Government of the People's Republic of Bangladesh
Department of Environment
Head Office, E-16 Agargaon
Sher-e-Bangla Nagar, Dhaka-1207
www.doe.gov.bd

Memo No: 22.02.0000.018.72.021.18. 90 Date: 14/02/2018

Subject: Exemption from Initial Environmental Examination (IEE) and Approval of Terms of Reference for EIA of the Proposed Matarbari Port Development Project (RHD Component) within Moheshkhali and Chakaria Upazila of Cox's Bazar District.

Ref: Your Application dated 04/02/2018.

With reference to your letter dated 04/02/2018 for the subject mentioned above, the Department of Environment hereby gives Exemption from Initial Environmental Examination (IEE) and Approval of Terms of Reference for EIA of the Proposed Matarbari Port Development Project (RHD Component) within Moheshkhali and Chakaria Upazila of Cox's Bazar District subject to fulfilling the following terms and conditions.

I. The project authority shall submit a comprehensive Environmental Impact Assessment (EIA) Report considering the overall activity of the proposed Project in accordance with the TOR and time schedule submitted to the Department of Environment (DOE).

II. The EIA report should be prepared in accordance with following indicative outlines:

Executive Summary

1.0 Introduction
- 1.1 Background
- 1.2 Rationale of the Project
- 1.3 Importance of the Project
- 1.4 Objective of the Study
- 1.5 Scope of EIA Study
- 1.6 Approach and Methodology
- 1.7 The EIA Team

2.0 Legal and Legislative Framework, Regulations and Policy Considerations Legislative, regulation and policy consideration (covering the potential legal, administrative, planning and policy framework within which the EIA will be prepared)

3.0 Project Data Sheet
- 3.1 Project Proponent
- 3.2 Project location and area
- 3.3 Nature and Size of the Project
- 3.4 Project Components
- 3.5 Project Activities
- 3.6 Project schedule
- 3.7 Resources and utilities demand

4.0 Project Description
- 4.1 Project Objective
- 4.2 Project Site
- 4.3 Project Layout
- 4.4 Land Requirement
- 4.5 Project Options

5.0 Analysis of Suitability for Different Alternatives (this analysis shall be performed, among other approaches, in a GIS based Spatial Decision Support System (SDSS) presenting the suitability of different options for both the interventions)

6.0 Detail description of the land cover/land use (with all the existing resource classes along with area coverages shall be shown in the respective maps derived from updated image of proper spatial and spectral resolution. Basic information (name of satellite, date and time of acquisition with atmospheric condition, spatial resolution, color composite etc.) of the image data to be used for making landuse/landcover maps shall be mentioned)

7.0 Analysis of Suitability for Different Alternatives (this analysis shall be performed, among other approaches, in a GIS based Spatial Decision Support System (SDSS) presenting the suitability of different options for both the interventions)

8.0 Environmental and Social Baseline : Study Area (10 Km. radius), Period, Component and methodology (Seasonal Variation should be covered)

8.1 Meteorology
- 8.1.1 Temperature
- 8.1.2 Humidity
- 8.1.3 Rainfall
- 8.1.4 Evaporation
- 8.1.5 Wind Speed
- 8.1.6 Sun Shine Hours

8.2 Water Resources
- 8.2.1 Surface Water System
- 8.2.2 Tropical Cyclones and Tidal Flooding
- 8.2.3 Salinity
- 8.2.4 Drainage Congestion and Water Logging
- 8.2.5 Erosion and Sedimentation
- 8.2.6 River Morphology
- 8.2.7 Navigation
- 8.2.8 Ground Water System

8.3 Land Resources
- 8.3.1 Agroecological Regions
- 8.3.2 Land Types
- 8.3.3 Soil Texture
- 8.3.4 Land Use

8.4 Agriculture Resources
- 8.4.1 Farming Practice
- 8.4.2 Cropping Pattern and Intensity
- 8.4.3 Cropped Area
- 8.4.4 Crop Production
- 8.4.5 Crop Damage
- 8.4.6 Main Constraints of Crop Production

8.5 Livestock and Poultry
- 8.5.1 Feed and Fodder Shortage
- 8.5.2 Livestock/Poultry Diseases

8.6 Fisheries
- 8.6.1 Introduction
- 8.6.2 Problem and Issues
- 8.6.3 Habitat Description
- 8.6.4 Fish Production and Effort
- 8.6.5 Brakish Water and Pond Aquaculture
- 8.6.6 Fish Migration

11.0 Evaluation of Impacts

The impacts should be evaluated in terms of their local, regional and national importance. The impact should be assessed in terms of the magnitude, significance, frequency of the occurrence, duration and probability. The confidence level in the prediction must be stated. The judgment of significance of impacts can be based on one or more of the following, depending on the environmental factor being evaluated. These are :

i. comparison with laws, regulation or accepted national or international standards

ii. reference to pre-set criteria such as conservation or protected status of a site, feature or species

iii. consistency with pre-set policy objectives

iv. consultation and acceptability with the relevant decision makers, civil society, local community or the general public.

12.0 Mitigation Of Impacts

Mitigation measures which may be of the following categories and coverages:

i. changing project layout, transport routes, disposal routes or locations, timing or engineering design

ii. introducing pollution controls, waste treatment, phased implementation and construction, engineering measures, monitoring, landscaping, social services or public education;

iii. rehabilitation, compensation to restore, relocate or provision of concession for damage

13.0 Environmental Management Plan

- 13.1 EMP during Preparation Phase
- 13.2 EMP during Construction Phase
- 13.3 EMP during Operation Phase
- 13.4 Greenbelt Development
- 13.5 Rehabilitation and Resettlement Plan
- 13.6 Budget for EMP
- 13.7 Contingency Plans

14.0 Risk Assessment

- 14.1 Consequence Analysis
- 14.2 Emergency Response Plan
- 14.3 Risk Mitigation Measures

15.0 Environment Monitoring Plan

- 15.1 Monitoring Plan
  - 15.1.1 Ambient Air Monitoring
  - 15.1.2 Meteorological Monitoring
  - 15.1.3 Ambient Noise Monitoring
  - 15.1.4 Surface Water & Waste Water Monitoring
  - 15.1.5 Ground Water Monitoring
  - 15.1.6 Solid & Hazardous Waste Monitoring
  - 15.1.7 Flora and Fauna Monitoring
  - 15.1.8 Workers Health and Safety Monitoring
  - 15.1.9 Monitoring of Disaster Management Plan (DMP)
- 15.2 Action During Abnormal Operating conditions
- 15.3 Budgets for Monitoring
- 15.4 Reporting

16.0 Public Consultation and Disclosure
- 16.1 Introduction
- 16.2 Objectives of Public Consultation and Disclosure Meeting
- 16.3 Approach and Methodology of Public Consultation and Disclosure Meeting
- 16.4 Public Consultation Meetings (PCMs)
- 16.5 Public Disclosure Meetings (PDMs)

17.0 Emergency Response Plan & Disaster Impact Assessment

18.0 Conclusion and Recommendation

III. Without obtaining approval of EIA report by the Department of Environment, the project authority shall not be able to start the physical activity of the project and also not be able to open L/C in favor of importable machineries.

IV. Rehabilitation of human settlement or compensation for any sort of activity which will incur damage or loss of public or private property shall be addressed as per Government of Bangladesh rules and regulations.

V. The project authority shall submit the EIA along with a filled-in application for Environmental Clearance in prescribed form, the applicable fee in a treasury Chalan, the applicable VAT on clearance fee in a separate treasury Chalan, the Feasibility Report, the No Objection Certificates (NOCs) from the local authority, NOCs from forest department (if it is required in case of cutting any forested plant, private or public) and NOC from other relevant agencies for operational activity etc. to the Cox's Bazar District Office of DOE in Cox's Bazar with a copy to the Head Office of DOE in Dhaka.

VI. A soft copy of the image data as well as the maps to be generated from the image shall be submitted to DOE Head Office along with the EIA.

14.02.2018

(Syed Nazmul Ahsan)
Director (Environmental Clearance)
Phone # 8181673

Project Director
Matarbari Coal based Power Plant Project (RHD Component)
Shetu Bhaban, Banani, Dhaka-1213.

Copy Forwarded to :

1. PS to Secretary, Ministry of Environment and Forests, Bangladesh Secretariat, Dhaka.
2. Director, Department of Environment, Chittagong Regional Office, Chittagong.
3. Deputy Director/Office In-charge, Department of Environment, Cox's Bazar District Office, Cox's Bazar.
4. Assistant Director, Office of the Director General, Department of Environment, Head Office, Dhaka.

Government of the People's Republic of Bangladesh
Office of the Chief Chemist
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Central Lab, 38-39, Mohakhali C/A, Dhaka-1212
Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 851/ CC, DPHE, CL, Dhaka.

Date: 03-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018070022	Sample Receiving date: 10-06-2018
Ref. Memo No: BETSCS/2018/Nill & Dated: 10-06-2018	Sample Source: Ground Water
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd., Dhaka.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sample-01)	Union:, Vill.:Faishakhali
Sample Collection date: 09-06-2018	Date of Testing: 10/06/2018-28/06/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Barium (Ba)	0.01	0.045	mg/L	AAS	-
3	Cadmium (Cd)	0.005	0.00015	mg/L	Titrimetic	0.00015
4	Chloride	150-600	94	mg/L	Titrimetic	-
5	Coliform (Faecal)	0	0	N/100ml	MFM	-
6	Colour	15	11.7	Hazen	UVS	-
7	Iron (Fe)	0.3-1	1.32	mg/L	AAS	0.05
8	Lead (Pb)	0.05	0.001	mg/L	AAS	0.001
9	Manganese (Mn)	0.1	0.03	mg/L	AAS	0.03
10	Nitrogen (Nitrate)	10.0	5.0	mg/L	UVS	0.10
11	Odour	Odourless	0	Odourless	Threshold Method	-
12	pH	6.5-8.5	7.0	-	pH Meter	-
13	Phosphate	6.0	3.8	mg/L	UVS	-
14	Total Dissolved Solid (TDS)	1000	370	mg/L	Multimeter	-
15	Total Suspended Solid (TSS)	10	14	mg/L	Gravity Multimeter	-

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, UVS- UV-Visible Spectrophotometer, MFM= Membrane Filtration Method, LOQ - Limit of Quantitation.

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	03-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	03/07/2018
2.) Name: Taslima Akhter Designation: Sample Analyzer	03.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka	2.) Name: Designation:	Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka

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Lab Memo: 851/ CC, DPHE, CL, Dhaka.

Date: 03-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018070023	Sample Receiving date: 10-06-2018
Ref. Memo No: BETSCS/2018/Nill & Dated: 10-06-2018	Sample Source: Ground Water
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd., Dhaka.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sample-02)	Union:, Vill.:Badarkhali
Sample Collection date: 09-06-2018	Date of Testing: 10/06/2018-28/06/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Barium (Ba)	0.01	0.051	mg/L	AAS	-
3	Cadmium (Cd)	0.005	0.00016	mg/L	AAS	0.00015
4	Chloride	150-600	23	mg/L	Titrimetic	-
5	Coliform (Faecal)	0	0	N/100ml	MFM	-
6	Colour	15	36.3	Hazen	UVS	-
7	Iron (Fe)	0.3-1	1.54	mg/L	AAS	0.05
8	Lead (Pb)	0.05	0.001	mg/L	AAS	0.001
9	Manganese (Mn)	0.1	0.03	mg/L	AAS	0.03
10	Nitrogen (Nitrate)	10.0	2.8	mg/L	UVS	0.10
11	Odour	Odourless	0	Odourless	Threshold Method	-
12	pH	6.5-8.5	7.2	-	pH Meter	-
13	Phosphate	6.0	1.73	mg/L	UVS	-
14	Total Dissolved Solid (TDS)	1000	110	mg/L	Multimeter	-
15	Total Suspended Solid (TSS)	10	11	mg/L	Gravity Multimeter	-

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, UVS- UV-Visible Spectrophotometer, MFM= Membrane Filtration Method, LOQ - Limit of Quantitation.

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	03-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	03/07/2018
2.) Name: Taslima Akhter Designation: Sample Analyzer	03.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka	2.) Name: Designation:	Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.

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Lab Memo: 851/ CC, DPHE, CL, Dhaka.

Date: 03-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018070024	Sample Receiving date: 10-06-2018
Ref. Memo No: BETSCS/2018/Nill & Dated: 10-06-2018	Sample Source: Ground Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd., Dhaka.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sample-03)	Union:, Vill.:Uttanalbila
Sample Collection date: 09-06-2018	Date of Testing: 10/06/2018-28/06/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Barium (Ba)	0.01	0.047	mg/L	AAS	-
3	Cadmium (Cd)	0.005	0.00015	mg/L	AAS	0.00015
4	Chloride	150-600	45	mg/L	Titrimetic	-
5	Coliform (Faecal)	0	0	N/100ml	MFM	-
6	Colour	15	25.31	Hazen	UVS	-
7	Iron (Fe)	0.3-1	1.24	mg/L	AAS	0.05
8	Lead (Pb)	0.05	0.001	mg/L	AAS	0.001
9	Manganese (Mn)	0.1	0.06	mg/L	AAS	0.03
10	Nitrogen (Nitrate)	10.0	2.9	mg/L	UVS	0.10
11	Odour	Odourless	0	Odourless	Threshold Method	-
12	pH	6.5-8.5	7.0	-	pH Meter	-
13	Phosphate	6.0	2.10	mg/L	UVS	-
14	Total Dissolved Solid (TDS)	1000	202	mg/L	Multimeter	-
15	Total Suspended Solid (TSS)	10	12	mg/L	Gravity Multimeter	-

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, UVS- UV-Visible Spectrophotometer, MFM= Membrane Filtration Method, LOQ - Limit of Quantitation.

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mahabuba 03-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	Bhossain 03/07/2018
2.) Name: Taslima Akhter Designation: Sample Analyzer	Taslima 03.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Md. Biplab Hossain
Chief Chemist
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Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 851/ CC, DPHE, CL, Dhaka.

Date: 03-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018070025	Sample Receiving date: 10-06-2018
Ref. Memo No: BETSCS/2018/Nill & Dated: 10-06-2018	Sample Source: Ground Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd., Dhaka.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sample-04)	Union:, Vill.:Dhalghata
Sample Collection date: 09-06-2018	Date of Testing: 10/06/2018-28/06/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Barium (Ba)	0.01	0.060	mg/L	AAS	-
3	Cadmium (Cd)	0.005	0.00015	mg/L	AAS	0.00015
4	Chloride	150-600	20	mg/L	Titrimetic	-
5	Coliform (Faecal)	0	0	N/100ml	MFM	-
6	Colour	15	98.3	Hazen	UVS	-
7	Iron (Fe)	0.3-1	2.06	mg/L	AAS	0.05
8	Lead (Pb)	0.05	0.001	mg/L	AAS	0.001
9	Manganese (Mn)	0.1	0.21	mg/L	AAS	0.03
10	Nitrogen (Nitrate)	10.0	5.1	mg/L	UVS	0.10
11	Odour	Odourless	0	Odourless	Threshold Method	-
12	pH	6.5-8.5	6.7	-	pH Meter	-
13	Phosphate	6.0	2.4	mg/L	UVS	-
14	Total Dissolved Solid (TDS)	1000	104	mg/L	Multimeter	-
15	Total Suspended Solid (TSS)	10	10	mg/L	Gravity Multimeter	-

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, UVS- UV-Visible Spectrophotometer, MFM= Membrane Filtration Method, LOQ - Limit of Quantitation.

B Hossain

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	03-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	03/07/2018
2.) Name: Taslima Akhter Designation: Sample Analyzer	03.07.18	2.) Name: Designation:	

Sample Analyst
DPHE, Central Laboratory
Mohakhali, Dhaka

Md. Biplab Hossain
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Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 851/ CC, DPHE, CL, Dhaka.

Date: 03-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018070026	Sample Receiving date: 10-06-2018
Ref. Memo No: BETSCS/2018/Nill & Dated: 10-06-2018	Sample Source: Ground Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd., Dhaka.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sample-05)	Union:, Vill.:Dumping Site
Sample Collection date: 09-06-2018	Date of Testing: 10/06/2018-28/06/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Barium (Ba)	0.01	0.048	mg/L	AAS	-
3	Cadmium (Cd)	0.005	0.00016	mg/L	AAS	0.00015
4	Chloride	150-600	115	mg/L	Titrimetic	-
5	Coliform (Faecal)	0	0	N/100ml	MFM	-
6	Colour	15	44.8	Hazen	UVS	-
7	Iron (Fe)	0.3-1	3.0	mg/L	AAS	0.05
8	Lead (Pb)	0.05	0.001	mg/L	AAS	0.001
9	Manganese (Mn)	0.1	1.17	mg/L	AAS	0.03
10	Nitrogen (Nitrate)	10.0	2.2	mg/L	UVS	0.10
11	Odour	Odourless	0	Odourless	Threshold Method	-
12	pH	6.5-8.5	6.6	-	pH Meter	-
13	Phosphate	6.0	0.68	mg/L	UVS	-
14	Total Dissolved Solid (TDS)	1000	270	mg/L	Multimeter	-
15	Total Suspended Solid (TSS)	10	18	mg/L	Gravity Multimeter	-

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, UVS- UV-Visible Spectrophotometer, MFM= Membrane Filtration Method, LOQ - Limit of Quantitation.

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mmotin 03-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	BHossain 03/07/2018
2.) Name: Taslima Akhter Designation: Sample Analyzer	Tmlima 03.07.18	2.) Name: Designation:	Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060001	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Kh-01)	Union:, Vill.:Kuhelia river
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00019	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.206	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.10	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.105	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Md. Biplab Hossain
Chief Chemist
Department of Public Health Engineering
Central Laboratory Mohakhali, Dhaka.

Government of the People's Republic of Bangladesh
Office of the Chief Chemist
Department of Public Health Engineering
Central Lab, 38-39, Mohakhali C/A, Dhaka-1212
Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060002	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Kh-02)	Union:, Vill.:Kuhelia river
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00021	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.217	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.11	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.074	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	MSmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	BHossain 10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060003	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Kh-03)	Union:, Vill.:Kuhelia river
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00024	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.220	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.14	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.059	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka.	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060004	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-01)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.004	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00017	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.107	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	2.19	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.007	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Msmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	BHossain 10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka.	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060005	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-01, Middlle)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.004	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00019	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.112	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	2.62	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.011	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060006	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-01, Bottom)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00020	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.121	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	2.46	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.042	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka.	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060007	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-02, Surface)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00022	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.118	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	1.82	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.031	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	Bhossain 10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060008	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-02, Middle)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00026	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.27	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.126	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	2.12	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.033	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	BHossain 10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060009	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-02, Bottom)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00028	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.130	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.65	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.040	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060010	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-03, Surface)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.003	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00031	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.228	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	1.08	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.029	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka.	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060011	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-03, Middle)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00033	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.234	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.75	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.051	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060012	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-03, Bottom)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00037	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.240	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	1.95	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.036	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Motin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	B Hossain 10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060013	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-04, Surface)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00039	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.692	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.13	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.027	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mmotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060014	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager ; BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-04, Middle)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00043	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.749	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	3.38	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.044	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Government of the People's Republic of Bangladesh
Office of the Chief Chemist
Department of Public Health Engineering
Central Lab, 38-39, Mohakhali C/A, Dhaka-1212
Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060015	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Suface Water
Sent by:Rupan Kanti Das ,General Manager', BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Sea-04, Bottom)	Union:, Vill.:Sea water
Sample Collection date: 18-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00044	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.758	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	3.79	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.048	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka

Md. Biplab Hossain
Chief Chemist
Department of Public Health Engineering
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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060016	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Bad-01)	Union:, Vill.:Maheshkhali Channel
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00029	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.071	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.17	mg/L	UVS	0.03
6	Lead (Pb)	0.05	0.037	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Md. Biplab Hossain
Chief Chemist
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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060017	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Bad-02)	Union:, Vill.:Maheshkhali Channel
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00021	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.077	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.17	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.045	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
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Md. Biplab Hossain
Chief Chemist
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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060018	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Bad-03)	Union:, Vill.:Maheshkhali Channel
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00020	mg/L	Titrimetic	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.086	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.26	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.009	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10.07.18	2.) Name: Designation:	

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060019	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Matri-01)	Union:, Vill.:Matamuhuri river
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.002	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00017	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.094	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.40	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.012	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:

1.) Name: Mahabuba Sabina Motin
Designation: Sample Analyzer
Signature: Mmotin 10-07-18

2.) Name: Md. Saiful Alam Khosru
Designation: Sample Analyzer
Signature: 10.07.18

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Countersigned/Approved by:

1.) Name: Md. Biplab Hossain
Designation: Chief Chemist
Signature: BHossain 10/07/2018

Md. Biplab Hossain
Chief Chemist
Department of Public Health Engineering
Central Laboratory Mohakhali, Dhaka.

2.) Name:
Designation:

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Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060020	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Matri-02)	Union:, Vill.:Matamuhuri river
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00020	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.102	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.36	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.010	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:

Signature

1.) Name: Mahabuba Sabina Motin
Designation: Sample Analyzer

Motin 10-07-18

2.) Name: Md. Saiful Alam Khosru
Designation: Sample Analyzer

10.07.18

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Countersigned/Approved by:

Signature

1.) Name: Md. Biplab Hossain
Designation: Chief Chemist

B Hossain 10/07/2018

Md. Biplab Hossain
Chief Chemist
Department of Public Health Engineering
Central Laboratory Mohakhali, Dhaka.

2.) Name:
Designation:

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Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060021	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: River Water
Sent by:Rupan Kanti Das ,General Manager , BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Matri-03)	Union:, Vill.:Matamuhuri river
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00015	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.120	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.15	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.013	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:	Signature	Countersigned/Approved by:	Signature
1.) Name: Mahabuba Sabina Motin Designation: Sample Analyzer	Mamotin 10-07-18	1.) Name: Md. Biplab Hossain Designation: Chief Chemist	10/07/2018 Md. Biplab Hossain Chief Chemist Department of Public Health Engineering Central Laboratory Mohakhali, Dhaka.
2.) Name: Md. Saiful Alam Khosru Designation: Sample Analyzer	10/07/18 Sample Analyzer DPHE, Central Laboratory Mohakhali, Dhaka.	2.) Name: Designation:	

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Phone: 88-02-9881927, Fax: 88-02-9882003 , Email: wqmsc_central_lab@yahoo.com

Lab Memo: 867/ CC, DPHE, CL, Dhaka.

Date: 10-07-2018

Physical /Chemical/ Bacteriological Analysis of Water Sample

Sample ID: CEN2018060022	Sample Receiving date: 24-05-2018
Ref. Memo No: BCSL/2018/Nill & Dated: 24-05-2018	Sample Source: Others
Sent by:Rupan Kanti Das ,General Manager, BETS Consulting Services Ltd.	Dist:Cox`s Bazar, Upa:
Care Taker: BETS Consulting Services Ltd. (Estuary)	Union:, Vill.:Sea & Kuhelia river Estuary
Sample Collection date: 19-05-2018	Date of Testing: 24/05/2018-09/07/2018

LABORATORY TEST RESULTS:

Sl.#	Water quality parameters	Bangladesh Standard	Concentration present	Unit	Analysis Method	LOQ
1	Arsenic (As)	0.05	0.001	mg/L	AAS	0.001
2	Cadmium (Cd)	0.005	0.00016	mg/L	AAS	0.00015
3	Copper (Cu)	1.0	0.26	mg/L	AAS	0.26
4	Cr (Total)	0.05	0.110	mg/L	AAS	0.0003
5	Iron (Fe)	0.3-1	0.16	mg/L	AAS	0.05
6	Lead (Pb)	0.05	0.009	mg/L	AAS	0.001
7	Zinc (Zn)	5.0	0.08	mg/L	AAS	0.08

Comments: Sample was collected & Supplied by client.
N.B: AAS- Atomic Absorption Spectrophotometer, LOQ - Limit of Quantitation.

Test Performed by:

Signature

1.) Name: Mahabuba Sabina Motin
Designation: Sample Analyzer

10-07-18

2.) Name: Md. Saiful Alam Khosru
Designation: Sample Analyzer

10.07.18

Sample Analyzer
DPHE, Central Laboratory
Mohakhali, Dhaka.

Countersigned/Approved by:

Signature

1.) Name: Md. Biplab Hossain
Designation: Chief Chemist

10/07/2018

Md. Biplab Hossain
Chief Chemist
Department of Public Health Engineering
Central Laboratory Mohakhali, Dhaka.

2.) Name:
Designation:

ATOMIC ENERGY CENTRE

4, KAZI NAZRUL ISLAM AVENUE, P.O. BOX NO. 164,
DHAKA-1000, BANGLADESH

FAX : 880-2-8613051,
E-MAIL: aecd@citechco.net
Tel. No. : 880-2-8617946

Ref No: Request letter dated 01/06/18

DATE: 14/06/2018

TEST RESULTS OF AMBIENT AIR QUALITY MONITORING

Project Name: **Environmental Impact Assessment (EIA) (Road) for JICA Matarbari Port Development Preparatory Survey Project**

Sampling Site Description

1. Sampling location :

1. **N R C filling Station**
   Latitude: 21°43'33.70"N; Longitude: 92° 5'1.89"E
2. **Badarkhali College**
   Latitude: 21°43'6.50"N; Longitude: 91°57'18.64"E
3. **South East Corner of the Port Boundary (Residential Area)**
   Latitude: 21°41'27.44"N; Longitude: 91°52'1.84"E

2. Date of sampling : 08-09 June, 2018

ANALYSIS

The respirable particulate matter (SPM) concentrations, PM_{10} and $PM_{2.5}$ were measured by collecting sample on Teflon filter using Air Metric portable samplers and subsequent gravimetric analysis using microbalance. The ambient SO_2, NO_2, O_3 and CO was monitored sequentially at project site using Gas Badge Pro monitor. The results are also presented below.

RESULTS

Sampling Site		SPM	PM_{10}	$PM_{2.5}$	SOx	NOx	O_3	CO
		µg/m³ (24h average)				mg/m³ (1h average)		
N R C filling Station		101	43.9	33.5	<12	0.042	0.0032	<0.3
Badarkhali College		97.3	35.3	23.8	<12	0.055	0.0031	<0.3
South East Corner of the Port Boundary (Residential Area)		88.9	24.5	10.9	<12	0.057	0.0032	<0.3
BNAAQS	24h average (µg/m³)	200 (8h average)	150	65	365	-	0.235	40 mg/m³
	Annual (µg/m³)	-	50	15	-	100	-	-
WHO	24h average (µg/m³)	-	50	25	-	200 (1h average)	-	10,000
	Annual (µg/m³)	-	20	10	-	40	-	-

Begum

14/06/18
(Dr. Bilkis Ara Begum)
Director
Atomic Energy Centre, Dhaka

ATOMIC ENERGY CENTRE

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FAX : 880-2-8613051,
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Tel. No. : 880-2-8617946

Ref No: Request letter dated 01/06/18

DATE: 14/06/2018

NOISE LEVEL AT PROJECT SITE

Project Name: Environmental Impact Assessment (EIA) (Road) for JICA Matarbari Port Development Preparatory Survey Project

Date of sampling : 08-09 June, 2018

Noise Level Monitoring

The noise level is monitored using Sound Level Meter (Model No SL 4012) which is calibrated using Tenma 72-945 (NEDA-1604 IEC-6F22). The noise levels at project sites are presented below. The noise levels of project site are lower than the ECR 1997.

Monitoring Location	Monitoring Point	Bangladesh Standard	Test Time	Result
N R C filling Station	Station-1	Day Time 60 dBa	Day	56.8±1.9dBa
		Night Time 50 dBa	Night	40.5±2.1 dBa
Badarkhali College	Station-2	Day Time 60 dBa	Day	53.1±0.3dBa
		Night Time 50 dBa	Night	41.2±0.6 dBa
Uttar Nalbilla (Residential Area)	Station-3	Day Time 60 dBa	Day	51.3±0.3dBa
		Night Time 50 dBa	Night	35.1±0.3 dBa
South East Corner of the Port Boundary (Residential Area)	Station-4	Day Time 60 dBa	Day	59.1±3.3 dBa
		Night Time 50 dBa	Night	48.9±2.1 dBa

OBSERVATIONS

- Noise level monitoring data is compliant with the National Noise Level Standards (ECR 1997) of Industrial area.

Begum

14/06/18
(Dr. Bilkis Ara Begum)
Director
Atomic Energy Centre, Dhaka

ATOMIC ENERGY CENTRE

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FAX : 880-2-8613051,
E-MAIL: aecd@citechco.net
Tel. No. : 880-2-8617946

Ref No: Request letter dated 10/02/18,

DATE: 22/02/2018

TEST RESULTS OF AMBIENT AIR QUALITY MONITORING

Project Name: Environmental Impact Assessment (EIA) (Port) under JICA Preparatory Survey for the Matarbari Port Development in Bangladesh

Sampling Site Description

1. Sampling location : Matarbari Port;
Latitude: 21°41'27.33"N; Longitude: 91°52'1.86"E

2. Date of sampling : 16 February, 2018

ANALYSIS

The respirable particulate matter (RSPM) concentrations, PM_{10} and $PM_{2.5}$ were measured by collecting sample on Teflon filter using AirMetric portable samplers and subsequent gravimetric analysis using microbalance. The ambient SO_2, NO_2, O_3 and CO was monitored sequentially at project site using Gas Badge Pro monitor. The results are also presented below.

RESULTS

Sampling Date		SPM	PM_{10}	$PM_{2.5}$	SOx	NOx	O_3	CO
		µg/m³ (24h average)				mg/m³ (1h average)		
16/02/18		110	43.2	32.1	<12	0.057	0.0034	<0.3
BNAAQS	24h average (µg/m³)	200 (8h average)	150	65	365	-	0.235	40 mg/m³
	Annual (µg/m³)	-	50	15	-	100	-	-
WHO	24h average (µg/m³)	-	50	25	-	200 (1h average)	-	10,000
	Annual (µg/m³)	-	20	10	-	40	-	-

Begum
22/02/18
(Dr. Bilkis Ara Begum)
Director
Atomic Energy Centre, Dhaka

ATOMIC ENERGY CENTRE

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Tel. No. : 880-2-8617946

Ref No: Request letter dated 10/02/18,

DATE:22/02/2018

NOISE LEVEL AT PORT SITE

Project Name: Environmental Impact Assessment (EIA) (Port) under JICA Preparatory Survey for the Matarbari Port Development in Bangladesh

Date of sampling : 16 February, 2018

Noise Level Monitoring

The noise level is monitored using Sound Level Meter (Model No SL 4012) which is calibrated using Tenma 72-945 (NEDA-1604 IEC-6F22). The noise levels at project sites are presented below. The noise levels of project site are lower than the ECR 1997.

Monitoring Point	Bangladesh Standard	Test Time	Result
Southeast	Day Time 60 dBa	Day	49.3±2.0dBa
	Night Time 50 dBa	Night	42.1±1.9 dBa
Northeast	Day Time 60 dBa	Day	47.8±2.7dBa
	Night Time 50 dBa	Night	38.7±0.2 dBa
Southwest	Day Time 60dBa	Day	57.8±1.1 dBa
	Night Time 50 dBa	Night	44.5±2.1 dBa
Northwest	Day Time 60 dBa	Day	52.7±3.7 dBa
	Night Time 50 dBa	Night	45.1±2.1dBa

OBSERVATIONS

- Noise level monitoring data is compliant with the National Noise Level Standards (ECR 1997) of Industrial area.

Begum
22/02/18
(Dr. Bilkis Ara Begum)
Director
Atomic Energy Centre, Dhaka