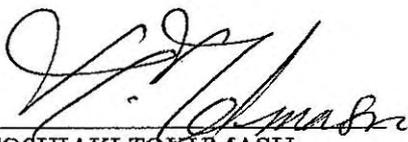


TECHNICAL NOTE
ON
THE BASIC DESIGN STUDY
ON THE PROJECT FOR THE IMPROVEMENT
OF STORM WATER DRAINAGE SYSTEM IN DHAKA CITY (PHASE II)
IN THE PEOPLE'S REPUBLIC OF BANGLADESH

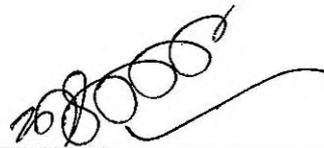
Based on the Minutes of Discussion on the captioned Study signed by and between the Bangladesh side and Japanese side on February 20, 2006, the field survey in Bangladesh was completed by the JICA study team in close cooperation with competent personnel of the Dhaka Water Supply and Sewerage Authority (DWASA).

In the course of the study, technical issues have been discussed regarding the Project for the Improvement of Storm Water Drainage System in Dhaka City (Phase II) (hereinafter referred to as "the Project") to be implemented under the Japan's Grant Aid Scheme, and both parties have confirmed the main items described in the attached sheet.

Dhaka, March 11, 2006



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ATTACHMENT

1. GENERAL

1.1 Issuance of ECC

As a result of this field survey, the DWASA shall prepare the IEE report by the middle of April 2006. Also, the DWASA shall conduct the necessary procedures for getting the Environmental Compliance Certificate (ECC) from the Department of Environment (DOE), Ministry of Environment and Forest (MOEF) in Bangladesh by the middle of May 2006.

After getting the ECC from DOE, the DWASA shall submit the copy of the ECC for the Project to the JICA Bangladesh Office as early as possible.

1.2 Preparation of Frequent Inundated Area Map in Drainage Zones C and H

The Consultant Team (hereinafter referred to as "the Team") submitted to DWASA the frequent inundated area map of Drainage Zones C and H (See Attached Fig-1). The DWASA agreed to prepare and to revise/update the Frequent Inundated Area Map in Drainage Zones C and H periodically in order to evaluate the Project.

1.3 Procedures for Necessary Permissions and Licenses

The DWASA agreed to take due procedures at his own expenses so as to accord all the necessary permissions, approvals, licenses, admissions or any other authorizations required in connection with the construction and the procurement of equipments.

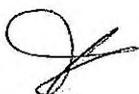
2. KALLYANPUR PUMPING STATION

2.1 Additional Pumping Station to be provided/constructed under Japan's Grant Aid

The Team explained to the DWASA that the capacity, specifications and dimensions of the additional pumping station would be further assessed based on the available data and information collected, and reported on the Draft Final Report, which will be submitted in the end of June 2006.

2.2 Clearing some properties in the Kallyanpur Pumping Station by the DWASA

The Team also explained to the DWASA that some properties such as trees, fences, etc in the Kallyanpur Pumping Station shall be cleared partly before the commencement of the construction. In this regard, both sides reconfirmed the "Major Undertakings to be taken by Each Government" in Annex-5 to the Minutes of Discussions of the Project signed on February 20, 2006.



2.3 Vacant Area adjacent to the Pumping Station

The Team recommended that the DWASA shall negotiate with Bangladesh Water Development Board (BWDB) making the possible use of the vacant upland lot adjacent to the southern direction from the Pumping Station as a temporary construction yard ($A = 40\text{m} \times 35\text{m} = 1,400\text{m}^2$) during the construction period (See Attached Fig-2). The DWASA agreed to negotiate the possible utilization of the upland lot with BWDB.

2.4 Consideration for Operation of the existing pumping station

Both sides reconfirmed that the additional Kallyanpur Pumping Station shall be planned, designed and constructed, so the other existing pumping station could be operated without any hindrance during every rainy season. The Team will consider appropriate construction plan and schedule for the additional Kallyanpur Pumping Station.

2.5 Client and Consultant Office for Construction Supervision

Both sides confirmed that the existing administration building in the Kallyanpur Pumping Station should be used as the Client and Consultant office for the construction supervision works of the additional pumping station, so the building will be renovated and furnished appropriately in construction stage by Japanese Side.

2.6 Provision of Disposal Area

The DWASA agreed to provide free of cost a disposal area for the surplus soil during the construction period adjacent to the Pumping Station in the north side.

2.7 Procurement of Spare Parts for the Existing Pump Equipment

The DWASA submitted the list of spare parts to the Team in order to procure the spare parts for the maintenance of existing pump station, because stock of the almost all the spare parts provided in the Year 1993 under Japan's Grant Aid have been exhausted (See Attached Table-1). The Team agreed to convey the additional request to the Government of Japan.

2.8 Preparation of Additional Operation and Maintenance Cost

The DWASA agreed to prepare the additional budget of operation and maintenance cost after completion of the additional pumping station. The additional budget will be informed in the Draft Final Report.

2.9 Rehabilitation of Access Road to the Pumping Station

The DWASA agreed that rehabilitation of the West Bypass Road should be undertaken by Bangladesh Side as an access road to the Pumping Station since some parts of asphalt pavement have



been damaged. The rehabilitation work shall be undertaken prior to the commencement of the construction for the smooth transportation of the construction materials and equipments.

2.10 Rehabilitation of the DESA's Electric Pole

The Team recommended that the DWASA shall negotiate with Dhaka Electric Supply Authority (DESA) concerning rehabilitation work of the DESA's electric pole to ensure power supply. (See Attached Fig-3). The DWASA agreed to negotiate the necessary rehabilitation work with the DESA.

3. PROCUREMENT OF EQUIPMENT AND VEHICLES

3.1 Equipment and Vehicles to be procured under Japan's Grant Aid

The Team explained to the DWASA that the priority, specifications and the quantities of the equipment and vehicles would be further assessed based on the results of Sediment and Sludge Thickness Survey conducted by the Team and the evaluation of the Action Plan, and reported on the Draft Final Report, which will be submitted in the end of June 2006.

3.2 Preparation of Warehouse and Garage

The DWASA agreed that the proposed dredging equipment and vehicles would be procured under the following conditions:

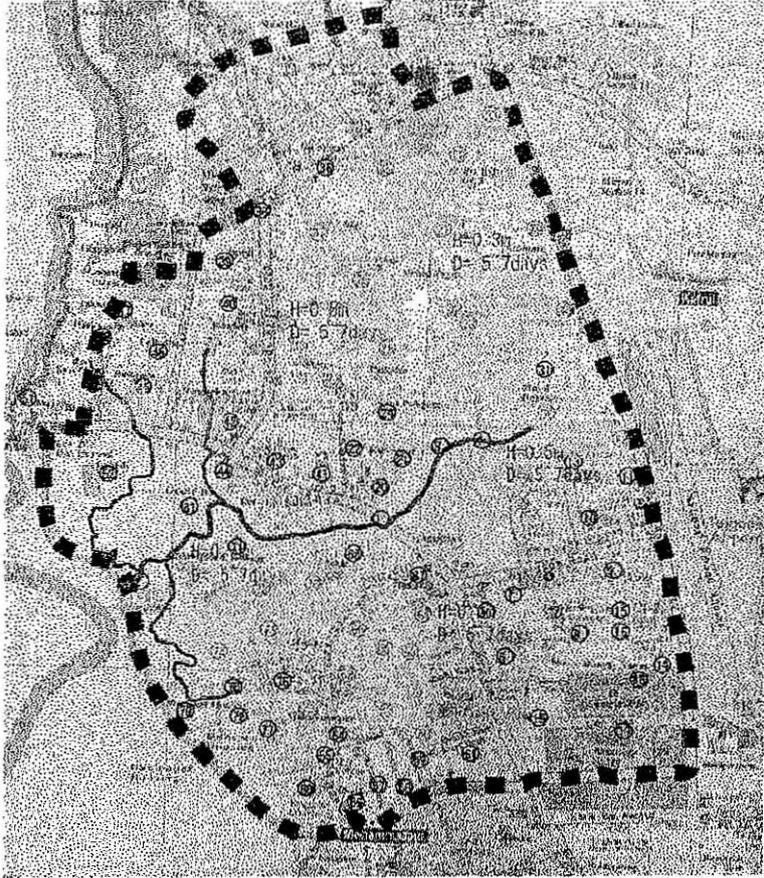
- (1) The DWASA shall prepare the suitable warehouse, garage or parking space with roof and car wash at least in Pagla Central Storage Yard or Lalmatia Office just before the shipment of these equipment and vehicles.
 - (2) The DWASA shall provide the necessary staff and budget to sustain a sufficient operation and maintenance works before arrival of these equipment and vehicles.
- 3.3 The DWASA agreed to get permission from the Dhaka City Corporation (DCC) to dump the sludge and sediments dredged from the Khals, Box Culverts and Drainage Pipes in Drainage Zone C and H to the proposed dumping site of Matuail and Mirpur.

4. OJT and/or Soft Component for Equipment & Vehicles to be Procured

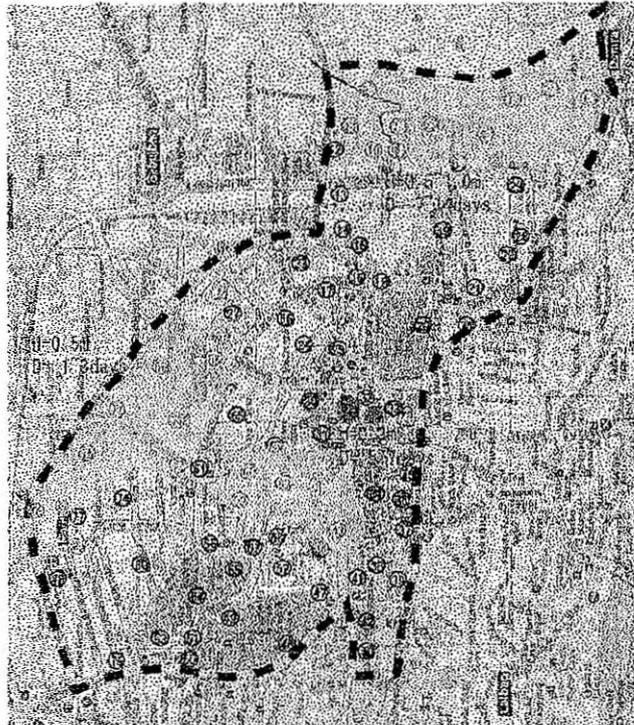
The most appropriate On the Job Training (OJT) and/or Soft Component Program will be prepared for the necessary technical transfer of the dredging equipment and vehicles to be procured under the Japan's Grant Aid Scheme when needed. The program will include environmental and social consideration measures for mitigating possible adverse impacts on the living environment at the dredging site.



Fig-1

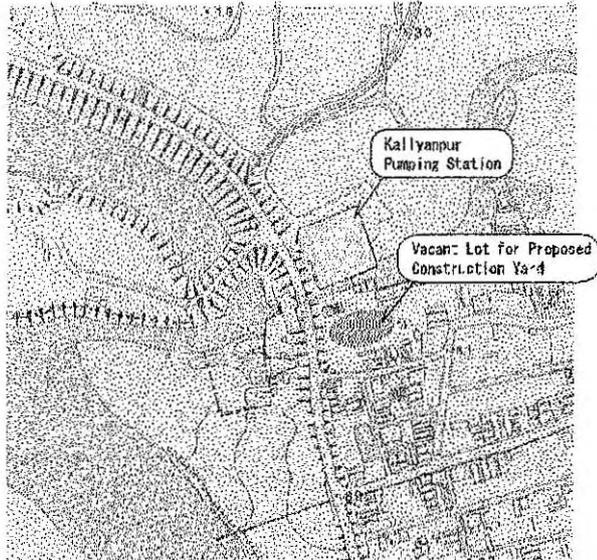


Frequent Inundated Area Map in Drainage Zone H by Study Team

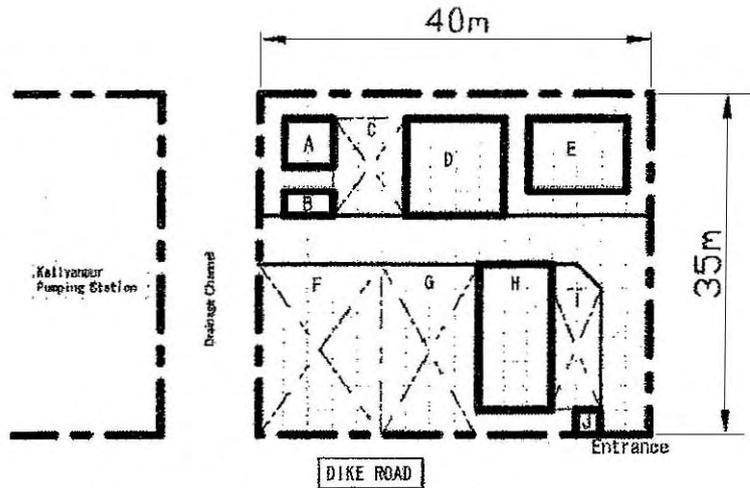


Frequent Inundated Area Map in Drainage Zone C by Study Team

Fig-2



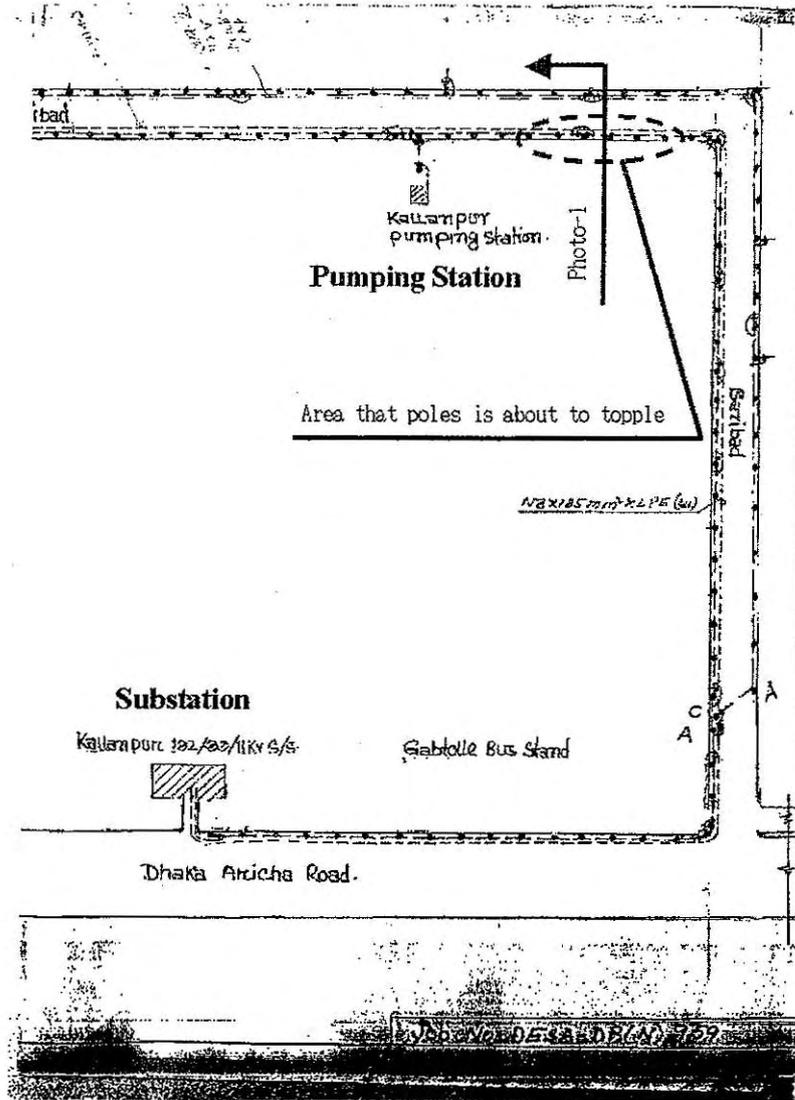
Location of Temporary Construction Yard



Symbol	Name of Facility	Dimension (in m)
A	Generator Hut	5.0 x 5.0
B	Fuel Storage	2.5 x 5.0
C	Carpenter/welder etc. Workshop	10.0 x 7.5
D	Carpenter/welder etc. Workshop	10.0 x 10.0
E	Store	7.5 x 10.0
F	RC Pile Production Yard	
F	Re-bar Fabrication Yard	17.5 x 12.5
G	Material Stock Yard	17.5 x 10.0
H	Contractor Office (Local)	15.0 x 7.5
I	Parking Lot	12.5 x 5.0
J	Security hut	2.5 x 2.5

Note: Temporary offices for Client & Consultant (15m x 7.5m) and Contractor (15m x 7.5m) shall be built with Pump Station Compound.

Temporary Facility



Map of power distribution line from P.D.B. substation to Kallyanpur Pumping Station

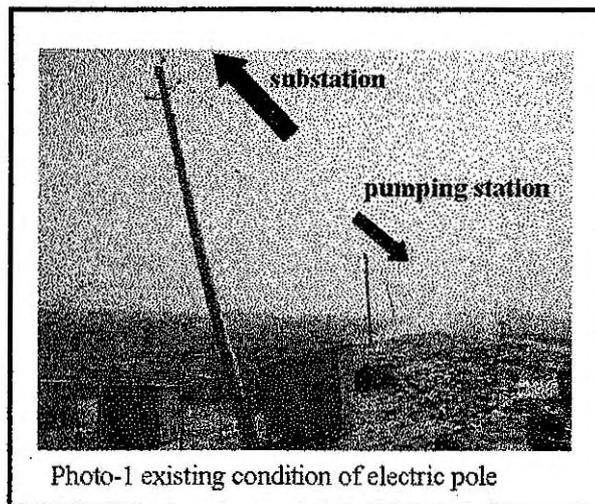


Photo-1 existing condition of electric pole

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Table 1-1. List of Spare Parts for the existing pumping station (Mech)

	Name	Specification/Part no.	Quantity
1	Submerged bearing (1)	LBC-2 / 652-01	6 Pcs
2	Submerged bearing (2)	LBC-2 / 652-02	6 Pcs
3	Packing Sleeve	SUS 304 / Q41	6 Pcs
4	Shaft Sleeve (1)	SUS 304 / 642-01	6 Pcs
5	Shaft Sleeve (2)	SUS 304 / 642-02	6 Pcs
6	Oil seal Sleeve	SUS 304/ 654	6 Pcs
7	Oil seal (1)	NBR / 114 -01	6 Pcs
8	Oil seal (2)	NBR / 114 -02	6 Pcs
9	O Ring (1)	NBR /115-01	6 Pcs
10	O Ring (2)	NBR /115-02	6 Pcs
11	O Ring (3)	NBR /115-03	6 Pcs
12	O Ring (4)	NBR /115-04	6 Pcs
13	Compound gage	Asbestos	6 Pcs
14	Set screw	SUS316	18 pcs
15	Set Screw	SUS316	18 pcs

Table 1-2. List of Spare Parts for the existing pumping station (Electrical)

	Name	Specification/Part no.	Quantity
1	Lamp bulb	18V 2W E12 /METRO	100 pcs
2	Auxiliary Relay	MY4N-TU AC230V /OMRON	150 pcs
3	Auxiliary Relay	MM4XKP-JKH33 DC110V /OMRON	8 pcs
4	Auxiliary Relay	MM4XP AC230V /OMRON	12 pcs
5	INDICATING LAMP BULB	E-12 18V 2W /METRO	40 pcs
6	Auxiliary Relay	MM2XPN DC110V WITH SOCET /OMRON	10 pcs
7	Auxiliary Relay	MY4N DC110V WITH SOCET /OMRON	6 pcs
8	Auxiliary Relay	LY4N DC110V WITH SOCET /OMRON	4 pcs
9	Relay	MY2-Y52 DC110V	4 pcs
10	Time Lag Relay	H3BA-8 DC110V WITH SOCET	2 pcs
11	Auxiliary Relay	LA-110 DC110V WITH SOCET /KYORITSU	12 pcs
12	BEARING	BDVA-BU 180kW 20P /7324ADF	6 pcs
13	BEARING	BDVA-BU 180kW 20P /NU226UAMR00G65EUY	6 pcs