

# **Semi Annual Environmental Monitoring Report**

**Loan Number 3413-IND  
Period: July to December 2017**

**February 2018**

## **IND: Kolkata Environmental Improvement Investment Program– Project 2**

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**KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT  
PROGRAM (KEIP) – PROJECT 2**

**PROJECT MANAGEMENT UNIT**

2<sup>nd</sup>

**SEMI ANNUAL ENVIRONMENT MONITORING REPORT  
TRANCHE 2**

**ADB Loan 3053-IND**

**(Period July to December 2017)**

**February 2018**



**KOLKATA MUNICIPAL CORPORATION**

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**ABBREVIATIONS**

AAI	-	Airport Authority of India
ADB	-	Asian Development Bank
ASI	-	Archaeological Survey of India
BIS	-	Bureau of Indian Standards
BOD	-	Biochemical Oxygen Demand
CBO	-	Community Based Organization
COD	-	Chemical Oxygen Demand
CPCB	-	Central Pollution Control Board
CPHEEO	-	Central Public Health and Environmental Engineering Organisation
CTE	-	Consent to Establish
CTO	-	Consent to Operate
CW	-	Canal Water
DG	-	Diesel Generator
DO	-	Dissolved Oxygen
DPR	-	Detailed Project Report
DSC	-	Design and Supervision Consultants
DWF		Dry Weather Flow
KMC	-	Kolkata Municipal Corporation
EA	-	Executing Agency
EARF	-	Environmental Assessment and Review Framework
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GRC	-	Grievance Redressal Committee
GRM	-	Grievance Redress Mechanism
GW	-	Groundwater
HC	-	Hydrocarbons
IEE	-	Initial Environmental Examination
INR	-	Indian National Rupee
KEIP	-	Kolkata Environmental Improvement Project
KEIIP		Kolkata Environmental Improvement Investment Program
KMC	-	Kolkata Municipal Corporation
KMDA	-	Kolkata Metropolitan Development Authority
LPG	-	Liquefied Petroleum Gas
MoEFCC	-	Ministry of Environment and Forest & Climate Change, Government of India
MTBM	-	Micro Tunnel Boring Machine
NIOSH	-	National Institute of Occupational Health
NGO	-	Non Government Organization
O and M	-	Operation and Maintenance

PMC	-	Project Management Consultant
PMU	-	Project Management Unit
PS	-	Pumping Station
REA	-	Rapid Environmental Assessment
ROW	-	Right of Way
RP	-	Resettlement Plan
S & D	-	Sewage & Drainage
SEIAA	-	State Level Environmental Impact Assessment Authority
SPM	-	Suspended Particulate Matter
SPS	-	Safeguard Policy Statement
STP	-	Sewage Treatment Plant
SWF	-	Storm Water Flow
SW	-	Surface Water
TDS	-	Total Dissolved Solids
TMP	-	Traffic Management Plan
TSS	-	Total Suspended Solids
UFW	-	Unaccounted For Water
USD	-	US Dollar
WBPCB	-	West Bengal Pollution Control Board
WTP	-	Water Treatment Plant

## I. INTRODUCTION

### A. Background

1. The completed Kolkata Environmental Improvement Project (KEIP) was a key urban infrastructure initiative of the Kolkata Municipal Corporation (KMC) and achieved improvement of the urban environment and quality of life in parts (mainly added areas) of Kolkata Municipal Corporation area. On completion of KEIP, both KMC & ADB agreed to continue their combined effort to arrest environmental degradation and to improve basic urban services of Kolkata by a multi - tranche financing program 'Kolkata Environmental Improvement Investment Program' (KEIIP). Figure in **Appendix 1** shows the areas of Kolkata considered to be taken up under KEIIP Tranche 1 & 2. On their part ADB expressed their willingness to support this program by providing a multi-tranche financing facility amounting to US \$400 million. Under Tranche 1 works, ADB has already released about US \$100 million and the remaining US \$300 million is expected for the proposed works under Tranche 2 & 3. The total investment duration for Tranche 1, 2 & 3 is from 2014 to 2022, whereas the duration for Tranche 2 works is from 2016 to 2020.

2. The goal of the Kolkata Environmental Improvement Investment Program is to support sustainable economic growth through improved quality of urban life and urban environment. The main objective of the Program is to improve service quality and operational sustainability of increased water supply and sewerage in 20% of the KMC area. The Investment Program also aims towards increase in operational efficiency and scale of water supply, sewerage and drainage services in 5% of KMC area.

3. The Program output comprises of:

- ✓ rehabilitation of inefficient and outdated water supply assets;
- ✓ continued extension of sewerage to newly developed areas and
- ✓ further development of financial and project management capacity.

4. The Program is being carried out at Kolkata by the Govt. of West Bengal (GoWB) acting through Kolkata Municipal Corporation (KMC) as the Executing Agency (EA). Location of Kolkata city in West Bengal is shown in **Figure 1**. Sub project location map for **Tranche 2 (Project 2)** is shown in **Figure 2**.



**Figure 1: Map showing the location of Kolkata City in West Bengal**

### B. Project & Report Purpose

5. Sub projects under **Project 2** has been classified by ADB as environmental assessment category B (some negative impacts but less significant than category A) and the

impacts of subprojects were assessed through Initial Environmental Examination (IEE), prepared according to ADB Safeguard Policy (SPS 2009).

6. This report is the semi annual environment monitoring report (SEMR) covering period from **July to December 2017** and describes the implementation of the environmental management plan (EMP) in respect of each subproject of Tranche 2 as laid down in the approved IEE.

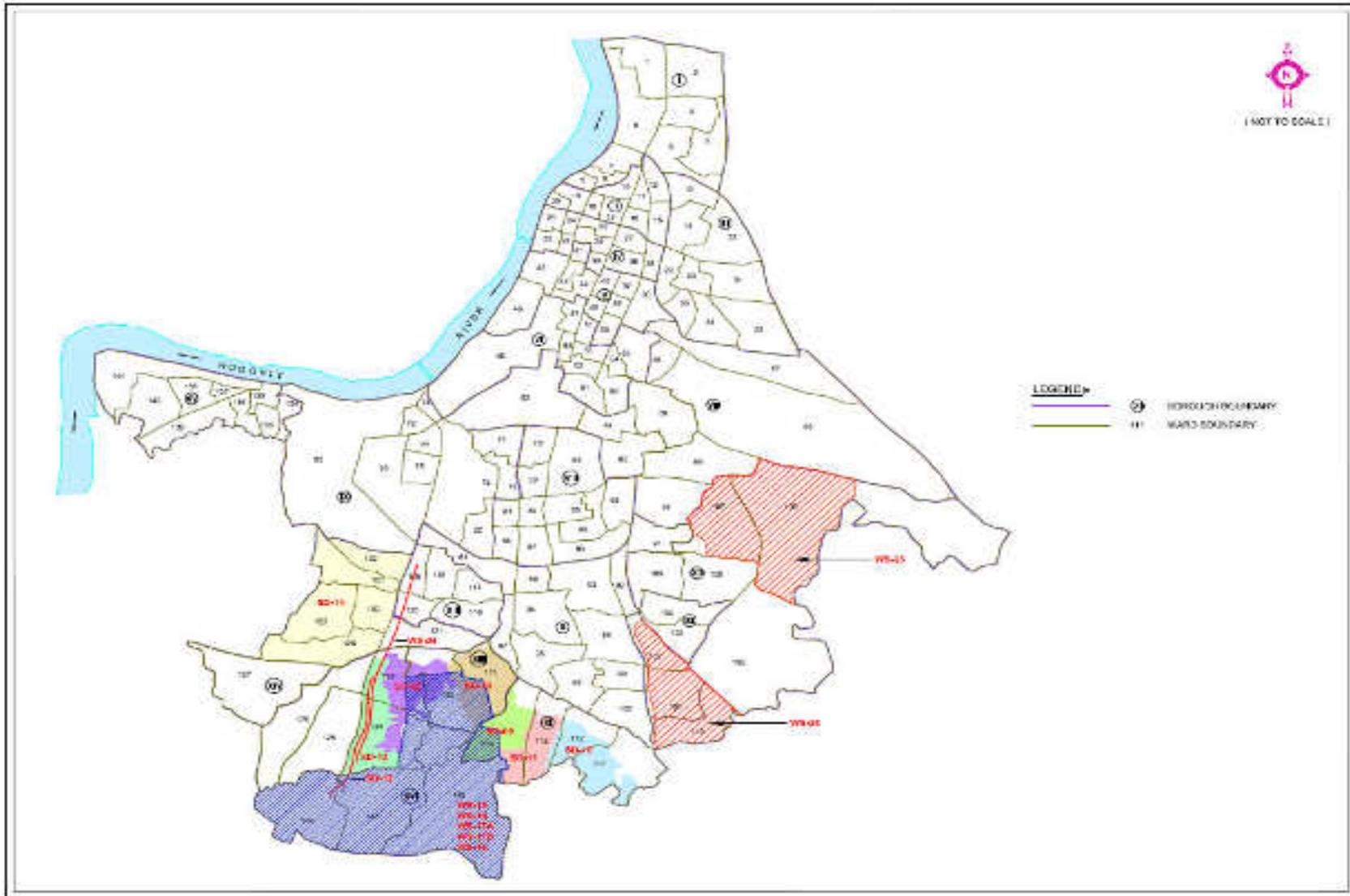


Figure 2: Sub Project location map- Project 2 (Tranche 2)

**II. IMPLEMENTATION PROGRESS****A. Status of Subprojects under Tranche 2**

7. On date **18 packages** under **Tranche 2** have been finalized. There are 8 nos. Sewerage and Drainage package and 9 nos. Water Supply packages.. **Table 1** show the works packages of the subprojects under **Tranche 2** including the status of award of contracts as on 31<sup>st</sup> December 2017. Till date commencement of work noted for 13 packages. Physical activity has been started for all 13 packages, including 2 packages where preliminary activity ongoing.

**Table 1: Summary of Subprojects under KEIIP Tranche 2 (on 31<sup>st</sup> December 2017)**

Sr. No.	Package No.	Package	Status
1	KEIIP/NCB/Tr 2/SD-09/2016-17	Sewerage & Drainage- Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station	Procurement process completed. LoA issued and date of commencement of contract - 07.02.2017 <b>Physical work under progress-4.8%</b>
2	KEIIP/NCB/Tr 2/SD-10/2015-16	Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI	Procurement process completed. LoA issued and date of commencement of contract - 25.01.2017 <b>Physical work under progress-4.6%</b>
3	KEIIP/NCB/Tr 2/SD-11/2016-17	Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station	Procurement process completed. LoA issued and date of commencement of contract - 14.02.2017 <b>Physical work under progress-3.10%</b>
4	KEIIP/NCB/Tr 2/SD-12/2015-16	Laying of Trunk sewer along James Long Sarani by Micro-tunneling method	Procurement process completed. LoA issued and date of commencement of contract - 08.02.2017 <b>Physical work under progress-18.45%</b>
5	KEIIP/NCB/Tr 2/SD-13/2015-16	Development of Sewerage & Drainage Network within James Long Sarani and Mahatma Gandhi Road catchment in Borough XVI (Part of Ward no. – 123 & 124)	Procurement process completed. LoA issued and date of commencement of contract - 05.12.2016 <b>Physical work under progress-8.02%</b>
6	KEIIP/NCB/Tr 2/SD-14/2015-16	Laying of lateral sewers in Borough XIV (Part of Ward no. 128 to 132)	Procurement process completed. LoA issued and date of commencement of contract - 05.12.2016 <b>Physical work under progress-8.94%</b>
7	KEIIP/NCB/ Tr 2 /WS 15/2015-16	Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station	Procurement process completed. LoA issued and date of commencement of contract - 05.12.2016 <b>Physical work under progress-21.87%</b>
8	KEIIP/NCB/Tr 2/WS 16/2015-16	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs	Procurement process completed. LoA issued and date of commencement of contract - 19.05.2017

Sr. No.	Package No.	Package	Status
			<b>Physical work under progress 4.75%</b>
9	KEIP/Tr 2/WS 17A/2016-17	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik	Procurement process completed. LoA issued and date of commencement of contract - 17.06.2017 <b>Physical work under progress 2.61%</b>
10	KEIP/Tr 2/WS 17B/2016-17	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park	Procurement process completed. LoA issued and date of commencement of contract - 17.06.2017 <b>Physical work under progress 3.42%</b>
11	KEIP/NCB/Tr 2/WS 18/ 2016-17	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas	Procurement process completed. LoA issued and date of commencement of contract - 15.05.2017 Preliminary activity continued. <b>Physical work under progress 4.0%</b>
12	KEIP/NCB/Tr 2/SD-19/ 2016-17	Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS	Procurement process completed. LoA issued and date of commencement of contract - 18.09.2017 Preliminary activity continued. <b>Physical work under progress &lt;1.0%</b>
13	KEIP/NCB/Tr 2/SD-22/ 2016-17	Development of S&D Network in Churial Extension Canal sub basin in Borough XIII & XVI (Part of Ward No. 122, 123, 124) including laying of main trunk sewer by micro-tunneling method and construction of Churial Extension Pumping Station	Procurement process completed. LOA issued on 22.12.2017
14	KEIP/NCB/Tr 2/WS 24/ 2016-17	Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani	Procurement process completed. LoA issued and date of commencement of contract - 26.10.2017 Preliminary activity continued. <b>Physical work under progress &lt;1.0%</b>
15	TR-2/WS 25	Water Loss Management under Jay Hind WTP Area (Eastern Kolkata)	Notice Inviting Tender (NIT) published on 11.09.2017. Bid submission on 16.01.2018.
16	TR-2/WS 26A	Design, Development, Implementation, Maintenance and Management of Call Centre Services, Portal & Mobile Application for citizen engagement ecosystem for Kolkata city	Bid document under preparation
17	TR-2/WS 26B	Water Supply System Instrumentation and Information Technology Upgrade	Draft bid document sent to ADB for approval on 07.12.2017.
18	KEIP/NCB/TR-3/WS33/ 2017-18	Augmentation of Storage Capacity and Transmission Main under Jai Hind WTP – Clear Water Reservoir, Service Main and Electromechanical Works	<i>Package under transfer from Tranche 3 to Tranche 2</i> NIT published on 11.09.2017. Procurement process continued

8. **Table 2** shows the status of the awarded packages with details of components, starting date, and schedule date of completion, physical progress and progress of implementation of work components.

9. For all awarded packages, contractors have been mobilized and works are in different stages of implementation. Implementation status of different components (package wise) is available with DSC and contractor. Photo illustration of project locations is shown in **Appendix 2**.

**Table 2: Status of Awarded Subproject Under KEIIP Tranche 2 (As of 31<sup>st</sup> December 2017)**

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
KEIIP/NCB/Tr 2/SD-09/2016-17	<p>✓ Trunk sewer - about 11.7 km under this package</p> <ul style="list-style-type: none"> <li>• Length of proposed sewer (600 mm &amp; above) to be laid – 7.5 km</li> <li>• Length of proposed sewer (below 600 mm dia.) to be - laid 4.2 km</li> </ul> <p>For laying of pipe below canals, jacking pushing method is considered. Gravity main - 1419 mm dia. of 40 m length and 1600 mm dia of 35 m length are proposed to be laid by Jack pushing method for crossing of Western Channel &amp; Keorapukur Canal respectively.</p> <p>✓ Construction of one combined pumping station (designated as Keorapukur PS) within the premises of Old Keorapukur Canal pumping station. Installation of SWF pumps- 5 nos. and DWF pumps – 4 nos.</p> <p>✓ Construction of gravity outfalls (12 nos. - 7 nos. to Keorapukur canal &amp; 5 nos. to Western channel) with flap gate</p> <p>✓ Construction of MS Bridge for the two pumping mains (SWF &amp; DWF) for crossing Keorapukur Canal. Length of MS bridge – 18.0 m</p> <p>✓ Laying of DWF Pumping main (500 mm dia., DI, K-9) for a length of about 620 m.</p> <p>✓ Laying of SWF Pumping main (1400 mm dia. OD MS) for a length of about 50 m</p>	07.02.2017	36	06.02.2020	4.8%	<ul style="list-style-type: none"> <li>• <b>S&amp; D network at Ward 114:-</b> 1.58 km pipeline laid, rest under progress</li> <li>• <b>Keorapukur Pumping Station :-</b> Work yet to commence</li> </ul>
KEIIP/NCB/Tr 2/SD-	<p>✓ Trunk sewer - about 11.58 km under this package</p> <ul style="list-style-type: none"> <li>○ Length of proposed sewer (600 mm &amp;</li> </ul>	25.01.2017	36	24.01.2020	4.60%	1047.35 m sewer line completed rest under progress

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
10/2015-16	<p>above) to be laid – 11.37 km</p> <ul style="list-style-type: none"> <li>○ Length of proposed sewer (below 600 mm dia.) to be laid – 0.21 km</li> </ul> <p>(Out of the total length about 3.02 km S &amp; D network within Sonarpur – Rajpur Municipality) Length of proposed sewer to be laid by Jack pushing Method - 60 m</p> <ul style="list-style-type: none"> <li>✓ Construction of RCC Box drain - 0.82 Km</li> <li>✓ Construction of gravity outfall structure (1 no. to Rania canal) at the end of box drain with provision of sluice gate</li> </ul>					
KEIIP/NCB/Tr 2/SD-11/2016-17	<ul style="list-style-type: none"> <li>✓ Trunk sewer - about 9.63 km under this package <ul style="list-style-type: none"> <li>• Length of proposed sewer (600 mm &amp; above) to be laid – 8.43 km</li> <li>• Length of proposed sewer (below 600 mm dia.) to be laid – 1.20 km</li> </ul> </li> <li>RCC Box drain for outfall structure – 0.03 km</li> <li>✓ Construction of one combined pumping station (designated as Vivekananda Road PS) at crossing of Rania Canal and Vivekananda Road. Installation of 8 nos. SWF pumps each having capacity of 850 lps</li> <li>✓ Construction of gravity outfalls (6 nos. - 3 nos. to Rania canal &amp; 3 nos. to Western channel) with flap gate</li> <li>✓ Laying of SWF Pumping main - 1200 mm dia. MS pipe about 2.2 km</li> <li>✓ Construction of MS Bridge for 1200 m SWF pumping main over Western Channel</li> </ul>	14.02.2017	36	13.02.2020	3.10%	756 m sewer laid rest under progress

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
KEIIP/NCB/Tr 2/SD-12/2015-16	<p>Sewer of about 3.8 Km along James Long Sarani (from Sakher Bazar crossing to near Joka Tram depot) - proposed to be laid along western flank by Micro tunneling technology</p> <p>1600 mm diameter- 656.9 m 2200 mm diameter- 874.1 m 2400 mm diameter- 2248.9 m</p> <p>Existing rider sewers below footpath are proposed for collection of SWF &amp; DWF from James long Sarani to be utilized. Parts of rider sewers need to be replaced to receive connection from some lateral roads and are proposed to be implemented under Package TR- 02/SD 13</p> <p>Connection from western flank to be done by open cut method Connection from eastern flank to be done by Jack pushing method</p>	08.02.2017	30	07.08.2019	18.45%	<ul style="list-style-type: none"> <li>• Trial trench completed at James Long Sarani</li> <li>• Survey &amp; utility drawing submitted by contractor</li> <li>• 6 shafts already completed at James Long Sarani from Diamond park to MG Road</li> <li>• Pipe production/ casting undergoing</li> <li>• Utility shifting going on at shaft no. 16, 17 &amp; 23.</li> <li>• 533 m sewer pipe of 2400mm dia has been laid.</li> </ul>
KEIIP/NCB/Tr 2/SD-13/2015-16	<ul style="list-style-type: none"> <li>✓ Length of proposed sewer (600 mm &amp; above) to be laid 13.1 km</li> <li>✓ Length of proposed sewer (below 600 mm dia.) to be laid 1.3 km</li> <li>✓ Construction of outfall structures including sluice gate– 3 nos.</li> <li>✓ Replacement of part of rider sewers along both flank's of James Long Sarani to receive connections from narrow lateral roads</li> <li>✓ Replacement of part of existing drain along eastern flank of DH Road with pipe conduit about 50 m ( near Janakalyan Road ) &amp; re-sectioning of the part drain along eastern flank of DH Road about 150 m (near</li> </ul>	05.12.2016	36	04.12.2019	8.02%	<b>Sewer laid at Ward 123 &amp; 124 :-</b> 2224 m sewer laid and rest under progress

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
	<p>Behala Fire Station).</p> <ul style="list-style-type: none"> <li>✓ Desilting of existing rider sewers along both flanks of James Long Sarani.</li> <li>✓ Installation of Sluice gate at the outfall mouth of existing drain along eastern flank of DH road to prevent back flow from Churial canal</li> </ul>					
KEIIP/NCB/Tr 2/SD-14/2015-16	<ul style="list-style-type: none"> <li>✓ Laying of Lateral sewer in the Ward no. 128 to 132 in KMC area for sewer diameter between 250 mm and 800 mm for a total length of 58.4 km.</li> <li>✓ Distillation of existing box drain / conduit of size 1.8 m W x 2.4 m H approx. 1600 RM at Picnic Garden Road</li> </ul>	05.12.2016	36 months	04.12.2019	8.94%	<ul style="list-style-type: none"> <li>• <b>Sewer line work at Ward – 128, 129,130,131,132:-</b> 9224 m sewer line laid rest under progress</li> <li>• <b>Distillation of box drain at Picnic Garden Road:</b> 200m de-silted out of 1600m.</li> </ul>
KEIIP/NCB/ Tr 2 /WS 15/2015-16	<ul style="list-style-type: none"> <li>• Construction of Under Ground Reservoir at Prantik Ph III (ward no 143)- , 17.5 ML, PS &amp; E&amp;M works at Prantik Ph III</li> <li>• Construction of Under Ground Reservoir at KMC land on Julpia Road (ward no 142)- 4.5 ML, PS &amp; E&amp;M works at KMC land on Julpia Road</li> <li>• Construction of Elevated Service Reservoir (ESR) at Prantik Ph III (ward no 143)- 3.1 ML</li> <li>• Construction of ESR at KMC land on Julpia Road (ward no 142)- 2.0 ML</li> <li>• Construction of ESR at N-E SSESTP (ward 122)-2.0 ML</li> <li>• Construction of ESR at N-W SSESTP (located at junction of ward 122 &amp; 123)- 1.8 ML</li> <li>• Construction of ESR at 22 Bigha (ward 143)- 3.4 ML</li> </ul>	05.12.2016	30 months	04.06.2019	21.87%	<ul style="list-style-type: none"> <li>• <b>Julpia UGR:</b> Piling completed. Reinforcement for bottom — under progress.</li> <li>• <b>Prantik UGR:</b> Piling completed. Sheet pilling under progress.</li> <li>• <b>ESR at Julpia:</b> Piling completed. Pile cap completed.</li> <li>• <b>ESR at WBSETCL:</b> Piling completed. Pile cap under progress. ESR at NE of SSESTP: 25% piling completed.</li> <li>• <b>ESR of NW of SSESTP:</b> approach road construction under progress.</li> <li>• <b>ESR at 22 Bigha:</b> Area</li> </ul>

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
	<ul style="list-style-type: none"> <li>Construction of ESR at WBSETCL near Joka Tram Depot. (ward 144)- 2.1 ML</li> </ul>					development by GSB filling under progress.
KEIIP/NCB/Tr 2/WS 16/2015-16	<p>✓ Laying of pipeline (MS, DI) – approx. 18.4 km</p> <ul style="list-style-type: none"> <li>Laying of Transmission Main from existing Daspara PS to UGRs cum PS at Prantik Phase III and KMC land on Julpia Road</li> <li>Supply and laying of Transmission main from Prantik Phase III UGR cum PS to existing ESR at Prantik, and proposed ESR at NW of SSE STP, NE of SSE STP, existing ESR at Diamond Park, proposed ESR at WBSETCL command area and proposed ESR at 22 Bigha command area</li> </ul>	19.05.2017	24 months	18.05.2019	4.75%	<ul style="list-style-type: none"> <li>Topographical survey of proposed alignment completed.</li> <li>Inspection of 600mm dia, 700mm dia M.S. pipe of 1500m each completed.</li> <li>Construction work for workshop for sand blasting &amp; painting completed and work continued</li> <li>Laying of 1200 m pipeline of 700 mm dia completed, rest under progress</li> </ul>
KEIIP/Tr 2/WS 17A/2016-17	<p>✓ Laying of pipeline (MS, DI) – approx. 155 km</p> <ul style="list-style-type: none"> <li>Laying of water supply distribution network including providing household service connection for proposed Elevated service reservoirs related to Prantik Ph III, NE of SSE STP and NW of SSE STP</li> <li>Supply and laying of water supply distribution network including providing household service connection for existing elevated service reservoirs related to Prantik</li> </ul>	17.06.2017	30 months	16.12.2019	2.61%	Topological survey work almost completed. Total DI pipe laid 10.9 km.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
KEIIP/Tr 2/WS 17B/2016-17	✓ Laying of pipeline (MS, DI) – approx. 72 km <ul style="list-style-type: none"> <li>• Laying of water supply distribution network including providing household service connection for proposed Elevated service reservoirs related to Prantik Ph III, NE of SSE STP and NW of SSE STP</li> <li>• Supply and laying of water supply distribution network including providing household service connection for existing elevated service reservoirs related to Prantik</li> </ul>	17.06.2017	30 months	16.12.2019	3.42%	Topological survey work almost completed. Total DI pipe laid 12.46 km.
KEIIP/NCB/Tr 2/WS 18/ 2016-17	✓ Construction of Elevated Service Reservoirs (ESRs): <ul style="list-style-type: none"> <li>• Ramkantapur- 2.1 ML</li> <li>• Malpara – 1.5 ML</li> <li>• Charaktala- 1.2 ML</li> </ul> ✓ Laying of pipeline (CS, MS, DI) – approx. 72 km <ul style="list-style-type: none"> <li>• Laying of Transmission main from pumping stations to ESRs at Ramkantpur, Malpara and Charaktala</li> <li>• Laying of Distribution system and house connection within command area of 3 ESRs. at Ramkantpur, Malpara and Charaktala</li> </ul>	15.05.2017	24 months	14.05.2019	4.0%	Preliminary activity continued. <ol style="list-style-type: none"> <li>1. Soil testing of ESR completed.</li> <li>2. Survey of proposed alignment completed.</li> <li>3. Laying of distribution network under Charaktala just started.</li> <li>4. Pilling work for Charaktala ESR continued</li> </ol>
KEIIP/NCB/TR- 2/SD19/2016-17	Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS	18.09.2017	36 months	17.09.2020	<1.0	Preliminary activity continued Survey and soil investigation started

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31 <sup>st</sup> December 2017	Works completed and continued as of 31 <sup>st</sup> December 2017
KEIIP/NCB/Tr 2/WS 24/ 2016-17	Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani	26.10.17	24 months	25.10.19	Nil	<ul style="list-style-type: none"> <li>• Survey completed</li> <li>• Construction drawing partially finalized.</li> <li>• Pipe manufacturing under progress.</li> </ul>

**B. Compliance of Safeguard Loan Covenants**

10. The loan agreement for KEIIP Project 2 was signed on 21<sup>st</sup> November 2016 and details are available in ADB website (<http://www.adb.org/projects/documents/loan-3413-ind-keiip-t2-mlo1>). **Table 3** provides a summary of compliance to the loan covenants related to environmental safeguards.

**Table 3: Compliance of Loan Covenants – Environment part**

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
<b>Environment</b>		
7	<p>The Borrower shall ensure or cause the EA to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all projects’ facilities comply with (i) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (ii) the Environmental Safeguards; (iii) the EARF; and (iv) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	<p><b>Under compliance</b>                      Document is prepared/ or under preparation by complying all relevant State and National Laws, Safeguard Policy Statement (SPS 2009) of ADB, Environment Assessment Review Framework (EARF) for Tranche-2 program.                      For <b>Tranche 2</b> project Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB.                       IEE for Sewage and Drainage for Tranche 2 has been updated and that report has already been disclosed in ADB website on September 2016. Sewerage &amp; Drainage IEE updated last on March 2017 due to revision of scope after DPR and submitted to ADB.                      IEE for water supply for Tranche 2 has already been disclosed in ADB website on April 2016. Updated version submitted to ADB on April 2017. Water Supply IEE updated last on August 2017 due to revision of scope after DPR. Updated Report disclosed on August 2017                      IEE will be revised further in case of any change of scope and location.                       All measures and requirements as prescribed in IEE/EIA and EMP are being considered during implementation.                       Corrective or preventive action plans will be reflected in Environment Monitoring Report and project implementation authority will take care of such actions when required.</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
<b>Human and Financial Resources to Implement Safeguards Requirements</b>		
11	The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP required.	<p><b>Complied</b> Budgetary provisions have been included in EMP of Tranche 2 project. An Environment Specialist has been placed in Project Management Unit and heading Safeguard Monitoring Unit. Human resource (project consultant, i.e Environmental Specialist of DSC) for implementation of EMPs is in place for regular monitoring to secure complete compliance.</p>
<b>Safeguards – Related Provisions in Bidding Documents and Works Contracts</b>		
12.	<p>The Borrower shall ensure, or cause the EA to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to:</p> <p>(a) comply with the measures and requirements relevant to the contractor set forth in the IEE, the EMP, the RP and the IPP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</p> <p>(b) make available a budget for all such</p>	<p><b>Under compliance</b></p> <p>(a) Approved IEE, EMP for Tranche 2 project is attached in Bidding documents. This process will be followed for all the sub projects within the present Tranche. In case of any change of scope, revised IEEs with EMP(s) will be prepared and corrective measures will be disclosed to the contractor and same will be reflected in the “Environment Monitoring Report”.</p> <p>IEE for Sewage and Drainage for Tranche 2 has been updated and that report has already been disclosed in ADB website on September 2016. Sewerage &amp; Drainage IEE updated last on March 2017 due to revision of scope after DPR and submitted to ADB. IEE for water supply for Tranche 2 has already been disclosed in ADB website on April 2016. Updated version submitted to ADB on April 2017. Water Supply IEE updated last on August 2017 due to revision of scope after DPR. Updated Report disclosed on August 2017</p> <p>(b) IEE indicates budgetary provisions</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
	<p>environmental measures;</p> <p>(c) provide the EA with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RP or the IPP;</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	<p>for implementation of EMP.</p> <p>(c) During implementation of any sub project if additional impacts/risks arise due to change in scope/area that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly project Executing Agency will inform the Construction Agency for taking relevant corrective measures.</p> <p>(d) Haul roads will be marked properly (by avoiding residential and agricultural land) before commencement of transportation of materials.</p> <p>(e) Pathways, infrastructure and land which are likely to be affected for varying periods during implementation of the sub project will be restored by concerned construction agency before acceptance of the work. Restoration status will be reflected in post construction monitoring report.</p>
<b>Safeguards Monitoring and Reporting</b>		
13	<p>The Borrower shall cause the EA to do the following:</p> <p>(a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs, the EMPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) report any breach of compliance with the measures and requirements set forth in the EMPs, promptly after becoming aware of the breach.</p>	<p><b>Under compliance</b></p> <p>(a) This is 2<sup>nd</sup> Project 2 (Tranche 2) Semi-annual safeguard monitoring report on Environment for the period July to December 2017. The next report will be due by end of June 2018.</p> <p>(b) During implementation of any sub project, if additional impacts/risks arise due to change in scope/area, those will be reflected in revised IEEs with EMPs and accordingly Executing Agency (EA) will inform the ADB such change along with corrective action plan which will be reflected in the subsequent Monitoring Reports.</p> <p>(c) in case of any breach of compliance with the measures and requirements set forth in the EMP, EA will promptly inform ADB and suitable corrective action program will be planned/initiated.</p>
<b>Prohibited List of Investments</b>		
14	The Borrower shall ensure or cause the	<b>Complied</b>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
	State to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	Under Tranche -2, there is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.
<b>Other Social Measures</b>		
15	The EA shall ensure that civil works contracts under the Project follow all applicable labor laws of the Borrower and the State, and that these further include provisions to the effect that contractors: (i) carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors.	<b>Complied in Bid documents and being complied during implementation</b> Provision are included (as per EMP & BID document) to carry out HIV/AIDS awareness programs for construction contractor, application of all relevant labour laws for health and safety including child labour law and engagement of local labours (preferably from economically backward group) covering women labours. In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken. All activities including awareness program will be reflected in “Monitoring Report”.

### C. Implementation Arrangement

11. The institutional arrangement follows KEIIP’s organizational structure and functions (**Figure 3**). The subproject is being implemented and monitored by the Project Management Unit (PMU). The KEIIP’s PMU Environment Specialist is the overall in-charge on Environmental safeguard of the program. The responsibilities of the Environmental Specialist ensures that (i) environmental safeguard issues are addressed; (ii) EMP/approved Site Environment Plan (SEP) is implemented; (iii) physical and non-physical activities under the subproject are monitored; and (iv) monitoring reports are prepared on time and submitted to ADB. Safeguard Monitoring Unit (SMU) of PMU is ensuring field level monitoring and safeguard documentation.

12. PMU is supported by the Design and Supervision Consultants (DSC). An Environment Specialist is in place to ensure: (i) EMP/ approved SEP is implemented; (ii) surveys and measurements are undertaken; (iii) inspections and observations throughout the construction period are recorded to ensure that safeguards and mitigation measures are provided as intended; and (iv) statutory clearances and permits from government agencies/other entities are obtained prior to start of civil works.

13. The Safeguards Monitoring Unit will:

- (i) prepare the REA checklist, draft the EIA/IEE and arrange for disclosure of the approved EIA/IEE in the website
- (ii) ensure that Environmental Clearance (EC), Consent to Establishment and Consent to Operate and other certificates, as required, are obtained in time

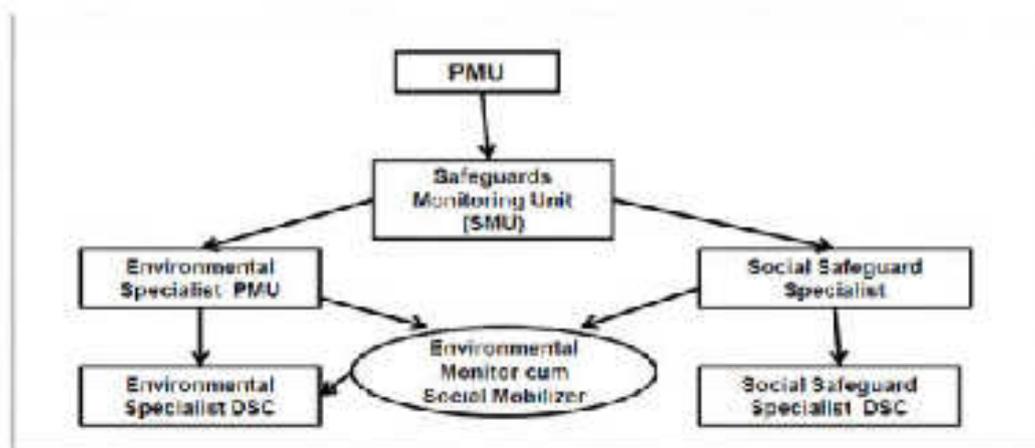
- from appropriate authorities and ensure compliances with conditions imposed.
- (iii) ensure incorporation of the EMP, environmental mitigation and monitoring measures into the contract documents
  - (iv) monitor disclosure and public consultation arranged by DSC during IEE process and ensure that comments are reflected in the IEE report
  - (v) ensure disclosure of information throughout the duration of the subproject through suitable visual means and publications
  - (vi) provide necessary input for grievance redress
  - (vii) approve contractor's proposed locations for construction work camps, storage areas, hauling roads, lay-down areas, and disposal areas for solid and hazardous wastes on recommendations of DSC
  - (viii) guide the Contractor for drawing up of Site Environmental Management Plan and to approve the same
  - (ix) induct the Contractor for taking up the construction following environmental and social safeguards
  - (x) facilitate scheduled monitoring during implementation of the project.
  - (xi) carry out regular onsite monitoring and guide the Contractor to adopt the required site management standard.
  - (xii) ensure the required health and safety measures at work sites
  - (xiii) obtain in time and to review the monthly monitoring report of the Contractors
  - (xiv) prepare 6-monthly monitoring and EMP implementation report, including the status of project compliance, statutory clearances and relevant loan covenants, and submit the approved 6-monthly report to ADB and seek permission to disclose the same in the investment program website
  - (xv) prepare monitoring report on post-construction activities by the contractors as specified in the EMP
14. The Contractor's responsibilities included:
- (i). Submission of Site environmental plan (SEP) covering proposed sites / locations for construction work camps, storage areas, haul roads, lay down areas, disposal areas for solid and hazardous wastes
  - (ii). Compliance with all applicable legislation and be conversant with the requirements of the EMP/ approved SEP;
  - (iii). Briefing of his staff, employees, and Labours about the requirements of the EMP/ approved SEP;
  - (iv). Ensuring that any sub-contractors/suppliers engaged within the context of the contract comply with the environmental requirements of the EMP/ approved SEP. The Contractor will be held responsible for non-compliance on their behalf;
  - (v). Providing methodology/information for all activities requiring special attention as specified and/or requested by the DSC Environment Specialist during the duration of the Contract;
  - (vi). Providing environmental awareness training to staff, employees, and Labours;

- (vii). Bearing the costs of any damages/compensation resulting from non-adherence to the EMP/ approved SEP or written site instructions;
- (viii). Conducting all activities in a manner that minimizes disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.
- (ix). Ensuring that the PMU and DSC Environment Specialists are timely informed of any foreseeable activities that will require their expert input

15. Environment Specialist and Junior Environmental Scientist of DSC visited all construction sites every month and arranged onsite training program for contractors and supervisory staff and instructed contractors for application of corrective action measures to mitigate impacts. **Table 4** shows detail of environment safeguard team for KEIP.

**Table 4: Details of KEIP Environmental Safeguard Team**

Designation	Name and Contact Details
PMU, Environment Specialist Safeguard Monitors in SMU	Name: Dr. Chinmoy Chakrabarti Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700017 Phone:033 2283 0169 Email:pdkeip@gmail.com, chin_may@yahoo.com
DSC, Environment Specialist	Name: Dr. Ardhendu Mitra Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830415953 Email: <a href="mailto:ardhendumitra@gmail.com">ardhendumitra@gmail.com</a> <a href="mailto:dsckeip@gmail.com">dsckeip@gmail.com</a>
DSC, Junior Environmental Scientist (Support)	Name: Dr. Bidisha Mukherjee Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830592875 Email: <a href="mailto:dsckeip@gmail.com">dsckeip@gmail.com</a> , <a href="mailto:bidisha1809@gmail.com">bidisha1809@gmail.com</a>



Notes: PMU – project management unit; DSC – design and supervision consultants

**Figure 3: Institutional Arrangement – Safeguards**

### III. ENVIRONMENTAL PROCEDURE REVIEW

#### A. Environmental Legal Requirement

16. For implementation of the project both national and state rules & regulations need to be followed. **Table 5** in next section indicates environment legal requirement for the projects under KEIIP.

#### B. Compliance with Environmental Legal Requirements

17. Before implementation of the project, compliance with environmental policy, law and legislation is necessary.

18. Under **Tranche 2** present status of Environment, forest and other clearances are mentioned below.

**Table 5: Status of Compliance with National and State Legal Requirements (up to 31<sup>st</sup> December 2017)**

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
KEIIP/NCB/Tr 2/SD-09/2016-17	Sewerage & Drainage- Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  In case of setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIIP/NCB/Tr 2/SD-10/2015-16	Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIIP/NCB/Tr 2/SD-11/2016-	Sewerage & Drainage:	Water (Prevention and Control of Pollution)	During implementation of project compliance	

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
17	Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station	Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/NCB/Tr 2/SD-12/2015-16	Laying of Trunk sewer along James Long Sarani by Micro-tunneling method	West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006- Tree felling permission Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Process has been initiated for getting NOC from Urban Forest Dept for felling of 30 nos. tree.  During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/NCB/Tr 2/SD-13/2015-16	Development of Sewerage & Drainage Network within James Long Sarani and Mahatma Gandhi Road catchment in Borough XVI (Part of Ward no. – 123 & 124)	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
		Operate (CTO)		
KEIP/NCB/Tr 2/SD-14/2015-16	Laying of lateral sewers in Borough XIV (Part of Ward no. 128 to 132)	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/NCB/ Tr 2 /WS 15/2015-16	Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/NCB/Tr 2/WS 16/2015-16	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/Tr 2/WS 17A/2016-17	Laying of water supply distribution	Water (Prevention and Control of Pollution)	During implementation of project compliance with Air Act, Noise	

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
	network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik	Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/Tr 2/WS 17B/2016-17	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987  Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIP/NCB/Tr 2/WS 18/ 2016-17	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur,	Water (Prevention and Control of Pollution) Act. 1974  The Air (Prevention and Control of Pollution) Act, 1981, as amended by	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of	

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
	Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas	Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Generator - not required	
KEIIP/NCB/TR-2/SD19/2016-17	Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	
KEIIP/NCB/Tr 2/WS 24/ 2016-17	Dedicated Water Supply Transmission Main from Junction of James Long Sarani to Daspara near existing pumping station along James Long Sarani	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required  For acoustic type of Generator - not required	

#### IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

19. There are 13 environment sensitive subprojects under implementation (actual physical activity started). Site Environment plan including site specific EMP was submitted by the contractor before starting of each construction packages. These EMPs are generally revised semi annually as per progress of construction work. **Appendix 3** shows sample Site Specific EMP.

20. Environment Specialist from DSC and PMU carried out periodic monitoring of EMP implementation through desk review of contractor's records and site inspections. Package wise findings are presented in **Tables 6 to 16**. Monitoring will be started shortly for packages KEIIP/NCB/Tr 2/SD-19/ 2016-17 and KEIIP/NCB/Tr 2/WS 24/ 2016-17. Preliminary activity (survey etc.) has been started for those packages.

21. Work in most packages has just started and construction of camp, arrangement of safety caution board, barricade has commenced. Initial EMP compliances in these areas are unsatisfactory in some instances. It is expected that during next report period all non compliance issues will be resolved.

22. Barring the above lacuna most of the sites are environmentally well managed. Particularly, in a few cases of running packages, there were scopes for further improvement in site management measures as mentioned below,

- Complete use of PPE (particularly use of shoes, gumboots) for all the packages
- Complete use of caution tape/ barricade at all the package working sites
- Availability of emergency contact no. at all display/ caution board placed at work site
- Improvement of housekeeping at project site (SD 14)
- Improvement of facilities of temporary labour camp ( SD13 and SD 14)
- Improvement of access and housekeeping at labour camp at Prantik, Julpia work site (WS-15)
- Improvement of access for public movement (SD13 and SD 14)
- Medical Examination of workers for newly started packages (WS16, WS 17A, Ws 17B, WS 18)

23. The concerned contractors were instructed verbally and also in writing. During subsequent field visits and from monitoring reports it was observed that most of such deficiencies are removed and site management has considerably improved.

**Table 6: Compliance to EMP for the Package - Sewerage & Drainage- Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-09/2016-17)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Working site is easily accessible
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Work just started. Not required till date
4	Water supply	Health risk due to closure	<ul style="list-style-type: none"> <li>Schedule of</li> </ul>	-	DSC/PMU	Checking of	Environment	Do	Not required as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of water supply	<ul style="list-style-type: none"> <li>closure</li> <li>Delivery of KMC of potable water to affected people</li> </ul>			records Visual observation	Specialist of DSC and PMU		per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Traffic Management Plan prepared for implementation. Road closure done as per plan Sample traffic management plan attached as <b>Appendix 4</b>
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied Presently labour stay at Natun pally labour camp  Drinking water and toilet facility available
7	Establishing Equipment Lay-down and Storage	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down and storage areas must take into account</li> </ul>	List of selected location and facility	Proposed locations considered in the	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work &	Under Compliance Storage area selected

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Area <sup>1</sup>	<p>prevailing winds, distances to adjacent land uses, general on-site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>		package				Continuous	<p>preliminary. Proper storage of fuels, lubricants done Equipment lay-down area demarcated with signage board</p>
8	Education of site staff on general and	<ul style="list-style-type: none"> <li>• Ensure that all site personnel have a basic level of environmental</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on	Environment Specialist of DSC and PMU	-	Site Safety training continued for

<sup>1</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Environmental Conduct <sup>2</sup>	awareness training <ul style="list-style-type: none"> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>				awareness training program			worker and recorded properly Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>3</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of materials</li> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC. Procurement continued
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied. Labour camp established at Natun pally.

<sup>2</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>3</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		management arrangement <ul style="list-style-type: none"> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	sanitation facilities for employees <ul style="list-style-type: none"> <li>Housekeeping – regular disposal of solid waste</li> </ul>						Drinking water and toilet facility available Site photo attached as <b>Appendix 2</b>
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of excess excavated soils</li> <li>Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied mostly Work just started. Utilization of excess earth to be done as per EMP.  Spoil management plan to be applied as per EMP (sample attached as <b>Appendix 6</b> )
12	Dust and Air Pollution <sup>4</sup>	<ul style="list-style-type: none"> <li>Selection of materials storage area</li> <li>Water sprinkling at</li> </ul>	<ul style="list-style-type: none"> <li>Location of stockpiles</li> <li>Complaints from</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied of stockpiles

<sup>4</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>construction site for arresting dust (if any during dry period)</p> <ul style="list-style-type: none"> <li>• Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Under Control certification</li> <li>• No fire wood burning is allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<p>sensitive receptors</p> <ul style="list-style-type: none"> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>			<ul style="list-style-type: none"> <li>• Visual inspection of sites</li> </ul>			<p>selected. Covering of materials done partially. Sprinkling of water done as per requirement During construction air quality monitoring done as per EMP. (Complete result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipments collected</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations, enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No such noise producing machinery mobilized at site. PPE supplied to workers and utilized as per requirement. During construction monitoring done. (Complete result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting of solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under Compliance Drainage of waste water from construction site is continued

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
15	Water Quality <sup>5</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	At present there is no water source nearby the project location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure removal of only trees that have been marked beforehand</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspecti</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Work just started. Stockpiling of materials done at designated

<sup>5</sup> Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</p> <ul style="list-style-type: none"> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>				on of sites			areas. Ref. site photo <b>Appendix 2.</b>
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> <li>Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>Ensure availability of First aid box at all working sites and labour camp</li> <li>Provide medical</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> <li>Sign boards for hazardous areas such as energized electrical</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation HSE plan available with DSC.</p> <p>H &amp; S training arranged for the labours on regular basis. Sample copy of training document is attached as <b>Appendix 5.</b></p> <p>Drinking water and first aid box available at site.</p> <p>Use of PPEs partially</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>insurance coverage for workers;</p> <ul style="list-style-type: none"> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<p>devices and lines, service rooms</p>						<p>Insurance arranged for the Labours. Attached as <b>Appendix 7.</b></p> <p>Sample copy of minor accident (first aid case) as reported during report period is enclosed herewith (<b>Appendix 8</b>)</p> <p>Tie up with nearby health center/ hospital done. <b>Appendix 9</b> shows tie up letter Medical examination done for the package. Sample copy attached as <b>Appendix 9.</b></p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>6</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> <li>Provide road signs and</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Complied  Caution tape placed around excavated and working area as and when required; No hard barricading done. Sufficient access maintained.

<sup>6</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>flag persons to warn</li> <li>Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>Strictly follow the protocol for chance archaeological finds in any excavation work</li> <li>Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Work just started. Not required till date Instruction has been given
21	Employment generation	<ul style="list-style-type: none"> <li>The use of labor intensive construction measures will be used where appropriate</li> <li>Employ local (unskilled) labor if possible</li> <li>Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labours are mostly engaged. List of labours are attached as <b>Appendix 10</b>

**Table 7: Compliance to EMP of for the Package - Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI (KEIP/NCB/Tr 2/SD-10/2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			documents from line agency						
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Work just started. Site is easily accessible Traffic Management Plan prepared and implementation done
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> <li>Delivery of KMC of potable water to affected people</li> </ul>	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Not required now as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and to be

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									approved from traffic / police dept. <b>Appendix 4</b> shows sample traffic management plan. Original plan for the package available at DSC office
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>• Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>• Non use of residential area</li> <li>• Arrangement of toilet and drinking water facility</li> <li>• No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Worker camp cum site office developed at Pirkukur All facilities-toilet, drinking water available
7	Establishing Equipment Lay-down and Storage Area <sup>7</sup>	<ul style="list-style-type: none"> <li>• Choice of location for equipment lay-down and storage areas must take into</li> </ul>	List of selected location and facility	Proposed locations considered in the	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work &	Under compliance Proper storage of fuels,

<sup>7</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>		package				Continuous	lubricants done after necessary instruction. Equipment lay-down area demarcated
8	Education of	<ul style="list-style-type: none"> <li>• Ensure that all site</li> </ul>	Documentation –	-	DSC/PMU	Materials and	Environment	-	Site Safety

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	site staff on general and Environmental Conduct <sup>8</sup>	<p>personnel have a basic level of environmental awareness training</p> <ul style="list-style-type: none"> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Training and awareness			records on awareness training program	Specialist of DSC and PMU		training arranged Awareness program arranged regularly and recorded Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>9</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of materials</li> <li>Verify suitability of all material sources and</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>8</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>9</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		obtain approval of Investment from PMU/DSC							
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Work just started camp established with all facility. Site photo attached as <b>Appendix 2.</b>
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of excess excavated soils</li> <li>Coordinate with KMC</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample attached as <b>Appendix 6</b> ). Original plan for the package available at DSC office Site photo attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		for beneficial uses of excess excavated soils							Appendix 2.
12	Dust and Air Pollution <sup>10</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage. Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipment obtained

<sup>10</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPEs utilized by labours as per requirement. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Water drained from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
15	Water Quality <sup>11</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>11</sup> Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		areas adjacent to the sites.							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation HSE plan available with DSC</p> <p>H &amp; S training arranged for the labours on regular basis. Sample attached as <b>Appendix 5</b>. Drinking water and first aid box</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>safeguards orientation by PMU/PIU</p> <ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Personal protective equipments</li> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>available at site. Use of PPEs – noted-partially. Insurance arranged for the labours Attached as <b>Appendix 7</b></p> <p>No minor accidents happen during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Medical examinations for workers need to be arranged.</p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>12</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Work just started. Caution tape/ barricade placed around excavated area (Ref photo <b>Appendix 2</b> )

<sup>12</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labours are mostly engaged. List of labours are attached as <b>Appendix 10</b>

**Table 8: Compliance to EMP of for the Package - Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-11/2016-17)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Work just started. Site is easily accessible  Traffic Management Plan prepared
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure	<ul style="list-style-type: none"> <li>Schedule of</li> </ul>	-	DSC/PMU	Checking of	Environment	Do	Not required now as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of water supply	closure <ul style="list-style-type: none"> <li>• Delivery of KMC of potable water to affected people</li> </ul>			records Visual observation	Specialist of DSC and PMU		per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and approved from traffic / police dept. <b>Appendix 4</b> shows sample traffic management plan TMP for the specific project available with DSC as back up paper
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>• Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>• Non use of residential area</li> <li>• Arrangement of toilet and drinking water facility</li> <li>• No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied Work just started. Camp constructed with toilet and sanitation facility.
7	Establishing Equipment	<ul style="list-style-type: none"> <li>• Choice of location for equipment lay-down</li> </ul>	List of selected location and facility	Proposed locations	DSC/PMU	Site visit and checking	Environment Specialist of	Before start	Complied Proper storage of fuels,

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Lay-down and Storage Area <sup>13</sup>	<p>and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware</li> </ul>		considered in the package			DSC and PMU	of physical work & Continuous	lubricants done after necessary instruction. Equipment lay-down area to be demarcated

<sup>13</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct <sup>14</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training arranged Awareness program arranged regularly and recorded Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>15</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>14</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>15</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>materials</li> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>							
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Work just started. Camp constructed with all facility
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth disposed completely Spoil management plan applied as per EMP (Sample attached as <b>Appendix 6</b> ) Original available at DSC office. Site photo attached as <b>Appendix 2.</b>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>excess excavated soils</p> <ul style="list-style-type: none"> <li>Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							
12	Dust and Air Pollution <sup>16</sup>	<ul style="list-style-type: none"> <li>Selection of materials storage area</li> <li>Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>No fires are allowed on site</li> <li>Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Location of stockpiles</li> <li>Complaints from sensitive receptors</li> <li>Monitoring data</li> <li>Heavy equipment and machinery with air pollution control</li> <li>Water sprinkling arrangement</li> <li>Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual</li> </ul>	Environment Specialist of DSC and	Do	Complied No as such noise generating problem

<sup>16</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		time <ul style="list-style-type: none"> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>			inspection of sites	PMU		near the project location. PPE utilized by Laboress as per requirement. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied. Storm water drained from construction site.
15	Water	<ul style="list-style-type: none"> <li>Contractor to ensure</li> </ul>	Non entry of pollutant	Project	Contractor	Site	Environment	Do	No water source

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Quality <sup>17</sup>	run-off from vehicle or plant washing does not enter Hooghly river <ul style="list-style-type: none"> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	in water body	Locations		observation	Specialist of DSC and PMU		near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>	Tree felling and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure</li> </ul>	Stockpile management	Stockpile / storage	Contractor	<ul style="list-style-type: none"> <li>Checking</li> </ul>	Environment Specialist of	Do	Complied Stockpiling of

<sup>17</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>stockpiles do not obstruct natural water pathways.</p> <ul style="list-style-type: none"> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>		area		<p>of records</p> <ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	DSC and PMU		materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation HSE plan available with DSC</p> <p>H &amp; S training arranged for the Labores on regular basis. Sample attached as <b>Appendix 5.</b></p> <p>Drinking water and first aid box available at site.</p> <p>Insurance arranged for the Labores. Attached as</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p><b>Appendix 7</b> No accident report during the report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Medical examinations for workers need to be arranged.</p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>18</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Work just started. Caution tape/ barricade placed around excavated area mostly. (Ref photo <b>Appendix 2</b> )

<sup>18</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local laboures are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

**Table 9: Compliance to EMP of for the Package - Laying of Trunk sewer along James Long Sarani by Micro-tunneling method (KEIP/NCB/Tr 2/SD-12/2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Approximately 30 trees need to be felled. Process initiated for getting NOC from Forest Dept.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Site is easily accessible  Traffic Management Plan prepared. Sample attached as <b>Appendix 4.</b>
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Done as per requirement with the help of utility company.
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and approved from traffic / police dept. Original available at DSC office Sample TMP shows in <b>Appendix 4.</b>
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Rented hose arranged for labours with toilet and sanitation facility. (Ref. photo Appendix 2)
7	Establishing Equipment	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down</li> </ul>	List of selected location and facility	Proposed locations	DSC/PMU	Site visit and checking	Environment Specialist of	Before start	Under compliance

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Lay-down and Storage Area <sup>19</sup>	<p>and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware</li> </ul>		considered in the package			DSC and PMU	of physical work & Continuous	Proper storage of fuels, lubricants done. Equipment lay-down area demarcated

<sup>19</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct <sup>20</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training arranged Awareness program arranged regularly and recorded Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>21</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt.</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>20</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>21</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>approved quarry sites for procurement of materials</p> <ul style="list-style-type: none"> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	<p>Contractor documentation</p>						
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied. Rented house arranged for labours with all facility.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Spoil management plan applied as per EMP ( Sample attached as <b>Appendix 6</b> ) and original available with DSC as back up. Site photo attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>Management List</p> <ul style="list-style-type: none"> <li>• Avoid stockpiling of excess excavated soils</li> <li>• Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							Appendix 2.
12	Dust and Air Pollution <sup>22</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under

<sup>22</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPE utilized by labours as per requirement. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>• Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>• Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Arrangement of drainage of waste water from working site - done
15	Water Quality <sup>23</sup>	<ul style="list-style-type: none"> <li>• Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>• Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>• Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>• Contractor to</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied in case of tree felling

<sup>23</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>immediately re-vegetate stripped areas</p> <ul style="list-style-type: none"> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Site-specific Health and Safety (H&S) Plan under implementation HSE plan available with DSC.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• H&amp;S Training for all site personnel</li> <li>• Documentation of work-related accidents;</li> <li>• Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and</li> </ul>	<ul style="list-style-type: none"> <li>workers</li> <li>• Number of accidents</li> <li>• Supplies of potable drinking water;</li> <li>• Record of H&amp;S orientation trainings</li> <li>• Personal protective equipments</li> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>H &amp; S training arranged for the labours on regular basis.</p> <p>Drinking water and first aid box available at site.</p> <p>Insurance arranged for the labours Attached as <b>Appendix 7</b></p> <p>No accident recorded till report period</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Medical Examination was done and sample copy attached as <b>Appendix 9.</b></p> <p>Overall</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>lines, appropriate</p> <ul style="list-style-type: none"> <li>Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>							compliance is satisfactory
19	Social Impacts <sup>24</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area. Safety signage used. (Ref photo <b>Appendix 2</b> )

<sup>24</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> <li>Provide road signs and flag persons to warn</li> <li>Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>Strictly follow the protocol for chance finds in any excavation work</li> <li>Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>The use of labor intensive construction measures will be used where appropriate</li> <li>Employ local (unskilled) labor if possible</li> <li>Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local llabours are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

**Table 10: Development of Sewerage & Drainage Network within James Long Sarani & Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIP/NCB/ Tr-2/SD-13 / 2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Working site is accessible, but improvement required  Traffic Management Plan prepared and available with DSC
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	<p>Complied Traffic management plan prepared and approved from traffic / police dept.</p> <p><b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office</p>
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Rented house arranged with toilet facility, improvement required

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
7	Establishing Equipment Lay-down and Storage Area <sup>25</sup>	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</li> <li>Storage areas shall be secure so as to minimize the risk of crime.</li> <li>Away from school and direct residential areas</li> <li>Fire prevention facilities must be present at all storage facilities</li> <li>Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>These storage facilities (including any tanks) must be on an impermeable</li> </ul>	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Proper storage of fuels, lubricants done. Equipment lay-down area demarcated

<sup>25</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		surface <ul style="list-style-type: none"> <li>Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>							
8	Education of site staff on general and Environmental Conduct <sup>26</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training arranged as Awareness program arranged regularly and recorded as Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>27</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior	Complied Approval obtained from PMU and DSC as per requirement

<sup>26</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>27</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>any work.</p> <ul style="list-style-type: none"> <li>• Use of Govt. approved quarry sites for procurement of materials</li> <li>• Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	<p>necessary.</p> <ul style="list-style-type: none"> <li>• Construction Contractor documentation</li> </ul>					Environmental Scientist	
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>• Train employees in the storage and handling of materials</li> <li>• Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>• Complaints from sensitive Receptors</li> <li>• Water and sanitation facilities for employees</li> <li>• Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Rented house arranged with facility, improvement required. Site photo attached as <b>Appendix 2.</b>
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>• Fencing of storage areas</li> <li>• Disposal of construction debris if any as per mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Management List</li> <li>• Complaints from sensitive receptors</li> <li>• PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of excess excavated soils</li> <li>Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							<p><b>Appendix 4).</b> Original plan available at DSC office Site photo attached as <b>Appendix 2.</b></p>
12	Dust and Air Pollution <sup>28</sup>	<ul style="list-style-type: none"> <li>Selection of materials storage area</li> <li>Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>No fires are allowed on site</li> <li>Carry out air quality</li> </ul>	<ul style="list-style-type: none"> <li>Location of stockpiles</li> <li>Complaints from sensitive receptors</li> <li>Monitoring data</li> <li>Heavy equipment and machinery with air pollution control</li> <li>Water sprinkling arrangement</li> <li>Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under</p>

<sup>28</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		monitoring							Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPE utilized by labours partially. Improvement is required. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>						
15	Water Quality <sup>29</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit</li> </ul>	Tree felling and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>29</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation Complete HSE plan available with DSC</p> <p>H &amp; S training arranged for the labours on regular basis.</p>

Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> <li>accidents; designate a focal person and undertake safeguards orientation by PMU/PIU</li> <li>Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>Ensure availability of First aid box at all working sites and labour camp</li> <li>Provide medical insurance coverage for workers;</li> <li>Provide supplies of potable drinking water at working sites;</li> <li>Provide H&amp;S orientation training to all new workers</li> <li>Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>Disallow worker exposure to noise level greater than 85</li> </ul>	<ul style="list-style-type: none"> <li>potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> <li>Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>Sample attached as <b>Appendix 5</b>. Drinking water and first aid box available at site. Partial use of PPEs – noted. Insurance arranged for the labours. Attached as <b>Appendix 7</b></p> <p>No minor accident happened during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9</b>.</p> <p>Medical examination has been done and attached as <b>Appendix 9</b>.</p> <p>Overall compliance is</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		dBA for a duration of more than 8 hours per day without hearing protection.							satisfactory
19	Social Impacts <sup>30</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area. Improvement is required, particularly inclusion of all emergency contact no. in display board (Ref photo <b>Appendix 2</b> )

<sup>30</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide protective fencing around open trenches</li> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labours are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

**Table 11: Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIP /NCB/ Tr-2/SD-14/ 2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Site is accessible at most of the cases Traffic Management Plan prepared
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and approved from traffic / police dept. <b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Rented house arranged for Labours with toilet facility, improvement required
7	Establishing	<ul style="list-style-type: none"> <li>Choice of location for</li> </ul>	List of selected	Proposed	DSC/PMU	Site visit and	Environment	Before start	Under

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Equipment Lay-down and Storage Area <sup>31</sup>	<p>equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> </ul>	location and facility	locations considered in the package		checking	Specialist of DSC and PMU	of physical work & Continuous	compliance Proper storage of fuels, lubricants done. Equipment lay-down area to be demarcated

<sup>31</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>							
8	Education of site staff on general and Environmental Conduct <sup>32</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training arranged Awareness program arranged regularly and recorded Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>33</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager, Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>32</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>33</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Use of Govt. approved quarry sites for procurement of materials</li> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	<ul style="list-style-type: none"> <li>Construction Contractor documentation</li> </ul>						
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Rented house arranged for labours. Improvement of arrangement required. Site photo attached as <b>Appendix 2</b> .
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample Attached as <b>Appendix 6</b> ).

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		implement Waste Management List <ul style="list-style-type: none"> <li>• Avoid stockpiling of excess excavated soils</li> <li>• Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							Original plan available at DSC office Site photo attached as <b>Appendix 2.</b>
12	Dust and Air Pollution <sup>34</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper).

<sup>34</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPE utilized by labours-partially. Improvement is required. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		generated at construction site	and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies			inspection of sites			
15	Water Quality <sup>35</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>35</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>areas</p> <ul style="list-style-type: none"> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied partially Stockpiling of materials done at designated areas. Sometime materials spread over road. Improvement is required.
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Site-specific Health and Safety (H&S) Plan under implementation. Original HSE. Plan available with DSC H & S training arranged for the labours on

Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	<ul style="list-style-type: none"> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> <li>Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>Ensure availability of First aid box at all working sites and labour camp</li> <li>Provide medical insurance coverage for workers;</li> <li>Provide supplies of potable drinking water at working sites;</li> <li>Provide H&amp;S orientation training to all new workers</li> <li>Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>Disallow worker</li> </ul>	<ul style="list-style-type: none"> <li>accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> <li>Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>regular basis. Sample attached as <b>Appendix 5</b>. Drinking water and first aid box available at site. Partial use of PPE – noted. Insurance arranged for the labours. Attached as <b>Appendix 7</b></p> <p>No minor accident happens during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9</b>. Medical examination report is included in <b>Appendix 9</b>.</p> <p>Overall</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.							compliance is satisfactory
19	Social Impacts <sup>36</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area mostly. Access maintained mostly. (Ref photo <b>Appendix 2</b> )

<sup>36</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> <li>Provide road signs and flag persons to warn</li> <li>Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>Strictly follow the protocol for chance finds in any excavation work</li> <li>Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>The use of labor intensive construction measures will be used where appropriate</li> <li>Employ local (unskilled) labor if possible</li> <li>Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labours are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

**Table 12: Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in Joka & adjoining areas including operation & maintenance of the pumping station (KEIP/NCB/ Tr-2/WS-15 / 2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Site is accessible, but improvement required near labour camp at Prantik and Julpia Site photo attached as <b>Appendix 2</b> . Traffic Management Plan not required
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Isolated location of reservoir sites. Traffic management plan not required
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance. Camp with all facility available Improvement of housekeeping is required.
7	Establishing Equipment Lay-down and Storage Area <sup>37</sup>	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down and storage areas must take into account prevailing</li> </ul>	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Proper storage of fuels, lubricants done

<sup>37</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>							after necessary instruction. Equipment lay-down area demarcated but improvement/ proper arrangement required
8	Education of site staff on	<ul style="list-style-type: none"> <li>• Ensure that all site personnel have a</li> </ul>	Documentation – Training and	-	DSC/PMU	Materials and records	Environment Specialist of	-	Site Safety training

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	general and Environmental Conduct <sup>38</sup>	basic level of environmental awareness training <ul style="list-style-type: none"> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	awareness			on awareness training program	DSC and PMU		arranged Awareness program arranged regularly and recorded Sample training document attached as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>39</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of materials</li> <li>Verify suitability of all material sources and obtain approval of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager,. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>38</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>39</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		Investment from PMU/DSC							
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Camp constructed. Improvement required for access and housekeeping at camp. Site photo attached as <b>Appendix 2</b> .
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of excess excavated soils</li> <li>Coordinate with KMC</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Excess earth need to be utilized completely at reservoir locations. Spoil management plan applied as per EMP (Sample Attached as <b>Appendix 6</b> ). Original plan available at DSC office. Site photo attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		for beneficial uses of excess excavated soils							<b>Appendix 2.</b>
12	Dust and Air Pollution <sup>40</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied of Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipment obtained

<sup>40</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPE utilized by labours partially. Improvement is required. During construction monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages (in slope) leading</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharged mostly from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			to water bodies						
15	Water Quality <sup>41</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>41</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		sites.							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation HSE plan available with DSC.</p> <p>H &amp; S training arranged for the labours on regular basis. Sample attached as <b>Appendix 5</b>. Drinking water and first aid box available at</p>

Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	<p>orientation by PMU/PIU</p> <ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<p>protective equipments</p> <ul style="list-style-type: none"> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>site.</p> <p>Insurance arranged for the labours Attached as <b>Appendix 7</b></p> <p>Sample copy of first aid record in attached as <b>Appendix 8.</b></p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Medical examination report is also attached as <b>Appendix 9.</b> Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>42</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade provided at working sites and as per requirement.

<sup>42</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labours are mostly engaged. List of labours are attached as <b>Appendix 10</b>

**Table 13: Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIP/NCB/Tr 2/WS 16/2015-16)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Working site is accessible. Proper maintaining of access required at narrow lane area. Traffic Management Plan prepared and available with DSC
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	<p>Complied Traffic management plan prepared and approved from traffic / police dept.</p> <p><b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office</p>
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Rented house arranged with toilet facility.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
7	Establishing Equipment Lay-down and Storage Area <sup>43</sup>	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</li> <li>Storage areas shall be secure so as to minimize the risk of crime.</li> <li>Away from school and direct residential areas</li> <li>Fire prevention facilities must be present at all storage facilities</li> <li>Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>These storage facilities (including any tanks) must be on an impermeable</li> </ul>	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Proper storage of fuels, lubricants done. Equipment lay-down area demarcated

<sup>43</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		surface <ul style="list-style-type: none"> <li>Staff must be aware of their potential impacts and follow the appropriate safety measures</li> </ul>							
8	Education of site staff on general and Environmental Conduct <sup>44</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training arranged regularly and recorded as <b>Appendix 5</b>
<b>Construction</b>									
9	Materials Management – Sourcing <sup>45</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmenta	Complied Approval obtained from PMU and DSC as per requirement

<sup>44</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>45</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		any work. <ul style="list-style-type: none"> <li>• Use of Govt. approved quarry sites for procurement of materials</li> <li>• Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	necessary. <ul style="list-style-type: none"> <li>• Construction Contractor documentation</li> </ul>					I Scientist	
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>• Train employees in the storage and handling of materials</li> <li>• Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>• Complaints from sensitive Receptors</li> <li>• Water and sanitation facilities for employees</li> <li>• Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Rented house arranged with facility.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>• Fencing of storage areas</li> <li>• Disposal of construction debris if any as per mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Management List</li> <li>• Complaints from sensitive receptors</li> <li>• PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample Attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of excess excavated soils</li> <li>Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							<b>Appendix 6).</b> Original plan available at DSC office Site photo attached as <b>Appendix 2.</b>
12	Dust and Air Pollution <sup>46</sup>	<ul style="list-style-type: none"> <li>Selection of materials storage area</li> <li>Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>No fires are allowed on site</li> <li>Carry out air quality</li> </ul>	<ul style="list-style-type: none"> <li>Location of stockpiles</li> <li>Complaints from sensitive receptors</li> <li>Monitoring data</li> <li>Heavy equipment and machinery with air pollution control</li> <li>Water sprinkling arrangement</li> <li>Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement Base line air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper).

<sup>46</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		monitoring							Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Except sand blasting unit no as such noise generating problem near the project location. PPE utilized by Laborers at noise producing area. Base line noise level monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspectio</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		site	materials <ul style="list-style-type: none"> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>			n of sites			
15	Water Quality <sup>47</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>47</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas. Site photo <b>Appendix 2.</b>
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation Complete HSE plan available with DSC</p> <p>H &amp; S training arranged for the Laborers on</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>work-related accidents;</p> <ul style="list-style-type: none"> <li>• Designate a focal person and undertake safeguards orientation by PMU/PIU</li> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise</li> </ul>	<ul style="list-style-type: none"> <li>• Supplies of potable drinking water;</li> <li>• Record of H&amp;S orientation trainings</li> <li>• Personal protective equipments</li> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>regular basis. Sample attached as <b>Appendix 5.</b></p> <p>Drinking water and first aid box available at site.</p> <p>Use of PPE by workers - noted Insurance arranged for the labours.. Attached as <b>Appendix 7</b></p> <p>No minor accident happened during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Work just started medical examination to be done shortly.</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.							Overall compliance is satisfactory
19	Social Impacts <sup>48</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area. Improvement is required, particularly inclusion of all emergency contact no. (Ref photo <b>Appendix 2</b> )

<sup>48</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		lighting on the construction site <ul style="list-style-type: none"> <li>• Provide protective fencing around open trenches</li> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present outside labours are mostly engaged. List of labours are attached as <b>Appendix 10</b> . Instruction has been given for engaging of local labours

**Table 14: Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIP/Tr 2/WS 17A/2016-17)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Work just started. Working site is accessible, but improvement required at narrow lane area Traffic Management Plan prepared and available with DSC
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Work just started. Not required till date
4	Water supply	Health risk due to closure	<ul style="list-style-type: none"> <li>Schedule of</li> </ul>	-	DSC/PMU	Checking of	Environment	Do	Not required

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of water supply	closure <ul style="list-style-type: none"> <li>• Delivery of KMC of potable water to affected people</li> </ul>			records Visual observation	Specialist of DSC and PMU		now as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and to be approved  <b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>• Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>• Non use of residential area</li> <li>• Arrangement of toilet and drinking water facility</li> <li>• No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Rented house arranged with toilet facility.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
7	Establishing Equipment Lay-down and Storage Area <sup>49</sup>	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</li> <li>Storage areas shall be secure so as to minimize the risk of crime.</li> <li>Away from school and direct residential areas</li> <li>Fire prevention facilities must be present at all storage facilities</li> <li>Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>These storage facilities (including any tanks) must be on an impermeable</li> </ul>	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Proper storage of fuels, lubricants done. Equipment lay-down area to be demarcated

<sup>49</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		surface • Staff must be aware of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct <sup>50</sup>	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Work just started. Site Safety training to be arranged
<b>Construction</b>									
9	Materials Management – Sourcing <sup>51</sup>	• Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. • Use of Govt.	• List of approved quarry sites and sources of materials • Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. • Construction	Quarries and material source areas	Contractor	• Checkin g of records • Visual inspectio n of sites	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>50</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>51</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>approved quarry sites for procurement of materials</p> <ul style="list-style-type: none"> <li>• Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>	<p>Contractor documentation</p>						
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>• Train employees in the storage and handling of materials</li> <li>• Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>• Complaints from sensitive Receptors</li> <li>• Water and sanitation facilities for employees</li> <li>• Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Rented house arranged with facility.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>• Fencing of storage areas</li> <li>• Disposal of construction debris if any as per mitigation measures</li> <li>• Prepare and implement Waste</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Management List</li> <li>• Complaints from sensitive receptors</li> <li>• PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample Attached as <b>Appendix 6</b> ). Original plan

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>Management List</p> <ul style="list-style-type: none"> <li>• Avoid stockpiling of excess excavated soils</li> <li>• Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							available at DSC office Site photo attached as <b>Appendix 2.</b>
12	Dust and Air Pollution <sup>52</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material-Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement Base line air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and

<sup>52</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day time</li> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem near the project location. PPE utilized by labours at noise producing area. Base line noise level monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			(in slope) leading to water bodies						
15	Water Quality <sup>53</sup>	<ul style="list-style-type: none"> <li>Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river</li> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.

<sup>53</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		any other natural material on-site or in areas adjacent to the sites.							
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure stockpiles do not obstruct natural water pathways.</li> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas.
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation Complete HSE plan available with DSC</p> <p>H &amp; S training to be arranged shortly. Drinking water and first aid box available at site. Use of PPE by</p>

Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	<p>person and undertake safeguards orientation by PMU/PIU</p> <ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing</li> </ul>	<p>orientation trainings</p> <ul style="list-style-type: none"> <li>• Personal protective equipments</li> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>workers - noted Insurance arranged for the labours Attached as <b>Appendix 7</b></p> <p>No minor accident happened during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Work just started medical examination to be done shortly.</p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		protection.							
19	Social Impacts <sup>54</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area Improvement is required, particularly inclusion of all emergency contact no. (Ref photo <b>Appendix 2</b> )

<sup>54</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		trenches <ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Local labours are mostly engaged. List of labours are attached as <b>Appendix 10</b>

**Table 15: Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIP/Tr 2/WS 17B/2016-17)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Work just started. Working site is accessible. Traffic Management Plan prepared and available with DSC
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Work just started. Not required till date

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> <li>Delivery of KMC of potable water to affected people</li> </ul>	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Not required now as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied Traffic management plan prepared and to be approved  <b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Rented house arranged with toilet facility.
7	Establishing Equipment	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down</li> </ul>	List of selected location and facility	Proposed locations	DSC/PMU	Site visit and checking	Environment Specialist of	Before start of	Under compliance Proper storage of

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Lay-down and Storage Area <sup>55</sup>	<p>and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware</li> </ul>		considered in the package			DSC and PMU	physical work & Continuous	fuels, lubricants done. Equipment lay-down area to be demarcated

<sup>55</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct <sup>56</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Work just started. Site Safety training to be arranged
<b>Construction</b>									
9	Materials Management – Sourcing <sup>57</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>56</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>57</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>materials</li> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>							
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Rented house arranged with facility.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample Attached as <b>Appendix 6</b> ). Original plan available at DSC office Site photo attached as <b>Appendix 2</b> .

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>excess excavated soils</li> <li>Coordinate with KMC for beneficial uses of excess excavated soils</li> </ul>							
12	Dust and Air Pollution <sup>58</sup>	<ul style="list-style-type: none"> <li>Selection of materials storage area</li> <li>Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>Use tarpaulins to cover sand and other loose material- Reducing dust hazard</li> <li>All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>No fires are allowed on site</li> <li>Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>Location of stockpiles</li> <li>Complaints from sensitive receptors</li> <li>Monitoring data</li> <li>Heavy equipment and machinery with air pollution control</li> <li>Water sprinkling arrangement</li> <li>Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement Base line air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>Noise producing work needs to be conducted at day</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive receptors</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating problem

<sup>58</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		time • Regular maintenance of noise producing equipment • Require horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations enclosures provided around generator set or other noise producing machinery.	• Use of silencers in noise-producing equipment and sound barriers • Monitoring data			• Visual inspection of sites			near the project location. PPE utilized by labours at noise producing area. Base line noise level monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	• Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.
15	Water	• Contractor to ensure	Non entry of pollutant	Project	Contractor	Site	Environment	Do	No water source

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Quality <sup>59</sup>	run-off from vehicle or plant washing does not enter Hooghly river <ul style="list-style-type: none"> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	in water body	Locations		observation	Specialist of DSC and PMU		near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>	Tree felling and after requirement afforestation final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure</li> </ul>	Stockpile management	Stockpile / storage	Contractor	<ul style="list-style-type: none"> <li>Checkin</li> </ul>	Environment Specialist of	Do	Complied Stockpiling of

<sup>59</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>stockpiles do not obstruct natural water pathways.</p> <ul style="list-style-type: none"> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>		area		<p>g of records</p> <ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	DSC and PMU		materials done at designated areas.
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation Complete HSE plan available with DSC</p> <p>H &amp; S training to be arranged shortly. Drinking water and first aid box available at site. Use of PPE by workers - noted Insurance arranged for the Laborers. Attached as <b>Appendix 7</b></p> <p>No minor accident happened during</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9</b>. Work just started medical examination to be done shortly.</p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>60</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area. Improvement is required, particularly inclusion of all emergency contact no. (Ref photo <b>Appendix 2</b> )

<sup>60</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local laborers are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

**Table 16: Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIP/NCB/Tr 2/WS 18/ 2016-17)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
<b>Pre Construction - Design phase</b>									
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> <li>Tree felling requirement – site environment plan</li> <li>NOC – paper documents from line agency</li> </ul>	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required.
2	Access to Site	<ul style="list-style-type: none"> <li>Access to site will be via existing roads</li> <li>Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure</li> </ul>	<ul style="list-style-type: none"> <li>Involvement of traffic dept.</li> <li>Road closure planning</li> </ul>	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Work just started. Working site is accessible. Traffic Management Plan prepared and available with DSC
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> <li>List of affected utilities if any and operators</li> <li>Bid document to include requirement for a contingency plan for service interruptions</li> </ul>	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Work just started. Not required till date
4	Water supply	Health risk due to closure of water supply	<ul style="list-style-type: none"> <li>Schedule of closure</li> </ul>	-	DSC/PMU	Checking of records	Environment Specialist of	Do	Not required now as per present

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			<ul style="list-style-type: none"> <li>Delivery of KMC of potable water to affected people</li> </ul>			Visual observation	DSC and PMU		nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	<p>Complied Traffic management plan prepared and to be approved</p> <p><b>Appendix 4</b> shows sample traffic management plan. Original plan available at DSC office</p>
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> <li>Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas</li> <li>Prioritize areas within or nearest possible vacant space in the subproject location</li> <li>Non use of residential area</li> <li>Arrangement of toilet and drinking water facility</li> <li>No disposal of waste in water</li> </ul>	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Temporary camp established at reservoir site and toilet under construction.
7	Establishing Equipment	<ul style="list-style-type: none"> <li>Choice of location for equipment lay-down</li> </ul>	List of selected location and facility	Proposed locations	DSC/PMU	Site visit and checking	Environment Specialist of	Before start of	Under compliance Proper storage of

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Lay-down and Storage Area <sup>61</sup>	<p>and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.</p> <ul style="list-style-type: none"> <li>• Storage areas shall be secure so as to minimize the risk of crime.</li> <li>• Away from school and direct residential areas</li> <li>• Fire prevention facilities must be present at all storage facilities</li> <li>• Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials</li> <li>• These storage facilities (including any tanks) must be on an impermeable surface</li> <li>• Staff must be aware</li> </ul>		considered in the package			DSC and PMU	physical work & Continuous	fuels, lubricants done. Equipment lay-down area to be demarcated

<sup>61</sup> Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct <sup>62</sup>	<ul style="list-style-type: none"> <li>Ensure that all site personnel have a basic level of environmental awareness training</li> <li>All employees must undergo safety training and wear the necessary protective clothing</li> </ul>	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Work just started. Site Safety training arranged
<b>Construction</b>									
9	Materials Management – Sourcing <sup>63</sup>	<ul style="list-style-type: none"> <li>Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work.</li> <li>Use of Govt. approved quarry sites for procurement of</li> </ul>	<ul style="list-style-type: none"> <li>List of approved quarry sites and sources of materials</li> <li>Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</li> <li>Construction Contractor documentation</li> </ul>	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager. Fortnight visit by Environment Specialist / Junior Environmental Scientist	Complied Approval obtained from PMU and DSC as per requirement

<sup>62</sup> These points need to be made clear to all staff on site before the subproject begin.

<sup>63</sup> Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>materials</li> <li>Verify suitability of all material sources and obtain approval of Investment from PMU/DSC</li> </ul>							
10	Maintenance of Construction Camp	<ul style="list-style-type: none"> <li>Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement</li> <li>Train employees in the storage and handling of materials</li> <li>Remove all wreckage, rubbish, or temporary structures</li> </ul>	<ul style="list-style-type: none"> <li>Complaints from sensitive Receptors</li> <li>Water and sanitation facilities for employees</li> <li>Housekeeping – regular disposal of solid waste</li> </ul>	Camp site	Contractor	<ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance. Temporary camp established at reservoir site and toilet under construction.
11	Landscape and Aesthetics	<ul style="list-style-type: none"> <li>Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures</li> <li>Fencing of storage areas</li> <li>Disposal of construction debris if any as per mitigation measures</li> <li>Prepare and implement Waste Management List</li> <li>Avoid stockpiling of</li> </ul>	<ul style="list-style-type: none"> <li>Waste Management List</li> <li>Complaints from sensitive receptors</li> <li>PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Under compliance Excess earth need to be disposed completely, at earliest. Spoil management plan applied as per EMP (Sample Attached as <b>Appendix 6</b> ). Original plan available at DSC office Site photo attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils							Appendix 2.
12	Dust and Air Pollution <sup>64</sup>	<ul style="list-style-type: none"> <li>• Selection of materials storage area</li> <li>• Water sprinkling at construction site for arresting dust (if any during dry period)</li> <li>• Use tarpaulins to cover sand and other loose material-Reducing dust hazard</li> <li>• All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification</li> <li>• No fires are allowed on site</li> <li>• Carry out air quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Location of stockpiles</li> <li>• Complaints from sensitive receptors</li> <li>• Monitoring data</li> <li>• Heavy equipment and machinery with air pollution control</li> <li>• Water sprinkling arrangement</li> <li>• Cover materials</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials considered for storage Water sprinkling done as per requirement Base line air quality monitoring done as per EMP. (Complete Result certificates available in DSC office as back up paper). Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	<ul style="list-style-type: none"> <li>• Noise producing work needs to be conducted at day</li> </ul>	<ul style="list-style-type: none"> <li>• Complaints from sensitive receptors</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual</li> </ul>	Environment Specialist of DSC and PMU	Do	Complied No as such noise generating

<sup>64</sup> Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		time <ul style="list-style-type: none"> <li>Regular maintenance of noise producing equipment</li> <li>Require horns not be used unless it is necessary to warn other road users</li> <li>Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s</li> <li>At sensitive locations enclosures provided around generator set or other noise producing machinery.</li> </ul>	<ul style="list-style-type: none"> <li>Use of silencers in noise-producing equipment and sound barriers</li> <li>Monitoring data</li> </ul>			inspection of sites			problem near the project location. PPE utilized by labours at noise producing area. Base line noise level monitoring was done. Monitoring will be continued as per EMP. (Complete Result certificates available in DSC office as back up paper).
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	<ul style="list-style-type: none"> <li>Areas for stockpiles, storage of fuels and lubricants and waste materials</li> <li>Number of silt traps installed along drainages (in slope) leading to water bodies</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	Waste water discharge from construction site.
15	Water	<ul style="list-style-type: none"> <li>Contractor to ensure</li> </ul>	Non entry of pollutant	Project	Contractor	Site	Environment	Do	No water source

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Quality <sup>65</sup>	run-off from vehicle or plant washing does not enter Hooghly river <ul style="list-style-type: none"> <li>Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.</li> </ul>	in water body	Locations		observation	Specialist of DSC and PMU		near the construction location
16	Conservation of Natural Environment	<ul style="list-style-type: none"> <li>Contractor to ensure only trees that have been marked beforehand are to be removed</li> <li>Contractor to immediately re-vegetate stripped areas</li> <li>Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.</li> </ul>	Tree felling requirement and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.
17	Materials Management	<ul style="list-style-type: none"> <li>Contractor to ensure</li> </ul>	Stockpile management	Stockpile / storage	Contractor	<ul style="list-style-type: none"> <li>Checking</li> </ul>	Environment Specialist of	Do	Complied Stockpiling of

<sup>65</sup>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<p>stockpiles do not obstruct natural water pathways.</p> <ul style="list-style-type: none"> <li>Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps.</li> <li>Contractor to ensure all concrete mixing take place on a designated, impermeable surface.</li> </ul>		area		<p>of records</p> <ul style="list-style-type: none"> <li>Visual inspection of sites</li> </ul>	DSC and PMU		materials done at designated areas.
18	Occupational Health & safety	<ul style="list-style-type: none"> <li>Develop and implement site-specific Health and Safety (H&amp;S) Plan</li> <li>Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs</li> <li>H&amp;S Training for all site personnel</li> <li>Documentation of work-related accidents;</li> <li>Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU</li> </ul>	<ul style="list-style-type: none"> <li>Site-specific Health and Safety (H&amp;S) Plan</li> <li>Equipped first-aid stations;</li> <li>Medical insurance coverage for workers</li> <li>Number of accidents</li> <li>Supplies of potable drinking water;</li> <li>Record of H&amp;S orientation trainings</li> <li>Personal protective equipments</li> </ul>	Project Locations	Contractor	<ul style="list-style-type: none"> <li>Checking of records</li> <li>Visual inspection of sites</li> </ul>	Environment Specialist of DSC and PMU	Do	<p>Site-specific Health and Safety (H&amp;S) Plan under implementation Complete HSE plan available with DSC</p> <p>H &amp; S training arranged for the workers. Sample copy attached as <b>Appendix 5</b> Drinking water and first aid box available at site. Use of PPE by workers - noted Insurance arranged for the labours.</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide specific guidance for suitable PPE for every on-site work assignment</li> <li>• Ensure availability of First aid box at all working sites and labour camp</li> <li>• Provide medical insurance coverage for workers;</li> <li>• Provide supplies of potable drinking water at working sites;</li> <li>• Provide H&amp;S orientation training to all new workers</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> </ul>	<ul style="list-style-type: none"> <li>• Sign boards for hazardous areas such as energized electrical devices and lines, service rooms</li> </ul>						<p>Attached as <b>Appendix 7</b></p> <p>No minor accident happened during report period.</p> <p>Tie up letter with nearby health center in case of emergency attached as <b>Appendix 9.</b> Work just started medical examination to be done shortly.</p> <p>Overall compliance is satisfactory</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts <sup>66</sup> - Community Health & safety, accessibility	<ul style="list-style-type: none"> <li>Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites</li> <li>Contractor to ensure disruption of access for local residents is minimized</li> <li>Contractor to restrict activities and movement of staff to designated construction areas</li> <li>Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles</li> <li>Consideration of public safety - as per prescribed mitigation measures</li> <li>Contractors to ensure lighting on the construction site</li> <li>Provide protective fencing around open trenches</li> </ul>	<ul style="list-style-type: none"> <li>Traffic Management Strategy</li> <li>Complaints from sensitive receptors</li> <li>Number of signages placed at subproject location</li> </ul>	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Caution tape/ barricade placed around excavated area. Improvement is required, particularly inclusion of all emergency contact no. (Ref photo <b>Appendix 2</b> )

<sup>66</sup> Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> <li>• Provide road signs and flag persons to warn</li> <li>• Schedule transport and hauling activities during non- peak hours</li> </ul>							
20	Socio cultural resources	<ul style="list-style-type: none"> <li>• Strictly follow the protocol for chance finds in any excavation work</li> <li>• Stop work immediately to allow further investigation if any finds are suspected</li> </ul>	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	<ul style="list-style-type: none"> <li>• The use of labor intensive construction measures will be used where appropriate</li> <li>• Employ local (unskilled) labor if possible</li> <li>• Training of labor to benefit individuals beyond completion of the subproject</li> </ul>	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present mostly local labours are mostly engaged. List of laborers are attached as <b>Appendix 10</b>

## V. ENVIRONMENTAL MONITORING AND EVALUATION

24. In addition to desk reviews and site inspections, monitoring of selected environmental parameters have been conducted during the reporting period. The frequencies of the environmental monitoring activities are commensurate to the type and significance of the impacts. For **Tranche 2** subprojects, the parameters to be monitored are ambient air quality and noise levels.

25. During the report period, base line monitoring has been conducted for different packages. During construction air quality monitoring will be done for all the packages during next report period. Monitoring and health safety budget of contractor is shown in **Appendix 11**.

26. Base line air quality monitoring results are shown in **Table 17** below. All test certificates are available in DSC office as back up paper.

27. Salient findings from air quality monitoring are as follows,

- In all cases concentration of SO<sub>2</sub> is within the prescribed standard. Value of SO<sub>2</sub> was maximum (17.18 µg/m<sup>3</sup>) at KEIIP/NCB/ Tr-2/SD-12 / 2015-16 package location.
- In all cases concentration of NO<sub>x</sub> is within the prescribed standard. Like SO<sub>2</sub> concentration of NO<sub>x</sub> was also maximum (50.34 µg/m<sup>3</sup>) at KEIIP/NCB/ Tr-2/SD-12 / 2015-16 package location.
- In most of the cases concentration of PM<sub>2.5</sub> is within the prescribed standard. At few locations (only 3 cases) PM<sub>2.5</sub> is above the standard. Maximum concentration of 71 µg/m<sup>3</sup> is noted for the package KEIIP/NCB/ Tr-2/SD-13 / 2015-16. For understanding increasing or decreasing trend monitoring will be conducted throughout the construction phase.
- In most of the cases concentration of PM<sub>10</sub> is within the prescribed standard. At few locations (only 4 cases) PM<sub>10</sub> is above the standard. Maximum concentration of 135 µg/m<sup>3</sup> is noted for the package KEIIP/NCB/ Tr-2/SD-13 / 2015-16. For understanding increasing or decreasing trend monitoring will be conducted throughout the construction phase.
- In overall, base line monitoring air quality parameters (specifically particulate matter) are comparatively higher and above the standard for few packages. Those are basically generation of dust at local area.
- In all the cases concentration of Hydrocarbon is below the detection limit

28. Contractors are being advised regularly to take necessary action on dust suppression (during dry periods) by sprinkling of water whenever required.

**Table 17: Ambient Air Quality Monitoring Data at working sites**

	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	HC µg/m <sup>3</sup>
Construction of sewerage & drainage network in Thakurpara & Purba Putiary Catchment and Construction of Keorapukur PS in Ward 114, Borough XI including Operation &	Keorapukur Pumping Station	Base line	03.06.17.	15.43	43.30	31.29	83.87	ND
	Natun Pally Dhalai Bridge Road	Base line	03.06.17.	16.40	45.03	33.79	89.46	ND
		<b>Average Base line</b>		<b>15.91</b>	<b>44.16</b>	<b>32.54</b>	<b>86.66</b>	<b>ND</b>

	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	HC µg/m <sup>3</sup>
Maintenance of the Pumping Station (KEIIP /NCB/ Tr-2/SD-09/ 2016-17)	Keorapukur Canal side road*	During Construction*	24.10.17	12.21	24.91	24.94	71.35	ND
Sewerage and drainage network in Rania Box Catchment ( Part of Ward 111, 112 & 113) in Borough XI(KEIIP /NCB/ Tr-2/SD-10/ 2015-16)	I No. Congress Pally Road (Zone 1A)	Base line	04.05.17	15.10	44.94	32.42	76.15	ND
	SBI Battala, Nath Para (Zone 3A)	Base line	04.05.17	15.89	44.34	29.93	72.42	ND
		Average Base line		15.49	44.64	31.17	74.28	ND
	H. L. Sarkar Road*	During Construction*	09.11.17	17.11	49.25	36.24	87.25	ND
	Nath Para*	During Construction*	09.11.17	16.05	45.11	31.15	78.25	ND
	Kheali Sangha*	During Construction*	09.11.17	15.87	46.27	30.28	75.44	ND
	Average During Construction*		16.34	46.87	32.55	80.31	ND	
Sewerage and drainage network in Vivekananda Road Catchment (Part of Ward 113 & 114)and construction of a Pumping Station in Borough XI including Operation and maintenance of the Pumping Station(KEIIP/NCB/TR-2/SD11/2016-17)	Bandipur Road(Zone 1A)	Base line	04.05.17	17.26	49.43	62.34	126.24	ND
	Bandipur Road near Chakda high school*	During Construction*	10.11.17	17.11	50.27	67.14	116.25	ND
	Niranjan Pally*	During Construction*	10.11.17	16.29	46.47	30.19	71.27	ND
	Sonali Park*	During Construction*	10.11.17	17.04	47.11	29.41	79.47	ND
		Average During Construction*		16.81	47.95	42.24	88.99	ND
Laying of Trunk sewer along James Long Sarani by micro tunneling method (KEIIP/NCB/ Tr-2/SD-12 / 2015-16)	M.G. Road & James Long Sarani, Shaft No. 18, JLS MTA (1416 At Project)	Base line	11.06.17	13.50	49.36	24.94	76.24	ND
	Shaft no. 17, James Long Sarani*	During Construction*	09.12.17	15.03	50.34	27.43	91.02	ND
	Shaft no. 21 A, James Long Sarani*	During Construction*	09.12.17	17.18	48.25	29.93	91.52	ND
		Average During Construction*		16.10	49.29	28.68	91.27	ND
Development of Sewerage & Drainage Network within James Long Sarani& Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIIP/NCB/ Tr-2/SD-13 / 2015-16)	Viveekananda College Road, Gour Nagar	Base line	29.05.17	6.1	37.8	35.0	83.0	ND
	Janakalyan, Behala*	During Construction*	18.12.17	9.1	41.7	71	135	ND

	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	HC µg/m <sup>3</sup>
Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Dr. A.K. Pal Road	Base line	29.05.17	5.3	33.7	26.0	69.0	ND
	<b>Parnasree, Behala*</b>	<b>Under construction*</b>	<b>18.12.17</b>	<b>10.1</b>	<b>39.6</b>	<b>63</b>	<b>121</b>	<b>ND</b>
Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in Joka & adjoining areas including operation & maintenance of the pumping station (KEIIP/NCB/ Tr-2/WS-15 / 2015-16)	Prantik Phase 3	Base line	29.03.17	14.47	38.97	32.50	79.03	ND
	Julpia	Base line	27.02.17	13.50	40.70	30.04	71.58	ND
		<b>Average Base line</b>		<b>13.98</b>	<b>39.83</b>	<b>31.27</b>	<b>75.30</b>	<b>ND</b>
	<b>Prantik Phase V.B, UG Reservoir*</b>	<b>During Construction*</b>	<b>28.12.17</b>	<b>14.33</b>	<b>30.43</b>	<b>23.34</b>	<b>68.33</b>	<b>ND</b>
	<b>Dhalipara, N.E. OH reservoir*</b>	<b>During Construction*</b>	<b>28.12.17</b>	<b>15.64</b>	<b>29.30</b>	<b>25.93</b>	<b>71.35</b>	<b>ND</b>
	<b>Joka site OH Reservoir*</b>	<b>During Construction*</b>	<b>28.12.17</b>	<b>14.33</b>	<b>32.68</b>	<b>25.99</b>	<b>73.11</b>	<b>ND</b>
		<b>Average During Construction*</b>		<b>14.77</b>	<b>20.13</b>	<b>25.09</b>	<b>70.93</b>	<b>ND</b>
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIIP/NCB/Tr 2/WS 16/2015-16)	<b>Kabardanga stack yard*</b>	<b>Base line*</b>	<b>08.11.17</b>	<b>12.47</b>	<b>16.61</b>	<b>24.94</b>	<b>73.68</b>	<b>ND</b>
	<b>Near Churial Canal*</b>	<b>Base line*</b>	<b>08.11.17</b>	<b>10.39</b>	<b>17.53</b>	<b>21.20</b>	<b>65.40</b>	<b>ND</b>
		<b>Average Base line*</b>		<b>11.43</b>	<b>17.07</b>	<b>23.07</b>	<b>69.54</b>	<b>ND</b>
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIIP/Tr 2/WS 17A/2016-17)	<b>Kalitola Road*</b>	<b>Base line*</b>	<b>26.12.17</b>	<b>9.8</b>	<b>38.5</b>	<b>54</b>	<b>112</b>	<b>ND</b>
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR	<b>Satyn Park*</b>	<b>Base line*</b>	<b>26.12.17</b>	<b>10.6</b>	<b>40.2</b>	<b>49</b>	<b>92</b>	<b>ND</b>

	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	PM <sub>2.5</sub> µg/m <sup>3</sup>	PM <sub>10</sub> µg/m <sup>3</sup>	HC µg/m <sup>3</sup>
at Diamond Park (KEIIP/Tr 17B/2016-17)								
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantapur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/2016-17)	Malpara ESR*	Base line*	08.11.17	11.10	17.96	27.43	71.33	ND
	Charaktala ESR*	Base line*	08.11.17	11.33	17.53	22.41	71.03	ND
	Ramkantapur ESR*	Base line*	08.11.17	7.25	14.88	21.58	57.25	ND
		Average Base line*		9.89	16.79	23.8	66.54	ND
Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS (KEIIP/NCB/Tr 2/SD-19/2016-17)	Keorapukur, Tollygunj*	Base line*	26.12.17	8.9	42.6	56	129	ND
<b>Standard</b>				<b>80.0</b>	<b>80.0</b>	<b>60.0</b>	<b>100.0</b>	

ESR- Elevated Storage Reservoir

Note- (i) In linear pipeline construction, base line air quality data have been calculated as the average air quality status of the project working area from monitoring at 3 to 4 stations before commencement of the construction work of the package as a whole. This provides a rational basis for comparison of monitored data during construction with the average baseline data as calculated.

(ii) In linear pipe laying packages the activity locations (sinking of shaft, site camp office, deployment of equipment etc.) shifted as construction work progressed from one site to another. Air quality sampling locations shifted accordingly. Location at which construction is complete is abandoned for new stations where construction has commenced.

29. Base line and during construction ambient noise level data are presented in **Table 18**. During construction average noise level is above the standard at all the monitoring locations except for KEIIP /NCB/ Tr-2/SD-14/ 2015-16.

30. Noise level (base line) is higher at working locations of packages KEIIP/NCB/Tr 2/WS 16/2015-16 and KEIIP/NCB/Tr 2/SD-19/ 2016-17(marginally). At other sites base line noise level values are within the standard for commercial/ Residential area. In all the cases mitigation measures need to be applied as per site specific EMP. Particularly use of ear plugs by workers at high noise producing area is necessary. It is ensured that the contractors will strictly implement the action plan as per EMP for reduction of noise level and minimization of noise impact.

**Table 18: Noise Level Monitoring Data at Working Sites**

Package	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
Construction of sewerage & drainage network in Thakurpara & Purba Putiary Catchment and Construction of Keorapukur PS in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIIP /NCB/ Tr-2/SD-09/ 2016-17)	Keorapukur Pumping Station- C	Base line	03.06.17.		53.30
	Natun Pally Dhalai Bridge Road-R	Base line	03.06.17.	69.29	
		<b>Average Base line</b>		<b>69.29</b>	<b>53.30</b>
	<b>Keorapukur Canal Side Road*-R</b>	<b>During Construction*</b>	<b>24.10.17</b>	<b>58.18</b>	<b>45.0</b>
Sewerage and drainage network in Rania Box Catchment ( Part of Ward 111, 112 & 113) in Borough XI(KEIIP /NCB/ Tr-2/SD-10/ 2015-16)	I No. Congress Pally Road (Zone 1A)-R	Base line	04.05.17	59.29	51.67
	SBI Battala, Nath Para (Zone 3A)-R	Base line	04.05.17	61.72	53.12
		<b>Average Base line</b>		<b>60.50</b>	<b>52.39</b>
	<b>H. L. Sarkar Road*-R</b>	<b>During Construction*</b>	<b>09.11.17</b>	<b>60.09</b>	<b>50.09</b>
	<b>Nath Para*-R</b>	<b>During Construction*</b>	<b>09.11.17</b>	<b>59.09</b>	<b>49.01</b>
	<b>Kheali Sangha*-R</b>	<b>During Construction*</b>	<b>09.11.17</b>	<b>59.91</b>	<b>49.82</b>
		<b>Average During Construction*</b>		<b>59.69</b>	<b>49.64</b>
Sewerage and drainage network in Vivekananda Road Catchment (Part of Ward 113 & 114)and construction of a Pumping Station in Borough XI including Operation and maintenance of the Pumping Station(KEIIP/NCB/TR-2/SD11/2016-17)	Bandipur Road(Zone 1A)-R	Base line	04.05.17	61.42	50.89
	<b>Bandipur Road near Chakda high school*-R</b>	<b>During Construction*</b>	<b>10.11.17</b>	<b>59.77</b>	<b>49.92</b>
	<b>Niranjan Pally*-R</b>	<b>During Construction*</b>	<b>10.11.17</b>	<b>59.09</b>	<b>48.95</b>
	<b>Sonali Park*-R</b>	<b>During Construction*</b>	<b>10.11.17</b>	<b>59.62</b>	<b>49.82</b>
		<b>Average During Construction*</b>		<b>59.49</b>	<b>49.56</b>
Laying of Trunk sewer along James Long Sarani by micro-tunneling method (KEIIP/NCB/ Tr-2/SD-12 / 2015-16)	M.G. Road & James Long Sarani, Shaft No. 18, JLS MTA (1416 At Project)-C	Base line	11.06.17	78.84	-
	<b>Shaft no 21A, James Long Sarani*-C</b>	<b>During construction*</b>	<b>09.12.17</b>	<b>67.59</b>	
	<b>Shaft No. 17, James Long sarani*-C</b>	<b>During construction*</b>	<b>09.12.17</b>	<b>63.16</b>	
		<b>During construction*</b>		<b>65.37</b>	
Development of Sewerage & Drainage Network within James Long Sarani & Mahatma Gandhi Road	Viveekananda College Road, Gour Nagar-R	Base line	29.05.17	58.6	41.1

Package	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIP/NCB/ Tr-2/SD-13 / 2015-16)	Janakalyan, Behala*-R	During construction*	18.12.17	57.5	43.4
Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIP /NCB/ Tr-2/SD-14/ 2015-16)	Dr. A.K. Pal Road-R	Base line	29.05.17	52.4	40.3
	Parnasree, Behala*-R	During construction*	18.12.17	54.8	42.2
Construction of underground reservoirs & overhead reservoirs, Pumping Stations and linking Pumping Station Mains for Water supply in Joka& adjoining areas including operation & maintenance of the pumping station (KEIP/NCB/ Tr-2/WS-15 / 2015-16)	Prantik Phase 3-R	Base line	29.03.17	74.22	-
	Julpia-R	Base line	27.02.17	72.73	-
		Average Base line		73.47	
	Prantik Phase V.B, UG Reservoir*-R	During construction*	28.12.17	64.44	
	Dhalipara, N.E. OH reservoir*-R	During construction*	28.12.17	58.57	
	Joka site OH Reservoir*-R	During construction*	28.12.17	53.91	
	Average During construction*		58.97		
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIP/NCB/Tr 2/WS 16/2015-16)	Kabardanga Stack Yard*-C	Baseline*	08.11.17	60.91	
	Near Churial Canal*-R	Baseline*	08.11.17	59.38	
		Average Base line*		60.15	
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIP/Tr 2/WS 17A/2016-17)	Kalitola Road*-R	Baseline*	19.12.17	52.6	43.2
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIP/Tr 2/WS 17B/2016-17)	Satyn park*-R	Baseline*	19.12.17	51.9	42.0

Package	Sampling Locations- Area	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/2016-17)	Malpara ESR*-R	Baseline*	8.11.17	49.82	
	Charaktala ESR*-R	Baseline*	8.11.17	46.91	
	Ramkantapur ESR*-R	Baseline*	8.11.17	51.53	
		Average Base line*		49.42	
Development of S & D network in Tolly' nullah/ Keorapukur canal sub basin in part of wards 115 and 122 including construction of a SWF pumping station in the premise of Kudghat LS-5 and augmentation of Keorapukur MPS (KEIIP/NCB/Tr 2/SD-19/2016-17)	Keorapukur, Tollygunj*-C	Baseline*	18.12.17	55.3	41.8
<b>Standard</b>	<b>R- Residential, C- Commercial, I- Industrial Standard</b> <b>Day time:</b> Industrial area:75 Commercial: 65 Residential area: 55 <b>Night time:</b> Industrial area:70 Commercial: 55 Residential area: 45				

ESR- Elevated Storage Reservoir

Note (i) In linear pipeline construction, base line data have been calculated as the average noise level status of the project working area from monitoring at 3 to 4 stations before commencement of the construction work of the package as a whole. This provides a rational basis for comparison of monitored data during construction with the average baseline data as calculated.

(ii) In linear pipe laying package, the activity locations (sinking of shaft, site camp office, deployment of equipment etc.) shifted as construction work progressed from one site to another. Noise level monitoring locations shifted accordingly. Location at which construction is complete is abandoned for new stations where construction has commenced.

31. "During construction" air quality, noise level and water quality monitoring will be continued for the packages as per Environment Management and Monitoring Plan. All monitoring expenses will be borne by contractors from their project Health safety monitoring budget (**Appendix 11**).

32. A performance monitoring fact sheet has been prepared to facilitate tracking and quick reference on environmental monitoring of Tranche 2 subproject packages (**Tables 19 and 20**).

**Table 19: Performance Fact Sheet for Required Environmental Consents/Clearances of KEIP Tranche 2 (Package-wise)**

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
1	Sewerage & Drainage-Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-09/2016-17)	SNET-JBPL JV	Yes	Not required till date.	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
2	Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI (KEIP/NCB/Tr 2/SD-10/2015-16)	Tantia Construction Ltd.	Yes	Not required till date.	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
3	Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-11/2016-17)	Tantia Construction Ltd.	Yes	Not required till date	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
4	Laying of Trunk sewer along James Long Sarani by Micro-tunneling method (KEIP/NCB/Tr 2/SD-12/2015-16)	ITD – ITD CEM JV	Yes	Tree felling will be required at James Long Sarani. NOC not yet received from Forest Dept.	Not required	NR as per present work	NR as per present work	Green silent DG used	Obtained
5	Development of Sewerage & Drainage Network within James Long Sarani & Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIP/NCB/ Tr-2/SD-13 / 2015-16)	Simplex infrastructures Ltd.	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
6	Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIP /NCB/ Tr-2/SD-14/ 2015-16)	Simplex infrastructures Ltd.	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
7	Water Supply-Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station (KEIP/NCB/ Tr 2 /WS 15/2015-16)	M/s Gannon Dunkerley & Co.Ltd.	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Acoustic type of Generator used. No permission is required. Emission monitoring done.	Obtained

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
8	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIP/NCB/Tr 2/WS 16/2015-16)	FFIL-RIL JV	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Green silent DG used	Obtained
9	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIP/Tr 2/WS 17A/2016-17)	Simplex infrastructures Ltd.	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
10	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIP/Tr 2/WS 17B/2016-17)	Simplex infrastructures Ltd.	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
11	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIP/NCB/Tr 2/WS 18/2016-17)	FFIL-RIL JV	Yes	Not Applicable	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained

**Table 20: Performance Fact Sheet for EMP Implementation of KEIP Tranche 2 (Package-wise)**

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person <sup>67</sup>	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
1	Sewerage & Drainage-Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-09/2016-17)	SNET-JBPL JV	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2
2	Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI (KEIP/NCB/Tr 2/SD-10/2015-16)	Tantia Construction Ltd.	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2

<sup>67</sup>Nomination of Environmental & Social Safeguard Officer by Contractor(Nominated / Yet to be Nominated)

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person <sup>67</sup>	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
3	Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station (KEIP/NCB/Tr 2/SD-11/2016-17)	Tantia Construction Ltd.	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2
4	Laying of Trunk sewer along James Long Sarani by Micro-tunneling method (KEIP/NCB/Tr 2/SD-12/2015-16)	ITD – ITD CEM JV	Yes	Nominated	Complied	2	2	2	2	2	2	1	2	n/a	2	2	n/a	2
5	Development of Sewerage & Drainage Network within James Long Sarani & Mahatma Gandhi Road Catchment in Borough XVI (part of Ward No. 123 & 124) (KEIP/NCB/ Tr-2/SD-13 / 2015-16)	Simplex infrastructures Ltd.	Yes	Nominated	Complied	2	1	2	2	2	2	n/a	1	n/a	1	2	n/a	2

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person <sup>67</sup>	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
6	Laying of lateral sewers in part of Borough XIV (Ward nos. 128 to 132) & De siltation of Box Drain at Picnic Garden Road (KEIP /NCB/ Tr-2/SD-14/ 2015-16)	Simplex infrastructures Ltd.	Yes	Nominated	Complied	2	1	1	2	2	2	n/a	1	n/a	1	2	n/a	2
7	Water Supply-Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station (KEIP/NCB/ Tr 2 /WS 15/2015-16)	M/s Gannon Dunkerley & Co.Ltd.	Yes	Nominated	Complied	2	1	1	2	2	n/a	n/a	1	n/a	2	2	n/a	2
8	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIP/NCB/Tr 2/WS 16/2015-16)	FFIL-RIL JV	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	1

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person <sup>67</sup>	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
9	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIP/Tr 2/WS 17A/2016-17)	Simplex infrastructures Ltd.	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2
10	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIP/Tr 2/WS 17B/2016-17)	Simplex infrastructures Ltd.	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person <sup>67</sup>	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
11	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/ 2016-17)	FFIL-RIL JV	Yes	Nominated	Complied	2	2	2	2	2	2	n/a	2	n/a	1	2	n/a	2

Note calculation of numerical value for determining performance status- Calculation is based on addition of numerical value like below-

- Package - KEIIP/NCB/Tr 2/SD-09/2016-17= Total score- 2+2+2+2+2+2+2+1+2+2 = 19. Number of working field=10, Then- **19/10=1.9**, More than 1.5 (Complied)
- Package- KEIIP/NCB/Tr 2/SD-10/2015-16= Total score- 2+2+2+2+2+2+2+1+2+2= 19. Number of working field=10, Then- **19/10=1.9**, More than 1.5 (Complied)
- Package- KEIIP/NCB/Tr 2/SD-11/2016-17= Total score- 2+2+2+2+2+2+2+1+2+2= 19. Number of field=19, Then- **19/10=1.9**, More than 1.5 (Complied)
- Package - KEIIP/NCB/Tr 2/SD-12/2015-16= Total score- 2+2+2+2+2+2+2+1+2+2+2= 21. Number of field=11, Then- **21/11=1.9** More than 1.5 (Complied)
- Package - KEIIP/NCB/ Tr-2/SD-13 / 2015-16= Total score- 2+1+2+2+2+2+2+1+1+2+2= 17. Number of field=10, Then- **17/10=1.7**, More than 1.5 (Complied)
- Package- KEIIP /NCB/ Tr-2/SD-14/ 2015-16= Total score- 2+1+1+2+2+2+2+1+1+2+2= 16. Number of field=10, Then- **16/10=1.6**, More than 1.5 (Complied)
- Package- KEIIP/NCB/ Tr 2 /WS 15/2015-16= Total score- 2+1+1+2+2+2+1+2+2+2= 15. Number of field=9, Then- **15/9=1.7**, More than 1.5 (Complied)
- Package -KEIIP/NCB/Tr 2/WS 16/2015-16= Total score- 2+2+2+2+2+2+2+1+2+1= 18. Number of field=10, Then- **18/10=1.8**, More than 1.5 (Complied)
- Package- KEIIP/Tr 2/WS 17A/2016-17= Total score- 2+2+2+2+2+2+2+1+2+2= 19. Number of field=10, Then- **19/10=1.9**, More than 1.5 (Complied)
- Package- KEIIP/Tr 2/WS 17B/2016-17= Total score- 2+2+2+2+2+2+2+1+2+2= 19. Number of field=10, Then- **19/10=1.9**, More than 1.5 (Complied)
- Package KEIIP/NCB/Tr 2/WS 18/ 2016-17= Total score-2+2+2+2+2+2+2+1+2+2= 19. Number of field=10, Then- **19/10=1.9**, More than 1.5 (Complied)

(Note: Work in most packages has just started and construction of camp, arrangement of safety caution board, barricade. has commenced. Initial EMP compliance in these areas is unsatisfactory in some instances. It is expected that during next report period all non compliance issues will be resolved. Barring the above lacuna most of the sites are environmentally well managed)

## VI. CONSULTATIONS AND DISCLOSURES CONDUCTED

33. As per approved IEE, consultations and disclosure will be a continuous process throughout Tranche 2 project implementation involving public consultations and focus group discussions. Informal consultations were carried out with local people, pedestrian, etc.

34. The indicative schedule for consultations and disclosure is presented in **Table 21**. **Appendix 12** shows sample consultation sheet as provided by the contractor.

**Table 21: Indicative Schedule for Consultations and Disclosure**

Type of Consultation/ Disclosure	Target Date	Location	Target Participants	Responsible Person and Source of Funds
Local level consultation	Weekly – to be continued	At all construction locations	General public, shop keepers, pedestrian population	Construction supervisor, Environment & safety officer of contractor Project budget – continuous process
Consultation – safety issues, implementation of EMP	During January 2018 to June 2018	At KEIIP office and project site office	Supervisor Engineer, PMU Engineer, all safety and environment staff of contractors	Construction Manager, Environment specialist of DSC and PMU

35. Field level training program has been arranged for contractors, supervisors by DSC's Environment Specialist on safety and environment on regular basis.

36. There are series of informal discussions by the DSC & PMC engineering Consultants with Chief Engineers of KMC and Director General (Projects), PMU mainly on understanding current situation and optimum design to be adopted in order to attain the objectives of taking up the work items.

37. **Appendix 5** shows sample internal training documents as submitted by contractors.

38. **Appendix 13** indicates training detail on environment, Health and safety issues as conducted by DSC at KEIIP office.

## VII. GRIEVANCE REDRESSAL

39. **Common Grievance Redress Mechanism.** A common grievance redress mechanism (GRM) has been established for social, environmental or any other subproject related grievances.

40. **Grievance Redress Process.** PMU will maintain a Complaint Cell at KEIIP office located in 206 A J C Bose Road Kolkata 700017 headed by a designated Grievance Officer (currently the Administrative Officer) under Project Director. The Complaint Cell will also serve as Public Information Centers, where, apart from grievance registration, information on the Project, subprojects, social and environmental safeguards, etc can be provided.

41. At every Borough of KMC under which works are in progress, a Public Relations & Grievance Redressal Unit is to be established for information disclosure on request from public and for receipt of complaints.

42. At Contractors' site offices, complaint and suggestion books will be available for lodging any complaint. The concerned Executive Engineers of KEIIP will monitor these

books and if possible take necessary actions for redressal of minor complaints with intimation to the complainant.

43. The Grievance Registration/Suggestion Form will be available at the Complaints Cell and in Borough Offices and will also be downloadable from the KEIIP/KMC websites. Grievances/ suggestions of affected persons can be dropped in suggestion boxes or conveyed through phone or mail. Affected Persons will also be able to register grievances - social, environmental or other, personally at the Complaint Cell and at Borough offices of KMC. The Grievance Officer and designated official at the Boroughs will be able to correctly interpret/record verbal grievances of non-literate persons and those received over telephone.

44. All complaints (unresolved at local site/Borough level) relating to KEIIP will be sent to the Project Director, KEIIP including those received in the KMC/KEIIP website for redressal. The Grievance Officer will resolve simple unresolved issues and in case of complicated issues, consult/seek the assistance of the Environment/Social Specialist of the DSC/PMU. Grievances not redressed through this process within one month of registration will be brought to the notice of the Project Director, KEIIP. Action taken in respect of all complains will be communicated to the complainant by letter, over phone or e-mail or WhatsApp as the case may be.

45. Periodic community meetings with affected communities to understand their concerns and help them through the process of grievance redress (including translation from local dialect/language, recording and registering grievances of non-literate affected persons and explaining the process of grievance redress) will be conducted if required. The above Grievance Redress Process will be discussed with the stakeholders at the proposed disclosure workshop.

46. **Grievance Redressal Committee (GRC).** A PMU level GRC has already been constituted by the Project Director to address grievances. Grievances not resolved at borough level are referred to PMU level. However grievances that cannot be resolved at PMU level will be referred to an apex grievance redress committee (GRC).<sup>68</sup> Still unresolved issues will be referred to an appropriate court of law.

47. The time limit for grievance redressal will be as follows,

- ✓ Site level – 7 days
- ✓ Borough level – 7 days
- ✓ GRC – PMU level – 15 days
- ✓ Apex GRC- 15 days

48. **Consultation Arrangements.** This will include group meetings and discussions with affected persons, to be announced in advance and conducted at the time of day agreed on with affected persons and conducted to address general/common grievances; and if required with the Environment/Social Specialist of PMU/DSC for one-to-one consultations. Non-literate affected persons/ vulnerable affected persons will be assisted to understand the grievance redress process, to register complaints and with follow-up actions at different stages in the process.

49. **Record-keeping.** Records will be kept by PMU/Borough Office/Contractors' site office of all grievances received including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were in effect, and final outcome.

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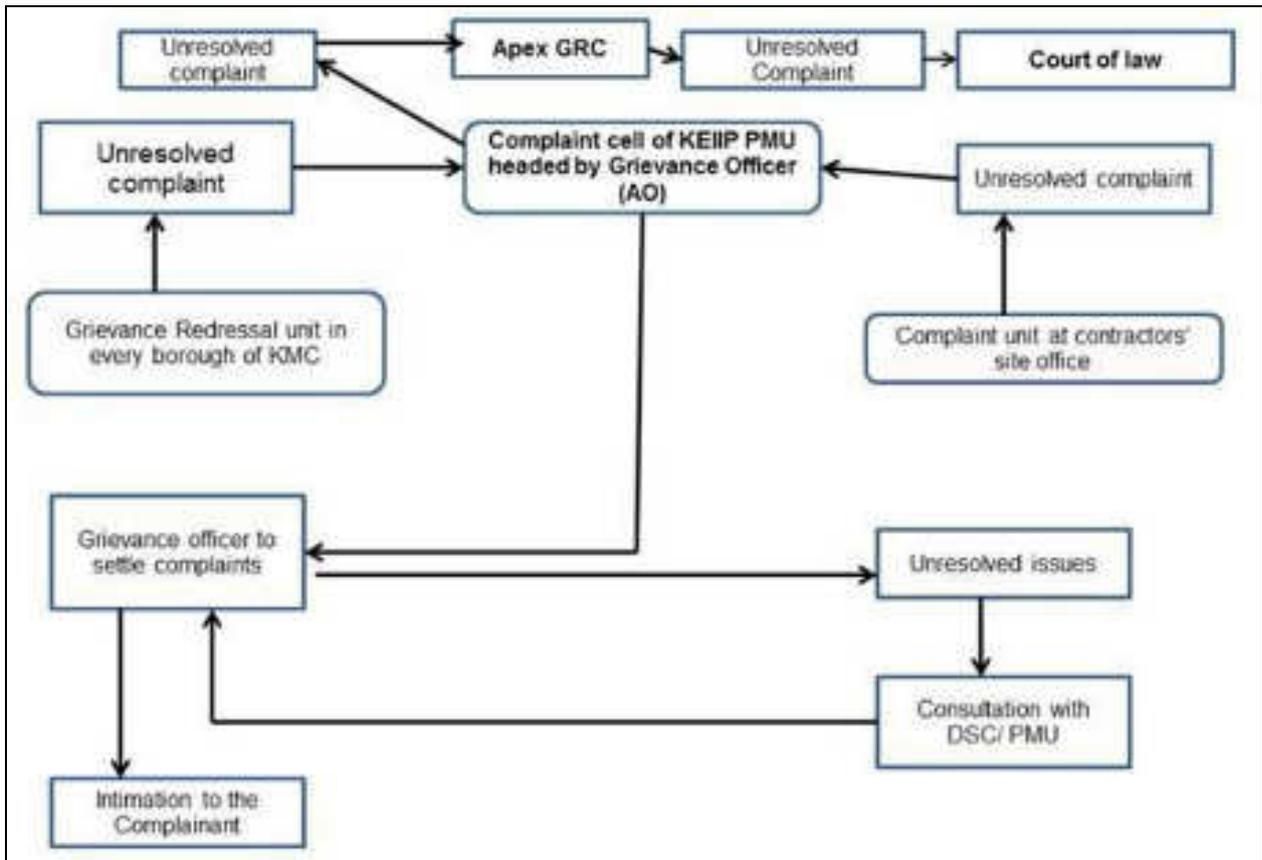
<sup>68</sup> The apex GRC will have the following members: KMC Commissioner as Chairperson, KEIIP Project Director, Director General (P), KEIIP, Environment/Social Safeguard Officer, Administrative Officer as the convener, representatives of APs, Community Based Organizations (CBOs), and eminent citizens. The GRC must have at least two women members.

50. Information Dissemination Methods of the GRM. Grievances received and responses provided will be documented and reported back to the affected persons (**Appendix 14 - Sample Grievance Registration Format**). The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the offices of the different Boroughs of KMC and web. The phone number where grievances are to be recorded will be prominently displayed at the construction sites.

51. Periodic Review and Documentation of Lessons Learned. PMU will periodically review the functioning of the GRM and effectiveness of the mechanism, especially on the Project’s ability to prevent and address grievances.

52. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting / information dissemination) will be borne by PMU.

53. **Figure 4** shows GRM flow chart.



**Figure 4: Grievance Redress Mechanism**

54. **Appendix 15** shows sample filled up grievance register as received from contractor.

### VIII. FINDINGS AND RECOMMENDATIONS

55. Based on the foregoing observations, findings and environmental monitoring carried out from July to December 2017, it may be concluded that KEIIP Tranche 2 sub projects have been implemented in almost full compliance of the required environmental safeguards.

56. Minor, localised and short duration non-compliances in some work sites of a few packages during this period have been listed in paragraph 22.

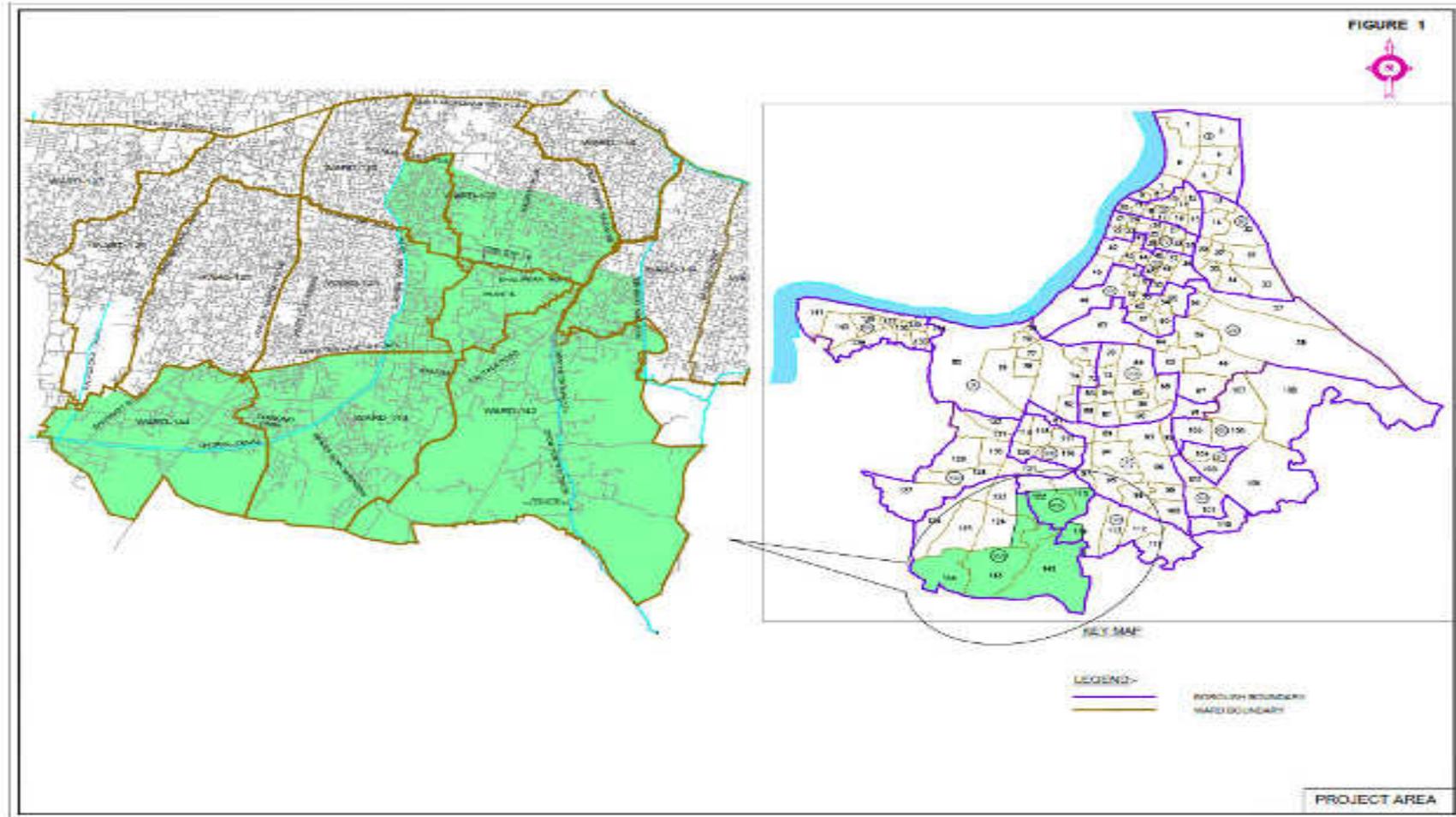
57. **Table 22** provides the recommended corrective action plan that has been devised and target dates that have been set so as to remove these non-compliances. The concerned

Contractors have been suitably advised. Contractors have also been advised to provide written commitment for implementation of corrective action plan.

**Table 22: Corrective Action Plan**

Sr. No.	Partial complied issues	Action Required	Responsible	Target Date	Indicator of Compliance
1	Incomplete Use of PPE (particularly working shoes/ gumboots, handgloves) by contractors' at all working sites of all packages	Complete use of PPE, particularly use of working shoes, gumboots	Contractor	Immediate	Availability and use of PPE
2	Incomplete/ partial use of caution tape/ barricade at all the package working sites	Complete use of caution tape/ barricade	Contractor	Immediate	Site observation and checking
3	Non Availability of emergency contact no. at all display/ caution board placed at work site of all packages	Complete arrangement of display / caution board with all emergency contact no.	Contractor	28 <sup>th</sup> February 2018	Site observation
4	Housekeeping need improvement (KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Improvement of housekeeping at working area	Contractor	28 <sup>th</sup> February 2018	Site observation and checking
5	Requirement of improvement of facility at labour camp (KEIIP/NCB/ Tr-2/SD-13 / 2015-16 & KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Improvement of labour camp	Contractor	28 <sup>th</sup> February 2018	Site observation and checking
6	Requirement of improvement of access and housekeeping at Prantik and Julpia site labour camp(KEIIP/NCB/ Tr 2 /WS 15/2015-16)	Improvement of access and housekeeping to labour camp	Contractor	28 <sup>th</sup> February 2018	Site observation and checking
7	Requirement of improvement of public access(KEIIP /NCB/ Tr-2/SD-13/ 2015-16 and KEIIP /NCB/ Tr-2/SD-14/ 2015-16)	Sufficient access need to be provided at all working sites	Contractor	28 <sup>th</sup> February 2018	Site observation and checking
8	No Medical Examination of workers for newly started packages (KEIIP/NCB/Tr 2/WS 16/2015-16, KEIIP/Tr 2/WS 17A/2016-17, KEIIP/Tr 2/WS 17B/2016-17, KEIIP/NCB/Tr 2/WS 18/ 2016-17)	Immediate arrangement of Medical Examination of workers	Contractor	28 <sup>th</sup> February 2018	Record

### APPENDIX 1: LOCATION MAP PROJECT AREA

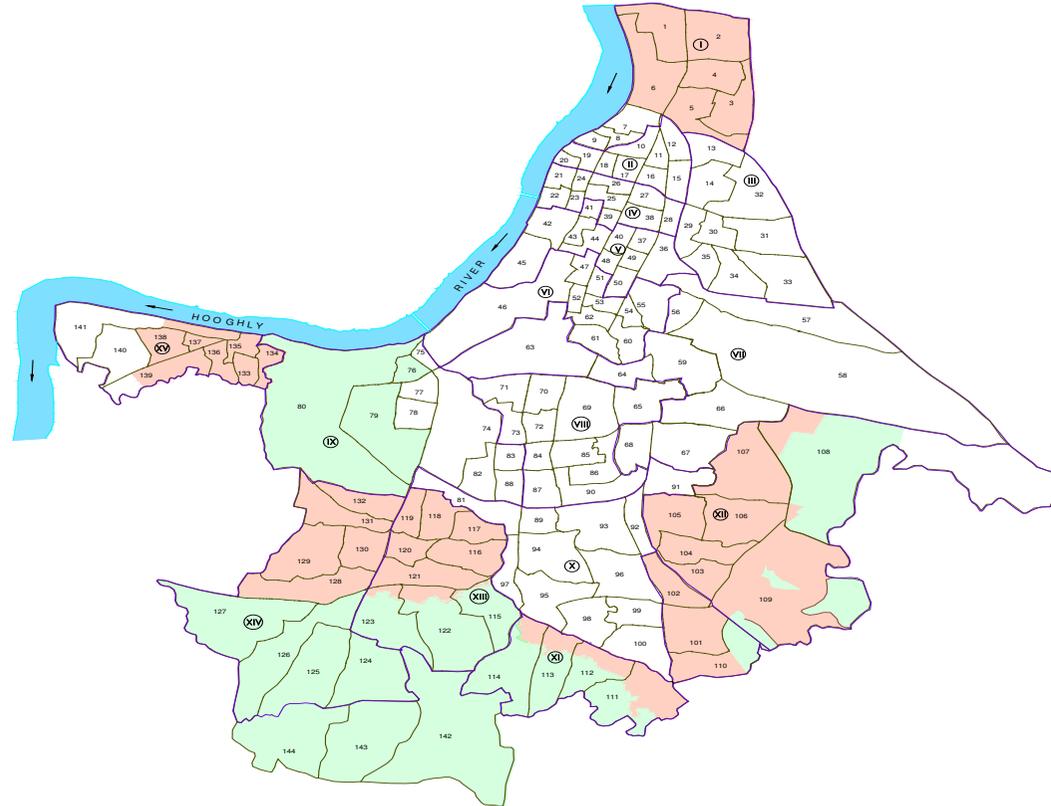


Project Area – water Supply project

### Sewerage and Drainage Project Area

**LEGEND:-**

-  BOROUGH BOUNDARY
-  WARD BOUNDARY
-  AREA TAKEN UP UNDER KEIP PHASE I
-  AREA TO BE CONSIDERED UNDER KEIP FOR S&D DEVELOPMENT



### APPENDIX 2: PHOTO ILLUSTRATION

**Package: Sewerage & Drainage- Construction of sewerage and Drainage Network in Thakurpara and Purba Putiary catchment and construction of Keorapukur Pumping Station in Ward 114, Borough XI including Operation & Maintenance of the Pumping Station (KEIIP/NCB/Tr 2/SD-09/2016-17)**



Proper display board noted at entrance to site office at Natun Pally



Partially satisfactory use of PPE by workers at Natun Pally pipe laying site



Diversion signage at Dhalai Bridge pipe laying area



Caution tape and caution board at working area of Natun pally. Public access maintained



Storage of material within Keorapukur site office



Worker camp at Natun pally. Emergency contact no. displayed



Firefighting equipments noted at labourers hutment



Proper first aid box noted at Natun Pally site office



Proper drinking water facility noted at Natun Pally labours hutments



Tool box training at working site

**Sewerage & Drainage Sewerage and Drainage Network in Rania Box catchment (Part of Ward 111, 112 & 113) in Borough XI (KEIIP/NCB/Tr 2/SD-10/2015-16)**

**AND**

**Sewerage & Drainage: Sewerage and Drainage Network in Vivekananda Road Catchment (Part of Ward 113 & 114) & construction of a Pumping Station in Borough XI including Operation & Maintenance of the Pumping Station (KEIIP/NCB/Tr 2/SD-11/2016-17)**



**Worker camp at Pirpukur for both the packages**

**Toilet facility at Pirpukur worker camp**



**Caution tape noted at working area. Access maintained**



**Use of PPEs by workers noted**



Safety arrangement maintained at working area



Road restoration done after pipe laying



Work details displayed at project area



Worker using PPE at H. L. Sarkar Road pipe laying area



Pipe laying work near Balak Sangha. Caution tape placement noted. Access maintained.



Caution tape noted at pipe laying area of H L Sarkar Road. Access maintained

**Sewerage & Drainage: Laying of Trunk sewer along James Long Sarani by Micro-tunneling method (KEIIP/NCB/Tr 2/SD-12/2015-16)**



Proper storage of pipes noted at Shaft 19 on James Long Sarani (Near Diamond park)



Safety signage noted with satisfactory information noted at Shaft 20 on James Long Sarani (Near Diamond park).



Proper display board noted at work site at Shaft 21 on James Long Sarani (Near Diamond park).



Appropriate first aid box noted at Shaft 20 on James Long Sarani (Near Diamond Park).



Work in progress at Shaft 20 on James Long Sarani.



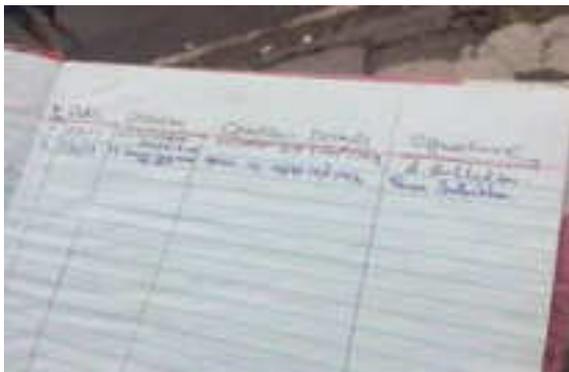
Proper use of PPE noted at Shaft 20 on James Long Sarani (Near Diamond park)



Collection of slurry during jack pushing- micro tunneling work



Proper barricading at working site



Proper grievance redress register noted at Shaft 19 on James Long Sarani (Near Diamond park).



Proper cooking arrangements noted at workers' camp site at Genex Valley



Drinking water arrangement at worker camp



Facility at worker camp

**Sewerage & Drainage: Development of Sewerage & Drainage Network within James Long Sarani and Mahatma Gandhi Road catchment in Borough XVI (Part of Ward no. – 123 & 124) (KEIP/NCB/Tr 2/SD-13/2015-16)**



**Proper placement of caution tape and hard barricade noted at Bose Para Road pipe laying site**



**Display board with partially satisfactory information noted at Bose Para Road pipe laying site**



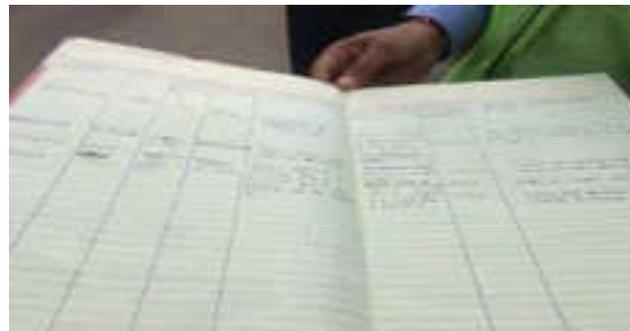
**Work in progress at Gour Nagar Road pipe laying site. Use of PPEs partially**



**Appropriate first aid box noted at Bose Para Road pipe laying site**



**Partially satisfactory PPE use noted at Gour Nagar Road pipe laying site**



**Proper Grievance Redress Register present at Bhuvan Mohan Roy Road at pipe laying site**



Access maintained at pipe laying area



Safety signage at working area



Road restoration done after pipe laying



Worker camp. Improvement required

**Sewerage & Drainage- Laying of lateral sewers in Borough XIV (Part of Ward no. 128 to 132) (KEIP/NCB/Tr 2/SD-14/2015-16)**



Partially satisfactory use of PPE noted at Becharam Chatterjee Road pipe laying works



Satisfactory use of caution tape noted at Becharam Chatterjee Road pipe laying works



Display board with incomplete information noted at Ramkrishna Sarani pipe laying works



Satisfactory access noted at Ramkrishna Sarani pipe laying works. Excess earth needs to be removed



Proper first aid box noted at Mahendra Banerjee Road pipe laying site



Work in progress at Upen Banerjee Road pipe laying site. Use of PPEs noted



Labour camp. Improvement required



Housekeeping partially satisfactory at Ramkrishna Sarani Pipe laying site- tools are spread at site. Improvement required



Use of PPEs noted. Caution tape used



Common Grievance Register for all sites

**Water Supply- Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations and linking Pumping station mains for water supply in Joka and adjoining areas including Operation & Maintenance of the Pumping station (KEIIP/NCB/ Tr 2 /WS 15/2015-16)**



**Proper first aid box noted at site office at Prantik Phase 3 water storage underground reservoir and PS site.**



**Proper display board noted with requisite information at water storage reservoir site at WBSETCL (Joka)**



**Partially satisfactory use of PPE noted at Prantik Phase 3 water storage underground reservoir and PS site**



**Camp site management partially satisfactory at Prantik Phase 3 water storage underground reservoir and PS site**



**Improvement of Electric safety after necessary instruction**



**Improvement of Electric safety arrangement at camp site, after necessary instruction**



**Access road at Julpia reservoir site. Improvement required**



**Material storage area properly demarcated**



**Access to labour camp needs to be improved**



**Partially satisfactory use of PPE noted at Prantik Phase 3 water storage underground reservoir and PS site**



**Proper firefighting equipment noted at Prantik Phase 3 water storage underground reservoir and PS site**



**Demarcation of working area at WBSETCL reservoir location**



**Pilling work continued at WBSETCL reservoir site. Use of PPEs noted**



**Tool box training for workers**

**Water Supply - Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (KEIP/NCB/Tr 2/WS 16/2015-16)**



**HSE Policy display at Kabardanga Stock yard**



**Material Stacking at Kabardanga Stock yard**



**Safety signage noted at site office and work site**



**Sand blasting and painting workshop constructed at Kabardanga Stock yard**



**Fire fighting equipment available at fuel storage area**



**Caution tape available at pipe laying area. Access need to be maintained.**



Public awareness poster at working site



Public awareness poster- schedule of work



Use of LED chain at work site during Night Work



At Kalyannagar 700 Dia MS Pipe Laying work in progress. Proper barricading and use of PPEs noted



Tool box training conducted before work



Pipe laying work is in progress at churial canel 700 Dia. Use of PPEs noted

**Water Supply- Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik (KEIIP/Tr 2/WS 17A/2016-17)**



**Pipe laying work continued at Bakul bithi. Display board noted**



**Caution tape and barricade noted at working location**



**First aid box available at working site**



**Pipe laying completed- road restoration done**

**Water Supply - Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park (KEIIP/Tr 2/WS 17B/2016-17)**



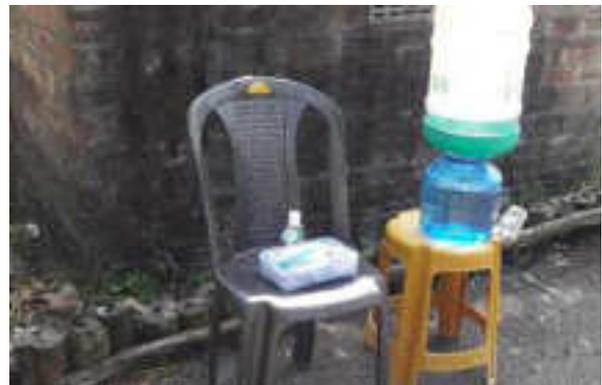
**Proper storage of pipes at construction site of Military para**



**Use of PPEs and placement of barricade noted at working site**



**Work display board. No Emergency contact no. added**



**Drinking water available at working site**



**Road restoration done after pipe laying**



**Proper placement of caution tape and barricade at Goelbaria site**

**Water Supply- Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas (KEIIP/NCB/Tr 2/WS 18/ 2016-17)**



**150 Dia DI pipe laying work in Progress at Sabuj Pally. Partial use of PPEs and absence of caution tape**



**At Charaltala reservoir site Pilling work in progress. Partial use of PPEs noted. Use of proper shoes by Laborers required**



**Availability of First aid box at working site**



**Project display board at reservoir location**



**Temporary Worker camp at reservoir site**



**Toilet under construction near reservoir site**

**APPENDIX 3: SAMPLE SITE SPECIFIC ENVIRONMENTAL MANAGEMENT PLAN**

**Site Specific Environmental Management Plan**

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**December 2017**

**PROJECT: LAYING OF TRUNK SEWER ALONG JAMES LONG SARANI  
BY MICROTUNNELING METHOD**

**Contract No: KEIIP/NCB/TR-2/ SD-12/2015-16**

**PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT  
PROGRAM (KEIIP)**

**EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)**

**CONTRACTOR: ITD – ITD CEM JOINT VENTURE**

Prepared by



**ITD-ITD CEM JOINT VENTURE**

**Pre Construction and Construction phase Site Specific Environmental Management Plan**

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
<b>Climate</b>	The nature and intensity of rainfall events in an area, has implications for storm water management. Smoke from burning activities could be wider spread on windy days especially when dust could be blown off site.	Seasonal climatic variations during scheduling of construction activities in the area will be followed. Any excavation work will be done during dry season Storm water will be controlled as per method approved by PMU. As per company Health Safety & Environment (HSE) policy no open fires will be allowed	HSE work permit system of the company will be followed.
<b>Air Quality</b>	Sensitive receptors (e.g. hospitals, schools, churches) may be affected temporarily by increased traffic and related impacts during the construction phase (from the proposed detour). Fugitive dust can also impact on roadside air quality during construction. Exhaust fumes from construction machinery, and potential smoke from cooking fires. Burning of waste and cleared vegetation Odors from use of toilet 'facilities' other than provided facilities.	Guidelines that deal with the control of air pollution and dusts as per Environmental Management Plan (EMP) have been followed Compliance with the Air Act. has been ensured Compliance with emission standards has been ensured Air quality monitoring has been conducted and will be continued during entire construction period Construction equipment and vehicles will be maintained regularly. Pollution Under Control Certificates have been collected for the vehicles presently engaged in project activity Materials carrying vehicle suitably cover. Covering of materials carrying vehicles-reducing dust hazard Covering or damp down sand/ earth stockpiled at site will be maintained as per site condition Open fires will be fully avoided at working sites Portable toilets will be provided at all working locations	Air quality Monitoring data will be included in Environmental Monitoring Report
Geology and soil	Strong water flows into open excavations below the water table will occur, causing micro-tunnel collapse. Layers of mixed fill cover natural ground surface in many places. Contamination from spillage of petroleum products, spent engine oil and oil leaks from construction vehicle maintenance taking place on site.	TBM will used for micro tunneling where proper drainage system is include. That drainage system shall be check regularly to control runoff from the micro-tunnels and open areas in line with topographical features of the site Rehabilitation at all sites during construction including stockpile area, temporary access and hauling routes, as soon as possible after the disturbance has ceased. Company to exercise strict care in the disposal of construction waste, with proof of disposal at an approved site provided after offloading each waste load and this logged/registered. Solid waste will be managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas. If oil spills occur, contaminated soil will be dispose at a disposal site in consultation with WBPCB.	Maintaining our company's policy for Waste Management & also follow up the requirements of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		Stockpile subsoil and overburden in all construction and lay down areas. Concrete plinth Tray / Bin has shall be provided to avoid land pollution.	
Drainage and hydrology	The proposed development is situated within an existing built up area. Due to the nature and locality of the subproject there is unlikely any significant impacts on water resources within the immediate area.	The site surface will be engineered and shaped in such a way that rapid and efficient evacuation of runoff is achieved. Pipeline is as a depth of 6 meter from ground level as indicated in tender. No major ground disturbance has been observed till now Waste management practices will be maintained Transport, storage, handling and disposal of hazardous substances will be done as per prevailing laws and approval of concerned authority	
Establishing Equipment Lay-down and Storage Area	Affect social life, public and transport movement	Choice of location for equipment lay-down and storage areas will be taken into account as per site topography and water erosion potential of the soil. Impervious surfaces would be provided where necessary Storage areas secured so as to minimize the risk of crime. They shall also be safe from access by children / animals etc. It is very important that the proximity of residents, businesses, schools etc. will be taken into account when deciding on storage areas for hazardous substances or materials. Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area Equipment lay-down and storage areas have been designated, demarcated and fenced if necessary. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used would be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s).	
Biodiversity Fauna and Flora	The proposed development is situated within an existing built up area. No areas of ecological diversity occur within the subproject location. Due to the nature and locality of the subproject there is unlikely to any significant impacts on biodiversity within the area The pipe laying for the transmission mains may however affect existing roadside trees.	After getting permission from Divisional Forest Officer, Utilization Division, Kolkata of felling of 30 trees along James Long Sarani for laying of sewer trunk, and at the same time 150 (1:5 ratio) trees will be planted along the road as compensatory afforestation. No faunal activity within the impact zone Landscaping will be undertaken with locally indigenous species and low maintenance requirements.	
Land Uses	Due to the location and nature of the subproject, there will be interference	Project executing agency and consultant have consulted with various organizations, departments, etc within the area and will be continued during	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	<p>with access Existing public transport facilities and operations will be affected by the road closure and detours. Shops and establishments are located along the transmission mains alignment therefore will need to be relocated during construction. This may impact on livelihoods. There will be disruptions to health services, education services, local businesses, transport services, pedestrian movements, due to traffic and construction related noise, visual, and air pollution.</p>	<p>the construction phase. HSE caution board has been display at all site location to aware people Walkways and metal sheets will be provided if required to maintain access across for people and vehicles. Workforce will be increased in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools. Businesses and institutions will be consulted regarding operating hours and factoring this in work schedules. Sign boards to be provided for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</p>	
Infrastructure and Services	<p>There is likely to have temporary disruption of infrastructure and services during the pipe laying of the transmission mains. There are a number of existing infrastructure and services (roads, railway lines, telecommunication lines, power lines and various pipelines within the vicinity of the subproject.</p>	<p>Utility shifting will be done by utility agency prior to commencing pipe laying/micro-tunneling. Keep construction-related disturbances to a minimum. Affected service providers will be consulted regarding impacts on access to infrastructure and services and alternatives. Affected communities or businesses will be consulted prior to foreseeable disruptions, for example notifying residents of a temporary severance of water supply. Executing agency and consultant have consulted with various organizations, departments, to provide access points for infrastructures and services. Regular monitoring and resolving the complaints by the public will be done by company/ DSC/ KMC</p>	
Traffic	<p>Increased volume of construction vehicles on the roads may lead to increased wear and tear of roads in the vicinity of the subproject site. Road safety concerns due to slow moving construction vehicles. Traffic flow within the vicinity will be affected. The temporary road closure will result in a decrease in overall</p>	<p>Traffic Management Plan is prepared and permission is obtained from Traffic Police Dept. TMP ensured safety of all the road-users along the work zone and to address: (i) protection of work crews from hazards associated with moving traffic; (ii) mitigation of the adverse impact to the road capacity and delays to the road-users; (iii) maintenance of access to adjoining properties; and (iv) issues that may delay the subproject works. Schedule transport and hauling activities will be plan during non-peak hours Site will be free from all unnecessary obstructions. Affected sensitive receptors if any will be notified by providing sign boards informing nature and duration of construction works</p>	<p>Before starting of project activities on the road TMP needs to be approved from DSC/ KMC and Traffic Police Dept.</p>

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	<p>network performance in terms of queuing delay, travel times/speeds. The road closure will impact on a public transport operations and routing. On street parking and loading bays will be affected by the proposed road closure. Pedestrian movements will be affected by the road closure.</p>	<p>Privately-owned public transport operators will be negotiated regarding the affected public transport facilities and routing. Business owners and social service operations will be negotiated regarding the loss of parking and loading bays. Clear roads signs has been arranged and to be maintained for the full length of the construction period. City Traffic Police will be available on site (as per requirement). All working sites barricaded. Communicate will be done for road closure/diversion together with the proposed detour via advertising, pamphlets, road signage, etc. The implementation of the road detour is also dependent on advance road signage indicating the road detour and alternative routes. Construction area clearly defined. Deliveries during peak traffic hours will be not allowed</p>	
<p>Health and Safety</p>	<p>Danger of construction related injuries. Open fires in construction camp can result in accidents. Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases. Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety risks. Road safety may be affected during</p>	<p>Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis. Construction site – particularly shafts area already barricaded. Warning signs has been proved at hazardous working areas. Working area clearly demarcated, barricaded to protect pedestrians from open areas- Jacking and receiving pits. Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken. Speed and movement of construction vehicles restricted. Personal Protective Equipment are provided to all workers. Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured. First Aid system available at working sites. Medical insurance provided to workers. Drinking water arranged at working sites. Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.</p>	<p>Company's health and safety guidelines will be followed</p>

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	construction, especially when traffic is detoured.		
Noise and Vibrations	Sensitive receptors (hospitals, schools, religious places) may be affected temporarily by increased traffic and related impacts Use of heavy vehicles and equipment may generate high levels of noise. Vibrations resulting from bulk earthworks, micro-tunnelling and compaction may create significant disturbances to nearby people and businesses. Disturbance from afterhours work.	Construction activities to be restricted at reasonable working hours near any sensitive receptors. Adjacent landowners will be informed about noisy activities Ensured that machinery in a good state of maintenance. Maintenance of silencers to all machinery is ensured During construction noise level monitoring has been conducted near project sites	Noise level Monitoring data will be included in Environmental Monitoring Report Maintain maximum sound levels not exceeding 75 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s
Aesthetics, Landscape Character, and Sense of Place	The presence of heavy duty vehicles and equipment, temporary structures at site office, stockpiles, may result in impacts on aesthetics and landscape character	Storage areas fenced properly. Solid waste will be manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas Removal of all wreckage, rubbish from the sites should be done at earliest Waste needs to dispose at suitable location after taken permission from DSC/ KMC Except few cases mature trees on and around the site remain untouched Unwanted material and litter will be remove at certain intervals	Excavated soils are utilized for filling purpose. Company's policy for Waste Management & also follow up the requirements of bid documents.
Construction camps	Affect local environment – soil, air, noise and impact on vegetation	Rented house has been provided. Only site office has been established	
Workers Conduct	Construction workers on site disrupting adjacent land uses by creating noise, generating litter, and possible loitering.	Ensure strict control of Labours Labours covered under group insurance Working hours will be fixed as per rules Littering at project sites is being avoided Overnight accommodation will be provided as per requirement. – Still now not required	Company policy will be followed
Employment Generation	The subproject will provide employment opportunities for local people during construction. Expectations regarding new employment will be high especially among the unemployed individuals in	Local Workers/Labours are mostly engaged at site Construction materials will be procured from local market	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	<p>the area. Labor gathering at the site for work can be a safety and security issue, and must be avoided. The training of unskilled or previously unemployed persons will add to the skills base of the area.</p>		
Archaeological and Cultural Characteristics	The proposed development will not require demolition of ASI- or state-protected monuments and buildings	<p>There is no Heritage or archaeological protected sites. Construction staff members would be aware of the likelihood of heritage resources being unearthed and of the scientific importance of such discoveries. Building and other construction workers Act 1996 to follow</p>	
Social Impacts	Impact on local social environment	<p>Restrict activities and movement of staff to designated construction areas. ITD will assist in locating DSC Environment Specialist and/or PMU Environment Coordinator in the event construction staffs is approached by members of the public or other stakeholders.</p>	
Security and Safety	Affect project activity and impact on workforce	<p>Lighting on site is provided maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses. Material stockpiles or stacks, such as, pipes will be stable and well secured to avoid collapse and possible injury to site workers / local residents. Flammable materials will be stored as far as possible from adjacent residents / businesses.</p>	

**APPENDIX 4: SAMPLE TRAFFIC MANAGEMENT PLAN**

**PACKAGE SD 12**

	<h2>ITD-ITD Cem Joint Venture</h2>
<h3>SAFETY &amp; HEALTH OPERATION CONTROL PROCEDURES</h3>	
<p>Traffic Management Plan (TMP)</p>	

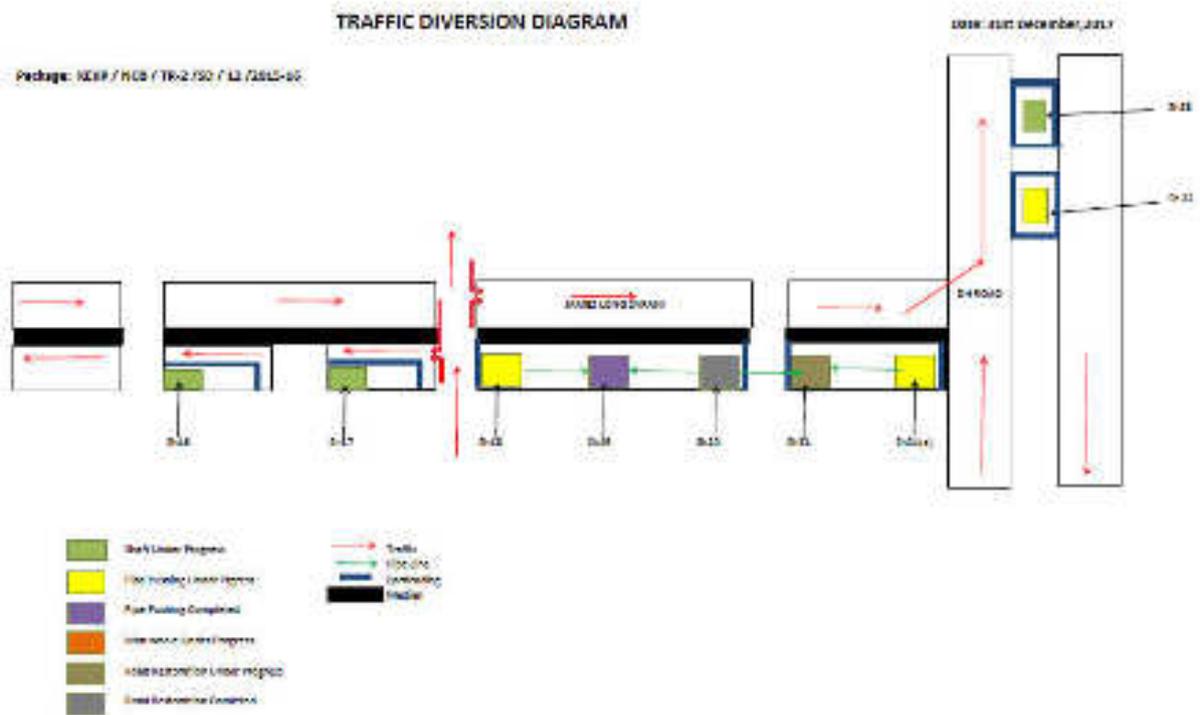
▪ **LOCATION (AS ON DECEMBER- 2017)**

**Traffic Diversion: From western Franken of James Long Sarani 3.8 Meters (Approx.) from Santosh Roy road crossing towards DH road ESI hospital. Shaft no 1 to Shaft no 23 – micro tunnelling zone.**

▪ ▪ <b>1.0</b>	▪ ▪ <b>PURPOSE</b>
	To provide a clear and simply worded procedure to be understood by most employees on preventing injury to persons and damage to property arising from site traffic and site transport.
▪ <b>2.0</b>	▪ <b>SCOPE</b>
	The procedure is applicable to ITD-ITD CEM JV sites and depots.
▪ <b>3.0</b>	▪ <b>RESPONSIBILITY</b>
	It is the responsibility of the Project In charge and Depot Head to implement this procedure and ensure that delegated staff under their supervision carries it out.
▪ <b>4.0</b>	▪ <b>DEFINITIONS</b>
	Project In charge: Person responsible for the execution of the project.
▪ <b>5.0</b>	▪ <b>LEGAL REQUIREMENT</b>
	The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule 48, 88 and 95, Motor Vehicle Act 1988
▪ <b>6.0</b>	▪ <b>REQUIREMENTS</b>
6.1	<u>General</u>
	<ul style="list-style-type: none"> <li>☞ All road works create inconvenience and are a potential hazard to the safety of all road users and those employed in carrying out the work.</li> <li>☞ All the effects should be mitigated or reduced to the minimum, and to ensure that the works are properly guarded, lighted and signed.</li> <li>☞ A clear and early warning of any obstruction to all road users should be provided.</li> <li>☞ All areas where work is going on should be clearly demarcated by barricading and entry into these areas should be restricted to only authorized personnel.</li> </ul>
6.2	<u>Planning stage</u>
	<ul style="list-style-type: none"> <li>☞ The client and DSC’s Engineer should be consulted as regards the execution of the works and the safety measures which would be put in place.</li> <li>☞ Particular attention should be given to : <ul style="list-style-type: none"> <li>○ traffic signs;</li> <li>○ cones;</li> <li>○ barriers;</li> <li>○ road hazard warning lights;</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ information boards; and</li> <li>○ site lighting</li> </ul> <p>☞ Consider necessity of traffic control systems such as temporary traffic lights or Stop/Go boards.</p> <p>☞ Access should be planned to eliminate dangerous movements of site traffic (e.g. reversing of vehicles) and personnel (e.g. crossing dual carriageways).</p> <p>☞ Provision of adequate lighting.</p> <p>☞ All persons working on or near the road shall wear high visibility jackets or a cross belt.</p>
6.3	<b>On site</b>
	<p>☞ The working area in the live road/footway shall be defined.</p> <p>☞ The working space shall be defined – this includes the area of storage of tools and equipment and space to move around the job.</p> <p>☞ Provision of safety zone- it shall be kept clear of all work, material storage and people and shall be clear of working radius of all plant.</p>
6.4	<b>Operators / Drivers</b>
	<ul style="list-style-type: none"> <li>• Experienced operators and drivers with valid licensed has been appointed.</li> <li>• One copy of license has been collected by Safety Department.</li> </ul>
6.5	<b>Equipment</b>
	<ul style="list-style-type: none"> <li>• Drivers are made a daily inspection of their vehicles include steering, brakes, mirrors, lights, horn, tyres and windshield wipers.</li> <li>• Safety Department along with Plant department has been checking the vehicles monthly basis</li> <li>• All vehicles have reverse horns and it is in working properly.</li> <li>• All vehicles, periodical maintenance has conducted.</li> </ul>
6.6	<b>Roads</b>
	<p>For safe operation we are following the bellow safety measure:</p> <ul style="list-style-type: none"> <li>• Safe width has been provided.</li> <li>• One-way traffic roads have been used.</li> <li>• Speed limit is not greater than 15km/hr within the site.</li> <li>• Safe walkway with proper guard has been provided.</li> <li>• 24 nos., round the clock Traffic marshal has been appointed for safe road diversion.</li> <li>• Caution board has been placed in every location within the site.</li> <li>• During night alert light has been provided.</li> <li>• Workers are working with reflective jacket as well as required PPE's.</li> <li>• Conducting Toolbox training as regular basis.</li> <li>• Road has been closed with proper permission.</li> <li>• Reflective type Diversion board has been placed in required places.</li> <li>• Road diversion drawing has been submitted (Ref. Attached drawing)</li> </ul>
6.7	<b>Loading and unloading</b>
	<ul style="list-style-type: none"> <li>• Only authorised persons were engage for loading / unloading.</li> <li>• Materials loaded within the permitted safe weigh limit for the truck,</li> <li>• Dimensions of loads carried on a vehicle in strict accordance with relevant provisions.</li> <li>• A red flag is being used at the rear extremity of an overhanging load.</li> <li>• During the hours of darkness or in poor visibility conditions, a white light showing ahead at each side of the front extremity and a red light showing to the rear extremity of the hanging load are has been provided.</li> <li>• During Toolbox talks Intimation has been delivered to all drivers/operators that when the driver leaves the driving seat, the engine of the truck shall be switched off, the gear engaged and parking brakes applied. On slopes, wheel blocks shall be applied.</li> <li>• Helper has been provided with all vehicles.</li> </ul>

6.8	<p><b>Working Area</b></p> <ul style="list-style-type: none"> <li>☞ The working area in the live road/footway has defined and barricaded.</li> <li>☞ The working area has been restricted from unauthorized entry.</li> <li>☞ The working space has been defined – this includes the area of storage of tools and equipment and space to move around the job.</li> <li>☞ Particular attention has been taken in working area :             <ul style="list-style-type: none"> <li>○ traffic signs;</li> <li>○ cones;</li> <li>○ barriers;</li> <li>○ road hazard warning lights;</li> <li>○ information boards; and</li> <li>○ site lighting</li> </ul> </li> <li>☞ Adequate lighting has been provided.</li> <li>☞ All persons wear high visibility jackets.</li> </ul>
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**APPENDIX 5 FIELD LEVEL TRAININGS CONDUCTED DURING REPORTING PERIOD**

**Package: SD 09**

**SNET-JBPL-JV**

KEORAPUKUR, SD-09, KOLKATA  
TOOL BOX PROGRAMME

DATE 11/01/17

LOCATION: Princk field Road

SUBJECT: Housekeeping, sanitation & PPE's

CONDUCTED BY: P.K. KHATA

SITE ENGINEER: Asim Chatterjee

CONTRACTOR: Ran Mist

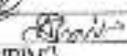
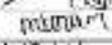
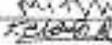
**UNDERTAKING**

Declare that I have taken the Safety Training from Tool Box Meeting, today before starting of the job and known fully the nature of job and their Safety Precaution.

SL.No.	NAME	AGE	SEX	DESIGNATION	SIGNATURE
01.	Kishu Kumar	52	M	Worker	[Signature]
02.	Mohan Kumar	48	M	Worker	[Signature]
03.	Subodh Kumar	50	M	Worker	[Signature]
04.	Ganesh Kumar	42	M	Worker	[Signature]
05.	Sunil Kumar	42	M	Contractor	[Signature]
06.	Rudra Kumar	27	M	Worker	[Signature]
07.	Rishabh Kumar	27	M	Worker	[Signature]
08.	Rohan Kumar	25	M	Worker	[Signature]
09.	Raj Kumar	24	M	Worker	[Signature]
10.	Anil Kumar	19	M	Worker	[Signature]
11.	Rishi Kumar	27	M	Worker	[Signature]
12.	Rishi Kumar	24	M	Worker	[Signature]
13.	Rishi Kumar	22	M	Worker	[Signature]
14.	Rishi Kumar	50	M	Contractor	[Signature]
15.	Laxmi Kumar	38	M	Worker	[Signature]

SIGNATURE OF SAFETY OFFICER: [Signature] SIGNATURE OF SITE ENGINEER: Asim Chatterjee

**Package: SD 10**

 <b>TANTIA CONSTRUCTIONS LTD, KOLKATA</b>			
Ref. No.			
Name of the Project: S&D Network in Ranig Box Catchment, SD-10			
Date of Induction: 25-11-2017			
Venue:			
Trainer's Name & Designation: AVILASH GHOSH S.D			
Trainee Category:			
Training Topics: HSE INDUCTION (Site Introduction, HSE Rules & Guidelines, PPE, Do's & Don'ts, Site Specific Hazards & Control Measures, Emergency Rescue Plan, General HSE requirement at the Project Site etc.			
Trainees:			
Sl. No.	Name of the Trainee	Designation	Signature
1	SK. Mahiul	Driver	
2	Asif Hossain	Electrician	
3	Mithun Das	Cook	
4	AKTARUL K	Welding-Labour	AKTARUL K
5	SHANKAR VERMA	Painter	Shankar
6	Mithun Mondal	Hydro operator	Mithun
7	SK. Lalokanah	Damp heat driver	
8	Md. Hajejul Alam	Tractor operator	Md. Hajejul Alam
9			
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**Package: SD 11**

**TANTLA CONSTRUCTIONS LTD, KOLKATA**

Ref. No. \_\_\_\_\_

Name of the Project: S&D NETWORK IN VIVEKANANDA ROAD CATCHMENT, SD-II

Date of Induction: 30-10-2017

Venue: \_\_\_\_\_

Trainer's Name & Designation: AVILASH GHOSH (S.D)

Trainee Category: \_\_\_\_\_

Training Topics: HSE INDUCTION (Site Introduction, HSE Rules & Guidelines, PPE, Do's & Don'ts, Site Specific Hazards & Control Measures, Emergency Rescue Plan, General HSE requirement at the Project Site etc.

Trainees:

Sl. No.	Name of the Trainee	Designation	Signature
1	Naba Kumar Basu	Lab Asst	[Signature]
2	Prasanna Roy	Lab Asst	[Signature]
3	Arup Kumar	Jawa	[Signature]
4	Suresh Prasad	Machin	[Signature]
5	Gokulnandan	Machine operator	[Signature]
6	Mr. Rahul Kherr	LAB ASST	[Signature]
7	ROHIDUL	Tractor operator	[Signature]
8	ASIT HAIT	Machine operator	[Signature]
9		Electrician	[Signature]
10			
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**Package: SD 12**



ITD CEMENTATION INDIA LIMITED

SP-13

TOOLBOX TALK RECORD

Project Name / No	KEIP-3413-MS	Date	23/6/18
TBT Location	SP-13	Duration	30 min

Sr. No.	Name of Person	Designation	Company / Sub-Contractor	Signature
1	Sankar Das	Worker	D.H. Singh	[Signature]
2	Fajun Chandra Mallick	Worker	D.H. Singh	[Signature]
3	Soumen Hoje	Worker	ITD	[Signature]
4	27th Jan 2018	Worker	D.H. Singh	[Signature]
5	Worker	Worker	D.H. Singh	[Signature]
6	Worker	Worker	ITD	[Signature]
7	Worker	Worker	ITD	[Signature]
8	Worker	Worker	ITD	[Signature]
9	Worker	Worker	ITD	[Signature]
10	Worker	Worker	ITD	[Signature]
11	Worker	Worker	ITD	[Signature]
12	Worker	Worker	ITD	[Signature]
13	Worker	Worker	ITD	[Signature]
14	Worker	Worker	ITD	[Signature]
15	Worker	Worker	ITD	[Signature]

Topics Covered: Hot Work, Personal Safety, Housekeeping.

Hazards Involved:

- Electric Shock
- Fire

Preventive Measures:

- Use grounded extension for both ends.
- Use ground conditionable cable.
- Use R.C.B.

TBT Given By (Engineer/Supervisor): Ranga Sanyal (Name) [Signature] (Sign)

**Package: SD 13**

Induction for staff

Sr	Name of the Person	Company/ Agency	Designation/ Trade	Address	Present
1	Ankur Koley	Simplex	Safety Engineer	Vill- Pasipala (G), P.O. + P.S. + Wheberia, Dist - Harpal, Pin Code: 721315 (G)	DO
2	Pranab Chatterjee	Simplex	Sr. Supervisor	vill + PO - Santipur P.S. - Santipur Dist - Medinipur Pin - 742163 V.B.	Bachala Medini State 25/2B D.H. Row
	Rimoy Kumar 319 FS (End Cole)	Simplex	S/C SUPERVISOR	Vill + PO - 319 FS P.S. - ... Dist - ... Pin - 743293 (G)	DO
	Chandra Manu	Simplex	Mechanic	vill - Harpal, P.O. - Madhapur Dist - Medinipur, Pin - 721626	Bachala Medini State 25/2B D.H. Row
	Juanas Chakraborty	Simplex	mech. supervisor	vill + PO - Bhakerguda Dist - Harpal P.S. - Amta Pin - 711401	DO
	Prasenjit	Simplex	Sr Supervisor	PS/11.5 + ... Harpal, Dist	DO
	Asit Das	Simplex	Intend. Officer	P-34 Brijamoni Baha Road, Dist - ...	DO
	Sudipto Chatterjee	Simplex	Project Engg. Sr. II	52/1/1, Street Bijay Sree, Dist - ...	-
	Vicky Kumar	Simplex	SARSI Supervisor	Vill - PRSD	-



## SIMPLEX INFRASTRUCTURES LIMITED

PUNJAB, INDIA TEL: 011-26101111 FAX: 011-26101112

# TRAINING RECORD FORM

Name of the Site : *Bachala Sewerage & Drainage Project*

Contract No. : *C-3155-SD13*

Venue : *R.N. Tagore Road, Date & Time: 21/12/17*

Topic discussed : *House Keeping & PPE*

Response of Trainees : *- Good -*

Remark / Any significant problem : *Further training required for betterment in future.*

Sl. No.	Name of Attendee	Designation	Signature	Evaluation / Effectiveness of training on				Evaluated by
				1	2	3	4	
1	<i>Sanjiv Bandyopadhyay</i>	<i>Engineer</i>	<i>[Signature]</i>			✓		<i>[Signature]</i>
2	<i>Payal Sg.</i>	<i>Mechanical</i>	<i>[Signature]</i>			✓		
3	<i>Rakesh Sg.</i>	<i>Job Master</i>	<i>[Signature]</i>			✓		
4	<i>Arunal Sg.</i>	<i>Helper</i>	<i>[Signature]</i>			✓		
5	<i>Hannan Sg.</i>	<i>Skilled</i>	<i>[Signature]</i>			✓		
6	<i>Mukul Mohan</i>	<i>Skilled</i>	<i>[Signature]</i>			✓		

Legend:  
 1 - Further training required, 2 - Average, 3 - Good, 4 - Excellence (to be used for training only)



Package SD 14

Safety Induction of Staff (SD=14)

SL NO	NAME OF THE PERSON	COMPANY / AGENCY	DESIGNATION / TRADE	ADDRESS PERMANANT	PRESE
16	Bakrah Ch. Maity (82261)	Simplex	Sr. Officer / Accounts	3rd Fl, Bagurhata, Durgam Chakrabarti, Kharas-57	- No -
17	Vijay Mondal (810-8438)	Simplex	Deputy Manager / Construction	W-11, Doocharhat Post, Simpatla, Gundawan, P.O.	P.O. Tatanmalla, D.H. Post, Gehala
18	Harshad Das	Simplex	Supervisor	58/2 Health Enclave Rd, KOL-700065	- DO -
19	Laxman Kumar	Simplex	Store Assl.	V-11 - Anandkhari, P.O. - Lakshmi Nagar, P.O. - Patashikara, BIST - Purban, Medinipur, PIN-721139	- DO -
20	Bilhan Kumar Shaha	Simplex	Sr. Surveyor	<del>W-11 - Anandkhari</del> W-11 - Anandkhari, Dist Hooghly, West Bengal 721002	- DO -
21	Gourav Kumar	Simplex	RENIK CONSTRUCTION SUPERVISOR	22/275 - GARDEN, KOL - 744	- DO -



**SIMPLEX INFRASTRUCTURES LIMITED**

Form No. SI/HRV/EST/001 (01) Dt. 01.12.2014

**TOOL BOX MEETING**

LOCATION:- M. B. Road.

DATE:- 16/04/17

TIME: 8:30 a.m.

subject- Safe work procedure for pipe lifting/shifting and lowering in trenches.

Name	Designation	Signature
Muzamil S. Kh	Supervisor	Muzamil S. Kh
Kausar Ali	Mason	Kausar
Balet S. Kh	Helper	Balet S. Kh
Yusuf Ali	Helper	YUSUF ALI
Aminul Haque	Helper	[Redacted]
Md. Samirul	Mason	Md. Samirul
Jamil S. Kh	Mason	Jamil S. Kh
Ripon S. Kh	Helper	Ripon S. Kh
Babji S. Kh	Helper	Babji
Sabirul Haque	Mason	SABIRUL HAQUE

NAME OF CONDUCTOR- Simplex Infrastructures Ltd.

DESIGNATION:- Asst. Engg.

SIGNATURE- S. P. Poudyal

Important: If there has an obligation anybody can stop the work.

16/04/17



Package WS 15

GDCL Procedure for HSE Induction Training

*Ravdeep Sarko,*

GANNON DUNCKERLEY & Co., LTD.-HSEF-004 Rev D			
HSE INDUCTION PROGRAMME			
C.G. Number:			
Name of the Project: <i>KEIP Take</i>			
Date of Induction: <i>09.11.17</i>			
Venue: <i>Talpur Site</i>			
Trainer's Name & Designation: <i>P.P. Singh, (Sr Safety Sup)</i>			
Trainee Category:			
Training Topics: <i>HSE INDUCTION (SITE INTRODUCTION, HSE RULES &amp; GUIDELINES, PPE, DO'S &amp; DON'T'S, SITE SPECIFIC HAZARDS &amp; CONTROL MEASURES, EMERGENCY RESCUE PLAN, GENERAL HSE REQUIREMENTS OF CLIENT AT THE PROJECT SITE ETC.)</i>			
Trainees:			
S.No.	Name of the Trainee	Designation	Signature
1	<i>Ravdeep Dahi</i>	<i>Contractor</i>	<i>Ravdeep Dahi</i>
2	<i>P. Kumar Sarkar</i>	<i>Contractor</i>	<i>P. Kumar Sarkar</i>
3	<i>Sarwanjit Gato</i>	<i>Sr. Electrician</i>	<i>Sarwanjit Gato</i>
4	<i>Ashish Nank</i>	<i>Contractor</i>	<i>Ashish Nank</i>
5	<i>Rajesh Kumar Sarkar</i>	<i>Contractor</i>	<i>Rajesh Kumar Sarkar</i>
6	<i>Durga Chaman Goh</i>	<i>Contractor</i>	<i>Durga Chaman Goh</i>
7	<i>Pril Nathani</i>	<i>Sr. Electrician</i>	<i>Pril Nathani</i>
8	<i>Shyam Lal Kishor</i>	<i>Helper</i>	<i>Shyam Lal Kishor</i>
9	<i>Vinay K Sarkar</i>	<i>Contractor</i>	<i>Vinay K Sarkar</i>
10			
11			
12			
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15			
Signature of Project HSE Incharge / HSE Trainer: <i>P.P. Singh</i>			

**Package WS 16**

**WORKER TALK RECORDING SHEET**

DATE & TIME: 11/11/17 8:30 AM

PUNJAB POLICE  
FORM-LTS

SUBJECT/ NATURE OF WORK: Sand Blasting, Painting, Laying  
- WS-16

SL NO	WORKER'S NAME	DEPT	SIGNATURE
1)	Narain Kumar Joshi	Site Engineer	[Signature]
2)	Rishi Mahajan Khosla	"	[Signature]
3)	Chaitan Khosla	Subcontractor	[Signature]
4)	Hardeep Kumar Singh	Electrician	[Signature]
5)	Arvind Kumar	Master Carpenter	[Signature]
6)	Yashraj Singh	Subcontractor	[Signature]
7)	Uma Shanker Singh	Electrician	[Signature]
8)	Moham Prasad	"	[Signature]
9)	Harpreet Singh	Electrician	[Signature]
10)	Sandeep Prasad	Electrician	[Signature]
11)	Yoginder Prasad	"	[Signature]
12)	Sunil Singh	Electrician	[Signature]
13)	Yoginder Yadav	"	[Signature]
14)	Chandrabhan Singh	"	[Signature]
15)	Zindro Singh	"	[Signature]
16)	Rajy Khosla	"	[Signature]
17)	Rohindra Sabharwal	"	[Signature]
18)	Fajal Prasad	"	[Signature]

Remarks if any:

[Signature]  
Sujy Officer  
PIL-KIL JV

**Package WS 18**

**TOOLBOX TALK RECORDING SHEET**

DATE & TIME: 12th October 2017 8:30 AM

SUBJECT (NATURE OF WORK): Sand Blasting: Painting (concreting station)  
- WS 18

FUTURE PAPER  
JOB LTD

SL NO	WORKERS NAME	REG.	SIGNATURE
1)	Abdul Rahman Khan	Site Incharge	
2)	Neeraj Kumar Rai	"	
3)	Awaiz Khan	superintox	
4)	Deepak Kumar Singh	Accountant	Deepak
5)	Umeshankar Singh	Master	U.S.
6)	Mohan Prasad	"	FILED
7)	Sharmendra Yadav	Painter	Sh
8)	Ashind Kumar Yadav	superintendent	Ashind Kumar
9)	Rajan Adhikari	contractor	R.A.
10)	Sagar Prasad	Rigar	SAGAR
11)	Yogindra Prasad	"	Y.P.
12)	Sunil Singh	Heliker	Sunil
13)	Chandrabhan Singh	"	Chandrabhan
14)	Sharmendra Yadav	"	Sh
15)	Siddhanta Yadav	"	SH
16)	Yogindra Yadav	"	Y.P.
17)	Rohindra Kumar Singh	"	R.K.
18)	Ajay Prasad	"	A.P.

Remarks if any:

VS. Chandrabhan Singh  
Safety Officer  
FRL-RK JV

**APPENDIX 6: SAMPLE SPOIL MANAGEMENT PLAN**



**ITD-ITD Cem Joint Venture**

**SAFETY & HEALTH OPERATION CONTROL PROCEDURES**

Spoil Management Plan (SMP) Revised-DECEMBER-2017

- **NAME OF PROJECT:** LAYING OF TRUNK SEWER ALONG JAMES LONG SARANI BY MICROTUNNELING METHOD.

▪ 1.0	▪ <b>PURPOSE</b>
	To describe how the project will manage the spoil generated and reuse related to design and construction works.
▪ 2.0	▪ <b>SCOPE</b>
	The procedure is applicable to ITD-ITD CEM JV sites and depots.
▪ 3.1	▪ <b>RESPONSIBILITY</b>
	Project In charge is responsible for its implementation. Corporate Head EHS is responsible for its review and modification.
3.2	<b>RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT</b>
	<p><u>Project In charge (PI)</u></p> <ul style="list-style-type: none"> <li>• The project PI will have overall responsibility of EHS Management at the site and improving safety and health in all areas. He shall:</li> <li>• Comply with Client's requirements, HSE-Policy of the company and relevant statutory requirements that are applicable to the relevant work.</li> <li>• Ascertain that all plants and machinery utilized at the project site meets the safety standard and are safe for use.</li> <li>• Get familiar with and demonstrate his commitment to continual improvement in EHS performance;</li> <li>• Ensure that all personnel are aware of commitment to environmental protection and worker safety;</li> <li>• Monitor EHS performance of the personnel and activities under his control;</li> <li>• Ensure that safe system of work are implemented and maintained by the project Engineers / Supervisors / Foreman and employees at the work site.</li> <li>• Ensure that Site EHS Plan is accessible to all relevant parties;</li> <li>• Ensure that sufficient induction training for all employees and workers is given before commencement of work at site and subsequently for new inductees;</li> <li>• Undertake program of regular EHS Inspection at site.</li> <li>• Arrange and chair monthly Site EHS Management Review Meeting.</li> </ul> <p><u>Site/Front In-charge</u></p> <p>The Site/Front In-charge will be responsible to the PM for implementation of EHS operational control procedures. In the absence of PM, he would take control of the Site. His duties are similar to that of the PM.</p> <p><u>Site Engineers/Supervisors</u></p> <ul style="list-style-type: none"> <li>• They will be responsible to the PM / Site / Front In-charge for implementing the requirements of this plan. In particular they are required to: -</li> <li>• Be familiar with Site EHS Plan;</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintain safe working conditions and good housekeeping in all areas under his supervision.</li> <li>• Enforce use of PPE as requested by Project Specific Rules and regulations.</li> <li>• Liaise and cooperate with Site Safety EHS Officer and ensure that defects brought to attention are corrected.</li> <li>• Immediately Inform &amp; report to the HSE-Officer while any accident, near misses, dangerous occurrence, occupational poisoning or diseases shall be noticed within the project sites.</li> <li>• Plan safety in accordance with the approved work methodology for daily work activities.</li> <li>• Prepare S.O.P and GRA for each activity and it should be explained to employee before begins work.</li> <li>• Establish and maintain proper communication with all workers with regard to EHS; and</li> <li>• Provide proper supervision for the work.</li> </ul> <p><b><u>Environment, Health &amp; Safety (EHS) Officer</u></b></p> <p>He will be accountable to the PM for fulfilling the duties assigned to him and ensure implementation of EHS Plan.</p> <p>His duties will include: -</p> <ul style="list-style-type: none"> <li>• Monitor and advise relevant personnel on compliance with EHS statutory obligations at the site;</li> <li>• Facilitate inclusion of safety elements into work Method Statement.</li> <li>• Highlight the requirement of safety through Tool-Box / other meetings.</li> <li>• Conduct investigation of all accident/dangerous occurrences and recommend appropriate safety measures.</li> <li>• Advice &amp; co-ordinate for implementation of operational control procedures etc.</li> <li>• Convene safety meeting &amp; minute the proceeding for circulation &amp; follow-up action.</li> <li>• Provide copies of site / office inspection report to relevant managers;</li> <li>• Plan procurement of PPEs and safety devices and inspect their healthiness.</li> <li>• Report to PM/Divisional Manager on all matters pertaining to status of safety and promotional program at site level.</li> <li>• Facilitate administration of FIRST – AID.</li> <li>• Facilitate screening of workman and safety induction.</li> <li>• Conduct fire drill and facilitate emergency preparedness.</li> <li>• Design campaigns, competitions and other special emphasis programs to promote safety in the work place.</li> <li>• Notify site personnel non-conformance to safety norms observed during site visits / site inspections.</li> <li>• Attend and participate in Site EHS Management Review Meetings;</li> <li>• Access and advise PM on the perceived EHS training needs of project personnel;</li> <li>• Monitor EHS performance of subcontractors and make appropriate recommendations for performance improvement.</li> </ul> <p><b><u>Employees</u></b></p> <p>All employees will be accountable for conforming to the requirement of the EHS Plan and statutory requirements. In particular every employee will be required to: -</p> <ul style="list-style-type: none"> <li>• Take care of environmental protection and safety of himself &amp; others;</li> </ul>
--	--

	<ul style="list-style-type: none"> <li>• Co-operate to fulfil statutory EHS obligations;</li> <li>• Co-operate in pursuit of continuous EHS performance Improvement; and</li> <li>• Conform to requirement of Project EHS plan.</li> <li>• Report defects in lifting appliances, lifting gears, transport equipments and any other equipments or tools &amp; tackles to your immediate superior.</li> <li>• Not to remove or interfere with any fencing, gangway, ladder, covering, life saving appliances, lighting and other things whatsoever required by site safety rules &amp; regulations.</li> <li>• Take care of personal protective equipment</li> <li>• Don't let your work put another worker in danger.</li> <li>• Use only means of access provided for specific work at site.</li> <li>• Avoid horseplay, practical jokes or other activities to create a hazard.</li> <li>• Don't use drugs or alcohol on the job.</li> <li>• Keep the latrines, urinals, wash points, canteen and other facilities provided in a clean and hygienic condition</li> <li>• Report any unsafe work practice and any injury or accident to your supervisor.</li> </ul>
▪ 4.0	▪ <b>DEFINITIONS</b>
	Project In charge: Person responsible for the execution of the project.
▪ 5.0	▪ <b>LEGAL REQUIREMENT</b>
	<ul style="list-style-type: none"> <li>☞ The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule</li> <li>☞ Environmental Protection Act 1986.</li> <li>☞ The Water [Prevention &amp; Control Of Pollution] Act – 1974 and Rules 1975</li> <li>☞ The Water [Prevention &amp; Control Of Pollution] CASs Act-1977 and Rules-1978 as amended in 2003</li> <li>☞ The Air [Prevention &amp; Control Of Pollution] Act – 1981 and Rules 1983</li> <li>☞ The Environment [Protection] Act – 1986 &amp; Rules-1986 as amended from time to time</li> <li>☞ The Hazardous Waste (Management and Handling) Rules, 1989 as amended from time to time.</li> <li>☞ Bio-Medical waste ( Management &amp; Handling ) Rules1998</li> <li>☞ Municipal Solid Waste (Management and Handling) Rules 2000</li> <li>☞ Noise Pollution Regulation &amp; Control rules, 2000.</li> <li>☞ Battery (Management and Handling) rules, 2001.</li> </ul>
▪ 6.0	▪ <b>REQUIREMENTS</b>
6.1	Procedure
	<ul style="list-style-type: none"> <li>☞ Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites.</li> <li>☞ Characterization of spoil: Based on the type of spoil; characterization is done (sand stone, mud mix materials, reusable materials)</li> </ul> <p>Adopt Spoil Reduce, Reuse Opportunities An overview of the assessment methodology to be used is mentioned below.</p> <ul style="list-style-type: none"> <li>☞ Consideration of likely spoil characteristics</li> <li>☞ Identification of possible reuse sites</li> <li>☞ Screening of possible reuse opportunities</li> <li>☞ Identification of possible safe disposal sites for spoil: Those spoils which can't be reuse shall be properly disposed in designated areas, such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior cliental approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if</li> </ul>

	required permission should be obtained from them.																		
6.2	<b>Identification and Assessment of Spoil Aspects and Impacts</b>																		
	<p>☞ There is some place assessed and indentified jointly inside the Garden reach STP for dumped and dressed the extra earth which is presently down from actual level.</p> <p>☞ Potential for height winds generating airborne dust from stockpiles, potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on road, contamination of water, associated with spoil handling and haulage and storage, limited sites for storage and reuse opportunities.</p>																		
7	<p>▪ <b>SPOIL VOLUMES, CHARACTERISTICS AND MINIMIZATION</b></p> <ul style="list-style-type: none"> <li>• Volumes 16850 Cum</li> <li>• Characteristics Normal earth basically clay types</li> <li>• Minimization</li> </ul> <p>Excavation of earth to be done as per requirements only. No extra earth shall be excavated.</p>																		
8	<b>Spoil Reuses Opportunities, Identification and Assessment</b>																		
	<ul style="list-style-type: none"> <li>• Small quantity of spoils will be re used for back filling of excavated shaft location.</li> <li>• Balance spoils will be removed.</li> </ul>																		
9.	<b>Spoil Transportation Methodology</b>																		
	<ul style="list-style-type: none"> <li>• Extra earth will be shifted by Truck / Dumper from site to dumping yard.</li> </ul>																		
10	<b>Monitoring, Reporting, Review and Improvements</b>																		
	<ul style="list-style-type: none"> <li>• Monitoring, Reporting and all necessary improvements will be as required.</li> </ul>																		
11	<b>List of Relevant Guide Lines/ Documents</b> Nil																		
12	<b>References</b> Nil																		
13	<p><b>Related other Procedures</b></p> <p>The key aspects of potential impacts are listed in table below</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Aspects</th> <th style="text-align: center;">Potential Impacts</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Air Quality</td> <td>Potential for high winds generating airborne dust from the stock piles</td> </tr> <tr> <td style="text-align: center;">Sedimentation</td> <td>Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads</td> </tr> <tr> <td style="text-align: center;">Surface and Groundwater</td> <td>Contamination of water (surface and ground water)</td> </tr> <tr> <td style="text-align: center;">Noise</td> <td>Associated with spoil handling and haulage and storage</td> </tr> <tr> <td style="text-align: center;">Traffic</td> <td>Impacts associated with spoil haulage</td> </tr> <tr> <td style="text-align: center;">Land Use</td> <td>Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal</td> </tr> <tr> <td style="text-align: center;">Design specifications</td> <td>Limitations on opportunities to minimize spoil generation</td> </tr> <tr> <td style="text-align: center;">Sustainability</td> <td>Limited sites for storage, reuse opportunities</td> </tr> </tbody> </table>	Aspects	Potential Impacts	Air Quality	Potential for high winds generating airborne dust from the stock piles	Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads	Surface and Groundwater	Contamination of water (surface and ground water)	Noise	Associated with spoil handling and haulage and storage	Traffic	Impacts associated with spoil haulage	Land Use	Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal	Design specifications	Limitations on opportunities to minimize spoil generation	Sustainability	Limited sites for storage, reuse opportunities
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**GANNON DUNKERLEY & CO. LTD.**

**SPOIL MANAGEMENT PLAN,**

**KEIIP, JOKA PROJECT SITE**

**Project:-Construction of Underground Reservoirs and Overhead Reservoirs, Pumping Stations & Linking Pumping Station Mains for Water Supply in Joka & adjoining areas including Operation & Maintenance of the Pumping Station.**

**ORDER NO-KEIIP/NCB/TR-2WS15/2015-16**

**Prepared By-Anerilosu Nayak (HSE officer, GDCL)  
Approved By-DSC/Keiip**

## 1.0 PURPOSE & APPLICATION-

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works in accordance with the spoil management hierarchy outlined in this document.

### **OBJECTIVES OF SMP-**

The objectives of SMP are:

- Implements and controls during construction phase to effectively manage waste produced and avoid any environmental impact or incident.
- To minimize spoil generation where possible.
- Maximum reuse of spoil generated from construction site.
- Manage onsite spoil handling to minimize environmental impacts on resident and other receivers.
- Minimize any further site contamination of land, water, soil.
- Manage the transportation of spoil with consideration of traffic impacts and transport related emissions.

### **INTRODUCTION OF SPM-**

The Construction Waste Management Plan is to be read in conjunction with the Project Specific Environmental Management Plan & site safety plan. Waste management system is to implement a set of strategies and controls to be used during construction phase to effectively manage waste produced and avoid any environmental impact or incident.

The Construction Waste Management Plan will identify the type and quantities of waste that would be generated on the project. This plan outlines strategies and controls to be implemented during the construction phase of the project that will enable the waste products to be handled, stored, re-used, recycled, and if necessary, appropriately treated.

### **LEGAL & OTHER REQUIREMENT-**

The following are legal requirements that we shall followed at site.

- The Hazardous Waste (Management and Handling) rules 2003.
- Environment waste handling and management act 2010 & Rules, 2011.
- Waste Avoidance and Resource Recovery Act 2001.
- The Manufacture, Storage and Import of Hazardous Chemical Act & Rules, 1989/2000.

### **ROLES AND RESPONSIBILITIES-**

- **Project Head-**  
Overall control of system compliance & Review of system administrations
- **Project Manager-**
  1. Control of system compliance.
  2. Supervision of SMP system & control.
  3. Internal monthly reporting for incident/non-conformance records, accident & incident reports and audit reports regarding spoil management system to DSC/KEIIP.
  4. Controlling of sub-contractor engaged in disposal of waste material.
- **HSE Officer-**
  1. Control & monitor of waste disposal system is performed properly.
  2. Ensure all aspects of the Environmental Management System are in place as required and any issues are resolved

3. Provide advice on compliance with standards, safe practice for disposal of waste.
4. Conduct internal audits for the spoil management system.
5. Weekly & monthly inspection shall be done properly & report shall be submitted to client.
6. Identify and assess environmental aspects and impacts and determine action for control.
7. Review and evaluate environmental incidents and ensure that incidents are reported and appropriate action shall be taken.

**EMERGENCY RESPONSE PLAN-**

POTENTIAL EMERGENCY	WHAT TO DO?	RELEVANT AUTHORITIES & PERSONS
<b>Spills Management &amp; Contaminated Soils</b> <b>Major Spills:</b> <ul style="list-style-type: none"> <li>• Spill or release of diesel fuel or oil</li> <li>• Spill or release of other hazardous chemicals or Material</li> </ul>	<ul style="list-style-type: none"> <li>• For major spills, (defined as a spill that is likely to have direct environmental consequences.)</li> <li>• Immediately call the Fire Brigade and notify site supervisor.</li> <li>• Identify the source of the spill.</li> <li>• Refer to the Material Safety Data Sheet (MSDS) and evaluate the hazards of the material.</li> </ul>	Site supervisor & site HSE supervisor.  Project manager.
<b>Minor Spills</b>	<ul style="list-style-type: none"> <li>• If the material is dangerous, evacuate the site immediately and notify all neighbors.</li> <li>• If it is safe, halt the source of the spill immediately.</li> <li>• Contain the spill and control its flow.</li> <li>• Block storm water drains downstream of the spill.</li> <li>• Minor spills (defined as spills which can be contained and rectified correctly without the need of external services), shall be contained and rectified with the site spill kit and disposed of correctly. Supervisor to be notified via incident report.</li> <li>• Reported to the Site Manager.</li> </ul>	Site supervisor & site HSE supervisor.

**ASSESSMENT OF SPOIL ASPECTS AND IMPACTS –**

Sl. No.	Sub Activity	Aspect	Environmental Impact	Proposed control measure
1	Spillage of oil	Land contamination	1. Land Contamination.  2. Depletion of Natural Resources.	1. Concrete Flooring to the storage area. 2. Provide liquid tray to avoid spillage of oil. 3. Use decanting pumps for transfer from one container to another.

2	Leakage of Gases	Air pollution	Air contamination	<ol style="list-style-type: none"> <li>4. Gas cylinder shall be checked properly with its validity.</li> <li>5. Provide cap on gas cylinder.</li> <li>6. Manually checking shall be done for leakage.</li> </ol>
3	Waste Excavated soil.	Land Contamination	Land Deformation	<ol style="list-style-type: none"> <li>1. Excavated soil shall be back fill as par as possible.</li> <li>2. If required to dispose then it shall be dispose in low land area with taking proper authorization.</li> </ol>
4	Waste cement slurry	<ol style="list-style-type: none"> <li>1.Land Contamination</li> <li>2. Water pollution.</li> </ol>	<ol style="list-style-type: none"> <li>1.Land Contamination.</li> <li>2. Water contamination.</li> </ol>	<ol style="list-style-type: none"> <li>1. Waste cement slurry shall not be disposed in local road or nearby pond.</li> <li>2. It shall be disposed in designated area with taking proper authority from land lord.</li> </ol>
5	Waste Bentonite	<ol style="list-style-type: none"> <li>1.Land Contamination</li> <li>2. Water pollution.</li> </ol>	<ol style="list-style-type: none"> <li>1.Land Contamination.</li> <li>2. Water contamination.</li> </ol>	<ol style="list-style-type: none"> <li>1. Waste Bentonite slurry shall not be disposed in local road or nearby pond or at site.</li> <li>2. It shall be disposed in designated area with taking proper authority from land lord.</li> </ol>
6.	CO2 gas generate from DG & piling machine.	Air pollution	Air contamination	<ol style="list-style-type: none"> <li>1. Air quality shall be checked before start the site. ( Base line) &amp; checking shall be done in regular 3 month interval.</li> </ol>

**SPOIL VOLUMES & CHARACTERISTICS-**

SI No.	Description	Generate/disposal	Units	Quantity	BY
1	Excavated soil	Generated & back fill	Cubic Mtrs	64 Cubic mtrs	Excavator
2	Bentonite chemical	Used in piling	KGs	Approx 35kgs/pile	manually
3	Bentonite Slurry	Dispose from site	LTRs	5000 LTRS /Day	tanker
4	Solid waste	Generated		Very little quantity	manually

5	Waste food	Generate		Very little quantity	manually
6	Solid & waste food	Disposal		Very little quantity	waste bin
7	Small piece of cutting re-bar.	Generate	KGS	Approx 30kgs	manually

**SPOIL REUSES OPPORTUNITIES, IDENTIFICATION AND ASSESSMENT-**

Spoil identification	From Area	TYPE	RE USE/DISPOSE
Waste food	Office & labor camp	Liquid	Disposed in designated area.
Waste food	Office & labor camp	Solid	Disposed in designated area.
Diesel & grease	Store & site	Liquid	Reuse by using tray.
Excavated soil	Site	Solid	Back filled & if required dispose then disposed in low land designated area.
Bentonite slurry	Site	Liquid	Disposed in designated area with taking proper authorization.
Cement slurry	Site	Liquid	Disposed in designated area with taking proper authority from land lord.

**ON SITE SPOIL MANAGEMENT APPROACH-**

- Waste products reused on site where possible.
- Separations of bio degradable & non degradable material for recycle.
- All residual waste products are sent to appropriately licensed destinations for recycling, reuse, treatment or disposal.
- Employees and contractor will be encouraged through inductions to minimize waste production on site and to dispose minimum where possible.
- Subcontractors will be encouraged to reuse materials such as cutting re bar, debris etc.
- Offices, lunch sheds waste will be separated into recycle and non-recycle waste.
- Housekeeping employee shall be trained about types of waste & its property. So that it will easy to segregate the waste.
- Scrap re bar shall be kept separately in scrap yard. It shall be reused in other work.

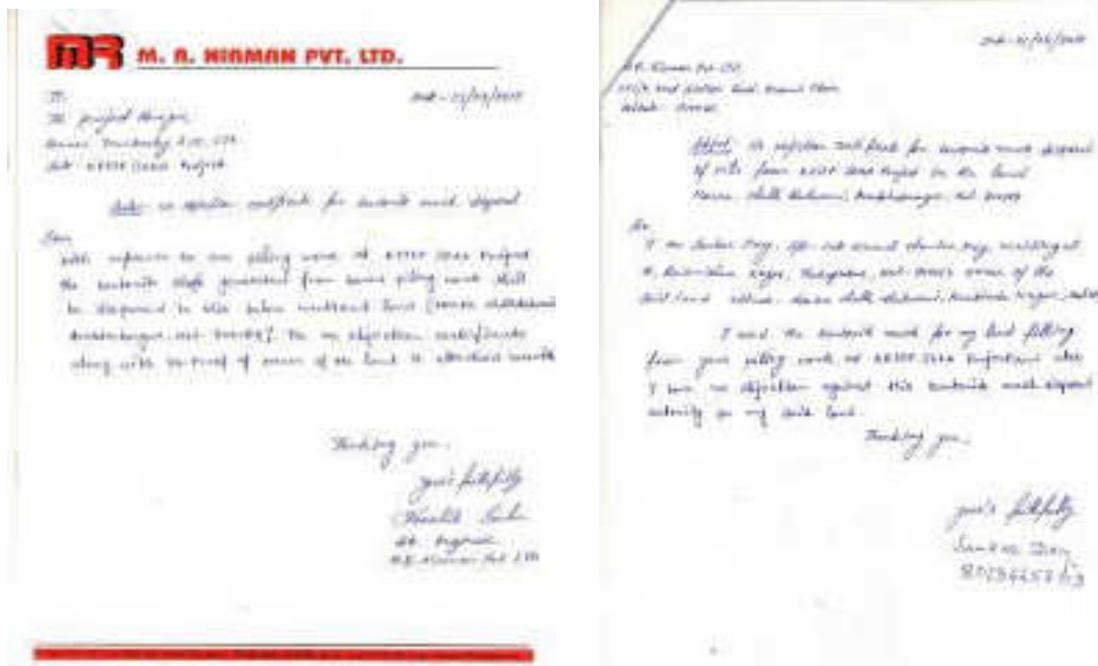
**SPOIL STORAGE & TRANSPORTATION-**

All waste and material generated on site during construction shall be classified in accordance with the Environmental Guidelines; Assessment, Classification of Liquid and Non-Liquid Wastes, bio degradable, non degradable. Waste will only be disposed of to a facility that may lawfully accept the waste.

The only hazardous waste oil/water, waste concrete, grease, Bentonite slush must be disposed with fulfill the legal procedure.

- The hazardous waste oil/ Water shall be stored properly at site temporarily.
- The oil shall be stored in shed to protect from sun light.
- The oil shall not spoil in ground.
- Smoking is prohibited in oil storage room
- Oil tray shall be used to avoid oil spoil on ground.
- Oil shall be handled or transport by an enclosed container.
- Waste bin shall be kept at site by segregate by bio degradable & non degradable.
- Waste bin shall be kept at site by segregate by solid & liquid at workers colony & office area.
- Scrap re bar shall be kept in steel scrap yard.
- Waste food shall be kept in waste bin & dispose by daily basis.
- Waste concrete or concrete slurry shall not be dispose at site; it shall be dispose at designated area.

**FOR DISPOSAL OF BENTONITE SLURRY WE HAVE NO OBJECTION CERTIFICATE FROM CUSTOMER IS SHOWING BELOW -**



**MONITORING & REPORTING-**

- Inspection shall be conducted in every month by HSE Officer.
- Daily inspection shall be done by safety supervisor & kept record.
- The site HSE officer will update the project team of any specific issues at the weekly tool box session and monitor the implementation of action items.
- Inspection shall be conducted in every quarter by site management.
- For worker's colony one person shall be designated for housekeeping the waste food & toilet block.
- Daily inspection Report shall be given to client in daily & weekly basis.
- Spoil related incident report shall be given immediately to client.

Sign of HSE officer

Sign of site in charge









Package SD 13

THE SOUTH WESTERN ASSURANCE CO. LTD.  
Privately owned by the Govt. of India

POICY SCHEDULE FOR EMPLOYER'S COMPANION HEALTH INSURANCE

Insured's Name		SAPLEK INFRASTRUCTURE LTD.		
Insured's Details		Company Details		
Customer ID	INSURANCE	Office Code	Branch Code	
Address	CHIKOLETA MUNICIPAL CORP PO: SIKROY ROAD TOLL VILLAGE BANWA KARNATAKA	Address	BRANCH CODE 000000 KARNATAKA 2ND FLOOR KARNATA	
Phone No.	KOLKATA, WEST BENGAL, INDIA	Phone No.	03322222	
E-mail/Fax	info@infrastructure.com	E-mail/Fax	info@infrastructure.com	
Plan No.	154400000000000000	S. Tax Book No.	KARNATAKA/ST/15	
DESCRIPTION	154400000000000000	GSTIN	KARNATAKA/ST/15	
		SAC	KARNATAKA/ST/15	

Policy Details		Business Terms Code	
Policy Number	INSURANCE/ST/15/154400000000000000	Policy Period	01/07/2017 TO 31/12/2017
Date of Issuance	01/07/17	Agent/Service Center	03322222
Form, Endorsement		Form No.	03322222
Class Type	03322222	Class Code	03322222

Product (T)	03322222	Term (T)	03322222	Rate (R) & Date
CLASS	03322222	CLASS	03322222	03322222/03322222 03322222

Details of Employees with monthly wages upto ₹ 8000

Categories	Sub Categories	No of Employees	Cash Total Wages
Builders All employees engaged in work of land or construction, demolition of buildings and other civil constructions like dams, bridges etc. in Karnataka	Each building and furnishing	100	840000

Details of Employees with monthly wages above ₹ 8000

Categories	Sub Categories	No of Employees	Cash Total Wages
Trade Description	Particular of Works	Location Details	Included in Sub-Contract
CIVIL CONTRACTOR	DEVELOPMENT OF SPRAWLAGE AND ORANGE NETURVA STATION JAMBOLDI SIKROY AND MANDALU JAMBOLDI ROAD CATCHMENT IN BORDACHI RIVER PART OF WARD NO. 112 & 114 CONTRACT NO. 154400000000000000	KOLKATA ENVIRONMENTAL RESTORATION PROGRAMME (SERP)	Yes

Contractor's Category Details

Serial No.	Name of Contractor	Description	Category	No. of Workers			Amount Wages
				Skilled	Unskilled	Others	
1	VARIOUS	VARIOUS	Builders All employees engaged in work of land or construction, demolition of buildings and other civil constructions like dams, bridges etc. in Karnataka	0	100	0	840000

Page No. : 154400000000000000 Document generated by 2017 at 09:22:00 11/20/17  
Head & Head Office: New India Assurance Bldg., 27 M.C. Road, Park, Mumbai - 400 001. TOLL FREE No. 1 800 204 5415

Page 1 of 1

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**KEIP/IDDP/END - contents: Details >> Extensions under the Policy Cover**

Name of the Extension	Sub Limit of the Extension	Deductible of the Extension
Special Conditions	NA ESTIMATED WAGES RS. 2600000/ INCLUDING SUBCONTRACTOR WORKERS/SOILED UNKILLED/CONTAMINATED ESTIMATED NO. OF WORKERS 100	
Special Exclusions	NA	
Special Excess/Deductible	NA	

The Policy shall be subject to EMPLOYERS COMPENSATION INSURANCE Policy clauses attached herewith.

Clause	Exemption	
Premium and GST Details		
Premium	Rate of Tax	Amount in INR
SGST		₹ 32806.04
CGST	0	4722
IGST	0	1754
	0	0

It is witnessed whereof the undersigned being duly authorized by the insurers and on behalf of the insurers has (have) hereunto set his (their) hand(s) on this 08th day of December 2017.

For and on behalf of  
*[Signature]*  
The New India Assurance Company Limited  
Duly Constituted Authorized Signatory

Date of issue: 08/12/2017

Stamp Duty under the Policy is Nil

Mudra \_\_\_\_\_ Dt. \_\_\_\_\_ consolidated Stamp Fees Paid by Pay Order Number \_\_\_\_\_ view receipt number \_\_\_\_\_ of \_\_\_\_\_

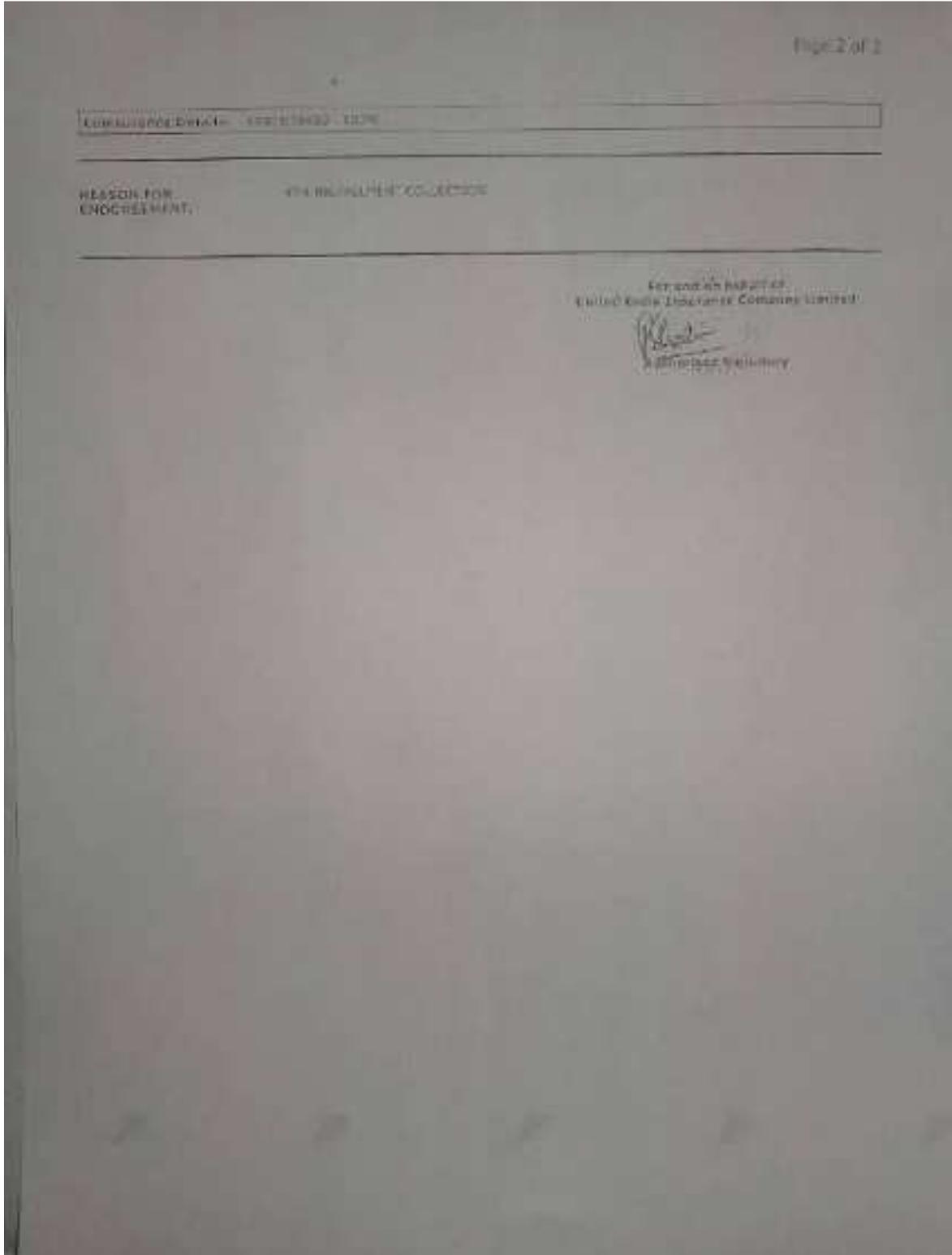
Tax Invoice No : 9500003600000118

IRDA Registration Number: 180

Policy No. : 9500005170100000118 Document generated by 26496 at 09/12/2017 11:23:02 Hours.  
Regd. & Head Office: New India Assurance Bldg., 87 B.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 210 1415.

Page 2 of 2





**Package WS 15**

THE NEW INDIA ASSURANCE CO. LTD.  
(Wholly owned by the Govt. of India)



**POLICY SCHEDULE FOR EMPLOYEES COMPENSATION INSURANCE**

Insured's Name	: GANNON DUNKERLEY & CO LTD		
	Insured's Details		Issuing Office Details
Customer ID	: IN255862758	Office Code	: SAKINAKA D.O - 140400 (140400)
Address	: PRANTIK VH, VB, NEAR KABARDANGA SBI, KOL - 104 & 05 OTHER LOCATIONS ADJACENT TO JOKA AREA.  JOTEGHANASHYAM, WEST BENGAL, 721153	Address	: VISHWAS, OTS - 728 A, NEAR LATA RUDER COMPANY ANCHERI KURI A RD, SAKINAKA, 400072
Phone No	:	Phone No	: 28505454
E-mail/Fax	: /	E-mail/Fax	: nia.140400@newindia.co.in / 28504433
PAN No	:	S.Tax Regn. No	: AAACN4165CST178
GSTIN/IN	: NA / NA	GSTIN	: 27AAACN4165C12P
		SAC	: 997139 (Other non life insurance services excl RI)

Policy Details			
Policy Number	: 14040036170100000272	Business Source Code	
Period of Insurance	: From: 14/12/2017 04:54:27 PM To: 13/12/2018 11:59:59 PM	Dev.Off. Level/Broker/Corp. Agent	: TOYOTA TSUSHU INSURANCE BROKERS(INDIA) PVT LTD - (2014398R7) BROKER SITE: 000506025005 (201440143)
Date of Proposal	: 14-Dec-17	Agent/Bancassurance	:
Prev. Policy no.	:	Phone No	: NA / NA
Client Type	: Corporate	E-mail/Fax	: nihar.ig@tibl.co.in, / / /

Premium(₹)	GST(₹)	Total (₹)	Total (₹ in words)	Receipt No. & Date
9325	1670	11004	RUPEES ELEVEN THOUSAND FOUR ONLY	1404008117000001144 5 - 14/12/17

**Details of Employees with monthly wages upto ₹ 8000:**

Categories	Sub Categories	No of Employee	Cash Total Wages
------------	----------------	----------------	------------------

**Details of Employees with monthly wages above ₹ 8000:**

Categories	Sub Categories	No of Employee	Cash Total Wages
Builders All employees engaged in shop or yard or in construction/demolition of buildings and other civil construction like dams, bridges etc. incl. excavation	SKILLED	10	1296280
Builders All employees engaged in shop or yard or in construction/demolition of buildings and other civil construction like dams, bridges etc. incl. excavation	SEMISKILLED	20	2358480
Builders All employees engaged in shop or yard or in construction/demolition of buildings and other civil construction like dams, bridges etc. incl. excavation	(UNSKILLED)	50	5375400

Trade Description	Particular of Works	Location Details	Included All Sub-Contractors
CIVIL WORK	Prantik Vh, VB, Near Kabardanga SBI, Kol - 104 & 05 other locations adjacent to Joka area	Prantik Vh, VB, Near Kabardanga SBI, Kol - 104 & 05 other locations adjacent to Joka area	Yes

**<<HIDDEN START contractr Details>>Contractor/Sub Contractor Details:**

Serial No	Name of Contractor	Description	Categorie	No. of Workers			Amount Wages
				Skilled	Unskilled	Others	



Policy No. : 14040036170100000272 Document generated by 33020 at 14/12/2017 17:31:38 Hours.

Regd. & Head Office: New India Assurance (Bldg., 07 M.G. Road, Fort, Mumbai - 400 015, TOLL FREE No. 1 800 208 1415)

THE NEW INDIA ASSURANCE CO. LTD.  
(Wholly owned by the Govt. of India)



<<HIDDEN END contract Details>>Extensions under the Policy Cover

Name of the Extension	Sub Limit of the Extension	Deductibles of the Extension
Medical Extension	₹200000	NA
Special Conditions	NA Medical Extension : ₹ 5 lac per person per incident restricted to ₹2 lac per person.	
Special Exclusions	NA	
Special Excess/Deductible	NA	
The Policy shall be subject to EMPLOYEES COMPENSATION INSURANCE Policy clauses attached herewith.		
Clauses	Description	

Premium and GST Details:

	Rate of Tax	Amount In INR
Premium		₹ 9325.00
SGST	0	0
CGST	0	0
IGST	18	1679

In witness whereof the undersigned being duly authorised by the Insurers and on behalf of the Insurers has (have) hereunder set his (their) hand(s) on this 14th day of December, 2017.

For and on behalf of

The New India Assurance Company Limited

Date of Issue: 14/12/2017

Duly Constituted Attorney(s)

Stamp Duty under the Policy is ₹1

Mudrank \_\_\_\_\_ Dt. \_\_\_\_\_ consolidated Stamp Fees Paid by Pay Order Number \_\_\_\_\_ vide receipt number \_\_\_\_\_ dt. \_\_\_\_\_

Tax Invoice No : 1404003600002/2

IRDA Registration Number: 190

**Package: WS 16**



**Royal Sundaram**  
General Insurance

**Royal Sundaram General Insurance Co**  
(formerly known as Royal Sundaram Alliance Insurance Company Limited)  
"Millennium City", Information Technology Park, Unit No.:  
Tower II, Plot No.: DN-62, Sector-V, Salt Lake, Kolkata - 700  
Call No.: 1860 425 0000 | Tel. No.: 033-4732 7373/2367 5  
E-mail: customer.services@royalsundaram.in  
Website: www.royalsundaram.in  
Registered Office: 21, Paulloy Road, Chennai - 600 002,  
BDM Registration Number - 102 | CIN-U67200TN200019

**WORKMEN'S COMPENSATION POLICY SCHEDULE**

<b>Intermediary Code</b>	<b>OA504383</b>
<b>Intermediary Name</b>	<b>Saibal Sengupta</b>
<b>Contact</b>	<b>9831176521</b>

---

**Policy No.** : LW00008140000100

---

**Insured Name & Address** : FFIL RIL JV  
: 1582, Rajdanga Main Road  
Kasba New Market 7th floor

**KOLKATA**  
700107

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**Business** : Laying of water transmission line and distribution network Package No.  
KEIP/NCB/TR-2WS-16/2016-17.

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**Law(s)**  
The Policy will provide coverage under the following Law(s)  
 • Workmen's Compensation Act, 1923 and subsequent amendments of the said Act prior to the issuance of this policy.  
 • Fatal Accidents Act, 1855  
 and  
 • Common Law

---

**Period of Insurance:** (a) From 18:00:00 on 30/06/2017 to 23:59:59 on 29/08/2018  
 (b) Any subsequent period for which the Insured shall pay and the Company shall agree to accept a renewal premium

---

Premium	Rs.	16,096.00
Add: Service Tax @ 14%	Rs.	2,338.00
Add: Swachh Bharat Cess @ 0.5%	Rs.	83.00
Add: Krishi Kalyan Cess @ 0.5%	Rs.	83.00
<b>Total Premium</b>	<b>Rs.</b>	<b>19,200.00</b>

---

Subject to adjustment in the terms of Condition 8 the estimated amount of wages salaries and other earnings on which Premium is based.

Estimated Number of Employees (A)	Occupation of Employees (B)	Estimated Total Salaries Wages and other money earnings per employee (C) (In Rs.)	Estimated Total Earnings (D=A*C) (In Rs.)	Place or Places of Employment (E)
<b>As per the Specification attached</b>				

---

Date of signature of Proposal and Declaration – 30/06/2017







**Royal Sundaram**  
General Insurance

Memoranda attached to and forming part of Policy No. LW000514000100

Estimated Number of Employees (A)	Occupation of Employees (B)	Estimated Total Salaries Wages and other money earnings per employee (C)	Estimated Total Earnings (D=A*C)	Place or Places of Employment. (E)
15	Unskilled Worker	91,200/-	13,68,000/-	Laying of Transmission Main from Daspara PS to UGRs at Prantik PH-III, KMC Land at Julpia Road and Transmission Main from PS to zonal Reservoirs-Contract Package No. KEIP/NCB/TR-2/WS-16/2016-17

For Royal Sundaram General Insurance Co. Limited,



**Package: WS 17A**



reliancegeneral.co.in  
1800 3009

**Employees Compensation Insurance Policy Schedule**

<b>Policy Number:</b> 151227771000394	<b>Proposal No:</b> 15171009930
<b>Insured:</b> MIS SIMPLEX INFRASTRUCTURES LTD	<b>Period Of Insurance:</b> From 26/04/2017 to 27/04/2018 (both days inclusive)
<b>Address:</b> 07, SIMPLEX HOUSE, SHAKERSPEARE SARANI, KOLKATA, KOLKATA, WEST BENGAL, 700017,	<b>Policy issuing office address:</b> RELIANCE CENTRE SOUTH WING, 4TH FLOOR, OFF. WESTERN EXPRESS HIGHWAY, SANTACRUZ (EAST), MUMBAI 400 056
<b>Business:</b> CIVIL CONSTRUCTION	<b>Policy issuing servicing address:</b> HIMALAYA HOUSE 5TH FLOOR, 38 B J L NEHRU ROAD KOLKATA KOLKATA KOLKATA WEST BENGAL 700071
<b>Mode of:</b>	<b>Date of proposal &amp; declaration:</b> 26/04/2017
	<b>Email ID:</b>
	<b>Risk:</b> Anywhere in WEST BENGAL State
	<b>Locations:</b>

Laws: The Policy covers liability of the Insured under the following Laws/ shown as covered, subject to claim being otherwise admissible as per terms, conditions and exclusions of the Policy and subject to Limit of Indemnity as stipulated against each Law

Law / Act	Limit of indemnity	Coverage
(a) Employee's Compensation Act, 1923 and subsequent amendments thereof prior to the date of issue of this Policy	subject otherwise to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured as per act for any death/INVT/PTD arising out of an accident.	Yes

Particular Details	Amount (₹)
Net Premium	58458.05
Service Tax*	8324.27
Swachh Bharat Cess	397.33
Annual Development Charge	297.30
<b>Total Premium (₹)</b>	<b>67477.00</b>

\* Not Applicable for the State of Jammu & Kashmir  
Service Tax Regd. No. ANR02617957001

**Details of Employees Covered**

Occupancy	Designation	Declared Number of Employees	Declared Wages during the Period of Insurance	Empl. No.	Class. No.
Electric Cable, Makers and suppliers of and Cabling, Installation and Erector work-J&W	Workers	150	10810900	177	130
<b>Total</b>		<b>150</b>	<b>10810900</b>		

Intermediary God/Name: \_\_\_\_\_ Intermediary Contact No.: \_\_\_\_\_ Intermediary Email ID: \_\_\_\_\_

Subject to following clauses/ Conditions:

- This policy would be governed by: I The Employee's Compensation Act, 1923 and subsequent amendments of the said Act prior to the date of issue of this Policy
- Including Cover for Contractors & sub-Contractors workers - subject to submission of details at the time of cover.
- Previous Loss History Nil.



**Package: WS 17B**



**RELIANCE**  
General Insurance

reliancegeneral.co.in  
1 800 3009

**Employees Compensation Insurance Policy Schedule**

<b>Policy Number:</b> 1517771180352	<b>Proposal No:</b> 15171905931
<b>Insured:</b> M/S SIMPLEX INFRASTRUCTURES LTD.	<b>Period Of Insurance:</b> From 28/04/2017 to 28/09/2018 (945 days/years)
<b>Address:</b> 37, 5 SIMPLEX HOUSE, SHAKESPEARE SARANI, KOLKATA, KOLKATA, WEST BENGAL, 700017.	<b>Policy Issuing office address:</b> RELIANCE CENTRE SOUTH WING, 4TH FLOOR, OFF WESTERN EXPRESS HIGHWAY, SANTACRUZ(EAST) MUMBAI - 400 055
<b>Business:</b> CIVIL CONSTRUCTION	<b>Policy Issuing sending address:</b> HIMALAYA HOUSE 5TH FLOOR, 38 B J L NEHRU ROAD KOLKATA - KOLKATA KOLKATA WEST BENGAL 700071
<b>Mode No:</b>	<b>Date of proposal &amp; declaration:</b> 28/04/2017
	<b>Class ID:</b>
	<b>Risk:</b> Anywhere in WEST BENGAL State
	<b>Locations:</b>

Law(s): The Policy covers Liability of the Insured under the following Law(s) shown as covered, subject to claim being otherwise permissible as per terms, conditions and exclusions of the Policy and subject to Limit of Indemnity as stipulated against each Law.

Law / Act	Limit of Indemnity	Coverage
a) Employee's Compensation Act, 1923 and subsequent amendments (read prior to the date of issue of this Policy)	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured as per act for any death/PPD/TDPTD arising out of an accident.	Yes

Premium Details	Amount (₹)
Net Premium	52459.85
Service Tax	5024.27
Swatch Board Cost	267.30
Other Karam Cost	267.30
<b>Total Premium</b>	<b>58018.72</b>

Not applicable in the State of Jharkhand (Kedara Rev. of Tax Regt. No. 14/01/2015-2017)

Details of Employees Covered					
Description of work done by Employees	Designation	Declared Number of Employees	Declared Worker during the Period of Insurance	Emp. No.	Class. No.
Electric Cables, Poles and supports of insl. Cables, laying, installation and Erection work-All w	Workers	150	12810800	177	135
<b>Total</b>		<b>150</b>	<b>12810800</b>		

Intermediary Code/Kano	Intermediary Contact No.	Intermediary E-mail ID
------------------------	--------------------------	------------------------

Subject to following clauses/Conditions:

- This policy would be covered by:
  - 1) The Simplex Group (SGL) Ltd, and all subsequent amendments of the said Act prior to the date of issue of this Policy.
- Including Cover for Contractors & Sub-Contractors workers - subject to submission of details of the
- Previous Loss History



Page 2 Of 2

**Package: WS 18**



**Royal Sundaram**  
General Insurance

**Royal Sundaram General Insurance Co. I**  
(Formerly known as Royal Sundaram Alliance Insurance Company Limited)  
"Millennium City", Information Technology Park, Unit No.: T-2,  
Tower II, Plot No.: DN-62, Sector-V, Salt Lake, Kolkata - 700 091  
Toll No.: 1800 425 0000 | Tel. No.: 033-4222 7373/2367 5826/  
E-mail: [customer.service@royalsundaram.in](mailto:customer.service@royalsundaram.in)  
Website: [www.royalsundaram.in](http://www.royalsundaram.in)  
Registered Office: 21, Pandaras Road, Chennai - 600 002  
IRDAI Registration Number - 102 | CIN-1167200TN2000PLC0

**WORKMEN'S COMPENSATION POLICY SCHEDULE**

**IntermediaryCode** : OA504383  
**IntermediaryName** : Saibal Sengupta  
**Contact** : 9831176521

**Policy No.** : LW00008139000100

**Insured Name & Address** : FFL RIL JV  
: 1552, Rajdanga Main Road,  
Kasba New Market 7th floor

**Business** : KOLKATA  
700107  
Laying of water transmission line and distribution network Package No.  
KEIP/NCB/TR-2/WS18/2016-17

**Law(s)**  
The Policy will provide coverage under the following Law(s)  
- Workmen's Compensation Act, 1923 and subsequent amendments of the said Act prior to the  
issuance of this policy.  
- Fatal Accidents Act, 1855  
and  
- Common Law

**Period of Insurance:** (a) From 18:00:00 on 30/06/2017 to 23:59:59 on 29/06/2018  
(b) Any subsequent period for which the Insured shall pay and the  
Company shall agree to accept a renewal premium

Premium	Rs.	16,696.00
Add: Service Tax @ 14%	Rs.	2,338.00
Add: Swachh Bharat Cess @ 0.5%	Rs.	83.00
Add: Krishi Kalyan Cess @ 0.5%	Rs.	83.00
<b>Total Premium</b>	<b>Rs.</b>	<b>19,200.00</b>

Subject to adjustment in the terms of Condition 6 the estimated amount of wages salaries and other earnings on which Premium is based.

Estimated Number of Employees (A)	Occupation of Employees (B)	Estimated Total Salaries Wages and other money earnings per employee (C) (In Rs.)	Estimated Total Earnings (D=A*C) (In Rs.)	Place or Places of Employment (E)
<b>As per the Specification attached</b>				

Date of signature of Proposal and Declaration – 30/06/2017





**Royal Sundaram**  
General Insurance

Memoranda attached to and forming part of Policy No. LW00008139000100

Estimated Number of Employees (A)	Occupation of Employees (B)	Estimated Total Salaries Wages and other money earnings per employee (C)	Estimated Total Earnings (D=A*C)	Place or Places of Employment (E)
15	Unskilled Worker	91,200/-	13,68,000/-	Laying of Transmission Main from Pumping Stations to proposed 3 nos. Elevated Service Reservoirs (ESRs) at Ramkantapur, Malpara, Charakatala and Construction of the 3 ESRs including Laying of Distribution Network with House Service Connection within the Command Area of the 3 ESRs for Water Supply in Joka and adjoining areas - Contract Package No. KEIP/NCB/TR-2/WS18/2016-17.

For Royal Sundaram General Insurance Co. Ltd.,



Authorized Signatory

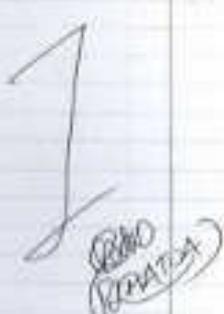
**APPENDIX 8: SAMPLE ACCIDENT RECORD**

**Package: SD 09**

FIRST AID  
Month of July '17

SHEET: (10/12/17)  
KENDRA PERKINS R2E-93

No.	Date	Worker's Name	Age	Resignation	Location	Contact No	Type of Injury
01	12/07/17	Babbar Kumar	24	M/S/24	Adhar Colony	81241 5432	Hand Injury
02	01/07/17	Selam Selam	27	Mason	Ham Lane	81241 5432	Right foot injury to heel
03	28/07/17 28/07/17	Wahid Ebrahim	28	M/S/28	Adhar Colony Village Hospital	81241 5432	Right leg injury


  
 NO RECORD

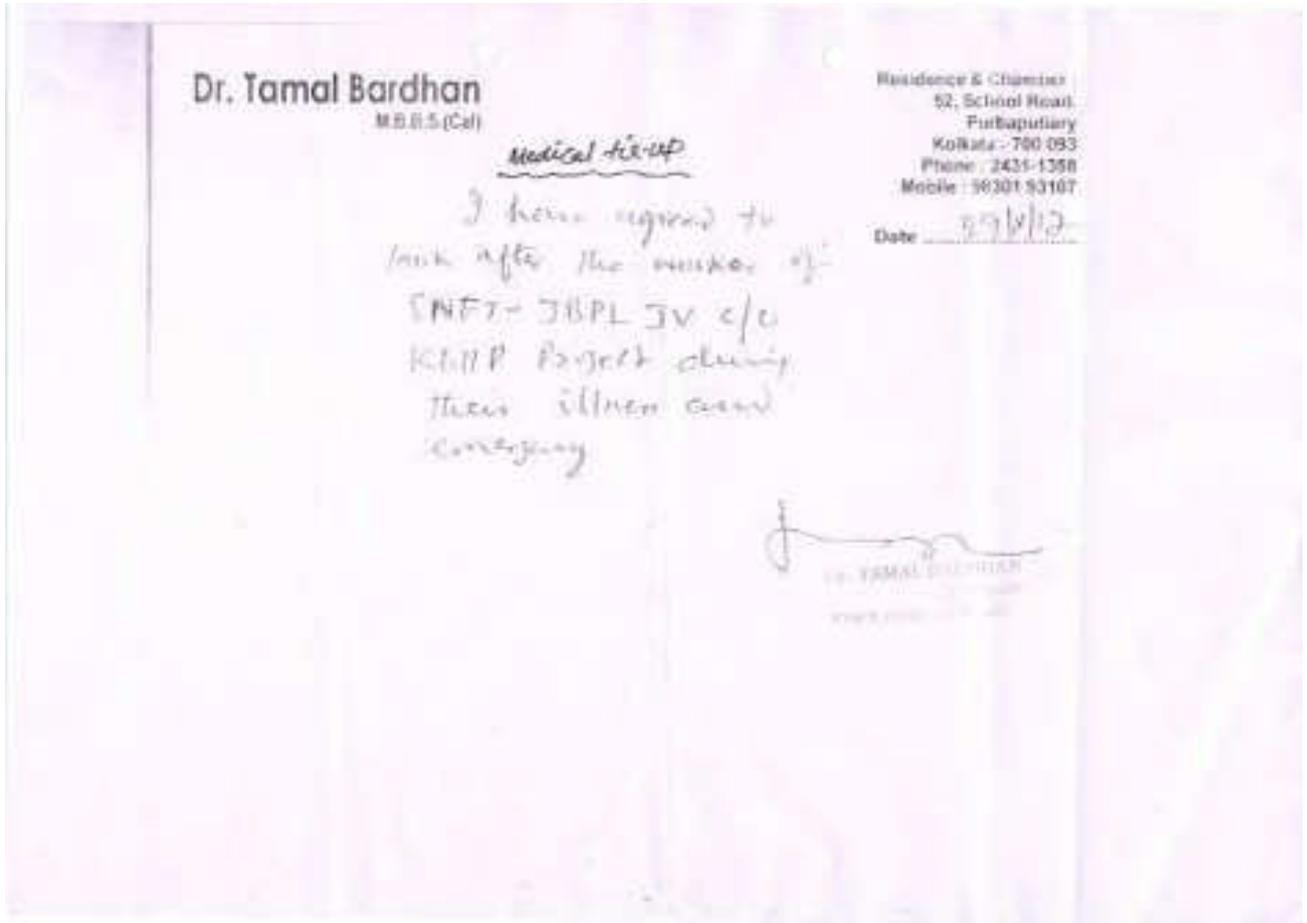
**Package WS15**

Location	Type of activity	Frequency	Duration	Risk Level	Control Measures
Construction site	Construction of road	Once	1 day	High	Use of safety gear, traffic control, dust suppression
Construction site	Excavation of foundation	Once	1 day	High	Use of safety gear, shoring, dewatering
Construction site	Installation of steel reinforcement	Once	1 day	Medium	Use of safety gear, proper handling of materials
Construction site	Formwork installation	Once	1 day	Medium	Use of safety gear, proper bracing
Construction site	Concrete pouring	Once	1 day	Medium	Use of safety gear, proper curing
Construction site	Formwork removal	Once	1 day	Medium	Use of safety gear, proper sequencing
Construction site	Structural steel erection	Once	1 day	High	Use of safety gear, proper bracing, wind monitoring
Construction site	Welding	Once	1 day	High	Use of safety gear, fire prevention, ventilation
Construction site	Grouting	Once	1 day	Medium	Use of safety gear, proper mixing and placement
Construction site	Site cleanup	Once	1 day	Low	Use of safety gear, proper disposal of waste

## APPENDIX 9: TIE UP WITH HOSPITAL/ HEALTH CENTER FOR MEDICAL ATTENTION

Package: SD 9

### Medical Tie Up



**Medical Examination**

**SNET- JBPL JV  
KEIP PROJECT**

*FORM OF MEDICAL AND PHYSICAL FITNESS CERTIFICATE*

I, Dr. Tamal Bardhan hereby certify that I have examined  
Mr./Mrs. Bajrang Singh resident  
of Karnatak Rung Hara and cannot discover that he/she  
has any physical deformity, blindness of one or both the eyes or deafness or  
stammering or stuttering or other defect of speech. I further certify that I  
cannot discover that he/ she has any diseases constitutional affliction or  
bodily infirmity.

His/her age: 27 years

According to his/her appearance: 27 years

I certify that he/she has marks of usual good constitution and the following measurements  
are:

- 1) Weight: 57 kg
- 2) Height: 5ft 6 1/2 inch

**CHEST MEASUREMENT**

- A) On full expiration: 34 inch
- B) On full inspiration: 30 inch
- C) Difference: 4 inch

- 3) Activeness of vision: Normal
- 4) Fitness for out-door work: fit

Personal marks of identification:

- 1) Scar mark over Rt elbow jt.
- 2)

Place: RM-93  
Date: 29/8/17

  
Signature  
Date

**Dr. TAMAL BARDHAN**  
MBBS (Genl)  
PAN X 1610 / NEW 6031

*Tamal Bardhan*

Package: SD10

Medical Tie up



Ref: TCL/Kumar Bagchi/MSD-10/2017-18/109  
Date: 04/06/2017

To,  
The Director,  
Kumar Surgical and Laparoscopic Clinic  
335/31, N.S.C. Bose Road,  
Kolkata – 700049

Sub: Tie Up for Medical Facilities to our project Personnel

Dear Sir,

Ref. to our earlier verbal discussion, we would like to inform you that Sewerage & Drainage Network in Borough XI (Part of Ward 111, 112 & 113) vide Contract Package No. KEIP/ NDB /TR-MSD10/2015-18 has been awarded to us by Kolkata Environmental Improvement Investment Programme, Kolkata Municipal Corporation, Kolkata.

The work has already been started and we need medical hospitality/treatment for our site working Personnel in case of any emergency.

In view of the above, we are intending to Tie-Up with your esteemed organization/clinic for medical hospitality/treatment of our site personnel.

We will appreciate if you accept our proposal and confirm us your willingness by a letter of acceptance.

Treatment charges shall be reimbursed/paid as per your rate chart available with us.

Your early response is solicited.

Thanking You,

Yours Faithfully,  
For Tantia Constructions Ltd.

  
Subhasish Bhattacharya  
(Authorized Signatory)



Encl: RATE CHART



**Regional Office**  
220, New Scheme Road,  
Kolkata-700017, India  
M: +91 91770-1360374  
T: +91 22 2312 7422  
Web: www.kmcc.gov.in

**Draft Office**  
117, New Park Street Road,  
Kolkata-700029, India  
M: +91 91770-1360374  
T: +91 22 2312 7422  
Email: info@kmpcc.com

**Corporate Office**  
09/20, Sector-10, Salt Lake City,  
Kolkata-700091, India  
E: +91 22 3319 6080  
T: +91 22 4218001/88  
E-mail: info@tantia.com

TANTIA CONSTRUCTIONS LIMITED  
TANTIA CONSTRUCTIONS LIMITED



## Kumar Surgical and Laparoscopic Clinic

235/3/1, N. S. C. Bose Road, Banskroni, Usha  
Kolkata - 700 047  
Phone : 2421-8121, 2421-6719

Date.....

To  
Mr. Subhasish Bhattacharya  
Tantia Construction Ltd.  
25/27 Netaji Subhas Road  
Kolkata 700 001 India

07.03.05.2017

Dear Sir,

We are pleased to inform you that Kumar Surgical and Laparoscopic Clinic will provide you all needed Hospitality / treatment support for your site working personnel in case of any emergency. This acceptance letter should be treated as a formal Tie-Up between Kumar Surgical and Laparoscopic Clinic and Tantia Construction Ltd. For (Sewerage & Drainage network in Borough XI contract package No. NCB/IR-2/SD 10/2015-16) under certain terms and condition. All Treatment charges shall be reimburse/ paid as per our Hospital tariff chart being forwarded to you on dated 31.05.2017.

Thanking you looking for your early appreciation.

  
PRATHAL CHAUDHURY



Package: SD 11

**Medical Tie up**



**Kumar Surgical and Laparoscopic Clinic**

235/3/1, N. S. C. Bose Road, Banskroni, Usha  
Kolkata - 700 047  
Phone : 2421-8121, 2421-5719

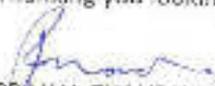
To  
Mr. Subhasish Bhattacharya  
Tantia Construction Ltd.  
25/27 Netaji Subhas Road  
Kolkata 700 001 India

*Date* .....  
DT.03.06.2017

Dear Sir,

We are pleased to inform you that Kumar Surgical and Laparoscopic Clinic will provide you all needed Hospitality / treatment support for your site working personnel in case of any emergency. This acceptance letter should be treated as a formal Tie-Up between Kumar Surgical and Laparoscopic Clinic and Tantia Constructions Ltd. For (Sewerage & Drainage network in Borough XI contract package No: NCB/TR-7/SD 11/2015-16) under certain terms and condition. All Treatment charges shall be reimburse/Paid as per our Hospital tariff chart being forwarded to you on dated 31.05.2017 .

Thanking you looking for early appreciation.

  
PRAJJAL CHAUDHURI



**Package: SD12**

**Medical Tie up**

**ITD-ITD CEM JOINT VENTURE**

National Plastic Building, A-S.H. Hash Road, Purnacape B Scheme, Vile Parle (East), Mumbai 400 057  
Ph. No. : +91 22 6693 1630 Fax No. : +91 22 6693 1637/28

Regional Office: Godrej Waterside, Tower No. 1, Office # 803, 8th Floor, Plot No. 5, Block – DP, Sector-V,  
Salt Lake City, Kolkata – 700 091  
Ph. No. : +91 33 2352 7364/5313 Fax No. : +91 33 2352 6677

Date: 21.08.2014

Reference No. KEIP/ A1114AT/ HOSPITAL/ 03

M/S. Ekbalpur Nursing Home Pvt. Ltd.,  
9, Ibrahim Road,  
Ekbalpur, Kolkata – 700 023

Att. Mr. R.M. Jha, Administrator

Dear Sir,

Attached please find scan copy of our letter no. KEIP/ A1114AT/ HOSPITAL/ 01 dated 31<sup>st</sup> July 2014, confirming engagement of Ekbalpur Nursing Home Pvt. Ltd. As our Health Care Service provider and list of our representatives with their specimen signature; who are authorized to refer sick/ injured employees for their treatment at your hospital/ nursing home.

Please arrange to pass on a copy of the same to your concerned officials with an advice to ensure hassle free admission / registration of our employees for their treatment as indoor as well as outdoor patient.

As agreed upon, after the treatment you will be submitting your bill along with all supporting documents to our office and the payment shall be made within 30 days thereafter.

Thanking You,

Yours Faithfully,

ITD-ITD CEM JOINT VENTURE:-



(Authorized Signatory)

Enclosure: As above.



**Medical Examination**



## ITD-ITD Cem Joint Venture

### MEDICAL CERTIFICATE General / Critical Workers

(To be conducted by registered medical practitioner)

I/ we do hereby certify that we have examined Mr. Arjun K. S. (38 yr)  
 No. SK/500/14 (and date for employment in the trade of carpenter)

On Examination

Height: <u>164</u> Cm	Weight: <u>58</u> Kg
Blood pressure: <u>120/80</u>	Pulse: <u>97</u> /min
Vision	Hearing
Examination if Myopia (near sightedness) observed	
Areflex	Scars: <u>  </u>
Yes CBC test result to be referred	(Adequately healthy for the job concerned)
Mental Alertness & Stability: <u>OK / NOT OK</u> (good eye, hand and foot coordination)	Alcoholic: (occasional / regular / Non alcoholic)
Others (Tobacco / Pan / Bhang)	Physically challenged
Upper limbs:	Lower limbs:
Adequate arm function and grip (both arms)	Adequate leg and foot function
Blood group: <u>B+ve</u>	If required: Complete Blood Count
Breathing:	Any other medical history
Measures peak flow rate using standard peak flow meter	

For Critical Worker

HEIGHT WORKER

History of Epilepsy/Convulsion: Yes / No  
 Vertigo: Yes / No

Welders, Grid blasters, Gas cutters  
 Chest X ray results

Drivers & Operators  
 Vision acuity Test  
 Colour blindness test

REMARKS

Refer to any \_\_\_\_\_

I / we do not consider this as disqualification for the candidate for employment as \_\_\_\_\_ his / her age is according to her/his statement \_\_\_\_\_ years and by appearances to be about \_\_\_\_\_ years

He / She is Fit / Unfit for Employment

Date: \_\_\_\_\_  
 Signature of Candidate: \_\_\_\_\_  
 Signature and Designation of Medical Examiner: \_\_\_\_\_

**Package: SD13 & SD 14, WS 17A and WS 17B**

**Medical Tie up**

**SIMPLEX INFRASTRUCTURES LIMITED**

*Registered Office:*

\* SIMPLEX HOUSE"  
27, SHAKESPEARE SARANI  
KOLKATA - 700017 (INDIA)  
Phone: 2301 - 1600, Fax: + 91(33)2283 - 5964 / 65 / 66  
E-mail : www. Simplexinfrastructures.com

Date: 27.03.2017

Reference No: K/SIP / A1114/ Hospital / 01

Diagnostic and Polyclinic Address: Cure4Sure, 25/1B, (41 B), Janakulayan Behala Kolkata 700008.

Att. Medical Officer

Dear Sir,

As per our verbal discussion, we are pleased to onboard your Hospital as one of our Health care service Providers, for our employees and their family members. As agreed upon, you will be providing us the following complementary services and discount on mentioned items:

1. Free ambulance service up to 2 KM. For emergency case;
2. Free medical Checkup of our employees, once in a month (Two Hours) at our Cure4Sure office, on pre- appointed date and time;
3. Pre- Employment health checkup of our employees at a discount rate;
4. Executive Health Checkup of our employees at a discounted rate;
5. Priority Emergencies.

Payment shall be made within 30 days after submission of your bill all supporting documents to us.

Please return the duplicate copy of this letter duly signed by you with official seal as token of your acceptance to above.

Thanking You,

Yours Faithfully,

For SIMPLEX INFRASTRUCTURES LIMITED



2  
3  
4

CONFIDENTIAL



03.27.2017

This is agreed between Cure4Sure Polyclinic And Diagnostic situated at 25/1B (41 B) D.H. Road Janakalyan Kolkata 70006 and Simplex Infrastructure Private Ltd (Behala) to provide Diagnostic and Basic healthcare services to the aforesaid on the following terms and conditions :

1. Cure4Sure Diagnostics to provide Doctors of various disciplines on appointment basis to the employee and family of the aforesaid entity.
2. Cure4Sure to provide Diagnostic Services to the aforesaid entity on a discounted rate of up to 25% on investigations only. Services will be also extended to family members.
3. Cure4Sure Diagnostics to provide special rates for Industry compliance healthcare tests and Doctor consultation for the entity's employees.
4. Cure4Sure Diagnostics to provide basic first aid to entity.
5. NO Emergency or Critical Care services available.
6. Agreement is valid for a period of 36 months.
7. Please refer the Annexure for service details.



**CURE4SURE POLYCLINIC & DIAGNOSTIC**

Tel 7800279966

25/1B D.H. ROAD  
JANAKALAYAN KOLKATA  
700006

CURE4SUREC1@GMAIL.COM



**Medical Examination**

**SD 13**

 **SIMPLEX INFRASTRUCTURES LIMITED**  
Site name & Contact no.

**CERTIFICATE OF MEDICAL EXAMINATION**

1. Certificate Serial No. 01  
 Date 16 07 2017  
 2. Name Delwar Hossain

Identification marks: (1) Cutting marks on right side hand.  
 (2) \_\_\_\_\_

3. Father's Name Ajahan Hossain  
 4. Sex Male  
 5. Residence: Romnapara, Bhagabangola, Munshidabad.

son / daughter of Ajahan Hossain  
 6. Date of Birth (if available) 19.01.1998  
 and / or certificate age 19 yrs old

7. Physical fitness  
 I hereby certify that I have personally examined physically thoroughly  
 (Name) Delwar Hossain son / daughter / wife of Ajahan  
Romnapara Bhagabangola, Munshidabad residing at \_\_\_\_\_ who is  
 desirous of being employed in building and construction work and that he / her are as nearly as can be ascertained  
 from my examination is 19 years and that he / she is fit for employment in Mason  
 as an adult / adolescent. Advised to do blood for Serology

8. Reason for:  
 (A) refusal of certificate \_\_\_\_\_  
 (B) certificate being revoked \_\_\_\_\_

Delwar Hossain  
 Signature / Left hand Thumb impression of building worker



Bl  
 Signature with Seal  
 Medical Inspector / C.M.O.

Note: 1. Exact details of cause of physical disability should be clearly stated  
 2. Functional / productive status should also be stated if disability is stated.

Form No.: SI/CHS/CMF/001 of I DL 01.12.2014

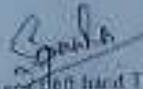
**SD 14**



**SIMPLEX INFRASTRUCTURES LIMITED**  
 SITE NAME - IIIHIALA SEWERAGE PROJECT (C - 3156, SD - 14)  
 CONTRACT NO. KEIP/NCT/ER - 02501 - 140015-16

**CERTIFICATE OF MEDICAL EXAMINATION**

1. Certificate Serial No. 38  
 Date: 06.08.2017  
 2. Name: Soumen Panda,  
 Identification marks: (1) \_\_\_\_\_  
 3. Father's Name: Analesh Panda.  
 4. Sex: Male.  
 5. Residence: Sikdarpara, Kolkata - 71.  
 6. Date of Birth, if available: \_\_\_\_\_  
 and / or certificate age: 26+  
 7. Physical fitness:  
 I hereby certify that I have personally examined  
 (name): Soumen Panda \_\_\_\_\_  
 of Analesh Panda \_\_\_\_\_ residing  
 at Sikdarpara, Kolkata - 71. \_\_\_\_\_ who is  
 desirous of being employed in building and construction work and that he / her are as nearly as can be ascertained  
 from my examination is 26+ years and that he/she is fit for employment in SIL.  
 as an adult / adolescent.  
 8. Reason for:  
 (A) refusal of  
 certificate \_\_\_\_\_  
 (B) certificate being  
 revoked \_\_\_\_\_

  
 Signature of the hand Thumb  
 impression of building worker



  
 Signature with Seal  
 Medical Inspector (C.M.D.)

Notes: 1. Exact details of cause of physical disability should be clearly noted

## Package WS 15

### Medical Tie up

	<p>Phone : 2457 2609, 8814 1915 6614 1916, 6614 1917 Fax : 2453 8111</p> <p><b>KASTURI MEDICAL CENTRE PVT. LTD.</b> Regd. Office : 5, Diamond Harbour Road, Thakurpukur 3A Bus Stand, Kolkata - 700 104 CIN : UAS110WN2000PTC092267</p>
<p>Ref. No.: KMCPL/GDCL/ADMIN/MTU/2017-2018</p>	<p>Date: 05.05.2017</p>
<p>To, Mr. Malay Das, Sr. Manager (Project), Gannon Dunkerley &amp; Co. Ltd., 85A, Topsia Road (South), Haute Street, 7<sup>th</sup> floor, Kolkata – 700 046</p>	
	<p>Ref.: Your letter no. GDCL/KEIP-JDKA/032 dated 28.04.2017</p>
<p>Dear Sir,</p>	
<p>We acknowledge receipt with thanks of the above referred letter and have carefully noted the contents therein.</p>	
<p>We thank you once again for showing keen interest as well as confidence too in respect of a 'Medical Tie-up' with our hospital seeking medical treatment/assistance for your employees/workers as and when required.</p>	
<p>In this connection, we are pleased to state that your request has been accepted &amp; approved by the management, subject to the terms &amp; conditions as mentioned below:</p>	
<ol style="list-style-type: none"><li>1. The employee/worker suffering from any injury at work site or feels unwell at any time during the project period will be provided with necessary medical treatment/assistance immediately at our hospital.</li><li>2. The injured/sick person has to furnish valid identity card/authorization letter issued by your company to the hospital authorities to avail such medical treatment/assistance.</li><li>3. The hospital authority shall communicate only to the person authorized by your company regarding the status of the treatment/treatment related matter of your employee(s)/worker(s). So, name, contact no. &amp; E-mail ID of the said authorized person to be provided to the hospital authorities at the earliest.</li></ol>	
	<p>P-1/2</p>



Ref. No.: AMCP/GOCL/ADMIN/MTL/2017-2018

Date: 05.05.2017

4. Bills arising for the medical treatment as well as for medicines, pathological, radiological tests etc. shall be addressed to the company and payment shall be made by the company **within seven days** from the date of receipt of the bill.
5. **Mode of payment:** by/through Credit Card, Debit Card, A/c Payee Cheque & NEFT only. A/c details will be provided in due course, if required.
6. Medical treatment/assistance will be given on **24x7** basis.
7. Ambulance facility, if available, depending on circumstances may be provided with a nominal charge.
8. A discount @ 10% on bed charge, all investigations (except MRI & some other investigations which are to be done from outside) & @ 5% on medicines will be given in case of in-patient and out-patient both.
9. This 'Medical Tie-up' shall be effective on & from **06.05.2017** and shall be valid till the completion of the project.

With regards,

(Sig. of authorized signatory with seal)

For Kasturi Medical Centre Pvt. Ltd.  
(Anish Bhattacharyya)  
In-charge (Corporate Sales)  
(M): 9230064555

**Medical Examination**

**Fine Health**  
LIVE A GOOD LIFE

Name: **Karthik Paul** Age: **34** Sex: **M**  
 Corporate: **Ganthon Dumkhetley** Phone No: **7501121842**  
 Consultant: **Dr. Akash**

**e/o - Redness / DV / NV** **VIA**  $\left\{ \begin{matrix} 6/6 \\ 6/60 \end{matrix} \right\}$  **2 out of 10**

Dist	Sph.	Cyl	Axis	H Prism	Base	V Prism	Base
Right	<b>6/6</b>						
Left	<b>6/60</b>						

Dist	Add	H Prism	Base	V Prism	Base
Right					
Left					

Near	Add	H Prism	Base	V Prism	Base
Right	<b>N/L6</b>				
Left	<b>N/L6</b>				

Remarks: **use medicine to keep eye clean**

Medicine Requirement: **→ V.P. drops e/d B.D.S x BIF x 10 dos**

Date: **18/11/17**

**✓ Akash Sooder**  
Doctor's Signature  
Reg: **776997**  
**D. Optom**

## Package WS 16 and WS18

### Medical Tie up

 FURNACE FABRICA

*o/c*

FURNACE FABRICA (INDIA) LTD.  
1502, Tagore Park Road  
Cross New Market, 7th Floor,  
Kolkata - 700 009, India.  
Phone: +91-33-2380800  
Fax: +91 33 2362688  
E-mail: info@furnace.com  
CIN No.: U08120CL1989PLC000752

09 August 2017

The Resident Medical Officer  
Behala Balananda Brahmachari Hospital & Research Centre  
Kolkata

**Subject : Letter of Intimation and Request**

**Reference :** Laying of Transmission Main from Daspara PS to UGRs at Prantik PH-III, RMC Land on Julaha Road and Transmission Main from PS to zonal Reservoirs -Contract Package No. KEIP/NOB/TR-2/WS-16/2016-17

And

Laying of Transmission Main from Pumping Stations to proposed 3 nos. Elevated Service Reservoirs (ESRs) at Ramkantaour, Mainara, Charekta and Construction of the 3 ESRs incl. Laying of Distribution Network with House Service Connection within the Command Area of the 3 ESIs for Water Supply in Joke and adjoining areas - Contract Package No. KEIP/MCB/TR-2/WS16/2016-17

Dear Sir,

We would like to introduce ourselves as A leading Engineering and Construction Company in the Indian industry with over 60 EPC projects to its credit. FFL utilizes its extensive engineering and construction experience for providing engineering and construction services mainly based on proprietary technologies.

Since we are into construction business, we use to deploy hundreds of workers at our project sites. Due to the nature of the job that these workers are engaged in, we may, at times, require first aid and emergency treatments for them during unfortunate events of accidents/incidents inspite of world class safety practices that we have already put in place at all our project sites.

This letter is to intimate you about our activities that are taking place in your close vicinity and to request you to acknowledge and kindly agree to put forward a fast track treatment channel for our workers if such requests are received from any of our above mentioned project sites.

Your kind acceptance of our request shall be a great gesture and shall go a long way in ensuring a safe workplace and emergency readiness for our workers with timely support from your end.

Thanking you,

Yours very truly,  
For Furnace Fabrica Limited

  
Gauram Kumar Das  
Chief Operating Officer

*Recd.*  
*on 24/08/2017*  


Corporate Office: C/15, TTC, MIDC Area, Purna Waze, Thane Bypass Road, Navi Mumbai - 401005, Maharashtra, India  
Telephone No. : 022-60369100

Registered Office: Furnace Fabrica Building Corporate Park, Oldy Road, Andheri East, Mumbai - 400024, India  
Website: www.furnacefabrica.com Email: info@furnace.com

**APPENDIX 10: SUMMARY OF LABOUR PER PACKAGE**

Package No.	Contractor	Total Number of Employees	No of Female Employees	No. of Local Employees
Construction of Sewerage and drainage network in Thakurpara & Purba Putiary catchment and construction of Keorapukur PS in Ward 114, Borough XI including operation and maintenance of the Pumping Station.(SD 09)	SNET-JBPL JV	Staff: 9 Labour: 44	Staff: 0 Labour: 0	Staff: 9 Labour: 44
Sewerage and drainage network in Rania Box Catchment ( Part of Ward 111, 112 & 113) in Borough XI ( SD 10)	Tantia Const. Ltd.	Staff: 25 Labour: 20	Staff: 0 Labour: 0	Staff: 25 Labour: 20
Sewerage and drainage network in Vivekananda Road Catchment (Part of Ward 113 & 114)and construction of a Pumping Station in Borough XI including Operation and maintenance of the Pumping Station ( SD 11)	Tantia Const. Ltd.	Staff: 25 Labour: 16	Staff: 0 Labour: 0	Staff: 25 Labour: 16
Laying of trunk sewer along James Long Sarani by micro tunneling method (SD 12)	ITD-ITDCM JV	Staff: 8+6 Labour: 60 (day)+ 23 (night)	Staff: 0 Labour: 0	Staff: 14 Labour: 83
Development of S & D network within James Long Sarani& M. G. Road Catchment in Borough XVI (part of Wards 123 & 124) ( SD 13)	Simplex Infrastructures Ltd.	Staff: 21 Labour: 48	Staff: 0 Labour: 0	Staff: 21 Labour: 48
Laying of lateral sewers in part of Borough XIV ( Wards 128 to 132) & de siltation of box drain at Picnic Garden Road ( SD 14)	Simplex Infrastructures Ltd.	Staff: 21 Labour:95	Staff: 0 Labour: 0	Staff: 21 Labour: 95
Construction of Underground Reservoirs & Overhead Reservoirs, Pumping Stations and Linking Pumping Station Mains For Water Supply in Joka& Adjoining areas including Operation & Maintenance of the Pumping Station (WS 15)	Gannon Dunkerley& Co Ltd.	Staff: 42 Labour:78	Staff: 0 Labour: 0	Staff: 39 Labour: 78
Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs (WS 16)	FFIL-RIL JV	Staff: 11 Labour:49	Staff: 0 Labour: 0	Staff: 11 Labour: 09
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE	Simplex Infrastructures Ltd.	Staff: 25 Labour:48	Staff: 0 Labour: 0	Staff: 25 Labour: 48

Package No.	Contractor	Total Number of Employees	No of Female Employees	No. of Local Employees
STP and NW of SSE STP and existing ESR at Prantik <b>(WS17A)</b>				
Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park <b>(WS17B)</b>	Simplex Infrastructures Ltd.	Staff: 24 Labour:49	Staff: 0 Labour: 0	Staff: 24 Labour: 49
Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas <b>(WS18)</b>	FFIL-RIL JV	Staff: 09 Labour:33	Staff: 0 Labour: 0	Staff: 09 Labour: 33

**APPENDIX 11: ENVIRONMENT, HEALTH AND SAFETY BUDGET**

<b>Sr. No.</b>	<b>Package</b>	<b>Tentative Budget for Environment Monitoring (Rupees)</b>
1	Construction of Sewerage and drainage network in Thakurpara & Purba Putiary catchment and construction of Keorapukur PS in Ward 114, Borough XI including operation and maintenance of the Pumping Station. <b>(SD 09)</b>	1,78,7950.00
2	Sewerage and drainage network in Rania Box Catchment ( Part of Ward 111, 112 & 113) in Borough XI ( <b>SD 10</b> )	45,7625.00
3	Sewerage and drainage network in Vivekananda Road Catchment (Part of Ward 113 & 114) and construction of a Pumping Station in Borough XI including Operation and maintenance of the Pumping Station ( <b>SD 11</b> )	47,5875.00
4	Laying of trunk sewer along James Long Sarani by micro tunneling method <b>(SD 12)</b>	33,03,0750.00
5	Development of S & D network within James Long Sarani & M. G. Road Catchment in Borough XVI (part of Wards 123 & 124) ( <b>SD 13</b> )	1,33,4850.00
6	Laying of lateral sewers in part of Borough XIV ( Wards 128 to 132) & de siltation of box drain at Picnic Garden Road ( <b>SD 14</b> )	1,33,4850.00
7	Construction of Underground Reservoirs & Overhead Reservoirs, Pumping Stations and Linking Pumping Station Mains For Water Supply in Joka & Adjoining areas including Operation & Maintenance of the Pumping Station <b>(WS 15)</b>	40,1600,00
8	Laying of Transmission Main from existing Daspara PS to UGRs at Prantik Phase III, KMC land on Julpia Road and Transmission main from PS to zonal reservoirs <b>(WS 16)</b>	2,21,6610.00
9	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Prantik Ph III, NE of SSE STP and NW of SSE STP and existing ESR at Prantik <b>(WS17A)</b>	1,33,4850.00
10	Laying of water supply distribution network including providing household service connection in 4 distribution service areas in Joka and adjoining areas for the command area under proposed ESRs at Company pukur (KMC land at Julpia road), WBSETCL, 22 Bigha and existing ESR at Diamond Park <b>(WS17B)</b>	1,33,4850.00
11	Laying of Transmission main from pumping stations to proposed 3 nos. ESRs at Ramakantpur, Malpara, Charaktala and construction of 3 ESRs including laying of distribution network with house service connection within the command area of the 3 ESRs for water supply in Joka and adjoining areas <b>(WS18)</b>	1,13,7290.00

**APPENDIX 12: PUBLIC CONSULTATION ON ENVIRONMENTAL ISSUES DURING CONSTRUCTION/ IMPLEMENTATION – SAMPLE FILLED FORMAT**  
Package: SD 09

**SURET - EPL - JOINT VENTURE**  
**PUBLIC CONSULTATION DURING CONSTRUCTION**

Package: *SD09/02/02/01/2016-17*  
Location: *Washiriting, ward no. 113* Month: *July 17*

No.	Request	Response	Issue	Issue	Issue	Remarks	Priority	Day	Time	Signature
01.	<i>Request Road</i>	<i>Accepted</i>	<i>no issue</i>	<i>no issue</i>	<i>no issue</i>	<i>Satisfactory</i>	<i>NO</i>	<i>NO</i>	<i>6:30 AM</i>	<i>[Signature]</i>
02.	<i>Requesting Road</i>	<i>Accepted</i>	<i>no issue</i>	<i>no issue</i>	<i>no issue</i>	<i>Satisfactory</i>	<i>NO</i>	<i>NO</i>	<i>6:30 AM</i>	<i>[Signature]</i>
03.										
04.										
05.										

*[Signature]*  
Name & Signature of Study Officer

*[Signature]*  
Name & Signature of Staff

Package: SD 10

MONTH OF - DECEMBER									
13					14				
PUBLIC CONSULTATION									
DATE	TIME	LOCATION	ISSUES	COMMENTS	STATUS	ISSUES	COMMENTS	STATUS	ISSUES
1	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO
2	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO
3	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO

Package: SD 11

MONTH OF DECEMBER									
13					14				
PUBLIC CONSULTATION									
DATE	TIME	LOCATION	ISSUES	COMMENTS	STATUS	ISSUES	COMMENTS	STATUS	ISSUES
1	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO
2	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO
3	10:00	WATER UTILITY HAS BEEN RESTORED	OVERBORDER S.M. HAS BEEN REMOVED FROM SITE	NOT APPLICABLE AS DUE TO SEWAGE PIPE LAYOUT WORK	REGULAR	SATISFACTORY	ISSUE HAS BEEN RESOLVED DUE TO PROJECT ACTIVITY	NO	NO

Package SD12

KEIP-JED Gen Joint Venture



Public Consultation during construction

Sl. No.	Activity Category/Details	Date	Time	Comments/Issues raised/Remarks	How/Where/Who	How and why/through/medium	Overall issues/objections/queries/remarks	Priority of issues/objections/queries/remarks	Other/Remarks/level of exp.	Details of the person with address/contact No.	Signature
1	Construction Site Visit	15/11/17	10:00 AM	None	Site Visit	Direct	None	High	None	None	[Signature]
2	Construction Site Visit	16/11/17	10:00 AM	None	Site Visit	Direct	None	High	None	None	[Signature]
3	Construction Site Visit	17/11/17	10:00 AM	None	Site Visit	Direct	None	High	None	None	[Signature]
4	Construction Site Visit	18/11/17	10:00 AM	None	Site Visit	Direct	None	High	None	None	[Signature]

Package: SD 13

Public Consultation during construction

Package: *Pochaha Sewerage and Drainage Project (C-3413-IND)*

Area: *Base Para Road, Sister Navidita Road, R.N. Tagore Road*

Sr. No.	Road Lane No.	Date	RHC Connection/Utility Restoration (If case affected) Remarks	Overturns soil covered Remarks	Road Restoration Remarks	Dust and noise problem Remarks	Social safety arrangement Caution tape/ barricade etc. by contractor Remarks	Problem of local inhabitants due to project activity Remarks	Other Problem faced if any	Name of the person with address/ contact No.	Signature
1.	<i>Base Para Road</i>	<i>11/11/17</i>	—	<i>Overturns soil of the project area will occur later on existing demands</i>	<i>Too cutting soil should be used for road restoration</i>	<i>To improve water sprinkler to be used for road dust and for noise log sheet to be running out at all project sites provided</i>	—	—	<i>To be excavated through water canal to control the stream water and also provide to prevent soil loss from project site</i>	<i>Mr. Pochaha Land date Base-10</i>	<i>[Signature]</i>

Contractor (Date & Signature) *[Signature]*

Verified by DDC's Supervisor Engineer (Date & Signature) *[Signature]*



Package: SD 14

Public Consultation during construction

Paragra: KEIP/NICB/TA 2/SD 14/2017-18

Area: M. B. Road, DP A.R. Paul Road

No.	House Lane No.	Date	PMC Connected: (in case affected) Remarks	Overhead cable removal: Remarks	Road Restoration: Remarks	Dust and noise problem: Remarks	Social safety emergency: Caution tape, barricade etc. by contractor: Remarks	Problem of local movements due to project activity: Remarks	Other Problems faced if any	Name of the person with address/ contact No.	Signature
01.	M. B. Road	06/07/17	—	CC-4/2 logging work occurred outside accumulated at existing drainage line	—	—	—	—	—	Mr. Pradyumn Halder, 300/A M. B. Road	
02	DP A.R. Paul Road	07/07/17	—	—	—	—	—	Contractor material will be brought vehicles which obstruct the access	—	Mr. Ganesh Das, 300/A Paul Road	

Contractor (Date & Signature) *Pradyumn Halder*

Verified by DDC's Supervisor Engineer (Date & Signature) *S. Datta*

*Ambar Koley*

Package WS 17A

Public Consultation during construction

Package: Duke Water Supply Project (WS17A)

Area: Bakul Bithi Road, R.N Tagore Road.

Sr. No.	Road Lane No.	Date	PHE Connection/Utility Restoration (in case affected) Remarks	Overburden soil removal - Remarks	Road Restoration - Remarks	Dust and noise problem - Remarks	Social safety arrangement - Guardrail, safety barricade etc. by contractor - Remarks	Problem of local movements due to project activity - Remarks	Other Problem faced if any	Name of the person with address/ contact No.	Signature
1	Bakul Bithi Road.	25.11.17	—	Overburden earth cutting soil about 10 cm removed from original site as per as possible.	During construction work, top layer soil must be used on road restoration.	During rain and heavy work water sprinke must be used at WTM area.	Before starting the work at project site safety barricade and caution tape to avoid land fall during it raining.	—	Some water in site and some water on road. It should be kept in a proper channel.	Mr. P. Mondal Bakul Bithi Road.	<i>[Signature]</i>

Contractor (Date & Signature) *[Signature]*

Verified by DSC's Supervisor Engineer (Date & Signature) *[Signature]*



Package WS 17B

Public Consultation during construction WS-17B.

Package- *KEIP/NCB/TR-2/WS17B/2016-2017*

Area- *R.N. Tagore Road*

Sr. No.	Road/Lane No.	Date	PHE Connection/Utility Restoration (in case affected) Remarks	Overburden soil removal-Remarks	Road Restoration-Remarks	Dust and noise problem-Remarks	Social safety arrangement-Caution tape/ barricade etc. by contractor-Remarks	Problem of local movements due to project activity-Remarks	Other Problem faced if any	Name of the person with address/contact No.	Signature
1	R.N. Tagore Road	23.12.17	—	Overburden Soil of the Project Site was removed on existing drain for near on-ground well.	Top cutting Soil should be used for road restoration work at Project Site.	To be given appropriate signposts to the Project Site to curbing the dust.	Before starting the excavation work, should be provided caution tape/barricade at all Project Site.	—	To be enclosed enough water.	Mr. Banku Sen.	<i>[Signature]</i>
									Pumps to control the stream water.	Soil to be retained Road.	
									and water to be used to prevent soil loss for work area.		

Contractor (Date & Signature) *[Signature]*

Verified by DGC's Supervisor Engineer (Date & Signature)



**APPENDIX 13 TRAININGS CONDUCTED DURING REPORTING PERIOD**

Environment, Health and safety Orientation Workshop has been arranged by ADB consultant at KEIP office on 1<sup>st</sup> September 2017. Environment Specialist of ADB, Environment Safety Officer and project manager of contractors, Construction Manager and Supervisor of DSC, Environment Specialist of PMU and DSC attended that workshop. The issues covered

- ADB’s Safeguard Policy
- Compliance of National, State Rules and Regulations during implementation of project
- Requirement of compliance of EMP etc.
- Requirement of documentation etc.

Environment Safeguard- Structure & Findings

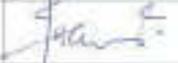
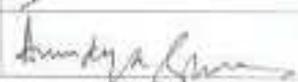
**KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAMME**

List Of Participants

Date: 1.9.2017  
Time: 11:30AM To 1:00pm  
Place: KEIP Conference Room

Sl. No.	Name	Name of Organisation And Designation	Contact Number (Email/ Phone number)	Signature
1	Nirette Bijanbaga	ADB Environment Specialist	npajani@adb.org	
2	R. Angalichandran	TE/DSC	r.angalichandran@gmail.com	
3	Anujit Bortha	NTL/PMC	anujit_bortha@nccme.com	
4	Moufan Mitra	Jr. Engg/PMC	moufanmitra@gmail.com	
5	Pratik Choudhary	Construction Manager	943364000/cctd-pha@gmail.com	
6	Sanjay Choudhary	Const. Manager	9831507513 sanjaychoudhary@gmail.com	
7	Rishabh Choudhary	Jr. Sci. Scientist (DSC)	9000780901 choudhary_rishabh@gmail.com	

Sl. No.	Name	Name of Organization and Designation	Contact Number (Email/ Phonenumber)	Signature
	A. A. Mitra	Environmental SP1 DSC	9230415353 aamit@amitra.com	A. Mitra
	M. J. Chandra	Environment Specialist FFIL	992200340 m.j.chandra@ffil.com	M. J. Chandra
	Shashank Chandra	FFIL / Safety Officer	7649982813 shashank_chandra@ffil.com	Shashank Chandra
	Georchand Mohly	FFIL-RIL JV/PE	9920158808 georchand.m@ffilrilm.com	Georchand Mohly
	Sushant Chandra	FFIL-RIL JV/PE	9055855555 sushant.chandra@ffilrilm.com	Sushant Chandra
	Skyward Roshni	FFIL - RIL JV/PM	9748474622 skyward@ffilrilm.com	Skyward Roshni
	Shajit Koley	JTD - JTD/PM JV	8524012002 shajitkoley@gmail.com	Shajit Koley
	Sankardev Mohly	Sampler (Safety Officer)	9023672231	Sankardev Mohly
	Tapan Singh	Emplye Infr. Ltd Safety Officer	844840850 tapan@emplyeinfra.com	Tapan Singh
	Ankur Koley	Safety Engineer (Safety Engg)	9071683585 ankurkoley@ffilrilm.com	Ankur Koley
	Shashank Chandra	JTD	9703300001	Shashank Chandra

Sl. No.	Name	Name of Organisation And Designation	Contact Number (Email/ Phone Number)	Signature
	AVIANT GHOSE	TCL SAFETY OFFICER	9894154938	Aviant Ghosh
	ASHOKESH DIBHARE	TANTIA PE, SD-12	880036004780	√
	KIRKAN SAI	DCL	985738532	
	Rajna Sen	CS/DSE	9434667800	
	Ujjwal Prasad Prasad	CS/DSE	9748655433	
	Tuphi Saha	CS/DSE	9564403449	
	RANJAN	SURET-122-10 SAFETY OFFICER	970022755	
	A. Nayak	GT-DCL Sr. Safety officer	9595897426	
	M. An	Head of mine	9772632678	
	Anirban Chatterjee	SDE PCSDE	9374942333	
	Anwita Ghose	PCSDE	9830260249	



## **ENVIRONMENTAL SAFEGUARD – REVIEW MEETING AND ENVIRONMENT, HEALTH & SAFETY TRAINING PROGRAM FOR CONTRACTORS – KEIIP**

Safeguard review meeting cum training program has been conducted on safeguard compliance issues and application of Environmental Management Plan (EMP) during implementation of the project.

Meeting has been arranged at Conference hall, KEIIP office, Kolkata on 13<sup>th</sup> September 2017.

Meeting has been conducted by Environment Specialist of DSC. In that review meeting cum safety training Environment Specialist of PMU, Construction Manager and Supervisor of DSC, Environment- safety officer of contractors were present.

Issues discussed for compliance as below.

### **Health & Safety requirement**

1. Currently valid Labour license certificate
2. Currently valid Workmen compensation insurance paper
3. Currently valid PUC Certificate for all vehicles and equipments engaged in the project
4. Grievance/complaint register at all work sites/camp office as per standard format. We know that grievance register available at site office but now supervisor engineer of concerned contractor to carry that register for recording of local complaint
5. Billboard showing name and address of officers of Borough grievance cells at all work sites
6. Accident register at camp office
7. Medical examination report of workmen every six month. This is pending for a long time
8. Document showing tie up with local doctor/nursing home/hospital
9. Display of Safety Officers' name and telephone number at work sites
10. First aid boxes with required medicines with valid dates at all work sites/camp site offices. Standardization of first aid box is required.
11. Toilet & Drinking water facilities at major work sites/camps
12. Fire fighting facilities at vulnerable work sites/camp office site/combustible material storage site
13. Rubber mat at high voltage electrical switch board area
14. Life jacket and rope at water front sites
15. Drawing showing locations of first aid boxes, fire fighting facilities, etc. updated every month

**INSTRUCTIONS FOR CONTRACTOR/ SUPERVISOR- ENVIRONMENTAL SAFEGUARD- KEIIP**

- Nomination of environment-safety officer in contractor team
- Setting up camp office with proper sanitation condition, solid waste management facility and sufficient drinking water supply. Non cutting of trees during setting up camp
- Removal / disposal of overburden/surplus earth/ stone, sludge materials at earliest without any accumulation at working sites - Use of overburden materials at site (preferred option)
- Proper disposal of other construction waste –Reuse in other projects
  - Site should be selected in consultation with PIU and concerned Supervisor Engineer of DSC
- Proper storage of construction materials - wastage of materials to be checked. Slope should be avoided
- Felling of trees if done to be compensated by plantation (1:3 ratio)
- Scheduling of work without any social impact – movement of pedestrian (particularly during tourist/ festive seasons) or other disturbances etc.
- Regular water sprinkling (at least 2-3 times in a day during dry period) at construction site for arresting of dust – record should be maintain at site
- Covering of materials carrying vehicles in case of transportation of wind- blown material like sand
- Personnel safety of workforce – use of ear plugs (noise producing area), nose mask (dust producing area and sewer connection work), helmet, gloves, gumboots, safety belt etc at working sites (as per site condition).
- Filling up trenches and restoration of road after pipe laying at earliest
- Arrangement of shoring, if required
- Instruction to material supplier/ contractor to arrange pollution under control (PUC) certificate for material carrying vehicles, equipments and machinery – Timely Renewal of PUC
- In case of purchase of stone aggregates consent to establish and operate of stone crusher should be collected from supplier
- No objection certificate from pollution control board for use of DG set( 5 KVA and above capacity)
- Regular maintenance of noise producing machinery
- Arrangement of enclosure for noise producing equipment like generator, concrete mixture
- Implementation of traffic stop/diversion measures including use of safety tape/ barricade/ caution board/ diversion board at working sites with proper diversion sign
- Proper drainage of waste water/ rain water from working sites
- Arrangement of First Aid box at camp site, site office and working area

- At all working sites there should be a display board which shows location and contact phone number of PIU/ DSC/ Respective Borough office and grievance redress cell and respective officers for registering public complain. Keep Grievance Redress register at PMU/ contractor's site office for recording and addressing public complain.
- Display of all emergency contact number at site office/ storage depot
- Awareness program on HIV/AIDS
- Maintain chance find protocol for archeological objects
- Non use of child labour below 14 yrs age
- Carry out monitoring work base line & during construction (air, water, noise) as per schedule EMP
- Regular public consultation at all sensitive receptor within project influence area



Kolkata Environmental Improvement Investment Program (KEIP)  
Environment, Health and Safety – Review Meeting for Tranche 2 contract  
Venue: KEIP DSC office, Meeting Room  
Date: 13.09.2017

Sr. No.	Name	Organization / Designation	Contact No./ E mail	Signature
1	PRADIP KEMTEA	SNET-3012 (JV) SAFETY OFFICER	9073022755	
2	Aparajita Nayak	GOCL HSE OFFICER	7595887426	
3	P. P. Sinha	GOCL HSE S.S.H.	8100328373	
4	Anamika Koley	Simplex Infrastructure L&E (Safety-Env)	9073683385	
5	Sanku Maiti	Simplex Infrastructure Safety officer	9073672731	
6	Vijay Kumar	Safety Supervisor	908866916	
7	S. K. Pradhan	Const. Manager, DSC	7051233317	
8	Chinmay Chakrabarti	Env Specialist PMU	9830284368	
9	Rakmini Chakrabarti	JES (DSC, KEIP)	9807380908	
10	AVRASH GHOSH	TANTIA CONSTRUCTION LTD	989454888 talia.mishra@gmail.com	
11	Debashish Datta	SNET-3012 Safety Officer	8921851140 dbr33140@gmail.com	
12	Rudra Kumar	SNET-3012 Project Charge Officer	9519321877 gurbankumar02@gmail.com	
13	ABHIT MOHANTY	PC - TANTIA CONSTRUCTION LTD	8420940490	
14	Rashmi Saha	CS/352	9939667500	
15	Shubajit Koley	ITD-ITD/CS	858492802	

Arghendra Mishra DSC  
13/9/17

**APPENDIX 14: SAMPLE GRIEVANCE REGISTRATION FORM**  
(To be available in Hindi and English or local language - Bengalee)

The **Kolkata Environmental Improvement Investment Program (KEIP)** 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.

<b>Date</b>		<b>Place of registration</b>			
<b>Contact Information/Personal Details</b>					
<b>Name</b>		<b>Gender</b>	<b>Male</b> <b>Female</b>	<b>Age</b>	
<b>Home Address</b>					
<b>Village / Town</b>					
<b>District</b>					
<b>Phone no.</b>					
<b>E-mail</b>					
<b>Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below:</b> If included as attachment/note/letter, please tick here:					
<b>How do you want us to reach you for feedback or update on your comment/grievance?</b>					

**FOR OFFICIAL USE ONLY**

<b>Registered by: (Name of official registering grievance)</b>	
<b>If – then mode:</b>	
<ul style="list-style-type: none"> <li>• <b>Note/Letter</b></li> <li>• <b>E-mail</b></li> <li>• <b>Verbal/Telephonic</b></li> </ul>	
<b>Reviewed by: (Names/Positions of Official(s) reviewing grievance)</b>	
<b>Action Taken:</b>	
<b>Whether Action Taken Disclosed:</b>	<ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• <b>No</b></li> </ul>
<b>Means of Disclosure:</b>	

**GRIVENCE REDRESS REGISTAR**  
**GRIVENCES RECORD AND ACTION TAKEN**

Sr. No.	Date	Name and Contact No. of Complainer	Type of Complain	Place	Status of Redress	Remarks



Package SD 11

MONTH OF DECEMBER -  
GRIEVANCE REDRESSAL

SD-11				SD-11		
COMPLAINT NO.	DATE	LOCATION (SITE)	NAME OF THE PERSON	CONTRACT NO. / TYPE	DATE - REGISTERED	STATUS - REGISTERED NO.
1	11/01/17	SITE	Santhosh Kumar E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
2	11/01/17	SITE	Abdul Samad E-69 South Park - 20 9434718859	I have no objection	CONTRACTOR	FA
3	11/01/17	SITE	Prasanna E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
4	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
5	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
6	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
7	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
8	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
9	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA
10	11/01/17	SITE	S. S. Srinivasan E-69 South Park - 20 9434718859	15/007 / 2016 (Contract No. 15/007)	CONTRACTOR	FA

Package: SD13

*Bekala Sewerage and Drainage Project*  
C-3155 SD13

**GRIEVANCE REDRESSAL REGISTER**

SL. NO.	DATE	COMPLAINT THROUGH (HOW)	NAME OF COMPLAINT	ISSUE/COMPLAINT	ACTION TAKEN	STATUS	REMARKS/COMMENTS
1.	8/12/17	Complaint through Tele Phone	Mr. Prabhu Khatwa	Road Drainage was checked due to excavated earth. For this reason Drainage water was spreaded on Public road.	Action taken by Contractor (SIL)	Same day	1. Road drain should be cleaned as soon as possible. 2. During excavation works, any covers may be kept on open drain to avoid the check and drain.



Package: SD14

Package KEIP/NCB/TF-2/SD-14/2015-16

### GRIEVANCE REDRESSAL REGISTER

No.	Date	Site	MO Grievance Cause/Location	Due to manually excavation for K.C pipe laying work excavated earth will be left at walkway.	By Execution Team	Time lag	Excavated earth will be kept when walkway will be not blocked.
02.	20/08/17	Site	MO Nishit C. Kottaraj	Due to laying work by manually excavation. excavated earth will be left at walkway.	By Execution Team	Some day	Excavated earth will be kept when walkway will be not blocked.

Ankur Lalay



Package WS 15

Location	Date	Contract Reference No.	Name of Contractor	Contract	Details	Action Taken by Contractor	Completion %	Remarks
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...

Package WS 17A

JOKA WATER SUPPLY Project  
WS17A

**GRIEVANCE REDRESSAL REGISTER**

COMPLAINT NUMBER	DATE	COMPLAINANT THROUGH (PHONE/ LETTER/SITE)	NAME OF COMPLAINTER	COMPLAINT DETAILS	ACTION TAKEN BY (CONTRACTOR/USE/PWC/ ETC)	DATE-COST REQUIRED(COSTS REQUIRED)	REMARKS FURTHER ACTION IF ANY
1.	7.12.17	Complaint through Telephone	Mr. Manoj Mishra	Excess earth kept on public walkway due to construction work.	Action taken by SII.	Same day	Excavated excess earth should be removed from the Public walkway as soon as possible on regular basis.



Package WS 17B

JOKA WATER SUPPLY PROJECT  
WS 17B

**GRIEVANCE REDRESSAL REGISTER**

COMPLAINANT NAME	DATE	COMPLAINT THROUGH (PHONE/ LETTER/ ETC)	ASSIGNED OFFICER NAME	COMPLAINT DETAILS	ACTION TAKEN BY CONTRACTOR/ FOLLOW UP	DATE CASE HANDLING/ CASE RESOLVED	COMMENTS/ FURTHER ACTION PLAN
1	23/12/17	At Site	Mr. Tapas Nayak	Excavated Soil kept on Public walkway due to Project work.	Action taken by Contractor (Soil)	Same day	Excavated Earth should be removed from Public walkway as far as possible on regular basis.
2	28/12/17	At Site	Mr. Tapas Sarkar	Construction materials kept on Public Road.	- Do -	Same day	Construction materials should be kept or stored in a Proper manner.

