting is being convened by LGD. Its membership will include the Managing Director, DWASA; Project Director of PMU; representative from Dhaka City Corporation; representative from the Economic Relations Division and the Finance Division of MoF; the Planning Commission; the Planning Monitoring and Evaluation Division; RAJUK (Capital Development Authority); LGED, Ministry of Environment and Forestry; and ADB representative as observer.

A Zonal Level Coordination Committee (ZLCC) will monitor implementation of the program at local level in each zone, and will report to the PSC.

Environmental issues are being coordinated by the Environmental unit of MSC (now, consisting by Environmental Inspector only and who is also acting as Environmental Expert). The responsibilities of the Environmental Unit of MSC include: (i) carrying out and/or updating IEE in accordance with the government rules and regulations and with the ADB requirements; (ii) carrying out environmental assessment of alternative sites; (iii) establishing systems for implementation of EMP to ensure compliance with ADB SPS and rules of the Government of Bangladesh; and (iii) disclosure of environmental information and interaction with stakeholders. The Environmental unit of MSC working closely with other

specialist to ensure that guidelines specified in the EMP are reflected in project contracts and to prepare reports on environmental safeguard monitoring activities periodically.

Excavation: Rehabilitation of the existing water supply networks has no significant impact on subsurface condition at site. There are some constraints of construction impose geology, soils and ground water conditions, but these are not unusual and can be accommodated through proper design and construction procedures. The new introduce Trenchless Technology will be applied for installation of pipe line in most of the roads which has minimum impact in environment. There are very little possibilities of adverse impact on biological and socio economical environment of the project area.

The project may produce lot of positive impacts on health hygiene and living standard of people. "Environmental Assessment Requirements and Environmental Review Procedures of the ADB" manual, is considered to be the benchmark for the project.

The project includes rehabilitation and upgrading of existing water supply distribution networks utilizing production tube wells, involving some adverse impacts.

The significant factors are as follows:

Maximum rehabilitation works will be executed on the road surface or on the government owned land which is not occupied or used for any other purpose.

Distribution networks will be conducted by teams working on short possible lengths at a time, so impacts will be localized and short in duration. Large population and overcrowded conditions have heavily degraded the environment of Dhaka. So there will be very few sensitive features in much of the city areas.

The project relevant factors are as follows:

Impact	Effect	Policy
Sodium Hypochlorite used for disinfection	Ground/drinking water contamination	Emissions
Vehicle and equipment	Air pollution	Air Quality
Fuel	Air pollution	Air Quality
Vehicle and equipment	Noise and public nuisance	Noise and Nuisance
Chemical and fuels	Ground/drinking water contamination	Hazardous Substances
Excessive wind	Dust storm causing negative impact for workers	Dust and litter Control
Litter	Negative impact on neighborhoods	Dust and Litter Control

Substantial number of vulnerable persons and women will be engaged locally in the work force to enhance the short term economic impact within the local community.

Base line Monitoring aims to identify collect and verify the additional environmental baseline data, which is scientific or sociological in nature and needed to augment information on baseline conditions initially generated during IEE. Therefore, baseline monitoring will not be conducted unless any striking new scenarios in terms of physical and socio-economic conditions emerge.

Impact monitoring is necessary in order to know the actual level of impact in the field during the construction and operation of the proposed project in the alignment as the environmental impacts are predicted based on value judgment and with some valid assumptions.

The IEE has assessed the environmental impacts of all infrastructure proposed by the DESWSP and has concluded that all negative impacts will be successfully mitigated and that the project will deliver major benefits to the people of the capital city Dhaka City.

Health and Safety Plan

There is a separate Occupational Health and safety plan for the package ICB 02.7 besides we are discussing some common items and measures that are being in use at site.

The Health and safety officer, under the direction of the site Manager will be responsible person within site for ensuring compliance with the hygiene standards. Frequent inspections and monitoring of camp (s) facilities will be done in order to maintain and protect the health and safety and will discover the epidemic situation timely in order to prevent the spreading of the illness. The staff will be given the primary treatment of the Patient based on the state of illness and to take the patient to the local hospital for further treatment if necessary.

The Health Paramedic, which will undertake medical examination and biological monitoring will arrange for samples or laboratory samples when they required for analysis.

The safety and health of all our employee will be provided and will ensure compliance with safety requirement for food, laundry, cleaning and on site generated garbage disposal **RPL – FSL – CRFG JV** is committed to providing a safe and healthy environment for all personnel, and visitors to the site. Making Health and Safety considerations and value in our planning and development process

Applying an integrated approach to design and operations on project and to the operation of our Home offices, this balances the objectives of maximizing health and safety performance while minimizing the environmental impact.

Health Plan

The immediate Plans are:

- Job site health awareness program at the starting of each group of labor force of the different locality.
- Monthly Health awareness program at the work site
- Periodic health checking and inspection to ensure and maintain a good standard of health and hygiene.
- Adequate medical facilities on site
- HS Management properly track and register first cases on an logbook
- Develop and encourage preventive medical care attitude through increasing health & hygiene awareness.



Safety plan

- Always Safety first.
- Prevent all occupational accidents by implementing the necessary safety procedures for such purposes.
- Install an effective safety inspection system by establishing the adequate safety organization chart that delegates authority and responsibilities.
- We will evaluate critical safety activities during the construction and present methods and procedures for preventing accidents.
- Necessary safety tools, items and equipment will be provided for taking necessary Taking necessary protective measures including providing all instrument for safety as stated in SCC clause 22.2.7 : Health and Safety of the tender document.



- Comply with the requirement of Section -6, Employers requirement 2.14.3 of the contract document requirements.
- JV Health and Safety unit will promote safety procedures and adaptation of the Personnel Safety Equipment through proper safety awareness program. The Project related NGO will also be involved.
- It has been observed that the Personnel safety Items (PSE) are being provided to worker but still they are not fully adapted to use the PSEs. This should be ensured that every laborer working at sites are using their PSEs
- The provision of information concerning protection of hazard, by developments of "SAFETY SIGN" Protect the health and well being of personnel during worksite activities and ensure that safety is the prime consideration during execution of the project.

Working Hours And Times

All work in major roads and on minor roads that are heavily used by traffic will only be permitted at night between 7:00 pm and 7:00 am. All the minor roads and alley with less traffic may be considered for both day and night working provided alternative passageway can be maintained. In all cases the Contractor shall take prior permission from the competent authority (DCC or similar public Road Authority) and make aware the local authorities and elites as well as general public (through campaigning).

The Health and Safety Officer, under the direction of the Site Manager will be responsible person within site for ensuring compliance with the occupational health and safety requirements. Frequent inspections and monitoring of camp (s) facilities will be done in order to maintain and protect the health and safety and will discover the epidemic situation timely in order to prevent the spreading of the illness. The staff will be given the primary treatment of the Patient based on the state of illness and to take the patient to the local hospital for further treatment if necessary.

The Health Paramedic, which will undertake medical examination and biological monitoring will arrange for samples or laboratory samples when they required for analysis.

The safety and health of all employees of the contractors will be provided and will ensure compliance with safety requirement for food, laundry, cleaning and on site generated garbage disposal.

Environmental Mitigation Measures Action Plan

Environmental Mitigation Measures Action Plan describes in details the project activities and their associated environmental and social impacts, mitigation measures, responsible agencies for implementation and monitoring mechanism throughout the project life cycles. If it requires, Environmental Specialist may add additional mitigation measures.

Emissions

Chemicals, including sodium hypochlorite (Na ClO) used for disinfection, shall not be discharged into surface or ground water.

- **Non –chemical method of treating chlorine:**

Release of chlorinated water into sanitary sewers, by sulphide and other inorganic/organic pollutants in sewage will rapidly neutralize chlorine.

- **Chemical method of treating chlorine:**

De-chlorination chemical, such as, sodium bisulfate (NaHSO_4), sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3$) ascorbic acid ($\text{C}_6\text{H}_8\text{O}_6$) or sodium ascorbate ($\text{C}_6\text{H}_7\text{NaO}_6$) may be used to neutralize chlorine.

Air Quality

All vehicles will be used in the work site shall have installed pollution minimization devices so far, maintained and repaired with regular and due timing so that the devices comply with prescribed standards or maximum permissible concentrations of emissions.

The use of woods as a fuel (if needed) is preferable for the execution of any part of the works.

Fuels other than wood will be used for cooking and heating water at work site to the extent practicable

Air quality monitoring at working site: MSC and JV peoples are seen with the Photograph

Noise and Nuisance

Dhaka city dwellers are adapted to relatively higher noise level of traffic, vehicles and machineries. The community will be informed in advance of the upcoming work schedule in their neighborhood to avoid surprise and allow them to plan their activities accordingly.

Noise level of machinery, vehicles and workers on site will be kept at a minimum especially in residential neighborhoods and at night.

During the construction the noise level of the machineries and equipment mobilised by the Contractor for the work must not exceed 70dB (A). Protective measure shall be introduced to keep the produced sound at the site within acceptable limit. During the working period other than the HDD machine and the portable Generator sound remains within tolerable limit. Time of generator setting and place always choose in such a way that the people of the locality may not suffer for the hazardous sound; In case of 10 kva or more capacity: special sound proofing device will be tried to keep the noise within limit.

Canopy to the generator has been tested for sound reducing, It reduces the level of sound but generator got heated within 15 minutes of their running time. Now placing the generator at a safe distance process are being followed.

However, testing is going on trial and error basis to reduce the sound level of the generator and HDD. Frequent noise level monitoring are being conducted by our Environmental Health and safety supervisor. This noise monitoring should be consistently monitored to all the working place having HDD and Generators are in use. Though is in practice, more emphasis and special measures and routine working time frame will be maintained in case of the work site nearer to the educational institute, Hospital, clinic and other sound sensitive institutions.

As part of environmental monitoring and to keep the record and to verify the noise level and Ambient Air quality monitoring has been conducted to the first batch: DMA 602, 603 and 604 the DMAs are already been handed over. Second batch: DMA 601, 606, 609, 612 and third batch DMA 605, 607 & 608 conducted on 27.10.16 and 21st March 17 respectively. Monitoring to the 4th batch DMA 610, 611 and 613 has been completed on 20/12./2018, report of the 4th phase Environment and Noise report has been submitted in the monthly report of January 2018. 5th Phase monitoring for DMA 614, 615, 616 will be started as soon as the physical activities started to the DMA. All The reports are being sent to MSC and PMU at the end of each phase wise monitoring. As per recommendations of the HDD machine operating/drilling time set in consultation with the main road side school College and other institution; to avoid noise during the examination period of the local institutes and the pray time. NGO and the safety officer from the working group monitor the consultation events.

Water distribution pipes will be laid underground/roads to avoid the need to acquire additional land and relocate people using following technologies with the intent to reduce public suffering and inconveniences during implementation period.

- Trench less technologies using Pipe Bursting (PB) system
- Trench less technologies using Horizontal Directional Drilling (HDD) system
- Conventional Open Trench system

Most of pipe lying will be trench less technology following the existing distribution networks to keep public disruption to a minimum.

To reduce traffic disruption, work in main roads and busy minor roads will be conducted at the night time where ever possible. Day time work may take place to complete any incomplete night time work.

Security of the sites

Proper guarding will be there for all utilities, plants equipment, material, etc. delivered on sites and for ensuring that all sign, lights, fences, etc. are in their proper place. And also all works carried out under this contract, including any goods or materials provided by the Employer for use in the Facilities falling under this contract. These security responsibilities shall continue until each DMA have been taken over by the Employer.

All the long trenches and pits are being provided with the steel sheet or wooden planks in order to facilitate the movement of the pedestrians, Livestock and workers. The matter will be strictly followed in each and every spot of trench cutting and follow up till the back filling is completed.

Each and every safety item is ready to provide, install and maintain suitable barriers and / or fences to protect the Facilities, constructions camp, storage yard, existing facilities and construction and installation operations and to remove same when no longer required by the Employer or on completion of the respective works



Safety, Security and Protection of the Environment

All necessary precautionary measures against pollution or interference with the supply or obstruction of the flow of, surface or underground water has been taken and will be in use as and when required basis. These precautions shall include earthen bunds of adequate capacity, bond plug, in drainage systems from workshops, vehicle and plant washing facilities and service and fuelling areas and kitchens, the establishment of sanitary solid and liquid waste disposal systems.

Some times it becomes a difficult task to remove the excavated earth from the narrow by lanes, that are being taken to the safe side by putting the excavated material in the bag and carrying them by cart or Van to the safe distance. This removal process should be implied in and planned before going to excavation in any of the narrow by lanes.

Handling of non friable Asbestos Cement (AC) Pipe

If the cement waterline contains greater than one percent asbestos it would be considered an asbestos containing material (ACM). It would be considered a regulated asbestos containing material (RACM) if it is friable. Friable means that dust can be created by hand pressure; it is broken into many/smaller pieces; or if it is subjected to any cutting, sanding, grinding or abrading.

AC pipe must be removed, Handled and disposed of in a manner that keeps the material in predominantly whole pieces to be considered no friable. Sanding, sawing, grinding, chipping, or the use of power tools is not allowed. The pipe must be kept wet during removal. Wetting minimizes asbestos fibers from being released.

- **Protection of Trees and Vegetation**

Alignment of the pipe line and the other site structure for the working facilities will chosen in such a way so that no trees or shrubs are felled or harmed except for those required to be cleared for execution of the works. No tree will be removed without the prior approval of the Project Manager or any competent authorities.

- **Use of Wood as Fuel**

Wood will not be used as fuel for the execution of any part of the works, other than wood are used for cooking, and water heating in all his camps and living accommodations.

- **Water Supply**

All arrangement has been made to ensure water supply for construction and other purposes from the supply line of DWASA in such a way that that the rights of and supply to existing users are not affected either in quality, quantity or timing.

- **Power Supply**

Sufficient number of mobile generator of different capacity is ready to be used for the power supply of the construction and other purposes. For the Site godown authorized connection from DESCO (Dhaka Electric Supply Co.) has been installed.

- **Fire Prevention**

We have our own fire fighting team well equipped with modern fire fighting devices. The team will be stand by for the local minor incidents. Besides there are good numbers of Govt fire brigade station within the area of ICB –0 2.7, we have the telephone numbers of which will be used in worst or uncontrolled situation. We will obtain and follow any instructions of the competent authorities with respect to fire hazard when working in the vicinity of gas installations. Should a fire occur in the natural vegetation or plantations adjacent to the road for any reason our fire fighting people will immediately suppress it.

Bi- Monthly Fire drill continues through out the working period at the central Godown campus of Aftabnagar. The practice become one of the favourite training items among the workers.

The following are the Fire drill picture of February 2018 at Aftabnagar the central store of ICB-02.7



Fire service control room no	:	02 – 9555555
DMA-Khilgaone Fire service	:	02 – 55120329
	:	01730002225
Siddiq bazaar road Khilgaon	:	02-7218329
Palashi Barrack Dhakeswari road fire station;	:	880-2-8628688
www.fireservice.gov.bd		
Handling traffic		

On approval of the Detailed design the method of installation is confirm. Before any work in, or affecting the use of, any highway or road is commenced, we propose with the method of working, including any special traffic arrangements, shall be agreed with, and confirmed in writing to, the Project Manager and the authority of the roads, and Police (Traffic) Authorities. In case of any emergency the office of the Deputy Commissioner (DC Traffic) police will be communicated, Phones:

- DC traffic South : **02-8322507**
- DC traffic North : **02-8900793**
- DC traffic East : **02-957229**
- DC traffic West : **02-8129680**

The Contractor shall submit to the Project Manager a detailed work plan showing activities for approval in case of the busy main roads. This work will be planned in eliminating traffic problem in such a way that can be completed within 8 to 12 hours with minimum traffic interruption, so all of this work will be conducted by small teams, working on short lengths of the network (around 50 - 100 m) at a time. The pipes will be installed and the trenches and pits will be backfilled and compacted without delay including temporary restoration of the roads for traffic movement. Special emphasis and extra care should be taken in case of the VVIP roads and national KPIs within the jurisdiction of DMA 614, 615 and 616. Excavated materials should be removed from sites simultaneously with the excavation of the trenches and the pits. Area of DMA 616 is the most important and VVIP areas with KPI " the secretariat, president house, National stadiums, Dhaka University and their residential hall are situated with in this DMA and Most of roads are VVIP. Besides DMA 614 & 615 are also with in the centre of the city with all VVIP residential areas.

Work with assigned Non Governmental Organization (NGO) to identify and compensate the project affected persons (PAP s). Reduce the effect on Affected Persons by limiting the work site as needed and concluding the work in each of the work site expeditiously.

Resettlement issues are being coordinated by the Resettlement and Awareness Expert of MSC, who prepares resettlement plans for each hydraulic zone (DMA) as guided in ADB SPS, following the Resettlement Framework established during program preparation. This specialist also coordinates the allocation of compensation and other entitlements, which is being distributed by PMU in each zone. The PMU is being assisted by the Resettlement and Awareness Expert of MSC. The Resettlement Plan (RP) of DMA 615 has been prepared and got approval from PMU.

The working areas are planned and mostly covered by residential buildings where shops and hawkers are permitted to establish and run businesses. According to the project policy, the road width is found 10m and above, will not come under consideration of resettlement compensation. Resettlement Awareness Team (RAT) of NGO has completed the road measurement survey and joint verification survey of DMA 615 and it has been found that most of the road widths are below 10 meters. However, so far, 30 Affected Persons (APs) have been identified in roads where the width is within 10 meters in this(1) DMAs. NGO has collected information by interviewing each Vendors/Hawkers as per prescribed form of ADB and identified 30 persons in DMA-615 for compensation. As per detailed survey report NGO recommended a list of 30 (Thirty) APs assessing compensation amount of their business loss or income loss.

The DMA-615 is located in the main Dhaka City. It could be called as heart of the town. The DMA is a mixture of residential and commercial area but the major portion of the area is commercial. Most of the roads are well constructed and much wider. A few roads are narrow but those are in the residential areas. There are lots of vendors / Hawkets on the roads but a few of them will be suffered. The Resettlement team conducted road reconnaissance, road measurement and joint verification survey. Through the survey the resettlement team found 30 (Thirty) vendors/hawkets as AP who will lose their income for a few days (5 days) during (Construction Work) physical work. The Resettlement NGO also conducted a study on socio-economic status with the checklist of ADB for the temporary affected (AP) person's and found seven types of Business actually there are 4 types of separate business as others. The socio-economic profile of temporary affected person are shown in the below table.

C. Profile for the AP's

#	Name of AP	Age	Sex	Religion	Type of Business	Status	Years of Operation	Average Profit/Day	Vulnerability
1	Md. Shajahan	56	M	Islam	Others(Betel Leaf & Cigarette)	Owner	32 Years	500	None
2	Tomol Sarker	49	M	Sonaton	Fruits & Vegetables	Owner	17 Years	500	None
3	Md. Delowar Hossain	50	M	Islam	News Paper Seller	Owner	16 Years	500	None
4	Md. Ripon	27	M	Islam	Others(Tea stall)	Owner	17 Years	600	None
5	Nogendra	67	M	Sonaton	Shoe Repair	Owner	36 Years	400	None
6	Md. Habibur Rahaman	20	M	Islam	Flexi Load	Owner	16 Years	500	None
7	Md.Anowar Hossain	20	M	Islam	Others (Betel Leaf & Cigarette)	Owner	17 Years	500	None
8	Md. Alamgir	50	M	Islam	Others(Betel Leaf & Cigarette)	Owner	12 Years	500	None
9	Md. Roni	31	M	Islam	Others(Betel Leaf & Cigarette)	Owner	17 Years	500	None
10	Bimol Babu	58	M	Sonaton	Shoe Repair	Owner	36 Years	400	None
11	Md. Kalu Patwari	30	M	Islam	Food	Owner	22 Years	500	None
12	Md. Mamun	25	M	Islam	Others(Betel Leaf & Cigarette)	Owner	17 Years	600	Disabl e
13	Md. Shahab Uddin	40	M	Islam	Others(Betel Leaf & Cigarette)	Owner	24 Years	400	None
14	Austoni Wrishi	45	M	Sonaton	Shoe Repair	Owner	7 Years	400	None
15	Md. Montu Mia	60	M	Islam	Others(Tea stall)	Owner	27 Years	500	None
16	Narod Chadra Das	33	M	Sonaton	Shoe Repair	Owner	15 Years	500	None
17	Md. Nasir Ali	32	M	Islam	Others(Tea stall)	Owner	17 Years	500	None
18	Mission Chan Wrishi Das	30	M	Sonaton	Shoe Repair	Owner	21 Years	500	None
19	Md. Yakub	48	M	Islam	Fruits & Vegetables	Owner	10 Years	500	None
20	Md. Habibur Rahman	50	M	Islam	Fruits & Vegetables	Owner	20 Years	500	None
21	Md. Mosharraf	35	M	Islam	Fruits & Vegetables	Owner	08 Years	500	None
22	Ms Rashida Begum	35	F	Islam	Fruits & Vegetables	Owner	08 Years	500	WHH
23	Md. Monju	55	M	Islam	Others(Tea stall)	Owner	10 Years	500	None
24	Shajal Chandra Wrishi	30	M	Sonaton	Shoe Repair	Owner	15 Years	400	None
25	Md. Mokshed Ali	33	M	Islam	Fruits & Vegetables	Owner	05 Years	500	None
26	Md. Shahin Alam	23	M	Islam	Others(Tea stall)	Owner	05 Years	500	None
27	Md. Boshir Ullah	50	M	Islam	Fruits & Vegetables	Owner	10 Years	500	None
28	Jotsna Begum	35	F	Islam	Others(Betel Leaf & Cigarette)	Owner	02 Years	400	WHH
29	Ropindo	40	M	Sonaton	Shoe Repair	Owner	20 Years	400	None
30	Abdul Mannan	68	M	Islam	Others(Betel Leaf & Cigarette)	Owner	05 Years	400	None

It is assessed that compensation on the basis of their daily average profit and proposed compensation for five days. In consequence NGO proposed to allocate BDT 82500.00 (Eighty-Two Thousand Five Hundred) only for DMA-615 as compensation against their 5 (five) days average profit or income.

INCOME RESTORATION AND REHABILITATION: The compensation mechanism and income restoration has followed the approved Resettlement Plan (RP) of ICB: 02.7 at Zone 06 dated August 2013 under Dhaka Environmentally Sustainable Water Supply Project in Bangladesh-(Distribution Network Improvement) Package No.ICB 02.7.It follows the entitlement matrix in the agreed RF and details out the approved RP.

The transect surveys identified loss of income as the only resettlement impact and the Entitlement Matrix indicates that this will be compensated by a straight forward income restoration strategy. This involves the provision of cash compensation to shopkeepers, the owners and operators or other businesses, and hawkers, equivalent to the amount of income they lose. Compensation and assistance to APs must be provided prior to start of civil works. APs will be provided 60 days advance notice, followed by a reminder 1 week before construction, and again, 1 day before construction to ensure no or minimal disruption in lively hood. If required, they will also be assisted to temporarily shift for continued economic activity. Preferential employment in project-related work will be offered to local people, with priority to vulnerable persons. The APs are being compensated only for 3-5 days. The women headed households receive one day extra compensation for their temporary income loss. The APs are allowed to go back their original place, just completion the construction work. In case of other losses, like, loss of boundary wall or structures, income loss for closing shops or any other loss, the APs are allowed to file their complain to the Grievance Redress Committee (GRC). After joint verification the committee fixed the loss and submits to PD. Then PD forwarded to the contractor for final payment.

D. RESETTLEMENT BUDGET AND FINANCING PLAN

Resettlement Budget for Compensation

Resettlement Costs	Quantity	Unit Cost (BDT)	Total	Total (US\$)
Provisional sum for lost income of hawkers / Vendor	30	-	72000.00	900 \$ @ Taka 80
GRM	Lumpsum	-	3000.00	37.5 \$ @ Taka 80
Contingency Cost	--	--	7500.00	93.75 \$ @ 80 Taka
Total	30	2750.00	82500.00	1031.25 \$ @ Taka 80.00

Source: RP of Package # ICB-02.7

Amount in TK: 72000.00 (Seventy Two Thousand) BDT.

- DMA-615, (Paltan)
- Proposed Compensated Person- 30 Persons for five days.
- A detailed Affected Person List is attached as Appendix

Contractor: The contractor has an environment supervisor to (i) coordinate with MSC on updating the IEE/EMP based on detailed designs, and (ii) and ensure implementation of EMP during civil works.

Organizational procedures/institutional roles and responsibilities for the safeguards implementation are described in Table 7.

E. Institutional Roles and Responsibilities for Safeguards Implementation

Activities	Agency Responsible
Disclosure of proposed project and anticipated social and environmental impacts on website	ADB PMU
Disclosure of proposed project, social/environmental impacts, proposed entitlements/mitigation measures in local languages	PMU
Disclosure of grievance redress mechanism/process	PMU, MSCPCU, ZLCC, NGO
Finalization of sites and alignments	PMU, MSC, Contractors
Identification of roads for closure, existing utilities, road conditions	PMU, MSC, Contractors
Updating of safeguard documents (IEE and RP) based on detailed	MSC with assistance from

Activities	Agency Responsible
design	contractors& NGO
Review of updated RP/IEE and send to ADB for approval prior to contract award	PMU
Clearance and disclosure of updated safeguard documents	ADB, PMU
Conducting transect walks through road stretches to identify extent of impacts	MSC, Contractor, NGO
Conducting meetings at community/household level with affected persons (APs)	MSC, Contractor, NGO
Design/implementation of detailed measurement survey (DMS) ¹⁷ on roads identified for full/partial closure; identification of poor and vulnerable APs	MSC, NGO
Computation of entitlements	PMU, MSC
Categorization of APs for finalizing entitlements	MSC, NGO
Conducting focus group discussions/meetings/consultations/workshops during DMS survey and updating safeguards documents	PMU, MSC, NGO
Finalizing entitlements and rehabilitation packages for all Aps	PMU, MSC, NGO
Disclosure of final entitlements and rehabilitation packages	PMU, MSC, NGO
Delivery of entitlements/award of checks	PMU
Implementation of mitigation and rehabilitation measures	PMU, MSC, Contractor
Consultations with APs during rehabilitation activities	MSC, Contractor, NGO
Grievance redressal	PMU, MSC, NGO, Contractor
Internal monitoring	PMU, MSC

a). Capacity Building

A training program has been developed to build the capability of PMU. This is being conducted by the Consultant.

PMU & MSC will be organized induction courses for the training of contractors, preparing them on: (i) EMP implementation, including environmental monitoring requirements related to mitigation measures; and (ii) taking immediate actions to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation. The contractor will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. The suggested outline of the training program is presented in Table.

Capacity Building and Training Program

Description	Contents	Schedule	Participants	Remarks
Program 1 Orientation workshop	<p>Module 1 – Orientation ADB Safeguards Policy Statement Bangladeshi Environmental Laws and Regulations</p> <p>Module 2 – Environmental Assessment Process ADB environmental process, identification of impacts and mitigation measures, formulation of an Environmental Management Plan (EMP), implementation, and monitoring requirements Review of environmental assessment report to comply with ADB requirements Incorporation of EMP into the project design and contracts</p>	1 day	<p>DWASA officials involved in the project implementation</p> <p>PMU MSC Contractors NGOs</p>	<p>An orientation workshop was conducted on ADB SPS by Environmental Specialist and Social Safeguard Specialist of ADB on 15th November, 2015 during an ADB team visited Bangladesh.</p> <p>A demonstration of implementation procedure was conducted during their field visit to project location in Dhaka. The key issues regarding EMP implementation and Resettlement observed by the team in the field were discussed in the workshop.</p> <p>A capacity building</p>

¹⁷Detailed measurement survey to be carried out during detailed design, to record and quantify resettlement impacts and entitled persons.

Description	Contents	Schedule	Participants	Remarks
				workshop on ADB & GoB Environmental Safeguard Requirement was conducted by MSC on 26 th June, 2016.
Program 2 Orientation program/ workshop for contractors and supervisory staffs	Environmental issues during construction Implementation of EMP Monitoring of EMP implementation Reporting requirements	1 day	PMU Contractors	Conducted by MSC on 9 th November, 2016.
Program 3 Experiences and best practices sharing	Experiences on EMP implementation – issues and challenges Best practices followed	1 day on a regular period to be determined by PMU & MSC	PMU MSC Contractors NGOs	To be conducted in a suitable time on 2018.

b). Environmental Management Action Plan

The EMP will guide the environmentally-sound construction of the project and ensure efficient lines of communication between the PMU, MSC, and contractors. The EMP identifies activities according to the following three phases: (i) Pre-Construction/Planning phase: site establishment and preliminary activities, including finalizing EMP and IEE; (ii) Construction phase: installation of pipe network as per detailed design with implementation of EMP; and (iii) Post-Construction/Operational phase. Table 9 outlines the mitigation measures and responsible organization(s) for implementation and monitoring which are applicable for the DMA-615. The EMP has been prepared by contractor and after 2nd review approved by MSC, in close coordination with the contractors, during the detailed design stage of DMA-615. The final EMP and IEE are reviewed and cleared by DWASA and ADB at time of detailed design and prior to commencement of construction work.

Environmental Monitoring Program: A program of monitoring will be conducted: (i) to ensure that all parties take the specified action to provide the required mitigation, (ii) to assess whether the action has adequately protected the environment, and (iii) to determine whether any additional measures may be necessary. Most measures will be checked by simple observation, by checking of records, or by interviews with residents or workers. This will be coordinated by the PMU and Environmental unit of MSC. The Environmental unit of MSC will be responsible for all monitoring activities and reporting the results and conclusions to the PMU, and will recommend remedial action if measures are not being provided or are not protecting the environment effectively. The Environmental unit of MSC is being assisted by a fulltime Environmental Inspector who makes many of the routine observations at the various construction sites. Post-construction monitoring will be conducted by DWASA as part of their overall management of the operating infrastructure.

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
Planning and Design Phase						
Contractor's responsibility	<ul style="list-style-type: none"> -Be familiar with the present traffic congestion of Dhaka city, rules and regulation of Dhaka City Corporations (DNCC/DSCC) for preparation of road cutting plans before execution of works; -Arrange for temporary water supply to every household as and when their water supply is disconnected or disrupted; -Protect all underground and overground utility services viz. telephone, electricity, gas, sewer, drainage, etc. from damage during execution of the contract. Necessary compensation to be paid to the respective organization(s) as per their prevailing rules and regulations. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Road Cutting Plan -Arrangement for temporary water supply -Disruption to utilities 	As required in the Program of Performance	Contract Provisions EMP
Pipe replacement rehabilitation, ¹⁸ and network extension ¹⁹	<ul style="list-style-type: none"> -In all cases, AC pipes shall be replaced. Existing AC pipes, where intact, shall be left in-situ and not disturbed. Where the AC pipe is damaged and where there is a risk of asbestos particles becoming airborne, the contractor shall follow all necessary procedures, guidelines and laws as laid out locally or by this EMP to contain and remove hazardous material. -The network expansion into different residential / industrial areas will be through trenchless or conventional trenching methods whereby the pipelines will be laid with a minimum cover depth of 1.0 meters. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> -Residual design life and proposed methods of repair -Inventory of AC pipes 	As required in the Program of Performance	Contract Provisions EMP AC Pipe Handling Protocol
Working hours and times	<ul style="list-style-type: none"> -All work in major roads and on minor roads that are heavily used by traffic will only be permitted at night between 7:00 PM and 7:00 AM. -All the minor roads and alley with less traffic may be considered for both day and night working provided alternative passageway can be maintained. 	Contractors	DWASA PMU MSC	Work hours	As required in the Program of Performance	- Contract Provisions - EMP

¹⁸The term pipe replacement is understood to mean that the existing pipe will be replaced, either by the traditional open trench method, where the existing pipe will be abandoned and a new pipe will be installed or by pipe bursting, where the existing pipe will be used as a host pipe which will be cut open, expanded and a new pipe will be installed inside the old pipe.

¹⁹ The term pipe extension is understood to mean the laying of a new pipe where no distribution pipes previously existed. Laying pipes in un-served and underserved area and replacing spaghetti lines (bunch of small diameter coil pipes) with new reticulation pipe lines will be considered as extension work.

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
Road cutting ²⁰	<ul style="list-style-type: none"> -Unnecessary road cutting should be avoided. -The contractor has to take all necessary safeguards to avoid accidents at site, prevent loss/damage to all existing utilities like pipelines, telephone/gas/electric cables, poles etc and any government or private property during the contract period. -DWASA will apply for the road cutting permission and the contractor shall give full effort and cost for collection of road cutting permission for required days. Therefore, the road cutting plans necessary for the application must be prepared by the contractor. -No temporary or permanent works must proceed before the design and drawings are approved by the Project Manager and road cutting permission obtained from DNCC/DSCC by PMU. -The contractor shall prepare a traffic management scheme (road closure program or diversions) and incorporate detail of traffic diversions and pedestrian routes, all traffic signs (for the regulation and for information) and road markings shall be ensured prior to start of road cutting. 	<p>Contractors for preparation of road cutting plan and payment for pavement restoration</p> <p>Contractor for preparation and implementation of traffic management scheme</p> <p>DWASA for the road cutting permit</p> <p>DNCC/DSCC for pavement restoration</p>	<p>DWASA PMU</p> <p>DNCC/DSCC for issuance and monitoring of pavement compaction</p>	<ul style="list-style-type: none"> -Road category along pipe alignments -Budget allocation for pavement restoration -Road cutting plan -Road cutting permission from DNCC/DSCC 	<p>Prior to start of civil works</p> <p>After compaction and turn-over to DNCC/DSCC for pavement restoration</p>	<ul style="list-style-type: none"> - Contract Provisions - EMP
Road excavation	<ul style="list-style-type: none"> -All excavations shall be done to the minimum dimension as required for safety and working facility -The excavation shall not damage or interfere with existing services or structures. If damage or interference is so caused the contractor shall make arrangements with the supply and/or building owner to execute the repairs at the contractor's own cost. -All trench and pit excavations and other work shall be carried out during night time and within the limits of any existing road area shall be completed as rapidly as possible. - Road drains and channels shall be kept free from obstructions at all times. -In case of excavation in VIP and other large roads, the trenches and pits maybe need to be covered by steel plates to allow traffic to pass during non-working periods. The contractor must liaise with the DCC and the responsible police to familiarize themselves and adhere 	<p>Contractors for preparation of road cutting plan and payment for pavement restoration</p> <p>Contractor for preparation and implementation of traffic management scheme</p> <p>DWASA for the road cutting permit</p>	<p>DWASA PMU</p> <p>DNCC/DSCC for issuance and monitoring of pavement compaction</p>	<ul style="list-style-type: none"> -Road category along pipe alignments -Budget allocation for pavement restoration -Road cutting plan -Road cutting permission from DNCC/DSCC 	<p>Prior to start of civil works</p> <p>After compaction and turn-over to DNCC/DSCC for pavement restoration</p>	<ul style="list-style-type: none"> - Bangladeshi Standards and Codes of Practice in their latest version, National Building code and Public Works Department (PWD) specification of the Govt. - Contract provisions - EMP

²⁰Most of the roads are owned and maintained by DCC. Some narrow roads having width even less than 2 m are privately-owned.

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	<p>to such rules. All costs involved to adhere to such rules shall be borne by the contractor.</p> <ul style="list-style-type: none"> -Pits and trenches not backfilled at end of a night shift, the excavation must be covered with steel plates and in alleys with wooden plates. -Where trench excavation or any other part of the works obstructs any footpath or right-of-way, the contractor shall provide, at his own cost, a temporary footpath around the obstruction to the satisfaction of the Project Manager. -The contractor shall have particular regard to the safety of pedestrian, livestock, and shall ensure that all open excavation, access routes and steep or loose slopes arising from the contractor's operations are adequately fenced and protected. 	DNCC/DSCC for pavement restoration				
Trenchless pipe installation	<ul style="list-style-type: none"> -Pipes shall be installed by the horizontal directional drilling (HDD) methods where required. Should survey information indicate that the method is not feasible the contractor shall inform the Project Manager and gain prior approval for an alternative method or for open trench method. -Excavation material shall be removed from the conduit as the work progresses. No accumulation of excavated material within the conduit will be permitted. -The contractor shall provide sediment and erosion control measures to prevent drilling fluid or borehole cuttings from entering water courses or other land adjacent to the site in accordance with local environmental legislation. -The contractor shall supply portable mud tanks or construct temporary mud pits to contain excess drill fluids during construction. Spent drilling fluids and cuttings shall be confined to the entrance and exit pits. -The contractor shall take all necessary precautions to minimize the damage to the adjacent properties. Any drilling fluid that enters the pipe shall be removed by flushing or other suitable methods. -The contractor shall be responsible for cleanup and restoration -Pits excavated to permit connection of bored pipe shall be backfilled, and disturbed areas shall be restored to their original state or better. Sections of sidewalks, curbs, and gutters or other permanent improvements damaged during HDD operations shall be repaired or 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> -Program of Performance -Pipe Bursting Plan -Plan for locating, exposing and re-connecting service connections -Proposed pit size and location -Temporary water supply plan; -Plan for consumer notification. -Traffic management plan 	As required in the Program of Performance	Contract provisions

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	replaced at the contractor's expense.					
Resettlement Plan	–Implement Resettlement Plans, prepared by DWASA. No civil works will begin until all compensation to affected persons is paid.	PMU DSC Contractors NGO	DWASA ADB	–Number of affected person –Compensation to affected persons –Number and type of information dissemination activities –Complaints from stakeholders	Prior to start and during civil works	Resettlement Plan
Preparation of catalogues, installation and O&M manuals	–The contractor shall supply catalogues and installation manuals for each type of pipes to DWASA at the time of submission the Operation and Maintenance manuals. –All catalogues and manuals shall be printed in the English language or accompanied by an English translation.	Contractors	DWASA PMU MSC	–Program of Performance	Completion of civil works and decommissioning	–Contract provisions
Prior to Construction Phase						
Preparation of final IEE/EMP	–Revise/update IEE/EMP based on detailed design –Submit to ADB for approval and disclosure	MSC to update DWASA to submit to ADB	DWASA	- Detailed Design	After completion of detailed design and prior to start of civil works	ADB SPS EARF
Environmental Monitoring Report	–Submit to ADB Semi-Annual Environmental Monitoring Report	MSC to prepare DWASA to submit to ADB	DWASA	- EMP - Contractprovisions	Semi-annual	ADB SPS EARF IEE
Legislation, permits, and agreements	–In all instances, DWASA, service providers, contractors, and consultants must remain in compliance with relevant local and national legislation. –A copy of the IEE must be kept on-site and disclosed in DWASA and ADB website	Contractor	PMU Environment Specialist and Environment unit of MSC	All applicable permits and approvals	Prior to award of contract and as necessary	- Location Clearance - ECC - Road cutting permit
Education of site staff on general and environmental conduct ²¹	–Ensure that all site personnel have a basic level of environmental awareness training. –Staff operating equipment (such as excavators, loaders, etc.) shall be adequately trained and sensitized to any potential hazards associated with their task. –No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the contractor.	Contractor	PMU and MSC	Records of training	Prior to start of civil works and every new employee	Environmental management plan (capacity building)

²¹ These points need to be made clear to all staff on-site before the project begins.

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	–All employees must undergo safety training.					
Safeguards supervisors	–The contractor shall appoint one environment safeguard supervisor and one resettlement supervisor who will be responsible for assisting contractors in implementation of EMP, coordinating with the MSC environment management specialist and resettlement specialist, community liaison, consultations with interested/affected parties, reporting, and grievance redressal on a day-to-day basis.	Contractor	Consultant	Hiring and actual work	As work progresses	Continuous work output and reporting records
Construction Phase						
Safety, security and protection of the environment	–Take all necessary precautions against pollution or interference with the supply or obstruction of the flow of, surface or underground water. These precautions shall include but not be limited to physical measures such as earth bunds of adequate capacity around fuel, oil and solvent storage tanks and stores, oil and grease traps in drainage systems from workshops, vehicle and plant washing facilities and service and fuelling areas and kitchens –Establish sanitary solid and liquid waste disposal systems –Should any pollution arise, clean up the affected area immediately at his own cost and to the satisfaction of the Project Manager, and pay full compensation to any affected parties.	Contractors	DWASA PMU MSC MoEF	- ECC provisions - Program of Performance - Waste Management Plan - Complaints from stakeholders	- As required in the Program of Performance - As work progresses	- ECC - Contract provisions - EMP - No complaints received
Protection of waterways	–Every effort shall be made to ensure that any chemicals or hazardous substances do not contaminate the soil or water on-site. –Care must be taken to ensure that runoff from vehicle or plant washing does not enter the surface/ground water. –Site staff shall not be permitted to use any stream, river, other open water body, or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, or for any construction or related activities. –All concrete mixing must take place on a designated, impermeable surface. –No vehicles transporting concrete to the site may be washed on-site. –No vehicles transporting, placing, or compacting asphalt or any other bituminous product may be washed on-site. –All substances required for vehicle maintenance and repair must be stored in sealed containers until they can	Contractor	DWASA MSC	- ECC Provisions - Complaints from community	As work progresses	- No visible increase in turbidity and construction materials/ wastes in surface water, any waterways, or drainage channels - Zero complaints from community

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	<p>be disposed of removed from the site.</p> <p>–Hazardous substance/ materials are to be transported in sealed containers or bags.</p>					
Construction of temporary structures (such as offices, storages, warehouses, scaffolding, etc.)	<p>–Before commencement of the works on the sites submit to the Project Manager the drawings, where the proposed location and general arrangement or site construction survey of the contractor's office premises, workshops, storages, headquarters and other temporary constructions, necessary for adequate and easy execution of the contract.</p> <p>–Obtain own information about the access to all the parts of the sites and, if the contractor wants to use the roads, going through private properties, he shall complete all the formalities with the owners.</p> <p>–Ensure all necessary precautionary measures to avoid any accident due to traffic. He should ensure that for any activities/temporary or permanent structures, machineries and equipment, scaffolding or shoring should not obstruct free flow of surface runoff towards sewer system or drain.</p> <p>–Under no circumstances may open areas or the surrounding bushes be used as a toilet facility.</p> <p>–Encourage recycling and provide separate waste receptacles for different types of wastes. Ensure that all litter is collected from the work and camp areas daily. Ensure camp and working areas are kept clean and tidy at all times.</p> <p>-- No trees, shrubs, or groundcover may be removed or vegetation stripped without the prior permission of the engineer.</p> <p>–The contractor shall submit a method statement and plans for the storage of hazardous materials (fuels, oils, and chemicals) and emergency procedures. - The contractor shall ensure the material safety data sheets of chemicals are posted in conspicuous areas.</p>	Contractor	MSC	Location plan	<ul style="list-style-type: none"> - Prior to start of civil works - As work progresses 	<ul style="list-style-type: none"> - Approved location plan - Construction method - No complaints received - No dumped wastes and litter at work sites at all times
Handling of surface water, flooding event, heavy	<p>–Protect the working area including pits, trenches, materials, machineries and equipment from any damage due to inundation by downpour.</p> <p>–Ensure not to make any congestion in the open drains or</p>	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Bi-weekly 6 weeks running plan 	<ul style="list-style-type: none"> - As required in the Program of Performance - As work progresses 	<ul style="list-style-type: none"> - Contract Provisions - EMP

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
downpour, etc. ²²	<p>natural or artificial channels by any of his activity.</p> <ul style="list-style-type: none"> -Take necessary measure to bring the site to the condition prevailing before the downpour without delay. Necessary measure has to be taken so that storm water does not get into the newly installed pipelines. -Be particular in keeping updated weather forecast and maintain a record book at site in which weather condition is recorded. 			- On-site record book		
Handling of excavated soil	<ul style="list-style-type: none"> -Make own arrangements for the temporary storage of any excavated material. Haul away all excavated materials from the excavation site and deposit these in an area designated by DWASA. -Have regard to the working areas available to him for the construction of the pipeline particularly where this is located in roads or in other places to which the public has free access. -Be responsible for removal and disposal of any excavated material required for or not suitable for use as refilling as aforesaid or use elsewhere in the works. The cost of such removal of excess excavated earth shall be deemed to be included in the contract rates. -Hauling vehicles must always be present at the excavation site. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Bi-weekly 6 weeks running plan - On-site record book - Complaints from stakeholders 	<ul style="list-style-type: none"> - Prior to start of civil works - As work progresses 	<ul style="list-style-type: none"> - Contract Provisions - EMP
Minimization of public disturbance	<ul style="list-style-type: none"> -Restrict his work to the sites allocated to him, and keep the sites accessible for inspection by competent authority at any time. -Ensure, as far as possible to minimize public disturbance and work during the nights. -Advance road signage indicating the road detour and alternative routes. Provide sign boards for pedestrians to inform them of nature and duration of construction works and contact numbers for concerns/ complaints. -Provide adequately illuminated signs and barriers at night. Ensure these are clean, legible at all times and repositioned as necessary as the work progresses. -For the duration of the works, provide convenient access to paths, steps, bridges, crossings or drives for all 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Inventory of utilities, signs and barriers - access to paths, steps, bridges, crossings or drives for all entrances to property - Complaints from stakeholders and affected people - Records of disclosure and public 	<ul style="list-style-type: none"> - Prior to start of civil works (per pipe section) - During pipe laying/ replacement/ bursting - As work progresses 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received

²² Water logging problem exists during downpours and monsoon. Portions of roads may be flooded for prolonged periods after heavy downpours. The existing drainage facilities of Dhaka are insufficient. Only about 30% of the city's population is connected to the sewerage system. Dispose of wastewater through surface drains, or in low-lying areas, natural drains, or water bodies that find their way to storm sewers. During monsoon period with medium to heavy downpour the roads are inundated for 1-6 hours.

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	entrances to property abutting the site and maintain them clear, tidy, and free from mud and objectionable matter.			consultations		
Warning of users prior to any disturbance in water supply	<ul style="list-style-type: none"> - Submit detailed work plan for the particular portion of the work to the Project Manager for approval. - Before setting out for the work, inform the inhabitants, businesses and consumers through appropriate means (bill board display, leaflet distribution, using color papers announcement on radio and TV, publishing in the widely circulated daily newspapers) at least 7 days (or as directed by the Project Manager) before commencement of any work. 	Contractors NGO	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Inventory of utilities - Liaison with utilities owners and operators - Number and type of information dissemination activities - Complaints from stakeholders and affected people 	<ul style="list-style-type: none"> - Prior to start of civil works (per pipe section) - During pipe laying/ replacement/ bursting 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received - 7-day notice to public
Maintaining water supply	<ul style="list-style-type: none"> - Plan and execute in such a way the water supply shall be kept in operation with maximum disruptions of one working day (12 hours) - Notify existing users about temporary disruption of water supply if unavoidable. - Provide with alternative water source to disconnected consumers to meet their daily requirement. - Ensure only clean water free from deleterious materials and of appropriate quality for its intended use is supplied. - In providing water, ensure that the rights of and supply to existing users are not affected either in quality, quantity or timing. - Inform the Project manager in the event of a dispute over the effect of the contractor's arrangements on the water supply of others. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Number of disconnected consumers - Quantity of supplied water to affected consumers 	<ul style="list-style-type: none"> - Prior to start of civil works (per pipe section) - During pipe laying/ replacement/ bursting 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received
Provision for security of the sites	<ul style="list-style-type: none"> - Be responsible for guarding all utilities, plants equipment, material, etc. delivered on sites and for ensuring that all sign, lights, fences, etc. are in their proper place. - Provide, install and maintain suitable barriers and/or fences to protect the facilities, constructions camp, storage yard, existing facilities and construction and installation operations and to remove same when no longer required by DWASA, or at completion of the project. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Signs and barriers - Security measures in place 	<ul style="list-style-type: none"> - Prior to start of civil works (per pipe section) - During pipe laying/ replacement/ bursting - As work progresses 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
Protection of trees and vegetation	<ul style="list-style-type: none"> -Ensure that no trees or shrubs are felled or harmed except for those required to be cleared for execution of the works. -Ensure no tree shall be removed without the prior approval of the Project Manager and any competent authorities. -Plant and maintain two trees of the same species for every one that is removed. 	Contractors	DWASA PMU MSC MoEF	<ul style="list-style-type: none"> - Program of Performance - Complaints from stakeholders - Number of trees cut and planted 	<ul style="list-style-type: none"> - As required in the Program of Performance - As work progresses 	<ul style="list-style-type: none"> - ECC - Contract provisions - EMP - No complaints received - 100% survival of trees planted
Use of wood as fuel	<ul style="list-style-type: none"> -Not use wood as a fuel for the execution of any part of the works, including but not limited to the heating of bitumen and bitumen mixtures and the manufacture of bricks for use in the works. -To the extent practicable, ensure that fuels other than wood are used for cooking, and water heating in all his camps and living accommodations. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Complaints from stakeholders 	<ul style="list-style-type: none"> - As required in the Program of Performance - As work progresses 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received
Fire prevention	<ul style="list-style-type: none"> -Take all precautions necessary ensure that no buildings and supply utilities, etc. or vegetation along the line of the road outside the area of the permanent works is affected by fires arising from the execution of the works. -Follow any instructions of the competent authorities with respect to fire hazard when working in the vicinity of gas installations. -Immediately suppress if a fire occurs in the natural vegetation or plantations adjacent to the road for any reason. -In areas of forest, shrub or plantation damaged by fire considered by the Project Manager to have been initiated by the contractor's staff or labor, replant and restore to the satisfaction of the Project Manager. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Number of fire occurrences 	<ul style="list-style-type: none"> - As required in the Program of Performance - As work progresses 	<ul style="list-style-type: none"> - Contract provisions - EMP - Zero fire occurrence
Handling traffic and access	<ul style="list-style-type: none"> -Submit to the Project Manager for approval a traffic management plan and detailed work plan showing activities on hourly basis. -Plan and conduct work in such a way that can be completed in 6-8 hours with as little as possible of traffic interruption, so all of this work (and probably most of the daytime work in minor roads) will be conducted by small teams of men, working on short lengths of the network (around 100 -150 m) at a time. -Provide, erect and maintain barricades, signs, markings, flags, lights and flagmen as may be required for the information and protection of traffic. The flagmen shall be equipped with red and green flags and lanterns/lights. -Ensure barricades, signs, marking, and flags are of 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Traffic management plan - Lists and samples of warning signs and barricades 	<ul style="list-style-type: none"> - As required in the Program of Performance - As work progresses 	<ul style="list-style-type: none"> - Contract provisions - EMP - No complaints received

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	<p>strong design. All barriers on roads and pedestrian areas shall be lit with warning lights during night time or when there is poor visibility.</p> <p>–Where the diversion or closure of any existing carriageway, walkway or public right of way is temporarily necessitated by the works, provide and maintain an alternative, which shall be operational before interference with the existing way.</p> <p>–Where ramps, temporary carriageways and walkways are required, they shall be provided and maintained to a standard suitable in all respects for the class or classes of traffic or pedestrians. These must be kept usable by women, children, patients and disables.</p>					
Minimizing noise level	<p>–Ensure noise level of the machineries and equipment must not exceed 70dB (A).</p> <p>–Use modern vehicles and machinery with standard adaptations to reduce noise and exhaust emissions, and ensure they are maintained to manufacturers' specifications.</p> <p>–Noise-generating equipment must be fitted with silencers.</p> <p>–If a worker is exposed to noise above a noise exposure limit, the contractor must investigate options for engineered noise control such as using low-noise excavators, jackhammers, drills, and power generators.</p> <p>–If it is not practicable to reduce noise levels to or below noise exposure limits, the contractor must post warning signs in the noise hazard areas. Workers in a posted noise hazard area must wear hearing protection.</p>	Contractors	DWASA PMU MSC	- Complaints form community - Noise level monitoring record	As work progresses	- Bangladeshi Noise Standards - ECC Provisions
Minimizing dust generation and air pollution	<p>–Limit dust by removing waste soil quickly, bringing sand to site only when necessary, covering and watering stockpiles, and covering soil and sand when carried on trucks.</p> <p>–Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust.</p> <p>–Access and other cleared surfaces, including backfilled trenches, must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust.</p> <p>–Vehicles and machinery are to be kept in good working order and to meet manufacturer's specifications for safety, fuel consumption, etc.</p>	Contractors	DWASA PMU MSC	- Program of Performance - Complaints from stakeholders - Vehicle emission testing records	- As required in the Program of Performance - As work progresses	- No visible increase in dust and particulate matters - No complaints received

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	–The contractor is to have the equipment seen to as soon as possible should excessive emissions be observed.					
Protecting the community and facilities and locations of social and cultural importance (e.g. schools, hospitals, mosques, museums, etc.)	<ul style="list-style-type: none"> –Increase the workforce in sensitive areas to complete the work quickly. –Provide wooden walkways for pedestrians and metal sheets for vehicles to allow access across open trenches, where required. –Use directional down-facing lighting, fitted with effective shades at all times when working at night. –Give special attention to the screening of highly reflective materials on site. –Locate storage facilities and other temporary structures on site such that they have as little visual impact on local residents as possible. –Provide screening in areas where the visual environment is particularly important (e.g., along commercial routes) or privacy concerns for surrounding buildings exist. This can be in a form of shade cloth, temporary walls, or other suitable materials. 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Bi-weekly 6 weeks running plan - On-site record book - Complaints from stakeholders - Grievance Redress Mechanism records 	As required in the Program of Performance	<ul style="list-style-type: none"> - Contract Provisions - EMP - Zero complaints from the stakeholders
Protecting health and safety of workers	<ul style="list-style-type: none"> –Ensure continuing health and safety of the employees by producing and applying a Health and Safety (H&S) Plan for all working sites. The H&S plans will include such measures as: (i) excluding the public from construction sites; (ii) ensuring that all workers are provided with and use appropriate Personal Protective Equipment; (iii) health and Safety Training for all site personnel; (iv) documented procedures to be followed for all site activities; (v) documented procedures to be followed for AC pipes; and (vi) accident reports and records. –Prior to the commencement of any hazardous operation, submit a Safety Method Statement to the Project Manager for his approval. –Ensure all workers have been suitably trained prior to commencing work and are to be adequately supervised whilst carrying it out. –Ensure all plant and equipment is suitable for the task to be undertaken and properly inspected/tested prior to being put into operation. –Maintain records and make reports concerning health, safety and welfare of persons, and damage to property. Take remedial action to prevent a recurrence of any accidents that may occur. –Provide hard hats, boots, other protective equipment 	Contractors	DWASA PMU MSC	<ul style="list-style-type: none"> - Program of Performance - Number of accidents - On-site Record 	As required in the Program of Performance	<ul style="list-style-type: none"> - Contract provisions - EMP - Zero accident record - No complaints received

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
	<p>and first aid box with all necessary medicines.</p> <ul style="list-style-type: none"> -Train workers in safety issues. Provide suitable arrangements to cater for emergencies, including: first aid equipment (dressings, etc.); person(s) trained to administer first aid; communication with, and transport to, the nearest hospital with an accident / emergency department; monitoring equipment; rescue equipment; firefighting equipment; and communication with nearest fire brigade station. -Provide adequate welfare facilities including, as a minimum, drinking water; toilets; washbasins with warm water, soap and towels; and clean/dry/warm area equipped with tables and chairs at which food can be eaten. 					
Replacement of asbestos cement (AC) pipes	<ul style="list-style-type: none"> -Follow the protocol prepared by the design consultants to be applied in any instance that AC pipes are found. -Train all personnel (including manual laborers) to enable them to understand the dangers of AC pipes and to be able to recognize them in situ. -Inform the management immediately if AC pipes are encountered. -Remove all persons to a safe distance. -Delegate trained persons to deal with AC materials and require use of appropriate breathing apparatus and protective equipment -Implement procedures for the safe removal and long-term disposal of all asbestos-containing material encountered. 	Contractor MSC to develop AC pipes protocol	DWASA MSC	<ul style="list-style-type: none"> - H&S plan - Number of accidents and work-related injuries - Complaints from community 	As work progresses	<ul style="list-style-type: none"> - Construction method - Detailed design documents - H&S Plan - AC Protocol - Zero accident and work-related injuries. <p>- AC Pipe Handling Protocol</p>
Cultural and historical environment	<ul style="list-style-type: none"> -All the staff and laborers of the contractor be informed about the possible items of historical or archaeological value, which include old stone foundations, tools, clayware, jewelry, remains, fossils, etc. -If something of this nature is uncovered, the Department of Archaeology shall be contacted and work shall be stopped immediately. 	Contractor	Consultant	Chance finds	As necessary	All chance finds shall be reported and turned over to the Department of Archaeology.
Post-construction phase (prior to turnover to DWASA)						
Access	-All excavated roads shall be reinstated to original or better condition.	Contractor	MSC	Road conditions	Prior to turn-over	Pre-existing conditions
Utilities and other existing infrastructure	<ul style="list-style-type: none"> -All disrupted utilities restored -All affected structures rehabilitated/compensated 	Contractor	MSC	All affected utilities	Immediately after civil works	All disrupted services restored
Construction	-After construction work, all structures comprising the	Contractor	MSC	General condition of	Prior to end of	Pre-existing

c). Environmental Mitigation Measures Action Plan						
Activity	Mitigation Measures	Responsible for Implementation	Responsible for Monitoring	Parameter to Monitor	Frequency of Monitoring	Guidelines/ Standards
camps and storage areas	<p>construction camp are to be removed from site or handed over to the property owner/community as per mutual agreement (if established on private/community land).</p> <p>–The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up.</p> <p>–All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be topsoiled and regressed using the guidelines set out in the revegetation specification that forms part of this document.</p> <p>–The contractor must arrange the cancellation of all temporary services.</p>			the areas	construction period/demobilization	condition
Waste management	–All wastes shall be removed from the site and transported to a disposal site or as directed by the environment management specialist. Waybills proving disposal at each site shall be provided for the environment management specialist's inspection.	Contractor	MSC	General condition of the areas	Prior to end of construction period/demobilization	Pre-existing condition
Operation and maintenance phase (including Defects Liability Period)						
Detection and repair of leaks and pipe bursts	–Ensure leak detection and restoration time is minimized to the extent possible.	DWASA	DWASA	Number of reported leaks	As part of operations and maintenance of the improved system	Standards set by DWASA

This discussion written in relation to Table: 9, which is described as environmental mitigation measures action plan in detail for DMA-615 under package ICB 02.7. It will be implemented as 5th Batch of construction, considering the applicability to each activity described in the table.

Implementation of the package under water supply improvement project will not create any significant adverse impacts on environment. However, most of the roads and streets where distribution networks located will be affected due to construction works for roughly three months, as per contractor's information, for each DMA. The contractor does not need to rehabilitate pipe network in DMA-615 rather implementation of the DMAs will only be due to new construction. As a result, impacts caused by rehabilitation work are insignificant in that area but there will be impacts on surrounding environment due to new pipe installation works that involve nearly 26.85 km of installation work will be done by HDD, 1.89 km by Pipe Blasting (PB) and 24.92 km by Open Trenching (OT) method. The open trenching work will involve huge waste management work and will definitely cause some physical impacts on air, noise and soil topology during excavation, storage and transportation of soil, and the importation of sand for infilling. These impacts will be mitigated through some measures taken by contractors mentioned in Table 9. Since no AC pipes will be disturbed and will be left in situ where found, no significant mitigation measures will be required. However, if AC pipes would require for handling, **AC Pipes Handling Protocol**, already developed by MSC, will be followed by the contractors.

The mitigation measures action plan in Table 9 has been formulated considering the impacts that might occur during implementation and post implementation period of DMA-615. The contractor must work accordingly to the mitigation measures action plan during implementation of the package.

d). Reporting

The Management and Supervision Consultants (MSC) will submit monthly monitoring reports to PMU reflecting performance of contractors in EMP implementation. The PMU safeguards unit will then submit Semi-Annual environmental monitoring reports to ADB for review and disclosure on ADB's website, as per ADB's safeguards policy and public communication policies. A sample monitoring template is in Appendix 4. The report should include update and progress of compliance with the ADB and government policies, and specifically on the progress of EMP implementation in relation to design and construction activities, grievances, and corrective actions.

e). Environmental Costs

The contractor's cost for site establishment, preliminary activities, construction, defect liability activities, and environmental mitigation measures related to EMP implementation during planning, design, and construction were incorporated into the contractual agreements and engineer's costs, which had been binding for implementation. The survey has been conducted by the contractor.

The operation phase mitigation measures are again of good operating practices, which will be the responsibility of the implementing agency (DWASA). All monitoring during the operation and maintenance phase will be conducted by DWASA; therefore, there are no additional costs will be applicable by naming environmental cost.

The activities identified in the EMP mainly include site inspections and informal discussions with workers and local community, and this will be the responsibility of PMU with the assistance of MSC, costs of which are part of project management.

9. CONCLUSION AND RECOMMENDATION

The process described in this IEE for DMA-615 has assessed the potential environmental impacts of all elements of the project in Dhaka city. All potential impacts were identified in relation to pre-construction, construction, and operation phases.

Planning principles and design considerations have been reviewed and incorporated into the site planning process whenever possible; thus, environmental impacts as being due to the project design or location were not significant. However, the social impacts (access disruptions) due to construction activities are unavoidable, as the residential and commercial establishments exist along the project corridor. A resettlement plan has been developed in accordance with ADB SPS 2009 and Bangladeshi laws and regulations.

The EMP will assist the PMU, MSC, and contractors in mitigating the environmental impacts, and guide to execute the proposed project as environmentally sound. The EMP will also ensure efficient lines of communication between the implementing agency, project management unit, and contractors.

The public participation processes undertaken during project design ensured stakeholders are engaged during the preparation of the IEE. The planned information disclosure measures and process for carrying out consultation with affected people will facilitate their participation during project implementation.

The project's grievance redressal mechanism will provide the citizens with a platform for redressal of their grievances, and describes the informal and formal channels, time frame, and mechanisms for resolving complaints about environmental performance.

A copy of the EMP shall be kept on-site during the construction period at all times. The EMP shall be made binding on all contractors operating on the site, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document shall constitute a failure in compliance.

The project will benefit the general public by contributing to the long-term improvement of water supply system and community livability in Dhakacity. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigating measures and environmentally sound engineering and construction practices.

Therefore, as per ADB SPS, the project is classified as environmental **Category B** and does not require further environmental impact assessment.

APPENDIX 1: ADB REA CHECKLIST

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Sitting Is the project area...			The population distribution shows that the project area is densely populated.
Densely populated?	<input checked="" type="checkbox"/>		
Heavy with development activities?	<input checked="" type="checkbox"/>		
Adjacent to or within any environmentally sensitive areas?		<input checked="" type="checkbox"/>	No environmentally sensitive and valuable ecosystems, including protected areas and forests are within or near the DMA locations.
Cultural heritage site		<input checked="" type="checkbox"/>	
Protected Area		<input checked="" type="checkbox"/>	
Wetland		<input checked="" type="checkbox"/>	
Mangrove		<input checked="" type="checkbox"/>	
Estuarine		<input checked="" type="checkbox"/>	
Buffer zone of protected area		<input checked="" type="checkbox"/>	
Special area for protecting biodiversity		<input checked="" type="checkbox"/>	
Bay		<input checked="" type="checkbox"/>	
B. Potential Environmental Impacts Will the Project cause...			
Pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?		<input checked="" type="checkbox"/>	The pipeline network will be installed below ground by HDD, PB and OT method and backfilled with adequate compaction which will be placed apart and separated from the wastewater network, industrial discharging line etc.
Impairment of historical/cultural monuments/areas and loss/damage to these sites?		<input checked="" type="checkbox"/>	Not applicable
Hazard of land subsidence caused by excessive ground water pumping?		<input checked="" type="checkbox"/>	Not applicable
Social conflicts arising from displacement of communities?		<input checked="" type="checkbox"/>	No displacement of communities is required in these DMAs
Conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?		<input checked="" type="checkbox"/>	Water quantity will be sufficient at time of operation phase. There is no additional abstraction from groundwater and treated surface-water will be injected into the network to fulfill the designed water demand.
Unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?		<input checked="" type="checkbox"/>	Raw water from groundwater will be treated prior of distribution. Treated water (groundwater and injected surface-water) quality will be met the Bangladesh standards for drinking water.
Delivery of unsafe water to distribution system?		<input checked="" type="checkbox"/>	The water will be supplied through new HDPE pipes to prevent leakages and contamination.
Inadequate protection of intake works or wells, leading to pollution of water supply?		<input checked="" type="checkbox"/>	The intake will be secured & accessible. It will also be monitored to ensure the treated & safe water will be distributed
Over pumping of ground water, leading to salinization and ground subsidence?		<input checked="" type="checkbox"/>	Not applicable

SCREENING QUESTIONS	Yes	No	REMARKS
Excessive algal growth in storage reservoir?		<input checked="" type="checkbox"/>	Not anticipated. The storage reservoirs are fully enclosed structures. In addition, treated water will only be stored for a short period of time.
Increase in production of sewage beyond capabilities of community facilities?		<input checked="" type="checkbox"/>	Improved sewerage systems are being undertaken by DWASA.
Inadequate disposal of sludge from water treatment plants?		<input checked="" type="checkbox"/>	Not applicable
Inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?		<input checked="" type="checkbox"/>	Not applicable
Impairments associated with transmission lines and access roads?	<input checked="" type="checkbox"/>		Anticipated during construction activities. However, impacts are temporary and short in duration. The EMP includes measures to mitigate the impact.
Health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.		<input checked="" type="checkbox"/>	Not applicable
Health and safety hazards to workers from the management of chlorine used for disinfection and other contaminants?		<input checked="" type="checkbox"/>	Personal Protective Equipment (PPE) is being provided to workers. Regular training is also being conducted to ensure that workers are aware of the health hazards of working in excavation and construction sites.
Dislocation or involuntary resettlement of people		<input checked="" type="checkbox"/>	No displacement of communities is required in these DMAs
Social conflicts between construction workers from other areas and community workers?		<input checked="" type="checkbox"/>	Priority in employment will be given to local residents.
Noise and dust from construction activities?	<input checked="" type="checkbox"/>		Anticipated during construction activities. However, impacts are temporary and short in duration. The EMP includes measures to mitigate the impacts.
Increased road traffic due to interference of construction activities?	<input checked="" type="checkbox"/>		Anticipated during construction activities. However, impacts are temporary and short in duration. The EMP ensures measures are included to mitigate the impacts. Contractor needs to be coordinated with the local traffic police.
Continuing soil erosion/silt runoff from construction operations?		<input checked="" type="checkbox"/>	Not anticipated, as topography of Dhaka is plain. However, the EMP still includes measures to mitigate the impacts. Contractor needs to be provide the channelization where required.
Delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?		<input checked="" type="checkbox"/>	Not anticipated. All pipes will be disinfected properly prior of any water delivery. During O&M, all monitoring processes will be activated to provide safe drinking water by the network.
Delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?		<input checked="" type="checkbox"/>	Not anticipated. Water quality is being regularly monitored by DWASA
Accidental leakage of chlorine gas?		<input checked="" type="checkbox"/>	Not anticipated
Excessive abstraction of water affecting downstream water users?		<input checked="" type="checkbox"/>	Not anticipated. Water quantity is sufficient and there is no additional abstraction.
Competing uses of water?		<input checked="" type="checkbox"/>	Not anticipated

SCREENINGQUESTIONS	Yes	No	REMARKS
Increased sewage flow due to increased water supply	<input checked="" type="checkbox"/>		Improved sewerage system is being undertaken by DWASA.
Increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant		<input checked="" type="checkbox"/>	Improved sewerage system is being undertaken by DNCC/DSCC.
Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel, and other chemicals during operation and construction		<input checked="" type="checkbox"/>	Not applicable. Construction will not involve use of any explosives. For rock and concrete breaking, contractor is being used Asphalt cutter and road breakers. Chemical material safety data sheets will be posted in conspicuous areas. The EMP ensures measures are included for the storage areas.
Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community, or where their failure could result in injury to the community throughout project construction, operation, and decommissioning		<input checked="" type="checkbox"/>	Construction area will be clearly demarcated and access controlled. Only workers and project concerned members will be allowed to visit the construction sites.

APPENDIX 2: RECORDS OF STACKHOLDER CONSULTATION MEETINGS (DMA-614 & 615)**A. List of Potentially affected Person of DMA-614:**

Sl. No.	Name of AP	Father's / Mother's Name	Address	Age	Type of Business	Average Profit / Day	Proposed Day	Total Amount (TK)
1	Md. Kabul Sikder	Late Omor Shikder /Shaher Banu	Road-01,79, Siddheswari, Dhaka	32	Others (Tea Stall)	500	5	2500.00
2	Md. Ziaul	Late Wahez /Late Jalton Kathun	Road-01,79, Siddheswari, Dhaka	30	Betel Leaf & Cigarette	500	5	2500.00
3	Md. Masum	Abul Kalam Chowdhuri /Hasena Chowdhuri	Road-01,79, Siddheswari, Dhaka	40	Others (Tea Stall)	600	5	3000.00
4	Parul Begum	Late Hennath Shikder /Late Jamila Begum	Road-01,74, Siddheswari, Dhaka	35	Betel Leaf & Cigarette	600	5	3000.00
5	Sumon	Late Topon /Subola	Road-01,72, Siddheswari, Dhaka	30	Shoe Repair	500	5	2500.00
6	Md. Delowar Hossain	Late Abdur Rahim /Khadiza Begum	Road-01,7, Siddheswari, Dhaka	45	Others (Tea Stall)	500	5	2500.00
7	Md. Kashem	Md. Kanchon /Kulsum Begum	Road-24,36, Siddheswari , Lane	30	Others (Tea Stall)	500	5	2500.00
8	Md. Faruk Hossain	Late Abdul Hakim /Late Sufia Begum	Road-01,75, Siddheswari , Dhaka	38	Fruits & Vegetables	600	5	3000.00
9	Md. Selim Khan	Late Harun-or –Rashid /Jotsna Begum	Road-103, Boro Mogbazar	30	Fruits & Vegetables	500	5	2500.00
10	Md. Monir Hossain	Late Mozahar Ali /Morium Begum	Road-103,88, Boro Mogbazar	40	Others (Tea Stall)	500	5	2500.00
11	Bijoy Roy	Late Gourango chandro /Monju Roy	Road-01, 77, Siddheswari , Circular Road, Dhaka	45	Fruits & Vegetables	500	5	2500.00
12	Md. Noor Islam	Late Sheikh Sukur /Hamida Begum	Road-01,77, Siddheswari , Circular Road, Dhaka	37	Others (Lock Repair)	500	5	2500.00
13	Md. Sabu (Disable)	Late Abdur Rahman / Ayetun Nessa	Road-03,16/17-A, Siddheswari Lane,	48	Others (Betel Leaf & Cigarette)	700	5	3500.00
14	Md. Yusuf	Md. Malu Mia /Amena Begum	Road-01,79, Siddheswari , Circular Road, Dhaka	20	Food	500	5	2500.00
15	Abdul Mannan	Late Akkas Ali / Late Amena	Road-278, BIAM Goli, New Eskaton	42	Fruits & Vegetables	500	5	2500.00
16	Hemonta Kumer Das	Kartic Chandro Das/ Monimala Rani Das	Road-278, BIAM Goli, New Eskaton	30	Shoe Repair	500	5	2500.00
17	Md.Tyeb	Late:Mannan Hawladar / Sufiya Begum	R-277,BIAM Goli, New Eskaton	55	Others (Tea Stall)	500	5	2500.00

18	Kalam Mollah	Late:Foyzer Ali Mollah/ Late: Ponchom Bibi	R-277,BIAM Goli, New Eskaton	45	Others (Tea Stall)	500	5	2500.00
19	Waj Uddin	Late:Ayej Ali/Late:Jamera Khatun	R-277,BIAM Goli, New Eskaton	65	Others (Tea Stall)	500	5	2500.00
20	Md.Alamin	Late:Nurul Islam/Mahmuda	R-250,BIAM Goli, New Eskaton	57	Others (Tea Stall)	500	5	2500.00
21	Noyon	Late:Narayan/kirony	R-250,BIAM Goli,New Eskaton	50	Shoe Repair	400	5	2000.00
22	Abdus Salam	Late Minaj Uddin/ LateJorina Khatun	R-250,BIAM Goli,New Eskaton	60	Betel Leaf & Cigarette	500	5	2500.00
23	Md. Mizan	Amin Uddin / Rahaton Begum	Road-285, Petrol Pump Goli	24	Fruits & Vegetables	600	5	3000.00
24	Md. Ilias	Late Noor Jalal Molla/ Late Sabela Begum	Road-285, Petrol Pump Goli	55	Fruits & Vegetables	500	5	2500.00
25	Md. Salahuddin	Late Oliullah/Shahida Begum	R-250,BIAM Goli, New Eskaton	38	Fruits & Vegetables	500	5	2500.00
26	Amir Hossain	Late Forid/ Majeda Khatun	Dilu Road # 246 New Eskaton	32	Others(Betel Leaf & Cigarette)	500	5	2500.00
27	Abdul Halim	Abdul Wahab/Halima Begum	Dilu Road # 246 New Eskaton	38	Fruits & Vegetables	500	5	2500.00
28	Tarini Wrishi	Late Rabindra Chandra Wrishi/ Late Oysthi Rani	Dilu Road # 246 New Eskaton	58	Shoe Repair	400	5	2000.00
29	Hasina Begum	Aynal Sheikh/ Shahanaj Begum	Habibullah Road # 235 Shahbag	35	Others (Tailors)	650	5	3250.00
30	Md. Shafiq	Late Abdur Rashid / Noorjahan Begum	Habibullah Road # 235 Shahbag	40	Others(Butcher)	650	5	3250.00
31	Md. Iqbal Hossain	Late Siddiqullah/ Sokhina Bibi	Habibullah Road # 236 Shahbag	50	Fruits & Vegetables	500	5	2500.00
32	Md Nazrul Islam	Ali Akbar/ Noorjahan Begum	Habibullah Road # 236 Shahbag	25	Others (Tea Stall)	500	5	2500.00
33	Md. Arab Ali Biswas	Md. Ichshaq Biswas/Ms. Hazera Begum	Habibullah Road # 236 Shahbag	28	Others (Tea Stall)	500	5	2500.00
34	Md. Ripon	Md. Toizuddin Doftori/ Rubi Begum	Habibullah Road # 236 Shahbag	32	Others (Tea Stall)	500	5	2500.00
35	Md. Abu Taher	Late Fazal Gazi/ Firoja Begum	Habibullah Road # 236 Shahbag	60	Fruits & Vegetables	500	5	2500.00
Grant Total								91000.00

A. List of Potentially affected Person of DMA-615:

SL #	Name of AP	Father's / Mother's Name	Address	Age	Type of Business	Average Profit / Day	Proposed Day	Total Amount (TK)
1	Md. Shajahan	Late-Mottaleb Bhuiyan / Amena Khatun	1 No. Chamelibag, Shantinagar, Dhaka.	56	Others(Betel Leaf & Cigarette	500	5	2500.00
2	Tomol Sarker	Late- Bimol Sarker /Late- Bashona Rani Sarker	1 No. Chamelibag, Shantinagar, Dhaka.	49	Fruits & Vegetables	500	5	2500.00
3	Md. Delowar Hossain	Late- Mofiz Uddin Bhuiyan /Late- Mahmuda Bagum	1 No. Chamelibag , Shantinagar, Dhaka.	50	News Paper Seller	500	5	2500.00
4	Md. Ripon	Late- Mozaffor Ali / Late- Rani Begum	1 No. Chamelibag, Shantinagar, Dhaka.	27	Others(Tea stall)	600	5	3000.00
5	Nogendra	Late- Gorchan / Choudhomoni	1 No. Chamelibag, Shantinagar, Dhaka.	67	Shoe Repair	400	5	2000.00
6	Md. Habibur Rahaman	Md. Wazed Ali / Late- Anowara Begum	1 No. Chamelibag, Shantinagar, Dhaka.	20	Flexi Load	500	5	2500.00
7	Md.Anowar Hossain	Md. Selim / Aklima Khatun	48, Shanti Nagar, Dhaka.	20	Others (Betel Leaf & Cigarette	500	5	2500.00
8	Md. Alamgir	Md. Monir Ahmed /Late- Golapi Khatun	48, Shanti Nagar, Dhaka.	50	Others(Betel Leaf & Cigarette	500	5	2500.00
9	Md. Roni	Abdul Karim /Rani Begum	21-22, Shanti Nagar, Dhaka.	31	Others(Betel Leaf & Cigarette	500	5	2500.00
10	Bimol Babu	Late-Bishnu Babu /Late- Nirala	14/17, Shanti Nagar, Dhaka.	58	Shoe Repair	400	5	2000.00
11	Md. Kalu Patwari	Md. Samsul Haque /Saleha Begum	153/3, Shantinagar, Dhaka.	30	Food	500	5	2500.00
12	Md. Mamun	Md. Ayub Ali / Monowara Begum	153/3, Shantinagar, Dhaka.	25	Others(Betel Leaf & Cigarette	600	5	3000.00
13	Md. Shahab Uddin	Md. Elahi Box / Late- Sabuda Begum	65, Shantinagar , Dhaka	40	Others(Betel Leaf & Cigarette	400	5	2000.00
14	Austoni Wrishi	Late- Ramkumar Wrishi /Late- Sarola Rani	47, Chamelibag, Dhaka	45	Shoe Repair	400	5	2000.00
15	Md. Montu Mia	Late- Monsur Ali / Late- Momortoban	37, Chamelibag , Shantinager, Dhaka.	60	Others(Tea stall)	500	5	2500.00
16	Narod Chadra Das	Late-Monindro Chandra Das /Late- Dhaneshwari Rani Das	35/12,Shantinagar, Dhaka	33	Shoe Repair	500	5	2500.00
17	Md. Nasir Ali	Md. Ayub Ali /Khodega Begum	35/12,Shantinagar, Dhaka	32	Others(Tea stall)	500	5	2500.00
18	Mission Chan Wrishi Das	Lal Chan Wrishi Das / Taposhi Das	145, Shantinagar, Dhaka	30	Shoe Repair	500	5	2500.00
19	Md. Yakub	Late: Abdul Goni / Late: Dholi Begum	38/1 Shantinagar, Dhaka	48	Fruits & Vegetables	500	5	2500.00
20	Md. Habibur Rahman	Late: Aych Mondol /Late Bouri Sheikh	38/1 Shantinagar, Dhaka	50	Fruits & Vegetables	500	5	2500.00
21	Md. Mosharraf	Md. Moslem/Latifa Begum	38/1 Shantinagar, Dhaka	35	Fruits & Vegetables	500	5	2500.00

SL #	Name of AP	Father's / Mother's Name	Address	Age	Type of Business	Average Profit / Day	Proposed Day	Total Amount (TK)
22	Ms Rashida Begum	Late Abul Kashem/Noorjahan	30 Shantinagar, Dhaka	35	Fruits & Vegetables	500	5	2500.00
23	Md. Monju	Late Khaleq/Rejia Begum	135 Shantinagar, Dhaka	55	Others(Tea stall)	500	5	2500.00
24	Shajal Chandra Wrishi	Late Shivash Chandra Wrishi / Aroti Rani	136 Shantinagar, Dhaka	30	Shoe Repair	400	5	2000.00
25	Md. Mokshed Ali	Abdur Rouf /Rosuma Khatun	68, Purana Paltan Line, Dhaka	33	Fruits & Vegetables	500	5	2500.00
26	Md. Shahin Alam	Tofazzal Hossain / Shanti Begum	67, Purana Paltan Line, Dhaka	23	Others(Tea stall)	500	5	2500.00
27	Md. Boshir Ullah	Late: Tuka Mia / Late: Momena Begum	14/17, Shantinagar, Dhaka	50	Fruits & Vegetables	500	5	2500.00
28	Jotsna Begum	Abdul Mannan/Poribanu	26/Topkhana Road Segunbagicha Dhaka	35	Others(Betel Leaf & Cigarette)	400	5	2000.00
29	Ropindo	Late Monindra /Late Rajeswari	24/Topkhana Road Segunbagicha Dhaka	40	Shoe Repair	400	5	2000.00
30	Abdul Mannan	Late Ichahak Kholifa / Late Khotajan Bibi	24/A Topkhana Road Segunbagicha Dhaka	68	Others(Betel Leaf & Cigarette)	400	5	2000.00
Total Amount: (Sixty Six Thousands) Only								72000.00

B. List of Potentially affected Person of DMA-616:

The List of Potentially affected Person under DMA-616 not yet finalized but process is ongoing.

Appendix 3: Project Information Disclosure Meetings

Dhaka Environmentally Sustainable Water Supply (DESWSP) Resettlement Intervention in the area of ICB-02.7

DMA – 614

Venue: Ward Commissioner's Office, Shahid Tajuddin Ahmed Sarani

Time: 11.00 a.m.

Introduction: The meeting, Project Information Disclosure held at Ward Commissioner's Office, Mogbazar. A Project meeting of DESWS of DWASA in DMA-614 was organized jointly by NGO, MSC & Contractor. Ward Commissioner, Officials, House Owner's, Tenant's, Retired Govt. Officials, Businessmen, Local Elites, Civil Society Personnel, Contractors Personnel, PMU & MSC and NGO Representatives were present in the Meeting.

Agenda

1. Sharing on Project Information (Background of the Project, Resettlement Plan, Policy and Principals, Entitlement, Institutional Arrangement & Grievance Redress Mechanism).
2. Discussion on activities for DMA System, Question and Answer.
3. Opinion of the participants
4. AOB

DMA – 615

Venue: Begum Rahima Ideal Girls High School, Segunbagicha.

Time: 11.00AM

Introduction: A meeting of Project Information Disclosure was held at Begum Rahima Ideal Girls High School, Segunbagicha. The meeting DESWS Project of DWASA in DMA-615 was organized jointly by NGO, MSC & Contractor. Officials, House Owner's, Tenant's, Retired Govt. Officials, Businessmen, Local Elites, Civil Society Personnel, Contractors Personnel, PMU & MSC and NGO Representatives were present in the Meeting.

Agenda

5. Sharing on Project Information (Background of the Project, Resettlement Plan, Policy and Principals, Entitlement, Institutional Arrangement & Grievance Redress Mechanism).
6. Discussion on activities for DMA System, Question and Answer.
7. Opinion of the participants
8. AOB

1. Sharing on Information:

- a) **Background:** Dhaka, the capital of Bangladesh is facing shortage of water supply and demand is increasing day by day. Dhaka WASA is preparing Dhaka Environmentally Sustainable Water Supply Project (DESWSP) to supply treated surface water, collected from the river Meghna, to Dhaka city dwellers through the construction of Gandharbpur Water Treatment Plant Project (GWTPP). The project also includes distribution reinforcement and network improvements to reduce non-revenue water (NRW) for safe water and support to low income communities (LICs). With financial assistance from ADB, AFD and EIB this project aims to reduce abstraction of ground water amounting 150 million liter per day (MLM).
- b) **Resettlement Plan, Policy and Principals:** A Resettlement Plan (RP) has been prepared for the project based on ADB's Safeguard Policy Statement 2009 and Government of Bangladesh (GOB) Acquisition and Requisition of Immovable Property Ordinance 1982 (APIRO).
- c) **Entitlement:** The project provides for compensation of all potential losses including potential income losses for vendors at replacement value. As required by ADB Safeguards Policy (2009) the project will provide compensation and resettlement assistance for households' lost land, business, structures and other lost assets in connection with the project. The RP approach incorporates (i) compensation for lost assets; (ii) resettlement issues; (iii) impact mitigation with special attention to the women and vulnerable groups; and (iv) income generating support to the members of the physically displaced households and including them in the poverty reduction and livelihood enhancement program.

- d) **Institutional Arrangement:** DWASA has established, for the Project, a PMU headed by a PD, who will be responsible for the overall execution of the Project. The PMU will be supported with an experienced NGO for the implementation of resettlement activities which include livelihood rehabilitation. DWASA will implement the RP through setting a Safeguard Implementation (SIU) headed by DPD at the DESWSP PMU. The SIU, under the overall responsibility of the PD, will undertake day-to-day activities with the appointed NGO. The concerned Safeguards Officer at the level of AE of SIU, appointed by PIU will be convener of the JVC and PVAC. The DPD of SIU will perform as convener of GRC and RAC. The resettlement assistance NGO will assist APs to put forth grievances and access information on opportunities for employment in project related activities, rights and entitlements and the grievance redress process, and make informed choices.
- e) **Grievance Redress Mechanism:** To resolve all project related grievance and complaints a common social and environmental grievance redress mechanism is in place. Common and simple grievances will be sorted out at project site level by the Contractor's Resettlement Supervisor, supervision staff of PMU and project NGO within 7 days. More serious complaints will be sent to the safeguard officer at the PMU to be resolved in 14 days. Any unresolved grievances will be forwarded to the Grievance Redress Committee GRC. Complaints and grievances which are not addressed by Grievance Redress committee (GRC) within 30 days will be sent to the Program Steering Committee (SC) to be resolved within 7 days. Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage.
2. **Discussion on activities for DMA System, Question and Answer:** DMA-615 is the area of mixed Residential and commercial sites. This DMA is the heart of the Town where both Residential and Commercial Buildings exist. Most Roads are well constructed and wider. All major roads are planned for applying HDD method except the narrow roads. In this meeting major discussions were disclosing project information, dissemination of the messages, question and answer. The NGO representative briefed the necessity of the project and seeks support from the local leaders and elites to solve all kinds of problem if any arose. The audience responded that they are agreed for all support for this purpose with a few recommendations. The followings are the concise of the discussion;

NGO Representative:

NGO representative delivered his inaugural speech by seeking assistance and support from the community as contractor's people can go through their works smoothly. He addressed the necessity of the project. Dhaka is a mega city in Bangladesh and increasing its dwellers rapidly but the other utility is not developing apportionment. In Bangladesh source of water supply is underground water and it is the costly effort. The Govt. has taken a decision for supplying water in future from the source of surface water. He added that 40% of the produced water is going to system loss thus the rest water cannot fulfill the demand. This is why the current DESWS Project. You the people of Dhaka know new initiative means road cutting, drilling and public sufferings. In this case people should be patience and support project personnel. He said the audience to communicate with the respective stakes cited in the leaflet with mobile number for any kind of problem

MSC Representative:

MSC Representative delivered her speech by focusing the water supply system. She addressed that underground water is the limited source of water. One upon a time the source could be empty. This why Govt. has taken the initiative to use surface water in future and the new sources are the water forms the River Meghna and Jamuna. In this project there is no scope of illegal connection and thus the revenue earnings of Govt. could be increased. She added that no Govt. works inform people before starting work but in this project ADB concern is to inform people before the construction works started. This is why we are conducting meeting publicly. On the other hand we are trying to reduce harassment and sufferings of the people at a minimal stage. Even if the low income people are operating his/her business in the street and there is no scope of displacing then we are giving them compensation for maximum 5 days payment or if any grievance raised the contractors are also ready for the payment of grievance. She mentioned that the Women headed households/disable and other vulnerable people will get special assistance from the project. The RP will disclose to the local people for their better understanding. So there is nothing to hide in this project and you are requested to give us necessary support from your end.

RFL Representative:

Engineer of RCL Construction Ltd. (RFL) delivered his speech by briefing the construction procedure concisely about Road Cutting Method, Backfilling, House connection and other pros and cons of the construction work. He addressed that we are ready to answer your question accordingly rather than that of delivering speech.

Social Safeguard officer from PMU:

DWASA representative Officer Social and Safeguard delivered his speech on social and environmental issues. He said that we are emphasizing the social safeguard and environmental issues in this project. Those are fixing enclosure in the construction area, following social safeguard policies, minimizing sound and earth pollution and easy access for the people to entering their houses where the trenches have been cut. Soil dust of the construction site should be removed by the contractor as well as the wastage soil immediately after the trench cut. It is not more than twenty-four hours. Contractors should be ready for fulfilling any kind of sufferings of the people immediately after the occurrence happens. In this project we kept the provision of involving unskilled labor especially for the women from the low income community for generating their income. The name of the project shows that the authority is determined to make the project environmentally sustainable. The project is using best material for the sustainability i.e. high definition poly-phenyl pipe and fittings.

Question and Answer:

NGO Representative seeks support from the audience for message dissemination and awareness rising campaign during pre-construction period, construction period and during commissioning. After the briefing session the representatives from the Community raised the following questions;

- a) How many ways RFL execute the construction works?
- b) How much time is needed to start water supply by the new establishment?
- c) When the house connection be executed?
- d) How the pipe diameter measured?
- e) How much depth the main will go underground?
- f) When the construction work will be started?
- g) How a new house owner can get legal connection?
- h) Who execute the repair and maintenance works?

The Technical persons of the meeting like SAE, SGO DWASA and Contractor Personnel replied the questions as follows;

- a) RFL will conduct the works with three popular systems i.e. HDD, Pipe Bursting and Open Cut.
- b) Though it depends on completion of the construction works we expect to complete within six months.
- c) House connection will be executed after the construction works completed.
- d) Pipe diameter has measured according to the population existing in the area.
- e) There are many utility establishments there under the roads and in this project pipes laid down one meter depth.
- f) It is from the march'18 we expect.
- g) A new user can apply in the MOD Zone 6 having the connection by paying necessary fees.
- h) The respective authorities of the road will be responsible for repair and maintenance works i.e. Roads & Highway, LGED and City Corporation.

3. Opinion of the participants:

The participants were asked to show their interest and opinion from new system of the project. One of the participants expressed his view that there are lots of tenants changing their residences at the end of the month. I am proposing to stop construction works in those days when the new tenants changing their residence. Another audience has given thanks to DWASA and ADB for the new initiative because of emptying the earth downing the water level. The participants of the meeting become optimized of having available water supply round the clock.

4. AOB: As there was no more issue to discuss, the meeting closed with vote of thanks.

Appendix 4 Public Consultation

Dhaka Environmentally Sustainable Water supply Project (DESWSP) Resettlement Awareness Program and Support LIC's in ICB-02.7 Report on Public Consultation Meetings Venues under DMA 614:

- (1) Siddhewary Boys School
- (2) Provati Uchcha Bidhya Niketon

Total Meetings: 02

Venues under DMA 615:

- 1) Purana Paltan Girls College
- 2) Arambag High School & College
- 3) Shantinagar Ideal High School

Total Meetings: 03 Under DMA 616 no public consultation meeting yet started but process is ongoing.

Introduction: Public Consultation Meeting is one of the major activities of SAMAHAR at DESWS Project. This activity is a Platform to disseminate messages among water users in the community especially to the House Owners. We used to choose School's as venue because of targeting the Female like guardians, teachers, housewives and house owners. We always distribute a project leaflet to the participants in the meeting and request teacher's discussing the leaflets in different classes. The leaflet consists of Project related information as well as messages. If it is then a huge no of families are informed of the Project. On the other hand it is an ADB concern whether mass people are informed of or not during Resettlement Plan Preparation. We conduct at least 3 Public Consultation Meetings at 3 different places to cover all area of the DMA. This is the summarized picture of the meetings.

Objective of the Meeting: The main objective of the meeting is to share project related issues like house connection, access to connection permission, illegal connection, project supports, grievance redress mechanism, cooperation & coordination from the community, social safeguard and environmental matters with the participants. Actually this is not a decision making meeting. We conduct a question & answer session in the meeting how beneficiaries can get support from the project. In this procedure we collect recommendations or opinion from the participant's for implementing the project smoothly.

Participants of the meetings: House Owner, House Wives, Guardians, Teachers, Retired Govt. Officials, Civil Society Representatives and Project Personnel's (DWASA/MSC/NGO/Contractor) were the participants. A total of 105 participants attended in three meetings. Male 65, Female 40 and Total 105 Participants attended.

The following discussions are been made in the meeting with issue based information:

NGO Representative: NGO representative informed the house why DESWS Project?

Dhaka is the most over populated City in the World you know. Density of the Dhaka City population is increasing rapidly. This is why the demand of water supply is also increasing proportionately. But the water supply system in Dhaka City is remaining traditional i.e. underground water. Water production rate of the DTW's are reducing every year. On the other hand; system loss is up to 40%. The water table of the country is downing lower day by day and the pumps are failing repeatedly. Consequently water supply crisis is a common phenomenon in this city. If the Govt. not takes the initiative mitigating the crisis then Dhaka City might be declare as Abandoned City for living. This is why the Bangladesh Govt. has taken an initiative mitigating water supply by using surface water. As a result the proposed project (DESWSP) is going to implement in this city. So we need all out support and cooperation from the community. The NGO representative also shares the objectives of the project among the audience.

- Reducing water loss at least 15% from 40%
- Increasing Govt. revenues
- Stopping illegal house connection
- Increasing water supply pressure
- Ensure adequate water supply round the clock
- Ensure quality of water
- Stopping water borne and vector born diseases
- Stopping abusing water etc.

MSC Representative: MSC representative shared the following issues and ideas: In this project Govt. is going to established DMA (District metering Area) system

- Opportunities for the illegal user becoming legal user
- Govt. is going to use surface water instead of underground water.
- After final commissioning the older pipeline will be stopped.
- Project personnel's are trying to reduce sufferings for the people
- We are seeking your all out support and cooperation
 - The Women headed households/disable and other vulnerable people will get special assistance from the project.
 - The RP will disclose to the local people for their better understanding.
 - So there is nothing to hide in this project and you are requested to give us necessary support from your end.

DWASA: Safeguard Officer Environment shared the following concerns...

- The Current Project is environmentally sustainable though there is less scope polluting environment in this project.
- During open cut some soil dust could causes a little pollution but contractors are ready to remove the dust within 24 hour from the place.
- During HDD, sound pollution could be happen but the contractor will use the machine by avoiding class time, prayer time and avoiding hospital & clinic areas.
- There should be put an enclosure covers the trenches
- Labor & worker might be abiding by the safeguard policy and worn safeguard compliance.

RFL Representative: RFL Representative canvasses for support and assistance from each and every corner. He shared the followings:

- During house connection house owner should show their valid papers like, CP and photocopy of last water bill.
- Assist RFL people fixing meters at a convenience place of the house up to 10 meters from main supply line.
- House owner might show their meter to RFL people for checking.
- Broken, damaged and out of order meters will be replaced by a newer one said the representative.
- House owner should present there during meter reading collection if the meter needed to change.
- Connection from transmission line to preserver will be established by project cost.
- Rest cost if needed from meter to water preserver must bear by the house owner.

Question and Answer from the House Owners:

- Q. Will we face any problem of water crisis during construction works?
A. No problem would face of water crisis during construction work we expect. If any problem occurred then WASA will arrange water supply especially.
- Q. How much depth the main supply line will be installed?
A. Three to Five meter depth.
- Q. In which roads the pipeline will be installed by HDD machine?
A. The Roads over 10 meter wider will be under HDD machine operation.
- Q. What is your working area here?
A. Kamalapur to Malibag and Press Club to Arambag.
- Q. Who will conduct the repair and maintenance works of the road trench cut and the pits?
A. Respective authority like Roads & Highway, City Corporation or others will conduct the repair works.
- Q. Say the meter is out of work but the water bill is pending then how the meter will be changed?
A. Meter will be replaced by the contractor if it is changeable. No relation with billing matters.

Conclusion:

A representatives of journalized appreciated the initiative of the Govt. taken this type of project by the financial support of ADB. He said that if the water supply starts from surface water then the use of underground water will be stopped and the Dhaka City dwellers might be saved from the natural disaster like earthquake and or land slide. The judgment of the project name; environmentally sustainable will be very logical.

Appendix-5: Attendance Sheet

DMA-615

SAMAHAR

Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Resettlement Awareness Program and Support LIC's in ICB-02.7

Name of Meeting : Project Information Disclosure Meeting
Venue of Meeting : Begum Rahima Adarsha Balika Uchcha Biddaloya
Date : 11.02.2018
Time : 11.00 am

SL No	Name of the Participant	Occupation	Address	Mobile No	Signature
১	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	গোবিন্দপুর পোঃ ২৯/৪ গোবিন্দপুর	০১৭১২০১৫৬৬১	[Signature]
২	Harun Rehm	MSE consultant	Banarjee	০১৭১২৫৩২০৫	[Signature]
৩	Abdul Momin Sarker	RFL	Banarjee	০১৭২৪৬০১৪৪৫	[Signature]
৪	Md. Sohel Khan	RFL	Banarjee	০১৭২৪৬০৩৪০৪	[Signature]
৫	Mahbub. ul alam	Job	২৭-১১-১-১	০১৭১৬১৪৫৬৫০	[Signature]
৬	AHMED HOSSIN	Business	২৭/৬, ৭, TOPKH -NA Road, DHAKA	০১৬৬৬০ ০১৬৭০৪৫১৬৪১	[Signature]
৭	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
৮	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৪/১১/১	০১৭১২৪৬৫৪৫০৭	[Signature]
৯	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১০	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১১	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১২	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৩	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৪	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৫	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৬	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৭	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৮	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
১৯	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২০	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২১	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২২	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৩	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৪	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৫	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৬	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৭	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৮	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
২৯	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]
৩০	শ্রী. সুনীল কান্ত	শ্রী. সুনীল কান্ত	২৭/১১/১-১	০১৭১২৪৬৫৪৫০৭	[Signature]

Appendix 5: Attendance Sheet

SAMAHAR

**Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Resettlement Awareness Program and Support LIC's in ICB-02.7**

Name of Meeting : Project Information Disclosure Meeting
Venue of Meeting : Counselor's Office, Shaheed Tajuddin Ahmed Sarony, Moghazar.
Date : 29.03.2018
Time : 11.00 am

SL No	Name of the Participant	Occupation	Address	Mobile No	Signature
15.	Samsul Akbar	Business	300/6 Naytola, Moghazar	01747219140	[Signature]
16.	Nazmul Mozahed	Business	309 Naytola, Moghazar	01718098222	[Signature]
17.	Helen Rahman	Resettlement Expert	Bokmare	01712532003	[Signature]
18.	MOJIBAR SARDIK	Councilor	25 NO WAD	01711442772	[Signature]
19.	[Handwritten]	[Handwritten]	[Handwritten]	01712870251	[Signature]
20.	[Handwritten]	[Handwritten]	[Handwritten]	0592520020	[Signature]
21.	[Handwritten]	[Handwritten]	[Handwritten]	01231767769	[Signature]
22.	Shamin Sultana	Job	SAMAHAR	01919878818	Shamin
23.	Amma Akter	Job	SHAMAHAR	01725789992	Amma
24.	Md. Abul Kabir	Job	SHAMAHAR	01714682698	Abul
25.	Md. Mostafiz	Job	Samahar	01743947992	[Signature]

SAMAHAR

Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Resettlement Awareness Program and Support LIC's in ICB-02.7

Name of Meeting : Project Information Disclosure Meeting
Venue of Meeting : Begum Rahima Adarsha Balika Uchcha Biddaloya
Date : 11.02.2018
Time : 11.00 am

SL No	Name of the Participant	Occupation	Address	Mobile No	Signature
15	মো. কামরুজ্জামান	কর্মসূচী	৩০/১০ ডি.এম.এস.এম. (০১৬) ঢাকা	০১৭২৪৪৩৭৬৭	মো. কামরুজ্জামান
16	মো. আমাল	কর্মসূচী	২৭/৩০-ক ডি.এম.এস.এম. লাহুরী লেকা-২০০০	০১৭১৫-১০৩৭৪১	মো. আমাল
17	আফিয়া আক্তার	কর্মসূচী	২৭/১৬ ডি.এম.এস.এম. ঢাকা	০১৭৫৭৭৫৫৪২	আফিয়া
18	মুন্নাভা আক্তার	কর্মসূচী	২৭/১৩-২ ডি.এম.এস.এম. ঢাকা	০১৭২০৩০৬৭৫	মুন্নাভা আক্তার
19	মুন্নাভা আক্তার	কর্মসূচী	২৭/১৫-এ ডি.এম.এস.এম. ঢাকা	০১৭২৩৫৫৫৩০২	মুন্নাভা আক্তার
20	মেসিনা আক্তার	চাকরি স্বয়ংসিদ্ধ	২৫৪১ ডি.আই.টি রোড, নয়াপল্টন	০১৭১৪৫৩২৬০৭	মেসিনা আক্তার
21	বাহানা পারভীন	মহঃ শিল্পকার	৬/৯ নয়াপল্টন ঢাকা	০১৭৫৪৫৭৭৬০৪	বাহানা পারভীন
22	আফিয়া আক্তার	মহঃ শিল্পকার	২৭/১৬ ডি.এম.এস.এম. ঢাকা-২০০০	০১৫১৫২৭৪০৭০	আফিয়া আক্তার
23	আফিয়া আক্তার	মহঃ শিল্পকার	৩নং ইন্ডিয়ান স্ট্রিট ৩০ নয়াপল্টন, ঢাকা-২০০০	০১৬৪৭৭৪২৬৪০৬	আফিয়া আক্তার 11.2.18
34	আফিয়া আক্তার	মহঃ শিল্পকার	৬৭ নয়াপল্টন ৩নং স্ট্রিট ঢাকা-২২২৪	০১৭১৫২৭৪০০২	আফিয়া আক্তার 11.2.18
25	আফিয়া আক্তার	মহঃ শিল্পকার	২৭/১৬ ডি.এম.এস.এম. ঢাকা-২০০০	০১৪৭৫০৪০৬১০	আফিয়া আক্তার 11.02.18
28	আফিয়া আক্তার	মহঃ শিল্পকার	২৩ আর্দ্র, কে.মি.সি.সি. রোড, ঢাকা	০১৫৫২৭৪২৪৭১	আফিয়া আক্তার 11.02.18
27	আফিয়া আক্তার	মহঃ শিল্পকার	২৬/১০ উত্তর আফিয়া আক্তার ঢাকা	০১৭৫৪২৭৪৩৬০	আফিয়া আক্তার ১১/২/১৮
28	আফিয়া আক্তার	মহঃ শিল্পকার	২২, আফিয়া আক্তার ঢাকা	০১৭১৫৬৪৫৫৪ ৭৪	আফিয়া আক্তার 11.2.18

Attendance Sheet

SAMAHAR

Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Resettlement Awareness Program and Support LIC's in ICB-02.7 (DMA-615)

Name of Meeting : Public Consultation
Venue of Meeting : Arambag High School & College
Date : 01.02.2018
Time : 11.30 am

Sl No	Name of the Participant	Occupation	Address	Mobile No	Signature
1.	Homaira Begum	Service (Principal)	Arambagh High School and College.	01749768561	[Signature]
2.	Hekem Rokon	Consultant	MSE, DESWSP WASA	01712532003	[Signature]
3.	Tahmina Ferdousi	Assistant teacher	Arambagh High School and College	01552496004	[Signature]
4.	Md. Saïdur Rahman	Safeguard Officer (Env.)	DESWSP, DWASA	01715149604	[Signature]
5.	Abdul Momin Sarker	Site manager	RFL	01924601855	[Signature]
6.	Sakibuzzaman	SAE, DMU DWASA	98, Kazi Nazimul Islam Avenue, Dhaka	01979110044	[Signature]
7.	Md. Sohail Khan	APE-	RFL	01924609908	[Signature]
8.	Md. A. Motahed	Business	41, Arambag, Dhaka.	01780179310	[Signature]
9.	M. A. RASHID Pintu	Business	122 Arambag	01672600600	[Signature]
10.	Md. Mocharof Hossain	Teacher	76 Fakirapool	01881109599	[Signature]
11.	Md. Mahsubal Hossain	Freedom Fighter	153/2, Arambag Shalab. 1000	01720233696	[Signature]
12.	Md Azzat Ratsom	SARE MSc	DWASA	01711-979087	[Signature]
13.	Shamina Afroze Zahar	Asst. Professor	Arambag High School & College	01552361810	[Signature]
14.	Selina Akter	Asst Professor	Arambag High School & College	01712957347	[Signature]
15.	Amirunnara	Asst. Professor	Arambag High School & College	01732149687	[Signature]

Attendance Sheet

SAMAHAR

Dhaka Environmentally Sustainable Water Supply Project (DESWSP)
Resettlement Awareness Program and Support LIC's in ICB-02.7

Name of Meeting : Public Consultation
Venue of Meeting : Purana Paltan Girls College
Date : 24.01.2018
Time : 11.30 am

Sl No	Name of the Participant	Occupation	Address	Mobile No	Signature
01	শ্রীমতী (মঃ) সৈয়দা	Advocate	3, Purana Paltan Dhaka.	9559698	[Signature]
02	Dr. Md. Morshed Ali Mondal	Principal	3/5, Purnanapal- tan, Dhaka	01715081855	[Signature]
03	Md. Saïdur Rahman	Safeguard Officer (Env)	DESWSP, DWASA, Dhaka	01715149604	[Signature]
4	Abdul Momin Barker	Site manager RFL	RFL	01819282410	[Signature]
5	Md. Rahat	SAFE, MSC	MSC, DESWSP	01911058414	[Signature]
6	Md. Raisul Akbar	off-st		01731201366	[Signature]
7	Saifuddin Fahim	Teacher	Purnanapaltan Girls college,	01715987831	[Signature]
8	S. M. Muxsod Islam	Buss.	89, Purana Paltan line	01925181117	[Signature]
9	M. Shaukatul	Buss.	86, Purana P. line	01946700377	[Signature]
10	Md. Abu Tahur Siddiqui	Business	85/D, Purana Paltan.	01711528447	[Signature]
11.	HARUNKHAN	Business	85/1c Purana paltan.	01715023 482.	[Signature]
12.	parikhil- Biswas.	Business	1/3 Purnanapaltan Dhaka. 100.	01819-016418	[Signature]
13	MURTELL	#JOB	85/2 Purana Paltan	017160209 19	[Signature]
14	Biren Chandra Sen	Teacher	Purana Paltan Girls' College, Dhaka.	01631142556	[Signature]

Appendix 6: NGO Activities Schedule at DMA -614, 615& 616

Sl. No	Activities	Time schedule					
		Nov-18	Dec-18	Jan-18	Feb-18	Mar-18	Apr-18
A. Resettlement Plan Finalization							
01	Data collection and screening the vulnerable HH						
02	Calculation of entitlement values and resettlement budget						
03	Public consultation and establish project cut-off date						
04	RP Preparation						
05	RP public disclosure and GRM establishment						
a) Resettlement Plan Implementation							
06	Preparation and disbursement of entitlement cards (EC) of the eligible APs						
07	Provision of checks to APs by PMU/SIU/NGO						
08	Continuing public consultation and participation						
09	Entertain grievance and redress cases						
10	Implantation of additional supports vulnerable groups						
11	Message dissemination by house visit						
12	Miking (Loud speaker)						
13	Leaflet distribution						
14	Video documentation						
15	Monthly/Quarterly Meeting at MSC/PMU office						
16	Site meeting with MSC/PMU						
17	Staff meeting						
18	Tea Stall Meeting						
19	Community Meeting						

Note: Miking (Loud speaker) usually conducted by the contractor to disseminate information during construction work.

Appendix 7: Road Survey

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
1	Siddeshwari Main Road - A	6.20	8.2	Others (Tea Stall)	03	HDD
				Others (Betel Leaf & Cigarette)	02	
				Shoe Repair	01	
				Fruits & Vegetables	02	
				Others (Lock Repair)	01	
				Food	01	
2	Siddeshwari Road, S/R - 1	4.00	4	No Vendor	N/A	OT
3	Siddeshwari Lane, Main Road	5.20	6.1	Tea Stall	01	HDD
4	Anarkoli Market Goli - 1	3.50	3.5	No Vendor	N/A	OT
5	Anarkoli Market Goli - 2	3.50	3.50	No Vendor	N/A	OT
6	Mouchak Market Goli - 1	2.90	2.90	No Vendor	N/A	OT
7	Mouchak Market Goli - 2	0.00	0.00	No Vendor	N/A	OT
8	Siddeshwari Circular Road, SR-1	4.50	4.50	No Vendor	N/A	PB
9	Siddeshwari Circular Road, SR - 2	3.00	3.00	No Vendor	N/A	OT
10	Siddeshwari Circular Road, SR - 3	3.40	3.40	No Vendor	N/A	PB
11	Siddeshwari Circular Road, SR - 4	3.00	3.00	No Vendor	N/A	OT
12	Siddeshwari Circular Road, SR - 5	3.50	3.50	No Vendor	N/A	OT
13	Siddeshwari Circular Road, SR - 6	3.50	3.50	No Vendor	N/A	OT
14	Siddeshwari Circular Road, SR - 7	2.80	2.80	No Vendor	N/A	OT
15	Siddeshwari Circular Road, SR - 8	3.00	3.00	No Vendor	N/A	OT
16	Siddeshwari Circular Road, SR - 9	1.60	1.60	No Vendor	N/A	OT
17	Siddeshwari Circular Road, S - 10	3.00	3.00	No Vendor	N/A	OT
18	Siddeshwari Lane, S/R - 2	4.00	4.00	No Vendor	N/A	OT
19	Siddeshwari Lane, S/R - 6	3.50	3.50	No Vendor	N/A	OT
20	3 No. Siddeshwari Lane	3.20	3.20	No Vendor	N/A	OT
21	3 No. Siddeshwari Lane, SR-1	2.50	2.50	No Vendor	N/A	OT
22	Siddeshwari Circular Road, SR-11	3.30	3.30	No Vendor	N/A	HDD
23	New Baily Road, Mainroad - A	13.40	17.6	No Vendor	N/A	PB
24	Siddeshwari Lane, S/R - 1	3.30	4.1	Others (Tea Stall)	01	HDD
25	Siddeshwari Lane, S/R - 7	2.50	3.1	No Vendor	N/A	OT
26	Siddeshwari Lane, S/R - 3	3.10	3.7	No Vendor	N/A	HDD
27	Siddeshwari Lane, S/R - 4	4.10	4.10	No Vendor	N/A	OT
28	Siddeshwari Lane, S/R - 5	3.10	3.10	No Vendor	N/A	HDD
29	New Baily Road, S/R - 1	4.50	4.50	No Vendor	N/A	HDD
30	New Baily Road, S/R - 2	4.20	4.20	No Vendor	N/A	HDD
31	New Baily Road, S/R - 3	4.10	4.10	No Vendor	N/A	HDD
32	New Baily Road, S/R - 4	2.70	2.70	No Vendor	N/A	HDD
33	New Baily Road, S/R - 5	3.00	3.00	No Vendor	N/A	HDD
34	New Baily Road, S/R - 6	3.70	3.70	No Vendor	N/A	PB
35	New Baily Road, S/R - 7	3.20	3.20	No Vendor	N/A	PB
36	New Baily Road, S/R - 8	0.00	0.00	No Vendor	N/A	PB
37	New Baily Road, S/R - 9	3.70	3.70	No Vendor	N/A	OT
38	Siddeshwari , Main Road-8	11.40	14.9	No Vendor	N/A	HDD
39	Siddeshwari Road, S/R - 2	2.70	2.70	No Vendor	N/A	OT
40	Siddeshwari Road, S/R - 3	1.40	1.40	No Vendor	N/A	OT
41	Siddeshwari Road, S/R - 4	4.40	4.40	No Vendor	N/A	OT
42	Siddeshwari Road, S/R - 5	4.90	4.90	No Vendor	N/A	OT
43	Siddeshwari Road, S/R - 6	4.00	4.00	No Vendor	N/A	OT
44	Siddeshwari Road, S/R - 7	3.80	3.80	No Vendor	N/A	HDD
45	Siddeshwari Road, S/R - 8	3.60	3.60	No Vendor	N/A	OT
46	Siddeshwari Road, S/R - 9	3.20	3.20	No Vendor	N/A	HDD
47	Siddeshwari Road, S/R - 10	4.60	4.60	No Vendor	N/A	OT
48	Siddeshwari Road, S/R - 11	3.10	3.10	No Vendor	N/A	OT
49	Siddeshwari Road, S/R - 12	2.40	2.40	No Vendor	N/A	OT
50	Siddeshwari Road, S/R - 13	N/A	N/A	No Vendor	N/A	OT

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
51	Siddeshwari Road, S/R - 14	1.80	1.80	No Vendor	N/A	OT
52	Siddeshwari Road, S/R - 15	3.50	3.50	No Vendor	N/A	PB
53	Siddeshwari Road, S/R - 16	3.80	3.80	No Vendor	N/A	OT
54	Siddeshwari Road, S/R - 17	3.00	3.00	No Vendor	N/A	OT
55	Siddeshwari Road, S/R - 18	2.60	2.60	No Vendor	N/A	OT
56	Siddeshwari Road, S/R - 19	3.00	3.00	No Vendor	N/A	OT
57	Siddeshwari Road, S/R - 20	3.00	3.00	No Vendor	N/A	OT
58	New Circular Road, S/R - 2	3.50	3.50	No Vendor	N/A	OT
59	New Circular Road, S/R - 1	2.70	2.70	No Vendor	N/A	OT
60	Siddeshwari Circular Road M	30.00	36.3	No Vendor	N/A	OT
61	New Kakrail Road, Main Road	30.00	36.1	No Vendor	N/A	OT
62	Anzuman Mofidul Islam Road	29.00	33.8	No Vendor	N/A	OT
63	Shaheed Captin Mansur Ali Saroni (Circuit House Road)	19.00	23.9	No Vendor	N/A	HDD
64	New Baily Road, Main Road - B	12.50	16.8	No Vendor	N/A	OT
65	Shaheed Mansur Ali Saroni, Romna	19.00	24.6	No Vendor	N/A	HDD
66	Shaheed Mansur Ali Saroni, Moghbazar	20.00	24.2	No Vendor	N/A	HDD
67	Shaheed Sangbadik Selina Parvin Road.	25.00	29	No Vendor	N/A	HDD
68	New Circular Road, Siddeshwari	30.00	34	No Vendor	N/A	HDD
69	Siddeshwari Outer Circular Road, SR-1	6.50	6.50	No Vendor	N/A	OT
70	Elephant Road, Wireless, Bara Moghbazar	6.80	8.2	No Vendor	N/A	HDD
71	Romna Model Thana Road	9.70	13	No Vendor	N/A	HDD
72	Estarn Housing Appatment, Siddeshwari	6.50	6.50	No Vendor	N/A	HDD
73	Estarn Housing Appatment, Siddeshwari - 1	7.00	7.00	No Vendor	N/A	OT
74	Estarn Housing Appatment, Siddeshwari - 2	6.50	6.50	No Vendor	N/A	OT
75	Circuit House Road	6.50	6.50	No Vendor	N/A	HDD
076	Circuit House Road, S/R-1	5.00	5.00	No Vendor	N/A	HDD
077	New Baily Road, S/R- 10	6.30	6.30	No Vendor	N/A	HDD
078	New Baily Road, S/R- 11	6.00	6.00	No Vendor	N/A	HDD
079	Circuit House Road, S/R-2	4.20	4.20	No Vendor	N/A	HDD
080	Circuit House Road, S/R-3	3.50	3.50	No Vendor	N/A	HDD
081	New Baily Rd, S/R- 12	4.00	4.00	No Vendor	N/A	HDD
082	New Baily Rd, S/R- 13	3.50	3.50	No Vendor	N/A	HDD
083	New Baily Rd, S/R- 14	3.50	3.50	No Vendor	N/A	HDD
084	Kakrail Road, S/R-1	3.50	3.50	No Vendor	N/A	OT
085	Kakrail Road, S/R-2	4.50	4.50	No Vendor	N/A	OT
086	Kakrail Road, S/R-3	3.50	3.50	No Vendor	N/A	OT
087	Kakrail Road, S/R-4	3.00	3.00	No Vendor	N/A	HDD
088	Kakrail Road, S/R-5	3.60	3.60	No Vendor	N/A	OT
089	Kakrail Road, S/R-6	2.20	2.20	No Vendor	N/A	OT
090	Kakrail Road, S/R-7	3.60	3.60	No Vendor	N/A	OT
091	Kakrail Road, S/R-8	6.50	6.50	No Vendor	N/A	OT
092	Kakrail Road, S/R-9	4.20	4.20	No Vendor	N/A	HDD
093	Jages Complex, Park Avenue, Kakrail-1	5.00	5.00	No Vendor	N/A	OT
094	Jages Complex, Park Avenue, Kakrail-2	5.00	5.00	No Vendor	N/A	HDD
095	Jages Complex, Park Avenue, Kakrail-3	5.00	5.00	No Vendor	N/A	OT
096	Anzuman Mofidul Islam Road, S/R-1	4.50	4.50	No Vendor	N/A	HDD
097	New Baily Road, S/R- 15	4.00	4.00	No Vendor	N/A	HDD
098	Baily Square, Offecer Quarter, Baily Road	5.00	5.00	No Vendor	N/A	HDD
099	Baily Square, Offecer Quarter, Baily Road, S/R-1	1.50	1.50	No Vendor	N/A	HDD
100	Baily Square, Offecer Quarter, Baily Road, S/R-2	5.00	5.00	No Vendor	N/A	HDD
101	Baily Square, Offecer Quarter,	5.00	5.00	No Vendor	N/A	HDD

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
	Baily Road, S/R-3					
102	Romna Model Thana Road, SR-1	1.40	1.40	No Vendor	N/A	HDD
103	Elephant Road, Moghbazar, SR-1	3.50	3.50	Fruits & Vegetables	01	OT
				Others (Tea Stall)	01	
104	Outer Circular Road, S/R-1	3.00	3.00	No Vendor	N/A	OT
105	Outer Circular Road, S/R-2	3.20	3.20	No Vendor	N/A	OT
106	Outer Circular Road, S/R-3	3.00	3.00	No Vendor	N/A	OT
107	Outer Circular Road, S/R-4	3.50	3.50	No Vendor	N/A	OT
108	Outer Circular Road, S/R-5	4.70	4.70	No Vendor	N/A	OT
109	Outer Circular Road, S/R-6	2.50	2.50	No Vendor	N/A	OT
110	Outer Circular Road, S/R-7	4.80	4.80	No Vendor	N/A	OT
111	Bara Mogh Bazar, S/R-1	4.00	4.00	No Vendor	N/A	PB
112	Bara Mogh Bazar, S/R-2	3.00	3.00	No Vendor	N/A	OT
113	Elephant Road, Moghbazar, SR-2	1.60	1.60	No Vendor	N/A	OT
114	Ramna Century Avenue	6.00	6.00	No Vendor	N/A	OT
115	Ramna Century Avenue, S/R-1	3.60	3.60	No Vendor	N/A	OT
116	Ramna Century Avenue, S/R-2	4.50	4.50	No Vendor	N/A	OT
117	Ramna Century Avenue, S/R-3	6.00	6.00	No Vendor	N/A	PB
118	Ispahani Colony Road, Main Road	4.00	4.00	No Vendor	N/A	PB
119	Ispahani Colony Road, S/R-1	3.80	3.80	No Vendor	N/A	PB
120	Ispahani Colony Road, S/R-2	3.00	3.00	No Vendor	N/A	HDD
121	Ispahani Colony Road, S/R-3	4.00	4.00	No Vendor	N/A	PB
122	Ispahani Colony Road, S/R-4	4.00	4.00	No Vendor	N/A	PB
123	Moghbazar Kazi Office Lane	6.00	6.00	No Vendor	N/A	OT
124	Moghbazar Kazi Office Lane, SR-1	3.00	3.00	No Vendor	N/A	OT
125	Moghbazar Kazi Office Lane, SR-2	3.50	3.50	No Vendor	N/A	PB
126	Elephant Road, Moghbazar, SR-3	4.30	4.30	No Vendor	N/A	PB
127	Elephant Road, Moghbazar, SR-4	3.00	3.00	No Vendor	N/A	HDD
128	Siddeshwari Road, S/R -21			No Vendor	N/A	OT
129	Siddeshwari Road, Ramna, SR-22	5.00	5.00	No Vendor	N/A	HDD
130	Siddeshwari Road, Ramna, SR-23	5.00	5.00	No Vendor	N/A	HDD
131	Ramna Complex Road, Ramna	4.00	4.00	No Vendor	N/A	PB
132	Ramna Complex Road, SR-1	5.60	5.60	No Vendor	N/A	PB
133	Romna Model Thana	4.20	4.20	No Vendor	N/A	HDD
134	Kakrail Mosque Road,	17.60	20.3	No Vendor	N/A	HDD
135	Motsho Bhaban To Shahbagh	20.80	26.3	No Vendor	N/A	HDD
136	Kazi Nazrul Islam Avenue	25.20	29.2	No Vendor	N/A	HDD
137	Hair Main Road	16.80	21.5	No Vendor	N/A	HDD
138	Kazi Nazrul Islam Avenue-1	25.00	29	No Vendor	N/A	HDD
139	New Eskaton Main Road	21.00	26	No Vendor	N/A	HDD
140	Eskaton Garden Road, Main	13.00	17.4	No Vendor	N/A	HDD
141	Old Elephant Road, Eskaton Garden Road.	10.00	11.8	No Vendor	N/A	HDD
142	Minto Road, Main Road	11.50	15.25	No Vendor	N/A	HDD
143	Baily Road, Main Road	12.50	17.5	No Vendor	N/A	HDD
144	New Eskaton Road, S/R-1,	4.00	4.00	No Vendor	N/A	OT
145	New Eskaton Road, S/R-2	4.20	4.20	No Vendor	N/A	HDD
146	New Eskaton Road, S/R-3	3.00	3.00	No Vendor	N/A	HDD
147	New Eskaton Road, S/R-4	3.00	3.00	No Vendor	N/A	OT
148	New Eskaton Road, S/R-5	4.00	4.00	No Vendor	N/A	OT
149	New Eskaton Road, S/R-6	3.80	3.80	No Vendor	N/A	PB
150	New Eskaton Road, S/R-7	5.50	5.50	No Vendor	N/A	OT
151	New Eskaton Road, S/R-8	4.50	4.50	No Vendor	N/A	OT
152	New Eskaton Road, S/R-9	3.00	3.00	No Vendor	N/A	OT
153	New Eskaton Road, S/R-10	2.50	2.50	No Vendor	N/A	OT
154	New Eskaton Road, S/R-11	1.50	1.50	No Vendor	N/A	OT
155	New Eskaton Road, S/R-37	1.30	1.30	No Vendor	N/A	OT
156	Eskaton Garden Road, S/R-6	6.50	6.50	No Vendor	N/A	OT
157	Eskaton Garden Road, S/R-7	3.00	3.00	No Vendor	N/A	OT
158	New Eskaton Road, S/R-12	1.20	1.20	No Vendor	N/A	OT
159	New Eskaton Road, S/R-13	4.30	4.30	No Vendor	N/A	OT
160	New Eskaton Road, S/R-14	3.50	3.50	No Vendor	N/A	OT

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
161	New Eskaton Road, S/R-15	3.20	3.20	No Vendor	N/A	OT
162	New Eskaton Road, S/R-16	3.50	3.50	No Vendor	N/A	OT
163	Eskaton Garden Road, S/R-1	6.00	6.00	No Vendor	N/A	OT
164	Eskaton Garden Road, S/R-1	2.50	2.50	No Vendor	N/A	OT
165	Eskaton Garden Road, S/R-2	2.20	2.20	No Vendor	N/A	OT
166	Eskaton Garden Road, S/R-3	4.30	4.30	No Vendor	N/A	OT
167	Eskaton Garden Road, S/R-4	1.50	1.50	No Vendor	N/A	HDD
168	Eskaton Garden Road, S/R-5	2.50	2.50	No Vendor	N/A	HDD
169	F.D.C Road	20.00	22	No Vendor	N/A	HDD
170	Shaheed Tajuddin Ahmed Saroni	20.00	22	No Vendor	N/A	HDD
171	Eskaton Garden Road, S/R-8	4.70	4.70	No Vendor	N/A	OT
172	Eskaton Garden Road, S/R-9	3.50	3.50	No Vendor	N/A	HDD
173	Eskaton Garden Road, S/R-10	4.50	4.50	No Vendor	N/A	PB
174	Eskaton Garden Road, S/R-11	3.80	3.80	No Vendor	N/A	HDD
175	Eskaton Garden Road, S/R-12	3.80	3.80	No Vendor	N/A	OT
176	Eskaton Garden Road, S/R-13	3.50	3.50	No Vendor	N/A	HDD
177	Nazrul Academi Road	3.00	3.00	No Vendor	N/A	HDD
178	Eskaton Garden Road, S/R-14	3.50	3.50	No Vendor	N/A	HDD
179	Eskaton Garden Road, S/R-15	3.50	4	No Vendor	N/A	HDD
180	Eskaton Garden Road, S/R-16	3.00	3.00	No Vendor	N/A	HDD
181	PWD Quorter Road	3.00	3.00	No Vendor	N/A	HDD
182	PWD Officer Quter Rd.	4.00	4.00	No Vendor	N/A	HDD
183	Minto Road, S/R-1	7.50	10.1	No Vendor	N/A	HDD
184	Eskaton Garden Road, S/R-17	3.50	3.50	No Vendor	N/A	HDD
185	Eskaton Garden Road, S/R-18	6.00	6.00	No Vendor	N/A	HDD
186	Minto Road, S/R-2	3.70	3.70	No Vendor	N/A	HDD
187	Minto Road, S/R-3	4.00	4.00	No Vendor	N/A	HDD
188	Minto Road, S/R-4	4.00	4.00	No Vendor	N/A	HDD
189	Minto Road, S/R-5	4.50	4.50	No Vendor	N/A	HDD
190	Minto Road, S/R-6	4.50	4.50	No Vendor	N/A	HDD
191	Officers Club Road	4.50	4.50	No Vendor	N/A	HDD
192	Officers Club Road-1	N/A	N/A	No Vendor	N/A	HDD
193	Baily Road, S/R-1	4.50	4.50	No Vendor	N/A	HDD
194	Montripara Heyar Road	6.50	6.50	No Vendor	N/A	HDD
195	1 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
196	2 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
197	3 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
198	4 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
199	20 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
200	6 No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
201	5No. Heyar Road	3.50	3.50	No Vendor	N/A	HDD
202	Baily Road, S/R-7	4.90	4.90	No Vendor	N/A	HDD
203	Baily Road, S/R-2	5.00	5.00	No Vendor	N/A	HDD
204	Baily Road, S/R-3	1.50	1.50	No Vendor	N/A	HDD
205	Baily Road, S/R-4	2.80	2.80	No Vendor	N/A	HDD
206	Baily Road, S/R-5	3.50	3.50	No Vendor	N/A	HDD
207	Baily Road, S/R-6	3.50	3.50	No Vendor	N/A	HDD
208	Heyar Road, S/R-1	3.50	3.50	No Vendor	N/A	HDD
209	Bardem hospital Road	5.00	5.00	No Vendor	N/A	HDD
210	Sheraton Hotel Road	6.00	6.00	No Vendor	N/A	HDD
211	Shahbagh Avenue Road	19.20	21.6	No Vendor	N/A	HDD
212	New Elephant Road	21.70	24.7	No Vendor	N/A	HDD
213	Poribugh Link Road	10.90	13.7	No Vendor	N/A	OT
214	Bangla Motor Link Rd.	25.80	28.4	No Vendor	N/A	OT
215	Poribugh DPDC Road	4.00	4.00	No Vendor	N/A	OT
216	Poribugh DPDC Road, S/R-1	4.00	4.00	No Vendor	N/A	HDD
217	Poribugh Link Rd. , S/R-1	7.70	10.1	No Vendor	N/A	OT
218	Poribugh Link Road, S/R-2	2.80	2.80	No Vendor	N/A	HDD
219	Poribugh Link Road, S/R-3	3.20	3.20	No Vendor	N/A	HDD
220	Mymensingh Lane	3.50	3.50	No Vendor	N/A	PB
221	Mymensingh Lane, S/R-1	1.20	1.20	No Vendor	N/A	HDD
222	Mymensingh Lane, S/R-2	1.20	1.20	No Vendor	N/A	PB
223	Mymensingh Road	4.50	4.50	No Vendor	N/A	OT
224	Mymensingh Road, S/R-1	5.30	5.30	No Vendor	N/A	OT
225	Mymensingh Road, S/R-2	5.30	5.30	No Vendor	N/A	OT

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
226	Mymensing Road, S/R-3	5.50	5.50	No Vendor	N/A	PB
227	Poribagh Main Road	8.80	11.8	No Vendor	N/A	OT
228	Poribagh Road, S/R-1	3.50	3.50	No Vendor	N/A	OT
229	Poribagh Road, S/R-2	3.00	3.00	No Vendor	N/A	HDD
230	Poribagh Road, S/R-3	4.60	4.60	No Vendor	N/A	HDD
231	Mymensingh Road-4	2.80	2.80	No Vendor	N/A	HDD
232	Mymensingh Road-5	3.30	3.30	No Vendor	N/A	OT
233	Nowabab Habibullah Road	4.50	4.50	No Vendor	N/A	OT
234	Nowabab Habibullah Road-1	3.20	3.20	No Vendor	N/A	HDD
235	Nowabab Habibullah Road, SR-2	4.00	4.00	Others (Tailor)	01	HDD
				Others (Butcher)	01	
236	Nowabab Habibullah Road, SR-3	4.00	4.00	Fruits & Vegetables	02	HDD
				Others (Tea Stall)	03	
237	Nowabab Habibullah Road, SR-4	3.50	3.50	No Vendor	N/A	OT
238	Nowabab Habibullah Road, SR-5	6.00	6.00	No Vendor	N/A	OT
239	Nowabab Habibullah Road, SR-6	3.00	3.00	No Vendor	N/A	OT
240	Nowabab Habibullah Road, SR-7	4.30	4.30	No Vendor	N/A	OT
241	Nowabab Habibullah Road, SR-8	4.00	4.00	No Vendor	N/A	OT
242	Nowabab Habibullah Road, SR-9	5.00	5.00	No Vendor	N/A	OT
243	PG Hospital (Inside)	8.00	11.00	No Vendor	N/A	OT
244	PG Hospital, S/R-1	5.60	5.60	No Vendor	N/A	OT
245	Spahani Gril School Rd.	4.00	4.00	No Vendor	N/A	OT
246	Fridom Fitar Goli Rd.	5.70	6.6	No Vendor	N/A	OT
247	Shanti Kungo Goli Rd.	4.00	4.00	No Vendor	N/A	PB
248	Shanti Kungo Goli, S/R-1	3.50	3.50	No Vendor	N/A	OT
249	New Eskaton Road, S/R-17	4.70	4.70	No Vendor	N/A	OT
250	Dilu Main Road - A	5.00	5.00	Others (Tea Stall)	01	OT
				Others (Shoe Repair)	01	
				Others (Betel Leave & Cigarette)	01	
				Fruits & Vegetables	01	
251	Dilu Road, S/R-1	3.50	3.50	No Vendor	N/A	PB
252	Dilu Road, S/R-2	4.70	4.70	No Vendor	N/A	HDD
253	Dilu Road, S/R-3	2.80	2.80	No Vendor	N/A	HDD
254	Dilu Road, S/R-4	3.00	3.00	No Vendor	N/A	HDD
255	Dilu Road, S/R-5	3.30	3.30	No Vendor	N/A	OT
256	Dilu Road, S/R-6	4.00	4.00	No Vendor	N/A	OT
257	Dilu Road, S/R-7	3.00	3.00	No Vendor	N/A	OT
258	Dilu Road, S/R-8	3.00	3.00	No Vendor	N/A	HDD
259	Dilu Road, S/R-9	2.80	2.80	No Vendor	N/A	OT
260	Dilu Road, S/R-10	3.50	3.50	No Vendor	N/A	OT
261	Dilu Main Road - B	4.50	4.50	No Vendor	N/A	OT
262	Dilu Road, S/R-11	2.50	2.50	No Vendor	N/A	OT
263	Dilu Road, S/R-12	3.20	3.20	No Vendor	N/A	OT
264	Dilu Road, S/R-13	3.20	3.20	No Vendor	N/A	OT
265	Dilu Road, S/R-14	3.30	3.30	No Vendor	N/A	HDD
266	Dilu Road, S/R-15	3.00	3.00	No Vendor	N/A	HDD
267	Dilu Road, S/R-16	4.00	4.00	No Vendor	N/A	HDD
268	Dilu Main Road - C	4.50	4.50	No Vendor	N/A	HDD
269	Dilu Road, S/R-17	3.50	4	No Vendor	N/A	OT
270	Dilu Road, S/R-18	4.00	4.00	No Vendor	N/A	HDD
271	Dilu Road, S/R-19	5.00	5.00	No Vendor	N/A	HDD
272	Dilu Road, S/R-20	3.20	3.20	No Vendor	N/A	HDD
273	Dilu Road, S/R-21	3.20	3.20	No Vendor	N/A	OT
274	Shaheed Tajuddin Ahmed Sharoni, S/R-1	3.00	3.00	No Vendor	N/A	HDD
275	New Eskaton Road, S/R-18	4.50	4.50	No Vendor	N/A	HDD

SL No	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
		Carriage Way (M)	Wall to Wall (M)			
276	New Eskaton Road, S/R-19	5.50	5.50	No Vendor	N/A	PB
277	New Eskaton Road, S/R-20	3.50	3.50	Others (Tea Stall)	03	HDD
278	New Eskaton Road, S/R-21	3.00	3.00	Fruits & vegetables	01	HDD
				Shoe Repair	01	HDD
279	New Eskaton Road, S/R-22	7.00	7.00	No Vendor	N/A	HDD
280	New Eskaton Road, S/R-23	4.00	4.00	No Vendor	N/A	HDD
281	New Eskaton Road, S/R-24	5.00	5.00	No Vendor	N/A	HDD
282	New Eskaton Road, S/R-25	4.50	4.50	No Vendor	N/A	HDD
283	New Eskaton Road, S/R-26	4.50	4.50	No Vendor	N/A	HDD
284	New Eskaton Road, S/R-27	5.50	5.50	No Vendor	N/A	HDD
285	New Eskaton Road, S/R-28	4.50	4.50	No Vendor	N/A	HDD
286	New Eskaton Road, S/R-29	3.70	3.70	No Vendor	N/A	HDD
287	New Eskaton Road, S/R-30	3.50	4.00	No Vendor	N/A	OT
288	New Eskaton Road, S/R-31	3.00	3.00	No Vendor	N/A	OT
289	New Eskaton Road, S/R-32	3.50	3.50	Fruits & Vegetables	02	HDD
290	New Eskaton Road, S/R-33	4.50	4.50	No Vendor	N/A	HDD
291	New Eskaton Road, S/R-34	1.00	1.00	No Vendor	N/A	HDD
292	New Eskaton Road, S/R-35	3.80	3.80	No Vendor	N/A	HDD
293	New Eskaton Road, S/R-36	3.20	3.20	No Vendor	N/A	PB
294	Sonargaon Hotel	3.00	3.00	No Vendor	N/A	HDD
295	Hatir Jheell Road	7.20	11.8	No Vendor	N/A	HDD
296	New Elephant Road - 1	21.70	24.7	No Vendor	N/A	HDD
297	New Elephant Road, S/R-1	3.50	3.50	No Vendor	N/A	HDD
298	New Elephant Road, S/R-2	3.20	3.20	No Vendor	N/A	HDD

Appendix 8: Contractor's Schedule:

SL No	Road Name	Width of the Road		May-18	Jun-18	Jul-18
		Carriage Way(M)	Wall to Wall (M)			
1	Siddeshwari Main Road – A	6.20	8.2	Design Finalized	Design Finalized	Design Finalized
2	Siddeshwari Road, S/R – 1	4.00	4			
3	Siddeshwari Lane, Main Road	5.20	6.1			
4	Anarkoli Market Goli – 1	3.50	3.5			
5	Anarkoli Market Goli – 2	3.50	3.50			
6	Mouchak Market Goli – 1	2.90	2.90			
7	Mouchak Market Goli – 2	0.00	0.00			
8	Siddeshwari Circular Road, SR-1	4.50	4.50			
9	Siddeshwari Circular Road, SR – 2	3.00	3.00			
10	Siddeshwari Circular Road, SR - 3	3.40	3.40			
11	Siddeshwari Circular Road, SR - 4	3.00	3.00			
12	Siddeshwari Circular Road, SR - 5	3.50	3.50			
13	Siddeshwari Circular Road, SR - 6	3.50	3.50			
14	Siddeshwari Circular Road, SR - 7	2.80	2.80			
15	Siddeshwari Circular Road, SR - 8	3.00	3.00			
16	Siddeshwari Circular Road, SR - 9	1.60	1.60			
17	Siddeshwari Circular Road, S - 10	3.00	3.00			
18	Siddeshwari Lane, S/R - 2	4.00	4.00			
19	Siddeshwari Lane, S/R - 6	3.50	3.50			
20	3 No. Siddeshwari Lane	3.20	3.20			
21	3 No. Siddeshwari Lane, SR-1	2.50	2.50			
22	Siddeshwari Circular Road, SR-11	3.30	3.30			
23	New Baily Road, Mainroad - A	13.40	17.6			
24	Siddeshwari Lane, S/R - 1	3.30	4.1			
25	Siddeshwari Lane, S/R - 7	2.50	3.1			
26	Siddeshwari Lane, S/R - 3	3.10	3.7			
27	Siddeshwari Lane, S/R - 4	4.10	4.10			
28	Siddeshwari Lane, S/R - 5	3.10	3.10			
29	New Baily Road, S/R - 1	4.50	4.50			
30	New Baily Road, S/R - 2	4.20	4.20			
31	New Baily Road, S/R - 3	4.10	4.10			
32	New Baily Road, S/R - 4	2.70	2.70			
33	New Baily Road, S/R - 5	3.00	3.00			
34	New Baily Road, S/R - 6	3.70	3.70			
35	New Baily Road, S/R - 7	3.20	3.20			
36	New Baily Road, S/R - 8	0.00	0			
37	New Baily Road, S/R - 9	3.70	3.70			
38	Siddeshwari Road, Main Road -B	11.40	14.9			
39	Siddeshwari Road, S/R - 2	2.70	2.70			
40	Siddeshwari Road, S/R - 3	1.40	1.40			
41	Siddeshwari Road, S/R - 4	4.40	4.40			
42	Siddeshwari Road, S/R - 5	4.90	4.90			
43	Siddeshwari Road, S/R - 6	4.00	4.00			
44	Siddeshwari Road, S/R - 7	3.80	3.80			
45	Siddeshwari Road, S/R - 8	3.60	3.60			
46	Siddeshwari Road, S/R - 9	3.20	3.20			
47	Siddeshwari Road, S/R - 10	4.60	4.60			
48	Siddeshwari Road, S/R - 11	3.10	3.10			
49	Siddeshwari Road, S/R - 12	2.40	2.40			
50	Siddeshwari Road, S/R - 13	N/A	N/A			
51	Siddeshwari Road, S/R - 14	1.80	1.80			
52	Siddeshwari Road, S/R - 15	3.50	3.50			
53	Siddeshwari Road, S/R - 16	3.80	3.80			
54	Siddeshwari Road, S/R - 17	3.00	3.00			
55	Siddeshwari Road, S/R - 18	2.60	2.60			
56	Siddeshwari Road, S/R - 19	3.00	3.00			
57	Siddeshwari Road, S/R - 20	3.00	3.00			
58	New Circular Road, S/R - 2	3.50	3.50			
59	New Circular Road, S/R - 1	2.70	2.70			
60	Siddeshwari Circular Road Main	30.00	36.3			
61	New Kakrail Road, Main Road	30.00	36.1			
				Design Finalized	Design Finalized	Design Finalized

62	Anzuman Mofidul Islam Road	29.00	33.8			
63	Shaheed Captin Mansur Ali Saroni	19.00	23.9			
64	New Baily Road, Main Road - B	12.50	16.8			
65	Shaheed Mansur Ali Saroni, Romna	19.00	24.6			
66	Shaheed Mansur Ali Saroni,	20.00	24.2			
67	Shaheed Sangbadik Selina Parvin Rd.	25.00	29			
68	New Circular Road, Siddeshwari	30.00	34			
69	Siddeshwari Outer Circular Rd, SR-1	6.50	6.50			
70	Elephant Road, Wireless, Moghbazar	6.80	8.2			
71	Romna Model Thana Road	9.70	13			
72	Estarn Housing Appatment, Siddeshwari	6.50	6.50			
73	Estarn Housing Appatment, Siddeshwari - 1	7.00	7.00			
74	Estarn Housing Appatment, Siddeshwari - 2	6.50	6.50			
75	Circuit House Road	6.50	6.50			
076	Circuit House Road, S/R-1	5.00	5.00			
077	New Baily Road, S/R- 10	6.30	6.30			
078	New Baily Road, S/R- 11	6.00	6.00			
079	Circuit House Road, S/R-2	4.20	4.20			
080	Circuit House Road, S/R-3	3.50	3.50			
081	New Baily Rd, S/R- 12	4.00	4.00			
082	New Baily Rd, S/R- 13	3.50	3.50			
083	New Baily Rd, S/R- 14	3.50	3.50			
084	Kakrail Road, S/R-1	3.50	3.50			
085	Kakrail Road, S/R-2	4.50	4.50			
086	Kakrail Road, S/R-3	3.50	3.50			
087	Kakrail Road, S/R-4	3.00	3.00			
088	Kakrail Road, S/R-5	3.60	3.60			
089	Kakrail Road, S/R-6	2.20	2.20			
090	Kakrail Road, S/R-7	3.60	3.60			
091	Kakrail Road, S/R-8	6.50	6.50			
092	Kakrail Road, S/R-9	4.20	4.20			
093	Jages Complex, Park Avenue, Kakrail-1	5.00	5.00			
094	Jages Complex, Park Avenue, Kakrail-2	5.00	5.00			
095	Jages Complex, Park Avenue, Kakrail-3	5.00	5.00			
096	Anzuman Mofidul Islam Road, S/R-1	4.50	4.50			
097	New Baily Road, S/R- 15	4.00	4.00			
098	Baily Square, Offecer Quarter, Baily Road	5.00	5.00			
099	Baily Square, Offecer Quarter, Baily Road, S/R-1	1.50	1.50			
100	Baily Square, Offecer Quarter, Baily Road, S/R-2	5.00	5.00			
101	Baily Square, Offecer Quarter, Baily Road, S/R-3	5.00	5.00			
102	Romna Model Thana Road, SR-1	1.40	1.40			
103	Elephant Road, Moghbazar, SR-1	3.50	3.50			
104	Outer Circular Road, S/R-1	3.00	3.00			
105	Outer Circular Road, S/R-2	3.20	3.20			
106	Outer Circular Road, S/R-3	3.00	3.00			
107	Outer Circular Road, S/R-4	3.50	3.50			
108	Outer Circular Road, S/R-5	4.70	4.70			
109	Outer Circular Road, S/R-6	2.50	2.50			
110	Outer Circular Road, S/R-7	4.80	4.80			
111	Bara Mogh Bazar, S/R-1	4.00	4.00			
112	Bara Mogh Bazar, S/R-2	3.00	3.00			
113	Elephant Road, Moghbazar, SR-2	1.60	1.60			
114	Ramna Century Avenue	6.00	6.00			
115	Ramna Century Avenue, S/R-1	3.60	3.60			
116	Ramna Century Avenue, S/R-2	4.50	4.50			
117	Ramna Century Avenue, S/R-3	6.00	6.00			
118	Ispahani Colony Road, Main Road	4.00	4.00			
119	Ispahani Colony Road, S/R-1	3.80	3.80			
120	Ispahani Colony Road, S/R-2	3.00	3.00			
121	Ispahani Colony Road, S/R-3	4.00	4.00			
122	Ispahani Colony Road, S/R-4	4.00	4.00			
123	Moghbazar Kazi Office Lane	6.00	6.00			
124	Moghbazar Kazi Office Lane, SR-1	3.00	3.00			
125	Moghbazar Kazi Office Lane, SR-	3.50	3.50			
126	Elephant Road, Moghbazar, SR-3	4.30	4.30			
127	Elephant Road, Moghbazar, SR-4	3.00	3.00			
128	Siddeshwari Road, S/R -21					
129	Siddeshwari Road, Ramna, SR-22	5.00	5.00			

130	Siddeshwari Road, Ramna,SR-23	5.00	5.00			
131	Ramna Complex Road, Ramna	4.00	4.00			
132	Ramna Complex Road, -SR-1	5.60	5.60			
133	Romna Model Thana	4.20	4.20			
134	Kakrail Mosque Road,	17.60	20.3			
135	Motsho Bhaban To Shahbagh	20.80	26.3			
136	Kazi Nazrul Islam Avenue	25.20	29.2			
137	Hair Main Road	16.80	21.5			
138	Kazi Nazrul Islam Avenue-1	25.00	29			
139	New Eskaton Main Road	21.00	26			
140	Eskaton Garden Road, Main	13.00	17.4			
141	Old Elephant Road, Eskaton Garden Road.	10.00	11.8			
142	Minto Road, Main Road	11.50	15.25			
143	Baily Road, Main Road	12.50	17.5			
144	New Eskaton Road, S/R-1,	4.00	4.00			
145	New Eskaton Road, S/R-2	4.20	4.20			
146	New Eskaton Road, S/R-3	3.00	3.00			
147	New Eskaton Road, S/R-4	3.00	3.00			
148	New Eskaton Road, S/R-5	4.00	4.00			
149	New Eskaton Road, S/R-6	3.80	3.80			
150	New Eskaton Road, S/R-7	5.50	5.50			
151	New Eskaton Road, S/R-8	4.50	4.50			
152	New Eskaton Road, S/R-9	3.00	3.00			
153	New Eskaton Road, S/R-10	2.50	2.50			
154	New Eskaton Road, S/R-11	1.50	1.50			
155	New Eskaton Road, S/R-37	1.30	1.30			
156	Eskaton Garden Road, S/R-6	6.50	6.50			
157	Eskaton Garden Road, S/R-7	3.00	3.00			
158	New Eskaton Road, S/R-12	1.20	1.20			
159	New Eskaton Road, S/R-13	4.30	4.30			
160	New Eskaton Road, S/R-14	3.50	3.50			
161	New Eskaton Road, S/R-15	3.20	3.20			
162	New Eskaton Road, S/R-16	3.50	3.50			
163	Eskaton Garden Road, S/R-1	6.00	6.00	Design Finalized	Design Finalized	Design Finalized
164	Eskaton Garden Road, S/R-1	2.50	2.50			
165	Eskaton Garden Road, S/R-2	2.20	2.20			
166	Eskaton Garden Road, S/R-3	4.30	4.30			
167	Eskaton Garden Road, S/R-4	1.50	1.50			
168	Eskaton Garden Road, S/R-5	2.50	2.50			
169	F.D.C Road	20.00	22			
170	Shaheed Tajuddin Ahmed Saroni	20.00	22			
171	Eskaton Garden Road, S/R-8	4.70	4.70			
172	Eskaton Garden Road, S/R-9	3.50	3.50			
173	Eskaton Garden Road, S/R-10	4.50	4.50			
174	Eskaton Garden Road, S/R-11	3.80	3.80			
175	Eskaton Garden Road, S/R-12	3.80	3.80			
176	Eskaton Garden Road, S/R-13	3.50	3.50			
177	Nazrul Academi Road	3.00	3.00			
178	Eskaton Garden Road, S/R-14	3.50	3.50			
179	Eskaton Garden Road, S/R-15	3.50	4			
180	Eskaton Garden Road, S/R-16	3.00	3.00			
181	PWD Quarter Road	3.00	3.00			
182	PWD Officer Quter Rd.	4.00	4.00			
183	Minto Road, S/R-1	7.50	10.1			
184	Eskaton Garden Road, S/R-17	3.50	3.50			
185	Eskaton Garden Road, S/R-18	6.00	6.00			
186	Minto Road, S/R-2	3.70	3.70			
187	Minto Road, S/R-3	4.00	4.00			
188	Minto Road, S/R-4	4.00	4.00			
189	Minto Road, S/R-5	4.50	4.50			
190	Minto Road, S/R-6	4.50	4.50			
191	Officrs Club Road	4.50	4.50			
192	Officrs Club Road-1	N/A	N/A			
193	Baily Road, S/R-1	4.50	4.50			
194	Montripara Heyar Road	6.50	6.50			
195	1 No. Heyar Road	3.50	3.50			
196	2 No. Heyar Road	3.50	3.50			

197	3 No. Heyar Road	3.50	3.50			
198	4 No. Heyar Road	3.50	3.50			
199	20 No. Heyar Road	3.50	3.50			
200	6 No. Heyar Road	3.50	3.50			
201	5No. Heyar Road	3.50	3.50			
202	Baily Road, S/R-7	4.90	4.90			
203	Baily Road, S/R-2	5.00	5.00			
204	Baily Road, S/R-3	1.50	1.50			
205	Baily Road, S/R-4	2.80	2.80			
206	Baily Road, S/R-5	3.50	3.50			
207	Baily Road, S/R-6	3.50	3.50			
208	Heyar Road, S/R-1	3.50	3.50			
209	Bardem hospital Road	5.00	5.00			
210	Sheraton Hotel Road	6.00	6.00			
211	Shahbagh Avenue Road	19.20	21.6			
212	New Elephant Road	21.70	24.7			
213	Poribugh Link Road	10.90	13.7			
214	Bangla Motor Link Rd.	25.80	28.4			
215	Poribugh DPDC Road	4.00	4.00			
216	Poribugh DPDC Road, S/R-1	4.00	4.00			
217	Poribugh Link Rd. , S/R-1	7.70	10.1			
218	Poribugh Link Road, S/R-2	2.80	2.80			
219	Poribugh Link Road, S/R-3	3.20	3.20			
220	Mymensingh Lane	3.50	3.50			
221	Mymensingh Lane, S/R-1	1.20	1.20			
222	Mymensingh Lane, S/R-2	1.20	1.20			
223	Mymensingh Road	4.50	4.50			
224	Mymensingh Road, S/R-1	5.30	5.30			
225	Mymensingh Road, S/R-2	5.30	5.30			
226	Mymensing Road, S/R-3	5.50	5.50			
227	Poribagh Main Road	8.80	11.8			
228	Poribagh Road, S/R-1	3.50	3.50			
229	Poribagh Road, S/R-2	3.00	3.00			
230	Poribagh Road, S/R-3	4.60	4.60			
231	Mymensingh Road-4	2.80	2.80			
232	Mymensingh Road-5	3.30	3.30			
233	Nowabab Habibullah Road	4.50	4.50			
234	Nowabab Habibullah Road, SR-1	3.20	3.20			
235	Nowabab Habibullah Road, SR-2	4.00	4.00			
236	Nowabab Habibullah Road, SR-3	4.00	4.00			
237	Nowabab Habibullah Road, SR-4	3.50	3.50			
238	Nowabab Habibullah Road, SR-5	6.00	6.00			
239	Nowabab Habibullah Road, SR-6	3.00	3.00			
240	Nowabab Habibullah Road, SR-7	4.30	4.30			
241	Nowabab Habibullah Road, SR-8	4.00	4.00			
242	Nowabab Habibullah Road, SR-9	5.00	5.00			
243	PG Hospital (Inside)	8.00	11.00			
244	PG Hospital, S/R-1	5.60	5.60			
245	Spahani Gril School Rd.	4.00	4.00			
246	Fridom Fitar Goli Rd.	5.70	6.6			
247	Shanti Kungo Goli Rd.	4.00	4.00			
248	Shanti Kungo Goli, S/R-1	3.50	3.50			
249	New Eskaton Road, S/R-17	4.70	4.70			
250	Dilu Main Road - A	5.00	5.00			
251	Dilu Road, S/R-1	3.50	3.50			
252	Dilu Road, S/R-2	4.70	4.70			
253	Dilu Road, S/R-3	2.80	2.80			
254	Dilu Road, S/R-4	3.00	3.00			
255	Dilu Road, S/R-5	3.30	3.30			
256	Dilu Road, S/R-6	4.00	4.00			
257	Dilu Road, S/R-7	3.00	3.00			
258	Dilu Road, S/R-8	3.00	3.00			
259	Dilu Road, S/R-9	2.80	2.80			
260	Dilu Road, S/R-10	3.50	3.50			
261	Dilu Main Road - B	4.50	4.50			
262	Dilu Road, S/R-11	2.50	2.50			
263	Dilu Road, S/R-12	3.20	3.20			
264	Dilu Road, S/R-13	3.20	3.20			
				Design Finalized	Design Finalized	Design Finalized
				Design Finalized	Design Finalized	Design Finalized

265	Dilu Road, S/R-14	3.30	3.30			
266	Dilu Road, S/R-15	3.00	3.00			
267	Dilu Road, S/R-16	4.00	4.00			
268	Dilu Main Road - C	4.50	4.50			
269	Dilu Road, S/R-17	3.50	4			
270	Dilu Road, S/R-18	4.00	4.00			
271	Dilu Road, S/R-19	5.00	5.00			
272	Dilu Road, S/R-20	3.20	3.20			
273	Dilu Road, S/R-21	3.20	3.20			
274	Shaheed Tajuddin Ahmed Sharoni, S/R-1	3.00	3.00			
275	New Eskaton Road, S/R-18	4.50	4.50			
276	New Eskaton Road, S/R-19	5.50	5.50			
277	New Eskaton Road, S/R-20	3.50	3.50			
278	New Eskaton Road, S/R-21	3.00	3.00			
279	New Eskaton Road, S/R-22	7.00	7.00			
280	New Eskaton Road, S/R-23	4.00	4.00			
281	New Eskaton Road, S/R-24	5.00	5.00			
282	New Eskaton Road, S/R-25	4.50	4.50			
283	New Eskaton Road, S/R-26	4.50	4.50			
284	New Eskaton Road, S/R-27	5.50	5.50			
285	New Eskaton Road, S/R-28	4.50	4.50			
286	New Eskaton Road, S/R-29	3.70	3.70			
287	New Eskaton Road, S/R-30	3.50	4.00			
288	New Eskaton Road, S/R-31	3.00	3.00			
289	New Eskaton Road, S/R-32	3.50	3.50			
290	New Eskaton Road, S/R-33	4.50	4.50			
291	New Eskaton Road, S/R-34	1.00	1.00			
292	New Eskaton Road, S/R-35	3.80	3.80			
293	New Eskaton Road, S/R-36	3.20	3.20			
294	Sonargaon Hotel	3.00	3.00			
295	Hatir Jheell Road	7.20	11.8			
296	New Elephant Road - 1	21.70	24.7			
297	New Elephant Road, S/R-1	3.50	3.50			
298	New Elephant Road, S/R-2	3.20	3.20			
299	New Elephant Road, S/R-3	3.40	3.40			
300	Siddeshwari, S/R-24	2.80	2.80			
301	Siddeshwari, S/R-25	2.30	2.30			
302	Siddeshwari, S/R-26	2.60	2.60			

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
1	615110001	Pir Jangi Mazer Road To Arambag	22.3	26.7	No Vendor	N/A	OT
2	615110002	A.G.B Koloni Kacha Bazer Road	7.8	9.8	No Vendor	N/A	OT
3	615110003	Kakrail To Motijil	33.1	37.3	No Vendor	N/A	HDD, PB
4	615110004	Boxculvert Road(Arambag)	24.47	28.47	No Vendor	N/A	OT
5	615110005	Boxculvert Road(Arambag),Sr-1	1.4	1.4	No Vendor	N/A	OT
6	615110006	Boxculvert Road(Arambag),Sr-2	3.3	3.3	No Vendor	N/A	OT
7	615110007	Boxculvert Road(Arambag),Sr-3	4.3	4.3	No Vendor	N/A	OT
8	615110008	Boxculvert Road(Arambag),Sr-4	2.4	2.4	No Vendor	N/A	OT
9	615110009	Boxculvert Road(Arambag),Sr-5	2.5	2.5	No Vendor	N/A	OT
10	615110010	Boxculvert Road(Arambag),Sr-6	1.8	1.8	No Vendor	N/A	OT
11	615110011	Boxculvert Road(Arambag),Sr-7	1.8	1.8	No Vendor	N/A	OT
12	615110012	Boxculvert Road(Arambag),Sr-8	1.5	1.5	No Vendor	N/A	OT
13	615110012/1	Boxculvert Road(Arambag),Sr-8	1	1	No Vendor	N/A	OT
14	615110013	Boxculvert Road(Arambag),Sr-9	4	4	No Vendor	N/A	OT
15	615110014	Boxculvert Road(Arambag),Sr-10	4.2	4.2	No Vendor	N/A	OT
16	615110015	Boxculvert Road(Arambag),Sr-11	1.8	1.8	No Vendor	N/A	OT
17	615110016	Boxculvert Road(Arambag),Sr-12	1.8	1.8	No Vendor	N/A	OT
18	615110017	Boxculvert Road(Arambag),Sr-13	2.4	2.4	No Vendor	N/A	OT
19	615110017/1	Boxculvert Road(Arambag),Sr-13	1	1	No Vendor	N/A	OT
20	615110018	Boxculvert Road(Arambag),Sr-14	2.5	2.5	No Vendor	N/A	OT
21	615110019	Boxculvert Road(Arambag),Sr-15	2.7	2.7	No Vendor	N/A	OT
22	615110020	Boxculvert Road(Arambag),Sr-16	2.1	2.1	No Vendor	N/A	OT
23	615110021	Boxculvert Road(Arambag),Sr-17	1.8	1.8	No Vendor	N/A	OT
24	615110022	Boxculvert Road(Arambag),Sr-18	1.8	1.8	No Vendor	N/A	OT
25	615110023	Boxculvert Road(Arambag),Sr-19	1.5	1.5	No Vendor	N/A	OT
26	615110024	Boxculvert Road(Arambag),Sr-20	1.2	1.2	No Vendor	N/A	OT
27	615110025	Boxculvert Road(Arambag),Sr-21	2.7	2.7	No Vendor	N/A	OT
28	615110026	Boxculvert Road(Arambag),Sr-22	3.2	3.2	No Vendor	N/A	OT
29	615110027	Boxculvert Road(Arambag),Sr-23	2.1	2.1	No Vendor	N/A	OT
30	615110028	Boxculvert Road(Arambag),Sr-24	1.5	1.5	No Vendor	N/A	OT
31	615110029	Boxculvert Road(Arambag),Sr-25	3.6	3.6	No Vendor	N/A	OT
32	615110030	Boxculvert Road(Arambag),Sr-26	2.7	2.7	No Vendor	N/A	OT
33	615110031	Boxculvert Road(Arambag),Sr-27	2	2	No Vendor	N/A	OT
34	615110032	Boxculvert Road(Arambag),Sr-28	2.3	2.3	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
35	615110033	Boxculvert Road(Arambag),Sr-29	2	2	No Vendor	N/A	OT
36	615110034	Boxculvert Road(Arambag),Sr-30	2	2	No Vendor	N/A	OT
37	615110035	Boxculvert Road(Arambag),Sr-31	1.3	1.3	No Vendor	N/A	OT
38	615110036	Boxculvert Road(Arambag),Sr-32	1.6	1.6	No Vendor	N/A	OT
39	615110037	Boxculvert Road(Arambag),Sr-33	2.5	2.5	No Vendor	N/A	OT
40	615110038	Boxculvert Road(Arambag),Sr-34	4	4	No Vendor	N/A	OT
41	615110039	Boxculvert Road(Arambag),Sr-35	2.3	2.3	No Vendor	N/A	OT
42	615110040	Boxculvert Road(Arambag),Sr-1a	4.3	4.3	No Vendor	N/A	OT
43	615110041	Boxculvert Road(Arambag),Sr-2a	1.6	1.6	No Vendor	N/A	OT
44	615110042	Boxculvert Road(Arambag),Sr-3a	1.6	1.6	No Vendor	N/A	OT
45	615110043	Fokirapul Road	4.6	4.6	No Vendor	N/A	OT
46	615110044	Fokirapul Road,Sr-1	2.6	2.6	No Vendor	N/A	OT
47	615110045	Fokirapul Road,Sr-2	3	3	No Vendor	N/A	OT
48	615110046	Fokirapul Road,Sr-3	1.7	1.7	No Vendor	N/A	OT
49	615110047	Fokirapul Road,Sr-4	1.4	1.4	No Vendor	N/A	OT
50	615110048	Fokirapul Road,Sr-5	1.1	1.1	No Vendor	N/A	OT
51	615110049	Fokirapul Road,Sr-6	1.1	1.1	No Vendor	N/A	OT
52	615110050	Fokirapul Road,Sr-7	1	1	No Vendor	N/A	OT
53	615110051	Fokirapul Road,Sr-8	1.1	1.1	No Vendor	N/A	OT
54	615110052	Fokirapul Road,Sr-9	1.5	1.5	No Vendor	N/A	OT
55	615110053	Fokirapul Road,Sr-10	2	2	No Vendor	N/A	OT
56	615110054	Fokirapul Road,Sr-11	1.8	1.8	No Vendor	N/A	OT
57	615110055	Fokirapul Road,Sr-12	1.8	1.8	No Vendor	N/A	OT
58	615110056	Fokirapul Road,Sr-13	5	5	No Vendor	N/A	OT
59	615110057	Fokirapul Road,Sr-14	4	4	No Vendor	N/A	OT
60	615110058	Fokirapul Road,Sr-15	2.6	2.6	No Vendor	N/A	OT
61	615110059	Fokirapul Road,Sr-16	2.5	2.5	No Vendor	N/A	OT
62	615110060	Fokirapul Road,Sr-17	4.3	4.3	No Vendor	N/A	OT
63	615110061	Fokirapul Road,Sr-18	2	2	No Vendor	N/A	OT
64	615110062	Fokirapul Road,Sr-19	1.8	1.8	No Vendor	N/A	OT
65	615110063	Fokirapul Road,Sr-20	1.8	1.8	No Vendor	N/A	OT
66	615110064	Fokirapul Road,Sr-21	2	2	No Vendor	N/A	OT
67	615110065	Fokirapul Road,Sr-22	2.2	2.2	No Vendor	N/A	OT
68	615110066	Fokirapul Road,Sr-23	2	2	No Vendor	N/A	OT
69	615110067	Fokirapul Road,Sr-24	3.2	3.2	No Vendor	N/A	OT
70	615110068	Fokirapul Road,Sr-25	4	4	No Vendor	N/A	OT
71	615110069	Fokirapul Road,Sr-26	2	2	No Vendor	N/A	OT
72	615110070	Fokirapul Road,Sr-27	2.1	2.1	No Vendor	N/A	HDD
73	615110071	Fokirapul Road,Sr-28	2.3	2.3	No Vendor	N/A	OT
74	615110072	Fokirapul To Doynikbangla More	22.4	31.2	No Vendor	N/A	OT
75	615110073	Fokirapul Road,Sr-29	3.9	3.9	No Vendor	N/A	OT
76	615110074	Fokirapul Road,Sr-30	3.5	3.5	No Vendor	N/A	OT
77	615110075	Fokirapul Road,Sr-31	3.6	3.6	No Vendor	N/A	OT, HDD
78	615110076	Bizaynagor To Polton More	23.6	31.5	No Vendor	N/A	OT
79	615110077	Polton To Doynikbangla Road	18.9	26.4	No Vendor	N/A	OT
80	615110078	Purana Polton,Sr-1	6.5	6.5	No Vendor	N/A	OT
81	615110079	Purana Polton,Sr-2	4.8	4.8	No Vendor	N/A	HDD
82	615110080	Purana Polton,Sr-3	4.8	4.8	No Vendor	N/A	HDD
83	615110081	Purana Polton,Sr-4	7.7	7.7	No Vendor	N/A	HDD
84	615110082	Purana Polton,Sr-5	3.2	3.2	No Vendor	N/A	HDD
85	615110083	Purana Polton,Sr-6	6	6	No Vendor	N/A	HDD
86	615110084	Purana Polton,Sr-7	6	6	No Vendor	N/A	HDD

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
87	615110085	Purana Polton,Sr-8	6	6	No Vendor	N/A	HDD
88	615110086	Purana Polton,Sr-9	8	8	No Vendor	N/A	HDD
89	615110087	Purana Polton,Sr-10	7.8	7.8	No Vendor	N/A	OT
90	615110088	Purana Polton,Sr-11	9	9	No Vendor	N/A	OT, HDD
91	615110089	Purana Polton,Sr-12	5.5	5.5	No Vendor	N/A	HDD
92	615110090	Purana Polton,Sr-13	5	5	No Vendor	N/A	HDD
93	615110091	Purana Polton,Sr-14	5.5	5.5	No Vendor	N/A	HDD
94	615110092	Purana Polton,Sr-15	5.5	5.5	No Vendor	N/A	OT
95	615110093	Naya Polton Road	5	5	No Vendor	N/A	HDD
96	615110094	Naya Polton Road,Sr-1	4.5	4.5	No Vendor	N/A	HDD
97	615110095	Naya Polton Road,Sr-2	3.6	3.6	No Vendor	N/A	OT
98	615110096	Naya Polton Road,Sr-3	3.3	3.3	No Vendor	N/A	OT
99	615110097	Naya Polton Road,Sr-4	3.6	3.6	No Vendor	N/A	OT
100	615110098	Naya Polton Road,Sr-5	3	3	No Vendor	N/A	OT
101	615110099	Naya Polton Road,Sr-6	4.6	4.6	No Vendor	N/A	OT
102	615110100	Naya Polton Road,Sr-7	5.5	5.5	No Vendor	N/A	OT
103	615110101	Naya Polton Road,Sr-8	3	3	No Vendor	N/A	OT
104	615110102	Naya Polton Road,Sr-9	1.8	1.8	No Vendor	N/A	HDD
105	615110103	Naya Polton Road,Sr-10	2.6	2.6	No Vendor	N/A	OT
106	615110104	Naya Polton Road,Sr-11	2.5	2.5	No Vendor	N/A	OT
107	615110105	Naya Polton Road,Sr-12	1.8	1.8	No Vendor	N/A	OT
108	615110106	Naya Polton Road,Sr-13	2.2	2.2	No Vendor	N/A	OT
109	615110107	Naya Polton Road,Sr-14	2.1	2.1	No Vendor	N/A	OT
110	615110108	Naya Polton Road,Sr-15	2.5	2.5	No Vendor	N/A	OT
111	615110109	Naya Polton Road,Sr-16	4.2	4.2	No Vendor	N/A	OT
112	615110110	Naya Polton Road,Sr-17	5.5	5.5	No Vendor	N/A	OT
113	615110111	Naya Polton Road,Sr-18	3.5	3.5	No Vendor	N/A	OT
114	615110112	Naya Polton Road,Sr-19	1.7	1.7	No Vendor	N/A	OT
115	615110113	Naya Polton Road,Sr-20	3.5	3.5	No Vendor	N/A	OT
116	615110114	Naya Polton Road,Sr-21	4	4	No Vendor	N/A	OT
117	615110115	Naya Polton Road,Sr-22	2.5	2.5	No Vendor	N/A	OT
118	615110116	Naya Polton Road,Sr-23	1.4	1.4	No Vendor	N/A	OT
119	615110117	Naya Polton Road,Sr-24	1.3	1.3	No Vendor	N/A	HDD
120	615110118	Naya Polton Road,Sr-25	3.6	3.6	No Vendor	N/A	OT
121	615110119	Naya Polton Road,Sr-26	3.6	3.6	No Vendor	N/A	OT
122	615110120	Naya Polton Road,Sr-27	3.2	3.2	No Vendor	N/A	OT
123	615110121	Naya Polton Road,Sr-28	2.6	2.6	No Vendor	N/A	OT
124	615110122	Naya Polton Road,Sr-29	3	3	No Vendor	N/A	OT
125	615110123	Naya Polton Road,Sr-30	2.8	2.8	No Vendor	N/A	OT
126	615110124	Naya Polton Road,Sr-31	2.6	2.6	No Vendor	N/A	OT
127	615110125	Naya Polton Road,Sr-32	4	4	No Vendor	N/A	OT
128	615110126	Naya Polton Road,Sr-33	2.5	2.5	No Vendor	N/A	OT
129	615110127	Naya Polton Road,Sr-34	4.5	4.5	No Vendor	N/A	OT
130	615110128	Kakrail,Sr-A	3	3	No Vendor	N/A	OT
131	615110129	Bijoy nagor,Bottala Mosque Road	6	6	No Vendor	N/A	OT
132	615110130	Bijoy nagor,Bottala Mosque Road,Sr-1	4.6	4.6	No Vendor	N/A	OT
133	615110131	Bijoy nagor,Bottala Mosque Road,Sr-2	2	2	No Vendor	N/A	OT
134	615110132	Bijoy nagor,Bottala Mosque Road,Sr-3	1.7	1.7	No Vendor	N/A	HDD
135	615110133	Bijoy nagor,Bottala Mosque Road,Sr-4	2	2	No Vendor	N/A	HDD
136	615110134	Bijoy nagor,Bottala Mosque Road,Sr-5	4	4	No Vendor	N/A	HDD
137	615110135	Bijoy nagor,Bottala Mosque Road,Sr-6	3	3	No Vendor	N/A	OT
138	615110136	Polton Lene/Line Road,Sr-1	3.2	3.2	No Vendor	N/A	HDD
139	615110137	Polton Lene/Line Road,Sr-2	3	3	No Vendor	N/A	OT
140	615110138	Polton Lene Main Road	6	6	No Vendor	N/A	OT
141	615110139	Polton Lene Sub Road,Sr-3	2.7	2.7	No Vendor	N/A	OT
142	615110140	Polton Lene Sub Road,Sr-4	3.7	3.7	No Vendor	N/A	OT
143	615110141	Polton Lene Sub Road,Sr-5	3.6	3.6	No Vendor	N/A	OT
144	615110142	Polton Lene Sub Road,Sr-6	3.3	3.3	No Vendor	N/A	OT
145	615110143	Polton Lene Sub Road,Sr-7	3.1	3.1	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
146	615110144	Polton Lene Sub Road,Sr-8	4	4	No Vendor	N/A	OT
147	615110145	Purana Polton Lene Sub Road,Sr-9	5	5	No Vendor	N/A	OT
148	615110146	Purana Polton Lene Sub Road,Sr-10	3.5	3.5	No Vendor	N/A	OT
149	615110147	Purana Polton Lene Sub Road,Sr-11	2	2	No Vendor	N/A	OT
150	615110148	Bottala Mosque Sub Road-7	8	8	No Vendor	N/A	OT
151	615110149	Bottala Mosque Sub Road-8	8	8	No Vendor	N/A	OT, PB
152	615110150	Bottala Mosque Sub Road-9	8	8	No Vendor	N/A	PB
153	615110151	Bottala Mosque Sub Road-10	8	8	No Vendor	N/A	HDD
154	615110152	Bottala Mosque Sub Road-11	8	8	No Vendor	N/A	OT
155	615110153	Paioniare Road Kakrail	10	10	No Vendor	N/A	OT
156	615110154	Paioniare Road Kakrail,Sr-1	10	10	No Vendor	N/A	OT
157	615110155	Paioniare Road Kakrail,Sr-2	3.6	3.6	No Vendor	N/A	OT
158	615110156	Paioniare Road Kakrail,Sr-3	2.8	2.8	No Vendor	N/A	OT
159	615110157	Paioniare Road Kakrail,Sr-4	3.5	3.5	No Vendor	N/A	OT
160	615110158	Paioniare Road Kakrail,Sr-5	2.5	2.5	No Vendor	N/A	OT
161	615110159	Paioniare Road Kakrail,Sr-6	4	4	No Vendor	N/A	OT
162	615110160	Paioniare Road Kakrail,Sr-7	9	9	No Vendor	N/A	PB
163	615110161	Paioniare Road Kakrail,Sr-8	6	6	No Vendor	N/A	OT
164	615110162	Paioniare Road Kakrail,Sr-9	6.7	6.7	No Vendor	N/A	OT
165	615110163	Paioniare Road Kakrail,Sr-10	4.1	4.1	No Vendor	N/A	OT
166	615110164	Paioniare Road Kakrail,Sr-11	4.7	4.7	No Vendor	N/A	OT
167	615110165	Kakrail Road,Sr-A	3	3	No Vendor	N/A	OT
168	615110166	Kakrail Road,Sr-B	1.2	1.2	No Vendor	N/A	OT
169	615110167	Kakrail Road,Sr-C	3.6	3.6	No Vendor	N/A	HDD
170	615110168	Kakrail Road,Sr-D	3.5	3.5	No Vendor	N/A	HDD
171	615110169	V.V.I.P Road To Press Calab	23	23	No Vendor	N/A	HDD
172	615110170	V.V.I.P Road To Press Calab,Sr-1	8.5	8.5	No Vendor	N/A	OT
173	615110171	V.V.I.P Road To Press Calab,Sr-2	7	7	No Vendor	N/A	HDD
174	615110172	V.V.I.P Road To Press Calab,Sr-3	5	5	No Vendor	N/A	HDD
175	615110173	V.V.I.P Road To Press Calab,Sr-4	19.4	19.4	No Vendor	N/A	HDD
176	615110174	Shegunbagicha Resident Areas	9.8	9.8	No Vendor	N/A	HDD
177	615110175	Shegunbagicha Resident Areas,Sr-1	6.5	6.5	No Vendor	N/A	HDD
178	615110176	Shegunbagicha Resident Areas,Sr-2	5.2	5.2	No Vendor	N/A	OT
179	615110177	Shegunbagicha Resident Areas,Sr-3	8.6	8.6	No Vendor	N/A	OT
180	615110178	Shegunbagicha Resident Areas,Sr-4	7.5	7.5	No Vendor	N/A	OT
181	615110179	Shegunbagicha Resident Areas,Sr-5	6.2	6.2	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
182	615110180	Shegunbagicha Resident Areas, Sr-6	5.8	5.8	No Vendor	N/A	HDD
183	615110181	Shegunbagicha Resident Areas, Sr-7	6	6	No Vendor	N/A	HDD
184	615110182	Shilpokala To Bizaynagar Water Tank	8.5	8.5	No Vendor	N/A	OT
185	615110183	Shegunbagicha Resident Areas, Sr-8	7	7	No Vendor	N/A	HDD
186	615110184	Shilpokala To Bizaynagar Water Tank, Sr-1	9.5	9.5	No Vendor	N/A	OT
187	615110185	Topkhana Sub Road, Sr-1	6	6	No Vendor	N/A	OT
188	615110186	Eastran Housing Road	5.5	5.5	No Vendor	N/A	OT
189	615110187	Topkhana Sub Road, Sr-2	5.5	5.5	No Vendor	N/A	OT
190	615110188	Topkhana Sub Road, Sr-3	1.2	1.2	No Vendor	N/A	OT
191	615110189	Topkhana Sub Road, Sr-4	3	3	No Vendor	N/A	OT
192	615110190	Topkhana Sub Road, Sr-5	1.5	1.5	No Vendor	N/A	HDD
193	615110191	Shegunbagicha Road, Sr-A	13.6	13.6	No Vendor	N/A	OT
194	615110192	Shegunbagicha Road, Sr-B	13	13	No Vendor	N/A	OT
195	615110193	Shegunbagicha Road, Sr-C	11	11	No Vendor	N/A	OT
196	615110194	Shegunbagicha Road, Sr-D	6	6	No Vendor	N/A	HDD
197	615110195	Shegunbagicha Road, Sr-E	6	6	No Vendor	N/A	OT
198	615110196	Shegunbagicha Road, Sr-F	6	6	No Vendor	N/A	OT
199	615110197	Shegunbagicha Road, Sr-G	2.3	2.3	No Vendor	N/A	OT
200	615110198	Shegunbagicha Road, Sr-H	4.5	4.5	Others (Betel Leaf & Cigarette)	N/A	OT
201	615110199	Shegunbagicha Road, Sr-I	3	3	No Vendor	N/A	OT
202	615110200	Shegunbagicha Road, Sr-J	4.8	4.8	No Vendor	N/A	OT
203	615110201	Shegunbagicha Road, Sr-K	5.5	5.5	Others (Betel Leaf & Cigarette) Shoe Repair	1 1	OT
204	615110202	Shegunbagicha Road, Sr-L	1.5	1.5	No Vendor	N/A	OT
205	615110203	Shegunbagicha Road, Sr-M	3.8	3.8	No Vendor	N/A	OT
206	615110204	Shegunbagicha Road, Sr-N	3.8	3.8	No Vendor	N/A	OT
207	615110205	Shegunbagicha Road, Sr-O	3.5	3.5	No Vendor	N/A	OT
208	615110206	Shantinagor (Islami Bank Hospital)	3.6	3.6	No Vendor	N/A	OT, PB
209	615110207	Scaout Babon Road Kakrail	4.8	4.8	No Vendor	N/A	OT
210	615110208	Kakrail Gareg Potti	4.5	4.5	No Vendor	N/A	OT
211	615110209	Kakrail Gareg Potti, Sr-1	4.5	4.5	No Vendor	N/A	OT
212	615110210	Kakrail Gareg Potti, Sr-2	3.5	3.5	No Vendor	N/A	OT
213	615110211	Kakrail Gareg Potti, Sr-3	3.5	3.5	No Vendor	N/A	OT
214	615110212	Shantinagor, Sr-1	5.5	5.5	No Vendor	N/A	OT
215	615110213	Shantinagor, Sr-2	2.7	2.7	No Vendor	N/A	OT
216	615110214	Shantinagor, Sr-3	3.7	3.7	No Vendor	N/A	OT
217	615110215	Shantinagor Bazer Road	4.9	4.9	No Vendor	N/A	OT
218	615110216	Shantinagor Bazer Road, Sr-1	2	2	No Vendor	N/A	OT
219	615110217	Shantinagor Bazer Road, Sr-2	3.8	3.8	No Vendor	N/A	OT
220	615110218	Shantinagor Bazer Road, Sr-3	1.8	1.8	No Vendor	N/A	PB
221	615110219	Shantinagor Bazer Road, Sr-4	1.4	1.4	No Vendor	N/A	OT
222	615110220	Shantinagor Bazer Road, Sr-5	5.7	5.7	No Vendor	N/A	OT
223	615110221	Shantinagor Bazer Road, Sr-6	4.9	4.9	No Vendor	N/A	OT
224	615110222	Shantinagor Bazer Road, Sr-7	3	3	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
225	615110223	Shantinagor Bazer Road,Sr-8	3	3	No Vendor	N/A	OT
226	615110224	Shantinagor Bazer Road,Sr-9	3	3	No Vendor	N/A	OT
227	615110225	Shantinagor Bazer Road,Sr-10	3.2	3.2	Others (Tea Stall)	1	OT
					Shoe Repair	1	
228	615110226	Shantinagor Bazer Road,Sr-11	3.1	3.1	Others (Betel Leaf & Cigarette)	5	OT
					Food	1	
					Shoe Repair	1	
					Fruits & Vegetables	2	
					Others (Tea Stall)	1	
229	615110227	Shantinagor Bazer Road,Sr-12	4	4	No Vendor	N/A	OT
230	615110228	Shantinagor Bazer Road,Sr-13	4	4	No Vendor	N/A	OT
231	615110229	Shantinagor Bazer Road,Sr-14	3.8	3.8	No Vendor	N/A	OT
232	615110230	Shantinagor Bazer Road,Sr-15	5.6	5.6	No Vendor	N/A	OT
233	615110231	Shantinagor Bazer Road,Sr-16	3.6	3.6	No Vendor	N/A	OT
234	615110232	Shantinagor Bazer Road,Sr-17	3.6	3.6	No Vendor	N/A	OT
235	615110233	Shantinagor Bazer Road,Sr-18	2.2	2.2	No Vendor	N/A	OT
236	615110234	Shantinagor Bazer Road,Sr-19	3	3	Shoe Repair	1	OT
					Others (Tea Stall)	1	
237	615110235	Shantinagor Bazer Road,Sr-20	3	3	No Vendor	N/A	OT
238	615110236	Pirer Goli Shantinagor,Sr-21	5	5	No Vendor	N/A	OT
239	615110237	Pirer Goli Shantinagor,Sr-22	3.5	3.5	Shoe Repair	1	OT
					Fruits & Vegetables	3	
240	615110238	Pirer Goli Shantinagor,Sr-23	3.1	3.1	No Vendor	N/A	OT
241	615110239	Pirer Goli Shantinagor,Sr-24	4	4	No Vendor	N/A	OT
242	615110240	Pirer Goli Shantinagor,Sr-25	3.7	3.7	No Vendor	N/A	HDD
243	615110241	Pirer Goli Shantinagor,Sr-26	4	4	No Vendor	N/A	OT
244	615110242	Pirer Goli Shantinagor,Sr-27	5.5	5.5	No Vendor	N/A	OT
245	615110243	Pirer Goli Shantinagor,Sr-28	2.8	2.8	No Vendor	N/A	HDD
246	615110244	Pirer Goli Shantinagor,Sr-29	1.7	1.7	No Vendor	N/A	OT
247	615110245	Kakrail To Fisharies House,(Dvip Road)	32.2	38.3	No Vendor	N/A	OT
248	615110246	Kakrail To Fisharies House,(Dvip Road),Sr-1	5.5	5.5	No Vendor	N/A	HDD
249	615110247	Kakrail To Fisharies House,(Dvip Road),Sr-2	6	6	No Vendor	N/A	OT
250	615110248	Fisharies House Tohigh Coad Mre	20.4	28.5	No Vendor	N/A	HDD
251	615110249	Fisharies House Tohigh Coad Mre	4.8	4.8	Fruits & Vegetables	1	HDD
252	615110250	Purana Polton To High Coad More	23	31.2	No Vendor	N/A	OT
253	615110251	Pirer Goli Sub-1	3	3	No Vendor	N/A	OT
254	615110252	Pirer Goli Sub-2	3.8	3.8	No Vendor	N/A	OT
255	615110253	Pirer Goli Sub-3	3.8	3.8	No Vendor	N/A	OT
256	615110254	Pirer Goli Sub-4	2.4	2.4	No Vendor	N/A	OT
257	615110255	Pirer Goli Sub-5	2.3	2.3	No Vendor	N/A	OT
258	615110256	Pirer Goli Sub-6	3.4	3.4	No Vendor	N/A	OT
259	615110257	Pirer Goli Sub-7	4.5	4.5	No Vendor	N/A	OT
260	615110258	Purana Polton Line	2.8	2.8	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
261	615110259	Shothtech Goli	4	4	No Vendor	N/A	OT
262	615110260	Shothtech Goli	3.6	3.6	No Vendor	N/A	OT
263	615110261	Shothtech Goli	3.8	3.8	No Vendor	N/A	OT
264	615110262	Shantinagor Alombag Road	4.4	4.4	No Vendor	N/A	OT
265	615110263	Shantinagor Alombag Road,Sr-1	1.9	1.9	No Vendor	N/A	OT
266	615110264	Shantinagor Alombag Road,Sr-2	2.9	2.9	No Vendor	N/A	OT
267	615110265	Shantinagor Alombag Road,Sr-3	3	3	No Vendor	N/A	OT
268	615110266	Shantinagor Alombag Road,Sr-4	3.5	3.5	No Vendor	N/A	OT
269	615110267	Shantinagor Alombag Road,Sr-5	2.9	2.9	No Vendor	N/A	HDD
270	615110268	Poloil Goli	5.7	5.7	No Vendor	N/A	OT
271	615110269	Fokirapul To Razerbag	18.2	24.5	No Vendor	N/A	HDD
272	615110270	Modumati Road	6.9	6.9	No Vendor	N/A	HDD
273	615110271	Shantinagor To Police Hospital	17.1	23.1	No Vendor	N/A	HDD
274	615110272	Shantinagor To Police Hospital,Sr-1	106	106	No Vendor	N/A	OT
275	615110273	Kakrail To Shantinagor More	29	37.1	No Vendor	N/A	HDD
276	615110274	Kakrail S.A Poribahon Road	6.7	6.7	Shoe Repair	1	OT
					Others (Tea Stall)	1	
277	615110275	Shantinagor More To Malibg	29	35.6	No Vendor	N/A	HDD
278	615110276	Razerbag Police Line Tank Road	4.4	4.4	No Vendor	N/A	OT
279	615110277	Razerbag Police Line Tank Road	10	10	No Vendor	N/A	OT
280	615110278	Chamilibag ,Shantinagor,Sr-1	3.7	3.7	No Vendor	N/A	OT
281	615110279	Chamilibag ,Shantinagor,Sr-2	2.5	2.5	No Vendor	N/A	OT
282	615110280	Aminbag Mosque Road	3.5	3.5	No Vendor	N/A	OT
283	615110281	Aminbag Chamilibag Road,Sr-1	2.4	2.4	No Vendor	N/A	OT
284	615110282	Aminbag Chamilibag Road,Sr-2	2.3	2.3	No Vendor	N/A	OT
285	615110283	Aminbag Chamilibag Road,Sr-3	4	4	Others (Betel Leaf & Cigarette)	1	OT
					Fruits & Vegetables	1	
					Others (News Paper Seller)	1	
					Others (Tea Stall)	1	
					Shoe Repair	1	
					Others (Flexi Load)	1	
286	615110284	Aminbag Chamilibag Road,Sr-4	3	3	No Vendor	N/A	OT
287	615110285	Aminbag Chamilibag Road,Sr-5	2.8	2.8	No Vendor	N/A	OT
288	615110286	Aminbag Chamilibag Road,Sr-6	2.4	2.4	No Vendor	N/A	OT
289	615110287	Aminbag Chamilibag Road,Sr-7	2	2	No Vendor	N/A	OT
290	615110288	Aminbag Chamilibag Road,Sr-8	2.5	2.5	No Vendor	N/A	OT
291	615110289	Aminbag Chamilibag Road,Sr-9	2	2	No Vendor	N/A	OT

SL No	Road ID	Road Name	Width of the Road		Merchandise	No of AP to Compensate	Road Cutting Method
			Carriage Way (M)	Wall to Wall (M)			
292	615110290	Aminbag Chamilibag Road,Sr-10	3	3	No Vendor	N/A	OT
293	615110291	Aminbag Chamilibag Road,Sr-11	3	3	No Vendor	N/A	OT
294	615110292	Aminbag Chamilibag Road,Sr-12	3	3	No Vendor	N/A	OT
295	615110293	Aminbag Chamilibag Road,Sr-13	0.9	0.9	No Vendor	N/A	OT
296	615110294	Aminbag Chamilibag Road,Sr-14	4.4	4.4	No Vendor	N/A	OT
297	615110295	Aminbag Chamilibag Road,Sr-15	4	4	No Vendor	N/A	OT
298	615110296	Aminbag Chamilibag Road,Sr-16	3.1	3.1	No Vendor	N/A	HDD
299	615110297	Aminbag Chamilibag Road,Sr-17	4	4	No Vendor	N/A	HDD
300	615110298	Malibag To Kamlapur more	19.4	27.2	No Vendor	N/A	PB
301	615110299	Kamlapur To Arambag More	18.4	25.8	No Vendor	N/A	OT
302	615110300	Razerbag Police Line Tank Road	8	8	No Vendor	N/A	PB
303	615110301	Motizhil T&T Kolonoi,S.R-2	3.5	3.5	No Vendor	N/A	OT
304	615110302	Motizhil T&T Kolonoi,S.R-7	3.2	3.2	No Vendor	N/A	OT

Contractor's Schedule

SL No	Road ID	Road Name	Width of the Road		March' 18	April' 18	May' 18
			Carriage Way (M)	Wall to Wall (M)			
1	615110001	Pir Jangi Mazer Road To Arambag	22.3	26.7	Design Finalized	Design Finalized	Design Finalized
2	615110002	A.G.B Koloni Kacha Bazer Road	7.8	9.8			
3	615110003	Kakrail To Motijil	33.1	37.3			
4	615110004	Boxculvert Road(Arambag)	24.47	28.47			
5	615110005	Boxculvert Road(Arambag),Sr-1	1.4	1.4			
6	615110006	Boxculvert Road(Arambag),Sr-2	3.3	3.3			
7	615110007	Boxculvert Road(Arambag),Sr-3	4.3	4.3			
8	615110008	Boxculvert Road(Arambag),Sr-4	2.4	2.4			
9	615110009	Boxculvert Road(Arambag),Sr-5	2.5	2.5			
10	615110010	Boxculvert Road(Arambag),Sr-6	1.8	1.8			
11	615110011	Boxculvert Road(Arambag),Sr-7	1.8	1.8			
12	615110012	Boxculvert Road(Arambag),Sr-8	1.5	1.5			
13	615110012/1	Boxculvert Road(Arambag),Sr-8	1	1			
14	615110013	Boxculvert Road(Arambag),Sr-9	4	4			
15	615110014	Boxculvert Road(Arambag),Sr-10	4.2	4.2			
16	615110015	Boxculvert Road(Arambag),Sr-11	1.8	1.8			
17	615110016	Boxculvert Road(Arambag),Sr-12	1.8	1.8			
18	615110017	Boxculvert Road(Arambag),Sr-13	2.4	2.4			
19	615110017/1	Boxculvert Road(Arambag),Sr-13	1	1			
20	615110018	Boxculvert Road(Arambag),Sr-14	2.5	2.5			
21	615110019	Boxculvert Road(Arambag),Sr-15	2.7	2.7			
22	615110020	Boxculvert Road(Arambag),Sr-16	2.1	2.1			
23	615110021	Boxculvert Road(Arambag),Sr-17	1.8	1.8			
24	615110022	Boxculvert Road(Arambag),Sr-18	1.8	1.8			
25	615110023	Boxculvert Road(Arambag),Sr-19	1.5	1.5			
26	615110024	Boxculvert Road(Arambag),Sr-20	1.2	1.2			
27	615110025	Boxculvert Road(Arambag),Sr-21	2.7	2.7			
28	615110026	Boxculvert Road(Arambag),Sr-22	3.2	3.2			
29	615110027	Boxculvert Road(Arambag),Sr-23	2.1	2.1			
30	615110028	Boxculvert Road(Arambag),Sr-24	1.5	1.5			
31	615110029	Boxculvert Road(Arambag),Sr-25	3.6	3.6			
32	615110030	Boxculvert Road(Arambag),Sr-26	2.7	2.7			

33	615110031	Boxculvert Road(Arambag),Sr-27	2	2			
34	615110032	Boxculvert Road(Arambag),Sr-28	2.3	2.3			
35	615110033	Boxculvert Road(Arambag),Sr-29	2	2			
36	615110034	Boxculvert Road(Arambag),Sr-30	2	2			
37	615110035	Boxculvert Road(Arambag),Sr-31	1.3	1.3			
38	615110036	Boxculvert Road(Arambag),Sr-32	1.6	1.6			
39	615110037	Boxculvert Road(Arambag),Sr-33	2.5	2.5			
40	615110038	Boxculvert Road(Arambag),Sr-34	4	4			
41	615110039	Boxculvert Road(Arambag),Sr-35	2.3	2.3			
42	615110040	Boxculvert Road(Arambag),Sr-1a	4.3	4.3			
43	615110041	Boxculvert Road(Arambag),Sr-2a	1.6	1.6			
44	615110042	Boxculvert Road(Arambag),Sr-3a	1.6	1.6			
45	615110043	Fokirapul Road	4.6	4.6			
46	615110044	Fokirapul Road,Sr-1	2.6	2.6			
47	615110045	Fokirapul Road,Sr-2	3	3			
48	615110046	Fokirapul Road,Sr-3	1.7	1.7			
49	615110047	Fokirapul Road,Sr-4	1.4	1.4			
50	615110048	Fokirapul Road,Sr-5	1.1	1.1			
51	615110049	Fokirapul Road,Sr-6	1.1	1.1			
52	615110050	Fokirapul Road,Sr-7	1	1			
53	615110051	Fokirapul Road,Sr-8	1.1	1.1			
54	615110052	Fokirapul Road,Sr-9	1.5	1.5			
55	615110053	Fokirapul Road,Sr-10	2	2			
56	615110054	Fokirapul Road,Sr-11	1.8	1.8			
57	615110055	Fokirapul Road,Sr-12	1.8	1.8			
58	615110056	Fokirapul Road,Sr-13	5	5			
59	615110057	Fokirapul Road,Sr-14	4	4			
60	615110058	Fokirapul Road,Sr-15	2.6	2.6			
61	615110059	Fokirapul Road,Sr-16	2.5	2.5			
62	615110060	Fokirapul Road,Sr-17	4.3	4.3			
63	615110061	Fokirapul Road,Sr-18	2	2			
64	615110062	Fokirapul Road,Sr-19	1.8	1.8			
65	615110063	Fokirapul Road,Sr-20	1.8	1.8			
66	615110064	Fokirapul Road,Sr-21	2	2			
67	615110065	Fokirapul Road,Sr-22	2.2	2.2			
68	615110066	Fokirapul Road,Sr-23	2	2			
69	615110067	Fokirapul Road,Sr-24	3.2	3.2			
70	615110068	Fokirapul Road,Sr-25	4	4			
71	615110069	Fokirapul Road,Sr-26	2	2			
72	615110070	Fokirapul Road,Sr-27	2.1	2.1			
73	615110071	Fokirapul Road,Sr-28	2.3	2.3			
74	615110072	Fokirapul To Doynikbangla More	22.4	31.2			
75	615110073	Fokirapul Road,Sr-29	3.9	3.9			
76	615110074	Fokirapul Road,Sr-30	3.5	3.5			
77	615110075	Fokirapul Road,Sr-31	3.6	3.6			
78	615110076	Bizaynagor To Polton More	23.6	31.5			
79	615110077	Polton To Doynikbangla Road	18.9	26.4			
80	615110078	Purana Polton,Sr-1	6.5	6.5			
81	615110079	Purana Polton,Sr-2	4.8	4.8			
82	615110080	Purana Polton,Sr-3	4.8	4.8			
83	615110081	Purana Polton,Sr-4	7.7	7.7			
84	615110082	Purana Polton,Sr-5	3.2	3.2			
85	615110083	Purana Polton,Sr-6	6	6			
86	615110084	Purana Polton,Sr-7	6	6			
87	615110085	Purana Polton,Sr-8	6	6			
88	615110086	Purana Polton,Sr-9	8	8			
89	615110087	Purana Polton,Sr-10	7.8	7.8			
90	615110088	Purana Polton,Sr-11	9	9			
91	615110089	Purana Polton,Sr-12	5.5	5.5			
92	615110090	Purana Polton,Sr-13	5	5			
93	615110091	Purana Polton,Sr-14	5.5	5.5			
94	615110092	Purana Polton,Sr-15	5.5	5.5			
95	615110093	Naya Polton Road	5	5			
96	615110094	Naya Polton Road,Sr-1	4.5	4.5			
97	615110095	Naya Polton Road,Sr-2	3.6	3.6			
98	615110096	Naya Polton Road,Sr-3	3.3	3.3			
99	615110097	Naya Polton Road,Sr-4	3.6	3.6			
100	615110098	Naya Polton Road,Sr-5	3	3			

101	615110099	Naya Polton Road,Sr-6	4.6	4.6	Design Finalized	Design Finalized	Design Finalized
102	615110100	Naya Polton Road,Sr-7	5.5	5.5			
103	615110101	Naya Polton Road,Sr-8	3	3			
104	615110102	Naya Polton Road,Sr-9	1.8	1.8			
105	615110103	Naya Polton Road,Sr-10	2.6	2.6			
106	615110104	Naya Polton Road,Sr-11	2.5	2.5			
107	615110105	Naya Polton Road,Sr-12	1.8	1.8			
108	615110106	Naya Polton Road,Sr-13	2.2	2.2			
109	615110107	Naya Polton Road,Sr-14	2.1	2.1			
110	615110108	Naya Polton Road,Sr-15	2.5	2.5			
111	615110109	Naya Polton Road,Sr-16	4.2	4.2			
112	615110110	Naya Polton Road,Sr-17	5.5	5.5			
113	615110111	Naya Polton Road,Sr-18	3.5	3.5			
114	615110112	Naya Polton Road,Sr-19	1.7	1.7			
115	615110113	Naya Polton Road,Sr-20	3.5	3.5			
116	615110114	Naya Polton Road,Sr-21	4	4			
117	615110115	Naya Polton Road,Sr-22	2.5	2.5			
118	615110116	Naya Polton Road,Sr-23	1.4	1.4			
119	615110117	Naya Polton Road,Sr-24	1.3	1.3			
120	615110118	Naya Polton Road,Sr-25	3.6	3.6			
121	615110119	Naya Polton Road,Sr-26	3.6	3.6			
122	615110120	Naya Polton Road,Sr-27	3.2	3.2			
123	615110121	Naya Polton Road,Sr-28	2.6	2.6			
124	615110122	Naya Polton Road,Sr-29	3	3			
125	615110123	Naya Polton Road,Sr-30	2.8	2.8			
126	615110124	Naya Polton Road,Sr-31	2.6	2.6			
127	615110125	Naya Polton Road,Sr-32	4	4			
128	615110126	Naya Polton Road,Sr-33	2.5	2.5			
129	615110127	Naya Polton Road,Sr-34	4.5	4.5			
130	615110128	Kakrail,Sr-A	3	3			
131	615110129	Bijohnagor,Bottala Mosque Road	6	6			
132	615110130	Bijohnagor,Bottala Mosque Road,Sr-1	4.6	4.6			
133	615110131	Bijohnagor,Bottala Mosque Road,Sr-2	2	2			
134	615110132	Bijohnagor,Bottala Mosque Road,Sr-3	1.7	1.7			
135	615110133	Bijohnagor,Bottala Mosque Road,Sr-4	2	2			
136	615110134	Bijohnagor,Bottala Mosque Road,Sr-5	4	4			
137	615110135	Bijohnagor,Bottala Mosque Road,Sr-6	3	3			
138	615110136	Polton Lene/Line Road,Sr-1	3.2	3.2			
139	615110137	Polton Lene/Line Road,Sr-2	3	3			
140	615110138	Polton Lene Main Road	6	6			
141	615110139	Polton Lene Sub Road,Sr-3	2.7	2.7			
142	615110140	Polton Lene Sub Road,Sr-4	3.7	3.7			
143	615110141	Polton Lene Sub Road,Sr-5	3.6	3.6			
144	615110142	Polton Lene Sub Road,Sr-6	3.3	3.3			
145	615110143	Polton Lene Sub Road,Sr-7	3.1	3.1			
146	615110144	Polton Lene Sub Road,Sr-8	4	4			
147	615110145	Purana Polton Lene Sub Road,Sr-9	5	5			
148	615110146	Purana Polton Lene Sub Road,Sr-10	3.5	3.5			
149	615110147	Purana Polton Lene Sub Road,Sr-11	2	2			
150	615110148	Bottala Mosque Sub Road-7	8	8			
151	615110149	Bottala Mosque Sub Road-8	8	8			
152	615110150	Bottala Mosque Sub Road-9	8	8			
153	615110151	Bottala Mosque Sub Road-10	8	8			
154	615110152	Bottala Mosque Sub Road-11	8	8			
155	615110153	Paioniare Road Kakrail	10	10			
156	615110154	Paioniare Road Kakrail,Sr-1	10	10			
157	615110155	Paioniare Road Kakrail,Sr-2	3.6	3.6			
158	615110156	Paioniare Road Kakrail,Sr-3	2.8	2.8			
159	615110157	Paioniare Road Kakrail,Sr-4	3.5	3.5			
					Design Finalized	Design Finalized	Design Finalized

160	615110158	Paioniare Road Kakrail, Sr-5	2.5	2.5	Design Finalized	Design Finalized	Design Finalized
161	615110159	Paioniare Road Kakrail, Sr-6	4	4			
162	615110160	Paioniare Road Kakrail, Sr-7	9	9			
163	615110161	Paioniare Road Kakrail, Sr-8	6	6			
164	615110162	Paioniare Road Kakrail, Sr-9	6.7	6.7			
165	615110163	Paioniare Road Kakrail, Sr-10	4.1	4.1			
166	615110164	Paioniare Road Kakrail, Sr-11	4.7	4.7			
167	615110165	Kakrail Road, Sr-A	3	3			
168	615110166	Kakrail Road, Sr-B	1.2	1.2			
169	615110167	Kakrail Road, Sr-C	3.6	3.6			
170	615110168	Kakrail Road, Sr-D	3.5	3.5			
171	615110169	V.V.I.P Road To Press Calab	23	23			
172	615110170	V.V.I.P Road To Press Calab, Sr-1	8.5	8.5			
173	615110171	V.V.I.P Road To Press Calab, Sr-2	7	7			
174	615110172	V.V.I.P Road To Press Calab, Sr-3	5	5			
175	615110173	V.V.I.P Road To Press Calab, Sr-4	19.4	19.4			
176	615110174	Shegunbagicha Resident Areas	9.8	9.8			
177	615110175	Shegunbagicha Resident Areas, Sr-1	6.5	6.5			
178	615110176	Shegunbagicha Resident Areas, Sr-2	5.2	5.2			
179	615110177	Shegunbagicha Resident Areas, Sr-3	8.6	8.6			
180	615110178	Shegunbagicha Resident Areas, Sr-4	7.5	7.5			
181	615110179	Shegunbagicha Resident Areas, Sr-5	6.2	6.2			
182	615110180	Shegunbagicha Resident Areas, Sr-6	5.8	5.8			
183	615110181	Shegunbagicha Resident Areas, Sr-7	6	6			
184	615110182	Shilpokala To Bizaynagor Water Tank	8.5	8.5			
185	615110183	Shegunbagicha Resident Areas, Sr-8	7	7			
186	615110184	Shilpokala To Bizaynagor Water Tank, Sr-1	9.5	9.5			
187	615110185	Topkhana Sub Road, Sr-1	6	6			
188	615110186	Eastran Housing Road	5.5	5.5			
189	615110187	Topkhana Sub Road, Sr-2	5.5	5.5			
190	615110188	Topkhana Sub Road, Sr-3	1.2	1.2			
191	615110189	Topkhana Sub Road, Sr-4	3	3			
192	615110190	Topkhana Sub Road, Sr-5	1.5	1.5			
193	615110191	Shegunbagicha Road, Sr-A	13.6	13.6			
194	615110192	Shegunbagicha Road, Sr-B	13	13			
195	615110193	Shegunbagicha Road, Sr-C	11	11			
196	615110194	Shegunbagicha Road, Sr-D	6	6			
197	615110195	Shegunbagicha Road, Sr-E	6	6			
198	615110196	Shegunbagicha Road, Sr-F	6	6			
199	615110197	Shegunbagicha Road, Sr-G	2.3	2.3			
200	615110198	Shegunbagicha Road, Sr-H	4.5	4.5			
201	615110199	Shegunbagicha Road, Sr-I	3	3			
202	615110200	Shegunbagicha Road, Sr-J	4.8	4.8			
203	615110201	Shegunbagicha Road, Sr-K	5.5	5.5			
204	615110202	Shegunbagicha Road, Sr-L	1.5	1.5			
205	615110203	Shegunbagicha Road, Sr-M	3.8	3.8			
206	615110204	Shegunbagicha Road, Sr-N	3.8	3.8			
207	615110205	Shegunbagicha Road, Sr-O	3.5	3.5			
208	615110206	Shantinagor (Islami Bank Hospital)	3.6	3.6			
209	615110207	Scaout Babon Road Kakrail	4.8	4.8			
210	615110208	Kakrail Gareg Potti	4.5	4.5			
211	615110209	Kakrail Gareg Potti, Sr-1	4.5	4.5			
212	615110210	Kakrail Gareg Potti, Sr-2	3.5	3.5			
213	615110211	Kakrail Gareg Potti, Sr-3	3.5	3.5			
214	615110212	Shantinagor, Sr-1	5.5	5.5			
215	615110213	Shantinagor, Sr-2	2.7	2.7			
216	615110214	Shantinagor, Sr-3	3.7	3.7			
					Design Finalized	Design Finalized	Design Finalized

217	615110215	Shantinagor Bazer Road	4.9	4.9	Design Finalized	Design Finalized	Design Finalized
218	615110216	Shantinagor Bazer Road,Sr-1	2	2			
219	615110217	Shantinagor Bazer Road,Sr-2	3.8	3.8			
220	615110218	Shantinagor Bazer Road,Sr-3	1.8	1.8			
221	615110219	Shantinagor Bazer Road,Sr-4	1.4	1.4			
222	615110220	Shantinagor Bazer Road,Sr-5	5.7	5.7			
223	615110221	Shantinagor Bazer Road,Sr-6	4.9	4.9			
224	615110222	Shantinagor Bazer Road,Sr-7	3	3			
225	615110223	Shantinagor Bazer Road,Sr-8	3	3			
226	615110224	Shantinagor Bazer Road,Sr-9	3	3			
227	615110225	Shantinagor Bazer Road,Sr-10	3.2	3.2			
228	615110226	Shantinagor Bazer Road,Sr-11	3.1	3.1			
229	615110227	Shantinagor Bazer Road,Sr-12	4	4			
230	615110228	Shantinagor Bazer Road,Sr-13	4	4			
231	615110229	Shantinagor Bazer Road,Sr-14	3.8	3.8			
232	615110230	Shantinagor Bazer Road,Sr-15	5.6	5.6			
233	615110231	Shantinagor Bazer Road,Sr-16	3.6	3.6			
234	615110232	Shantinagor Bazer Road,Sr-17	3.6	3.6			
235	615110233	Shantinagor Bazer Road,Sr-18	2.2	2.2			
236	615110234	Shantinagor Bazer Road,Sr-19	3	3			
237	615110235	Shantinagor Bazer Road,Sr-20	3	3			
238	615110236	Pirer Goli Shantinagor,Sr-21	5	5			
239	615110237	Pirer Goli Shantinagor,Sr-22	3.5	3.5			
240	615110238	Pirer Goli Shantinagor,Sr-23	3.1	3.1			
241	615110239	Pirer Goli Shantinagor,Sr-24	4	4			
242	615110240	Pirer Goli Shantinagor,Sr-25	3.7	3.7			
243	615110241	Pirer Goli Shantinagor,Sr-26	4	4			
244	615110242	Pirer Goli Shantinagor,Sr-27	5.5	5.5			
245	615110243	Pirer Goli Shantinagor,Sr-28	2.8	2.8			
246	615110244	Pirer Goli Shantinagor,Sr-29	1.7	1.7			
247	615110245	Kakrail To Fisharies House,(Dvip Road)	32.2	38.3			
248	615110246	Kakrail To Fisharies House,(Dvip Road),Sr-1	5.5	5.5			
249	615110247	Kakrail To Fisharies House,(Dvip Road),Sr-2	6	6			
250	615110248	Fisharies House Tohigh Coart More	20.4	28.5			
251	615110249	Fisharies House To high Coart More	4.8	4.8			
252	615110250	Purana Polton To High Coad More	23				
253	615110251	Pirer Goli Sub-1	3	3			
254	615110252	Pirer Goli Sub-2	3.8	3.8			
255	615110253	Pirer Goli Sub-3	3.8	3.8			
256	615110254	Pirer Goli Sub-4	2.4	2.4			
257	615110255	Pirer Goli Sub-5	2.3	2.3			
258	615110256	Pirer Goli Sub-6	3.4	3.4			
259	615110257	Pirer Goli Sub-7	4.5	4.5			
260	615110258	Purana Polton Line	2.8	2.8			
261	615110259	Shothtech Goli	4	4			
262	615110260	Shothtech Goli	3.6	3.6			
263	615110261	Shothtech Goli	3.8	3.8			
264	615110262	Shantinagor Alombag Road	4.4	4.4			
265	615110263	Shantinagor Alombag Road,Sr-1	1.9	1.9			
266	615110264	Shantinagor Alombag Road,Sr-2	2.9	2.9			
267	615110265	Shantinagor Alombag Road,Sr-3	3	3			
268	615110266	Shantinagor Alombag Road,Sr-4	3.5	3.5			
269	615110267	Shantinagor Alombag Road,Sr-5	2.9	2.9			
270	615110268	Poloil Goli	5.7	5.7			
271	615110269	Fokirapul To Razerbag	18.2	24.5			
272	615110270	Modumati Road	6.9	6.9			
273	615110271	Shantinagor To Police Hospital	17.1	23.1			
274	615110272	Shantinagor To Police Hospital,Sr-1	106	106			
275	615110273	Kakrail To Shantinagor More	29	37.1			
276	615110274	Kakrail S.A Poribahon Road	6.7	6.7			
277	615110275	Shantinagor To Malibg	29	35.6			
278	615110276	Razerbag Police Line Tank Road	4.4	4.4			
279	615110277	Razerbag Police Line Tank Road	10	10			
280	615110278	Chamilibag ,Shantinagor,Sr-1	3.7	3.7			
					Design Finalized	Design Finalized	Design Finalized

281	615110279	Chamilibag ,Shantinagor,Sr-2	2.5	2.5			
282	615110280	Aminbag Mosque Road	3.5	3.5			
283	615110281	Aminbag Chamilibag Road,Sr-1	2.4	2.4			
284	615110282	Aminbag Chamilibag Road,Sr-2	2.3	2.3			
285	615110283	Aminbag Chamilibag Road,Sr-3	4	4			
286	615110284	Aminbag Chamilibag Road,Sr-4	3	3			
287	615110285	Aminbag Chamilibag Road,Sr-5	2.8	2.8			
288	615110286	Aminbag Chamilibag Road,Sr-6	2.4	2.4			
289	615110287	Aminbag Chamilibag Road,Sr-7	2	2			
290	615110288	Aminbag Chamilibag Road,Sr-8	2.5	2.5			
291	615110289	Aminbag Chamilibag Road,Sr-9	2	2			
292	615110290	Aminbag Chamilibag Road,Sr-10	3	3			
293	615110291	Aminbag Chamilibag Road,Sr-11	3	3			
294	615110292	Aminbag Chamilibag Road,Sr-12	3	3			
295	615110293	Aminbag Chamilibag Road,Sr-13	0.9	0.9	Design Finalized	Design Finalized	Design Finalized
296	615110294	Aminbag Chamilibag Road,Sr-14	4.4	4.4			
297	615110295	Aminbag Chamilibag Road,Sr-15	4	4			
298	615110296	Aminbag Chamilibag Road,Sr-16	3.1	3.1			
299	615110297	Aminbag Chamilibag Road,Sr-17	4	4			
300	615110298	Malibag To Kamlapur More	19.4	27.2			
301	615110299	Kamlapur To Arambag More	18.4	25.8			
302	615110300	Razerbag Police Line Tank Road	8	8			
303	615110301	Motizhil T&T Kolonoi,S.R-2	3.5	3.5			
304	615110302	Motizhil T&T Kolonoi,S.R-7	3.2	3.2			

Appendix 9: SAMPLE GRIEVANCE REDRESS FORM

The _____ Project welcomes complaints, suggestions, queries, and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential? Please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		Place of Registration			
Contact Information/Personal Details					
Name		Gender	* Male * Female	Age	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where, and how) of your grievance below:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Officials Reviewing Grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

Appendix 10: Photo Gallery of Activity DMA-614 & 615



Public Consultation Meeting 21.03.2018 at Siddheswari Boys School



Public Consultation Meeting 28.03.2018 at Provati Uchcha Biddya Niketon



Project Information Disclosure Meeting 29.03.2018 at Ward Commissioner Office, Shaheed Tajuddin Sarani



Project Information Disclosure Meeting 29.03.2018 at Ward Commissioner Office, Shaheed Tajuddin Sarani



Institution Visit at DMA-614 on 18.03.2018



Tea Stall Meeting at DMA -614 on 27.03.2018

AP Location at DMA-614:

	
<p>SL#01, Md. Kabul Sikdar, 79, Circular Road # 1, Siddheswari, Dhaka.</p>	<p>SL#02, Md. Ziaul, 79, Circular Road # 1, Siddheswari, Dhaka.</p>
	
<p>SL#03, Md. Masum, 79, Circular Road # 1, Siddheswari, Dhaka.</p>	<p>SL#04, Parul Begum, 74, Circular Road # 1, Siddheswar, Dhaka.</p>
	
<p>SL# 05, Sunon 72, Circular Road # 1, Siddheswari, Dhaka.</p>	<p>SL#06, Md. Delowar Hossain,72, Circular Road # 1, Siddheswari, Dhaka</p>
	
<p>SL#07, Md. Kashem, Road # 24, 36 Siddheswari Lane, Dhaka</p>	<p>SL#08 Md. Faruk Hossain, 75, Circular Road # 1, Siddheswari, Dhaka.</p>



SL# 09, Selim Khan, Road # 103, 88 Boro Mogbazar, Dhaka



SL# 10, Md. Monir Hossain, Road # 103, 88 Boro Mogbazar, Dhaka.



SL#11, Bijoy Roy, 77, Circular Road # 1, Siddheswari, Dhaka.



SL#12, Md. Noor Islam, 77, Circular Road # 1, Siddheswari, Dhaka.



Tea Stall meeting at DMA-615 20.01.2018 at Chamelibag, Shantinagar



Public Consultation Meeting on 24.01.2018 at Purana Paltan Girls High School



Public Consultation Meeting 01.02.2018 Arambag High School & College



Public Consultation Meeting 01.02.2018 at Arambag High School & College



AP Joint Verification on 05.02.2018 at DMA-615 in Shantinagar Area



FO Conducting Community Meeting at Shantinagar Area in DMA-615

Appendix-11: AP Location at DMA-614

	
<p>SL#13, Md. Sabu, 16/17, Road # 3 Siddheswari Lane, Dhaka</p>	<p>SL#14, Md. Yusuf, 79, Circular Road # 1, Siddheswari, Dhaka.</p>
	
<p>SL # 15 Abdul Mannan Road-278, New Eskaton ,BIAM Goli</p>	<p>SL # 16 Hemonto Kumer Das, Road-278, New Eskaton ,BIAM Goli</p>
	
<p>SL # 17, Md. Tyeb, Road # 278 BIAM Goli, New Eskaton</p>	<p>SL # 18 Kalam Mollah Road-278, BIAM Goli, New Eskaton</p>
	
<p>SL # 19 Waj Uddin Road-278, BIAM Goli, New Eskaton Dhaka</p>	<p>SL # 20, Alamin, Road # 250, BIAM Goli New Eskaton, Dhaka</p>



SL # 21 Noyon Road-250,BIAM Goli, New Eskaton



SL # 22 Salam Road-250, BIAM Goli,New Eskaton



SL # 23 Mijan,Road-285,Patrol Pump Goli, New Eskaton



SL # 24 Ilias,Road-285,Patrol Pump Goli, New Eskaton



SL #-25 Salauddin,Gaus Nagor, New Eskaton, Road No 246



SL # 26 Amir Hossain-246,Dilu Road, New Eskaton



SL # 27Abdul Halim-246,Dilu Road, New Eskaton



SL # 28 Tarini Rishi,246,Dilu Road, New Eskaton



SL # 29 Hasina Begum, Habibullah Road, Road # 235



SL # 30 Md. Shafiq, Habibullah Road, Road # 235



AP # 31 Md. IqbqI Hossain, Road # 236 Habibullah Road, Shahbag



AP # 32 Md. Nazrul Islam, Road # 236 Habibullah Road Shahbag



AP # 33 Arab Ali Biswas, Road # 236 Habibullah Road, Shahbag



AP # 34 Md. Ripon, Road # 236 Habibullah Road Shahbag



SL # 29 Hasina Begum, Habibullah Road, Road # 235

Appendix-12: AP Location at DMA-615

	
<p>SL#01, Md. Shajahan Ali, Road # 285;1, Chamelibag, Shantinagar</p>	<p>SL#02, Tomal Sarker Road # Road # 285;1, Chamelibag, Shantinagar</p>
	
<p>SL#03, Md. Delowar Hossain, Road # 285;1, Chamelibag, Shantinagar</p>	<p>SL#04, Md. Ripon Road # 285;1, Chamelibag, Shantinagar</p>
	
<p>SL# 05, Nogendra Road # 285;1, Chamelibag, Shantinagar</p>	<p>SL#06, Md. Habibur Rahman Road # 285;1, Chamelibag, Shantinagar</p>
	
<p>SL# 07, Md. Anowar Hossain Road # 228, Shantinagar Bazar Road, Sub Road – 11</p>	<p>SL# 08, Md. Alamgir Road # 228, Shantinagar Bazar Road, Sub Road – 11</p>



SL# 09, Md. Roni, Road # 228, Shantinagar Bazar Road, Sub Road – 11



SL#10, Bimol Babu, Road # 228, Shantinagar Bazar Road, Sub Road – 11



SL# 11, Kalu Patwari, Road # 228, Shantinagar Bazar Road, Sub Road – 11



SL#12, Md. Mamun, Road # 228, Shantinagar Bazar Road, Sub Road – 11



SL# 13, Md. Shahabuddin, Road # 228, Shantinagar Bazar Road, Sub Road – 11



SL# 14, Austoni Wrishi, Road # 276, 47 Chamelibag, Dhaka



SL# 15, Md. Montu Mia, Road # 276, 47 Chamelibag, Dhaka



SL# 16, Narod Chandra Das, Road # 227, 35/12 Shantinagar, Dhaka



SL# 17, Md. Nasir Ali, Road # 227, 35/12 Shantinagar, Dhaka



SL# 18, Mission Chan Wrishi Das, Road # 239, 145, Shantinagar, Dhaka



SL# 19, Md. Yakub, Road # 239, 145, Shantinagar, Dhaka



SL # 20, Md. Habibur Rahman, Road # 239, 145, Shantinagar, Dhaka



SL # 21, Md. Mosharraf, Road # 239, , 145, Shantinagar, Dhaka



SL#22, Ms. Rashida Begum, Road # 251, 30, Shantinagar, Dhaka



SL# 23, Md. Monju, Road # 236, 135, Shantinagar, Dhaka



SL# 24, Shajal Chandra Wrishi, Road # 236, 136, Shantinagar, Dhaka



SL # 25, Md. Mokshed Ali, Road # 228, Shantinagar, Dhaka



SL# 26, Shahin Alam, Road # 228, Shantinagar Dhaka



SL# 27, Md. Bashir Ullah, Road # 228, Bazar Road Shantinagar, Dhaka



SL# 28, Jotsna Begum, Road # 203, Topkhana Road, Segunbagicha, Dhaka

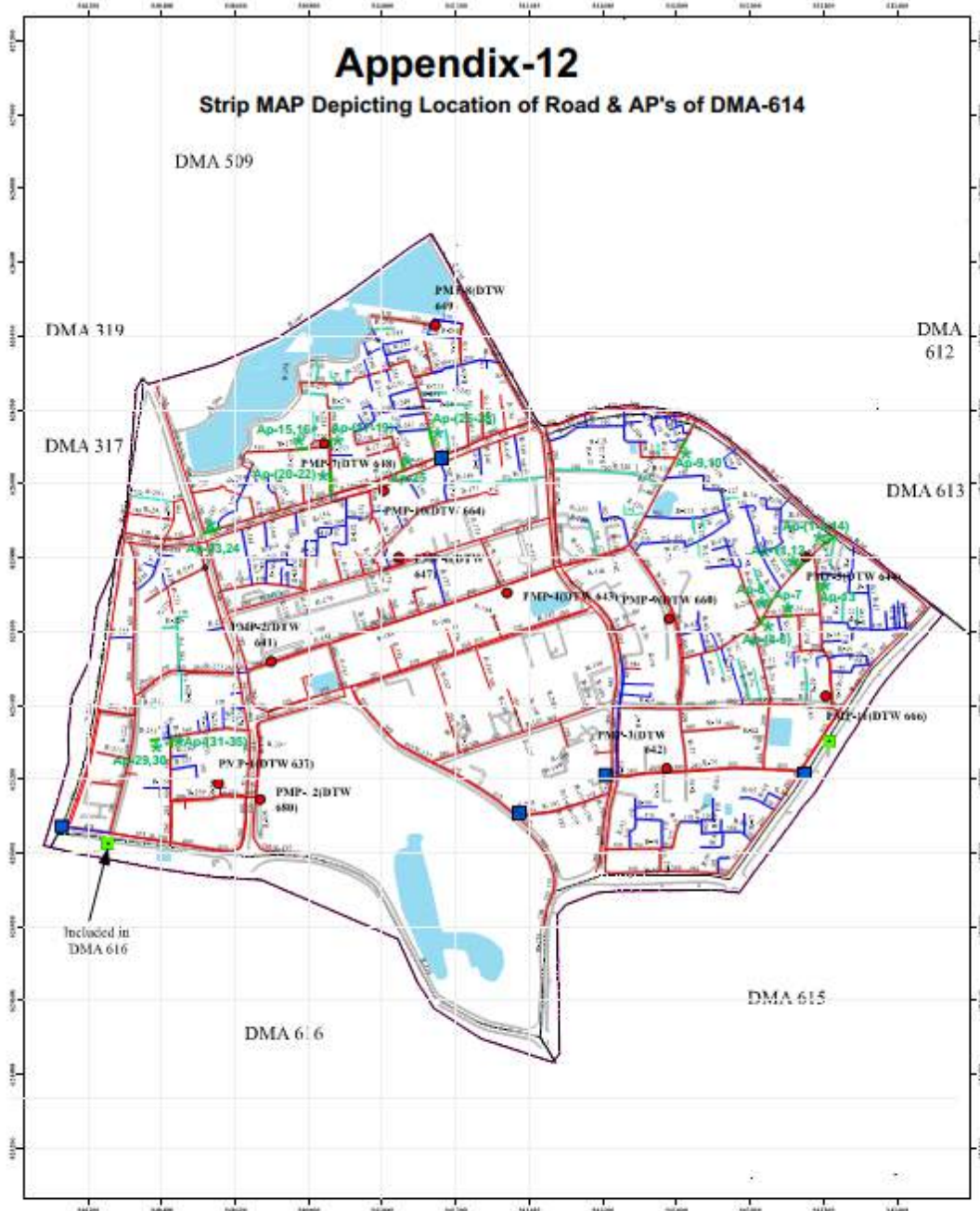


SL# 29, Ropindo, Road # 203, Topkhana Road, Segunbagicha, Dhaka



SL# 30, Abdul Mannan, Road # 200, Topkhana Road, Segubagicha Dhaka

Appendix-13: Strip Map Depicting Location of Road & AP's (DMA 614 & 615)

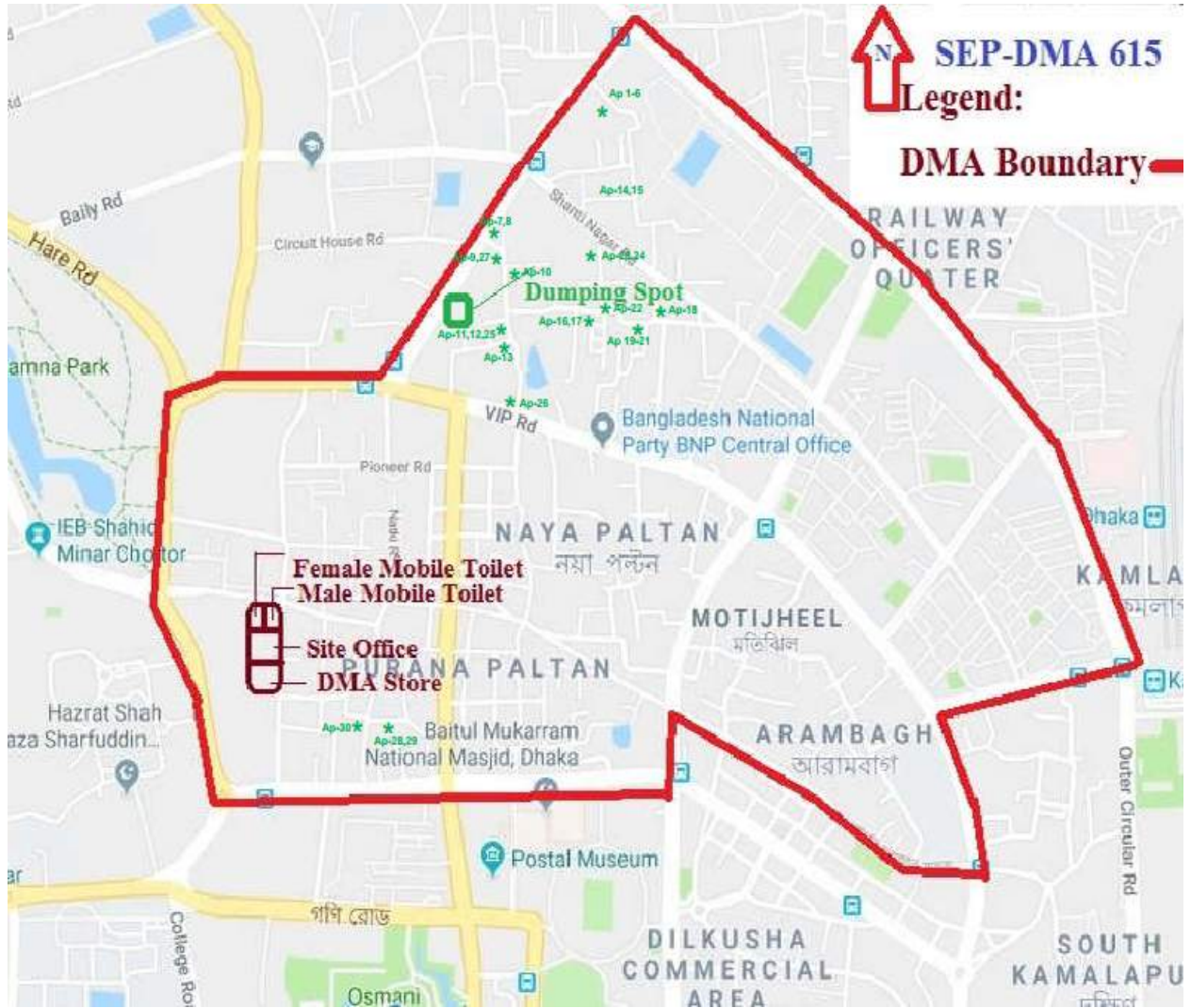


	Legend Tact-DMA Cluster Installation Method HDD DT TB SWP PTP Location Manhole Road Waterbody DMA Boundary	Dhaka Environmentally Sustainable Water Supply Project (DESWSP)				CLIENT: Dhaka Water Supply and Sewerage Authority
		DMA 614 - Detail Design - Pipe Installation Method (Main & Retention Pipes)				Management Supervisor: Consistent (MSE)
Drawing No. DD-02.74-14-05		Submitted By: Contract Manager	Signature	Date	CONTRACTOR: EPL-436 CRGO JV.	
2002/04/01 		Approved By: Project Manager				

Appendix-14: Google Earth Map Depicting Location of Road & AP's of DMA-614 &615
Dumping Spot :Lat-23.7404102, & Long-90.4179972



Dumping Spot Lat-23.728897 & Long-90.410505



APPENDIX 15: ASBESTOS CEMENT PIPE HANDLING PROTOCOL

ASBESTOS CEMENT (AC) PIPE HANDLING PROTOCOL



Prepared by

Management and Supervision Consultants for ICB 02.7 of
Dhaka Environmentally Sustainable Water Supply Project

ASBESTOS CEMENT (AC)

Asbestos cement is predominantly a mixture of cement and asbestos fibers which in a dry state has a density greater than 1 tonne per cubic meter (1000 kg/m³). It is a light grey, hard material which generally contains approximately 10% asbestos fiber, but can occasionally contain more than 10% fiber, bound in a matrix of Portland cement or autoclaved calcium silicate. It is not friable: it cannot be crushed in the hand. As the fibers are tightly bound in the cement matrix they will only be released if the material is subject to significant disturbance, such as drilling, sawing, sanding etc. It should be noted that while this material is not friable, asbestos cement can be relatively brittle and so can be broken quite easily, e.g. if dropped from a height, driven over by vehicles, or struck with tools or implements.

There are two major groups of asbestos cement products. The first comprises corrugated or profiled and flat sheets, slates, rainwater goods (gutters, downpipes and troughs), flue pipes and bends and, less commonly, decking tiles, cisterns and sumps. The second group consists mainly of asbestos cement pressure pipes for the transport of drinking water, while thinner walled asbestos cement pipes have also been used for sewage and drainage. The majority of asbestos cement products contain only chrysotile asbestos fibers but some older products may contain the more hazardous crocidolite or amosite asbestos fibers.

DANGEROUS NATURE OF ASBESTOS CEMENT (AC)

Breathing in asbestos fibers can lead to asbestos-related lung diseases, mainly cancer, which kill more people than any other single work-related illness. The diseases can take from 15 to 60 years to develop – so you and your employees will not be immediately aware of a change in someone's health after breathing in asbestos fibers. The body gets rid of any asbestos fibers taken in with food and water naturally. Asbestos fibers cannot be absorbed through the skin. The danger, therefore, from exposure to asbestos fibers arises when asbestos fibers become airborne. They form a very fine dust which is often invisible. It is important to remember that people who smoke and are exposed to asbestos fibers are at greater risk of developing lung cancer than those who do not smoke.

In summary, the primary route of concern, i.e. the route whereby asbestos fibers can get into the body and cause harm or injury, is via the inhalatory route – the action of breathing. Other potential routes of entry into the body are not a problem because the body naturally gets rid of any asbestos fibres taken in with food and water (i.e. ingestion). Also, asbestos fibers cannot be absorbed through the skin. However, asbestos fibers which are airborne can enter the body when contaminated air is inhaled and can lead to the development of one of three fatal diseases:

Asbestosis – which is a scarring of the lungs

Lung cancer/Mesothelioma – which is a cancer of the lining around the lungs and stomach. While the body's natural defense mechanisms can get rid of the larger fibers, microscopic fibers can pass into the lungs where they can cause asbestos-related diseases. Because such fibers can remain in the lungs for a long time, small but repeated exposures to materials containing asbestos can lead to the development of these diseases. This is why it is important to prevent or control exposure on every single job involving asbestos.

AC PIPE IN MODS ZONE 6

There are only a small number of AC pipes in the existing water supply system (around 20 km). These pipes are all in the old part of the city and their location is well known and marked on maps prepared by DWASA. The design of the project involves the replacement of these pipes and this can be done without removing or disturbing them, so all AC pipes will be left in situ.

Existing AC pipes, where intact, shall be left in-situ and not disturbed. Where the AC pipe is damaged and where there is a risk of asbestos particles becoming airborne, the contractor shall follow all necessary procedures, guidelines and laws as laid out locally or by this protocol to contain and remove hazardous material.

MANAGING EXISTING ASBESTOS CEMENT (AC) PIPE

Once an asbestos survey has been carried out, you should know, as far as is reasonably practicable, the location, type and condition of the asbestos cement. Some may be damaged, have deteriorated or degenerated with time, or be liable to be damaged as a result of its location, some may be in good condition, and some situated in areas due for maintenance, refurbishment or demolition. Based on this

information, you need to make a decision on what remedial action is required and on how to manage the asbestos cement, i.e. can it be left in place or should it be removed.

PROCEDURE FOR WORKING SAFELY WITH ASBESTOS CEMENT (AC) PIPE

Planning and Preparation

It is important to remember that a higher risk is caused by breathing more fibers, because the concentration is higher, or when the exposure is over a longer period, or if the work is not planned and controlled adequately in order to prevent or reduce the potential for exposure, i.e. not performed in a safe manner. The following general principles should be followed when planning the work (these points are discussed in more detail in subsequent Sections):

- Where reasonably practicable, keep asbestos cement damp when working on it, i.e. as a method of dust suppression
- Where reasonably practicable, avoid using power and pneumatic tools
- Use cleaning methods which minimize dust disturbance
- Make sure workers have adequate information on the hazards and risks associated with working with asbestos cement, and are properly trained in the correct working practices and use of control measures.

Training of Employees

The Contractor must arrange a training program for all personnel (including manual laborers) to enable them to understand the dangers of AC pipes and to be able to recognize them in situ. The training should include the following issues.

- The health hazards of asbestos, including the added danger of smoking and working with asbestos
- Work methods and equipment
- Correct choice, use and maintenance of personal protective equipment (PPE)
- Decontamination procedures
- Maintenance of control measures
- Emergency procedures
- Waste disposal

Area Segregation

You will need to segregate the work area to prevent the spread of asbestos dust and prevent the exposure of people not involved in the work. In most cases it is sufficient to mark out the work area with signs to prevent non-asbestos workers approaching. However, if the work is likely to result in significant disturbance of the asbestos cement, you need to consider erecting a physical barrier for segregation purposes. The extent of the barrier will depend on the outcome of the risk assessment carried out before the work starts.

A physical barrier should prevent the spread of debris and airborne fibers i.e. contain any dust which may be generated during the work activity, and so also assist in cleaning up the 'contaminated area' which should be within the segregated zone.

Whatever means of segregation are used, there is a need to post asbestos warning notices. Where the limit value is liable to be exceeded, the notices must clearly state that the area is a 'respirator zone' and Respiratory Protective Equipment (RPE) must be worn. If the action level is liable to be exceeded, the area should be designated as an 'asbestos area'. Employees not engaged in the work should not be permitted into either of these designated areas.

Personal Protective Equipment (PPE) for AC Pipe Removal



Disposable overalls fitted with a hood



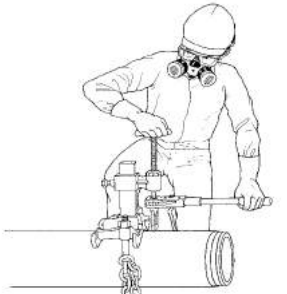
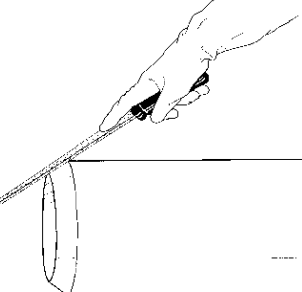
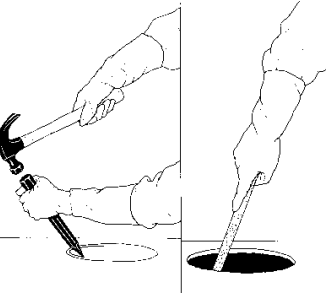
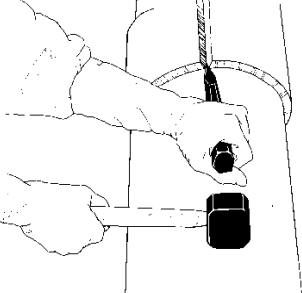
Boots without laces



Respiratory protective equipment (RPE)

Equipments and Methods to be used during AC Pipe Handling
The following equipments and methods are recommended for while working with AC pipes.

<p>i) Snap cutters</p> <p>Snap cutters (“squeeze-and-pop” equipment) operate by means of cutting wheels mounted in a chain wrapper around the pipe barrel. Hydraulic pressure, applied by means of a remote, pneumatically, or manually operated pump, squeezes the cutting wheels into the pipe wall until the cut is made.</p>	
<p>ii) Carbide-tipped blade cutters</p> <p>Blade cutters are frame adjustable to the circumference of the pipe and have a number of self-tracking rollers that align one or more carbide-tipped cutting blades. Because of the relatively low mechanical input and clean cutting action, hand operated blade cutters do not produce significant amounts of airborne asbestos dust.</p>	
<p>iii) Manual field lathes</p> <p>Manual field lathes are designed to end-trim and re-machine rough pipe barrels to factory-machined end profiles. The lathe consists of an adjustable, self-aligning arbor inserted into the pipe bore (which acts as a mandrel upon which the turning handle operates), a screw-fed turning frame, carbide machining blades, and manual (hand or ratchet) turning handles.</p>	
<p>iv) Wet tapping AC pressure pipe</p> <p>Pressure or “wet” tapping for service connections is performed in the trench while the pipe is under pressure. The equipment (manual driven) is affixed to the pipe by means of a chain yoke. A combination boring-and-inserting bar drills and taps the pipe wall and inserts a corporation stop or pipe plug. The pressure chamber, which protects against water leakage, also catches the asbestos-cement chips, so this is essentially a dust-free operation.</p>	

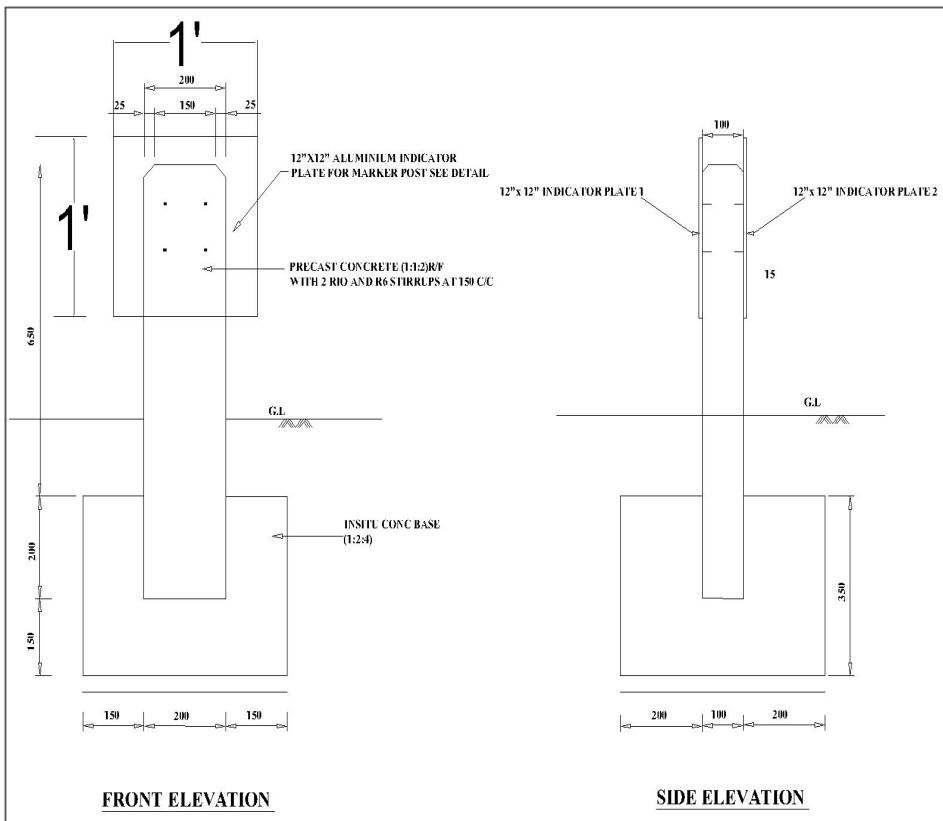
<p>v) Dry tapping ACD pressure pipe</p> <p>Non-pressure or “dry” tapping for service connections may be performed in or out of the trench. The equipment is affixed to the pipe by means of a chain yoke. Separate drills and taps or a combination tool is used to drill and tap the pipe wall. Corporation stops or other connections may then be affixed to the pipe.</p>	
<p>vi) Manual rasp</p> <p>Short lengths of AC pipe, machined-end exclusively (MEE) and machined overall (MOA), can be cut to make closures and repairs and to locate fittings exactly. Field-cut ends may be re-beveled with a coarse wood rasp to form a taper approximating the profile of the factory-beveled end.</p>	
<p>vii) Chisel and rasp</p> <p>Holes may be cut into AC pipe with a hammer and chisel. The edge of a plumber’s wood chisel is used to cut completely around the hole outline, about ¼ in. (7 mm) from the prescribed line. The operation is repeated and the cut deepened until through. The edges of the hole are then dressed with a coarse wood rasp.</p>	
<p>viii) Hammer and chisel</p> <p>Replacement of damaged pipe may necessitate excavation, exposure and removal. AC coupling removal may be accomplished by gradually splitting the coupling lengthwise using a chisel and hammer. After the top of the coupling has been split, a crowbar or similar tool is used as a lever to split the bottom of the coupling.</p>	

AC PIPE REMOVAL AND DISPOSAL

- Avoid or minimize breaking the AC pipe.
- Double-wrap large pieces in 1000-gauge polythene sheeting. Seal with duct tape.
- Attach asbestos warning stickers “DANGER ASBESTOS-CONTAINING MATERIAL”.
- Place small pieces in the asbestos waste container.
- Locate a landfill that is authorized to accept asbestos waste

MARKING OF AC PIPE ABOVE GROUND

Given the dangerous nature of AC pipes there is a significant health risk for workers and the public if these pipes are uncovered and damaged or cut accidentally, or deliberately to conduct the necessary work by other utility service providers e.g. gas supply, electricity line, telephone line. To warn the other utility service providers about the potential risk associated with disturbing the AC pipes which will be left in situ, proper marking should be provided above ground. The detail of marking is shown below.



DANGER

**ASBESTOS
DUST HAZARD
CANCER AND LUNG
DISEASE HAZARD**

Indicator Plate 1

Asbestos Cement pipe is just below this sign and is harmful to health if disturbed.

Please ensure that no damage occurs by nails, screws or hole drilling etc.

Report to DWASA if any damage occurs.

Indicator Plate 2