

Semi-Annual Environmental Monitoring Report

Project number: 35290-023
January 2016

Reporting Period: July to December 2015

IND: North Eastern Region Capital Cities Development Investment Program – Tranche 1

Prepared by State Investment Program Management and Implementation Unit (SIPMIUs), Agartala, Aizawl, Gangtok, Kohima and Shillong for the Asian Development Bank.

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

Semi Annual Environmental Monitoring Report

(CONSOLIDATED)

Period: July to December 2015

**India: North-Eastern Region Urban Development Program
(NERUDP)**

CONSOLIDATED BY

PMMC

Prepared by:

**STATE INVESTMENT PROGRAMME MANAGEMENT AND
IMPLEMENTATION UNIT (SIPMIUs), Agartala, Aizawl, Gangtok,
Kohima, Shillong**

TABLE OF CONTENTS

Agartala.....	3
Aizawl.....	192
Gangtok Tr-I.....	245
Gangtok Tr-II.....	255
Kohima Tr-I.....	374
Kohima Tr-II.....	402
Shillong Tr-I	465
Shillong Tr-II	525

CONTENTS

Sr. No.	Subject	Page No.
I	Introduction	3
II	Implementation Progress	6
III	Environmental Procedure Review	13
IV	Compliance status with Environmental Management and Monitoring Plan	14
V	Environmental Monitoring and Evaluation	52
VI	Consultation and Disclosure Conducted	68
VII	Grievance Redressal Mechanism	68
VIII	Findings and Recommendation	69
List of Tables		
1	Sub-project Status of Tranche – 2 (Upto 31 st December 2015)	7
2	Compliance of Environmental Loan Covenants	11
3	Details of NERCCDIP Tripura- Agartala Environmental Safeguard Team	13
4	Environmental Legal Requirements Applicable for NERCCDIP Tranche 2- Agartala, Tripura	13
5	Status of Compliance with National and State Legal Requirements (upto 31 st December 2015)	14
6	Compliance to EMP for the Package - Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)- (AGT/WS09/ICB/11/7, Lot -1)	16
7	Compliance to EMP for the Package - Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) {[Jogendranagar] – Lot 1 & {Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)	24
8	Compliance to EMP for the Package - Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	34
9	Compliance to EMP for the Package - Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	43
10	Ambient Air Quality monitoring data	52
11	Noise level Monitoring data	59
12	Performance Fact Sheet for Required Environmental Consents/Clearances of NERCCDIP, Tripura Agartala Tranche 2 (Package-wise)	65
13	Performance Fact Sheet for EMP Implementation NERCCDIP, Tripura Agartala Tranche 2 (Package-wise)	66
14	Indicative Schedule for Consultations and Disclosure	68
15	Corrective Action Plan	69
List of Figures		

1	Project Area for NERCCDIP, Agartala and AMC boundary	4
2	Sub project location map for Tranche 2.	5
3	Institutional Responsibility- NERCCDIP	12
4	Grievance Redressal Mechanism	69
Appendix		
1	Project Implementation status	71
2	Photo Illustration	82
3	Attendance sheet training program	85
4	Consent to Establish for Ground Water Treatment Plant – Shown Condition	86
5	Site Specific Environment Management Plan	87
6	Spoil Management Plan	111
7	Air and Noise Monitoring Results	122
8	Health, safety and Environment Plan	142
9	Labour Insurance policy	157
10	Summary of Labours package wise	170
11	Traffic Management Plan	171
12	Internal training Program	179
13	Minor accident record	180
14	Monitoring Budget	182
15	Public consultation on Environmental Issues During Construction/ Implementation	186
16	Photo onsite consultation / discussion with locals	187
17	Sample Grievance Registration Form	188

I. INTRODUCTION

A. Background

1. The Government of India has proposed to implement projects to improve urban conditions in North Eastern region capital cities under North Eastern Region Capital Cities Development Investment Programme (NERCCDIP). The investment Programme will aim at improving infrastructure and urban service, and also strengthening the urban institutions for better service delivery and operation maintenance of the assets. The capital cities under the Programme are Agartala (In Tripura), Aizwal (In Mizoram), Gangtok (In Sikkim), Kohima (In Nagaland), and Shillong (In Meghalaya). This report deals with the proposed investment Programme (NERCCDIP: ADB Loan 2528-IND & 2834- IND) for Agartala, the capital city of Tripura.

2. The works under the investment Programme includes development of urban infrastructure facilities in the sector for Water Supply and Solid Waste Management system. The budgetary allocation for improvement in the Water Supply and Solid Waste Management components in ¹Indian currency is 1812.7 million rupees (Estimated revised cost 2557.51 Million Rupees).

3. Location of Agartala city in Tripura is shown in **Figure 1**. Sub project location map for **Tranche 2** is shown in **Figure 2**.

B. Purpose of the Report

4. NERCCDIP 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) reports (for Tr-I & II) prepared according to ADB Environment Policy (2002,2009) and Environmental Assessment Guidelines (2003).

5. This report is the **Semi Annual Environmental Monitoring Report (SAEMR) – Tranche 2 for the period July to December 2015** to describe the “Environmental Compliance” including status of implementation of the mitigation measures and monitoring recommended in the Initial Environmental Examination (IEE).

¹ Based on a conversion factor of : 1 US \$ = Rs 48

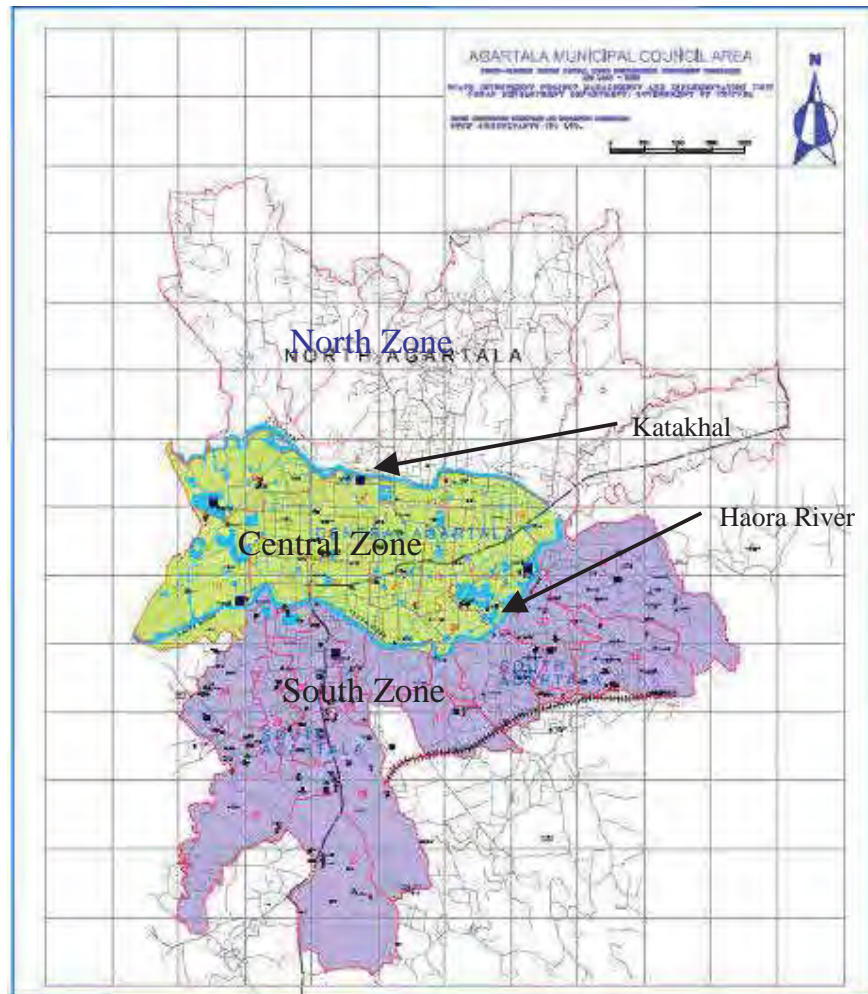


Figure 1: Project Area for NERCCDIP, Agartala and AMC boundary

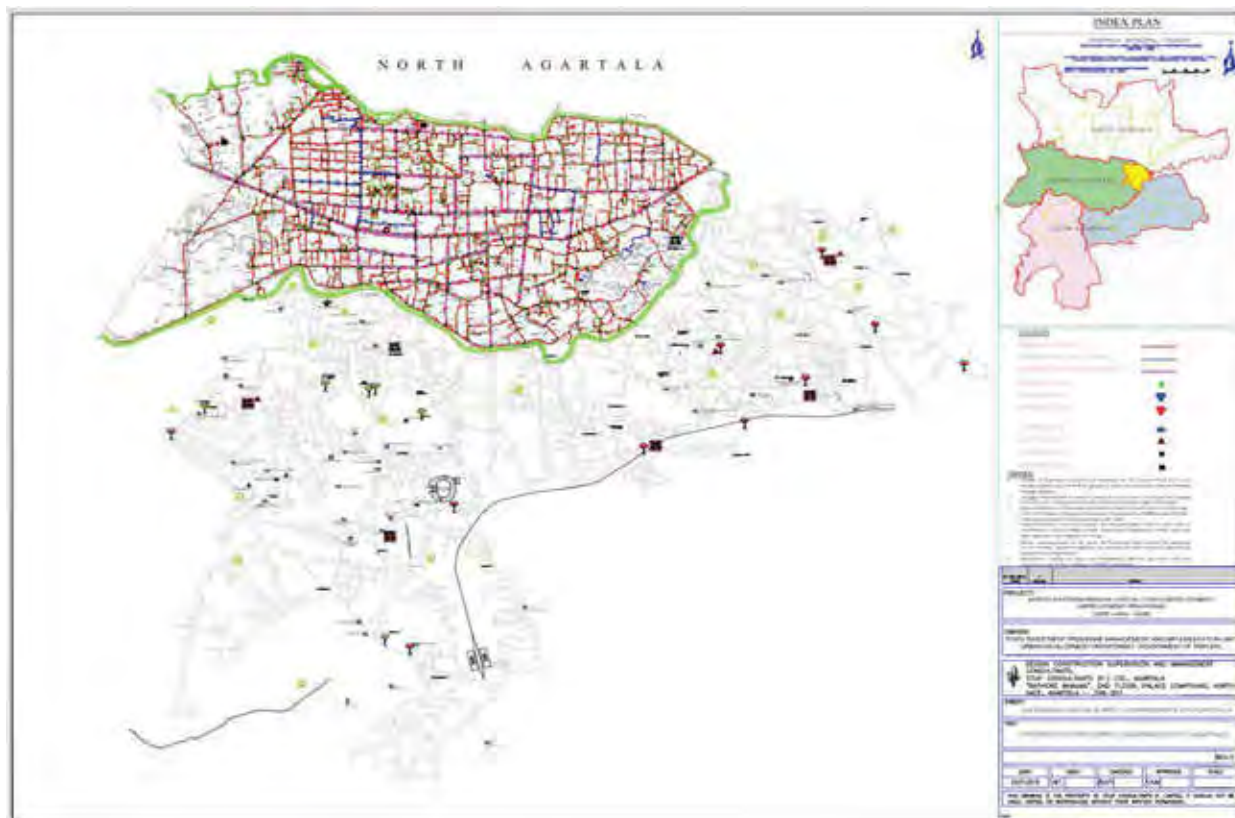


Figure 2: Sub project location map for Tranche 2.

II. IMPLEMENTATION PROGRESS

A. Status of the Sub projects

6. In **Tranche 2** all (four nos.) packages (**total 6 lots**) have been awarded and those are under implementation.

7. **Table 1** shows the status of the awarded packages, starting date, and schedule date of completion, physical progress and work components progress status.

8. For all awarded package contractors are mobilized and works are running in different stages. Contractor of Package No. AGT/WS09/ICB/11/7 Lot -2 was terminated due to non performance. Re- selection of contractor is under progress. Completion date for most of the packages is expired. Extended dates are shown in **Table 1**. **Appendix 1** shows implementation status of different components package wise. Photo illustration of project locations is shown in **Appendix 2**.

Table 1: Sub-project Status of Tranche – 2 (Upto 31st December 2015)

Location	Sub-projects (Package No.)	Work Components	Starting date of Implementation	Projected months of completion (as per Work order)	Schedule date of completion (Extended date of completion*)	Physical progress (%) as on 31.12.2015	Works Completed as of 31 st December 2015	Corrective action
Agartala city	Water Supply - Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR), (AGT/WS09/ICB/11/7, Lot -1)	<ul style="list-style-type: none"> Construction of 9 reservoirs locations are, <ul style="list-style-type: none"> Near Salbagan Road [Cap.: 450 KI] Near Nath Para [450 KI] Near Aralia-II [450 KI] Near Champamura [450 KI] Backside of TSECL [450 KI] Near AMC Zonal Office [680 KI] Near Pranabananda TW [680 KI] Near Sarba Dharma Ashram [900 KL] Near Backside of SadhuTillah School [1130 KI] 	06.03.2013	18	05.09.2014 (30.09.2015) Further extended to 31.01.2016*	44.12%	<p>No work components completed on date</p> <p>Reservoir Dome under construction at Aralia and Gurudaspara. Construction work for water reservoir at Pranabanada has been completed. Testing under progress.</p> <p>Champamura and Sadhutilla bracing raft work under progress.</p> <p>Back side of TESCL and Sarba Dharma Ashram layout and excavation under progress.</p> <p>Bracing and column work upto middle completed at Nathpara and AMC Zonal office</p>	Slow progress. Intervention needed from SIPMIU for planning and timely completion of project work
	Water Supply - Design Supply and Construction of 14 Nos. of Over Head	<ul style="list-style-type: none"> Construction of 5 reservoirs with pile foundation. 	Work stopped	-	-	-	Contract terminated due to non performance by contractor.	New contractor should be selected at earliest

Location	Sub-projects (Package No.)	Work Components	Starting date of Implementation	Projected months of completion (as per Work order)	Schedule date of completion (Extended date of completion*)	Physical progress (%) as on 31.12.2015	Works Completed as of 31 st December 2015	Corrective action
	Service Reservoir (OHSR), (AGT/WS09/ICB/11/7, Lot -2)	Locations are, <ul style="list-style-type: none"> Near Cold Storage Sripally – Badharghat – 1130 KL Near Exit. DTW at Rampur/ Bhagat Singh Colony-1130 KL Near Pragati School- 900 KL Near Hatijan Colony – 680 KL Near Cremation Ground Battala – 1130 KL 					Retendering done and selection process for engagement of new contractor continued	
	Water Supply- Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Jogendranagar] (AGT/WS10-3/ICB/11/9, Lot-1)	<ul style="list-style-type: none"> Laying of water distribution pipeline at South part of Agartala city – DI pipes 150 to 350 mm= 40.6 km and HDPE pipe 90 to 110 mm= 64.5 km 	04.03.2013	18	03.09.2014 (31.12.2015) Further extended to 30.06.2016*	72.92%	No work components completed on date <ul style="list-style-type: none"> 28.8 km DI pipe and 51.2 km HDPE pipe laying completed rest under progress House connection approx. 6000 nos. to be done 	Already more than 79% work completed. Planning and increase of manpower will be required for timely completion of project including house connection

Location	Sub-projects (Package No.)	Work Components	Starting date of Implementation	Projected months of completion (as per Work order)	Schedule date of completion (Extended date of completion*)	Physical progress (%) as on 31.12.2015	Works Completed as of 31 st December 2015	Corrective action
	Water Supply- Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Bardowali] (AGT/WS10-3/ICB/11/9, Lot-2)	<ul style="list-style-type: none"> ○ Laying of water distribution pipeline at South part of Agartala city – DI pipes 150 to 400 mm= 34.0 km and HDPE pipe 90 to 110 mm= 92.2 km 	06.03.2013	18	05.09.2014 (31.12.2015) Further extended to 30.06.2016*	75.0%	No work components completed on date <ul style="list-style-type: none"> ○ 31.1 km DI pipe and 65.19 km HDPE pipe laying completed rest under progress ○ House connection approx. 9000 nos. to be done 	Already 73% work completed. Planning will be required for timely completion of project including house connection
	Water Supply- Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	<ul style="list-style-type: none"> ○ Construction of Ground Water Treatment Plant at 7 locations <ul style="list-style-type: none"> • Public Health Engineering (PHE) Complex, Opp. Pragati School • Area near Battala Burial ground (Rampur) • Camper Bazar-Deendayal Ashram • Public Health Engineering (PHE) Stores, Dukli • Pratapgarh - Sadhu Tilla • Area near AMC zonal 	05.08.2013	18	04.02.2015 (31.12.2015) Further extended to 30.06.2016*	58.12%	No work components completed. All running. Civil work e.g construction of clariflacculator, filter house, administrative building, receiving tank, cascade aerator, flush mixture are completed at Aralia II, Sadhu tilla, AMC zonal office ward 35, Deendayal Ashram, Dukli pHE store complex and Opposite Pragati school. At Rampur civil work under	At most of locations civil work completed. Electrical and Mechanical works need to be completed at earliest for testing. For Rampur construction process should be expedite for timely completion. After Increase of manpower and planning is required for timely completion of work

Location	Sub-projects (Package No.)	Work Components	Starting date of Implementation	Projected months of completion (as per Work order)	Schedule date of completion (Extended date of completion*)	Physical progress (%) as on 31.12.2015	Works Completed as of 31 st December 2015	Corrective action
		<ul style="list-style-type: none"> office (ward 35) Near Aralia-II DTW 					<p>progress.</p> <p>Mechanical and electrical work under progress at Aralia, AMC zonal office ward 35, Sadhu tilla, Deendayal Ashram, Dukli are in progress</p> <p>Soil stabilization work under progress at Rampur.</p>	
	Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	<ul style="list-style-type: none"> Laying 150 - 300mm dia ductile iron class K-9 pipes of 58.7 km 	14.07.2014	18	13.01.2016	61.88%	<p>No work components completed on date</p> <p>Completed – 33.9 km out of total 58.7 km, rest under progress</p> <p>Pipe laying work in progress at Aralia, AMC, Sadhutilla, Matripalli, Bardowali and Camparbazar</p>	<p>Already 55% of work completed. Work will be not completed by January 2016. Extension of completion date is required</p> <p>Increase of manpower and planning is required for completion of work at earliest</p>

(* Date extended due to delay in progress)

9. Till date scope of the sub projects are not changed.

B. Compliance of Safeguard Loan Covenants

10. The loan agreement for NERCCDIP Project 1 was signed on 19th November 2012 and available in ADB website (<http://www.adb.org/sites/default/files/project-document/74927/35290-033-ind-mlo1.pdf>). **Table 2** provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 2: Compliance of Environmental Loan Covenants

Project Specific Covenants	Status / Issues
Environment	
India and the States will ensure that the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment and review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government and ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002) and Safeguard Policy Statement (SPS, 2009). Any adverse environmental impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MOEF. GoI will prepare and submit annually to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered and measures adopted; and compliance with the relevant assurances and loan covenants. (FFA)	<p>Under compliance</p> <p>All documents are prepared in accordance with ADB Environmental Policy 2002 and SPS 2009 and Environmental Assessment Guidelines 2003</p> <p>Initial Environmental Examination report was updated for Tranche 2, approved by ADB and disclosed in ADB website.</p> <p>Mitigation measures applied according to project location, specific sector development and associated design requirements.</p> <p>EMP is prepared and incorporated in bidding document.</p> <p>Regularly monitoring of EMP application is started for compliance as per stated mitigation measures.</p> <p>Other than the consent till date no environment & forest clearance is required for Tranche II project</p> <p>This is Semi- annual report for the period July to December 2015. Last semi-annual report for January to June 2015 was re-submitted on November 2015 and revised report already disclosed in Website. Next report will be due on June 2016.</p>

C. Implementation Arrangement

Details on the SIPMIU and DSMC environmental cell setup and personnel

11. Environmental issues of the project coordinated by an Environmental Specialist within the DSMC, who ensures that all subprojects, comply with environmental safeguards. There is one Environmental and Social Safeguard Officer in SIPMIU. The Safeguard Officer is responsible for implementing the environmental and social safeguard provisions in the project including (i) ensuring environmental criteria for subproject selection in the EARP are followed, (ii) ensuring mitigation requirements are in contractor bidding documents, and (iii) liaising with various Central and State government agencies on compliance matters. The SIPMIU appointed and manage Construction Contractors (CC) to build elements of the infrastructure that are required to submit Environmental Implementation Plans (EIPs) for SIPMIU approval. The SIPMIU is assisted by the DSMC, who is responsible for design the infrastructure, manage tendering of contracts, and supervise the construction process.

12. An Environmental Specialist (ES) in the DSMC is responsible for addressing the environmental issues in the project components during design and implementation. The ES ensure all mitigation requirements are in contractor bidding documents and EMPs, and supervise the effective implementation of environmental provisions during construction. In addition, the ES assist the SIPMIU on the procurement needs and other project implementation aspects and play a central role in ensuring capacity building on

environmental management of the SIPMIU, Contractor and Line Departments through capacity development support and training. **Figure 3** shows institutional responsibility for implementation of environmental safeguard monitoring at different level.

13. EMP shows that most of the mitigation measures are fairly standard methods of minimizing disturbance from building in urban areas (maintaining access, planning work to avoid sensitive times, finding uses for waste material, etc), and experienced Contractors should be familiar with most of the requirements. Monitoring of such measures normally involves making observations in the course of site visits, although some require more formal checking of records and other aspects. There are also be some surveys of residents, as most of the measures are aimed at preventing impacts on people and the human environment.

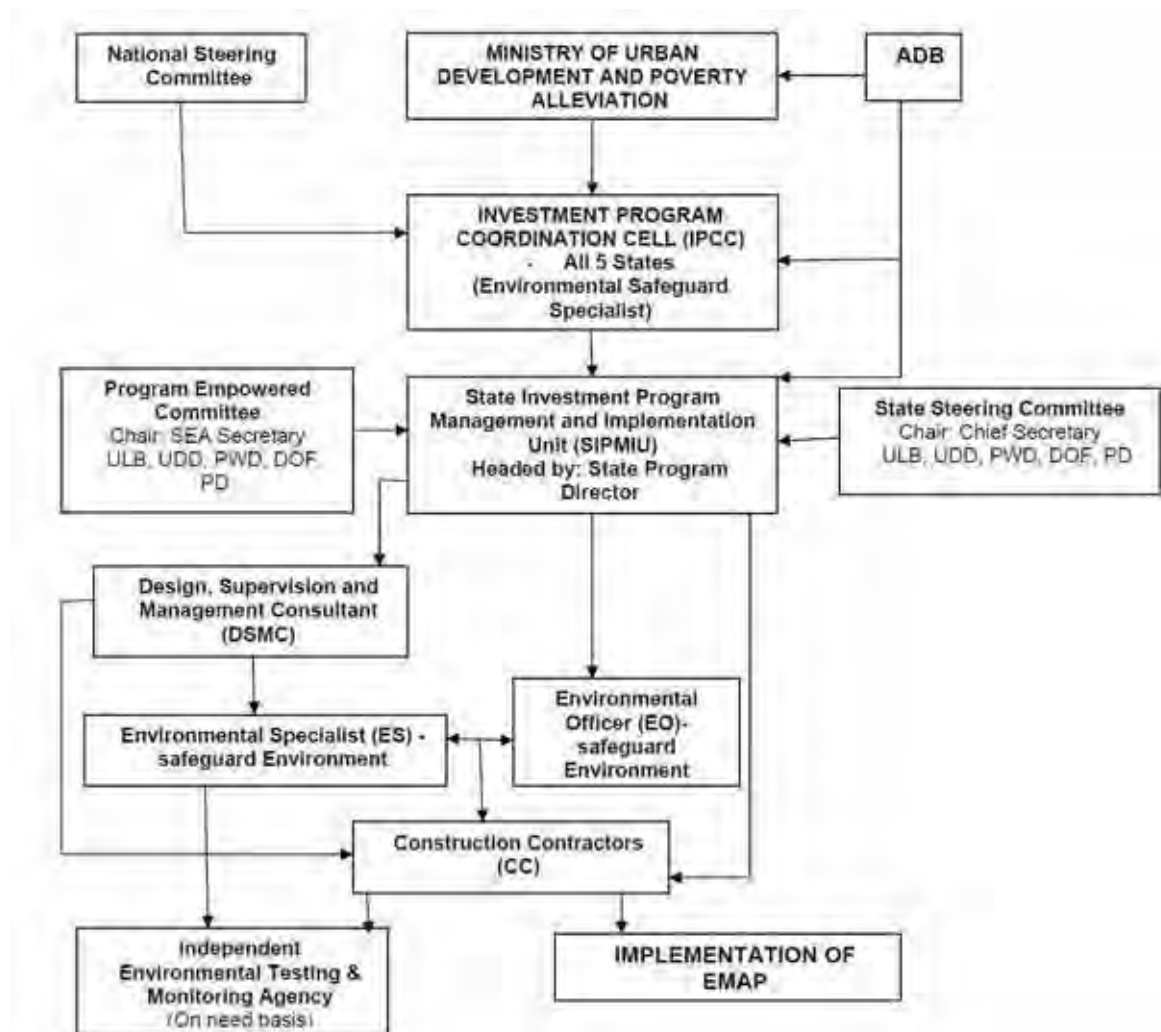


Figure 3: Institutional Responsibility- NERCCDIP

AMC = Agartala Municipal Corporation, DOF = Department of Forest, PHED = Public Health Engineering Department, PWD = Public Work Department, SEA = State Executing Agency- Urban Development Dept. Govt. of Tripura, ULB = Urban Local Body.

14. Environment Specialist of DSMC generally visited all construction sites atleast quarterly and arranged training program for contractors and supervisory staff and instructed to contractor for application of corrective action measures to mitigate impacts. During the report period training has been conducted on 6th July 2015. Attendance sheet is attached as **Appendix 3**. Details are,

Date	Location	Issue	Participants
06.07.2015	SIPMIU Office	Implementation of EMP and corrective action plan after field review and document check	SIPMIU, Contractor and DSMC 7 nos.

15. Attendance sheet is attached as **Appendix 3**.

16. **Table 3** shows detail of environment safeguard team for NERCCDIP.

Table 3: Details of NERCCDIP Tripura- Agartala Environmental Safeguard Team

Designation	Name and Contact Details
SIPMIU, Project Director	Project Director, SIPMIU, Directorate of Urban Development, Government of Tripura, 2nd Floor, Khadya Bhavan, Pandit Nehru Complex, Agartala- 799 007, Phone: 0381-2329301 Email: sipmiutripura@gmail.com Web site: www.tripura.nic.in, www.tenders.gov.in
SIPMIU, Environmental and Social Safeguard Officer	Name: Smt. Arpita Chakroborty. Office Address: Khadhya Bhawan(3 rd Floor), P.N Complex, Gourkha Basti, Agartala, Tripura West, Pin- 799007 Phone: 08794627276 Email: sipmiutripura@gmail.com
DSMC, Environmental Specialist	Name: Dr. Ardhendu Mitra Office Address: 2 nd floor, Rathor Bhavan, North Gate Palace Compound, Agartala Tripura West. Pin - 799001 Phone: 0381-2300286 Email: ardhendumitra@gmail.com , agartala@stumail.com

III. ENVIRONMENTAL PROCEDURE REVIEW

A. Environmental Legal Requirement

17. **Table 4** provides a list of national and state laws, rules, policies and regulations applicable to **NERCCDIP Tranche 2** for Agartala, Tripura.

Table 4 Environmental Legal Requirements Applicable for NERCCDIP Tranche 2- Agartala, Tripura

Component	Applicable Legislation	Compliance	Action Required
1. All components that require acquisition of forest land	Forest (Conservation) Act 1980	Approval from State Forest Office, Principal Chief Conservator of Forest and Ministry of Environment and Forests & Climate Change (MoEFCC), Government of India	In case of tree felling permission as per requirement No tree felling is required on date. No permission is required from Forest Dept.
2. Ground Water Treatment Plant (GWTP)	The Water (Prevention and Control of Pollution) Act, 1974, as amended in 1988	Consent to Establish (CTE) and Consent to Operate (CTO) from Tripura State Pollution Control Board	Based on project review and site inspection, Tripura State Pollution Control Board (TPCB) provides CTE before construction, and stipulates the

Component	Applicable Legislation	Compliance	Action Required
		(TSPCB), Government of Tripura	disposal standards to be met during operation. After completion of construction, Consent to Operate (CTO) will be issued confirming compliance with the CTE conditions, if any
		Renewal of CTO during operation of GWTP	Based on the performance of the GWTP and its compliance with the disposal standards CTO to be renewed every year.

B. Compliance with Environmental Legal Requirements

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

19. **Table 5** below shows present clearance status for sub-project under **Tranche 2**. As per the present status consent to establish obtained for construction of Ground water treatment plant sub-project under **Tranche 2**.

Table 5: Status of Compliance with National and State Legal Requirements (upto 31st December 2015)

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
AGT/WS-02.07.08/ICB/11/8	Procurement of Ground Water Treatment Plants (GWTPs) . Design, Construction, Supply, Installation & Commissioning Including Mechanical & Electrical equipment with Operation for one year in Agartala	Water (Prevention and Control of Pollution) Act. 1974/ Consent to establish for 40 MLD (7 nos.) Ground Water Treatment Plants (GWTPs) from Tripura State Pollution Control Board Consent to operate will be required before operation The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Noise Pollution (Regulation and Control) Rules, 2002 amended up to 2010. Also for setting up hot mix plant, batching plant and use of diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Consent to Establish obtained from Tripura State Pollution Control Board – Order No. F.17(10)/TSPCB/W/ Water treatment/ (L-Gr)3498/3065- 70 dated 14.07.2011 Consent valid till completion of establishment of GWTPs (Attached as Appendix 4) During implementation of project compliance against Air Act , Noise Rules and Water Act will be required Not required now as per present work	Before commissioning Consent for Operation will be taken from pollution control board

IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

20. There are 4 sub projects (6 lots) under implementation. Site Environment plan including site specific EMP was submitted by the contractor before starting of the each construction packages. Those EMP are generally revised semi annually as per progress of construction work. **Appendix 5** shows Site Specific EMP for the **4 packages**.

21. Environment Specialist from DSMC and Safeguard Officer of SIPMIU carried out periodic monitoring of EMP implementation thru desk review of contractor's records and site

inspections. Package wise findings are presented in **Tables 6 to 9**. It is noted that in specifically Package AGT/WS09/ICB/11/7 -Lot -1 and other packages, EMP application partially complied. The issues are,

- Materials storage area of equipment not satisfactory for few sites

Corrective action

- ✓ Improvement of materials storage and lay-down area of equipment

- Air and noise monitoring – not regular

Corrective action

- ✓ Regular air and noise quality monitoring at construction sites

- Disposal and utilization of excess earth at designated/ approved location not done regularly

Corrective action

- ✓ Disposal and utilization of excess earth at designated/ approved location at earliest

- ✓ Local utilization is the preferred option

- Regular water sprinkling as per site condition

Corrective action

- ✓ Water sprinkling during dry period on regular basis

- Regular tool box training for labourer not done

Corrective action

- ✓ Induction and tool box training should be done on regular basis

- Unsatisfactory housekeeping at camp and working sites

Corrective action

- ✓ Improvement of housekeeping

- Incomplete use of PPE by contractor workers

Corrective action

- ✓ Use of PPE should be at all times as per site condition and work type.

- Incomplete barricading and use of caution tape at working locations

Corrective action

- ✓ Complete barricading and complete use of caution tape at all working sites

Table 6: Compliance to EMP for the Package - Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)- (AGT/WS09/ICB/11/7, Lot -1)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase								
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> Tree felling requirement if any – site environment plan NOC – paper documents from line agency 	All Project locations	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No tree needs to be cut. Site clearance and handover have been done
2	Access to Site	<ul style="list-style-type: none"> Access to site will be via existing roads 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 	<ul style="list-style-type: none"> Involvement of traffic dept. 	Specific project location	DSMC/ SIPMIU	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Site is easily accessible – working location within the fixed campus. Involvement of traffic dept. not required
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> List of affected utilities if any and operators Bid document to include requirement for a contingency plan for service interruptions 	Specific project location	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Utility shifting not required till date
4	Water supply	<ul style="list-style-type: none"> Plan the construction program to keep the cessation of water supplies to the minimum possible (in both area and duration); In coordination with PWD (DWS), provide alternative potable water 	<ul style="list-style-type: none"> Schedule of closure Delivery of potable water to affected people by 	-	DSMC/ SIPMIU	Checking of records Visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of	Not required as per present nature of work Will be taken care during commissioning of overhead tanks

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		to affected households and businesses for the duration of the shut-down for a very short period; and <ul style="list-style-type: none"> Liaise with affected persons to inform them of any cessation in advance, and to ensure that they are provided with an alternative supply. 	DWS				SIPMIU	
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of Site specific Environment Management Plan	-	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required as per present area of work – isolated location of OHSR
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas Prioritize areas within or nearest possible vacant space in the subproject location Non use of residential area Arrangement of toilet and drinking water facility No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Partially complied Labour camp constructed Improvement required for housekeeping at camp and stockpile area - Hot mix plant not established Corrective action: Improvement of housekeeping
7	Establishing Equipment Lay-down and Storage Area ²	<ul style="list-style-type: none"> 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. Storage areas shall be secure so as to minimize the risk of crime. Away from school and direct 	List of selected location and facility	Proposed locations considered in the package	DSMC/ SIPMIU	Site visit and checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Equipment lay-down area demarcated. Storage of fuel and lubricant partially complied Corrective action: Storage of fuel & lubricant above the metal platform

² 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	Compliance Status/ Explanation
		residential areas <ul style="list-style-type: none"> • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures 						
Construction phase								
8	Materials Management – Sourcing ³	<ul style="list-style-type: none"> • 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. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC 	<ul style="list-style-type: none"> • 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 Contractor documentation 	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Approval obtained from SIPMIU and DSMC Procurement continued as per requirement
9	Maintenance of Construction Camp	<ul style="list-style-type: none"> • Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement 	<ul style="list-style-type: none"> • Complaints from sensitive Receptors • Water and 	Camp site	Contractor	<ul style="list-style-type: none"> • Visual inspection of sites 	Environmental Specialist of DSMC and Environment &	Complied partially Established near tank site Drinking water and toilet facility available.

³ 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	Compliance Status/ Explanation
		<ul style="list-style-type: none"> Train employees in the storage and handling of materials Remove all wreckage, rubbish, or temporary structures 	<ul style="list-style-type: none"> sanitation facilities for employees Housekeeping – regular disposal of solid waste 				Social Safeguard officer of SIPMIU	Housekeeping to be improve Camp site photo attached as Appendix 2 Corrective action: Improvement of housekeeping
10	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with SIPMIU for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Excess excavated earth utilized for land filling nearby the tank locations Spoil management plan will be applied as per EMP (Attached as Appendix 6)
11	Dust and Air Pollution ⁴	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry period) Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification No fires are allowed on site Carry out air quality monitoring 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy equipment and machinery with air pollution control Water sprinkling arrangement 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied partially Location of stockpiles selected. Covering of materials not done fully. Water sprinkling to be done as per requirement. Work stopped for some time. During construction air quality monitoring not done during report period, Pollution under Control Certificate of vehicles not fully submitted Corrective action:

⁴ 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	Compliance Status/ Explanation
			<ul style="list-style-type: none"> Cover materials 					Complete covering of transported materials, water sprinkling as per requirement, regular monitoring of air quality, collection of valid pollution under control certificate
12	Noise level	<ul style="list-style-type: none"> Noise producing work needs to be conducted at day 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. 	<ul style="list-style-type: none"> Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Partially complied No such noise producing machinery mobilized at site PPE utilize as per requirement. Work stopped for some time. During construction air quality monitoring not done during report period, Corrective action: Complete utilization of PPE, noise monitoring on regular basis
13	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"> 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	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Drainage of waste water done. To be continued as per requirement and following EMP.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
14	Water Quality ⁵	<ul style="list-style-type: none"> Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with SIPMIU/DSMC on designated disposal areas; Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; Place storage areas for fuels and lubricants away from any drainage leading to water bodies; Dispose any wastes generated by construction activities in designated sites; and Conduct surface quality inspection according to the Environmental Management Plan (EMP). 	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	No water source nearby the project locations. Not required
15	Accessibility	<ul style="list-style-type: none"> Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; Schedule transport and hauling activities during non-peak hours; Locate entry and exit points in areas where there is low potential for traffic congestion; Keep the site free from all unnecessary obstructions; Drive vehicles in a considerate 	<ul style="list-style-type: none"> Traffic Management Plan; Complaints from sensitive receptors; Number of signages placed at subproject location. 	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	All tanks are located at isolated area. Traffic Management is not required. Transport and hauling activities to be continued during non-peak hours

⁵ 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	Compliance Status/ Explanation
		manner; <ul style="list-style-type: none"> Coordinate with Agartala Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. 						
16	Conservation of Natural Environment	<ul style="list-style-type: none"> Contractor to ensure only trees that have been marked beforehand are to be removed Contractor to immediately re-vegetate stripped areas 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. 	Tree felling requirement if any and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Tree felling not required till date. If, then permission will be taken
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Instruction is given to contractor for stockpiling of materials at designated areas
18	Occupational Health & safety	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety (H&S) Plan Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs 	<ul style="list-style-type: none"> Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of	Site-specific Health and Safety (H&S) Plan under implementation. Attached as Appendix 8 . H & S training arranged for the labourer, not on

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		<ul style="list-style-type: none"> H&S Training for all site personnel Documentation of work-related accidents; Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU Provide specific guidance for suitable PPE for every on-site work assignment Ensure availability of First aid box at all working sites and labour camp Provide medical insurance coverage for workers; Provide supplies of potable drinking water at working sites; Provide H&S orientation training to all new workers Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. 	<ul style="list-style-type: none"> Medical insurance coverage for workers Number of accidents Supplies of potable drinking water; Record of H&S orientation trainings Personal protective equipments Sign boards for hazardous areas such as energized electrical devices and lines, service rooms 				SIPMIU	<p>regular basis.</p> <p>Drinking water and first aid box available at site. Site photo enclosed in Appendix 2. Use of PPE complied</p> <p>Insurance arranged for the labourer. Attached as Appendix 9.</p> <p>No accident reported till date</p> <p>Overall compliance is satisfactory</p>
19	Social Impacts ⁶ . Community Health & safety, accessibility	<ul style="list-style-type: none"> Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites Contractor to ensure disruption of access for local residents is minimized Contractor to restrict activities and movement of staff to designated construction areas Contractor to provide walkways 	<ul style="list-style-type: none"> Traffic Management Strategy Complaints from sensitive receptors Number of signages placed at subproject location 	Project Locations	Contractor	Document check and visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	<p>Caution tape partially placed at working area</p> <p>No permanent barricade arranged by the contractor but instruction is given to the contractor for arrangement of the same as per requirement.</p> <p>Corrective action: Arrangement of</p>

⁶ 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	Compliance Status/ Explanation
		and metal sheets where required to maintain access across for people and vehicles <ul style="list-style-type: none"> Consideration of public safety - as per prescribed mitigation measures Contractors to ensure lighting on the construction site Provide protective fencing around open trenches Provide road signs and flag persons to warn Schedule transport and hauling activities during non- peak hours 						permanent barricade, complete use of caution tape
20	Socio cultural resources	<ul style="list-style-type: none"> Strictly follow the protocol for chance finds in any excavation work Stop work immediately to allow further investigation if any finds are suspected 	Chance find protocol	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required till date
21	Employment generation	<ul style="list-style-type: none"> Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and Secure construction materials from local market. 	<ul style="list-style-type: none"> Employment record records of sources of materials 	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	At present local laboures are mostly engaged. List of laborers are attached as Appendix 10 .

Table 7: Compliance to EMP for the Package - Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) {[Jogendranagar] – Lot 1 & [Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)}

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase								
1	Site clearance	Site preparation work including	• Tree felling	All Project	DSMC/	Observation	Environmental	Complied

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		necessary clearance and permission	requirement if any – site environment plan <ul style="list-style-type: none"> NOC – paper documents from line agency 	locations	SIPMIU	and document checking	Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	No tree needs to be cut. Site clearance have been obtained
2	Access to Site	<ul style="list-style-type: none"> Access to site will be via existing roads 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 	<ul style="list-style-type: none"> Involvement of traffic dept. Road closure planning 	Specific project location	DSMC/ SIPMIU	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Site is easily accessible – working location within ROW
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> List of affected utilities if any and operators Bid document to include requirement for a contingency plan for service interruptions 	Specific project location	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required now. Utility shifting plan (if any) will be planned along with progress of work
4	Water supply	<ul style="list-style-type: none"> Plan the construction program to keep the cessation of water supplies to the minimum possible (in both area and duration); In coordination with PWD (DWS), provide alternative potable water to affected households and businesses for the duration of the shut-down for a very short period; and Liaise with affected persons 	<ul style="list-style-type: none"> Schedule of closure Delivery of potable water to affected people by DWS 	-	DSMC/ SIPMIU	Checking of records Visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required as per present nature of work Will be taken care during jointing of pipes

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		to inform them of any cessation in advance, and to ensure that they are provided with an alternative supply.						
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of Site specific Environment Management Plan	-	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Considered as per required TMP prepared
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas Prioritize areas within or nearest possible vacant space in the subproject location Non use of residential area Arrangement of toilet and drinking water facility No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Labour camp not required. Local labours are employed. Hot mix plant not established. Stockpile area demarcated
7	Establishing Equipment Lay-down and Storage Area ⁷	<ul style="list-style-type: none"> 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. Storage areas shall be secure so as to minimize the risk of crime. Away from school and direct 	List of selected location and facility	Proposed locations considered in the package	DSMC/ SIPMIU	Site visit and checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Manual excavation continued no equipment in use

⁷ 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	Compliance Status/ Explanation
		residential areas <ul style="list-style-type: none"> • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures 						
Construction phase								
8	Materials Management – Sourcing ⁸	<ul style="list-style-type: none"> • 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. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC 	<ul style="list-style-type: none"> • 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 Contractor documentation 	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Approval obtained from SIPMIU and DSMC Procurement continued as per requirement
9	Maintenance of Construction Camp	<ul style="list-style-type: none"> • Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement • Train employees in the 	<ul style="list-style-type: none"> • Complaints from sensitive Receptors • Water and sanitation facilities 	Camp site	Contractor	<ul style="list-style-type: none"> • Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social	Not required. Local labourers are employed

⁸ 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	Compliance Status/ Explanation
		storage and handling of materials <ul style="list-style-type: none"> Remove all wreckage, rubbish, or temporary structures 	<ul style="list-style-type: none"> for employees Housekeeping – regular disposal of solid waste 				Safeguard officer of SIPMIU	
10	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with SIPMIU for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Excess excavated earth disposed after backfilling Spoil management plan will be applied as per EMP (Attached as Appendix 6)
11	Dust and Air Pollution ⁹	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry period) Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification No fires are allowed on site Carry out air quality 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy equipment and machinery with air pollution control Water sprinkling arrangement Cover materials 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Location of stockpiles selected. Covering of materials not done Water sprinkling to be done as per requirement. During construction air quality monitoring done. (Result certificate shown in Appendix 7). Pollution under Control Certificate obtained.

⁹ 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	Compliance Status/ Explanation
12	Noise level	<p>monitoring</p> <ul style="list-style-type: none"> Noise producing work needs to be conducted at day 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. 	<ul style="list-style-type: none"> Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No such noise producing machinery mobilized at site PPE utilize as per requirement. During construction monitoring is done. During construction monitoring will be continued as per EMP Results are attached as Appendix 7 .
13	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"> 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	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Drainage of waste water done. To be continued as per requirement and following EMP.
14	Water Quality ¹⁰	<ul style="list-style-type: none"> Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with 	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	No water source nearby the project locations. Water quality assessment not required

¹⁰ 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	Compliance Status/ Explanation
		SIPMIU/DSMC on designated disposal areas; <ul style="list-style-type: none"> • Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; • Place storage areas for fuels and lubricants away from any drainage leading to water bodies; • Dispose any wastes generated by construction activities in designated sites; and • Conduct surface quality inspection according to the Environmental Management Plan (EMP). 						
15	Accessibility	<ul style="list-style-type: none"> • Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; • Schedule transport and hauling activities during non-peak hours; • Locate entry and exit points in areas where there is low potential for traffic congestion; • Keep the site free from all unnecessary obstructions; • Drive vehicles in a considerate manner; • Coordinate with Agartala Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation 	<ul style="list-style-type: none"> • Traffic Management Plan; • Complaints from sensitive receptors; • Number of signages placed at subproject location. 	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Traffic Management plan prepared. Complete road closure to be done after prior permission. Traffic Management plan attached as Appendix 11 . Schedule transport and hauling activities done during non-peak hours. Site free from unnecessary obstruction. Complete road closure not required till date.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		activities cannot be avoided during peak hours; and <ul style="list-style-type: none"> Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. 						
16	Conservation of Natural Environment	<ul style="list-style-type: none"> Contractor to ensure only trees that have been marked beforehand are to be removed Contractor to immediately re-vegetate stripped areas 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. 	Tree felling requirement if any and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Tree felling not required till date. If, then permission will be taken
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Instruction is given to contractor for stockpiling of materials at designated areas Complied mostly
18	Occupational Health & safety	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety (H&S) Plan Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs H&S Training for all site 	<ul style="list-style-type: none"> Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; Medical insurance coverage for workers 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Site-specific Health and Safety (H&S) Plan under implementation. Attached as Appendix 8 . H & S training arranged for the labourer, not on regular basis.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		personnel <ul style="list-style-type: none"> Documentation of work-related accidents; Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU Provide specific guidance for suitable PPE for every on-site work assignment Ensure availability of First aid box at all working sites and labour camp Provide medical insurance coverage for workers; Provide supplies of potable drinking water at working sites; Provide H&S orientation training to all new workers Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. 	<ul style="list-style-type: none"> Number of accidents Supplies of potable drinking water; Record of H&S orientation trainings Personal protective equipments Sign boards for hazardous areas such as energized electrical devices and lines, service rooms 					Drinking water and first aid box available at site. Use of PPE – partially complied Insurance arranged for the labourer. Attached as Appendix 9 . No accident reported till date Overall compliance is satisfactory
19	Social Impacts ¹¹ - Community Health & safety, accessibility	<ul style="list-style-type: none"> Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites Contractor to ensure disruption of access for local 	<ul style="list-style-type: none"> Traffic Management Strategy Complaints from sensitive receptors Number of 	Project Locations	Contractor	Document check and visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of	Partially complied Caution tape partially placed at excavated area No permanent barricade arranged by the contractor but instruction is given to the contractor

¹¹ 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	Compliance Status/ Explanation
		residents is minimized <ul style="list-style-type: none"> Contractor to restrict activities and movement of staff to designated construction areas Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles Consideration of public safety - as per prescribed mitigation measures Contractors to ensure lighting on the construction site Provide protective fencing around open trenches Provide road signs and flag persons to warn Schedule transport and hauling activities during non-peak hours 	signages placed at subproject location				SIPMIU	for arrangement of the same as per requirement. Photo attached as Appendix 2 . Corrective action: Arrangement of permanent barricade, complete use of caution tape
20	Socio cultural resources	<ul style="list-style-type: none"> Strictly follow the protocol for chance finds in any excavation work Stop work immediately to allow further investigation if any finds are suspected 	Chance find protocol	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required till date
21	Employment generation	<ul style="list-style-type: none"> Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and Secure construction materials from local market. 	<ul style="list-style-type: none"> Employment record of records of sources materials 	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	At present local laboures are mostly engaged. List of laborers are attached as Appendix 10 .

Table 8: Compliance to EMP for the Package - Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase								
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> Tree felling requirement if any – site environment plan NOC – paper documents from line agency 	All Project locations	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No tree needs to be cut. Site clearance have been done and all land handed over to contractor
2	Access to Site	<ul style="list-style-type: none"> Access to site will be via existing roads 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 	<ul style="list-style-type: none"> Involvement of traffic dept. 	Specific project location	DSMC/ SIPMIU	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Site is easily accessible – working location within the fixed campus
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> List of affected utilities if any and operators Bid document to include requirement for a contingency plan for service interruptions 	Specific project location	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required now. Utility shifting plan (if any) will be planned before any progress of work Utility shifting not required
4	Water supply	<ul style="list-style-type: none"> Plan the construction program to keep the cessation of water supplies to the minimum possible (in both area and duration); In coordination with PWD (DWS), provide alternative potable water to affected households and businesses 	<ul style="list-style-type: none"> Schedule of closure Delivery of potable water to affected people by DWS 	-	DSMC/ SIPMIU	Checking of records Visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required as per present nature of work Will be taken care during commissioning

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		for the duration of the shut-down for a very short period; and <ul style="list-style-type: none"> Liaise with affected persons to inform them of any cessation in advance, and to ensure that they are provided with an alternative supply. 						
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of Site specific Environment Management Plan	-	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required as per present area of work
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas Prioritize areas within or nearest possible vacant space in the subproject location Non use of residential area Arrangement of toilet and drinking water facility No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Labour camp constructed with toilet and drinking water facility - Hot mix plant not established. Stockpile areas well maintained
7	Establishing Equipment Lay-down and Storage Area ¹²	<ul style="list-style-type: none"> 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. Storage areas shall be 	List of selected location and facility	Proposed locations considered in the package	DSMC/ SIPMIU	Site visit and checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Equipment lay-down area demarcated. Storage of fuel and lubricant done separately Fire prevention facility available

¹² 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	Compliance Status/ Explanation
		secure so as to minimize the risk of crime. <ul style="list-style-type: none"> Away from school and direct residential areas Fire prevention facilities must be present at all storage facilities Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials These storage facilities (including any tanks) must be on an impermeable surface Staff must be aware of their potential impacts and follow the appropriate safety measures 						
Construction phase								
8	Materials Management – Sourcing ¹³	<ul style="list-style-type: none"> 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. approved quarry sites for procurement of materials Verify suitability of all material sources and obtain approval of Investment from PMU/DSC 	<ul style="list-style-type: none"> 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 Contractor documentation 	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Approval obtained from SIPMIU and DSMC Procurement continued as per requirement
9	Maintenance	<ul style="list-style-type: none"> Establishment of temporary 	<ul style="list-style-type: none"> Complaints from 	Camp site	Contractor	<ul style="list-style-type: none"> Visual 	Environmental	Complied fully

¹³ 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	Compliance Status/ Explanation
	of Construction Camp	camps with drinking water, sanitary and solid waste management arrangement <ul style="list-style-type: none"> Train employees in the storage and handling of materials Remove all wreckage, rubbish, or temporary structures 	sensitive Receptors <ul style="list-style-type: none"> Water and sanitation facilities for employees Housekeeping – regular disposal of solid waste 			inspection of sites	Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Labour camp constructed with toilet and drinking water facility
10	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with SIPMIU for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Excess excavated earth already utilized for land filling within treatment plant location Spoil management plan applied as per EMP (Attached as Appendix 6)
11	Dust and Air Pollution ¹⁴	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry period) Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy equipment and machinery with air pollution control Water sprinkling arrangement 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Location of stockpiles selected. Covering of materials done Water sprinkling done as per requirement. During construction air quality monitoring done. (Result certificate shown in Appendix 7). Pollution under Control Certificate of

¹⁴ 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	Compliance Status/ Explanation
		certification • No fires are allowed on site • Carry out air quality monitoring	• Cover materials					vehicles submitted. Renewal has been done
12	Noise level	• Noise producing work needs to be conducted at day 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.	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No such noise producing machinery mobilized at site PPE utilize as per requirement. During construction monitoring is done. During construction monitoring will be continued as per EMP Results are attached as Appendix 7.
13	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	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Drainage of waste water done. To be continued as per requirement and following EMP.
14	Water Quality ¹⁵	• Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social	No water source nearby the project locations. Not required

¹⁵ 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	Compliance Status/ Explanation
		<ul style="list-style-type: none"> Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with SIPMIU/DSMC on designated disposal areas; Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; Place storage areas for fuels and lubricants away from any drainage leading to water bodies; Dispose any wastes generated by construction activities in designated sites; and Conduct surface quality inspection according to the Environmental Management Plan (EMP). 					Safeguard officer of SIPMIU	
15	Accessibility	<ul style="list-style-type: none"> Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; Schedule transport and hauling activities during non-peak hours; Locate entry and exit points in areas where there is low potential for traffic congestion; Keep the site free from all unnecessary obstructions; Drive vehicles in a considerate manner; Coordinate with Agartala 	<ul style="list-style-type: none"> Traffic Management Plan; Complaints from sensitive receptors; Number of signages placed at subproject location. 	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	All GWTP are located at isolated area. Traffic Management plan is not required. Signages placed at working site

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		<p>Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and</p> <ul style="list-style-type: none"> Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. 						
16	Conservation of Natural Environment	<ul style="list-style-type: none"> Contractor to ensure only trees that have been marked beforehand are to be removed Contractor to immediately re-vegetate stripped areas 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. 	Tree felling requirement if any and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Tree felling not required till date. If, then permission will be taken
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Contractor ensured stockpiles do not obstruct natural water pathways. Contractor covered stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor ensured all concrete mixing taken places on a designated, impermeable surface.
18	Occupational Health &	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety 	<ul style="list-style-type: none"> Site-specific Health and Safety 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records 	Environmental Specialist of	Site-specific Health and Safety (H&S) Plan under

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
	safety	(H&S) Plan <ul style="list-style-type: none"> • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs • H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. 	(H&S) Plan <ul style="list-style-type: none"> • Equipped first-aid stations; • Medical insurance coverage for workers • Number of accidents • Supplies of potable drinking water; • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms 			<ul style="list-style-type: none"> • Visual inspection of sites 	DSMC and Environment & Social Safeguard officer of SIPMIU	implementation. Attached as Appendix 8 . H & S training arranged for the labourer. List of safety training conduct by contractor enclosed as Appendix 12 . Drinking water and first aid box available at site. Site photo enclosed in Appendix 2 . Use of PPE partially complied Insurance arranged for the labourer. Attached as Appendix 9 . Minor accident report prepared month wise. Sample attached as Appendix 13 . Practically no accident reported Overall compliance is satisfactory
19	Social Impacts ¹⁶	<ul style="list-style-type: none"> • Plan truck routes (for carrying materials) 	<ul style="list-style-type: none"> • Traffic Management 	Project Locations	Contractor	Document check and	Environmental Specialist of	Complied Caution tape placed at

¹⁶ 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	Compliance Status/ Explanation
	Community Health & safety, accessibility	including pipes) to avoid narrow or congested roads and tourist sites <ul style="list-style-type: none"> Contractor to ensure disruption of access for local residents is minimized Contractor to restrict activities and movement of staff to designated construction areas Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles Consideration of public safety - as per prescribed mitigation measures Contractors to ensure lighting on the construction site Provide protective fencing around open trenches Provide road signs and flag persons to warn Schedule transport and hauling activities during non-peak hours 	Strategy <ul style="list-style-type: none"> Complaints from sensitive receptors Number of signages placed at subproject location 			visual observation	DSMC and Environment & Social Safeguard officer of SIPMIU	working area – as per requirement Barricade arranged by the contractor as per requirement. Photo attached as Appendix 2 .
20	Socio cultural resources	<ul style="list-style-type: none"> Strictly follow the protocol for chance finds in any excavation work Stop work immediately to allow further investigation if any finds are suspected 	Chance find protocol	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required till date
21	Employment generation	<ul style="list-style-type: none"> Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km 	<ul style="list-style-type: none"> Employment record records of sources 	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment &	At present local labourers are mostly engaged. List of laborers are attached as Appendix 10

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		immediate area if manpower is available; and <ul style="list-style-type: none"> Secure construction materials from local market. 	materials				Social Safeguard officer of SIPMIU	

Table 9: Compliance to EMP for the Package - Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase								
1	Site clearance	Site preparation work including necessary clearance and permission	<ul style="list-style-type: none"> Tree felling requirement if any – site environment plan NOC – paper documents from line agency 	All Project locations	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No tree needs to be cut. Site clearance have been obtained
2	Access to Site	<ul style="list-style-type: none"> Access to site will be via existing roads 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 	<ul style="list-style-type: none"> Involvement of traffic dept. Road closure planning 	Specific project location	DSMC/ SIPMIU	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Site is easily accessible – working location within ROW
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	<ul style="list-style-type: none"> List of affected utilities if any and operators Bid document to include requirement for a contingency plan for service interruptions 	Specific project location	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required now. Utility shifting plan (if any) will be planned along with progress of work
4	Water supply	<ul style="list-style-type: none"> Plan the construction program to keep the cessation of water supplies to the minimum 	<ul style="list-style-type: none"> Schedule closure of Delivery of 	-	DSMC/ SIPMIU	Checking of records Visual	Environmental Specialist of DSMC and	Not required as per present nature of work Will be taken care during

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		possible (in both area and duration); <ul style="list-style-type: none"> In coordination with PWD (DWS), provide alternative potable water to affected households and businesses for the duration of the shut-down for a very short period; and Liaise with affected persons to inform them of any cessation in advance, and to ensure that they are provided with an alternative supply. 	potable water to affected people by DWS			observation	Environment & Social Safeguard officer of SIPMIU	jointing of pipes
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of Site specific Environment Management Plan	-	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Considered as per required. Traffic Management plan prepared
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	<ul style="list-style-type: none"> Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas Prioritize areas within or nearest possible vacant space in the subproject location Non use of residential area Arrangement of toilet and drinking water facility No disposal of waste in water 	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSMC/ SIPMIU	Observation and document checking	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Labour camp not required. Local labours are employed. Hot mix plant not established Stockpile area demarcated
7	Establishing Equipment Lay-down and Storage Area ¹⁷	<ul style="list-style-type: none"> Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site 	List of selected location and facility	Proposed locations considered in the package	DSMC/ SIPMIU	Site visit and checking	Environmental Specialist of DSMC and Environment & Social	Manual excavation continued

¹⁷ 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	Compliance Status/ Explanation
		topography and water erosion potential of the soil. <ul style="list-style-type: none"> Storage areas shall be secure so as to minimize the risk of crime. Away from school and direct residential areas Fire prevention facilities must be present at all storage facilities Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials These storage facilities (including any tanks) must be on an impermeable surface Staff must be aware of their potential impacts and follow the appropriate safety measures 					Safeguard officer of SIPMIU	
Construction phase								
8	Materials Management – Sourcing ¹⁸	<ul style="list-style-type: none"> 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. approved quarry sites for procurement of materials Verify suitability of all material sources and obtain approval of Investment from PMU/DSC 	<ul style="list-style-type: none"> 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 Contractor documentation 	Quarries and material source areas	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Approval obtained from SIPMIU and DSMC Procurement continued as per requirement
9	Maintenance of Construction	<ul style="list-style-type: none"> Establishment of temporary camps with drinking water, 	<ul style="list-style-type: none"> Complaints from sensitive 	Camp site	Contractor	<ul style="list-style-type: none"> Visual inspection 	Environmental Specialist of	Not required. Local labourers are employed

¹⁸ 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	Compliance Status/ Explanation
	Camp	sanitary and solid waste management arrangement <ul style="list-style-type: none"> Train employees in the storage and handling of materials Remove all wreckage, rubbish, or temporary structures 	Receptors <ul style="list-style-type: none"> Water and sanitation facilities for employees Housekeeping – regular disposal of solid waste 			of sites	DSMC and Environment & Social Safeguard officer of SIPMIU	
10	Landscape and Aesthetics	<ul style="list-style-type: none"> Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures Fencing of storage areas Disposal of construction debris if any as per mitigation measures Prepare and implement Waste Management List Avoid stockpiling of excess excavated soils Coordinate with SIPMIU for beneficial uses of excess excavated soils 	<ul style="list-style-type: none"> Waste Management List Complaints from sensitive receptors PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Excess excavated earth disposed after backfilling, but partially complied Spoil management plan will be applied as per EMP (Attached as Appendix 6) Corrective action: Complete removal or utilization of excess earth
11	Dust and Air Pollution ¹⁹	<ul style="list-style-type: none"> Selection of materials storage area Water sprinkling at construction site for arresting dust (if any during dry period) Use tarpaulins to cover sand and other loose material- Reducing dust hazard All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification No fires are allowed on site 	<ul style="list-style-type: none"> Location of stockpiles Complaints from sensitive receptors Monitoring data Heavy equipment and machinery with air pollution control Water sprinkling arrangement Cover materials 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied partially Location of stockpiles selected. Covering of materials not done Water sprinkling to be done as per requirement. During construction air quality monitoring done, but monitoring is irregular. (Result certificate shown in Appendix 7). Pollution under Control Certificate partially obtained

¹⁹ 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	Compliance Status/ Explanation
		<ul style="list-style-type: none"> Carry out air quality monitoring 						Corrective action: Collection of PUC certificate, regular monitoring of air quality
12	Noise level	<ul style="list-style-type: none"> Noise producing work needs to be conducted at day 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. 	<ul style="list-style-type: none"> Complaints from sensitive receptors Use of silencers in noise-producing equipment and sound barriers Monitoring data 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied No such noise producing machinery mobilized at site PPE utilize as per requirement. During construction monitoring is done. During construction monitoring will be continued as per EMP Results are attached as Appendix 7.
13	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"> 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	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Complied Drainage of waste water done. To be continued as per requirement and following EMP.
14	Water Quality ²⁰	<ul style="list-style-type: none"> Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, 	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of	No water source nearby the project locations. Not required

²⁰ 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	Compliance Status/ Explanation
		consult with SIPMIU/DSMC on designated disposal areas; <ul style="list-style-type: none"> • Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; • Place storage areas for fuels and lubricants away from any drainage leading to water bodies; • Dispose any wastes generated by construction activities in designated sites; and • Conduct surface quality inspection according to the Environmental Management Plan (EMP). 					SIPMIU	
15	Accessibility	<ul style="list-style-type: none"> • Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; • Schedule transport and hauling activities during non-peak hours; • Locate entry and exit points in areas where there is low potential for traffic congestion; • Keep the site free from all unnecessary obstructions; • Drive vehicles in a considerate manner; • Coordinate with Agartala Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and • Notify affected sensitive 	<ul style="list-style-type: none"> • Traffic Management Plan; • Complaints from sensitive receptors; • Number of signages placed at subproject location. 	Project Locations	Contractor	Site observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Traffic Management plan prepared. Complete road closure if necessary to be done after prior permission. Traffic Management plan attached as Appendix 11 . Schedule transport and hauling activities done during non-peak hours. Site free from unnecessary obstruction

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.						
16	Conservation of Natural Environment	<ul style="list-style-type: none"> Contractor to ensure only trees that have been marked beforehand are to be removed Contractor to immediately re-vegetate stripped areas 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. 	Tree felling requirement if any and afforestation after final design	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Tree felling not required till date. If, then permission will be taken
17	Materials Management	<ul style="list-style-type: none"> Contractor to ensure stockpiles do not obstruct natural water pathways. Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. Contractor to ensure all concrete mixing take place on a designated, impermeable surface. 	Stockpile management	Stockpile / storage area	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Instruction is given to contractor for stockpiling of materials at designated areas Complied mostly
18	Occupational Health & safety	<ul style="list-style-type: none"> Develop and implement site-specific Health and Safety (H&S) Plan Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs H&S Training for all site personnel Documentation of work-related accidents; Designate a safeguard focal person and undertake safeguards orientation by 	<ul style="list-style-type: none"> Site-specific Health and Safety (H&S) Plan Equipped first-aid stations; Medical insurance coverage for workers Number of accidents Supplies of potable drinking water; 	Project Locations	Contractor	<ul style="list-style-type: none"> Checking of records Visual inspection of sites 	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	<p>Site-specific Health and Safety (H&S) Plan under implementation. Attached as Appendix 8.</p> <p>H & S training not done on regular basis.</p> <p>Drinking water and first aid box available at site. Use of PPE partially complied</p>

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status/ Explanation
		PMU/PIU <ul style="list-style-type: none"> • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. 	<ul style="list-style-type: none"> • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms 					Insurance arranged for the labourer. Attached as Appendix 9 . No accident reported till date Overall compliance is partially satisfactory
19	Social Impacts ²¹ - Community Health & safety, accessibility	<ul style="list-style-type: none"> • Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles 	<ul style="list-style-type: none"> • Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location 	Project Locations	Contractor	Document check and visual observation	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Partially complied Caution tape partially placed at excavated area . Corrective action: Complete utilization of caution tape

²¹ 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	Compliance Status/ Explanation
		<ul style="list-style-type: none"> Consideration of public safety - as per prescribed mitigation measures Contractors to ensure lighting on the construction site Provide protective fencing around open trenches Provide road signs and flag persons to warn Schedule transport and hauling activities during non- peak hours 						
20	Socio cultural resources	<ul style="list-style-type: none"> Strictly follow the protocol for chance finds in any excavation work Stop work immediately to allow further investigation if any finds are suspected 	Chance find protocol	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	Not required till date
21	Employment generation	<ul style="list-style-type: none"> Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and Secure construction materials from local market. 	<ul style="list-style-type: none"> Employment record records of sources materials 	Project Locations	Contractor	Checking of records	Environmental Specialist of DSMC and Environment & Social Safeguard officer of SIPMIU	At present local laboures are mostly engaged. List of laborers are attached as Appendix 10

V. ENVIRONMENTAL MONITORING AND EVALUATION

22. 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.

23. During 2013 base line monitoring has been carried out, after that during construction monitoring of air quality is continued. All reports/ data enclosed in earlier Semi annual Environment Monitoring Report. During the report period, i.e July to December 2015 monitoring has been done for the running packages except **package AGT/WS09/ICB/11/7, Lot 1**. Monitoring and health safety budget of contractor is shown in **Appendix 14**. Base line and during construction air quality monitoring results shown in **Table 10** below. All test certificates from monitoring agency is disclosed in **Appendix 7**.

24. Findings from air quality monitoring are,

- Concentration of SO₂ is either below the prescribed limit or not detectable.
- In all cases concentration of NO₂ is within the prescribed standard. Concentration of NO_x is marginally increase during construction in compared to base line condition particularly for distribution pipe laying package, which may be due to more movement of traffic at construction site for transportation of workers and materials.
- In all cases concentration of PM_{2.5} is within the prescribed standard. At few locations for packages AGT/WS10-3/ICB/11/9, Lot-1 & 2, AGT/WS-02.07.08/ICB/11/8 and AGT/WS 10-2/NCB/13/1 concentration of PM_{2.5} increased during construction. Dust suppression measures needs to be implemented regularly. There is no definite deceasing and increasing trend for PM_{2.5} level.
- At all the locations Concentration of PM₁₀ (both base line and during construction) are within the standard. Similar trend for PM₁₀ is noted as that of PM_{2.5}. Concentration of PM₁₀ is comparatively higher at pipe laying locations. Regular water sprinkling is required for arresting dust
- Concentration of CO is much below the standard. Concentration of lead is not detected in air sample.

Table 10: Ambient Air Quality monitoring data

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NO _x	SO ₂	CO	Pb
Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	Area near AMC zonal office (ward 35)- GWTP	Base line	13.11.2013	12.51	52.60	13.56	ND	ND	ND
		During construction	02.12.2014	23.9	74.2	12.0	ND	ND	ND
		During construction	24.02.2015	25.8	58.6	14.6	7.4	0.42	ND
		During construction	26.04.2015	23.4	67.3	16.3	3.3	0.11	ND
		Report period*- During construction	07.09.2015	21.19	59.64	5.36	ND	ND	ND
		Report period*- During construction	21.11.2015	23.14	63.17	8.71	ND	ND	ND

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
Camper Bazar-Deendayal Ashram- GWTP	Base line	14.11.2013	9.10	42.73	10.17	ND	ND	ND	ND
	During construction	02.12.2014	16.5	59.8	10.2	ND	ND	ND	ND
	During construction	24.02.2015	22.5	49.2	12.0	ND	ND	ND	ND
	During construction	26.04.2015	18.6	55.9	10.9	ND	ND	ND	ND
	Report period*- During construction	08.09.2015	12.96	42.71	ND	ND	ND	ND	ND
	Report period*- During construction	23.11.2015	15.97	45.43	ND	ND	ND	ND	ND
Near Aralia-II DTW- GWTP	Base line	15.11.2013	6.26	33.24	ND	ND	ND	ND	ND
	During construction	03.12.2014	21.7	62.1	14.5	ND	ND	ND	ND
	During construction	24.02.2015	15.4	63.1	13.3	ND	ND	ND	ND
	During construction	26.04.2015	19.2	55.4	11.5	ND	ND	ND	ND
	Report period*- During construction	09.09.2015	19.82	50.25	ND	ND	ND	ND	ND
	Report period*- During construction	24.11.2015	21.39	55.96	11.27	ND	ND	ND	ND
Pratapgarh - Sadhu Tilla- GWTP	Base line	16.11.2013	14.20	47.32	11.67	ND	ND	ND	ND
	During construction	03.12.2014	26.3	81.2	11.8	ND	ND	ND	ND
	During construction	25.02.2015	27.6	68.4	12.8	ND	ND	ND	ND
	During construction	27.04.2015	22.1	60.1	14.9	ND	ND	ND	ND
	Report period*- During construction	10.09.2015	17.81	48.63	7.35	ND	ND	ND	ND
	Report period*- During construction	25.11.2015	25.43	51.48	10.08	ND	ND	ND	ND
Near Pragati School - GWTP	Base line	18.11.2013	17.22	51.60	12.08	ND	ND	ND	ND
	During construction	04.12.2014	30.4	66.4	14.0	ND	ND	ND	ND
	During construction	25.02.2015	33.9	77.7	22.6	9.8	0.88	ND	ND
	During construction	27.04.2015	27.8	72.7	18.8	3.2	0.09	ND	ND

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
		Report period*- During construction	11.09.2015	23.08	61.37	9.27	ND	ND	ND
		Report period*- During construction	26.11.2015	26.92	65.07	12.82	ND	ND	ND
	Near Hand Pump Inside Boundary at Rampur	Base line- Report period*	12.09.2015	18.51	46.34	ND	ND	ND	ND
		Report period*- During construction	28.11.2015	17.29	42.19	ND	ND	ND	ND
Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR), (AGT/WS09/ICB/11/7, Lot 1 & Lot -2)	Area near AMC zonal office (ward 35)- OHSR, nearby GWTP location	Base line	13.11.2013	12.51	52.60	13.56	ND	ND	ND
		During construction	23.04.2014	17.6	66.8	11.2	ND	ND	ND
		During construction	29.04.2015	16.0	61.9	16.8	ND	0.08	ND
	Near Aralia-II DTW- OHSR, nearby GWTP location	Base line	15.11.2013	6.26	33.24	ND	ND	ND	ND
		During construction	24.04.2014	15.5	46.7	8.3	ND	ND	ND
		During construction	28.04.2015	13.1	50.1	8.3	ND	ND	ND
	Pratapgarh - Sadhu Tilla- OHSR, nearby GWTP location	Base line	16.11.2013	14.20	47.32	11.67	ND	ND	ND
		During construction	24.04.2014	22.6	57.1	13.2	ND	ND	ND
		During construction	29.04.2015	18.4	56.2	10.4	ND	ND	ND
	Near Pranabananda School – OHSR, nearby GWTP location	Base line	18.11.2013	17.22	51.60	12.08	ND	ND	ND
		During construction	25.04.2014	24.3	71.4	12.0	ND	ND	ND
		During construction	29.04.2015	16.1	54.6	10.3	ND	ND	ND
	Near Salbagan Road at Gurudas para	During construction	28.04.2015	19.7	67.1	20.8	6.8	0.14	ND
	Near Bankumari Bazar at Nathpara	During construction	28.04.2015	26.1	76.1	20.3	4.1	0.15	ND
Supply and Laying of Water Supply	Area near AMC zonal	Base line	19.11.2013	14.7	51.9	9.5	ND	ND	ND
		During	15.09.2014	14.85	52.71	13.4	ND	ND	ND

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
Distribution Pipelines and allied works in Agartala city (South) (AGT/WS10-3/ICB/11/9, Lot-1)	office (ward 35)	construction							
		During construction	21.04.2015	17.5	58.9	54.8	ND	0.06	ND
		Report period*- During construction	05.10.2015	23.7	63.7	16.2	ND	ND	ND
	Near Kali bari Sadhu Tilla	Base line	20.11.2013	21.2	57.6	12.4	ND	ND	ND
		During construction	15.09.2014	24.1	48.9	12.6	ND	ND	ND
		During construction	21.04.2015	25.8	62.4	16.9	2.3	ND	ND
		Report period*- During construction	06.10.2015	28.2	67.1	18.3	2.9	ND	ND
	Near Sishu Vidya Mandir Nursery School (Aralia)	Base line	21.11.2013	27.8	73.6	14.6	ND	ND	ND
		During construction	16.09.2014	41.64	77.35	14.1	ND	ND	ND
		During construction	22.04.2015	25.8	66.1	15.5	ND	ND	ND
		Report period*- During construction	07.10.2015	31.9	74.6	17.4	ND	ND	ND
	Near West Champamura School (Champamura)	Base line	22.11.2013	24.5	68.2	10.7	ND	ND	ND
		During construction	16.09.2014	38.55	81.24	10.2	ND	ND	ND
		During construction	22.04.2015	22.7	70.6	16.3	3.1	ND	ND
		Report period*- During construction	08.10.2015	27.5	72.3	16.9	3.4	ND	ND
	Near Vidhyasagar School (Bankumari bazaar)	Base line	23.11.2013	20.6	63.4	11.2	ND	ND	ND
		During construction	17.09.2014	26.34	52.39	14.6	ND	ND	ND
		During construction	23.04.2015	25.4	72.4	18.4	3.6	0.09	ND
		Report period*- During construction	09.10.2015	35.7	78.2	21.5	3.9	ND	ND
Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) (AGT/WS10-3/ICB/11/9, Lot-2)	Near Vivekananda School (Bardowali)	Base line	25.11.2013	17.2	68.3	11.4	ND	ND	ND
		During construction	17.09.2014	28.74	60.47	15.1	ND	ND	ND
		During construction	23.04.2015	18.4	51.8	10.1	2.0	ND	ND
		Report period*- During	12.10.2015	22.7	65.9	14.5	2.3	ND	ND

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
		construction							
	Near SD Mission (Sarbadharma Ashram)	Base line	26.11.2013	19.1	72.6	14.2	ND	ND	ND
		During construction	18.09.2014	31.66	82.63	12.6	ND	ND	ND
		During construction	24.04.2015	19.6	68.4	10.9	ND	ND	ND
		Report period*- During construction	13.10.2015	18.4	63.9	8.7	ND	ND	ND
	Near Cold Store (Dasaratdeb Stadium)	Base line	27.11.2013	15.8	65.3	10.6	ND	ND	ND
		During construction	18.09.2014	31.72	64.52	10.2	ND	ND	ND
		During construction	24.04.2015	22.1	75.2	16.8	ND	ND	ND
		Report period*- During construction	14.10.2015	28.9	79.6	21.4	8.2	0.04	ND
	Near Badharghat School (Dukli)	Base line	28.11.2013	20.4	67.2	12.7	ND	ND	ND
		During construction	19.09.2014	24.27	46.85	13.0	ND	ND	ND
		During construction	25.04.2015	16.4	57.6	8.4	ND	ND	ND
		Report period*- During construction	15.10.2015	18.4	59.3	9.2	ND	ND	ND
	Near AMC Sector Office (Ward No. 27)	Base line	29.11.2013	14.5	60.6	10.3	ND	ND	ND
		During construction	15.06.2015	33.60	81.90	11.2	ND	ND	ND
		During construction	24.04.2015	26.4	73.2	18.4	5.4	0.06	ND
		Report period*- During construction	16.10.2015	27.5	75.9	16.4	4.9	ND	ND
Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 2/NCB/13/1)	Near AMC Sector office (ward no. 35)	During construction	15.06.2015	14.2	44.7	9.2	6.6	ND	ND
		Report period*- During construction	23.11.2015	28.2	71.6	ND	ND	ND	ND
		Report period*- During construction	30.11.2015	38.4	76.9	ND	ND	ND	ND
	Near Kali Bar (Sadhutilla)	During construction	16.06.2015	25.3	69.3	14.5	10.9	ND	ND
		Report							

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
		period*-During construction							
	Near water treatment plant at Aralia	During construction	16.06.2015	18.9	54.7	11.2	8.8	ND	ND
	Near Champamura Horticulture office	During construction	17.06.2015	27.5	78.4	17.8	11.6	ND	ND
	Near Vidyasagar School	During construction	17.06.2015	21.6	52.9	15.0	11.2	ND	ND
	Near Baltoli Campaer bazaar (Dindyal Ashram)	During construction	18.06.2015	31.7	77.1	19.7	9.5	ND	ND
		Report period*-During construction	25.11.2015	42.7	86.7	28.6	12.7	ND	ND
		Report period*-During construction	02.12.2015	40.6	86.3	ND	ND	ND	ND
	Back side of Badharghat Stadium	During construction	18.06.2015	17.3	56.6	14.8	ND	ND	ND
		Report period*-During construction	27.11.2015	29.7	69.4	ND	ND	ND	ND
		Report period*-During construction	04.12.2015	43.1	84.9	10.4	ND	ND	ND
	Jogendranagar Station Road	Report period*-During construction	24.11.2015	38.5	78.1	15.4	5.6	ND	ND
		Report period*-During construction	01.12.2015	35.7	72.7	ND	ND	ND	ND
	Near Sarba Dharma ashram	Report period*-During construction	26.11.2015	31.3	66.2	ND	ND	ND	ND
		Report period*-During construction	03.12.2015	26.9	65.4	ND	ND	ND	ND

Sub project	Location	Monitoring period	Date of sampling	Parameters (in microgram/cum)					
				PM 2.5	PM 10	NOx	SO ₂	CO	Pb
	Matripally	Report period*- During construction	28.11.2015	31.4	76.3	13.7	ND	ND	ND
STANDARD				60.0	100.0	80.0	80.0	4.0 (1 hr. limit)	1.0

ND- Not Detected = below detection limit, *: Report period from July to December 2015

25. Base line and during construction ambient noise level data is presented in **Table 11**. It is noted that for package AGT/WS-02.07.08/ICB/11/8 and AGT/WS10-3/ICB/11/9, Lot-1 and Lot- 2 noise level increased during construction. Noise level exceeds the standard in few cases only. Base line and during construction noise level are always higher at Bardowlli, Gazaria and Arundhuti nagar pipe laying area. Night time noise level is above the limit. Near school, silent zone noise level is above the standard. Hence mitigation measures as prescribed in EMP need to be applied to keep control on noise level. Specifically mitigation measures are,

- Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance;
- Require horns not be used unless it is necessary to warn other road users of the vehicle's approach;
- Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor, and
- Continuous monitoring of noise during construction and use of PPE

Table 11: Noise level Monitoring data

Sub project	Locations	Monitoring period	Date of monitoring	Day noise level (Leq in dBA)		Night noise level (Leq in dBA)	Standard in dBA in Day	Standard in dBA night
				09-00 AM – 12-00 noon	03-00 PM – 06-00 PM			
Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	Area near AMC zonal office (ward 35)- GWTP	Base line	13.09.2013	46.0	48.0	-	55.0	
		During construction	02.12.2014	53.0	52.0	-	55.0	
		During construction	24.04.2015	54.0	50.0	40.0	55.0	45.0
		Report period*- During construction	28.11.2015	54.0	55.0	48.0	55.0	45.0
	Camper Bazar-Deendayal Ashram- GWTP*	Base line	13.09.2013	56.0	55.0	-	55.0	
		During construction	04.12.2014	58.0	63.0	-	55.0	
		During construction	24.04.2015	60.0	65.0	50.0	55.0	45.0
		Report period*- During construction	28.11.2015	57.0	56.0	45.0	55.0	45.0
	Near Aralia-II DTW- GWTP	Base line	13.09.2013	45.0	46.0	-	55.0	
		During construction	03.12.2014	60.0	63.0	-	55.0	
		During construction	25.04.2015	50.0	49.0	50.0	55.0	45.0
		Report period*- During construction	28.11.2015	52.0	57.0	47.0	55.0	45.0
	Pratapgarh - Sadhu Tilla- GWTP	Base line	13.09.2013	42.0	44.0	-	55.0	
		During construction	03.12.2014	57.0	59.0	-	55.0	
		During construction	27.04.2015	53.0	55.0	39.0	55.0	45.0
		Report period*- During construction	28.11.2015	51.0	58.0	47.0	55.0	45.0

Sub project	Locations	Monitoring period	Date of monitoring	Day noise level (Leq in dBA)		Night noise level (Leq in dBA)	Standard in dBA in Day	Standard in dBA in night
				09-00 AM – 12-00 noon	03-00 PM – 06-00 PM			
	Near Pragati School – GWTP*	Base line	13.09.2013	45.0	44.0	-	55.0	
		During construction	02.12.2014	55.0	51.0	-	55.0	
		During construction	27.04.2015	62.0	60.0	47.0	55.0	45.0
		Report period*- During construction	28.11.2015	52.0	62.0	52.0	55.0	45.0
	Near Hand Pump Inside Boundary at Rampur	Base line – Report period*	28.11.2015	53.0	54.0	46.0	55.0	45.0
Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) (AGT/WS10-3/ICB/11/9,Lot-1)	Aralia	Base line	13.09.2013	47.0	52.0	-	55.0	
		During construction	16.09.2014	63.0	58.0	-	55.0	
		During construction	26.04.2015	56.0	50.0	46.0	55.0	45.0
		Report period*- During construction	14.10.2015	61.0	65.0	52.0	55.0	45.0
	State Electricity Office	Base line	13.09.2013	49.0	51.0	-	55.0	
		During construction	16.09.2014	58.0	55.0	-	55.0	
		During construction	26.04.2015	58.0	51.0	47.0	55.0	45.0
		Report period*- During construction	14.10.2015	60.0	57.0	46.0	55.0	45.0
	Sadhu Tilla School	Base line	13.09.2013	42.0	44.0	-	50.0	
		During construction	16.09.2014	61.0	52.0	-	50.0	
		During construction	26.04.2015	55.0	53.0	42.0	50.0	40.0
		Report period*- During	14.10.2015	54.0	57.0	45.0	50.0	40.0

Sub project	Locations	Monitoring period	Date of monitoring	Day noise level (Leq in dBA)		Night noise level (Leq in dBA)	Standard in dBA in Day	Standard in dBA night
				09-00 AM – 12-00 noon	03-00 PM – 06-00 PM			
		construction						
Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) (AGT/WS10-3/ICB/11/9,Lot-2)	Bardowli	Base line	13.09.2013	59.0	62.0	-	55.0	
		During construction	19.09.2014	67.0	70.0	-	55.0	
		During construction	26.04.2015	68.0	66.0	52.0	55.0	45.0
		Report period*- During construction	14.10.2015	69.0	75.0	53.0	55.0	45.0
	Gazaria	Base line	13.09.2013	57.0	63.0	-	55.0	
		During construction	19.09.2014	65.0	70.1	-	55.0	
		During construction	26.04.2015	70.0	65.0	56.0	55.0	45.0
		Report period*- During construction	14.10.2015	64.0	58.0	54.0	55.0	45.0
	Arundhuti Nagar	Base line	13.09.2013	54.0	55.0	-	55.0	
		During construction	19.09.2014	70.0	69.0	-	55.0	
		During construction	26.04.2015	67.0	68.0	57.0	55.0	45.0
		Report period*- During construction	14.10.2015	59.0	58.0	49.0	55.0	45.0
Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR), (AGT/WS09/ICB/11/7, Lot 1 & Lot -2)	Aralia II	Base line	13.09.2013	45.0	46.0	-	55.0	
		During construction	28.04.2014	52.0	54.0	-	55.0	
		During construction	28.04.2015	55.0	59.0	54.0	55.0	45.0
	AMC Zonal Office	Base line	13.09.2013	46.0	48.0	-	55.0	
		During construction	28.04.2014	50.0	52.0	-	55.0	
		During construction	28.04.2015	51.0	55.0	50.0	55.0	45.0

Sub project	Locations	Monitoring period	Date of monitoring	Day noise level (Leq in dBA)		Night noise level (Leq in dBA)	Standard in dBA in Day	Standard in dBA night
				09-00 AM – 12-00 noon	03-00 PM – 06-00 PM			
	Sadhu Tilla School	Base line	13.09.2013	42.0	44.0	-	50.0	
		During construction	28.04.2014	49.0	54.0	-	50.0	
		During construction	29.04.2015	52.0	59.0	45.0	50.0	40.0
	Bankumari (Nathpara)	Base line	13.09.2013	47.0	45.0	-	55.0	
		During construction	28.04.2014	44.0	46.0	-	55.0	
		During construction	29.04.2015	47.0	52.0	47.0	55.0	45.0
Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	Near AMC Sector office (ward no. 35)	During construction	15.06.2015	42.0	45.0	41.0	55.0	45.0
		Report period*- During construction	23.11.2015	64.0	-	47.0	55.0	45.0
		Report period*- During construction	30.11.2015	54.0	-	39.0	55.0	45.0
	Near Kali Bari (Sadhutilla)	During construction	15.06.2015	54.0	57.0	65.0	55.0	45.0
	Near Water Treatment Plant (Aralia)	During construction	16.06.2015	42.0	45.0	44.0	55.0	45.0
	Near Champamura Horticulture office	During construction	16.06.2015	41.0	44.0	41.0	55.0	45.0
	Near Vidyasagar School	During construction	16.06.2015	60.0	65.0	65.0	50.0	40.0
	Near camper	During construction	17.06.2015	66.0	70.0	62.0	55.0	45.0

Sub project	Locations	Monitoring period	Date of monitoring	Day noise level (Leq in dBA)		Night noise level (Leq in dBA)	Standard in dBA in Day	Standard in dBA night
				09-00 AM – 12-00 noon	03-00 PM – 06-00 PM			
	Bazar (Dindayal Ashram)	Report period*- During construction	25.11.2015	70.0	-	61.0	55.0	45.0
		Report period*- During construction	02.12.2015	59.0	-	43.0	55.0	45.0
	Back side of Badharghat Stadium	During construction	17.06.2015	43.0	44.0	40.0	55.0	45.0
		Report period*- During construction	27.11.2015	58.0	-	49.0	55.0	45.0
		Report period*- During construction	04.12.2015	71.0	-	62.0	55.0	45.0
	Jogendranagar Station Road	Report period*- During construction	24.11.2015	57.0	-	44.0	55.0	45.0
		Report period*- During construction	01.12.2015	68.0	-	58.0	55.0	45.0
	Near Sarba Dharma Ashram	Report period*- During construction	26.11.2015	55.0	-	42.0	55.0	45.0
		Report period*- During construction	03.12.2015	54.0	-	38.0	55.0	45.0
	Matripally	Report period*- During construction	28.11.2015	57.0	-	47.0	55.0	45.0

* Report period from July to December 2015

26. “During construction” air quality, noise level will be monitored for all packages as per Environment Management and Monitoring Plan. All monitoring expenses will be borne by contractors from their project Health safety monitoring budget, which disclosed in **Appendix 14**.

27. A performance monitoring fact sheet has been prepared to facilitate tracking and quick reference on environmental monitoring of **Tranche 2** subproject packages (**Tables 12 and 13**).

Table 12: Performance Fact Sheet for Required Environmental Consents/Clearances of NERCCDIP, Tripura Agartala Tranche 2 (Package-wise)

Table 12: Performance Fact Sheet for Required Environmental Consents/Clearances of NERCCDR, Tripura Agartala Tranche 2 (Package-wise)									
	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
1	Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)- (AGT/WS09/ICB/11/7, Lot - 1)	M/s Ramkey Infrastructure 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 partially Instruction given to contractor for immediate (within 15 days) submission of valid PUC certificate
2	Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) {[Jogendranagar] – Lot 1 & [Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)	M/s Jaihind Projects 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	Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	M/s ITD- ITD CEM Joint Venture	Yes	Not required till date	Not required	NR as per present work	NR as per present work	Acoustic type of Generator of 5 KVA in used. No permission is required.	Obtained Expiry date- 23 rd May 2016, 6 th June 2016, 6 th June 2016
4	Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	Sunil Saha-Prasenjit Paul (Jv)	Yes	Not required till date	Not required	NR as per present work	NR as per present work	Not required as per present work	Not fully received Instruction given for immediate submission of PUC certificate

Table 13: Performance Fact Sheet for EMP Implementation NERCCDIP, Tripura Agartala Tranche 2 (Package-wise)

Table 13. Performance Fact Sheet for EMP Implementation NERCCDP, Tripura Agartala Tranche 2 (Package-wise)																		
Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person ²²	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	Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)- (AGT/WS09/ICB/11/7, Lot -1)	M/s Ramkey Infrastructure Ltd.	Yes	Nominated	Partial Compliance (1)	2	1	1	1	1	n/a	n/a	2	n/a	1	2	n/a	2
2	Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Jogendranagar] – Lot 1 & [Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)	M/s Jaihind Projects Ltd,	Yes	Nominated	Complied (2)	2	n/a	2	2	2	2	n/a	2	n/a	1	1	n/a	2

²²Nomination 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 ²²	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	Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	M/s ITD- ITD CEM Joint Venture	Yes	Nominated	Complied (2)	2	2	2	2	2	n/a	n/a	2	n/a	2	2	n/a	2
4	Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	Sunil Saha-Prasenjit Paul (Jv)	Yes	Nominated	Complied (2)	2	n/a	1	1	2	2	n/a	2	n/a	1	1	n/a	2

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

Package - AGT/WS09/ICB/11/7, Lot -1= Total score- 2+1+1+1+1+2+1+2= 13. Number of field=13, Then- 13/13=1 (Partial compliance)

Package- AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2 = Total score- 2+2+2+2+2+2+1+1+2= 16. Number of field=13, Then- 16/13=More than 1 (Complied)

Package- AGT/WS-02.07.08/ICB/11/8= Total score- 2+2+2+2+2+2+2+2= 18. Number of field=13, Then- 18/13=More than 1 (Complied)

Package- AGT/WS 10-2/NCB/13/1 = Total score- 2+1+1+2+2+2+1+1+2= 14. Number of field=13, Then- 14/13=More than 1 (Complied)}

VI. CONSULTATIONS AND DISCLOSURES CONDUCTED

28. As per approved IEE, consultations and disclosure will be a continuous process throughout Tranche 2 implementation involving public consultations and focus group discussions. However, there are no “planned” consultation and disclosures conducted during the reporting period but informal consultation done with local people, pedestrian.

29. The indicative schedule for consultations and disclosure is presented in **Table 14**. **Appendix 15** provides the consultation format. During the report period work mostly carried out at specific/ isolated location particularly at GWTP and water reservoir locations, there is no locality nearby. Pipe laying locations are also at open area, no as such locality nearby.

30. During the report period public consultation has been carried out at few pipe laying locations. Informal consultation photo attached as **Appendix 16**.

31. During consultation the issues discussed like,

- Availability of alignment
- Possible short term impact- accessibility
- Application of mitigation measures for control of dust and noise

32. Regular training for labourer is continued for the package AGT/WS-02.07.08/ICB/11/8. **Appendix 12** shows some sample training record. For other packages there is requirement for regular tool box training for labourer.

Table 24: 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, Safeguard officer of SIPMIU Project budget – continuous process
Consultation – safety issues, implementation of EMP	By 7 th September 2015	At SIPMIU office and project site office	Supervisor Engineer, PMU Engineer, all safety and environment staff of contractors	Construction Manager, Environmental specialist of DSMC and Environment and Social Safeguard Officer of SIPMIU

VII. GRIVANCE REDRESSAL MECHANISM

33. Grievances of affected persons will first be brought to the attention of the SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Agartala. The IGRC is chaired by the Secretary, Urban Development Department with representatives from the ULB, state government agencies, community-based organizations (CBOs) and

NGOs. The GRC will determine the merit of each grievance, and resolve grievances within 10 days of receiving the complaint. Grievance not redressed by the IGRC will be referred to the appropriate courts of law. The DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The grievance redress process is shown in **Figure 4**. Costs involved in resolving the complaints will be borne by the SIPMIU. The GRCs will continue to function throughout the project duration. Till date there is no as such grievances are reported.

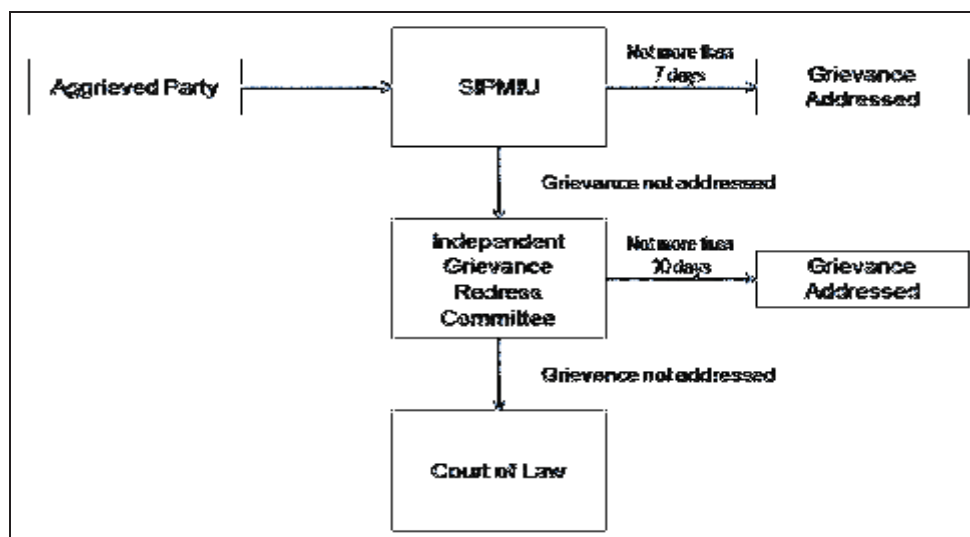


Figure 4: Grievance Redress Mechanism

34. Independent Grievance Redress Committee (IGRC) is established in SIPMIU.
35. SIPMIU maintained a Complaint Cell headed by a designated Grievance Officer at its office. The Grievance Registration/Suggestion Form (**Appendix 17**) will be available at the Complaints Cell.
36. During report period no grievances received from public.

VIII. FINDINGS AND RECOMMENDATIONS

37. Based on environmental monitoring conducted during July to December 2015, NERCCDIP Tripura **Tranche 2** sub projects is in mixed (partial to fully complied) compliance level of environmental safeguards. **Table 15** provides the recommended corrective action plan to address the non-compliances for distribution, primary main and overhead water storage tank packages.

Table 15: Corrective Action Plan

	Non-compliance	Action Required	Responsible	Target Date	Indicator of Compliance
1	Materials storage and lay-down area of equipment not in proper shape at all working locations	Improvement of materials storage and lay-down area of equipment	Contractor	31 st January 2016	Site observation and record
2	Air and noise monitoring	Monitoring to be done on regular basis Immediate	Contractor	Next monitoring by April 2016	Monitoring record and data

	Non-compliance	Action Required	Responsible	Target Date	Indicator of Compliance
		monitoring for OHSR package			
3	Disposal and utilization of excess earth at designated/ approved location not done at earliest	Disposal and utilization of excess earth at designated/ approved location at earliest	Contractor	31 st January 2016	Site observation and record
4	Regular water sprinkling as per site condition- partially complied	Regular water sprinkling as per site condition	Contractor	Continue process	Site observation and reaction from local community
5	Regular tool box training for labourer not done	Induction and toll box training on regular basis	Contractor	31 st January 2016	Training document , photographs
6	Housekeeping not satisfactory at working site and labour camp	Improvement of housekeeping	Contractor	31 st January 2016	Site observation and record
7	Incomplete use of PPE by contractor workers	Use of PPE should be at all times as per site condition and work type.	Contractor	31 st January 2016	Availability and use of PPE
8	Complete barricade and use at all working locations absent	Complete barricading and complete use of caution tape at all working sites	Contractor	31 st January 2016	Site observation

Appendix 1

Project Implementation status

North Eastern Region Urban Development Project (NERUDP), ADB LOAN - 2834 - IND										
Annexure 4, Tr.- II, C (i): Physical Progress of Package during Execution Phase										
Description of Contract Package			Design Supply and Construction of 14 Nos of Over Head Service Reservoir (OHSR)				Notice to Proceed		6.3.13	
Contract Package No.			AGT/WS09/ICB/11/7 [Lot-1]				Original Period of Completion (18 month)		After Extenuation (24 months)	
Contractor			Ramky Infrastructure Limited				Contract Value	15.52 Crore	Stipulated Date of Completion (05-09-2014)	Extended to 30-09-15 Further extended to 31.01.2016
Sl. No.	WORK COMPONENTS	WEIGHTAGE	Quantity/ Total Work Scope (Approx.)	Progress in Current Month	CUMULATIVE PHYSICAL PROGRESS			FINANCIAL PROGRESS		REMARKS
					Up to date Progress of work	% Progress of each item of work	Overall % Progress w.r.t. total work	Actual %age Physical Progress	Actual %age Financial Progress (in Crore)	
1	SR near Salbagan Road [Cap.: 450 KI]	9.0%						44.12	4.51	Work in Progress.
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	0	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos	0.1	2.9	11.60	2.90			
iv)	Tank	35.0%	9 Nos	1.2	1.2	3.43	1.20			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			

2	SR near NathPara [450 KI]	9.0%				0.00	0.00			
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	0	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos	0	1.88	7.52	1.88			
iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
3	SR near Aralia-II [450 KI]	9.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	0	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos	0	2.9	11.60	2.90			
iv)	Tank	35.0%	9 Nos	1.2	1.2	3.43	1.20			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
4	SR near Champamura[450 KI]	9.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	2	2.1	10.50	2.10			
iii)	Column-Beam	25.0%	9 Nos			0.00	0.00			

iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
5	SR Backside of TSECL [450 KI]	9.0%				0.00	0.00			
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			do
ii)	Raft Foundation	20.0%	9 Nos	0.1	0.1	0.50	0.10			
iii)	Column-Beam	25.0%	9 Nos			0.00	0.00			
iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
6	SR near AMC Zonal Office [680 KI]	12.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	0	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos	0	1.16	4.64	1.16			
iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
7	SR near Pranabananda TW [680 KI]	12.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			

ii)	Raft Foundation	20.0%	9 Nos	0	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos	0	2.8	11.20	2.80			
iv)	Tank	35.0%	9 Nos	0	4.58	13.09	4.58			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
8	SR near Sarba Dharma Ashram[900 KI]	13.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	0.2	0.2	1.00	0.20			
iii)	Column-Beam	25.0%	9 Nos			0.00	0.00			
iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			
9	SR near Backside of SadhuTillah School [1130 KI]	18.0%				0.00	0.00			do
i)	Investigation and Design	10.0%	9 Nos	0	1.1	11.00	1.10			
ii)	Raft Foundation	20.0%	9 Nos	1.04	2.2	11.00	2.20			
iii)	Column-Beam	25.0%	9 Nos			0.00	0.00			
iv)	Tank	35.0%	9 Nos			0.00	0.00			
v)	Finishing and Commissioning	10.0%	9 Nos			0.00	0.00			

	Total	100.0%		44.12			
--	--------------	---------------	--	-------	--	--	--

North Eastern Region Urban Development Project (NERUDP), ADB LOAN - 2834 - IND												
Annexure 4,Tr.- II, D(i): Physical Progress of Package during Execution Phase												
Description of Contract Package		Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Jogendranagar]						Notice to Proceed		4.3.13.		
Contract Package No.		[AGT/WS10-3/ICB/11/9] Lot-I						Period of Completion		18 months		
Contractor		M/s Jaihind Projects Ltd. (JV) & M/S Lakeshwari Engineers Pvt. Ltd.				Contract Value	17.14 Crore	Stipulated Date of Completion		03.09.14		Extended upto 31-12-2015 Further extended to 30.06.2016
S.No.	WORK COMPONENTS	WEIGHTAGE	Quantity/ Total Work Scope (Approx.)	Progress in Current Month	CUMULATIVE PHYSICAL PROGRESS					FINANCIAL PROGRESS		REMARKS
					Up to date Progress of work	% Progress of each item of work	Overall % Progress w.r.t. total work	Actual %age Physical Progress	Targeted %age Physical Progress	Actual Financial Progress (in crores)	Targeted Financial Progress (in crores)	
1	Laying of Distribution Pipe							72.92		4.97		Pipe laying in progress.
i)	400mm DI (Class K-7)		0 m	0	0							
ii)	350mm DI (Class K-7)	1%	151 m	0	0							
iii)	300mm DI (Class K-7)	7%	1171 m	15	534 M	45.60	3.19					
iv)	250mm DI (Class K-7)	6%	2639 m	730	1830 M	69.34	4.16					

v)	200mm DI (Class K-7)	22%	9868 m	681 M	7980 M	80.87	17.79					
vi)	150mm DI (Class K-7)	42%	26940 m	1592 M	19980 M	74.16	31.15					
2	Laying of Distribution Pipe											
	110mm HDPE (PN-10)	1%	2160 m	1661	9760	451.85	4.52					
	90mm HDPE (PN-10)	18%	62394 m	599	41980	67.28	12.11					
3	Household connection	3%	6000 Nos									
		100%					72.92					

North Eastern Region Urban Development Project (NERUDP), ADB LOAN - 2834 - IND						
Annexure 4, Tr.- II, D(ii): Physical Progress of Package during Execution Phase						
Description of Contract Package	Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Bardowali]			Notice to Proceed		6.3.13
Contract Package No.	[AGT/WS10-3/ICB/11/9] Lot-II			Period of Completion		18 months
Contractor	M/s Jaihind Projects Ltd. (JV) & M/S Lakeshwari Engineers Pvt. Ltd.			Stipulated Date of Completion		05.09.14
		Contract Value	20.67 Crore			Extended upto 31-12-2015 Further extended to 30.06.2016

S.No.	WORK COMPONENTS	WEIGHTAGE	Quantity/ Total Work Scope (Approx.)	Progress in Current Month	CUMULATIVE PHYSICAL PROGRESS					FINANCIAL PROGRESS		REMARKS
					Up to date Progress of work	% Progress of each item of work	Overall % Progress w.r.t. total work	Actual %age Physical Progress	Targetted %age Physical Progress	Actual Financial Progress (in crores)	Targetted Financial Progress (in crores)	
1	Laying of Distribution Pipe							75.00		7.09		Pipe laying in progress.
i)	400mm DI (Class K-7)	7%	1446 m	0	0							
ii)	350mm DI (Class K-7)	4%	1058 m	0	0							
iii)	300mm DI (Class K-7)	9%	3073 m	0	3403 M							
iv)	250mm DI (Class K-7)	15%	6755 m	0	6621 M							
v)	200mm DI (Class K-7)	14%	7452 m	0 M	6497 M							
vi)	150mm DI (Class K-7)	20%	14262 m	0 M	14846 M							
2	Laying of Distribution Pipe											
	110mm HDPE (PN-10)	22%	6931 m	0	10948							
	90mm HDPE (PN-10)	4%	85276 m	0	53243							
3	Household connection	5%	9000 Nos									
		100%				0.00						

North Eastern Region Urban Development Project (NERUDP), ADB LOAN - 2834 - IND

Annexure 4, Tr.- II (E): Physical Progress of Package during Execution Phase

Description of Contract Package			Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala					Notice to Proceed		05.08.2013			
Contract Package No.			AGT/WS02.07.08/ICB/11/8				GWTP		Period of Completion		18 months		
Contractor			ITD - ITD CEM Joint Venture				Contract Value	39.89 Crore	Stipulated Date of Completion		04.02.2015	Extended upto 30-06-2016	
S.No.	WORK COMPONENTS	WEIGHTAGE (%)		PHYSICAL PROGRESS					FINANCIAL		REMARKS		
			Total No of GWTP	Progress in Current Month (%)	Up to date Progress of work	% Progress of each item of work	Overall % Progress w.r.t. total work	Actual %age Physical Progress	Actual Financial Progress (in crores)				
1	Construction of elevated tank (1.344% of the total amount of schedule 4)	1.344	7	0.00	1.12	83.33	1.12	58.12	18.79	-			
2	Construction of Cascade aerators including interconnection channels	1.758	7	0.10	1.41	80.20	1.41						
3	Construction of Flash Mixer Unit including interconnection channels	2.57	7	0.00	2.10	81.71	2.10						
4	Construction of Clariflocculator Units including interconnection channels	13.451	7	0.20	10.75	79.92	10.75						
5	Construction of Chemical House	4.398	7	0.20	3.3	75.03	3.30						
6	Construction of Pressure Filter Units including interconnection channels Ward no- 35	10.759	7	0.2	8.21	76.31	8.21						

A	Construction of Backwash Recycling Tanks (3.88%)		7	0.10	3.86	35.88	1.39				
B	Construction of Overhead Backwash Tanks (1.258%)		7	0.10	1.33	12.36	0.16				
C	Construction of Rapid Gravity Sand Filter (5.62%)		7	0.00	3.02	28.07	1.58				
7	Construction of Clear Water Reservoir including interconnection channels	6.205	7	0.10	5.20	83.80	5.20				
8	Construction of Clear Water Pumphouse and Chlorination Room, Office Building and Store room as per requirements and darwing	5.993	7	0.0	5.0	83.76	5.02				
A	Pmp House (2.713%)		7	0	2.87	47.89	1.30				
B	Filter House (3.281%)		7	0	2.15	35.88	1.18				
9	Construction of pathways, roads, ramps and boundary wall as per requirements and darwings	8.984									
A	Boundary Wall (1.891%) 22%		7	0.40	1.95	21.71	0.41				
B	Road and Footpath (3.439%) 38%		7	0.00	0.21	2.34	0.08				
C	Drain (3.654%) 40%		7	0.10	0.31	3.45	0.13				
10	Electrical and Mechanical	43.509	7	1.50	20.60	47.35	20.60				

11	Any other item & accessories not specified above but required to complete the work. Contractor to provide a separate list with breakup of item, quantity, units, unit rate and cost separately and give the total price in this item. Items not listed in the BOQ and required for completing the job shall be done by contractor without any extra claim for payment.	1.029	7	0	0.7	68.03	1				
12	Special Investigation and design Note		7	1.00	6.92	672.50					
	Total	100.00					58.12				

North Eastern Region Urban Development Project (NERUDP), ADB LOAN - 2834 - IND												
Annexure 4,Tr.- II, (F): Physical Progress of Package during Execution Phase												
Description of Contract Package		Laying of New Primary Mains (Rising Mains) in various parts of Agartala city.					Notice to Proceed			14-07-2014		
Contract Package No.		[AGT/WS10-2(R1)/NCB/13/1					Period of Completion			18 months		
Contractor		Sunil Saha – Prasenjit Paul Joint Venture,			Contract Value	7.74 Crore	Stipulated Date of Completion			13-01-2016		
S.No.	WORK COMPONENTS	WEIGHTAGE	Quantity/ Total Work Scope (Approx.)	Progress in Current Month	CUMULATIVE PHYSICAL PROGRESS					FINANCIAL PROGRESS		REMARKS
					Up to date Progress of work	% Progress of each item of work	Overall % Progress w.r.t. total	Actual %age Physical Progress	Targetted %age Physical Progress	Actual Financial Progress (in crores)	Targetted Financial Progress (in crores)	

							work					
1	Laying of Rising Main							61.88	67.00	0.64		Pipe laying in progress.
i)	150mm dia ductile iron class K-9 pipes.		1100 m	0.5	0.5	0.50						
ii)	200mm dia ductile iron class K-9 pipes.		51400 m	0	31.5	61.28						
iii)	250mm dia ductile iron class K-9 pipes.		2500 m	0.5	1.5	0.60						
iv)	300mm dia ductile iron class K-9 pipes.		3700 m									
	Total		58700.0	1 M	33.0	61.88						

Photo Illustration

Package: Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)- (AGT/WS09/ICB/11/7, Lot -1)



Use of PPE noted – partially complied at OHSR site



Partial use of PPE- Sadhutila OHSR site



Labour camp for OHSR package



First aid box available at working site



Toilet used by labourer at camp site



Display of safety poster at working site

Package: Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) {[Jogendranagar] – Lot 1 & {Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)



Restoration done after pipe laying



Use of caution board and caution tape at working site noted



Storage of pipes – noted



Caution tape placed near pipe laying area

Package: Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)



Use of PPE noted at construction site



Completed GWTP at Aralia



Construction going on and use of PPE noted at construction site



Use of PPE noted at construction site



First aid box available at working site



Use of PPE noted at construction site – Pragati GWTP

Attendance sheet training program

Safeguard Meeting – Environment

Date:- 06/07/2015

Venue:- SIPMIU, Agartala office.

Sl. NO.	Name & Designation	Organization	Signature
1.	Sri Manik Lal Sarker Add. Programme Director	SIPMIU Asst. Dir.	M. Sarker 06/07/2015
2.	Sri T. K. Apurkhan T/L, DSAE	D.S.A.E. Agartala	R.K. 6/7/15
3.	Sri Sumant Mondal Project Manager, ITD-ITD Cem JV.	ITD - ITD CEM JV	Sumant 6/7/15
4.	Jayanta K. GM - Jaihind Projects Ltd.	Jaihind Projects Ltd.	Jayanta K.
5.	Pranay Mukherjee EHS Engineer ITD- ITD Cem JV.	ITD-ITD CEM JV	Pranay
6.	Rabindra Nama Das HSE Supervisor	Ramky	Rabindra
7.	Prasunjit - Paul SUNIL SANA, PRASUNJIT PAUL JV	SUNIL SANA, PRASUNJIT PAUL JV	Prasunjit

Arghendu Mitra
Environment Spl.

Consent to Establish for Ground Water Treatment Plant – Shown Condition


TRIPURA STATE POLLUTION CONTROL BOARD
 PARIVESH BHAWAN, Pandit Nehru Complex, Gorkhalasagar,
 Kaniakumari, Agartala - 799 006, Tripura West.

Certificate No. 7332

No.F.17(10)/TSPCB/Water treatment/(L-Gr)/3498 **3065-40** Date: **14/07/2011**

CERTIFICATE FOR CONSENT TO ESTABLISH

Under Section 25/26 of Water (Prevention and Control of Pollution) Act, 1974 and
Under Section 21 of The Air (Prevention and Control of Pollution) Act, 1981

Reference	i) Your Application No. 274	dated 02-07-2011
	ii) Our NOC Register Sl. No. 7523	for Fresh Consent
Total Investment	Rs. 385000000 Lakhs	Production Capacity : 45mldx30
Type	Water Treatment Plant	Category Red Plus

With reference to the above Application, a provisional Consent to Establish Certificate is hereby issued in favour of **Water Treatment Plant (7units) under State Investment Programme Management and Implementation Unit (SIPMIU), Project Director, Directorate of Urban Development** to discharge its industrial and other effluents arising out of their premises into a stream/ well/ land as per section 25/26 of Water (Prevention and Control of Pollution) Act, 1974 and to make emission from the plant /unit as per Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 situated at **Seven locations [PHE Complex, Oppt to Pragati School, near Sarbadharma Ashram, Pratapgarh, near AMC Zone office (ward-35), near Arafia, Dukli, near Battala Burial Ground]** subject to observance of other codal formalities of the Govt. of India/ Govt. of Tripura/ District Administration/ Agartala Municipal Council / Health Department/ Industries & Commerce Department and subject to observance of the following terms & conditions.

- Sludge should be disposed in the designated land fill site only.
- Periodically Analysis of raw water and treated water shall have to be carried out and the report to be submitted to the Tripura State Pollution Control Board. Prescribed standard of Drinking Water shall have to be strictly maintained.
- Untreated waste water should not be discharged directly in the Municipal drain.
- The unit must ensure time to time back washing of the plant & machineries.
- The unit will have to follow other norms & standards issued by TSPCB from time to time.
- A copy of the Consent Certificate should be displayed in the office of the unit.

This certificate is Valid *tilt* the complete establishment of the unit.

To
**Project Director, Directorate of Urban Development
 State Investment Programme Management
 and Implementation Unit (SIPMIU)
 2nd Floor of Khadya Bhawan, P.N. Complex
 Agartala, Tripura(W)**

For and on behalf of
 Tripura State Pollution Control Board

(Sumanta Chakrabarti)
 Executive Engineer(I/C)
 Tripura State Pollution Control Board

Copy to :

- 1) District Magistrate, West Tripura
- 2) Director of Industries and Commerce, Tripura
- 3) SDM, Bishokgan/Sadar, West Tripura
- 4) CEO, AMC, Agartala
- 5) District Scientific Officer, DST&E, West Tripura


 Executive Engineer(I/C)
 Tripura State Pollution Control Board

Site Specific Environmental Management Plan

December 2015 (Revised)

Project Name:

**DESIGN SUPPLY AND CONSTRUCTION OF 09 NOS OF
OVER HEAD SERVICE RESERVOIR AT DIFFERENT
LOCATION OF AGARTALA CITY.**

Contract Package/Agreement No: AGT/WS09/ICB/11/7, Lot-1

Prepared & Submitted by:



RAMKY Infrastructure Limited.
Malancha, Ramnagar Road 4,
Agartala-799002, West Tripura.

Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Utilities	Telephone lines, electric poles and wires, water lines within proposed project area	No telephone lines, electric poles and wires, water lines within proposed project area are affected.	DSMC	(i) List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions
Water Supply	Health risk due to closure of water supply during pipe jointing and replacement of pipes	As the new construction of OHSR continued at fixed locations therefore we may not come across this type of hazards. If required in future closure will be done in coordination with PWD (DWS), provide alternative potable water to affected households and businesses for the duration of the shut-down for a very short period	SIPMIU	(i) Schedule of closure; (ii) delivery of potable water to affected people by PWD (DWS)
Social and Cultural Resources	Ground disturbance can uncover and damage archaeological and historical remains	Work is going on, no such type of chance finds noted till date if so we definitely follow up as per EMP mentioned below: (i) Consulting Archaeological Survey of India (ASI) or concerned dept. of Tripura Govt. to obtain an expert assessment of the archaeological potential of the site; (ii) Consideration of alternatives if the site is found to be of medium or high risk; (iii) Development a protocol for use by us in conducting any excavation work, to ensure that any chance finds are recognised and measures are taken to ensure they are protected and conserved.	SIPMIU & DSMC	Chance Finds Protocol
Construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	We are looking for within or nearest possible vacant space in the subproject location by taking extreme care in selecting sites to avoid residential areas & direct disposal to water body which will not affect the community directly or indirectly. Construction camp constructed at Sadhutilla site, Guru Das Para, Aralia, AMC Ward No 35, Bankumari and Near Pranabananda School site.	SIPMIU and DSMC to determine locations prior to award of construction contracts.	List of selected sites for construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.
Sources of Materials	Extraction of materials can disrupt natural land	Sources of materials will be from the approved quarry against all valid documents.	SIPMIU and DSMC to prepare list of	(i) List of approved quarry sites and sources of materials;

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.		approved quarry sites and sources of materials	and (ii) Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.

CPHEEO = Central Public Health and Environmental Engineering Organization, DSMC = Design Supervision Management Consultant, EIA = Environmental Impact Assessment, O&M = operation and maintenance, SIPMIU = State-level Investment Program Management and Implementation Units, DWS= Drinking Water and Sanitation.

Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Sources of Materials	Extraction of rocks and material may cause ground instability	We are following the mitigation measures as considered below, As per sources approved by government against all valid documents.	RAMKY Infrastructure Ltd	RAMKY Infrastructure Ltd. Document
Air Quality	Emissions from construction vehicles, equipment, and machinery used for excavation of pipe line trenches and construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons)	Air quality monitoring done during construction. (i) Consultation will be carried out with SIPMIU/DSMC on the designated areas for stockpiling of soils, gravel, and other construction materials; (ii) Exposed soil and any stockpiled will be damp down on site by spraying with water when necessary during dry weather; (iii) Tarpaulins will be used to cover sand and other loose material when transported by trucks; and (iv) Fit all heavy equipment and machinery with air pollution control devices which will be operate during main work	RAMKY Infrastructure Ltd	(i) Location of stockpiles; (ii) Complaints from sensitive receptors; (iii) Heavy equipment and machinery with air pollution control devices; (iv) Ambient air for reparable particulate matter (RPM) and suspended particulate matter (SPM); (v) Vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons
Surface water quality	Mobilization of settled silt materials, run-off from stockpiled materials, and	There is no surface water source nearby the project locations. Therefore surface water quality monitoring is not required The following measures will be considered during implementation of the project	RAMKY Infrastructure Ltd	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) Number of silt traps installed

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	chemical contamination from fuels and lubricants during construction works can contaminate nearby surface water quality.	(i) Avoiding stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; (ii) Prioritization of re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with SIPMIU/DSMC on designated disposal areas; (iii) Storage areas for fuels and lubricants will be selected away from any drainage leading to water bodies; (iv) Any wastes generated by construction activities will be disposed in designated sites; and (vi) Conduct surface quality inspection according to the Environmental Management Plan (EMP).		along drainages leading to water bodies; (iii) Records of surface water quality inspection; (iv) Effectiveness of water management measures; (v) For inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	As per our nature of work we are using concrete mixtures, vibrators, builder hoist, bar cutting, grinding machine which may produce medium level of harmful noise. Noise monitoring carried out during construction. We also follow the mitigation measures as mentioned in our bid documents as mentioned below, (i) Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Require horns not be used unless it is necessary to warn other road users; (iii) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s	RAMKY Infrastructure Ltd	(i) Complaints from sensitive receptors; (ii) Use of silencers in noise-producing equipment and sound barriers; (iii) Log Equivalent day and night time noise levels
Existing Infrastructure and Facilities	Disruption of service and damage to existing infrastructure at specified project location	No disruption of service and damage to existing infrastructure at specified project location.	RAMKY Infrastructure Ltd	Existing Utilities Contingency Plan
Landscape and Aesthetics	Solid wastes as well as excess construction materials	We have utilized all the excavated soil back to the trench at site and nearby area for filling purpose (wherever needed).We are maintaining our company's policy for Waste Management & also follow up the requirements of bid documents. <ul style="list-style-type: none"> 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 at earliest. 	RAMKY Infrastructure Ltd	(i) Waste Management Plan; (ii) Complaints from sensitive receptors; (iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Accessibility	Traffic problems and conflicts near project locations and haul road	Project sites are located away from main traffic road, but we are following the mitigation wherever applicable according to our site need. (i) Transportation routes will be plan so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Schedule transport and hauling activities will be plan during non-peak hours; (iii) Site will be free from all unnecessary obstructions; (iv) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.	RAMKY Infrastructure Ltd	(i) Traffic Management Plan; (ii) Complaints from sensitive receptors; (iii) Number of signages placed at subproject location.
Socio-Economic – Income.	Impede the access of residents and customers to nearby shops	By informing nearby community & commercial establishment before executing the excavation work in that specific location before one day in advance of execution to avoid unwanted obstruction (if any) at working site.	RAMKY Infrastructure Ltd	(i) Complaints from sensitive receptors; (ii) Number of walkways, signages, and metal sheets placed at subproject location.
Socio-Economic - Employment	Generation of contractual employment and increase in local revenue	Local labours are being employed as per their work capability.	RAMKY Infrastructure Ltd	(i) Employment records; (ii) records of sources of materials
Occupational Health and Safety	Occupational hazards which can arise during work	We are following the Safety Policy of the Company. Also follow the points mentioned in the bid documents <ul style="list-style-type: none"> All workers will be provided with and use Personal Protective Equipment like helmet, gumboot, safety belt, gloves, nose mask and ear plugs; H and S Training for all site personnel will be arranged Documented procedures to be followed for all site activities; Work-related accidents will be recorded; First Aid box arranged at all of the working sites; Medical insurance coverage for workers have to be arranged; Potable drinking water arranged at site; Clean eating areas will be provided to workers; H and S orientation training will be provided to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; Moving equipment will outfitted with audible back-up alarms; Worker will be disallowed of exposure to noise level greater than 85 dBA for 	RAMKY Infrastructure Ltd	(i) Site-specific Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.		outfitted with audible back-up alarms; (x) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.
Community Health and Safety.	Traffic accidents and vehicle collision with pedestrians during material and waste transportation	We are following the Safety Policy of the Company. Also follow the points mentioned in the bid documents (i) Plan routes to avoid times of peak-pedestrian activities. (ii) Liaise with SIPMIU/DSMC in identifying high-risk areas on route cards/maps. (iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	RAMKY Infrastructure Ltd	(i) Traffic Management Plan; (ii) Complaints from sensitive receptors
Work Camps	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	Work camps have been/will be constructed beside the location of project sites and also follow the points mentioned below: (i) Before locating project offices, sheds, and construction plants we will discussed with SIPMIU/DSMC; (ii) Till date no trees have been cut; (iii) Employees will be trained for storage and handling of materials which can potentially cause soil contamination; (iv) Solid waste will be manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (v) All wreckage, rubbish, or temporary structures will be disposed; and (vi) Report will be submitted to SIPMIU/DSMC with the information that "camp has been vacated and restored to pre-project conditions before acceptance of work"	RAMKY Infrastructure Ltd	(i) Complaints from sensitive receptors; (ii) Water and sanitation facilities for employees; and (iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions
Social and Cultural Resources	Risk of archaeological chance finds	No archaeological chances found are reported at project sites. Strictly follow the protocol for chance finds in any excavation work;	RAMKY Infrastructure Ltd	Records of chance finds

DSMC = Design Supervision Management Consultant, H&S = health and safety, RPM = Respirable particulate matter, SIPMIU = State-level Investment Program Management and Implementation Units, SPM = suspended particulate matter, AMC= Agartala Municipal Corporation, PWD= Public Works Department, DWS= Drinking Water and Sanitation

Site Specific EMP

December 2015

Project Name:

Supply & Laying of Water Supply Distribution Pipelines and Allied Works in Agartala City (South).

Contract Package/Agreement No:

AGT/WS 10-3/ICB/11/9 LOT-1 AND LOT-2

Prepared & Submitted by:



Joynagar, Nabadiganta Lane,
Agartala-799001, West Tripura.

Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Utilities	Telephone lines, electric poles and wires, water lines within proposed project area.	Execution for the proposed water supply distribution pipelines & allied works is going on with special attention without hampering the existing lines, poles etc. Additional support are provide if necessary for hassle free execution.	DSMC	(i) List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions
Water Supply	Health risk due to closure of water supply during pipe jointing and replacement of pipes	As the execution of the distribution network is implemented till date without disturbing the existing lines, so there will be no such closer which will affect health risk.	SIPMIU	(i) Schedule of closure; (ii) delivery of potable water to affected people by PWD (DWS)
Social and Cultural Resources	Ground disturbance can uncover and damage archaeological and historical remains	Work is under execution & no such type of chance finds noted till date. If so we definitely follow up as per EMP mentioned below: (i) Consulting Archaeological Survey of India (ASI) or concerned dept. of Tripura Govt. to obtain an expert assessment of the archaeological potential of the site; (ii) Consideration of alternatives if the site is found to be of medium or high risk; (iii) Development a protocol for use by us in conducting any excavation work, to ensure that any chance finds are recognised and measures are taken to ensure they are protected and conserved.	SIPMIU & DSMC	Chance Finds Protocol
Construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	Construction work camps are not required as per our nature of work . The work is executed by contractual labours only. We have also take extreme care in selecting sites for store (after discussion with DSMC/ SIPMIU) to avoid any discrepancy.	SIPMIU and DSMC to determine locations prior to award of construction contracts.	List of selected sites for construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage	It is our soul responsibility to verify the suitability of all material sources and to obtain the approval of SIPMIU time to time.	SIPMIU and DSMC to prepare list of approved quarry sites and sources of	(i) List of approved quarry sites and sources of materials; and (ii) Bid document to include requirement for

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	patterns, ponding and water logging, and water pollution.		materials	verification of suitability of sources and permit for additional quarry sites if necessary.

CPHEEO = Central Public Health and Environmental Engineering Organization, DSMC = Design Supervision Management Consultant, EIA = Environmental Impact Assessment, O&M = operation and maintenance, SIPMIU = State-level Investment Program Management and Implementation Units, DWS= Drinking Water and Sanitation.

Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Sources of Materials	Extraction of rocks and material may cause ground instability	(i) Use of quarry sites and sources permitted by government; (ii) Suitability of quarry sites of all materials will be checked and obtain approval from SIPMIU; and (iii) Submission to DSMC on a monthly basis documentation of sources of materials.	Jaihind Projects Ltd.	Jaihind Projects Ltd. document
Air Quality	Emissions from construction vehicles, equipment, and machinery used for excavation of pipe line trenches and construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons)	Monitoring already done (i) Consultations are carried out with SIPMIU/DSMC on the designated areas for stockpiling of soils, gravel, and other construction materials; (ii) Exposed soil and any stockpiled are damp down on site by spraying with water when necessary during dry weather; (iii) Tarpaulins are used to cover sand and other loose material when transported by trucks; and (iv) Fit all heavy equipment and machinery with air pollution control devices which will be operate during main work	Jaihind Projects Ltd.	(i) Location of stockpiles; (ii) Complaints from sensitive receptors; (iii) Heavy equipment and machinery with air pollution control devices; (iv) Ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM); (v) Vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons
Surface water quality	Mobilization of settled silt materials, run-off from stockpiled materials, and chemical contamination from fuels and lubricants	There is no surface water source nearby the project locations. Therefore surface water quality monitoring is not required. We are using only ground water from tube well during construction phase if require.	Jaihind Projects Ltd.	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) Number of silt traps installed along drainages leading to water bodies;

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	during construction works can contaminate nearby surface water quality.			(iii) Records of surface water quality inspection; (iv) Effectiveness of water management measures; (v) For inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	We also follow the mitigation measures as mentioned in our bid documents as mentioned below, Base line Noise monitoring has already been done at working sites (i) Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Require horns not be used unless it is necessary to warn other road users; (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and (iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s	Jaihind Projects Ltd.	(i) Complaints from sensitive receptors; (ii) Use of silencers in noise-producing equipment and sound barriers; (iii) Log Equivalent day and night time noise levels
Existing Infrastructure and Facilities	Disruption of service and damage to existing infrastructure at specified project location	If any such situation occur we take instant possible solution with due consult with DSMC/SIPMIU	Jaihind Projects Ltd.	Existing Utilities Contingency Plan
Landscape and Aesthetics	Solid wastes as well as excess construction materials	We are using excavated soil for site area filling purpose (wherever needed). We are maintaining our company's policy for Waste Management & also follow up the requirements of bid documents. <ul style="list-style-type: none"> • Solid waste are manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas; • Removal of all wreckage, rubbish from the sites at earliest 	Jaihind Projects Ltd.	(i) Waste Management Plan; (ii) Complaints from sensitive receptors; (iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Accessibility	Traffic problems and conflicts near project locations and haul road	<p>We are following the mitigation wherever applicable according to our site need.</p> <p>(i) Transportation routes are plan so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;</p> <p>(ii) Schedule transport and hauling activities are plan during non-peak hours;</p> <p>(iii) Sites are free from all unnecessary obstructions;</p> <p>(iv) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.</p>	Jaihind Projects Ltd.	<p>(i) Traffic Management Plan;</p> <p>(ii) Complaints from sensitive receptors;</p> <p>(iii) Number of signages placed at subproject location.</p>
Socio-Economic – Income.	Impede the access of residents and customers to nearby shops	Project sites are along with and away from main traffic road, but we are following the mitigation wherever applicable according to our site need.	Jaihind Projects Ltd.	<p>(i) Complaints from sensitive receptors;</p> <p>(ii) Number of walkways, signages, and metal sheets placed at subproject location.</p>
Socio-Economic - Employment	Generation of contractual employment and increase in local revenue	<p>Local Workers are mostly working at site.</p> <p>Construction materials are procured from local market.</p>	Jaihind Projects Ltd.	<p>(i) Employment records;</p> <p>(ii) records of sources of materials</p>

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Occupational Health and Safety	Occupational hazards which can arise during work	<p>As per Safety & Environment policies of our organisation and as per the bid documents guidelines</p> <ul style="list-style-type: none"> Personal Protective Equipment like helmet, gumboot, gloves and nose mask, etc provided to all the workers. H and S Training for all site personnel will be arranged Documented procedures to be followed for all site activities; Work-related accidents will be recorded; First Aid box arranged at working sites; Medical insurance coverage for workers have been arranged; Potable drinking water arranged at site; Clean eating areas will be provided to workers; H and S orientation training will be provided to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; Worker will be disallowed of exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. 	Jaihind Projects Ltd.	(i) Site-specific Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment outfitted with audible back-up alarms; (x) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.
Community and Health and Safety.	Traffic accidents and vehicle collision with pedestrians during material and waste material/earth transportation	(i) Plan routes to avoid times of peak-pedestrian activities. (ii) Liaise with SIPMIU/DSMC in identifying high-risk areas on route cards/maps. (iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. (iv) Liaise with SIPMIU/DSMC in identifying high-risk areas on route cards/maps. (v) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment	Jaihind Projects Ltd.	(i) Traffic Management Plan; (ii) Complaints from sensitive receptors

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		malfunction or premature failure. (vi) Use of safety caution tape is being ensured.		
Work Camps	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	No work camps are require to be establish due to the nature of work to be execute by us. Only contractual labours are engaged for execution in the afore said projects.	Jaihind Projects Ltd.	(i) Complaints from sensitive receptors; (ii) Water and sanitation facilities for employees; and (iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions
Social and Cultural Resources	Risk of archaeological chance finds	Strictly follow the protocol for chance finds in any excavation work; No archaeological chances found is reported at project sites till date	Jaihind Projects Ltd.	Records of chance finds

DSMC = Design Supervision Management Consultant, H&S = health and safety, RPM = respirable particulate matter, SIPMIU = State-level Investment Program Management and Implementation Units, SPM = suspended particulate matter, AMC= Agartala Municipal Corporation, PWD= Public Works Department, DWS= Drinking Water and Sanitation

Site Specific Environmental Management Plan

DECEMBER 2015

Agartala Water Supply: Construction of Ground Water Treatment Plant (GWTP)

Prepared by



ITD-ITD CEM JOINT VENTURE

Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Utilities	Telephone lines, electric poles and wires, water lines within proposed project area of GWTPs	No such type of issue found.	DSMC	(i) List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions
Social and Cultural Resources	Ground disturbance can uncover and damage archaeological and historical remains	No such type of disturbances at site till found if so we definitely follow up the mentioned below points:	SIPMIU & DSMC	Chance Finds Protocol
Construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	Labour Camp made at site outside of GWTP boundary with drinking water and toilet facility. We have also take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community.	SIPMIU and DSMC to determine locations prior to award of construction contracts.	List of selected sites for construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	Source of materials are from stockyard only as kept in knowledge of SIPMIU & DSMC	SIPMIU and DSMC to prepare list of approved quarry sites and sources of materials	(i) List of approved quarry sites and sources of materials; (ii) Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.

CPHEEO = Central Public Health and Environmental Engineering Organization, DSMC = Design Supervision Management Consultant, EIA = Environmental Impact Assessment, O&M = operation and maintenance, SIPMIU = State-level Investment Program Management and Implementation Units, DWS= Drinking Water and Sanitation

Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Sources of Materials	Extraction of rocks and material may cause ground instability	We are using crushed material only from specified source.	ITD-ITD CEM	Construction Contractor documentation
Air Quality	Emissions from	Test is being conducted by third party on	ITD-ITD CEM	(i) Location of stockpiles;

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	construction vehicles, equipment, and machinery used for excavation and construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphurdioxides, particulate matter, nitrogen oxides, and hydrocarbons	half-yearly basis/quarterly basis and reports are being submitted.		(ii) Complaints from sensitive receptors; (iii) Heavy equipment and machinery with air pollution control devices; (iv) Ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM); (v) Vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons
Surface water quality	Mobilization of settled silt materials, run-off from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate nearby surface water quality.	We are only using the ground water or tube well water to fulfill our requirements.	ITD-ITD CEM	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) Number of silt traps installed along drainages leading to water bodies; (iii) Records of surface water quality inspection; (iv) Effectiveness of water management measures; (v) For inland water: suspended solids, oil and grease, biological oxygen demand (BOD), coli forms and as per recommendation of environmental specialist of DSMC
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials and people	Noise level test is being conducted by third party on half-yearly/quarterly basis and the reports are being submitted.	ITD-ITD CEM	(i) Complaints from sensitive receptors; (ii) Use of silencers in noise-producing equipment and sound barriers; (iii) Log Equivalent day and night time noise levels
Landscape and Aesthetics	Solid wastes as well as excess construction materials	We are using our excavated soil for site area filling purpose (wherever needed).	ITD-ITD CEM	(i) Waste Management Plan; (ii) Complaints from sensitive receptors;

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
				(iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.
Accessibility	Traffic problems and conflicts near project locations and haul road	Sites are far interior from main traffic road.	ITD-ITD CEM	(i) Traffic Management Plan; (ii) Complaints from sensitive receptors; (iii) Number of signages placed at subproject location.
Socio-Economic Income –	Impede the access of residents	Sites are far interior from main traffic road.	ITD-ITD CEM	(i) Complaints from sensitive receptors;
Socio-Economic Employment -	Generation of contractual employment and increase in local revenue	Local Workers are also working at site	ITD-ITD CEM	(i) Employment records; (ii) records of sources of materials
Occupational Health and Safety	Occupational hazards which can arise during work	Having OHSRA of our organisation and follow the points mentioned in the bid documents	ITD-ITD CEM	(i) Site-specific Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment outfitted with audible back-up alarms; (x) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.
Community	Traffic accidents and	Having OHSRA of our organisation and	ITD-ITD CEM	(i) Traffic Management Plan;

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Health and Safety.	vehicle collision with pedestrians during material and construction waste transportation	follow the below mentioned points also.		(ii) Complaints from sensitive receptors
Work Camps	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	Labour Camp made at site outside of GWTP boundary with drinking water and toilet facility.	ITD-ITD CEM	(i) Complaints from sensitive receptors; (ii) Water and sanitation facilities for employees; and (iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions
Social and Cultural Resources	Risk of archaeological chance finds	No archaeological chances found at our site locations.	ITD-ITD CEM	Records of chance finds

DSMC = Design Supervision Management Consultant, H&S = health and safety, RPM = respirable particulate matter, SIPMIU = State-level Investment Program Management and Implementation Units, SPM = suspended particulate matter, AMC= Agartala Municipal Council, PWD= Public Works Department, DWS= Drinking Water and Sanitation

Site Specific Environmental Management Plan

DECEMBER, 2015

Project Name:

LYING OF NEW PRIMARY MAINS(RISING MAINS) IN
VARIOUS PARTS OF AGARTALA CITY.

Contract Package/Agreement No:

AGT/WS 10-2(R1)/NCB/13/1

Prepared & Submitted by:

SUNUL SAHA-PRASENJIT PAUL(JV)

Dhaleswar, road no 1,
Agartala, pin-799007, West Tripura.

Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Utilities	Telephone lines, electric poles and wires, water lines within proposed project area.	Execution for the proposed water supply RISING MAINS pipelines & allied works is going on with special attention without hampering the existing lines, poles etc.	DSMC	(i) List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions
Water Supply	Health risk due to closure of water supply during pipe jointing and replacement of pipes	As the execution of the RISING MAINS network is implemented till date without disturbing the existing lines, so there will be no such closer which will affect health risk.	SIPMIU	(i) Schedule of closure; (ii) delivery of potable water to affected people by PWD (DWS)
Social and Cultural Resources	Ground disturbance can uncover and damage archaeological and historical remains	Work in progress . no such type of chance finds noted till date if so we definitely follow up as per EMP mentioned below: (i) Consulting Archaeological Survey of India (ASI) or concerned dept. of Tripura Govt. to obtain an expert assessment of the archaeological potential of the site; (ii) Consideration of alternatives if the site is found to be of medium or high risk; (iii) Development a protocol for use by us in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.	SIPMIU & DSMC	Chance Finds Protocol
Construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	Construction work camps are not required as per our nature of work The work is executed by contractual labours only. We have also take extreme care in selecting sites for store (after discussion with DSMC/ SIPMIU) to avoid any discrepancy.	SIPMIU and DSMC to determine locations prior to award of construction contracts.	List of selected sites for construction work camps, spot mix plants, stockpile areas, storage areas, and disposal areas.
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	It is our soul responsibility to verify the suitability of all material sources and to obtain the approval of SIPMIU	SIPMIU and DSMC to prepare list of approved quarry sites and sources of materials	(i) List of approved quarry sites and sources of materials; and (ii) Bid document to include requirement for verification of suitability of sources and permit for additional quarry

Field/Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
				sites if necessary.

CPHEEO = Central Public Health and Environmental Engineering Organization, DSMC = Design Supervision Management Consultant, EIA = Environmental Impact Assessment, O&M = operation and maintenance, SIPMIU = State-level Investment Program Management and Implementation Units, DWS= Drinking Water and Sanitation.

Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Sources of Materials	Extraction of rocks and material may cause ground instability	(i) Use of quarry sites and sources permitted by government; (ii) Suitability of quarry sites of all materials will be checked and obtain approval from SIPMIU; and (iii) Submission to DSMC on a monthly basis documentation of sources of materials.	Sunil Saha - Prasenjit paul(JV)	Sunil saha - Prasenjit paul(JV). documents
Air Quality	Emissions from construction vehicles, equipment, and machinery used for excavation of pipe line trenches and construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons)	Monitoring done (i) Consultations are carried out with SIPMIU/DSMC on the designated areas for stockpiling of soils, gravel, and other construction materials; (ii) Exposed soil and any stockpiled are damp down on site by spraying with water when necessary during dry weather; (iii) Tarpaulins are used to cover sand and other loose material when transported by trucks; and (iv) Fit all heavy equipment and machinery with air pollution control devices which will be operate during main work	Sunil Saha - Prasenjit paul(JV)	(i) Location of stockpiles; (ii) Complaints from sensitive receptors; (iii) Heavy equipment and machinery with air pollution control devices; (iv) Ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM); (v) Vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons
Surface water quality	Mobilization of settled silt materials, run-off from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate nearby surface water quality.	There is no surface water source nearby the project locations. Therefore surface water quality monitoring is not required. We are using only ground water from tube well during construction phase.	Sunil Saha - Prasenjit paul(JV)	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) Number of silt traps installed along drainages leading to water bodies; (iii) Records of surface water quality inspection;

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
				(iv) Effectiveness of water management measures; (v) For inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	We also follow the mitigation measures as mentioned in our bid documents as mentioned below, Base line Noise monitoring has already been done at working sites (i) Plan activities in consultation with SIPMIU/DSMC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Require horns not be used unless it is necessary to warn other road users; (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and (iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s	Sunil Saha - Prasenjit paul(JV)	(i) Complaints from sensitive receptors; (ii) Use of silencers in noise-producing equipment and sound barriers; (iii) Log Equivalent day and night time noise levels
Existing Infrastructure and Facilities	Disruption of service and damage to existing infrastructure at specified project location	If any such situation occur we take instant possible solution with due consult with DSMC/SIPMIU	Sunil Saha - Prasenjit paul(JV)	Existing Utilities Contingency Plan
Landscape and Aesthetics	Solid wastes as well as excess construction materials	We are using excavated soil for site area filling purpose (wherever needed). We are maintaining our company's policy for Waste Management & also follow up the requirements of bid documents. <ul style="list-style-type: none"> • Solid waste are manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas; • Removal of all wreckage, rubbish from the sites at earliest 	Sunil Saha - Prasenjit paul(JV)	(i) Waste Management Plan; (ii) Complaints from sensitive receptors; (iii) SIPMIU/DSMC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Accessibility	Traffic problems and conflicts near project locations and haul road	We are following the mitigation wherever applicable according to our site need. (i) Transportation routes are plan so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Schedule transport and hauling activities are plan during non-peak hours; (iii) Sites are free from all unnecessary obstructions; (iv) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.	Sunil Saha - Prasenjit paul(JV)	(i) Traffic Management Plan; (ii) Complaints from sensitive receptors; (iii) Number of signages placed at subproject location.
Socio-Economic – Income.	Impede the access of residents and customers to nearby shops	Project sites are along with and away from main traffic road, but we are following the mitigation wherever applicable according to our site need.	Sunil Saha - Prasenjit paul(JV)	(i) Complaints from sensitive receptors; (ii) Number of walkways, signages, and metal sheets placed at subproject location.
Socio-Economic - Employment	Generation of contractual employment and increase in local revenue	Local Workers are mostly working at site. Construction materials are procured from local market.	Sunil Saha - Prasenjit paul(JV)	(i) Employment records; (ii) records of sources of materials
Occupational Health and Safety	Occupational hazards which can arise during work	As per Safety & Environment polices of our organisation and as per the bid documents guidelines <ul style="list-style-type: none"> Personal Protective Equipment like helmet, gumboot, gloves and nose mask, etc provided to all the workers. H and S Training for all site personnel will be arranged Documented procedures to be followed for all site activities; Work-related accidents will be recorded; First Aid box arranged at working sites; Medical insurance coverage for workers have been arranged; Potable drinking water arranged at site; Clean eating areas will be provided to workers; H and S orientation training will be provided to all new workers to ensure that they are apprised of the basic site rules of work at 	Sunil Saha - Prasenjit paul(JV)	(i) Site-specific Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments;

Field/ Issues	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		<p>the site, personal protective protection, and preventing injuring to fellow workers;</p> <ul style="list-style-type: none"> Worker will be disallowed of exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. 		<p>(ix) % of moving equipment outfitted with audible back-up alarms;</p> <p>(x) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.</p>
Community Health and Safety.	Traffic accidents and vehicle collision with pedestrians during material and waste material/ earth transportation	<p>(i) Plan routes to avoid times of peak-pedestrian activities.</p> <p>(ii) Liaise with SIPMIU/DSMC in identifying high-risk areas on route cards/maps.</p> <p>(iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.</p> <p>(iv) Liaise with SIPMIU/DSMC in identifying high-risk areas on route cards/maps.</p> <p>(v) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.</p> <p>(vi) Use of safety caution tape is being ensured.</p>	Sunil saha - Prasenjit paul(JV)	<p>(i) Traffic Management Plan;</p> <p>(ii) Complaints from sensitive receptors</p>
Work Camps	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	No work camps are require to be establish due to the nature of work to be execute by us. Only contractual labours are engaged for execution.	Sunil saha - Prasenjit paul(JV)	<p>(i) Complaints from sensitive receptors;</p> <p>(ii) Water and sanitation facilities for employees; and</p> <p>(iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions</p>
Social and Cultural Resources	Risk of archaeological chance finds	Strictly follow the protocol for chance finds in any excavation work; No archaeological chances found is reported at project sites till date	Sunil saha - Prasenjit paul(JV)	Records of chance finds

DSMC = Design Supervision Management Consultant, H&S = health and safety, RPM = respirable particulate matter, SIPMIU = State-level Investment Program Management and Implementation Units, SPM = suspended particulate matter, AMC= Agartala Municipal Corporation, PWD= Public Works Dept.

Spoil Management Plan

Spoil Management Plan (SMP)

December 2015

Project Name:

DESIGN SUPPLY AND CONSTRUCTION OF 09 NOS OF
OVER HEAD SERVICE RESERVOIR AT DIFFERENT
LOCATION OF AGARTALA CITY.

CONTRACT PACKAGE NO/AGREEMENT NO: AGT/WS09/ICB/11/7, LOT-1

Prepared& Submitted by



RAMKY Infrastructure Limited

Malancha, Ramnagar Road 4,

Agartala-799002, West Tripura.

SPOIL MANAGEMENT PLAN

RAMKY INFRASTRUCTURE LTD.

DESIGN SUPPLY AND CONSTRUCTION OF 09 NOS OF OVER HEAD SERVICE RESERVOIR

CONTRACT PACKAGE No: - AGT/WSO9/ICB/11/7, LOT-1

1. INTRODUCTION OF SMP

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.

2. LEGAL AND OTHER REQUIRMENTS

In this project, there is no legal litigation at site for land and working area or site. Disposal of spoil will confirming the Environmental Protection Rules and Regulations of Govt. of India and the state Govt.

3. ROLES AND RESPONSIBILITY

In this project, major roles and responsibilities are mentioned below:

- i) Excavated earth should be utilized at site only.
- ii) Traffic movement should not be obstructed by dumping soil during the work
- iii) No low land, pond, ditch etc. will be filled up by extra soil outside the work place.
- iv) Ensuring no accident occurs during rainy season by excavated earth during or finished the work.
- v) All the drains, outlet should be free from our excavated earth.

4. IDENTIFICATION AND ASSESSMENT OF SPOIL ASPECTS AND IMPACTS

In this project, there are some places assessed and identified jointly along with design engineer. Main places where the excavated earth can be utilized are foundation trench and centre of the OHSR.

5. SPOIL VOLUMES AND CHARACTERISTICS



In this project, approx. generation of excavated earth will be 9000 cum. There is no excess earth in this project as the same earth is used to fill the foundation trench. As per report from soil expert excavated earth is clayey in nature.

6. SPOIL REUSES OPPORTUNITIES, IDENTIFICATION AND ASSESMENT

In this project, there is no excess quantity of excavated earth; total excavated earth would be reuse as per plan.

7. ON SITE SPOIL MANAGEMENT APPROACH

In this project, no need of the approach as there is no extra soils for disposal.

8. SPOIL TRANSPORTATION METHODOLOGY

No Extra excavated earth will be shifted by truck from working site to disposal area.

9. MONITORING, REPORTING, REVIEW, AND IMPROVEMENTS

Monitoring, Reporting and all necessary improvements will be done as per requirement.



SPOIL MANAGEMENT PLAN

Project Name:

Supply & Laying of Water Supply Distribution Pipelines and Allied Works in Agartala City (South).

Contract Package/Agreement No:

AGT/WS 10-3/ICB/11/9 LOT-1 AND LOT-2

Prepared & Submitted by:



Joynagar, Nabadiganta Lane,
Agartala-799001, West Tripura.

❖ **INTRODUCTION OF Spoil Management Plan (SMP)**

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.

❖ **LEGAL AND OTHER REQUIRMENTS**

In the project, there is no legal litigation at site for land and working area or site office establishment, and also there are no legal requirements yet.

❖ **ROLES AND RESPONSIBILITY**

In this project, there are major roles and responsibilities are followings

- 1) Extra excavated earth should be removed from site
- 2) Traffic movement should not be obstructed by dumping soil during the work
- 3) No low land, pond, ditch etc will be filled up by extra soil
- 4) No accident occurs during rainy season by excavated earth during or finished the work
- 5) All the drains, outlet should be free from our excavated earth

❖ **IDENTIFICATION AND ASSESSMENT OF SPOIL ASPECTS AND IMPACTS**

In this project, there are some places assessed and identified jointly along with design engineer.

SPOIL VOLUMES, CHARACTERISTICS AND MINIMIZATION

In this project, backfilling of any trenches has done by excavated earth. So that the excavated earth do not disturbed areas during construction phase and also minimize the quantity of excavated earth.

❖ **SPOIL REUSE OPPORTUNITIES, IDENTIFICATION AND ASSESMENT**

There are many spaces to reuse spoil. But excess spoils are properly disposed to approve disposal area.

❖ **ON SITE SPOIL MANAGEMENT APPROACH**

In this project, the approach is ready where soil is shifted.

❖ **SPOIL TRANSPORTATION METHODOLOGY**

Extra excavated earth is shifted by truck from working site to disposal area.

❖ **MONITORING, REPORTING, REVIEW, AND IMPROVEMENTS**

Monitoring, Reporting and all necessary improvements is done as per requirement.



ITD-ITD Cem Joint Venture

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

Spoil Management Plan (SMP)

Name of Project: Procurement of Ground Water Treatment Plants Design, Construction, Supply, Installation, Commissioning Including Mechanical & Electrical Equipment and Operation for One Year in Agartala.

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

	<ul style="list-style-type: none"> • Enforce use of PPE as requested by Project Specific Rules and regulations. • Liaise and cooperate with Site Safety EHS Officer and ensure that defects brought to attention are corrected. • Immediately Inform & report to the HSE-Officer while any accident, near misses, dangerous occurrence, occupational poisoning or diseases shall be noticed within the project sites. • Plan safety in accordance with the approved work methodology for daily work activities. • Prepare S.O.P and GRA for each activity and it should be explained to employee before begins work. • Establish and maintain proper communication with all workers with regard to EHS; and • Provide proper supervision for the work. <p><u>Environment, Health & Safety (EHS) Officer</u></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"> • Monitor and advise relevant personnel on compliance with EHS statutory obligations at the site; • Facilitate inclusion of safety elements into work Method Statement. • Highlight the requirement of safety through Tool-Box / other meetings. • Conduct investigation of all accident/dangerous occurrences and recommend appropriate safety measures. • Advice & co-ordinate for implementation of operational control procedures etc. • Convene safety meeting & minute the proceeding for circulation & follow-up action. • Provide copies of site / office inspection report to relevant managers; • Plan procurement of PPEs and safety devices and inspect their healthiness. • Report to PM/Divisional Manager on all matters pertaining to status of safety and promotional program at site level. • Facilitate administration of FIRST – AID. • Facilitate screening of workman and safety induction. • Conduct fire drill and facilitate emergency preparedness. • Design campaigns, competitions and other special emphasis programs to promote safety in the work place. • Notify site personnel non-conformance to safety norms observed during site visits / site inspections. • Attend and participate in Site EHS Management Review Meetings; • Access and advise PM on the perceived EHS training needs of project personnel; • Monitor EHS performance of subcontractors and make appropriate recommendations for performance improvement. <p><u>Employees</u></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"> • Take care of environmental protection and safety of himself & others; • Co-operate to fulfill statutory EHS obligations; • Co-operate in pursuit of continuous EHS performance Improvement; and • Conform to requirement of Project EHS plan. • Report defects in lifting appliances, lifting gears, transport equipments and any other equipments or tools & tackles to your immediate superior. • Not to remove or interfere with any fencing, gangway, ladder, covering, life saving appliances, lighting and other things whatsoever required by site safety rules &
--	--

	<p>regulations.</p> <ul style="list-style-type: none"> • Take care of personal protective equipment • Don't let your work put another worker in danger. • Use only means of access provided for specific work at site. • Avoid horseplay, practical jokes or other activities to create a hazard. • Don't use drugs or alcohol on the job. • Keep the latrines, urinals, wash points, canteen and other facilities provided in a clean and hygienic condition • Report any unsafe work practice and any injury or accident to your supervisor.
4.0	Definitions
	Project In charge: Person responsible for the execution of the project.
5.0	Legal Requirement
	<ul style="list-style-type: none"> ☞ The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule ☞ Environmental Protection Act 1986. ☞ The Water [Prevention & Control Of Pollution] Act – 1974 and Rules 1975 ☞ The Water [Prevention & Control Of Pollution] CASs Act-1977 and Rules-1978 as amended in 2003 ☞ The Air [Prevention & Control Of Pollution] Act – 1981 and Rules 1983 ☞ The Environment [Protection] Act – 1986 & Rules-1986 as amended from time to time ☞ The Hazardous Waste (Management and Handling) Rules, 1989 as amended from time to time. ☞ Bio-Medical waste (Management & Handling) Rules1998 ☞ Municipal Solid Waste (Management and Handling) Rules 2000 ☞ Noise Pollution Regulation & Control rules, 2000. ☞ Battery (Management and Handling) rules, 2001.
6.0	Requirements
6.1	Procedure
	<ul style="list-style-type: none"> ☞ Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites. ☞ Characterization of spoil: Based on the type of spoil; characterization is done (sand stone, mud mix materials, reusable materials) <p>Adopt Spoil Reduce, Reuse Opportunities</p> <p>An overview of the assessment methodology to be used is mentioned below.</p> <ul style="list-style-type: none"> ☞ Consideration of likely spoil characteristics ☞ Identification of possible reuse sites ☞ Screening of possible reuse opportunities ☞ 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 required permission should be obtained from them.

6.2	Identification and Assessment of Spoil Aspects and Impacts																		
	<p>☞ There is some place assessed and identified jointly for dumped and dressed the extra earth which is presently down from actual level.</p> <p>☞ Potential for high 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	Spoil Volumes, Characteristics and Minimization																		
	<ul style="list-style-type: none"> Volumes As per requirement. Characteristics Normal earth basically clay types Minimization Excavation of earth to be done as per requirements only. No extra earth shall be excavated. 																		
8	Spoil Reuses Opportunities, Identification and Assessment																		
	<ul style="list-style-type: none"> Excavated spoils will be re used for back filling of excavated location. 																		
9.	Spoil Transportation Methodology																		
	<ul style="list-style-type: none"> Extra earth will be shifted by Truck / Dumper from site to site. 																		
10	Monitoring, Reporting, Review and Improvements																		
	<ul style="list-style-type: none"> Monitoring, Reporting and all necessary improvements will be as required. 																		
11	List of Relevant Guide Lines/ Documents Nil																		
12	References Nil																		
13	<p>Related other Procedures The key aspects of potential impacts are listed in table below</p> <table border="1"> <thead> <tr> <th>Aspects</th><th>Potential Impacts</th></tr> </thead> <tbody> <tr> <td>Air Quality</td><td>Potential for high winds generating airborne dust from the stock piles</td></tr> <tr> <td>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>Surface and Groundwater</td><td>Contamination of water (surface and ground water)</td></tr> <tr> <td>Noise</td><td>Associated with spoil handling and haulage and storage</td></tr> <tr> <td>Traffic</td><td>Impacts associated with spoil haulage</td></tr> <tr> <td>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>Design specifications</td><td>Limitations on opportunities to minimize spoil generation</td></tr> <tr> <td>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
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																		

Mobile :- 09774027728
09436935670

SUNIL SAHA-PRASENJIT PAUL JV
Dhaleswar , Road No.-1, Agartala, Tripura (W) , PIN-799007

December, 2015.

**Project Name :- Laying of New Primary Mains (Rising
Mains) in various parts of Agartala City.**

Contact No :- AGT/WS 10-2(R1)/NCB/13/1

PROGRAM :- SIPMIU

EMPLOYER :- URBAN DEVELOPMENT

CONTRACTOR :- SUNIL SAHA –PRASENJIT PAUL (JV)

**Prepared by :-
SUNIL SAHA-PRASENJIT PAUL (JV)
SPOIL MANAGEMENT PLAN**

SUNIL SAHA-PRASENJIT PAUL(V)

AGT/WS 10-Z(R1)/NCB/13/1 PROJECT

1. INTRODUCTION OF SMM

SMM is to describe how the project will treat the spoil generated and must address storage and transportation. This is an integral part of EME. The objective of SMM is to use of good / best practice.

2. LEGAL AND OTHER REQUIREMENTS

In this project, there is no legal requirement at site for land and working area must follow environment, and also there are no legal requirements yet.

3. ROLES AND RESPONSIBILITY

In this project, there are no project and no project owner and following:

- 1) Extra excavated earth should be removed from site.
- 2) Traffic management should not be obstructed by dumping soil during the work.
- 3) No low fence, fence, plastic etc. will be filled up by excavated soil.
- 4) No accident should occur during heavy transport by excavated earth during construction phase.
- 5) All the dirt, dust should be free from the excavated earth.

4. IDENTIFICATION AND ASSESSMENT OF SPOIL ASPECTS AND IMPACTS

In this project, there are some spoil generated and identified (spoil) along with design program.

5. SPOIL VOLUMES, CHARACTERISTICS AND MINIMIZATION

In this project, the filling of any potholes is done by excavated earth. So that it is identified, path do not disturbed and during construction phase and also minimize the quantity of excavated earth.

6. SPOIL REUSE OPPORTUNITIES, IDENTIFICATION AND ASSESSMENT

There are many opportunities in this project. But excavated earth is generally disposed to open disposal area.

7. ON SITE SPOIL MANAGEMENT APPROACH

In this project, the approach is to move where soil is shifted.

8. SPOIL TRANSPORTATION METHODOLOGY

Excavated earth is shifted by truck from working site to disposal area.

9. MONITORING, REPORTING, REVIEW, AND IMPROVEMENTS

Sunil Saha - Prasenjit Paul (V)

Sunil Saha

11/11/2023

Air and Noise Monitoring Results

<p>A REPORT ON</p> <p>Ambient Air Quality</p> <p>at</p> <p>ADB Projects Site, Agartala, Tripura</p> <p><u>Submitted to</u></p> <p>The Project Director SIPMIU (NERCCDIP) Agartala, Tripura</p> <p><u>Contractor</u></p> <p>M/s. JAIHIND PROJECTS LIMITED Joynagar, Nabadiganta Lane AGARTALA- 799001</p> <p><u>Name of Work</u></p> <p>Supply & Laying of Water Supply Distribution Pipelines and Allied Works in Agartala City (South)</p> <p><u>Contract / Agreement Package No.</u></p> <p>AGT/WS 10-3/ICB/11/9 for LOT-1 & LOT-2</p> <p><u>For the Period</u></p> <p>(July to December) 2015</p> <p><u>Report Prepared By</u></p> <p>ENVIROCON Digboi Stores Building, AOD New Market <u>Digboi, Assam</u></p>
--

AMBIENT AIR QUALITY TEST RESULTS

M/s. JAIHIND PROJECTS LIMITED
Joy Nagar, Nabadiganta Lane
Agartala - 799001

(July - December)
2015

LOCATION ↓	Date of Sampling	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM 10 ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	SO _x ($\mu\text{g}/\text{m}^3$)	CO ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
LIMITS →	—	60	100	80	80	4.0 (1 hr. limit)	120
A 1	05.10.2015	23.7	63.7	16.2	ND	ND	ND
A 2	06.10.2015	28.2	67.1	18.3	2.9	ND	ND
A 3	07.10.2015	31.9	74.6	17.4	ND	ND	ND
A 4	08.10.2015	27.5	72.3	16.9	3.4	ND	ND
A 5	09.10.2015	35.7	78.2	21.5	3.9	ND	ND

ND: Not Detected

Analysis Protocol: IS 5182



Report verified by: Mr. Pankaj Baroi

Location Codes: LOT-1 (Jogendranagar)

- A 1: Near AMC Sector Office (Ward No: 35)
- A 2: Near Kali Bari (SADHUTILLA)
- A 3: Near Sishu Vidya Mandir Nursery School (ARALIA)
- A 4: Near West Champamura School (CHAMPAMURA)
- A 5: Near Vidhyasagar School (BANKUMARI BAZAR)


Pankaj Bora

Report verified by: Mr. Pankaj Bora

12/11/2018

AMBIENT AIR QUALITY TEST RESULTS

M/s. JAIHIND PROJECTS LIMITED

Joynagar, Nabadiganta Lane
Agartala - 799001

(July - December)
2015

LOCATION ↓	Date of Sampling	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)	Lead ($\mu\text{g}/\text{m}^3$)
LIMITS →	—	60	100	80	80	AO (1 hr. limit)	1.0
B 1	12.10.2015	22.7	65.9	14.5	2.3	ND	ND
B 2	13.10.2015	18.4	63.9	08.7	ND	ND	ND
B 3	14.10.2015	28.9	79.6	21.4	08.2	0.04	ND
B 4	15.10.2015	18.4	59.3	09.2	ND	ND	ND
B 5	16.10.2015	27.5	75.9	16.4	04.9	ND	ND

ND: Not Detected

Analysis Protocol: IS 5182



Report verified by: Mr. Pankaj Bano

Location Codes: LOT-2 (Bardowali)

- B 1: Near Vivekananda School (BARDOWALI)
- B 2: Near S.D. Mission (SARBADHARMA ASHRAM)
- B 3: Near Cold Store (DASARATHDEB STADIUM)
- B 4: Near Badharghat School (DUKLI)
- B 5: Near AMC Sector Office (Ward No: 27)



Report verified by: Mr. Pankaj Barui

**Report On Noise Monitoring
at
ADB Project Site Agartala
Tripura**

Submitted to:

The Project Director
SIPMU (NERCCDIP)
Agartala, Tripura

(July to December)
2015

Contractor:

M/S Jainam Projects Limited

Name of Work

Supply & Laying of Water Supply Distribution Pipelines & Allied Works in Agartala City
(South)

Contract/ Agreement Package No.:

AGT/WS-10-3/ICB/11/9 for Lot-1 & Lot-2 // SH: Lot-1 (Jogendranagar)

Report Prepared by:

ENVIROCON
Digboi Stores Building
AOB New Market
Digboi Assam

NOISE LEVEL MEASUREMENT RESULTS

M/s JASHEDU PROJECTS LIMITED
KOPNAGAR, KAMRAGUANTA LINE
GAHATOLA- 781001

(July - December)
2013

Report Generated as per the following details of the project: Jashedu Projects Limited
Assessment of: Jashedu Projects

(See Table 1.1)

Sl. No.	Location	0.00 am to 12.00 noon			3.00 pm to 6.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)	Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1	Area	65	58	63	67	61	62
2	State Electricity Office	63	59	60	66	59	60
3	State Tills School	58	48	54	62	54	57

(See Table 1.1)

Sl. No.	Location	8.00 pm to 10.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1	Area	70	65	67
2	State Electricity Office	72	66	68
3	State Tills School	68	61	64

Report Generated as per the following details:



Project Director
envirocon

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs.
Associate Services: Certification by Competent Person (CP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

NOISE LEVEL MEASUREMENT RESULTS

M/A SHIRIND PROJECTS LIMITED
NARAYANASWAMY LANE,
HYDRABAD
ANDHRA PRADESH

(July - December)
2023

Noise Levels in dB (A) during day time in a normal day, at different locations of ASSE Project site Adjacent commercial set. On 18.08.23

Day Time (1st Set)

Sl. No.	Location	9.00 am to 12.00 noon			3.00 pm to 6.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)	Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1.	Barrenland ¹	72	68	69	74	72	73
2.	Garuda ²	67	63	64	68	58	64
3.	Arundhati Nagar ³	68	55	59	61	57	59

Night Time (2nd Set)

Sl. No.	Location	9.00 pm to 6.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1.	Barrenland ¹	65	60	62
2.	Garuda ²	60	55	57
3.	Arundhati Nagar ³	57	50	53

¹ - From the construction & commercial activity of sites.

Report prepared by:



(Sd/-) Sd/-
P. Srinivas

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Aided Environmental Management plan.
Associate Services: Certification by Competent Person (COP), HDT, Hydraulic Testing, Chartered Engineer Services etc.

Methods of Measurement

Sound Level Meter (Model:- 12-66J-6A, Make:- Fisher Scientific (USA)) were used for monitoring of noise levels. The noise levels were monitored from at three different timings (from 9.50 am to 12.00 noon, 1.00 pm to 6.00 pm and from 6.00 to 10 pm night time on 11.04.2017) at each location. The noise levels were calculated in Leq using the Leq Formula.

The formula is given below:

$$Leq = 10 \log \left(\sum_{i=1}^n n_i 10^{L_i/10} \right)$$

f_i = Fraction of time for which the sound SPL persists.

L_i = Sound Intensity Level

L_{max} = Maximum Noise Level during the period of measurement.

L_{min} = Minimum Noise Level during the period of measurement.

NOTE

Details of equipment used:

Sound Meter: Make- Fisher Scientific (USA)

Model: 12-66J-6A

SI-96:- 101432377

AMBIENT NOISE LEVEL STANDARDS

NOTES:

(Para 3 (1) and 4 (1) of Noise Pollution (Regulation & Control) Rules, 2000)

Area Code	Category of Area/ Zone	Limit in dB (A) at L _{eq}	
		Day Time	Night Time
A-	Industrial Area	75	70
B-	Commercial Area	65	55
C-	Residential Area	55	45
D-	Silence Zone	50	40

DEF:

Silence Zone is the zone comprising the area not less than 100 m around Highways, Educational Institutions, Courts, Religious Places or any other area which is declared as such by the concerned authority.

AMBIENT AIR QUALITY TEST RESULTS

M/s ITD-ITDCM JOINT VENTURE

C/O Mrs. Kabita Roy Choudhury
Jal Road, Near CPI(M) Party Office
Dhaleshwari, AGARTALA - 799007

(July - September, 2015)

Location Code:

- Loc 1: Near Ward Office at AMC Zonal Office
- Loc 2: Near Ashram at Dindyal Ashram
- Loc 3: Near Hand Pump Inside Boundary at Aralia II
- Loc 4: Near Site Office at Shadutilla
- Loc 5: Side of Main Road at Pragati School (Near Pump House)
- Loc 6: Near Hand Pump Inside Boundary at Rangpur

LOCATION ↓	Date of Sampling	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM 10 ($\mu\text{g}/\text{m}^3$)	NO _x ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)	Lead ($\mu\text{g}/\text{m}^3$)
LIMITS →	--	60	100	80	80	4.0 (1 hr. limit)	1.0
Loc 1	07.09.2015	21.19	59.64	05.36	ND	ND	ND
Loc 2	08.09.2015	12.96	42.71	ND	ND	ND	ND
Loc 3	09.09.2015	19.82	50.25	ND	ND	ND	ND
Loc 4	10.09.2015	17.81	48.63	07.35	ND	ND	ND
Loc 5	11.09.2015	23.08	61.37	09.27	ND	ND	ND
Loc 6	12.09.2015	18.51	46.34	ND	ND	ND	ND

ND: Not Detected
Analysis Protocol: IS 5182



Report verified by: Mr. Pankaj Baroi

NOTE:

1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results refer only to the particular parameters tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786071, Assam.

AMBIENT AIR QUALITY TEST RESULTS

M/s ITD-ITDCM JOINT VENTURE

C/O Mrs. Kabita Roy Choudhury
Jail Road, Near CPI(M) Party Office
Bhaleswar, AGARTALA - 799007

(October - December, 2015)

Location Code:

- Loc 1: Near Ward Office at AMC Zonal Office
- Loc 2: Near Ashram at Dindyal Ashram
- Loc 3: Near Hand Pump Inside Boundary at Aralia II
- Loc 4: Near Site Office at Shadutilla
- Loc 5: Side of Main Road at Pragati School (Near Pump House)
- Loc 6: Near Hand Pump Inside Boundary at Rampur

LOCATION ↓	Date of Sampling	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM 10 ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3)	Lead ($\mu\text{g}/\text{m}^3$)
LIMITS →	-	60	100	80	80	4.0 (1 hr. limit)	1.0
Loc 1	20.11.2015	23.14	63.17	8.71	ND	ND	ND
Loc 2	23.11.2015	15.97	45.43	ND	ND	ND	ND
Loc 3	24.11.2015	21.39	55.96	11.27	ND	ND	ND
Loc 4	25.11.2015	25.43	51.48	10.08	ND	ND	ND
Loc 5	26.11.2015	26.92	65.07	12.82	ND	ND	ND
Loc 6	28.11.2015	17.29	42.19	ND	ND	ND	ND

ND: Not Detected

Analysis Protocol: IS 5182



Report verified by: Mr. Pankaj Barm

NOTE:
1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results cover only the particular parameters tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786471, Assam.

NOISE LEVEL MEASUREMENT RESULTS

M/s ITD-ITDCM JOINT VENTURE

C/O Mrs. Kabita Roy Choudhury
Jail Road, Near CPI(M) Party Office
Dhaleswar, AGARTALA - 799007

(July - December, 2015)

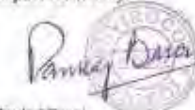
Noise Levels in dB (A) during day time in a normal day at different locations of ADB Project sites Agartala measured on 28.11.2015.

(Day Time)

Sl. No.	Location	9.00 am to 12.00 noon			3.00 pm to 6.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)	Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1	Aralia II	57	49	52	59	52	57
2	AMC Zonal Office	58	52	54	56	51	55
3	Shadu Tilla School	54	47	51	61	55	58
4	Pragati School *	56	47	52	64	58	62
5	Dindayal Ashram *	59	53	57	58	51	56
6	Rampur	55	49	53	56	48	54

* Vehicular movement & occasional blow of Horn.

Report verified by:



Pankaj Baroi
ENVIROCON

NOTE:

1. Results reported are valid at the time of test under the prevailing conditions of measurement.
2. Results refer only to the particular parameter tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786171, Assam.

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (CIF), NDT, Hydraulic Testing, Chartered Engineer Services etc.

NOISE LEVEL MEASUREMENT RESULTS

M/s ITD-ITDCM JOINT VENTURE

C/O Mrs. Kabita Roy Choudhury
Jail Road, Near CPI(M) Party Office
Dhaleswar, AGARTALA - 799007

(July – December, 2015)

Noise Levels in dB (A) during night time in a normal day at different locations of ADB Project sites Agartala measured on 28.11.2015.

(Night Time)

Sl. No.	Location	9.00 pm to 10.00 pm		
		Maximum (dB-A)	Minimum (dB-A)	L _{eq} (dB-A)
1	Aralla II	49	45	47
2	AMC Zonal Office	51	45	48
3	Shadu Tilla School	49	42	47
4	Pragati School *	50	46	52
5	Dindayal Ashram *	48	43	45
6	Rampur	49	43	46

* Vehicular movement & occasional blow of Horn.

Report verified by:



Pankaj Baroi
ENVIROCON

NOTE:

1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results refer only to the particular parameters tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi – 786171, Assam.

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

AMBIENT NOISE LEVEL STANDARDS

SCHEDULE

[Rule 3(1) and 4(1) of Noise Pollution (Regulation & Control) Rules, 2000]

Area Code	Category of Area/ Zone	Limit in dB (A) in L_{eq}	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

NB:

Silence Zone is an area comprising an area not less than 100 m around Hospitals, Educational Institutions, Courts, Religious Places or any other area which is declared as such by the competent authority.

Specific SHE Standard: Workplace Noise

Ambient Noise Level	Personal Noise Exposure < 85 dB (A) Leq (8h)	Personal Noise Exposure => 85 dB (A) Leq (8h)
< 85 dB (A) Leq	No action required	PPE Mandatory
=> 85dB (A) Leq < 90 dB (A) Leq	Hearing protection zone. PPE Advisory	Hearing protection zone. PPE Mandatory.
=> 90 dB (A) Leq	Hearing protection zone. PPE Mandatory.	Hearing protection zone. PPE Mandatory.

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (CIF), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Methods of Measurement

Sound Level Meter [Model – 11-661-6A, Make : Fisher Scientific(UK)] was used for monitoring of noise levels. The noise levels were monitored at three different timings [from 9.00 am to 12.00 noon, 3.00 pm to 6.00 pm day time & 9.00 to 10 pm night time on 24.04.2014] at each location. The noise levels were calculated in Leq using the Leq Formula.

The formula is given below:

$$Leq = 10 \log \left(\sum_{i=1}^n f_i 10^{L_i/10} \right)$$

f_i = Fraction of time for which the consent SPL persists

L_i = Sound Intensity Level

L_{min} = Minimum Noise Level during the period of measurement

L_{max} = Maximum Noise Level during the period of measurement

NOTE:

Instrument used: Digital Noise Meter

Make Fisher Scientific (UK)

Model- 11-661-6A, Sl. No.: 101432371

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs

Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Report Ref. No.: BRV/SS_PP/JV/ACT/AQ/2015-16/001, Dated: 20.01.2016

AMBIENT AIR QUALITY TEST RESULTS

SUNIL SAHA - PRASENJIT PAUL

(Joint Venture)

Dholeswar road No. 3

Agartala, Tripura (W)

Pin- 799001

Location Codes:

LOC1: Near AMC (Ward No. 35)

LOC2: Legendranagar Station Road

LOC3: Near Beldaha Camper Bazar

LOC4: Near Santa Biharia Ashram

LOC5: Back Side of Stadium (Badkarghar)

LOC6: Matrigally

Location ↓	Date of Sampling	Weather Condition	PM 2.5 (µg/m³)	PM 10 (µg/m³)	NO ₂ (µg/m³)	SO ₂ (µg/m³)
Limits →			60	100	80	80
LOC1	23.11.2015	Clear	28.2	71.6	ND	ND
LOC2	24.11.2015	Clear	38.5	78.1	15.4	05.4
LOC3	25.11.2015	Clear	42.7	86.7	28.6	12.7
LOC4	26.11.2015	Clear	31.3	66.2	ND	ND
LOC5	27.11.2015	Clear	29.7	69.4	ND	ND
LOC6	28.11.2015	Clear	31.4	76.3	13.7	ND

ND: Not Detected

Analysis Protocol: IS 5182



Report Verified By: Mr. Pankaj Barua, ENVIROCON

NOTE:
1. Results reported are based on the basic standard under the prevailing (modified) measurement
2. Results are not to be used for any other purpose
3. This report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi, Assam. Tel: 0375-864414

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Report Ref. No.: ENV/SS_PP_IV/AGT/AAQ/2015-16/002; Dated: 20.01.2016

AMBIENT AIR QUALITY TEST RESULTS

SUNIL SAHA - PRASENJIT PAUL

(Joint Venture)

Dhaleswar road No. 1

Agartala, Tripura (W)

Pin- 799001

Location Codes:

- LOC7: Near AMC (Ward No. 35)
- LOC8: Jogendranagar Station Road
- LOC9: Near Beltoli Camper Bazar
- LOC10: Near Sarba Dharma Ashram
- LOC11: Back Side of Stadium (Badharghat)

Location ↓	Date of Sampling	Weather Condition	PM 2.5 (µg/m³)	PM 10 (µg/m³)	NO ₂ (µg/m³)	SO ₂ (µg/m³)
Limits →	—	—	60	100	60	80
LOC7	30.11.2015	Clear	38.4	76.9	ND	ND
LOC8	01.12.2015	Clear	35.7	72.7	ND	ND
LOC9	02.12.2015	Clear	40.6	86.5	ND	ND
LOC10	03.12.2015	Clear	26.9	65.4	ND	ND
LOC11	04.12.2015	Clear	43.1	84.9	10.4	ND

ND: Not Detected

Analysis Protocol: IS 5182



Report Verified By: Mr. Parikaj Barua, ENVIROCON

NOTE: 1. Results reported are valid at the time and under the prevailing conditions of measurement.
2. Results refer only to the particular parameter(s) noted.
3. This report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786171, Assam.

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs.
Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Report Ref. No.: ENV/SS_PP_JN/AGT/NLM/2015-16/003; Issued: 20.01.2016

NOISE LEVEL MEASUREMENT RESULTS

SUNIL SAHA - PRASENJIT PAUL

(Joint Venture)

Dhaleswar road No. 1

Agartala, Tripura (W)

Pin- 799001

Location Codes:

LOC1: Near AMC (Ward No.35)

LOC7: Near AMC (Ward No.35)

LOC2: Jogenndramagar Station Road

LOC8: Jogenndramagar Station Road

LOC3: Near Beltoli Camper Bazar

LOC9: Near Beltoli Camper Bazar

LOC4: Near Sarba Dharma Ashram

LOC10: Near Sarba Dharma Ashram

LOC5: Back Side of Stadium (Badhanghat)

LOC11: Back Side of Stadium (Badhanghat)

LOC6: Matripally

Sl. No.	Locations	Date of Measurement	Day Time			Night Time		
			Maximum (dB-A)	Minimum (dB-A)	Leq (dB-A)	Maximum (dB-A)	Minimum (dB-A)	Leq (dB-A)
01.	LOC1	23.11.2015	68	59	64	52	45	47
02.	LOC2	24.11.2015	61	53	57	49	38	44
03.	LOC3	25.11.2015	72	60	70	67	59	61
04.	LOC4	26.11.2015	58	49	55	46	37	42
05.	LOC5	27.11.2015	63	55	58	53	46	49
06.	LOC6	28.11.2015	60	52	57	51	42	47
07.	LOC7	30.11.2015	57	51	54	48	36	39
08.	LOC8	01.12.2015	71	63	68	61	50	58
09.	LOC9	02.12.2015	68	53	59	45	36	43
10.	LOC10	03.12.2015	56	49	54	43	32	38
11.	LOC11	04.12.2015	73	68	71	65	56	62



Report Verified By: Mr. Pankaj Das, Envirocon

NOTE: 1. Results reported are valid at the time of and under the prevailing conditions of measurement.

2. Results are only for the parameters mentioned.

3. This report shall not be reproduced except in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786171, Assam.

Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs.
Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

AMBIENT NOISE LEVEL STANDARDS

SCHEDULE

[Rule 3(1) and 4(1) of Noise Pollution (Regulation & Control) Rules, 2000]

Area Code	Category of Area/Zone	Limit in dB (A) in Leq	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

NB:-

Silence Zone is an area comprising an area not less than 100 m around Hospitals, Educational Institutions, Courts, Religious Places or any other area which is declared as such by the competent authority.



Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (CIP), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Health, safety and Environment Plan



HEALTH & SAFETY PLAN

Project Name:
DESIGN SUPPLY AND CONSTRUCTION OF 09 NOS
OF OVER HEAD SERVICE RESERVOIR

Contract Package/Agreement No:
CONTRACT PACKAGE No:- AGT/WS09/ICB/11/7,lot-1

Prepared & Submitted by:
RAMKY Infrastructure Limited.
Malancha, Ramnagar Road 4,
Agartala-799002, West Tripura.

1

SETTING UP SITE

1. Purpose: To identify the key elements which need to be considered when setting up our site and implementing the administrative arrangements for the project. Prior to commencement on site due consideration need to be given for proper planning for **Health Safety and Environmental (HSE)** requirements. Clear procedures and standards shall be laid down at the start and adequate resources in terms of time, materials, and labor shall be provided to ensure a smooth and safe start up.

2. Hazard Identification And Risk Assessment: Prior to any work or site set up consideration needs to be given to the necessary administrative arrangements and layout of the site. Contract documents, specifications, Safety plans and drawings shall be examined to establish any known and identified hazards and risk or constraints which might affect the site layout.

3. Drinking Water: An adequate supply of clearly identified fresh drinking water should be provided and if kept in a suitable container, that container should be clearly marked "drinking water" and the contents changed at least once a day.

4. Basic Safety Rules: The basic safety rules listed below are to be followed by all employees.

- Report all injuries, accidents, or illness immediately to supervisor.
- Signs, rules and posted notices must be obeyed.
- All required "Fall Protection Equipment" must be placed while roof is in progress.
- Electrical cords, plugs, and outlets must be inspected and be in good condition before use.
- All prescribed safety and personal protective equipment is to be used when required and maintained in a working condition.

5. First-aid: First-aid is an immediate and temporary care given to the victim of an accident or sudden illness until the service of the doctor can be obtained. It is important for First-aides to know not only what to do but also what not to do.

In Construction works, there are two cases where great speed is necessary in providing first-aid.

6. Safety Harness Usage: When working platform cannot be provided and where there is no facility to fix safety nets, then safety harnesses must be used where persons can fall more than 2 meters. All belts and harnesses must be in good condition and inspected prior to use. All persons required to wear harness belts must be given adequate instruction in the application and maintenance of their equipment.



Project Name:

Supply & Laying of Water Supply Distribution Pipelines and Allied Works in Agartala City (South).

Contract Package/Agreement No:

AGT/WS 10-3/ICB/11/9 LOT-1 AND LOT-2

Prepared & Submitted by:



Joynagar, Nabadiganta Lane,
Agartala-799001, West Tripura.



Pre Construction and Construction phase Health and Safety Management Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Health and Safety	<p>Danger of construction related injuries.</p> <p>Open fires in construction camp can result in accidents</p> <p>Safety of workers and general public must be ensured.</p> <p>Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases.</p> <p>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.</p> <p>The use of hazardous chemicals in the micro-tunneling and restoration of roads can pose potential environmental, health and safety risks.</p> <p>Road safety may be affected during construction, especially when traffic is detoured.</p>	<ul style="list-style-type: none"> • 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 excavated area already barricaded • Warning signs has been proved at hazardous working areas. • Working area clearly demarcated, barricaded to protect pedestrians from open areas like trial trench • 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. 	Company's health and safety guidelines will be followed

ENVIRONMENT, HEALTH & SAFETY PLAN

(Revised Date – 10.12.2015)

PROJECT: PROCUREMENT OF GROUND WATER TREATMENT PLANTS DESIGN, CONSTRUCTION, SUPPLY, INSTALLATION, COMMISSIONING INCLUDING MECHANICAL & ELECTRICAL EQUIPMENT AND OPERATION FOR ONE YEAR IN AGARTALA.

Contract No: AGT/ WS/ 02, 07, 08/ ICB / 11 / 8

EMPLOYER: STATE INVESTMENT PROGRAMME MANAGEMENT AND
IMPLEMENTATION UNIT (SIPMIU)

CONTRACTOR: ITD – ITD CEM JOINT VENTURE

Prepared by:



ITD-ITD Cem Joint Venture

2. SCOPE OF WORK

Site Address:	:	ITD-ITD Cem JV. C/o-Mrs.KabitaRoychoudhary,Jail Ashram Road Near CPI(M) Party Office Dhaleshwar,Agartala (Tripura) 799007
Client Details:	:	STATE INVESTMENT PROGRAMME MANAGEMENT AND IMPLEMENTATION UNIT (SIPMIU), Directorate of Urban Development, 2 nd Floor of KhadyaBhavan,Pt.Nehru Complex Agartala-799007
Name of Project:	:	Procurement of Ground Water Treatment Plants
Brief Scope of Work:	:	Design, Construction, Supply, Installation, Commissioning Including Mechanical & Electrical Equipment and Operation for One Year in Agartala.
Completion Period:	:	18 months
Value of Work:	:	Rs.39,88,60,000.00 (Rupees Thirty Nine Crore Eighty Eight Lakh Sixty Thousand Only)
Major Activities.		<ul style="list-style-type: none"> ☞ Survey and alignment fixing, Temporary Site Installations ☞ Mobilization of plant & equipment. ☞ General area cleaning, leveling & filling (Site preparation). ☞ Vehicle movement – site transport and construction ☞ Construction of site office, store and other establishment. ☞ Electrification of work site ☞ Deep Excavation ☞ Use of excavators, dumpers, hydra for lifting & shifting operations ☞ Mechanical / electrical repairs ☞ Welding and cutting ☞ Working at Height. ☞ Working with Temporary Electrification. ☞ Reinforcement fabrication & placing in position ☞ Shuttering and concreting of raft, wall and slab ☞ Backfilling and compaction of excavated area ☞ Construction of beams, RCC wall and roof/deck slab
Key Environmental Issues:		<ul style="list-style-type: none"> ☞ Noise Generation due to Plant & Machinery ☞ Dust Generation Due to Vehicle Movement

- ☞ Disposal of Construction Waste
- ☞ Land Contamination due to oil spillage from Machinery.
- ☞ Smoke Emission due to running of machineries.
- ☞ Disposal of Waste Water from Labour Camp.

4. RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT

Project In charge (PI)

- The project PI will have overall responsibility of EHS Management at the site and improving safety and health in all areas. He shall:
- Comply with Client's requirements, HSE-Policy of the company and relevant statutory requirements that are applicable to the relevant work.
- Ascertain that all plants and machinery utilized at the project site meets the safety standard and are safe for use.
- Get familiar with and demonstrate his commitment to continual improvement in EHS performance;
- Ensure that all personnel are aware of commitment to environmental protection and worker safety;
- Monitor EHS performance of the personnel and activities under his control;
- Ensure that safe system of work are implemented and maintained by the project Engineers / Supervisors / Foreman and employees at the work site.
- Ensure that Site EHS Plan is accessible to all relevant parties;
- Ensure that sufficient induction training for all employees and workers is given before commencement of work at site and subsequently for new inductees;
- Undertake program of regular EHS Inspection at site.
- Arrange and chair monthly Site EHS Management Review Meeting.

Site/Front In-charge

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.

Site Engineers/Supervisors

- They will be responsible to the PM / Site / Front In-charge for implementing the requirements of this plan. In particular they are required to: -
- Be familiar with Site EHS Plan;
- Maintain safe working conditions and good housekeeping in all areas under his supervision.
- Enforce use of PPE as requested by Project Specific Rules and regulations.
- Liaise and cooperate with Site Safety EHS Officer and ensure that defects brought to attention are corrected.
- Immediately Inform & report to the HSE-Officer while any accident, near misses, dangerous occurrence, occupational poisoning or diseases shall be noticed within the project sites.
- Plan safety in accordance with the approved work methodology for daily work activities.

- Prepare S.O.P and GRA for each activity and it should be explained to employee before begins work.
- Establish and maintain proper communication with all workers with regard to EHS; and
- Provide proper supervision for the work.

Environment, Health & Safety (EHS) Officer

He will be accountable to the PM for fulfilling the duties assigned to him and ensure implementation of EHS Plan.

His duties will include: -

- Monitor and advise relevant personnel on compliance with EHS statutory obligations at the site;
- Facilitate inclusion of safety elements into work Method Statement.
- Highlight the requirement of safety through Tool-Box / other meetings.
- Conduct investigation of all accident/dangerous occurrences and recommend appropriate safety measures.
- Advice & co-ordinate for implementation of operational control procedures etc.
- Convene safety meeting & minute the proceeding for circulation & follow-up action.
- Provide copies of site / office inspection report to relevant managers;
- Plan procurement of PPEs and safety devices and inspect their healthiness.
- Report to PM/Divisional Manager on all matters pertaining to status of safety and promotional program at site level.
- Facilitate administration of FIRST – AID.
- Facilitate screening of workman and safety induction.
- Conduct fire drill and facilitate emergency preparedness.
- Design campaigns, competitions and other special emphasis programs to promote safety in the work place.
- Notify site personnel non-conformance to safety norms observed during site visits / site inspections.
- Attend and participate in Site EHS Management Review Meetings;
- Access and advise PM on the perceived EHS training needs of project personnel;
- Monitor EHS performance of subcontractors and make appropriate recommendations for performance improvement.

Employees

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: -

- Take care of environmental protection and safety of himself & others;
- Co-operate to fulfill statutory EHS obligations;
- Co-operate in pursuit of continuous EHS performance Improvement; and
- Conform to requirement of Project EHS plan.
- Report defects in lifting appliances, lifting gears, transport equipments and any other equipments or tools & tackles to your immediate superior.
- Not to remove or interfere with any fencing, gangway, ladder, covering, life saving appliances, lighting and other things whatsoever required by site safety

rules & regulations.

- Take care of personal protective equipment
- Don't let your work put another worker in danger.
- Use only means of access provided for specific work at site.
- Avoid horseplay, practical jokes or other activities to create a hazard.
- Don't use drugs or alcohol on the job.
- Keep the latrines, urinals, wash points, canteen and other facilities provided in a clean and hygienic condition
- Report any unsafe work practice and any injury or accident to your supervisor.

5. ENVIRONMENTAL RISK ANALYSIS

As a part of preparation of Environmental Management Plan we have analyzed project activities with a view to :

- ☞ Identify environmental aspects associated with all activities that can be controlled and those activities which can be influenced;
- ☞ Assess environmental impact(s) arising out of each identified aspect;
- ☞ Decide aspects that can have significant impact on environment; and
- ☞ Decide appropriate preventive/control measures.

6. HAZARD IDENTIFICATION AND RISK ASSESSMENT

10. SAFETY AND HEALTH OPERATIONAL CONTROL PROCEDURES

To minimize hazards and risks, control measures shall be introduced in the following order of priority: -

- ☞ Engineering controls
- ☞ Administrative controls
- ☞ PPE

18. SITE SAFETY RULES

- No one (including staff and workers etc.) will be allowed to enter the work site without prior induction training & without required PPE.
- Before start of work every day, five minutes pre work briefing shall be conducted by each respective front engineers / supervisor with subcontractor's job supervisor present. The job to be undertaken that day shall be explained.
- Once every week toolbox talks on specific topics will be conducted by the front engineer/supervisor in the presence of safety officer, all talks will be documented on the company's specified format. Toolbox talks will also be given whenever a new activity is taken up or a new gang turns up for work.

- No Staff or workers will be allowed to enter the work site or to start his everyday activity without necessary job related PPE's. If there is any non compliance, Safety Officer or Site Management will issue a warning and if it is repeated impose fine on the concerned person and concerned Sub contractors.
- Smoking is strictly prohibited in all parts of the worksites except specific smoking zone as authorized by the site safety dept.
- Working under influence of drugs, alcohol etc. is strictly prohibited on worksite.
- Carrying unwanted flammable items, explosives etc. strictly prohibited at site.
- No vehicle shall be permitted to enter the work site or introduced into the job without prior induction by the plant and safety dept.
- It is mandatory that all vehicle driver and operator of lifting equipments etc. (heavy Vehicles like JCB, Tipper, and Crane etc.) should posses valid authorization certificates from the site plant dept. before starting of their respective job.
- It is mandatory that all electrical operated machinery's, equipments etc. (like Vacseal Pump, water pump, welding rectifiers/ transformers, diesel welding generators, panels, Switch gear, starter switch, D G Shed etc.) should be duly certified by ITD-ITD Cem Plant Dept. & Electrical dept. prior to introduce into operation.
- Prior to introduction of any lifting tools, tackles, machinery's etc. in operation it is mandatory to conduct Third Party Competent Persons checking as per requirement and the SWL should be marked on the equipment.
- All employees including workers must know about the exact location and use of fire Fighting equipments. Never restrict the access towards the fire fighting equipment, always keep the access free from any obstructions.
- Considering emergency situation always keep the access around the work site area free from any obstruction for rescue operation.
- Everyone including workers should inform about the accident / incident and dangerous Occurrence to Site In charge, Site Engineer & Safety Officer.
- Always stay alert and keep your mind on the work, when you are engaged in the site work.
- Before starting of everyday work, routine checking of lifting equipments, Tools & Tackles, Winch, all types of pumps etc. to be done by concern Engineer, Supervisor and Worker.
- Don't carry out unfamiliar work without proper instruction. Any error due to ignorance can cause serious damage.
- When working at site especially around the moving machinery's, operating winch machine etc., wearing of loose clothing like dhoti, lungi, open sleeve shirt etc. are strictly prohibited.

- Don't leave any tools or materials haphazardly, where they can cause obstruction and create tripping hazards.
- All platforms, walkways, gangways, ramp, work area etc. must be kept clear at all time.
- During gas cutting uses of FLASH BACK ARRESTOR / non return valve are mandatory on each cylinder s & torch side.
- It is mandatory to use of Earth Leakage Circuit Breaker (ELCB) / Miniature Circuit Breaker (MCB) / Residual Current Circuit Breaker (RCCB) etc. on all site temporary electrical facilities.
- Always use minimum three cores double insulated cables for site electrification job.
- During lifting a load by a crane use of guy rope on both ends is mandatory
- Never use compressed air for cleaning of your clothes or getting relief from excessive heat.
- It is mandatory to install Reverse Horn on all vehicles (Like JCB, Tipper and site vehicle) and swing horn & over hoist limit switches for lifting equipments like Cranes.
- All materials must be stored in a safe manner and height of stacking should be maintained (below the man height) to protect collapsing of the stack and when material shifting work is carried out manually
- Horseplay inside the site during or after the job is strictly prohibited.
- Never roll the compressed gas cylinders (DA & O₂) at site, either shift it manually or by gas trolley. Use of gas trolley is mandatory for all cutting sets.
- Keep all gas cylinders inside proper shed in upright condition and lock it properly.
- Keep Diesel / Oil in its tank under the shed. Use oil spill trays below diesel tanks.
- Follow the speed limit of 20 Km/hr inside the work premises religiously.

20. FIRST - AID FACILITIES AND MEDICAL TREATMENT

- a) Each worksite/area shall be equipped with it's a first aid box catering to the needs of particular workfront.
- b) Medical causality evacuation and treatment procedures involving the nearest clinic / Hospitals shall be instituted.
- c) Appointment of trained first aider.

21. EMERGENCY PREPAREDNESS AND RESPONSE PLAN

Approach

The aim of this emergency preparedness and response plan is to guide personnel in an accident or emergency situation to prevent or minimize injury, damage and material loss and also to prevent or mitigate environmental impact from the accident or emergency.

EMERGENCY PREPAREDNESS FACILITIES

Following emergency preparedness facilities have been provided at the site:

- ☞ All the buildings and structures are well supplied with fire fighting devices.
- ☞ Proper security arrangements are functioning round the clock.
- ☞ There is quick and efficient transport as well as communication system.
- ☞ Smoking is prohibited throughout the flammable premises.
- ☞ Water is kept available for fire fighting purpose.
- ☞ Sufficient number of trained manpower is available to extinguish any fire and attend emergency.
- ☞ Sufficient number of Personal Protective Equipment like helmet and gloves are available
- ☞ Audible emergency alarm/whistles are provided.
- ☞ First Aid Kit is available.
- ☞ All key personnel have been provided communication mean such as telephone / walkie-talkie / mobiles. Any message can be communicated immediately.
- ☞ All work fronts / floating crafts will have emergency lights and Torches.
- ☞ All exit doors are kept unobstructed
- ☞ It is ensured that access to fire extinguishers is not obstructed.
- ☞ Proper containers are used for flammable liquids.
- ☞ Safe distance of POL is maintained from any point of ignition.
- ☞ Welding and cutting equipment is checked before and after use.
- ☞ Main electrical equipment is switched off when not in use.
- ☞ All workers and staff are familiarized with the fire fighting system.
- ☞ Escape routes are well defined.
- ☞ The POL dumps and gas cylinders are barricaded.
- ☞ Fire extinguishers are refilled on time.

Sr. No.	Item	Nos.	Location
1	First aid kits	01 each	Site Office
3.	Sand / Fire buckets	As reqd	Store/workshop/office/ Site office container/ All DG Rooms / casting Yard etc.,
4	Fire Extinguishers	As required	Store/workshop/office/ Site office container/ All DG Rooms / casting Yard etc.,
5	Safety Helmets	As required	Site Store
6	Safety Shoes Pairs	As required	Site Store
7	Oil spill absorbent materials (Hessian Cloth / Foam)	Sufficient Quantity	Site Store

Mobile :- 09774027728
09436935670

SUNIL SAHA-PRASENJIT PAUL JV

Dhaleswar , Road No.-1, Agartala, Tripura (W) , PIN-799007

Health and Safety Management Plan **December, 2015.**

**Project Name :- Laying of New Primary Mains
 (Rising Mains) in various parts
 of Agartala City.**

Contact No:- AGT/WS 10-2(R1)/NCB/13/1

PROGRAM :- SIPMIU

EMPLYOER :- URBAN DEVELOPMENT

**CONTRACTOR :- SUNIL SAHA –
PRASENJIT PAUL (JV)**

**Prepared by :-
 SUNIL SAHA-PRASENJIT PAUL (JV)**

Pre Construction and Construction phase Health and Safety Management Plan

Field/Issue	Anticipated Impact	Mitigation Measures	Remarks
Health and Safety	<p>Danger of construction related injuries.</p> <p>Open fires in construction camp can result in accidents.</p> <p>Safety of workers and general public must be ensured.</p> <p>Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases.</p> <p>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.</p> <p>The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety risks.</p> <p>Road safety may be affected during construction, especially when traffic is detoured.</p>	<p>Implement good housekeeping practices at the site office, working area.</p> <p>Strictly implemented health and safety measures and audit on a regular basis.</p> <p>Construction site – particularly excavated area already barricaded.</p> <p>Warning signs has been provided at hazardous working areas.</p> <p>Working area clearly demarcated, barricaded to protect pedestrians from open areas like trial trench.</p> <p>Thoroughly trained workers assigned to dangerous equipment.</p> <p>Waste management practices will be well undertaken.</p> <p>Speed and movement of construction vehicles restricted.</p> <p>Personal Protective Equipment are provided to all workers.</p> <p>Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured.</p> <p>First Aid system available at working sites.</p> <p>Medical insurance provided to workers.</p> <p>Drinking water arranged at working sites.</p> <p>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.</p> <p>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>

Signed Sub-Project Manager


 Sub-Project Manager

Labour Insurance policy

**Package: Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)-
(AGT/WS09/ICB/11/7, Lot -1)**

UNITED INDIA INSURANCE COMPANY LIMITED
5-11, 12TH FLOOR, KEMPA ESTATE, 65, RAJENDRA PRASAD ROAD, CHENNAI
600 006

CONTRACTORS ALL RISK INSURANCE POLICY
051400/44/13/03/60000002

(OFFICE COPY)

PERIOD OF INSURANCE
From 14 hrs of 28/01/2018
to midnight of 27/01/2017

RANKY INFRASTRUCTURE LTD.,
10TH FLOOR, RANKY TOWERS, GACHIBOWLI, HYDRABAD
Dist. : MIDDHANAPET, Andhra Pradesh

AGT/WS09/ICB/11/7, Lot -1
Design & construction of 14 Nos. of Over Head Service Reservoir (OHSR)-
(AGT/WS09/ICB/11/7, Lot -1)

PHOTO LEFT: JEFFREY M. HARRIS

Package: Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) {[Jogendranagar] – Lot 1 & {Bardowali]- Lot 2 (AGT/WS10-3/ICB/11/9, Lot-1 & AGT/WS10-3/ICB/11/9, Lot-2)

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

POLICY SCHEDULE FOR EMPLOYEES COMPENSATION INSURANCE

Insured's Name : JAINHO PROJECTS LTD.		Issuing Office Details	
Customer ID : P02738436	Insured's Details	Office Code : AGARTALA DO (B1610)	
Address : A.C. AMPLEX PROPERTIES PVT. LTD. 72/1 HANAR AGARTALA VILLAGE AGARTALA TRIPURA WEST. TRIPURA, 798001		Address : AGARTALA	
Phone No. : 9872191733		Phone No. : 03612385133	
Email/Fax : /		Email/Fax : HR.SS10.D@newindia.co.in	
PAN No. : /		S Tax Regn. No. : AAACWA1805E778	

Policy Details			
Policy Number : 23100001610010000010	Business Source Code		
Period of Insurance : From: 02/05/2015 12:00:01 AM To: 01/05/2016 11:59:59 PM	Dev.Off./Broker/Corp. Agent : MR. SURAJIT BARKAR (102790231)		
Date of Proposal : 02-May-15	Agent/Broker/Insurance : MR. MISS. PRIYATA BARKAR (AGT/WS10-3/ICB/11/9) - AGARTALA-731000 (900059497)		
Prev. Policy no. : 23100001610010000000	Phone No. : 9974207461/03613121400		
Client Type : Non-Corporate	Email/Fax : /		

Premium (₹) : 44500	Service Tax (₹) : 5971	Total (₹) : 50471	Total (₹) in words : RUPEES FIFTY THOUSAND AND ONE ONLY	Receipt No. & Date : 031000016000000010/9 9 - 29/04/15
----------------------------	-------------------------------	--------------------------	--	--

Details of Employees with monthly wages upto ₹ 8000			
Categories	Sub Categories	No. of Employees	Cash Total Wages
Excavation, Earth Removal and Filling and Reclamation (incl. for Sewers and Spoil)	Excl. use of explosives blasting, Tunneling and rock work	40	3241000

Details of Employees with monthly wages above ₹ 8000			
Trace Description	Particulars of Works	Location Details	Included At Sub-Contractions
SUPPLY AND LAYING WATER SUPPLY PIPELINES AND ALLIED WORKS	SUPPLY AND LAYING WATER SUPPLY DISTRIBUTION PIPELINES AND ALLIED WORKS IN AGARTALA CITY (SOUTH) LOT-1 & LOT-2 CONTROL PACKAGE AGREEMENT NO- AGT/WS 10-3/ICB/11/9 FOR LOT-1 & LOT-2	LOT-1 (JOGENDRANAGAR) & LOT-2 (BARDOWALI)	Yes

Extensions under the Policy Cover		
Name of the Extension	Sub Limit of the Extension	Conditions of the Extension
Special Conditions	NA	NA
Special Exclusions	NA	NA
Special Excess/Deductible	NA	NA

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

Charges : /

Discontinuation : /

In witness whereof the undersigned being duly authorized by the Board and the Local of the Insurance has (have) hereunto set (their) hand(s) on this 29th day of APRIL, 2015.

ISSUING OFFICE
THE NEW INDIA ASSURANCE CO. LTD.
DIVISIONAL OFFICE (S171001)
MR. SURAJIT BARKAR
AGARTALA-731001, TRIPURA (WEST)
CONTACT NO. 9872191733/03612385133/03613121400
P. H. No. 23100001610010000010
FAX : 0361-2304700

Document generated by 20596 at 26/04/2015 14:06:37 Hours.
P. H. No. 23100001610010000010
Page No. 1

Package: Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)

नेशनल इन्स्योरन्स कंपनी लिमिटेड <small>(भारत सरकार का उपक्रम)</small> मुख्य कार्यालय - १४, स्टारलिंग सिनेमा बिल्डिंग, २री मंजिल, ६५, मुरुब्बान रोड, मुंबई - ४०० ००१. फोन : २२०१ ९९७१ / २२०१ ९६३० • फैक्स : २२०१ ९९७९		NATIONAL INSURANCE COMPANY LTD. <small>(A Govt. of India Undertaking)</small> DO - XIV, Sterling Cinema Bldg., 2nd Floor, 65, Murzban Street, Mumbai - 400 001. Tel : 2201 9971 / 2201 9630 • Fax : 2201 9979	
POLICY SCHEDULE		264841	
Dept : Workmen Compensation		Employees Compensation Insurance Policy	
Policy Number : 260600/11/15/0000000020			
Agent Code: 03263000000001	Agent Name: Newden Insurance Brokers India Pvt. Ltd.	Agent Contact No: 9920170055	
Insured's Name: ITW ITW GEN JV		Issuing Office Code : 260600	
Address: NATIONAL PLASTIC BUILDING, A-SUBHASH ROAD, PANDHARPE E-SCHERE, VILE PARLE (E), MUMBAI		Address: Second Floor, Sterling Cinema Building, 65, Murzban Street, Fort, Mumbai, Greater Mumbai,	
Dist. : GREATER MUMBAI, Maharashtra		Telephone : 022 22019850 (EO) 22019971 (AG)	
Pin Code: 400051		Special Client Code : 230	
Development Officer : 912630		Paid Up Capital: Into Rs. 15 Crores	
Date of Proposal & Declaration: 16/10/2015 Client Type: Corporate			
Policy Period: 01-10-2015 to 31/10/2015 to Midnight of 16/10/2015			
NIC 260600 : 100%			
Sr. No.	Description	Sum Insured (Rs.)	
1	100 ALL EMPLOYEES ENGAGED IN HEIGHTS FOR BUILDING RESERVOIR/TANK AND PIPING WORK.	25,29,000.00	
2	100 ALL EMPLOYEES ENGAGED IN PILING, CIVIL WORKS NOT ON ELEVATED STRUCTURE	25,29,000.00	
3	100 ALL EMPLOYEES ENGAGED IN CLERICAL STAFF INCLUDING TECHNICAL ASST, PEONS, SECURITY, BOARDS, COOKS ETC. EMPLOYED FOR INDOOR AS WELL AS OUT DOOR WORKS.	12,60,000.00	
Total Sum Insured (In Words): RUPEES SIXTY THREE LAKH ONLY		Total Sum Insured (Rs.): Rs. 63,00,000.00	
Risks Covered	75 LOCAL INDIAN WORKERS COVERED UNDER WORKMEN COMPENSATION POLICY AS PER NIC'S STANDARD EMPLOYEE COMP. INS. POLICY		
Location	PROCUREMENT OF GR. WATER TREATMENT PLANTS-DESIGN, CONSTRUCTION, SUPPLY, INSTALLATION, COMMISSIONING INCLUDING MECH & ELEC. FOR 1 YEAR IN AGARTALA		
Special Provl	AS PER STANDARD NIC POLICY WITH COVERING MC ACT 1989 WITH ALL SUBSEQUENT AMENDMENTS, FINAL ACCIDENTAL ACT 1955 AND COMMON LAW.		
Special Exclusion	AS PER STANDARD NIC'S EMPLOYEES COMPENSATION INSURANCE POLICY.		
Subject To Clause	AS PER STANDARD NIC'S EMPLOYEES COMPENSATION INSURANCE POLICY.		
Special Excess	NIL		
Special Conditions	THE DATA PROVIDED CONSIST OF LOCAL EMPLOYEES CONTRACTUAL LABOURERS, SUB CONTRACTORS RENEWAL POLICY NO : 260600/11/15/0000000052		
Premium Computation :			
Net Premium :	Rs. 38,115.00	Service Tax :	Rs. 5,539.00
		Stamp Duty :	Rs. 1.00
		Chargeable :	NO
		Total :	Rs. 43,654.00
In witness whereof this policy has been signed at 2ND FLOOR, STERLING CINEMA on this 16th day of October, 2015.			
		 For And On Behalf Of National Insurance Company Limited Authorized Signatory	
Policy No: 260600/11/15/0000000020, Issue Date: 16/10/2015 पॉलिसी नं. २६०६००/११/१५/००००००००२०, दिनांक १६/१०/२०१५			

Terms and conditions attached. You are requested to check the document and if any discrepancy is observed, please contact policy issuing office immediately. This Policy/Endorsement is valid subject to realization of cheque. In case of dishonour of cheque the Policy/Endorsement will automatically stand cancelled and void.

नेशनल इन्सुरेन्स कंपनी लिमिटेड

(प्रागत सरकारी कर्तव्य)

मुख्य कार्यालय - ४४, स्टर्लिंग सिनेमा बिल्डिंग, नरी मंडिर,
४५, मुरुब्बा रोड, मुंबई - ४०० ००१

फोन : २२०१ ९९७१ / २२०१ ९६३० • फैक्स : २२०१ ९९७३



NATIONAL INSURANCE COMPANY

(A Govt. of India Undertaking)

४४ - XIV, Sterling Cinema Bldg., 2nd Floor,
४५, Murrban Street, Mumbai - 400 001.

फोन : २२०१ ९९७१ / २२०१ ९६३० • फैक्स : २२०१ ९९७३

Policy Number : 260600/41/15/0000000000

Visit us at www.nationalinsuranceindia.com for information on Products/Services and Grievance Redressal.

In witness whereof this policy has been signed at 2ND FLOOR, STERLING CINEMA
on this 16th day of October, 2015.

CIN No: U10200MH1906601001713, TRD No: 58

For And On Behalf Of
National Insurance Company Limited

Authorized Signatory

TRD No: 58, 16/10/2015 14:35:24 260600/41/15/0000000000 - 0.0.0.0

Page 2 Of 2

पंजीकृत एवं प्रधान कार्यालय : ३, मिडिलस्ट्रीट स्ट्रीट, कोलकाता ७०० ०७१ • Registered & Head Office : 3, Middle Street, Kolkata 700 071 • Visit us at : www.nationalinsuranceindia.com

Terms and conditions attached. You are requested to check the document and if any discrepancy is observed, please contact policy issuing office immediately. This Policy/Endorsement is valid subject to realization of cheque. In case of dishonour of cheque the Policy/Endorsement will automatically stand cancelled and void and the Company will not be on risk under this Policy/Endorsement. All correspondences are to be made only with the Policy Issuing Office quoting the Policy Number.

Package: Water Supply- Laying of New Primary Mains in various parts of Agartala city
(AGT/WS 10-2/NCB/13/1)

Page 1 of 8



UNITED INDIA INSURANCE COMPANY LIMITED

DIVISIONAL OFFICE, OFFICE CODE-130900, G.R.S. TOWER, 1ST FLOOR, R.M.S.
CHOWMUHANI, P.O. AGARTALA,
TRIPURA - WEST - 799001 TRIPURA

PHONE: (381) 0381-2307465 FAX: (381) 2384157 EMAIL:

**EMPLOYEES COMPENSATION LIABILITY POLICY
POLICY NO.:1309002715P103821791**

PERIOD OF INSURANCE
From 10:09 Hrs of 08/07/2015
To Midnight of 07/07/2016

Insured

**MS PROJECT DIRECTOR SIPMIU(NERCCDIP)AGARTALA &
SUNIL SAHA-PRASENJIT PAUL(JOINT VENTURE)**

JAIL ASHRAM ROAD, PO - DHALESWAR, AGARTALA

TRIPURA - WEST

799007

TRIPURA

Agent Name : TAPASH ROY
Agent Code : AGD0013018
Mobile/Landline Number : 9436127140 /

REGD. & HEAD OFFICE: 24, WHITES ROAD, CHENNAI - 600014
Website: <http://www.unic.co.in>, Email: info@unic.co.in

<http://10.95.63.50/Configurator/UnderwritingMasters/reports/frmPolicySchedule.aspx?R...> 08/07/2015

Policy No: 1309002715P103821791

EMPLOYEES COMPENSATION INSURANCE POLICY SCHEDULE

Policy No.	1309002715P103821791	Prev. Pol. No.	
Name Of Insured/ID	MS PROJECT DIRECTOR SIPMIU(NERCCOIP)AGARTALA & SUNIL SAHA-PRASENJIT PAUL(JOINT VENTURE) / 23016172527		
Tel.(O)		Fax	
Business/Occupation	None	Email	
Period of Insurance From	10:00 Hrs of 08/07/2015	To	Midnight of 07/07/2015

CO-INSURANCE DETAILS:	UHC 130900 : 100%
PREMIUM:	TWELVE THOUSAND SIX HUNDRED RUPEES ONLY

Laws: The Policy covers liability of the Insured under the following Law(s) 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	LIMIT OF INDEMNITY
Employee's Compensation Act, 1923 and subsequent amendments thereof prior to the date of issue of Policy	Subject otherwise, to the term, condition & Exclusion of the Policy, the amount of liability incurred by the Insured

Common Law	Subject otherwise, to the terms, conditions & Exclusions of the Policy, the amount of liability incurred by the Insured, but not exceeding:
------------	---

- a) Limit Per Employee for any number of accidents during Period of Insurance ₹2
- b) Limit Per Accident for any number of Employees ₹0
- c) Aggregate Limit for all accidents and claims arising therefrom during the Period of Insurance ₹0

Net Premium	₹ 12,600.00
Service Tax	₹ 1,764.00
Stamp Duty	₹ 1.00
Total	₹ 14,364.00
Receipt No.	10213090015102456280
Receipt Date	08/07/2015
Service Tax Regn. No.	AAACUS552CS7061

Agency/Broker Code	AGD0032018
Dev.Officer Code	

<http://10.95.63.50/Configurator/UnderwritingMasters/reports/frmPolicySchedule.aspx?R> 08/07/2015

Policy No: 130900221SP(0382179)

Details of Employees Covered:

Description of Employees	Worker Type	Declared Number of Employees	Declared Wages during the Period of Insurance	Place/Places of Employment	Trade Category	Sub Trade Category
LAYING OF NEW PRIMARY MAINS (RISING MAINS) IN VARIOUS PARTS OF AGARTALA CITY / CONTRACT PACKAGE NO AGT/WS/ 10-2(R1)/NCB/12/1	Semi-Skilled	20	840000	AGARTALA CITY	BUILDERS	EXCL. BLASTING AND TUNNELING

Subject of following clauses:

Special Condition :

Subject to terms and Conditions of Employees Compensation Insurance Policy attached herewith.

Territory: AGARTALA

Jurisdiction: TRIPURA

Subsidiaries:

Particular Of Work: LAYING OF NEW PRIMARY MAINS (RISING MAINS) IN VARIOUS PARTS OF AGARTALA CITY / CONTRACT PACKAGE NO AGT/WS/ 10-2(R1)/NCB/12/1

Location Of Risk: IN VARIOUS PARTS OF AGARTALA C.

Date of Proposal and Declaration: 08/07/2015

IN WITNESS WHEREOF, the undersigned being duly authorised has hereunto set his/her hand at GO AGARTALA 130900 on this 08th day of July, 2015.

For United India Insurance Co. Ltd.

Authorised Signatory



Policy No: 130900715P1035217NY

EMPLOYEES COMPENSATION INSURANCE POLICY WORDINGS

WHEREAS the **Insured** by a Proposal which shall be the basis of this Contract and deemed to be incorporated herein, has applied to **UNITED INDIA INSURANCE COMPANY LIMITED** (hereinafter called "the Company") for the insurance hereinafter contained for the **Business** described in the **Schedule** and has paid or agreed to pay the premium stated in the **Schedule** as consideration for such insurance:

NOW THIS **POLICY** WITNESSETH, subject to the terms, exceptions and conditions contained herein or endorsed hereon, that if at any time during the **Period of Insurance** any **Employee or Employees** of the **Insured** shall sustain **Injury** (by accident arising out of and in the course of his employment in the **Business**, for which the **Insured** is liable to pay compensation under any Law(s) specified in the **Schedule**, then the Company shall indemnify the **Insured** upto the **Limit of Indemnity** against all sums for which the **Insured** shall be so liable, including costs and expenses for defending any such claim incurred with the Company's consent.

PROVIDED ALWAYS that in the event of any change in the Law(s) or the substitution of other legislation therefor, this **Policy** shall remain in force but the liability of the Company shall be limited to such sum as the Company would have been liable to pay if the Law(s) had remained unaltered.

DEFINITIONS

This **Policy**, the **Schedule** and any **Clauses** thereon shall be considered one document and any word or expression to which a specific meaning has been attached in Definitions bears that specific meaning wherever it appears in this **Policy** in bold typeface.

Business means the **Business** of the **Insured** as specified in the **Schedule** in respect of which this **Policy** is issued.

Injury means physical bodily injury including death resulting from such injury arising out of an accident but does not include any mental sickness, disease, **Occupational Disease**, unless caused by such physical bodily injury.

Insured means the person or organization specified in the **Policy Schedule** but does not include those Contractors or Sub-Contractors.

Occupational Disease means any occupational disease or illness including but not limited to the diseases listed under Schedule III of the Employees' Compensation Act, 1923 contracted by an **Employee** due to employment in the **Business**.

Wages means the remuneration payable to an **Employee** by the **Insured** for the employment in the **Business** and includes any privilege or benefit which is capable of being estimated in money other than a travelling allowance or the value of any travelling concession or a contribution paid by the employer of an employee towards any pension or provident fund or a sum paid to an employee to cover any special expenses entailed on him by the nature of his employment.

Employee or Employees means such person or persons in direct employment under the **Insured** in the **Business**, but shall not include any person employed under a Contractor or Sub-Contractor of the **Insured** unless specifically shown as covered in the **Schedule** and by an endorsement.

Schedule means the **Schedule** attached to and forming part of this **Policy**.

Period of Insurance means the period for which this insurance is availed by the **Insured** as specified in the **Schedule**, unless cancelled earlier.

Limit of Indemnity means the maximum amount of indemnity as specified in the **Schedule** that will be provided under this **Policy** by the Company in respect of

- a) any particular claim by an **Employee** and
- b) all claims arising out of all accidents for any number of **Employees** during the **Period of Insurance**.

EXCLUSIONS

This **Policy** shall not cover liability of the **Insured**:

- a) For **Injury** caused to **Employee** by accident directly or indirectly caused by or arising from or in consequence of or attributable to war, invasion, act of foreign enemy, hostilities (whether war be declared or not) civil war, mutiny, insurrection, rebellion, revolution or military or usurped power, nuclear weapons material, ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel.
- b) Accident occurring at any other place than the Place or Places of Employment specified in the **Schedule**, unless the **Employee** was at such other place whilst on duty for the purpose of the **Business** and on the directions of the **Insured** or any of its official authorized to exercise control and supervision over the **Employee**.
- c) For **Occupational Diseases** contracted by an **Employee**.
- d) Fines interest and/or penalty imposed on the **Insured** under any law or otherwise.
- e) Under any Law for medical expenses in connection with treatment of any **Injury** sustained by an **Employee**.

<http://10.95.63.50/Configurator/UnderwritingMasters/reports/frmPolicySchedule.aspx?R...> 08/07/2015

- f) For persons employed in the **Business** under a Contractor or Sub-Contractor of the Insured unless specifically covered in the **Schedule**

Policy No: 1309002715P161021591

- 01 For **Injury** sustained by person whilst in the employ of the **Insured** otherwise than in the **Business** and/or who has is not declared for insurance under this Policy.
- 02 Assumed by agreement which would not have attached in the absence of such agreement.
- 03 For any sum which the **Insured** would have been entitled to recover from any party but for an agreement between the **Insured** and such party.
- 04 For any accident occurring whilst the **Employee** is under the influence of intoxicating liquor or drugs.
- 05 For any incapacity or death of an **Employee** resulting from his/her deliberate self-injury or the deliberate aggravation of an accidental **Injury**.

CONDITIONS

1. **The Contract:** This **Policy** and the **Schedule** shall be read together as one contract and any word defined herein and shown in bold shall bear such specific meaning wherever it may appear in the **Policy** or the **Schedule**.
2. **Due Observance:** The due observance and fulfilment of the terms, conditions and endorsements of this **Policy** so far as they relate to anything to be done or not to be done by the **Insured** shall be condition precedent to any liability of the Company to make any payment under this **Policy**.
3. **Misrepresentation/Non-Disclosure:** This **Policy** shall be void in the event of any misrepresentation or non-disclosure in the Proposal and the **Insured** is deemed to warrant the truth and accuracy of the statements and answers in the Proposal which form the basis of this **Policy**.
4. **Written Communication:** Every notice or communication to be given or made under this **Policy** shall be delivered in writing to the Company.
5. **Safeguards:** The **Insured** shall take reasonable precautions to prevent accidents and disease and shall comply with all statutory obligations, manufacturers' recommendations and other safety regulations in conduct of the **Business**.
6. **Claim Intimation:** In the event of any occurrence which may give rise to a claim under this **Policy** the **Insured** shall as soon as possible, and in any case within a period of thirty days of such occurrence, give notice thereof to the Company in writing with full particulars. Every letter claim, writ summons and process shall be notified to the Company immediately on receipt. Notice shall also be given to the Company immediately the **Insured** shall have knowledge of any impending prosecution, arrest or fatal enquiry in connection with any such occurrence as aforesaid.
7. **Company's Rights After Loss:** No admission offer promise or payment shall be made by or on behalf of the **Insured** without the consent of the Company which shall be entitled, without being obliged to do so, if it so desires to take over and conduct in its name the defence or settlement of any claim or to prosecute in its name for its own benefit any claim for indemnity or damages or otherwise and shall have full discretion in the conduct of any proceedings and in the settlement of any claim and the **Insured** shall give all such information and assistance as the Company may require.
8. **Declaration of Employees and Wages:** It is clearly agreed and understood that the **Insured** shall be bound at all times to declare all **Employees** and **Wages** payable in respect of such **Employees** on the basis of which the premium for this **Policy** is calculated.

In case of increase in **Employees** or **Wages** subsequent to insurance, **Insured** shall keep the Company intimated and obtain Endorsement by payment of necessary additional premium.

The **Insured** shall as and when required by the Company permit inspection of its records to verify the **Wages** and **Employees** and shall also provide duly authenticated copies thereof if so required the Company.

9. **Average:** Notwithstanding anything contained hereinabove,
 - a) If the number of **Employees** (whether on duty or otherwise) employed by the **Insured** on the date of accident is higher than the number covered under this **Policy**, the Company shall indemnify **Insured's** liability arising out of such accident, only in such proportion that the number of **Employees** covered bears to the **Employees** found employed on the date of accident.
 - b) If the amount of **Wages** declared for this insurance for all **Employees** is less than the actual **Wages** paid until date of accident, the Company shall be liable to indemnify on any claim only in proportion that the **Wages** declared bears to the **Wages** paid. For the purpose of this clause, the **Wages** declared shall be calculated proportionately for the period from commencement of **Policy** until date of accident for comparison with the actual **wages** paid during such period to determine applicability of this clause.
 - c) If the liability of the **Insured** for any claim for an **Employee** is determined on the basis of **Wages** higher than covered under this **Policy**, the Company shall be liable to indemnify only in proportion that the **Wages** covered under the **Policy** for the **Employee/Employees** bears to the **Wages** on the basis of which **Insured** is held liable. For the purpose of this clause, the **Wages** covered in respect of any **Employee** shall be deemed to be the average wage per **Employee** in the category under which the **Employee** falls as specified in the **Schedule**, unless actual **Wages** paid at the time of accident is substantiated by submission of documentary evidence to the Company.

- (i) If more than one of the above clauses is found applicable in respect of a claim, only such clause under which the liability of the Company is least shall be applied.

- Policy No: 130900371SP103821/91
10. **Maintenance of record of Employees/Wages:** The Insured undertakes to maintain an accurate record of the **Employees and Wages** in respect of the **Business** throughout the **Period of Insurance**, in compliance with all statutory requirements or otherwise, and allow the **Company** to inspect such records during or upon expiry of this **Policy**.
 11. **Contribution:** If at the time of the happening of an accident covered by this **Policy** there shall be any other insurance covering the same risk in respect of the **Employee** whether or not effected by the Insured, then the **Company** shall not be liable to contribute more than its rateable proportion of the amount that would otherwise be payable under this **Policy**.
 12. **Cancellation:** The **Company** or the **Insured** may cancel this **Policy** by sending at least 15 days written notice to the other party at his last known address and in such event the premium shall be adjusted in accordance with Condition 8 above.
 13. **Forfeiture:** If the Insured shall make any claim or connive in the making of any claim, knowing the claim to be false or fraudulent, the **Policy** shall become void and all claims will stand forfeited.
 14. **Arbitration:**
 - a) If any dispute or difference shall arise as to the quantum to be paid under this **Policy** (liability being otherwise admitted) in respect of any claim, such difference shall independently of all other question be referred to the decision of a sole arbitrator to be appointed in writing by the parties to or if they cannot agree upon a single arbitrator to a panel of three arbitrators to be appointed in accordance with the provisions of the Arbitration and Conciliation Act, 1996. The arbitration shall be governed by Indian law. The venue of arbitration shall be within India.
 - b) It is clearly agreed and understood that no reference to arbitration can be made if the **Company** has either not admitted or has disputed liability in respect of any claim under or in respect of this **Policy**.
 - c) In the event that these arbitration provisions shall be held to be invalid then all such disputes or differences shall be referred to the exclusive jurisdiction of the Indian Courts.
 - d) It is further expressly agreed and declared that if the **Company** shall disclaim liability in respect of any claim and is not within 12 calendar months from the date of such disclaimer be made the subject matter of a suit or proceeding before a Court of law or any other forum, it shall for all purposes be deemed to have been abandoned and shall not thereafter be recoverable hereunder.
 15. **Law and Jurisdiction:** It is hereby declared and agreed that this contract of insurance and all claims thereunder shall be governed by Indian Law and any legal proceeding in respect thereof shall be raised a competent court of India. All claims shall be paid in Indian Rupees only.

Policy form - Claims made with right to defend.

Appendix 10

Summary of Labours package wise (Average : period July to December 2015)

Package No.	Contractor	Total Number of Employees	No of Female Employees	No. of Local Employees
Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR), (AGT/WS09/ICB/11/7, Lot -1)	M/s Ramkey Infrastructure Ltd.	Total: 110 nos.	Nil	110 nos.
Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) [Jogendranagar] and [Bardowali] (AGT/WS10-3/ICB/11/9, Lot-1 and 2)	M/s Jaihind Projects Ltd,	Staff: 8 Workers: 38 Total: 46 nos.	Staff: 5 Workers: 18	Staff:10 Workers: 25 Total: 35 nos.
Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)	M/s ITD- ITD CEM Joint Venture	Staff: 31 nos. Workers: 73 nos. Total: 104 nos.	Nil	60 nos.
Water Supply- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)	Sunil Saha-Prasenjit Paul (Jv)	Staff: 5 nos. Workers: 20 nos. Total: 25 nos.	Nil	25 nos.

Traffic Management Plan

Traffic Management Plan

Project Name:

Supply & Laying of Water Supply Distribution Pipelines and Allied Works in Agartala City (South).

Contract Package/Agreement No:

AGT/WS 10-3/ICB/11/9 LOT-1 AND LOT-2

Prepared & Submitted by:



Jaynagar, Nabadiganta Lane,
Agartala-799001, West Tripura.

1. Roadwork (As on air) - Download 2013

Traffic Diversion: Aralia, AMC-35, Bankumari(Jogendranagar-LOT-1) & TAP Complex, Bardowali, Badharghat, (Bardowali-LOT-2) for Pipe Laying works.

1.1	Purpose
	To provide a clear and simple worked procedure to be understood by most employees on preventing injury to persons and damage to property arising from the traffic and site transport.
2.1	Scope
	The procedure is applicable to JAHND PROJECTS LTD. sites and depots.
3.1	Responsibility
	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.
4.1	Definition
	Project in charge: Person responsible for the execution of the project.
5.1	Legal Requirement
	The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1986 and Central Rule 1986 Rule 48, 49 and 95, Motor Vehicle Act 1988.
6.1	Requirements
6.1	General
	<ul style="list-style-type: none"> 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. All the effects should be mitigated or reduced to the minimum, and to ensure that the works are properly guarded, lighted and signed. A clear and early warning of any obstruction to all road users should be provided. 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.
6.2	Planning stage
	<ul style="list-style-type: none"> The client and DSO's Engineer should be consulted as regards the execution of the works and the safety measures which would be put in place. Particular attention should be given to: <ul style="list-style-type: none"> traffic signs; cones; barricades; road hazard warning lights; intermittent flashing unit; site lighting; Consider necessity of traffic control systems such as temporary Stop/Go boards. Access should be planned to eliminate dangerous movements of site traffic (e.g. reversing of vehicles) and personnel (e.g. crossing dual carriageways). Provision of adequate lighting.
6.3	On site
	<ul style="list-style-type: none"> The working area in the live road/footway is defined. The working space is defined – this includes the area of storage of tools and equipment.

2

	<ul style="list-style-type: none"> and space to move around the job Provision of safety zone- It is kept clear of all work, material storage and people and is clear of working radius of all plant
6.4	<p>Operators / Drivers</p> <ul style="list-style-type: none"> Experienced operators and drivers with valid license has been appointed. One copy of license has been collected by Safety Department.
6.5	<p>Equipment</p> <ul style="list-style-type: none"> Drivers are made a daily inspection of their vehicles include steering, brakes, mirrors, lights, horn, tyres and windshield wipers. Safety Department along with Plant department has been checking the vehicles monthly basis. All vehicles have reverse beam and it is in working properly. All vehicles, periodical maintenance has conducted.
6.6	<p>Roads</p> <p>For safe operation we are following the below safety measure:</p> <ul style="list-style-type: none"> Safe width has been provided. Speed limit is varied as per the site. Safe walkway with proper guard has been provided. Caution board has been placed in every location within the site. During night alert light has been provided. Conducting Toolbox training at regular basis. Road will be closed with proper permission (if required). Reflective type Diversion board has been placed in required places. Road diversion drawing has been submitted (Ref. Attached drawing)
6.7	<p>Loading and unloading</p> <ul style="list-style-type: none"> Only authorised persons were engage for loading / unloading. Material loaded within the permitted safe weight limit for the truck. Dimensions of loads carried on a vehicle in strict accordance with relevant provisions. A red flag is being used at the rear extremity of an overhanging load. 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. During Toolbox talks information 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. Helper has been provided with all vehicles.
6.8	<p>Working Area</p> <ul style="list-style-type: none"> The working area in the live road/footway has defined and barricaded. The working area has been restricted from unauthorized entry. The working space has been defined – this includes the area of storage of tools and equipment and space to move around the job. Particular attention has been taken in working area : <ul style="list-style-type: none"> ✓ Traffic signals. ✓ Crossovers. ✓ Footpaths. ✓ Road, kerbside, drainage, lighting. ✓ Information boards, and ✓ Road closures. Adequate lighting has been provided.

	<ul style="list-style-type: none"> and space to move around the job. Provision of safety zone- It is kept clear of all work, material storage and people and is clear of working radius of all plant.
6.4	<p>Operators / Drivers</p> <ul style="list-style-type: none"> Experienced operators and drivers with valid license has been appointed. One copy of license has been collected by Safety Department.
6.5	<p>Equipment</p> <ul style="list-style-type: none"> Drivers are made a daily inspection of their vehicles include steering, brakes, mirrors, lights, horn, tyres and windsheld wipers. Safety Department along with Plant department has been checking the vehicles monthly basis. All vehicles have reverse horns and it is in working properly. All vehicles, periodical maintenance has conducted.
6.6	<p>Roads</p> <p>For safe operation we are following the below safety measure:</p> <ul style="list-style-type: none"> Safe width has been provided. Speed limit is varied as per the site. Safe walkway with proper guard has been provided. Caution board has been placed in every location within the site. During night alert light has been provided. Conducting Toolbox training as regular basis. Road will be closed with proper permission (if required). Reflective type Diversion board has been placed in required places. Road diversion drawing has been submitted (Ref. Attached drawing).
6.7	<p>Loading and unloading</p> <ul style="list-style-type: none"> Only authorised persons were engage for loading / unloading. Materials loaded within the permitted safe weight limit for the truck. Dimensions of loads carried on a vehicle in strict accordance with relevant provisions. A red flag is being used at the rear extremity of an overhanging load. 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. During Toolbox talks information 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. Helper has been provided with all vehicles.
6.8	<p>Working Area</p> <ul style="list-style-type: none"> The working area in the live road/roadway has defined and barricaded. The working area has been restricted from unauthorized entry. The working space has been defined – this includes the area of storage of tools and equipment and space to move around the job. Particular attention has been taken in working area: <ul style="list-style-type: none"> traffic signs; cones; barricade; road lateral warning lights; intentional block-out; side lights; Adequate lighting has been provided.

Mobile :- 09774027728
09436935670

SUNIL SAHA-PRASENJIT PAUL JV

Dhaleswar , Road No.-1, Agartala, Tripura (W) , PIN-799007

Traffic Management Plan

December, 2015.

Project Name :- Laying of New Primary Mains (Rising
Mains) in various parts of Agartala City.
Contact No :- AGT/WS 10-2(R1)/NCB/13/1
PROGRAM :- SIPMIU
EMPLYOER :- URBAN DEVELOPMENT
CONTRACTOR :- SUNIL SAHA –PRASENJIT PAUL (JV)
Prepared by :-
SUNIL SAHA-PRASENJIT PAUL (JV)

LOCATION (As ON 10TH DECEMBER 2015)

Traffic Diversion: Madhya Aralia, Sadhutilla, Jugendranagar, Camperbazar, back side of ramthakur College , Pragati School, Beltala cremation Ground, Akhawra Road , Jugendranagar Station Road, for Pipe Laying

1.0	PURPOSE
	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.
2.0	SCOPE
	The procedure is applicable to Sunil Saha-Prasenjit Paul JV sites and depots.
3.0	RESPONSIBILITY
	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.
4.0	DEFINITIONS
	Project in charge: Person responsible for the execution of the project.
5.0	LEGAL REQUIREMENT
	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
6.0	REQUIREMENTS
6.1	<u>General</u>
	<p>. 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.</p> <p>. All the effects should be mitigated or reduced to the minimum, and to ensure that the works are properly guarded, lighted and signed.</p> <p>. A clear and early warning of any obstruction to all road users should be provided.</p> <p>. 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.</p>
6.2	<u>Planning stage</u>
	<p>. The client and DS's Engineer should be consulted as regards the execution of the works and the safety measures which would be put in place.</p> <p>. Particular attention should be given to :</p> <ul style="list-style-type: none"> • Traffic signs; • Cones; • Barriers; • Road hazard warning lights; • Information boards; and

	<ul style="list-style-type: none"> o site lighting Consider necessity of traffic control systems such as temporary Stop/Go boards. Access should be planned to eliminate dangerous movements of site traffic (e.g. reversing of vehicles) and personnel (e.g. crossing dual carriageways). Provision of adequate lighting.
6.3	<u>On site</u>
	<ul style="list-style-type: none"> The working area in the live road/footway is defined. The working space is defined – this includes the area of storage of tools and equipment and space to move around the job. Provision of safety zone- It is kept clear of all work, material storage and people and is clear of working radius of all plant.
6.4	<u>Operators / Drivers</u>
	<ul style="list-style-type: none"> Experienced operators and drivers with valid licensed has been appointed. One copy of license has been collected by Safety Department.
6.5	<u>Equipment</u>
	<ul style="list-style-type: none"> Drivers are made a daily inspection of their vehicles include steering, brakes, mirrors, lights, horn, tyres and windshield wipers. Safety Department along with Plant department has been checking the vehicles monthly basis All vehicles have reverse horns and it is in working properly. All vehicles, periodical maintenance has conducted.
6.6	<u>Roads</u>
	<p>For safe operation we are following the bellow safety measure:</p> <ul style="list-style-type: none"> Safe width has been provided. Speed limit is varied as per the site. Safe walkway with proper guard has been provided. Caution board has been placed in every location within the site. During night alert light has been provided. Conducting Toolbox training as regular basis. Road will be closed with proper permission (if required). Reflective type Diversion board has been placed in required places. Road diversion drawing has been submitted (Ref. Attached drawing)
6.7	<u>Loading and unloading</u>
	<ul style="list-style-type: none"> Only authorised persons were engage for loading / unloading. Materials loaded within the permitted safe weigh limit for the truck. Dimensions of loads carried on a vehicle in strict accordance with relevant provisions. A red flag is being used at the rear extremity of an overhanging load. 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. 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. Helper has been provided with all vehicles.

6.8 Working Area

- The working area in the live road/footway has defined and barricaded.
- The working area has been restricted from unauthorized entry.
- The working space has been defined – this includes the area of storage of tools and equipment and space to move around the job.
- Particular attention has been taken in working area :
 - traffic signs;
 - cones;
 - barriers;
 - road hazard warning lights;
 - information boards; and
 - site lighting
- Adequate lighting has been provided.

Appendix 12

Internal training Program for package Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)

①	
PROCEDURE P-19	
RECORD : W-1118 - TRAINING RECORD	
Contract No.	DI GNTP, Agartala A0913BS
Instruction	First Aid & Use of Fire Extinguisher 16/01/2015 Pranay Mukherjee
Sl No	
1	Ananta Hazra
2	Sujit Barman
3	Rana Anir
4	Shambhu Maity
5	Amal Debarma
6	Mithun Das
7	Jitendra Namasudra
8	Sachin Saha
9	Bankim Adhikari
10	Aakash Debarma
11	Harjona Debarma
12	Madhu Singh Guri
13	Rupam Chakraborty
14	At
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	

Pranay Mukherjee

Appendix 13

Minor accident record for Package: Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Installation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)



ITD CEMENTATION INDIA LIMITED

SR - 2

MONTHLY SAFETY SUMMARY DATASHEET
Site No. & Name A0913 BS.GWTP-AGARTALA

S. No.	Description	JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
		Complete	Subcontractor	Complete	Subcontractor	Complete	Subcontractor	Complete	Subcontractor	Complete	Subcontractor	Complete	Subcontractor
1	No. of Accidents/ Incidents:												
	Fatal	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
	Reportable	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
	Minor / First Aid	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
	Dangerous Occurrences	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
	Near Miss Cases	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
2	Man Days Lost (MDL)	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
3	Cost of Treatment	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL
4	No. of TBT conducted	2	7	4	3	4	3	1	5	2	7	3	5
5	No. of Persons Given Induction	NIL	24	NIL	12	1	10	NIL	12	NIL	24	2	17
6	No. of Walk Aabouts taken	4		4		5		7		2		2	
7	Safety Meeting held on	8/7/2015		8/31/2015		10/7/2015		11/7/2015		11/27/2015		1/1/2016	
8	No. of supervisors / workers trained - By Internal Faculty (No of Persons / Sessions / Duration)	No. of Persons: 01, Sessions: 8, Duration (Hrs./Mins): 20	No. of Persons: 02, Sessions: 9, Duration (Hrs./Mins): 20	No. of Persons: 06, Sessions: 8, Duration (Hrs./Mins): 20	No. of Persons: 30, Sessions: 2, Duration (Hrs./Mins): 20	No. of Persons: 57, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20
9	No. of supervisors / workers trained - By External Faculty (No of Persons / Sessions / Duration)	No. of Persons: 01, Sessions: 8, Duration (Hrs./Mins): 20	No. of Persons: 02, Sessions: 9, Duration (Hrs./Mins): 20	No. of Persons: 06, Sessions: 8, Duration (Hrs./Mins): 20	No. of Persons: 30, Sessions: 2, Duration (Hrs./Mins): 20	No. of Persons: 57, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20	No. of Persons: 61, Sessions: 6, Duration (Hrs./Mins): 20
10	Avg. daily Manpower - Day	39	63	49	61	40	47	40	38	37	58	31	72
11	Avg. daily Manpower - Night	0	3	0	3	0	3	0	3	0	3	0	3
12	Cumulative AIR (Fatal + Rep)					0		0		0		0	
13	Cumulative AIR (Minor/F.Aid)					0		0		0		0	
14	Severity Rate (SR)					0		0		0		0	

PERSON COMPLETING FORM

(Name: Sourabh Reddy)

Signature

Date

SR = Severity Rate = (MDL X 10³) / Total Man Hours Worked

AIR = Accident Incidence Rate = (Rep Acc X 1000) / Avg Man Power

Issued on: September 2015
Revision: 4.0Revised on: March 2013
Page 1 of 1



ITD CEMENTATION INDIA LIMITED

ANALYSIS OF INJURIES AND DANGEROUS OCCURRENCES

Project Name: GWTP, AGARTALA						Project No: AG91585				DECEMBER 2015			
Sr. No.	Date	Name of person	Sex	Age	Time	Definition	Company / Subcontractor	* Agency	Type of Accident	Gravity Condition / %	Nature of Injury	Location of Injury	Short Cause
1									REL				

*Note: Agency is the person or a person who is not directly associated with the accident during the study, but has been appointed, whether from inside or outside, to investigate, report, and take steps to prevent the accident from happening again.

PERSON COMPLETING FORM

Name: Anurag Singh

Position: Safety Engineer

Location: GWTP, Agartala

Signature:

Note: Labour engagement and accident recording format- No accident recorded during the report period

Monitoring Budget

**Package: Design Supply and Construction of 14 Nos. of Over Head Service Reservoir (OHSR)-
(AGT/WS09/ICB/11/7, Lot -1)**



RAMKY INFRASTRUCTURE LTD.
 "BALANCHAK"
 Ramnagar Road No-1, Near Akshai Office
 Opp. Of Banivaryapath H.S. School
 Agarata, Thane (W), PIN - 759 002
 E-mail: ramki@ramky.com

To whom it may concern

I do hereby declare that an amount of Rs. 9,40,000/- are budgets for implement mitigation measures and monitoring program for F.Y 2015-16.

The details are given below.

Sl. No.	Description	Amount (Yearly)
1.	Safety Officers	Rs. 2,40,000/-
2.	Safety Supervisor	Rs. 1,20,000/-
3.	Red Danger Tape	Rs. 30,000/-
4.	Barcading Board	Rs. 30,000/-
5.	Safety Shoe, Jacket, Helmet, Gumboot, Hand gloves, Nose mask, First Aid etc. for staff and labour	Rs. 3,50,000/-
6.	Monitoring of Air Quality Test & Noise Level Measurement Report of Cost	Rs. 2,00,000/-
Total =		Rs. 9,40,000/-

For Ramky Infrastructure Ltd.


Atish Kumar Chakraborty
 (Engineer, Project)

Corporate Office Ramky Grandiose, 15th Floor, Sy No 136/2 & 4, Gachibowli, Hyderabad - 500 032
 Ph No: +91 40 2301 5000/ Fax: +91 40 23015444

Package: Supply and Laying of Water Supply Distribution Pipelines and allied works in Agartala city (South) (AGT/WS10-3/ICB/11/9, Lot-1 and Lot 2)



To Whom it May Concern

I do hereby declare that, our budgetary provision for implementing Environmental & Safety mitigation measures and monitoring Program under the aforesaid Projects per year are Rs. 8,45,000.00 and the details are given below:-

Sl.	Description	Amount (INR)/year
1.	Ambient Air & Noise Monitoring	1,00,000.00
2.	Safety Officers	3,00,000.00
3.	Safety Assistant	1,44,000.00
4.	Red Danger Tape	30,000.00
5.	Barricading Board	50,000.00
6.	Diversion Board	15,000.00
7.	First Aid Box	6,000.00
8.	Safety Shoe, Jacket, Helmet, Gumboot, etc. for staff and labour	2,00,000.00
Total Rs.		8,45,000.00

For, Jaihind Projects Ltd.

(Authorised Signatory)



Corporate Office:
3rd Floor, Venus Atlantis Corporate park
Nr. Pratiknagar ALDA Garden, Satellite
Ahmedabad 380 015, Gujarat, INDIA.
Ph.: +91 79 40501300 | Fax: +91 79 40501310/11
email: jplind@jpl.co.in, info@jpl.co.in | www.jpl.co.in

Package: Procurement of Ground Water Treatment Plants Including, Design, Construction, Supply, Instillation, and Commissioning of Mechanical Electrical Instruments with Trial run for one year in Agartala (AGT/WS-02.07.08/ICB/11/8)



ITD CEMENTATION INDIA LIMITED

To whom it may concern

I do hereby declare that an yearly budget of Rs. 11,90,000/- for implement of environmental mitigation measures and monitoring program.

The details are given below.

Sl. No.	Description	Amount (Yearly)
1.	Safety Officers	Rs. 4,20,000/-
2.	Safety Assistant	Rs. 2,40,000/-
3.	Red Danger Tape	Rs. 30,000/-
4.	Barricading Board	Rs. 30,000/-
5.	Diversion Board	Rs. 20,000/-
6.	Safety Shoe, Jacket, Helmet, Gumboot, etc. for staff and labour	Rs. 2,50,000/-
7.	Monitoring – air & noise	Rs. 2,00,000

**Total = Rs.
11,90,000/-**

A handwritten signature in black ink, appearing to be 'Pranay Mukherjee'.

**PRANAY MUKHERJEE ITD-ITD CEM JV
EHS DEPARTMENT**

Package- Laying of New Primary Mains in various parts of Agartala city (AGT/WS 10-2/NCB/13/1)

Mobile :- 09774027728
09436935670

SUNIL SAHA-PRASENJIT PAUL JV

Dhaleswar Road No.1, Agartala Tripura (W) PIN- 799001

Sl. No.

Date

• **To whom it may concern**

I do hereby declare that an amount of Rs. 12,50,000/- are budgets for implement mitigation measures and monitoring program.

The details are given below.

Sl. No.	Description	Amount (Yearly)
1.	Safety Officers	Rs. 2,40,000/-
2.	Safety Assistant	Rs. 1,20,000/-
3.	Red Danger Tape	Rs. 10,000/-
4.	Barricading Board	Rs. 15,000/-
5.	Diversion Board	Rs. 10,000/-
6.	Safety Shoe, Jacket, Helmet, Gumboot, etc. for staff and labour	Rs. 1,20,000/-
7.	Monitoring budget(for air & noise)	Rs. 1,60,000/-

Total = 6,75,000/-

Sunil Saha - Prasenjit Paul (J.V)

Sunil Saha
Authorised Signator

**PUBLIC CONSULTATION ON ENVIRONMENTAL ISSUES DURING
CONSTRUCTION/ IMPLEMENTATION**

Mobile :- 09774027728
09436935670

SUNIL SAHA-PRASENJIT PAUL JV

Dhaleswar , Road No.-1, Agartala, Tripura (W) , PIN-799007

R

Public Consultation Sample Format

Sl. No	Area	Name	Designation	Phone No.	Remarks
1.	GWTP.at Pragati School . Public Consultation at Pragati Road Area.	1.Dr. Chiranjit Debbarma 2.Uttam Kr. Dey 3. Khokan Debbarma 4. Mr. Rajib Kar 5. Mr. Prasenjit Paul	Doctor Local Businessman Club Member Project Incharge Contractor	9436125616 9612600144 9856122808 9774027728	Satisfied with working environment, safety arrangement, caution tape available No dust problem

Photo onsite consultation / discussion with locals



Sample Grievance Registration Form

(To be available in Hindi and English or local language - Bengalee)

The **North-Eastern Region Urban Development Program II (Agartala, Tripura)** welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing ***(CONFIDENTIAL)*** above your name. Thank you.

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

FOR OFFICIAL USE ONLY

Registered by: (Name of official registering grievance)	
If – then mode: <input type="checkbox"/> Note/Letter <input type="checkbox"/> E-mail <input type="checkbox"/> Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Means of Disclosure:	

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

SEMI ANNUAL ENVIRONMENT MONITORING REPORT

Loan Number: 2834 INDs

Reporting Period: (July – December 2015)

**INDIA: North Eastern Region Capital Cities Development Investment Program
(NERCCDIP)**

Project City: Aizawl, Mizoram State

Implementing Agency: State Investment Program Management and
Implementation Unit (SIPMIU)

Executing Agency: Urban Development & Poverty Alleviation Department,
Government of Mizoram

TABLE OF CONTENTS

I. INTRODUCTION	3
A. BACKGROUND	3
B. PROJECT PROFILE	4
II. ENVIRONMENTAL PROCEDURE REVIEW	
A. ENVIRONMENTAL LEGAL REQUIREMENTS	9
B. COMPLIANCE WITH ENVIRONMENTAL REGULATIONS	9
C. COMPLIANCE OF ENVIRONMENTAL LOAN COVENANTS	10
D. ENVIRONMENTAL ORGANIZATION AND MANAGEMENT	12
III. EMP COMPLIANCE STATUS	14
IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN	18
ANNEXURE-1: MONITORING TEAM DETAILS	20
ANNEXURE-2: GRIEVANCE REDRESSAL MECHANISM	21
ANNEXURE-3: CONTRACTORS EMP	23
ANNEXURE-4: CHECKLIST	38
ANNEXURE-5: CONSENT TO ESTABLISH	39
ANNEXURE-6: NOC FROM FOREST (Forest Clearance)	44
ANNEXURE-7: PUBLIC CONSULTATIONS MEETINGS/AWARNESS PROGRAM	45
ANNEXURE-8: HIV/AIDS AWARNESS PROGRAM	50
ANNEXURE-9: SITE WORK PHOTOS	51

I. INTRODUCTION

A. Background

The North Eastern Region Capital Cities Development Investment Program (NERCCDIP) envisages achieving sustainable urban development in the Project Cities of Agartala, Aizawl, Kohima, Gangtok and Shillong through investments in urban infrastructure sectors. NERCCDIP is funded by a loan via the Multi-tranche Financing Facility (MFF) of the Asian Development Bank (ADB).

The primary objective of NERCCDIP is to promote economic development in 5-North Eastern Region States as stated through expansion of basic services such as water supply, sewerage, sanitation, solid waste management of the Capital Cities. The NERCCDIP will also strengthen the service delivery capacity of each State urban agencies and urban local bodies through management reform, capacity building and training.

Work of sub project for **Tranche – I** has been successfully completed and handed over to the concern authority and are in function. The concern contractors have also been released, since liability period for each work components has ended. **Tranche – II** subproject comprise of water supply and sewerage which involves the following components: (i) Construction of 3 ground level RCC zonal tank, (ii) Rehabilitation & Extension of Water Supply Feeder mains & distribution networks consisting of 107.55km, (iii) installation of 132 kV sub-station and transmission system, (iv) installation of 2 nos booster pumps, (v) installation of bulk & domestic water meters, (vi) sewerage network consisting of 46 Km with all associated earthworks and utility shifting, (vii) Construction of approach road to STP, (viii) Construction of 10 MLD capacity STP, (ix) procurement of 10 nos Cesspool cleaner, (x) Construction of 10 blocks of Community toilets in the city respectively. **Tranche – III** subproject will comprise of water supply, Solid waste management (zero waste management) and Piloting of septage management for which DPR have been prepared and approved. Invitation for bid document is in progress.

State Investment Programme Management & Implementation Unit (SIPMIU) will improve infrastructure through the development, design and implementation of different subprojects viz. water supply, sewerage, solid waste in Capital City Aizawl. These Sub-projects have 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) reports prepared according to ADB Environment Policy (2002, 2009) and Environmental Assessment Guidelines (2003).

B. Project Profile

• Scope of work in Tranche-I

1. Construction of 7 numbers of RCC Tanks (Namely Mission Vengthlang, Tank Bawgkawn Tank, 7th day Tlang Tank, Armed Veng Tank, Luangmual Complex Tank, Zemabawk TB Tlang Tank, and Tlangnuam Tank) – M/s S.S Construction has **completed** work satisfactorily on June 2012
2. Installation of two chlorinators with chlorinator rooms at inlet of storage reservoir at Tuikhuahtlang and booster pump house Chandmari – M/s De Nora India Limited, Kundaim Goa. Has **completed** work successfully on Aug. 2010
3. Installation of 15000 numbers of consumer water meters – M/s Aman Engineering Ltd, Jalandhar has **completed** work successfully.

• Scope of work in Tranche- II

Final DPR for Tranche – II has been submitted and approval from statutory authorities also has been obtained. Accordingly execution of the Tranche – II project has been developed under 10 Package and the details of which are stated below:

- 1) **Supply, Installation & Commissioning of 2 nos. Booster pumps.** Contract Awarded and installation is under progress to M/s J.D.S.S., Dawrpui, Aizawl, Mizoram.
- 2) **Construction of 3 nos. water reservoir.** Contract Awarded and work under progress to M/s S.S Construction, Chaltlang, Aizawl, Mizoram.
- 3) **Purchase & Installation of 85 Bulk & 20000 Domestic water Meters.** Contract Awarded and installation is under progress to M/s Aman Engineering Works, Jalandhar, Punjab.
- 4) **Rehabilitation & Extension of Water Supply Feeder mains & Distribution networks (107.55Km).** Contract awarded to M/s Tania Constructions Limited. Work just started in Zone-17 in June.

- 5) **Purchase & installation of dedicated power supply (132 Kv).** Contract awarded to M/s EMC Limited, Kolkata and work is in progress
- 6) **Supply, Installation & Commissioning of Cess Pool Cleaner 5 nos.** Contract Awarded to M/s M/s Gangwal Engineering & Construction Corporation Pvt Ltd, Silchar. Vehicle has arrived and already commissioned.
- 7) **Site/Land Development & Approach Road to STP (400 m).** Contract Awarded to CLT Construction, Vaivakawn, Aizawl. Work in progress.
- 8) **Construction of 10 nos. community toilet blocks.** Contract awarded to M/s Gangwal Engineering & Construction Corporation Pvt Ltd, Silchar. Construction of 4 toilet blocks is in progress.
- 9) **Providing, Laying, Jointing & Commissioning of Sewerage Networks (46Km).** Contract awarded to M/s Tantia Constructions Limited.
- 10) **Construction of 1 no. Sewerage Treatment Plant 10 MLD.** Contract awarded to M/s Eco Protection Engineer Pvt. Ltd, Chennai.

The sub project details of ongoing work are stated in table 1.

TABLE 1: SUB PROJECT DETAILS

Sl. No.	Name of Work	Location	Description	Changes if any from approved scope
Water Supply				
1.	Ground level Water Reservoir	Mualpui. Land belongs to government	Work completed	No Further change
	Ground level Water Reservoir	Tanhri. Land belongs to government	Work completed	No Further change
	Ground level Water Reservoir	South Hlimen. Land belongs to government	Work completed	No Further change
2.	Supply, Installation & Commissioning of Booster Pump	Tlangnuam and Chanmari. Installed within PHED existing pump houses.	Work Completed	No Further change

Sl. No.	Name of Work	Location	Description	Changes if any from approved scope
3.	Purchase & Installation of water meters i) Bulk Meter-85 ii) Domestic meter – 20000		Work in progress. (97.12%)	No Further change
4	Rehabilitation & Extension of Water Supply Feeder mains & Distribution networks (107.55Km).	Alongside existing public road/path	Work in progress (37.88%)Approx. (Due to inclusion of House connection in the % has fluctuated)	Distribution and feeder main pipe laying work is in progress. Total pipe layed including feeder main 36975.34m. Total pipe procured DI 17978m and GI 45744.99m. Total 602 house connection completed.
5.	Purchase & installation of dedicated power supply (132 Kv).	Dihmunzawl land belongs to PHED.	Work in progress (27.50%)	Work of substation quarter is in progress and land development for substation is completed. Tower location finalized. Subjected to start after payment is made to all landowner.
Sewerage				
1.	Supply, Installation & Commissioning of Cesspool Cleaner 5 Nos.		Work completed	No Further change
2.	10 MLD construction of Sewerage treatment plant (STP)	Bethlehem Vengthlang, Chite. Private land purchased.	Work on progress (66.09 %)	C-tech wall and admin building work is in progress. Almost all mechanical and electrical equipments procured.
3	Site/Land development and approach road to STP site of length 400m	Bethlehem Vengthlang, Chite. Private land purchased from the same landowner of STP site.	Work in progress. (74.43%)	Approach Road slope protection work almost completed. Embankment earth fill to the required pavement is in progress.

Sl. No.	Name of Work	Location	Description	Changes if any from approved scope
4.	Construction of 10 nos. community toilet blocks.	7 locations are Local Council land. Rest 3 sites belong to Aizawl City Bus Owner Association (ACBOA), Trade And Commerce Department and Aizawl Municipal Council (AMC) respectively.	Work in progress (100%)	All 10 toilets completed and open.
5.	Providing , laying , jointing & commissioning of Sewerage Network (SEW)	Alongside existing public road/path	Work in progress (13.08 %)	Total of 5730m piped layed with 302 manholes. No much work could be achieved due to monsoon season.

Updated as of June, 2015

Completed location of work as inspected site clearances had been maintained and found satisfactory. The left over materials (apart from steel material, G.I sheets and timber) were disposed off at specified disposal sites as per Municipal approved location. Further, Timbers accumulated from construction work were also used for scaffolding works etc. and steel materials were collected by scrap collectors from the site.

Tree felled at STP site is 20 nos. and will be replanted in the ratio of 1:2 (i.e for every one tree felled two nos. of tree will be planted) once the civil works is completed. 4 nos of trees have been planted in Tanhril (Reservoir) by contractors as per instruction and mitigation plan given by DSMC. Further, 98 trees were counted initially to be felled at the new STP approach road land for which NOC had been obtained from Forest Department for felling permission. However, after completion of excavation work total

number of tree felled counted 46 nos. Hence, for 46 nos. of tree felled 92 nos. of tree planting will be carried out after completion of work.

Monitoring and reporting on Environmental and Social safeguard is continuing since starting of work by the implementing agencies DSMC and SIPMIU and monitoring report has earlier been prepared regularly for submission to ADB on semiannual basis. However, so far no adverse impact of project activities have been observed/ identified on social and environmental components.

II. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE

A. Environmental Legal Requirements

To overcome negative impacts most of the subproject developed under NERCCDIP is expected that most subproject should not fall within the scope of environmental regulations. Subprojects and activities which needed to comply with certain laws are:

- ❖ Any components that require the acquisition of forest land;
- ❖ Any construction activities located in areas covered by any special Notification;
- ❖ Any components that require Consent for establishment and Consent for operation

B. Compliance with Environmental Regulations

Table 2 below highlights the present clearance status for different sub-projects under **Tranche – II**. As per the present status consent to establish or consent to operate from National level is not required for any sub-project in Tranche – II. All sub project works under Tranche – II is within the capital city, Aizawl.

Table 2: Present Status of Environment & Forest and Other Clearances

Work having Package No.	Applicable Legislation/ Type of clearance	Clearance given by and date	Project Area	Subject / Issue	Remarks/ Action needed
Tranche-II					
1. Construction of 3 nos. GSR after evaluation contract awarded to M/S S.S. Construction, Aizawl. GLR/WS/AIZ/T2/NCB - 3 2. Supply & Installation of 2 nos. booster pump-Contract awarded to M/S Johnson Diesel Sales & Services. EM&S/WS/AIZ/T2/NCB-1 3. Supply, installation & commissioning of 5 nos. cesspool cleaner-Contract awarded to M/S Gangwal Engineering & Construction Co.	Water (Prevention and Control of Pollution) Act. 1974/	Not required	Greater Aizawl	NA	Not required

Work having Package No.	Applicable Legislation/ Type of clearance	Clearance given by and date	Project Area	Subject / Issue	Remarks/ Action needed
Pvt. Ltd. WM2/WS/AIZ/T2/ICB - 2					
4. Construction of Sewerage Treatment Plant (STP). STP/SEW/AIZ/T2/NCB-7	No objection certificate	Principal Chief Conservator of Forests. 1 st June 2011	Greater Aizawl	Tree cutting permitted	Consent has been acquired
	Consent to establish	Mizoram Pollution Control Board	Greater Aizawl	Consent to establish	Consent has been renewed
	Consent to Operate	Not Acquired as it is still under construction	Greater Aizawl	NA	NA

C. Compliance of Environmental Loan Covenants

The status of compliance of ADB's major Environmental Loan Covenants shown below:

Table – 3: Details on compliance with environmental loan covenants of ADB

Project Specific Covenants	Status / Issues
Environmental	
1.The EA shall ensure that: (LA Sched 5 Para 13) (a) the project is carried out and all subproject facilities designed, constructed, operated, maintained, and monitored in compliances with the environmental law and regulations of the Borrower, the state, ADB's Environmental Policy (2002, 2009), and the EARF;	Under compliance In accordance with ADB Environmental Policy and Environmental Assessment Guidelines
2. (b) Subproject encroaching any National Park or its buffer zone shall not be included in the Project; however, Subproject in or close to the wildlife sanctuary or any other environmentally sensitive area may be allowed subject to the EA obtaining all statutory clearances;	No such encroachment recorded till date. If it happens in future, statutory clearance will be taken up as per applicable Govt. procedure
3 (c) an IEE as required, including an EMP with budget identifying the cost of its implementation as incorporated in the related bid document if any, when adequate public	IEE report has been prepared by PPTA consultant for sub-project where EMP, budget for application of EMP and issues of public consultation are incorporated.

Project Specific Covenants	Status / Issues
consultation for each sub-project, in accordance with the EARF shall be submitted to ADB for review and approval before award of related contract. In case of any EIA or SIEE for sub-project classified as A or B sensitive, this shall be subject to the 120 day public disclosure requirement under ADB's Environmental Policy (2002, 2009)	In tranche-II no sub-project required environmental clearance.
4 (d) all mitigation measures identified in the IEE, SIEE, EIA or SEIA and the related EMP, as applicable, for each sub-project, shall be incorporated in sub-project design, and carried out during construction, and O & M, and disclosed to the stakeholders;	Under compliance: IEE screening of potential environmental impact and mitigation measures applied according to project location, specific sector development and associated design requirements. EMP's prepared and regularly monitored for compliance of stated mitigation measures. During construction process within the town consultation with local communities on environmental issues are considered and regularly it is being implemented.
5 (e) if there are any changes in specific locations or alignments of any sub-project facilities after completion of the process of IEE (or EIA) or due to detailed design or implementation that has an impact on the environmental assessment carried out thus far, then additional environmental assessment shall be carried out in accordance with ADB's Environmental Policy (2002, 2009) and the EARF, and prior approval of ADB obtained before further physical implementation of the sub-project;	In case of any major change of locations, EMP will be revised for Tranche-II sub-projects. Till date no change is expected in tranche-II sub-project. For minor change in location/capacity of project facilities EMP will be revised for monitoring purpose.
6 (f) all environmental clearances required by applicable laws, and regulations at Borrower, State, or local levels shall be obtained in a timely manner, prior to commencement of civil works for the relevant subproject	In tranche –II sub-project no Environmental Clearance is required.
7 (g) semi-annual progress reports on the implementation of the EMPs, measures under the IEE/EIA, and the environmental monitoring shall be carried out as a part of the project. Implementation for review and disclosure in accordance with ADB's Public Communications Policy (2005)	Field monitoring continued as per monitoring plan During construction process within the town consultation with local communities on environmental issues has already been initiated and continued in all locations of project site.

D. Environmental Organization and Management

Environmental issues of the project coordinated by an Environmental Specialist within the SIPMIU/DSMC, who ensures that all subprojects, comply with environmental safeguards. An Environmental Monitoring Specialist (EMS) who is part of the DSMC team implements the Environmental Monitoring Plan from each IEE to ensure that mitigation measures are provided and protect the environment as intended. **Figure 1** shows institutional responsibility for implementation of environmental safeguard monitoring at different level.

EMP shows that most of the mitigation activities are the responsibility of the Construction Contractors (CC) employed to build the infrastructure during the construction stage or the O&M Contractors employed to conduct maintenance or repair work when the system is operating. There are also some actions that need to be taken by SIPMIU in their role as project proponent, and some actions related to the design that would be implemented by the DSMC.

A program of monitoring would be conducted to ensure that all parties take the specified action to provide the required mitigation, to assess whether the action has adequately protected the environment, and to determine whether any additional measures may be necessary. This would be conducted by a qualified Environmental Monitoring Specialist (EMS) from the DSMC. The EMS is responsible for all monitoring activities, reporting the results and conclusions to SIPMIU. The EMS will also recommend remedial action if measures are not being provided or are not protecting the environment effectively. The EMS may be assisted by environmental specialist in particular technical fields, and junior or medium-level engineers who can make many of the routine observations on site. Post-construction monitoring will be conducted by the relevant Government Agency (GA) to whom responsibility for the infrastructure will pass once it begins to operate¹. ANNEXURE – 1 shows the details of SIPMIU and DSMC environmental cell set-up personnel.

EMP shows that most of the mitigation measures are fairly standard methods of minimizing disturbance from building in urban areas (maintaining access, planning work to avoid sensitive times, finding uses for waste material, etc), and experienced contractors should be familiar with most of the requirements. Monitoring of such measures normally involves making observations in the course of site visits, although some require more formal checking of records and other aspects.

All Tranche – 1 work has completed successfully without any complaints and has been handed over to the concern Department further the contractor's liability period has also ended. So far grievance hasn't been encountered in Tranche – II work as well. ANNEXURE –II gives the details of Grievance redressal mechanism.

¹ In the operational period some infrastructure will be the responsibility of the Municipal Boards/Councils, whilst others will be the responsibility of the appropriate branch of the State government (such as PWD, PHED, etc)

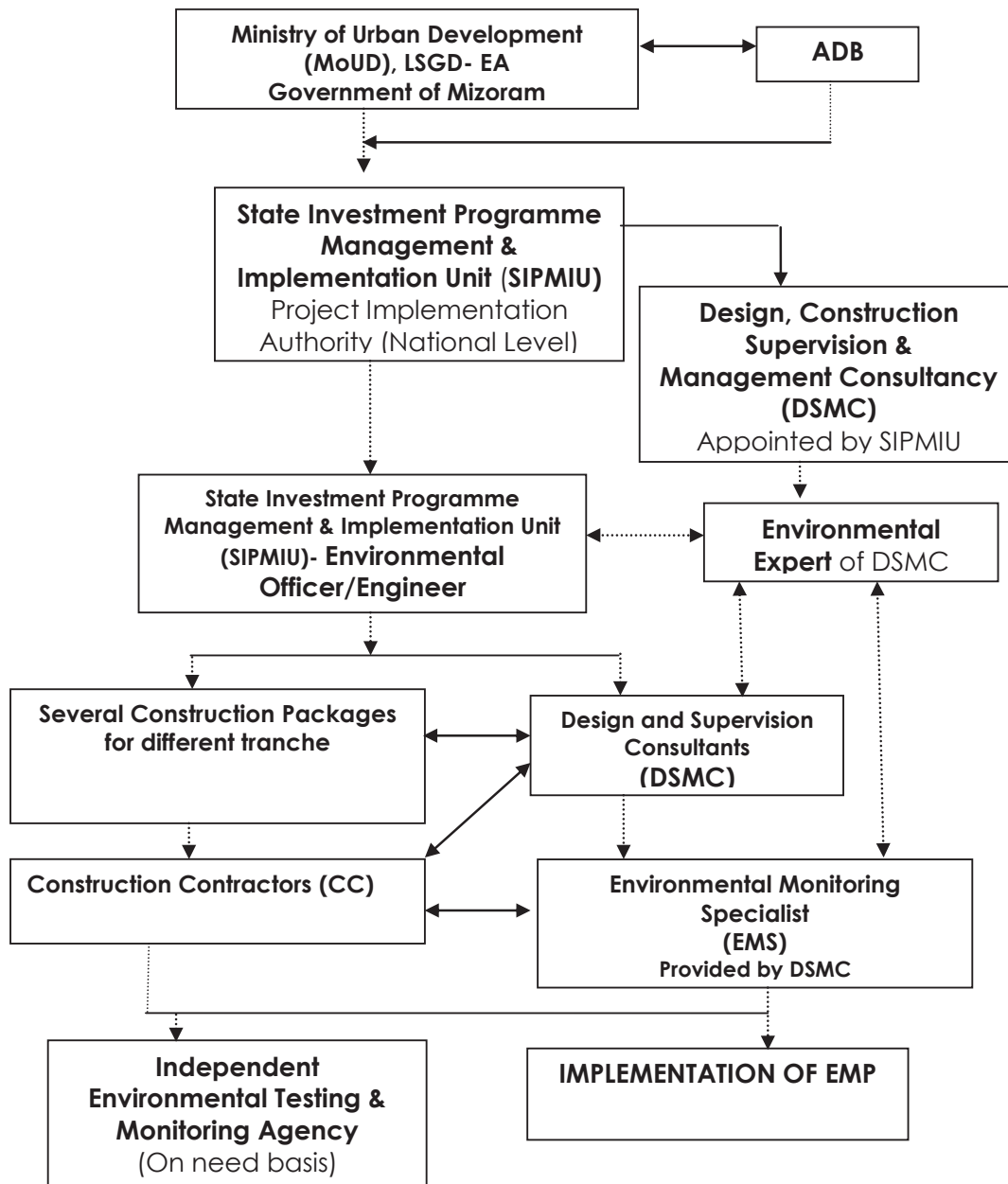


Figure 1: Institutional Responsibility- Environmental Organization SIPMIU

III. EMP COMPLIANCE STATUS

At present there are 2 sub-project having 5 components each in Tranche – 2. Water Supply sub project – Construction of 3 numbers of RCC Tanks, Installation of 2 Numbers of booster pump, Sewerage sub-project – purchasing and commissioning of 5 numbers cess pool Cleaner are already completed. Field activities for sub-project of tranche-2 are found as per EMP. The detail mitigation measures against impacts on air, water, soil environment and safety aspects on Tranche – II are shown in Table 4.

For implementation of EMP, arrangement of human safety, provision of PPE for workers engaged in construction is being implemented. Training is being provided to the contractor by DSMC's monitoring specialist and SIPMIU representative on environmental safeguard requirement. Moreover instruction is given to contractors to follow the specified clause of BID document to mitigate environmental and social impacts.

The contractors whose work requires environmental implementation has been instructed to submit their environmental management plan for approval. Although some Contractors had complied with the instruction and submitted the plan before June 2015, plan submitted by the contractor are scrutinized and checked, wherever necessary environment criteria required is added. Those Contractors who had submitted their EIP is annexed and the remaining one will be attached in the next semi-annual monitoring report.

Construction contractors provide necessary safety arrangement for individual safety and construction site, for individual they provide PPEs like Safety Vest, Safety Helmet, Safety Shoes and respiratory mask, on site it is observed that most of the labors use PPEs only during inspections and takes off once the inspections are over mainly helmets. There is need for more awareness about the need full use of PPE in between the laborers especially with risk nature of the worksite job and type of PEE used for such type of job. For construction site safety, safety Tape barricading, informatory and cautionary signages, safe passage for traffic and road users and awareness meeting with locality habitants prior to start of work.

Table 4: Compliance of EMP and OH & S Norms of Tranche – II

Sl. No	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring method	Responsible for Monitoring	Compliance status
1	Site preparation work completed by SIPMIU including necessary clearance	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied
2	Establishment of temporary camps with sanitary and	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. Regular checks and

Sl. No	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring method	Responsible for Monitoring	Compliance status
	solid waste management arrangement					instructions are being carried out during site visit and found satisfactory so far.
3	Removal of overburden and excavated/ dismantling material from working site and use / preservation of the same – as per mitigation measures	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. Most of the overburden had been used for back filling, remaining surplus spoil are sent to recognized disposal site. The dismantled materials are transported to recycling vendors.
4	Water sprinkling at construction site for arresting dust	All Sites	Contractor	Site observations	SIPMIU/ DSMC	No major issues of dust nuisance encountered so far. Only in case of feeder main pipe line excavation sprinkling of water is being provided.
5	Materials carrying vehicle are covered	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied
6	All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board Certification	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Since the work is within the city area public carrier are used. (all public carrier are PUC certified, hence complied)
7	At sensitive locations enclosures provided around	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. New Equipments

Sl. No	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring method	Responsible for Monitoring	Compliance status
	generator set and concrete mixture or other noise producing machinery					are used hence noise produced from the machines are controlled so far.
8	Regular maintenance of noise producing equipment done	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. Equipments are new.
9	Arrangement of drainage of waste water and arresting solid waste from waste water generated at construction site	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. Temporary drain is provided connecting nearest drain/culvert of the location.
10	Felling of trees done (if necessary) with mitigation measures i.e. planting of two trees for each tree fell.	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Records of trees fell during site development are maintained for re-plantation at suitable location.
11	Chances of water bodies pollution from construction	All Sites	Contractor	Site observations	SIPMIU/ DSMC	NA
12	Drainage crossing National Highways and railways - done without any disturbance through construction of culvert etc.	All Sites	Contractor	Site observations	SIPMIU/ DSMC	NA
13	Disposal of construction debris if any as per mitigation measures done	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Most of the debris generated is used for backfilling, hence, very little quantity to dispose which is transported to disposal sites.

Sl. No	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring method	Responsible for Monitoring	Compliance status
14	Local flooding from watering of excavation, flushing pipes etc.	All Sites	Contractor	Site observations	SIPMIU/ DSMC	NA
15	Ensure use of Personal Protective Equipment like helmet, gumboot, gloves, safety tape, nose musk and earplugs at work place	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Contractor's so far had provided PPE to workers such as helmets, safety vest etc. as per nature of work. During site visit most of the workers are seen with such PPE. Few still feel uncomfortable to wear helmet during work.
16	Provide Health and Safety training to all personnel and implement H & S plan	All Sites	Contractor	Site observations	SIPMIU/ DSMC	AIDS Awareness to all the Contractors workers taken up on 29 th May 2015. Free medical checkup were also taken up. Workers are aware and conscious
17	Plan truck routes to avoid Town, narrow or congested roads, important or fragile buildings, religious and tourist sites	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied
18	Plan transport of	All Sites	Contractor	Site observations	SIPMIU/ DSMC	As per the state traffic

Sl. No	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring method	Responsible for Monitoring	Compliance status
	waste to avoid peak traffic and tourist season			ons		law, contractor's vehicle is controlled.
19	Suitable short term traffic diversion and implementation of traffic management plan at construction site	All Sites	Contractor	Site observations	SIPMIU/ DSMC	It is been taken up prior to start of work with consultation. Permission from traffic police is applied in every such case for traffic management.
20	Consideration of public safety - as per prescribed mitigation measures	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Safety tapes and barricades provided where ever required.
21	Employ at least 50% of workforce from communities near sites	All Sites	Contractor	Site observations	SIPMIU/ DSMC	This is being practice as per availability of workers willing to work from the concern location.
22	Continuous monitoring on implementation of mitigation measures.	All Sites	Contractor	Site observations	SIPMIU/ DSMC	Complied. Carried out under regular site inspection.

Updated as of June 2015

IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN

Protection of local environment, health and safety of workers engaged during construction, application of mitigation measures started as per specified EMP. Public consultation during construction/implementation phase is being carried out, the general recommendations as per present observations are given below in table 5.

As per ADB's new safeguard policy the project authority established a mechanism to receive and facilitate resolution of affected persons' concerns, complaints and grievances about the project's environmental performance. **The grievances mechanism** should be scaled to the risks and adverse impacts of the project. It will address- affected peoples' concerns and complaints promptly,

using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all the affected people at no cost and without retribution. The affected people will be informed by appropriate mechanism.

During implementation process performance monitoring fact sheet are prepared against each possible environmental impacts and which are attached with the monitoring report.

Table No: 5

Sr. No	Recommendations & Suggestions	Action plan consider for Satisfactory Environmental Compliance
1	Effort in implementing Environmental Management Plan is carried out by the Contractors. The present status is found partially satisfactory but there is scope for improvement in the implementation of EMP such as – workers do not always wear proper PPE and improve barricading.	Instruction to contractors and monitoring for: <ul style="list-style-type: none"> ➤ Proper disposal of debris and quick disposal of excavated/dismantling surplus earth/iron material, ➤ Complete use of PPE, ➤ Restoration/construction of approach road at earliest, ➤ Camp site management, ➤ Control water logging according to site conditions and oil spillage, ➤ Water sprinkling during dry season
2	Contractors site supervisor are always reminded to insist workers to bear and use proper PPE.	Use of safety tape/ barricade/ caution board.
3	For area where construction work completed the contractors are repeatedly advised to clean all the construction debris/garbage's and make good the site before leaving.	Public consultation during construction.
4	The contractors are reminded to ensure OHS for their workers and that is implemented as per EMP	Follow up action for departmental clearances/ consent.
5	Contractors should often encourage their staff and workers regarding environment and social concerns.	Not only the workers but the Contractor's Site Engineers are always reminded to further encourage their workers.

ANNEXURE – 1: MONITORING TEAM DETAILS

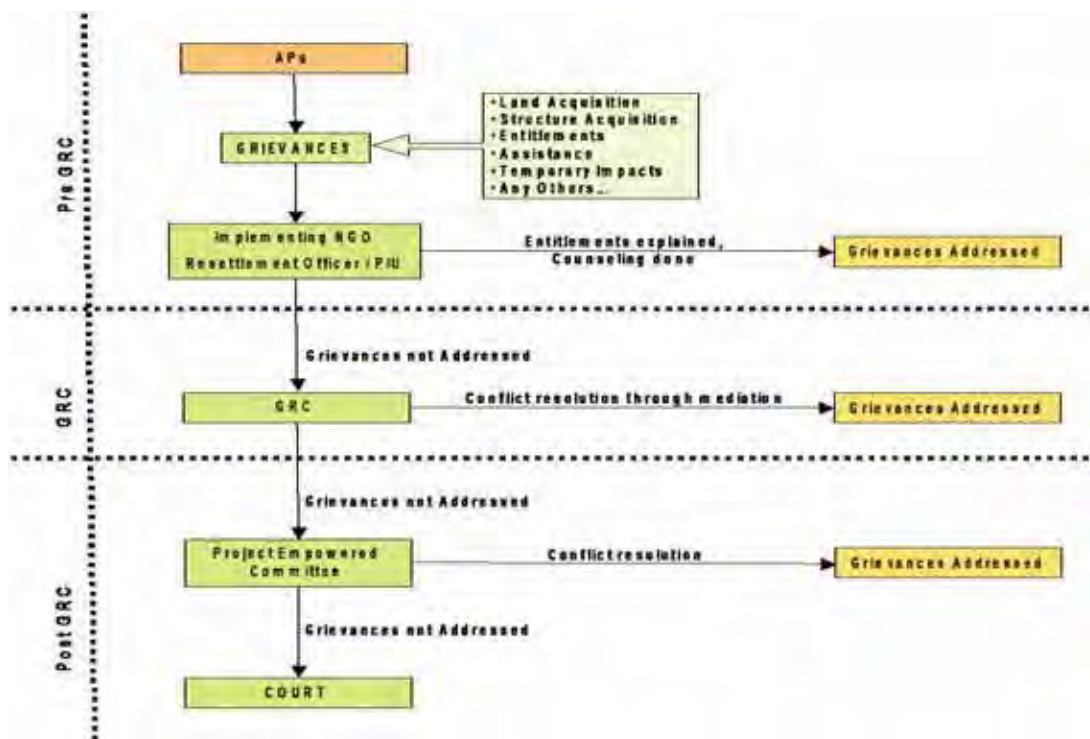
Sl.No	Name	Position	Contact Number	Email
1	Valbuanga	Program Director, SIPMIU	0389-2390532	pdazl07@gmail.com
2	Lalthanzuali	Dy. Program Director, SIPMIU	9436155383	ltzuali123@gmail.com
3	Dorothy Laldinpuii	Social Development Officer, SIPMIU	9862538566	laldinpuidorothy@gmail.com
4	Lalchhuantluangi	Community Development Officer, DSMC	9862363797	tluangteirk@gmail.com
5	Lalhmuaka	Asst. Engineer (Environment &SWM), SIPMIU	9612195925	Hmuaka777@gmail.com
6	Rahul Kumar	Environment Specialist, DSMC	07607440857	Rahulkumar_env@rediffmail.com
7	C.Dorema	Evaluation & Monitoring, DSMC	9436144127	NA
8	Ignatius Zomuankima	Resettlement & Rehabilitation Expert, DSMC	9436141236	ignatiusz64@gmail.com
11	Jacob Lalfakzuala	Asst. Engineer, Contractor, C.L.T Construction		cltconstruction2011@gmail.com
12	Martin Vanhmingmawia	Asst. Engineer, Contractor, Gangwal Engineering & Construction Corporation Pvt. Ltd	8974728512	gecpl@rediffmail.com
13	Nipen Gogoi	Asst. Engineer, Contractor, Tantia Constructions Ltd	9612135358	nipen_gogoi@yahoo.com
14	Shudhanshu Das	Asst. Engineer, Contractor, EMC Pvt. Ltd.	9612850627	dasshudhangshu@gmail.com
15	Maria Edward Jude	Dy. Project Manager,	8575049131	ecoprotectionengin

		Contractor Eco Protection Pvt Ltd.		eers@gmail.com
--	--	---------------------------------------	--	----------------

ANNEXURE – 2 : GRIEVANCE REDRESSAL MECHANISM

Grievances of APs will first be brought to the attention of the implementing NGO or RO. Grievances not redressed within 30 days by the NGO or RO will be brought to the grievance redress committee (GRC), established in each State. GRCs will comprise the Investment Program Director, RO, LAO, implementing NGO representative, female and male AP representatives (including vulnerable households), and an eminent member of the community. The GRC will meet every month, determine the merit of each grievance, and resolve grievances within a month of receiving the complaint; failing which the grievance will be addressed by the IPEC. Further grievances will be referred by APs to appropriate courts of law. Records will be kept of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. All costs involved in resolving grievances will be borne by the SIPMIU. The SIPMIU through the DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The grievance redress process is shown in **Figure 1**. The GRCs will continue to function throughout the project duration.

Figure 1: Grievance Redress Mechanism



NGO: Non- Government Organization, DSMC: Design Supervision Management Consultant, SIPMIU: State Investment Program Management and Implementation Unit

STATE LEVEL			
1	Minister, UD&PA Department, Mizoram	Chairman	Mr. Zodintluanga, Minister
2	Deputy Commissioner	Convener	Dr. Franklin Laltinkhuma, IAS
3	Secretary, UD&PA, Govt. of Mizoram	Member	Dr. Vanramsanga, IES
4	Secretary, Law and Judicial Department	Member	Mr. P. Singthanga, MJS
5	CEO, Aizawl Municipal Council	Member	Mrs. Ethel, MCS
6	Project Director, SIPMIU	Member	Er. Valbuanga, CE, PHED
CITY LEVEL			
1	Deputy Commissioner, Aizawl	Chairman	Dr. Franklin Laltinkhuma, IAS
2	Project Director, SIPMIU	Convener	Er. Valbuanga, CE, PHED
3	CEO, Aizawl Municipal Council	Member	Mrs. Ethel, MCS
4	Councillor of concern ward	Member	Concern AMC Councilor
5	Chairman of concerned Local Council	Member	Concern Local Council Chiarman
6	Chief Engineer, PHED	Member	Mr. R. Lalthanliana
7	Chief Engineer, PWD	Member	Mr. John Rammawia
8	Director, UD&PA	Member	Mr. Zorammuana, MCS
9	President Central YMA	Member	Mr. Lalbiakzuala
10	President, MUP	Member	Mr. K. Malsawma
11	President, Mizoram Consumer Union	Member	Mr. Thanglura
12	President, MHIP	Member	Mrs. Lalthlamuani

ANNEXURE – 3: INSTRUCTIONS TO CONTRACTORS

Contractors as per their work nature were instructed to prepare and submit EMP. After submission, EMP is scrutinized by Expert. The exercise is mainly to keep a check on the Contractors are aware of the Safeguard requirements. Preparation of EMP is usually guided by Expert from DSMC.

Contractor's EMP status:

SI No.	Name of Contractor	Work Component	EMP	Status	Remarks
1	M/s Tania Construction Limited.	Water supply work	Submitted	Conditionally Approved	Scan copy enclosed in the previous report.
2.	M/s Tania Construction Limited	Sewerage Network	Submitted	Same as above	Same as above
3.	M/s SS Construction, Aizawl	Construction of 3 GSR	Submitted	Same as above	Same as above
4.	M/s CLT Construction, Aizawl	STP Site Development and Approach Road	Submitted	Same as above	Same as above
5.	M/s Eco Protection Engineers, Chennai	10 MLD STP	Submitted	Same as above	The report is annexed in this report
6.	M/s. EMC Limited, Kolkata	132 kVA Sub station and Tower	Not Submitted	Required for submission	Regular reminder had been issued.

Copy of EMP submitted by M/s Eco Protection Engineers Limited, Chhenai is shown below:



M/s. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI		
CONTENTS		
Sl No.	Description	Page no.
1	INTRODUCTION	2
2	OBJECTIVE OF ENVIRONMENTAL MANAGEMENT PLAN	4
3	ENVIRONMENTAL MANAGEMENT SYSTEM	4
4	TRAINING AND AWARENESS POLICY	5
5	NON CONFORMANCE AND CORRECTIVE ACTION	6
6	CLEARANCE REQUIREMENTS	7
7	ENVIRONMENTAL MANAGEMENT PLAN	8
8	CONTRACTORS REPORTING SYSTEM	25
9	WORK PROGRAMME	25

M/s. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI	
1. INTRODUCTION:	
1.1 BRIEF DESCRIPTION OF THE PROJECT:	
<p>The North Eastern Region Capital Cities Development Investment Program (NERCCDIP) envisages achieving sustainable urban development in the Project Cities of Agartala, Aizawl, Kohima, Shillong and Gangtok through investments in urban infrastructure sectors. The urban infrastructure and services improvement is proposed in the following sectors (i) water supply, (ii) sewerage and sanitation, and (iii) solid waste management. The expected impact of NERCCDIP is increased economic growth potential, reduced poverty, and reduced imbalances between the NER and the rest of the country. The expected outcomes of the Investment Program will be an improved urban environment and better living conditions for the 3.85 million people expected to be living in the NERCCDIP cities by 2018. To this end, NERCCDIP will (i) improve and expand urban infrastructure and services in the cities including in slums, and (ii) strengthen urban institutional, management, and the financing capacity of the institutions, including the urban local bodies, based on considerations of economic justification, absorptive capacity and sustainability of the implementing agencies. sub-projects have been identified in each city in the priority infrastructure sectors.</p> <p>NERCCDIP will be implemented over a six year period beginning in 2010, and will be funded by a loan via the Multitranche Financing Facility (MFF) of the ADB. The Ministry of Urban Development (MOURD) is the national Executing Agency. A State-level Investment Program Management and Implementation Units (SIPMIU) in each state is responsible for overall technical supervision and execution of all subprojects funded under the Investment Program. The SIPMIU is being assisted by design, management and supervision consultants (DMSC), who are designing the infrastructure, managing the tendering of contracts, and will supervise construction.</p> <p>ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for Environmental Assessment are described in ADB's Safeguards Policy Statement (SPS) (2009). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans. This Initial Environmental Examination (IEE) has been prepared for the Aizawl Water Supply and Sewerage Subproject as part of NERCCDIP- Tranche 2. The proposed improvement in the sewerage system will involve: (i) sewerage network consisting of 46 km including manholes and ventilation shafts and all associated earthworks and utility shifting; (ii) procurement of septic tank cleaning equipment; (iii) construction of 10 community toilets in few lots; (iv) construction of a sewerage treatment plant (STP); and (v) construction of approach road to the STP.</p> <p>IEE report included in the Contract document covers the general environmental profile of Aizawl and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the subproject's influence area during</p>	
10 MLD SEWERAGE TREATMENT PLANT	Page 3

M/s. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI	
design, construction, and operation stages. An Environmental Management Plan (EMP) is also proposed as part of this report which includes mitigation measures for significant environmental impacts during implementation of the Project, environmental monitoring program, and the responsible entities for mitigation and monitoring.	
2. OBJECTIVE OF ENVIRONMENTAL MANAGEMENT PLAN:	
<p>Preparation of Environmental Management Plan is required for formulation, implementation and monitoring of environmental protection measures during and after commissioning of projects. The plan describe that how the proposed environment management measures of Contract EMP are to be implemented at site; and/or proposal for additional cost effective measures are to be made which may be required as per site condition during the construction phase.</p> <p>The Contractor's Environmental Management Plan (EMP) is a project-specific document prepared for environmental management requirements, as identified in the Contract EMP, will be implemented and managed at site. The EMP will detail how the various adverse environmental impacts related to construction work will be mitigated and documented by inspecting, monitoring, verifying, internal auditing and correcting or improving environmental performance.</p> <p>The Environmental Management Plan (EMP) is designed to assist the construction plan and implement effective site-specific strategies that will minimize the environmental impacts associated with execution of the project. The EMP encompasses all Environment, Safety and Social Safeguard issues of the project area.</p> <p>Contractor's Environmental cum Safety Manager along with designated staffs of Environmental Management Team members of the project will implement all the environmental management measures at site, as stipulated in the Contract EMP, within the scheduled time of the Contract.</p>	
3. ENVIRONMENTAL MANAGEMENT SYSTEM:	
3.1 ENVIRONMENTAL MANAGEMENT POLICY:	
<p>In this present contract M/s ECO PROTECTION ENGINEERS, CHENNAI is committed to protect and conserve the environment during construction activities and make value addition to the environmental and social condition of the project area. The company has practical approach and fully aware of its environmental and social responsibility in protecting and sustaining the environment.</p> <p>Each and every staff of M/s ECO PROTECTION ENGINEERS, CHENNAI employed in this project will adhere to project specific Environmental and Safety Policy. In this contract project Environmental Management Plan (EMP) is a part of contract document. It is the contractor's contractual obligation to</p>	
10 MLD SEWERAGE TREATMENT PLANT	Page 4

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI

comply with the provisions in the EMP document. Further additional requirements (if any) will be investigated and proposed to the Engineer as per site condition and/or requirement.

ROLES AND RESPONSIBILITIES:

All the staff and/or workers those who are involved in this project will adhere all the provisions stipulated in the EMP document.

Project Manager:

Through Environmental cum Safety Manager the Project Manager ensure timely and effective implementation of EMP compliance at different stages including pre-construction, construction and post-construction cleaning up activities as per the contract agreement.

Environmental cum Safety Manager:

The Environmental Management team of the Contractor is coordinated by the Contractor's Environmental cum Safety Manager, will be responsible for implementation of the EMP at site, he will directly report to the Project Manager for implementation of the EMP and submission of reports to SIPMIU/DSMC.

Deputy Project Manager:

The Deputy Project Manager for Structure for each work section will be responsible for the execution and implementation of this plan and other environmental issues on site as and when they arise. Information and guidance to his staff regarding the same is also to be imparted and enforced by the

Deputy Project Manager.**Site Staffs:**

It is proposed that every site sectional area, a personnel from the work gang (contractors or sub-contractors) or group is designated the responsibility to ensure environmental management. The Deputy Project Manager will instruct his staffs for each work section to undertake the completion of the prepared formats / checklists as per the activity operation they are in and ensure that the same is being regularly and properly maintained, the submission or collection of the same is to be made fortnightly to or by the Environmental cum Safety Manager.

4. TRAINING AND AWARENESS POLICY:

Time to time Training and Awareness programs are conducted by the company to upgrade and enhance the skills of workers.

Induction Training:

Page 5

10 MLD SEWERAGE TREATMENT PLANT

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI

After joining every new employee have to undergo an induction training programme at our Head Office before proceeding to their worksite. During induction training programme an overview of the assigned project, its contract conditions including safety & environmental norms, work procedure/practice to be followed at site has been elaborated to the new employee.

Tool Box Talk:

Periodically Tool Box Talks are conducted at site by Environmental cum Safety Manager. During Tool Box Talk the safety precautions which are needs to be adopted by every site employees or workers during various types of activities in which they are involved are described.

All site workers are informed to use their Personal Protective Equipment's (PPE's) to avoid injury and to take all precautionary measures to reduce the risk during the construction work. In Tool Box Talk site workers are also informed about the First Aid arrangement and its use in case of any accident before contacting safety personnel/team.

Environment and Safety Awareness Training:

To enhance Environment and Safety awareness among the workers time to time training programme on World Environment Day, Safety Week, HIV/AIDS Awareness, etc. will also be scheduled by the company.

5. NON-CONFORMANCE AND CORRECTIVE ACTION:

Project Manager, Environmental cum Safety Manager and all the staffs of this contract package will be responsible for the successful implementation of this plan. Enforcement of this Environmental Management Plan is mandatory and all staffs of this project including subcontractor and its staffs are also bound by this plan.

In case of any non-conformance immediate preventive action will be initiated as per the requirement of site in consultation with SIPMIU & DSMC. The steps which will be followed to overcome non-conformance (if any) are as follows:

Joint inspection of the non-conformance site along with concerned SIPMIU/DSMC representatives.

Investigation for reason of non-conformance during joint site inspection.

Work out appropriate corrective action in consultation with concerned SIPMIU & DSMC representatives.

Immediate implementation of decided corrective action to avoid reoccurrences.

Submission of the compliance report after rectification of non-conformance.

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI				
6. CLEARANCE REQUIREMENTS:				
Implementations of the project works require clearances from the Pollution Control Board, for Consent to Establishment before start of civil works and Consent to Operate before commissioning. Consent to Established has been obtained from Mizoram Pollution Control Board, MPCB				
Table 1: Clearance Requirements				
Sl. No.	Activities for Which Clearances Required	Location	Statutory Authority	Present Status and Reference No.
1	Sewerage treatment Plant (STP)	Chite	Pollution Control Board, Mizoram	Consent to establishment obtained.
2	Installation of Generators	Chite	Permission from Concerned Electricity Board	Will be applied after civil works is over.
			Pollution Control Board, Assam	Will be applied after completion of installation
3	PUC of all Vehicles/Machinery		Motor Vehicle Department	Vehicle/machinery used are hired vehicle having valid PUC
4	Registration of Vehicles and off Road equipment		Motor Vehicle Department	Obtained.
5	Labour License		Labour Commissioner	Obtained from Labour Commission.
6	Quarry for Sand	Aizawl	Forest Dept.	Local Purchase
7	Quarry for Aggregates	Stone Quarry at Aizawl District	Forest Dept.	Local Purchase

10 MLD SEW

Page 7

M/S. ECO PROTECTION ENGINEERS PVT. LTD.

CHENNAI

7. ENVIRONMENTAL MANAGEMENT PLAN:

7.1 PRE-CONSTRUCTION STAGE:

(a) Pre-Construction Activities by Contractor/Engineer

The pre-construction stage involves mobilization of the contractor, the activities undertaken includes:

- Joint field verification of EMP.
- Modification (if any) of the contract documents by the Engineer.
- Procurement of construction equipment / machinery such as electrical equipments and other construction equipment and machinery.
- Identification and selection of material sources (quarry and borrow material, water, sand etc).
- Selection, design and layout of construction areas, STP site, labour camps etc.
- Planning traffic diversions and detours, including arrangements for temporary land acquisition.

7.2 CONSTRUCTION STAGE:

(a) Construction stage activities

Construction stage activities require careful management to avoid environmental impacts. Activities that trigger the need for environmental measures to be followed include:

- Inhibiting environmental principles at all stages of construction as good engineering practices.
- Implementation of site-specific mitigation/management measures suggested.
- Monitoring the quality of environment along the construction sites (as air, noise, water and soil) will be done periodically.

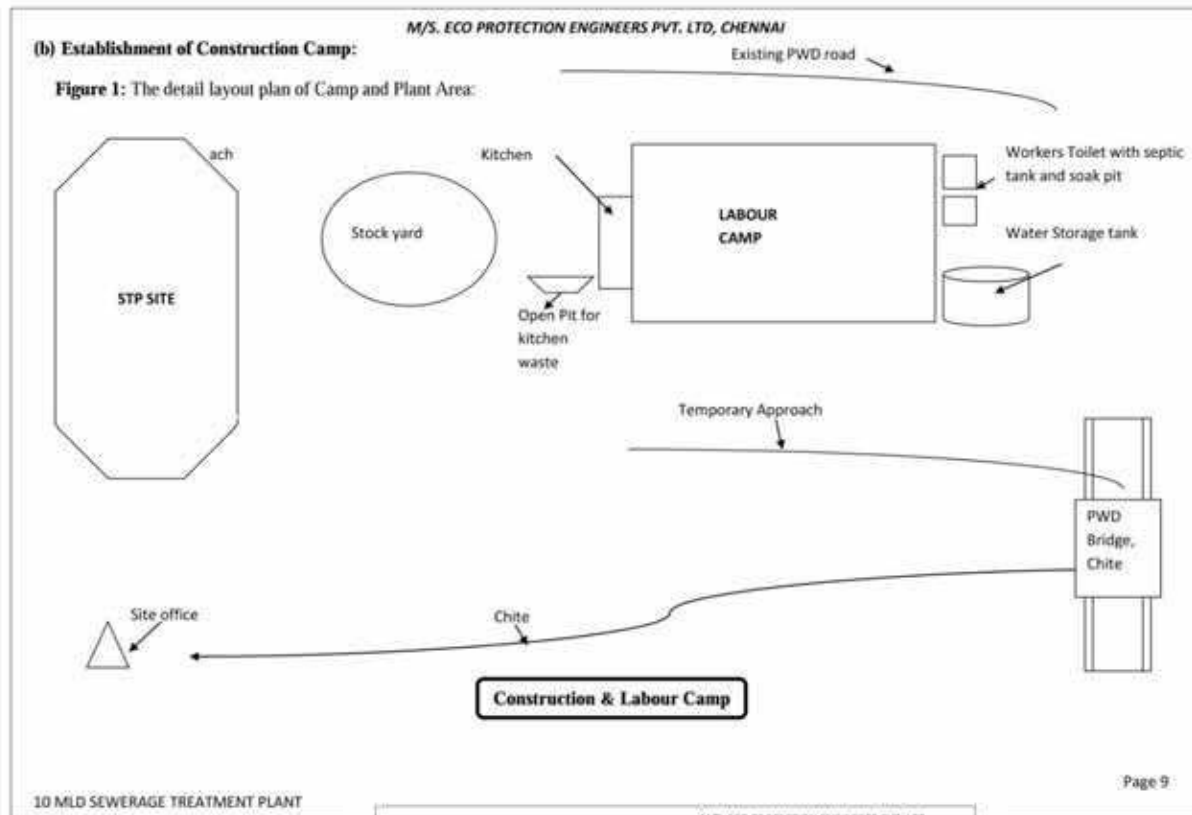
There are several other environmental issues such as improvement of site drainage, provision of additional cross drainage structures or surface runoff and reconstruction and improvement.

Page 8

10 MLD SEWERAGE TREATMENT PLANT

10 MLD SEWERAGE TREATMENT PLANT

Page 8



CHENNAI **M/S. ECO PROTECTION ENGINEERS PVT. LTD,**

Table 2: Location Details of Base Camp and Construction Camp

SL No.	Coordinates	Location Photos	Distance from Nearest Habitation (m)
1	Construction Plant N- 23° 48'51.29" E- 92°44' 05.01"		500
2	Base Camp N- 23° 43'51.29" E- 92°44' 05.09"		200

1. LABOR CAMP:

Total area of the Labor camp is 90 m². Site for Base Camp has been identified based on the selection criteria of EMP Guideline. All the environmental mitigation measures has been undertaken to prevent Land, Water, Air and Soil pollution at the base camp area. The measures which will be adopted at Base Camp area are as follows:

- Supply of sufficient quantity of potable water will be provided in Base Camp area.
- Well-developed drainage system will be provided at the camp area, which will be connected to the main drain.
- Separate toilets/bathrooms (marked in vernacular) will be provided for both male and female workers. Adequate water supply will be provided in all toilets and urinals as per EMP guideline.
- Septic Tanks and Soak Pits will be constructed at every toilet locations for the disposal waste water.
- Garbage bins will be provided in the camps and these will be regularly cleaned.
- EMP. Sand gunny bags will be provided around the stock pile to avoid erosion.

(a) Siting

Page 20

10 MLD SEWERAGE TREATMENT PLANT

CHENNAI**M/S. ECO PROTECTION ENGINEERS PVT. LTD.**

1. The contractor based on the following guidelines shall identify the location of the construction site. The construction site shall be located:

- (i) The construction camps will be located at least 200 - 500 m away from habitations at identified sites. The living accommodation and ancillary facilities for labour shall be erected and maintained to standards and scales approved by the resident engineer.
- (ii) On non agricultural lands, as far as possible
- (iii) All sites used for camps must be adequately drained. They must not be subject to periodic flooding, nor located within 300 feet of swamps, pools, sink holes or other surface collections of water unless such water surface can be subjected to mosquito control measures.
- (iv) The camps must be located such that the drainage from and through the camps will not endanger any domestic or public water supply.
- (v) All sites must be graded, ditched and rendered free from depressions such that water may get stagnant and become a nuisance.

(b) Layout

- 2. Contractor during the progress of work will provide, erect and maintain necessary (temporary) living accommodation and ancillary facilities for labour to standards and scales approved by the engineer. All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. Safe drinking water should be provided to the dwellers of the construction camps. Adequate washing and bathing places shall be provided, and kept in clean and drained condition. Construction camps are to be sited away from vulnerable people and adequate health care is to be provided for the work force.
- 3. **Sanitation Facilities:** Construction camps shall be provided sanitary latrines and urinals. Sewerage drains should be provided for the flow of used water outside the camp. Drains and ditches should be treated with bleaching powder on a regular basis. The sewage system for the camp must be properly designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place. Compliance with the relevant legislation must be strictly adhered to. Garbage bins must be provided in the camp and regularly emptied and the garbage disposed off in a hygienic manner.
- 4. **Shelter at Workplace:** At every workplace, there shall be provided free of cost, four suitable shelters, two for meals and two others for rest, separately for use of men and women labourers. The height of shelter shall not be less than 3m from floor level to lowest part of the roof. Sheds shall be kept clean and the space provided shall be on the basis of at least 0.5m² per head.

CHENNAI**M/S. ECO PROTECTION ENGINEERS PVT. LTD,**

5. **Canteen Facilities:** A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered necessary. The contractor shall conform generally to sanitary requirements of local medical, health and municipal authorities and at all times adopt such precautions as may be necessary to prevent soil pollution of the site.
6. **First aid facilities:** At every workplace, a readily available first-aid unit including an adequate supply of sterilized dressing materials and appliances will be provided as per the Factory Rules. Suitable transport will be provided to facilitate taking injured and ill persons to the nearest hospital.
7. **Health Care Facilities:** Health problems of the workers should be taken care of by providing basic health care facilities through nearest health centres of the area.
8. The health centre should have MCW (Mother and Child Welfare) units for treating mothers and children in the camp. Apart from this, the health centre should provide with regular vaccinations required for children.
9. **Day Crèche Facilities:** At every construction site, provision of a day crèche shall be worked out so as to enable women to leave behind their children. At construction sites where 20 or more women are ordinarily employed, there shall be provided at least a hut for use of children under the age of 6 years belonging to such women. Huts shall not be constructed to a standard lower than that of thatched roof, mud walls and floor with wooden planks spread over mud floor and covered with matting. Huts shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be two maidservants (or ayahs) in the satisfaction of local medical, health, municipal or cantonment authorities. Where the number of women workers is more than 25 but less than 50, the contractor shall provide with at least one hut and one maidservant to look after the children of women workers. Size of crèches shall vary according to the number of women workers employed.

II. CONSTRUCTION CAMP / PLANT AREA:

Total area of the construction site is about 1.5 ha. Site for Construction Camp has been identified based on the selection criteria of EMP. All the environmental mitigation measures has been undertaken to prevent Land, Water, Air and Soil pollution at the base camp area. The measures which will be adopted at Construction Camp area are as follows:

- Supply of sufficient quantity of potable water will be provided in every workplace/labour camp site.
- Separate toilets/bathrooms (marked in vernacular) will be provided for both male and female workers. Adequate water supply will be provided to all toilets and urinals as per EMP.

10 MLD SEWERAGE TREATMENT PLANT

Page 12

M/S. ECO PROTECTION ENGINEERS PVT. LTD,**CHENNAI**

- Septic Tanks and Soak Pits will be constructed at every toilet locations for the disposal waste water.
- Garbage bins will be provided in the camps and these will be regularly cleaned.
- 'Green Belt' will be developed in and around plant area as per the guidelines of PCB by planting 'Krishnachura' tree.
- Dust screen will be provided around the plant area to protect the nearby settlement area from dust nuisance.
- Oil Interceptors will be provided at Workshop area to control oil seepages released from vehicles.
- Sand gunny bags will be provided around the stock pile to avoid erosion.

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI
Table 3: Site Specific Environmental Management and Mitigation Measures

Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
A	Pre – Construction Activities by the Contractor				
1.0	Joint Field Verification	Detail Joint field verification has been carried out for Trees, Environmental and Community resources which fall within Corridor of Impact (CoI). Joint field verification has been done for trees, land area size etc.	Chlte Area and STP site	Contractor, SIPMIU, DSMC and NGOs	No issue
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
1.1	Assessment of Impact due to changes / Revisions in the project work	There is no any change of design or any additional land acquisition is required for this project work.	STP Site	SIPMIU DSMC	No issue
1.2	Procurement of Electrical & Mechanical Equipments				
1.2.1	All electrical and machinery equipments	Procurement as per Contract standard.	STP site	Contractor	No issue
1.2.2	Other Construction Vehicles, Equipment, Machinery	All the other construction vehicles, equipment and machinery procured for construction will conform to the relevant norms. PUC for all the vehicles and machineries will be obtained from concerned authorities.	STP site	Contractor	No issue
1.3	Identification and Selection of Material Sources				

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
1.3.1	Quarries	Quarry materials will have to be procured from authorized agencies having legal approval obtained from Mizoram State Government. Forest royalties are been paid to the forest department for the above said materials.	Local Quarry	Contractor, DSMC	Local quarry having all required documents.
1.3.2	Arrangement for construction water	Sufficient Nos. of surface water sources such as rivers, ponds etc. are available in the project area for procuring surface water. Ground water will not be extracted for construction purposes of this project.	STP Site	DSMC, SIPMIU	Verification by DSMC
1.3.4	Sand (All river and stream bodies)	Sand will be procured from the authorized sand quarries of Forest department.	Barak River Mahal	Contractor	Same as above
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
1.3.5	Labour requirements	For this project the unskilled labor will be taken from local communities on daily basis to avoid any additional stress on the existing facilities.	Chite site	Contractor	As per contract at least 50% of labor within 2km of project area.
1.4	Setting up construction sites				
1.4.1	Construction camp Location – Selection, Design & Layout	Vacant land own by same landowner of STP is hired with monthly rent.	Chite near STP site	Contractor, DSMC	Land hired

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
1.4.2	Arrangement for Temporary Land Requirement	As per prevalent rules lease agreement has been signed for temporary use of land after negotiations with land owners. Land agreement has been signed for Labor Camp	Chite Labor camp	Contractor, DSMC	No issue
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
B	Construction Stage				
2.0	Construction Stage Activities by the Contractor				
2.1	Site Clearance				
2.1.1	Clearing and Grubbing	Clearing & Grubbing will be carried out carefully so that damage/disruption on the flora can be reduced. This work will only be done to remove soil cover or the shrubs with prior approval from SIPMIU	Chite Site	Contractor	No issue
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
2.1.3	Disposal Site	Generated earth spoil from excavation will be used for embankment, however extra soil will be sent to approve AMC disposal site. Also find beneficial uses for any waste soil (construction, land raising, infill)	AMC	Contractor	No issue
2.1.4	Site Safety	Provide signboard work details at work location and provide PPE to all workers and site engineers/supervisor.	Work Site	Contractor	Regular Monitoring

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
2.1.5	Dust Emission	Remove waste soil as soon as it is excavated. Dust generation will be lessened by sprinkling surfaces and trucks with water as well as covering outgoing truck loads.	Work Site	Contractor	Regular Monitoring
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
2.1.6	Occupational Health and Safety	Prepare and implement a site H&S Plan (safety of workers/public). Clean and properly-equipped portable toilets are provided on site for use by construction workers. Ensure that workers wear Personal Protective Equipment. Provide Health and Safety training for all personnel. Keep accident reports and records. Provide barricading and singaes at work area	Work Camp	Contractor	Periodical check
2.1.7	Accessibility	During construction, safe temporary connecting path and for pedestrians and livestock will be maintained.	Work Site.	Contractor	No issue
2.1.8	Gender equality	Maintained attendance and pay register having columns for man and women. Ensure equal pay for men and women worker.	Work site.	Contractor	Regular check by DSMC
2.1.9	Tree cutting	Permission will be obtained for tree felling from forest dept. Counting of tree before felling. Plant and maintain two trees for every one removed.	Work site	Contractor	Monitoring
2.1.10	Temporary Drainage	Silt laden run off shall be mitigated through adequate erosion control devices around the construction sites, scheduling of construction	Work site	Contractor	

Page 17

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
		such that maximum work is finished during lean season. Debris is not disposed into nearby streams and drains			
Sl. No.	Activities	Management Measures	Location	Responsibility	Remarks
3.0	Construction Materials				
3.1	Earth from Borrow Areas for construction	Soils for Embankment will be procured from borrow areas if required in accordance to environmental requirements of the surrounding areas.	STP site	Contractor, SIPMIU & DSMC	Initial examination will not require any borrow area since earth volume from excavation will be sufficient.
3.2	Quarries	No separate quarry will be managed. Materials requirement will be fulfilled from local purchase from approved quarry.	Local quarry	Contractor	
3.3	Blasting	Blasting of hard rock if required will be done as per the guidelines of contract EMP.	STP site	Contractor, DSMC	No blasting is required.
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
3.4	Water Extraction	Precautions will be taken to minimize the wastage of water. A sufficient surface water source from the nearby natural stream is available in the project area for	Chite	Contractor	No issue

Page 18

10 MLD SEWERAGE TREATMENT PLANT

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
		procuring surface water. Ground water will not be extracted for construction purposes of this project.			
3.5	Transporting Construction Materials	All vehicles delivering materials to the site will be covered to avoid spillage of materials. All existing highways and roads used by our vehicles or any of our sub-contractor or suppliers of materials and similarly roads which are part of the works will be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles. The unloading of materials at construction sites close to settlements shall be restricted to daytime only.	Work site	Contractor	Strict instruction to Site Supervisor
3.6	Socio-Economic – Employment	Generation of contractual employment and increase in local revenue. Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and (ii) Secure construction materials from local market.	Project Area	Contractor	No issue
3.7	Slope Protection and Control of Soil Erosion	Soil erosion and sedimentation will be controlled through use of slope drains and other devices as required under specific local conditions.	Work Site	Contractor, DSMC	As per site decisions
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks

10 MLD SEWERAGE TREATMENT PLANT

Page 19

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
4.0	Pollution Control				
4.1	Water Pollution				
4.1.1	Water Pollution from Construction wastes	All the precautions will be taken to prevent the wastewater generated during construction from entering into streams, water bodies or irrigation system. During monsoon construction works will be avoided close to streams or water bodies. Waste Management Practices at Labor Camp and Plant Area will be carried out as per EMP	Work Site	Contractor	No issue
4.1.2	Water Pollution from Fuel, Lubricants and Chemicals	All the precautions will be taken to prevent water pollution from fuel, lubricants and chemicals during the construction.	Work Site	Contractor	Regular monitoring
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
5.0	Air Pollution				
5.1.1	Dust Pollution	Dust generated out of construction work will be sprinkle	Work Site	Contractor	Monitoring
5.1.2	Emission from Construction vehicles, Equipment and Machineries	All vehicles, equipment and machinery used for construction are regularly maintained and confirm to the emission standards specified by the MPCB. The Pollution Under Control (PUC) certificates for all vehicles / equipment / machineries.	Work site	Contractor	Monitoring will be conducted as per the Environmental Monitoring Plan.

10 MLD SEWERAGE TREATMENT PLANT

Page 20

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
6.0	Noise Pollution				
6.1.1	Noise Pollution: Noise from Vehicles, Plants and Equipment's	All vehicles and equipment used in construction will be fitted with exhaust silencers and servicing of all construction vehicles and machinery will be done regularly.	Work Site.	Contractor	Check before use
7.0	Safety				
7.1	Personal Safety Measures for Labour, material handling, painting etc.	Personal Protective Equipment (PPEs) like safety helmets, goggles, safety jacket, safety shoes, gum boat, safety belt will be provided to all the construction workers during the work. No workers below the age 14 years for any work and no women will be employed for painting work with product containing lead in any form.	Construction site	Contractor	No issue
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
7.2	Risk from Electrical Equipment(s)	All required precautions will be taken to prevent danger from electrical equipment. Personal Protection Equipment (PPEs) will be provided to the electrician for doing electrical work in a safe manner.	All construction equipment	Contractor	Precautionary measures
7.3	First Aid	A readily available first aid unit including an adequate supply sterilized dressing materials and appliances will be installed at work site.	Work site	Contractor.	Provision at Camp site and work site

Page 21

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
		For better awareness among the workers and staffs engaged at work site will be informed regarding First Aid facilities.			
Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
8.0	Cultural Property				
7.1	Chance Found Archaeological Property	Stop work immediately to allow further investigation if any finds are suspected; and (iv) Inform SIPMIU/DSMC if a find is suspected, and take any action they require ensuring its removal or protection in situ.	STP site	Contractor	Immediate action
8.0	Labour Camp Management				
8.1	Location of Construction Labour Camp	Labor camp is located nearby work site land hired from landowner. At present time as per the approved layout plan most of the facilities were provided in labor camp sites and the construction of the remaining facilities is in progress.	Labor Camp	Contractor	Follow EMP
8.2	Potable Water	Sufficient water from the nearby natural stream is drawn through pipe upto the labor camp.	Labor Camp	Contractor	No issue
8.3	Sanitation and Sewage System	Well-developed drainage system will be provided at the camp area, which will be connected to the main drain. Separate toilets/bathrooms (marked in vernacular)	Labor Camp	Contractor	Provision provided as per available resources.

Page 22

10 MLD SEWAGE TREATMENT PLANT

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
		will be provided for both male and female workers. Adequate water supply will be provided to all toilets and urinals. Septic Tanks and Soak Pits will be constructed at every toilet locations for the disposal waste water.			
8.4	Wastes Disposal	All types wastes generate in Base Camp and Plant Area will be managed according to the approved Waste Management Practices. Debris will be dump at approve AMC disposal site.	Labor camp and work site.	Contractor	As per mentioned in IEE
8.5	Stock-Yards	The floor of the stock-yard at work Area will be cemented and a sufficient distance will be maintained from the labor camp..	Work area	Contractor	Same as above
8.6	Fuel Storage and Refueling Areas	All the required precautions will be taken fuel storage area and during the refueling as per the stipulations of contract EMP.	Work area	Contractor	Same as above

Sl. No.	Activities	Management Measures	Location	Responsibilities	Remarks
9.0	Contractor Demobilization				
9.1	Clearing of Construction Camps & Restoration	All construction material and debris will be cleared after completion of work in all respect. At the time of work completion, all temporary structure at camp will be cleared away, all rubbish will be burnt, excreta or other disposal pits or trenches will be effectively sealed off and site will be left in clean and tidy.	Work site and labor camp	Contractor	No issue

Page 23

M/S. ECO PROTECTION ENGINEERS PVT. LTD, CHENNAI					
		Residual top soil will be distributed on the camp area after demolish and cleaning of structures at camp area in a layer of thickness of 75 mm. – 150 mm.			
10.0	Environmental Enhancement Measures				
10.1	Enhancement Measures	Enhancement of all incidental spaces will be planned and carried out prior to completion of construction, along the project road.	All the suitable locations of STP	Contractor	No issue
10.2	Road Side Plantation Strategy, Tree Planting & Protection	Avenue tree plantation along the project road will be done as per the Contract Agreement and Contract EMP. The locations for avenue plantation are to be identified. Growth and survival rate of trees will be reported to the SIPMIU/DSMC in time to time.	The locations to be identified for avenue plantation	Contractor, DSMC	As per site decisions
9.2	Green belt	Green belt will be provided around the work site of STP as per contract	Work site	Contractor, DSMC	As per agreement

Page 24

10 MLD SEWERAGE TREATMENT PLANT

CHENNAI

M/S. ECO PROTECTION ENGINEERS PVT. LTD,

8. CONTRACTOR'S REPORTING SYSTEM:

The Environmental cum Safety Manager will reports to the Project Manager about the environmental issues of project site. Environmental cum Safety Manager in consultation with the Project Manager will operate the reporting system of environment management. The reports which will be prepared and submitted to DSMC for approval by the Contractor's Environmental cum Safety Manager are as follows:

- Construction and Safety Management Plan.
- Weekly and Monthly Progress Reports encompassing all activities related to the implementation of EMP.
- Duly filled reporting formats of work areas, Construction camps, Disposal wastes, Pollution Monitoring, Survival of trees and Pollution monitoring as per Contract EMP.
- Updated status of all the NOC's and Clearances of concerned Competent Authorities.
- Reports of Environmental and Health awareness programme organized time to time.

The details of reporting system as per contract EMP is tabulated below:

Table 4: Environmental Management Reporting System

Sl No.	Item	Stage	Frequency	Responsibility	Implementation & Reporting to DSMC
1	Identification of Disposal Locations	Pre – Construction	One Time	Eco Protection Engineers	One Time
2	Setting up of Construction Camp	Pre – Construction	One Time	Same as above	One Time
3	Earth cutting and filling	Pre – Construction	One Time	Same as above	One Time
4	Tree Plantation	Construction	During Plantation	Same as above	During Plantation
5	Pollution Monitoring	Construction	As Per Monitoring Plan	Same as above	Quarterly
6	Any other environmental related issues	Construction	As per requirement	Same as above	As required.

9. WORK PROGRAMME:

As per the Work Plan for construction, all environmental functions stated in this plan will be prepared and established before the commencement of the proposed operations.

Page 25

10 MLD SEWERAGE TREATMENT PLANT

ANNEXURE 4: CHECKLIST (as of December 2015)

S. No.	Items	Complied Yes / No	Remarks
1.	Was revised IEE for Tr II attached to the Bid Documents?	Yes	Included
2.	Are all the Consents of SPCB Valid? Please state expiry dates	Yes	Consent required for all sub projects work has been obtained from SPCB.
3.	Are all the conditions of the Consent and EC Order been complied with or not?	Yes	EC has been obtained from MoEF on the 9 th January 2013.
4.	Has SIPMIU Safeguards expert attended any training in the last six months? Please provide details	Yes	Social Development Officer, SIPMIU, and Community Development Expert DSMC attended workshop on 'ADB Safeguard Procedures' organized by ADB in the month of July 2015 at Delhi.
5.	Where there any specific conditions / remarks of ADB? If yes have they been complied with? Give details	Yes	<p>1. Updating of IEE Tranche-II.</p> <p>2. Submission of Contractor EMP (complying with our instruction contractor has submitted, however the EMP was examined and explained for re-submission. The EMP has mentioned in this report will be annexed in the next Report).</p> <p>3. Preparation of Safeguard Report on Semi-Annual basis.</p>

ANNEXURE 5: CONSENT TO ESTABLISH

Sr. No	Name of Consent	Year of Issue	Year of expiry	Renewed Upto
1.	STP (10MLD) (Tr-2)	Aug 2012	Aug 2015	23.08.2016
2.	Compost Plant & Engineering Landfill (Tr-3)	Oct 2011	Oct 2015	09.08.2016
3.	Vermi compost plant (Tr-3)	Feb 2011	Feb 2016	Still valid
4	WTP (37MLD) Tr-3)	Feb 2015	Feb 2016	Still valid

**OFFICE OF THE MIZORAM STATE POLLUTION CONTROL BOARD
AIZAWL : MIZORAM**

**NO OBJECTION CERTIFICATE (CONSENT TO ESTABLISH)
(RENEWED)**

No. H.88088/Poltn/9(154)/2011-MPCB/ 50 : Dated Aizawl, the 23rd October, 2015
Validity: 10.8.2015 – 9.8.2016

NO OBJECTION CERTIFICATE (CONSENT TO ESTABLISH) granted to the Project Director, State Investment Program Management & Implementation Unit (SIPMIU), Government of Mizoram for setting up of Compost Plant with Engineered Landfill having a capacity of 150 tons/day for Solid Wastes management of Aizawl city at Tuirial, Mizoram under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 is hereby *renewed for another one (1) year with effect from 10th August, 2015* with reference to the application No. W. 11020/7/2008-PD/SIPMIU (NERCCDIP)/18 Dt. 28.09.2015.

All the conditions stipulated in the original certificate shall remain same and shall be strictly complied with.

(C.LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board
Dated Aizawl, the 23rd October, 2015

Memo No. H.88088/Poltn/9(154)/2011-MPCB/ :
Copy to: Project Director, State Investment Program Management & Implementation Unit (SIPMIU), Government of Mizoram with reference to the application No. W.11020/7/2008-PD/SIPMIU (NERCCDIP)/18 Dt.28.09.2015.

(C.LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board

Mizoram Pollution Control Board, "Silver House", Tuikhualbung, Aizawl, Mizoram-796001
Ph.No.2326173/2316590 Fax:2316591 Email:mizorampcb@gmail.com Website:http://www.mizentia.nic.in

1. Consent to Establish for Mechanical Compost Plant & Landfill at Tuirial.

**OFFICE OF THE MIZORAM STATE POLLUTION CONTROL BOARD
AIZAWL, MIZORAM**


**CONSENT TO ESTABLISH
(NO OBJECTION CERTIFICATE)**

No. H.88088/Poltn/9 (154)/2011-MPCB/302 Dated Aizawl, the 10th February, 2015


CONSENT TO ESTABLISH (NO OBJECTION CERTIFICATE) is hereby granted to **MS SIPMIU, MIZORAM** for setting up of **Vermi Compost Plant** at **Tuirial, Aizawl, Mizoram** having an installed production capacity of **22 TPD** under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 as amended and Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 as amended (to be referred as Air Act and Water Act respectively) with reference to their application No. Nil (Form No.1789) dated 21.01.2015 and subsequent correspondence including site verification under the following terms and conditions:-

1. No air, water and soil pollution shall be created by the industry beyond the prescribed permissible limits.
2. As per the provision of Water (Prevention & Control of Pollution) Act, 1974 as amended and Air (Prevention & Control of Pollution) Act, 1981 as amended, any officer empowered by the Board on its behalf shall have without any interruption, the right at any time to enter the industry for inspection, collection of sample for analysis and may call for any information etc. Violation of this right will cause withdrawal of this consent.
3. It shall be the prime responsibility of the industry that the nearby population, vegetation and any other assets etc. shall not be affected due to emission/effluent emanating out of the industry.
4. All efforts should be made by the industry's authority to maintain the ambient air quality of the area to the lowest possible limits well below the prescribed permissible limits by utilizing the best available technologies in this regard.
5. Efforts shall have to be made by the industry for recycle and recovery of waste to the maximum extent possible.
6. There should be an odour control system to reduce foul odour from the process.
7. The industry shall have to submit a detailed report on compliance to the terms and conditions as laid down in this Certificate and to apply for **Consent to Operate** before commissioning of the plant. No operation of the plant shall be allowed unless the industry fulfilled all the stipulated terms and conditions of this Certificate.
8. This Certificate has been accorded basing on the particulars furnished by the applicant on behalf of **MS SIPMIU, MIZORAM** and subject to addition of further or more conditions if so warranted by subsequent developments. The consent will automatically become invalid if any change or alteration or deviation is made in actual practice.

This Certificate will remain valid for a period of **Five** year from the date of issue.



 Memo No. H.88088/Poltn/9 (154)/2011-MPCB
 Copy to: The Project Director, State Investment Program Management & Implementation Unit (SIPMIU), Government of Mizoram & Proprietor **MS VERMI COMPOST PLANT, TUIRIAL, MIZORAM** with reference to the application No. Nil, dt.20.1.2015

(C) ALDUIAWMAI
 Member Secretary,
 Dated Aizawl, the 10th February, 2015

 (C) ALDUIAWMAI
 Member Secretary,
 Mizoram Pollution Control Board

Mizoram Pollution Control Board, State House, Tumkhadlang, Aizawl, Mizoram-796001.
 Ph. No. 7223373-2336296 Fax: 2336197 Email: mizorampcb@gmail.com Website: http://www.mizorampcb.in

2. Vermicompost Plant at Tuirial

OFFICE OF THE MIZORAM STATE POLLUTION CONTROL BOARD
AIZAWL : MIZORAM

NO OBJECTION CERTIFICATE (CONSENT TO ESTABLISH)
(RENEWED)

No. H.88088/Poltn/9 (154)/2011-MPCB/ 49 Dated Aizawl, the 23rd October, 2015
Validity: 24.8.2015 – 23.8.2016

NO OBJECTION CERTIFICATE (CONSENT TO ESTABLISH) granted to the
Project Director, State Investment Program Management & Implementation Unit (SIPMIU),
Government of Mizoram for setting up of Sewerage Treatment Plant with Primary Settling
followed by activated Sludge Process (PS+ASP) technology having a capacity of 10 MLD at
Bethlehem Vengthlang on the bank of Chite River, Aizawl, Mizoram vide letter
No. H.88088/Poltn/9(153)/2011-MPCB/27-31 Dt. 23.08.2012 is hereby extended for another
1 year with effect from 24.08.2015 under Section 21 of Air (Prevention & Control of Pollution)
Act, 1981 and Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 with reference
to the application No. W. 11020/7/2008-PD/SIPMIU (NERCCDIP)/18 Dt. 28.09.2015.

*All the conditions stipulated in the original certificate shall remain same and shall be
strictly complied with.*

(C.LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board
Dated Aizawl, the 23rd October, 2015

Memo No. H.88088/Poltn/9 (154)/2011-MPCB/
Copy to: **Project Director, State Investment Program Management & Implementation Unit**
(SIPMIU), Government of Mizoram with reference to the application
No. W. 11020/7/2008-PD/SIPMIU (NERCCDIP)/18 Dt. 28.09.2015.

(C.LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board

Mizoram Pollution Control Board, 'Silver House', Tuikhuahlang, Aizawl, Mizoram-796001
Ph.No.2326173/2316390 Fax:2316391 Email:mpcb_aizl@yahoo.com Website:http://www.mizenvis.nic.in

3. Consent to Establish for 10 MLD STP at Bethlehem Vengthlang.

**OFFICE OF THE MIZORAM STATE POLLUTION CONTROL BOARD
AIZAWL: MIZORAM**

**CONSENT TO ESTABLISH
(NO OBJECTION CERTIFICATE)**

No.H.88088/Poltn/9 (238)/2015-MPCB/PC Dated Aizawl, the 16th April, 2015

CONSENT TO ESTABLISH (NO OBJECTION CERTIFICATE) is hereby granted to **M/S SIPMIU, MIZORAM** for setting up of **WATER TREATMENT PLANT 37 MLD** at **Tanhril, Mizoram** having an installed production capacity of **37 MLD** under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 as amended and Section 25/26 of Water (Prevention & Control of Pollution) Act, 1974 as amended (to be referred as Air Act and Water Act respectively) with reference to their application No. W.11046/2/2011-PD/SIPMIU (NERCCDIP) 37 dated 13.2.2013 and subsequent correspondence including site verification under the following terms and conditions:-

1. No air, water and soil pollution shall be created by the industry beyond the prescribed permissible limits.
2. As per the provision of Water (Prevention & Control of Pollution) Act, 1974 as amended and Air (Prevention & Control of Pollution) Act, 1981 as amended, any officer empowered by the Board on its behalf shall, have without any interruption, the right at any time to enter the industry for inspection, collection of sample for analysis and may call for any information etc. Violation of this right will cause withdrawal of this consent.
3. It shall be the prime responsibility of the industry that the nearby population, vegetation and any other assets etc. shall not be affected due to emission/effluent emanating out of the industry.
4. *Chlorine gas is very poisonous and corrosive. The cylinders and containers of chlorine should be stored in a dry enclosure or building.*
5. All efforts should be made by the industry's authority to maintain the ambient air quality of the area to the lowest possible limits well below the prescribed permissible limits by utilizing the best available technologies in this regard.
6. Efforts shall have to be made by the industry for recycle and recovery of waste to the maximum extent possible.
7. The industry shall have to submit a detailed report on compliance to the terms and conditions as laid down in this Certificate and to apply for **Consent to Operate** before commissioning of the plant. No operation of the plant shall be allowed unless the industry fulfilled all the stipulated terms and conditions of this Certificate.
8. This Certificate has been accorded basing on the particulars furnished by the applicant on behalf of **M/s SIPMIU, MIZORAM** and subject to addition of further or more conditions if so warranted by subsequent developments. The certificate shall automatically become invalid if any change or alteration or deviation is made in actual process.
9. This certificate will remain valid for a period of **10** year from the date of issue.



(C.LALDUHAWMA)
Member Secretary
Dated Aizawl, the 16th April, 2015

Memo No.H.88088/Poltn/9 (238)/2015-MPCB/
Copy to: The Project Director, SIPMIU, Government of Mizoram & Proprietor, **WATER TREATMENT PLANT 37 MLD, TANHRIL, MIZORAM** with reference to the application No. W.11046/2/2011-PD/SIPMIU (NERCCDIP) 37 dated 13.2.2013.


(C.LALDUHAWMA)
Member Secretary
Mizoram Pollution Control Board

Mizoram Pollution Control Board, Silver House, Tinkhachiding, Aizawl, Mizoram-796001
Ph.No.2226073/2316399 Fax: 2316391 Email:mizorampcb@gmail.com Website: http://www.mizorampcb.in

4. Consent to Establish for 37 MLD WTP at Tanhril.

5.

ANNEXURE 6: Forest Clearance obtained from State Forest Department for proposed 37 MLD WTP site (Tr-3). Scan Copy shown below:

(17)

No.B.12012/29(B)/2011-DFO(A)/ _____
GOVERNMENT OF MIZORAM
OFFICE OF THE DIVISIONAL FOREST OFFICER
AIZAWL, FOREST DIVISION : AIZAWL : MIZORAM

Date: 6th Aug. 2015

To

The Range Forest Officer
Sairang Forest Range
Sairang : Mizoram

Subject: *Approval for diversion of forest land for non-forest purpose for facility managed by the Government under the Forest Rights Act, 2006.*

Ref. : *1) No.B.22013/55/2015-FC/PCCF/B dt 02.07.2015.
2) No.B.12012/1/2006-SFR/23 dt 27.07.2015.*

With reference to PCCF letter and your recommendation vide letter Nos. indicated above, approval for diversion of forest land of 0.99 Ha for construction of Water Treatment Plant (WTP) at Setlak kai, Tanhril ram within Tiawng Riverine Reserved Forest to be managed by the Government through Programme Director, SIPMIU (NERCCDIP), Aizawl, Mizoram is hereby accorded under section 3(2) of the Schedule Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 read with Annexure to Ministry of Tribal Affairs (GoI) letter F.No.23011/15/2008-SG-II dt 18.05.2009 subject to the following conditions.

1. The forest land so diverted shall not be allowed to be used for any other purpose.
2. The diverted forest land would be appropriated by the Forest Department if the activity for which the land is diverted is not started within one year of handing over the land to the User Agency.
3. The user agency shall pay the cost of planting 140 nos of trees (twice the number of trees to be felled) and subsequent maintenance cost for 5 years amounting to Rs.11,605.00 (Rupees eleven thousand six hundred five) only to the DFO, Aizawl Forest Division, Aizawl.
4. The legal status of the land so diverted shall remain unchanged.

You are now informed to demarcate the area of forest land approved for diversion and hand over the same to the User Agency, i.e., Programme Director, SIPMIU (NERCCDIP), Aizawl, Mizoram under intimation to the Local Council/Gram Sabha, Tanhril.

Aizawl, Mizoram

Receipt No. 120
Date 7/8/15
Section _____

AEWS-T
B/o S
20/8/15
AE(Sum)/Eav
Shant 10/8

You are also informed to plant 140 nos of tree seedlings on suitable degraded forest land which will be maintained for 5 years as per estimate enclosed herewith and fund for the same may be drawn from this office as and when required. The plantation journal may also be maintained and the location of plantation, species planted, area, etc may also be submitted to this office. Further, felling and disposal of the trees standing on the forest land diverted for non-forestry purpose may be done as per the procedure/instruction issued by the Ministry of Environment, Forests and Climate Change (GoI) vide letter F. No. 5-1/98 FC(Pt.II) dated 29.03.2005. Cash account for the fund drawn for the above purpose from this office may also be maintained separately and submitted when the works are completed.

Encls: As above.

(J.LATHLAMUANA PACHIAU)
Divisional Forest Officer

Memo No.B.12012/28(B)/2011-DFO(A)/928-930: Dated Aizawl, the 6th Aug, 2015.
Copy to:-

1. Principal Chief Conservator of Forests, Mizoram, Aizawl.
2. ✓ Programme Director, SIPMIU (NERCCDIP), Aizawl for kind information and necessary action.


Divisional Forest Officer
Divisional Forest Officer
Aizawl Forest Division
Aizawl : Mizoram

ANNEXURE 7: Public Consultations Meetings/Awareness program: Such programs are conducted in the particular project locality before start of work. Some photos of such consultations/awareness program are shown below:



Location: Armed Veng

Description: Creating awareness among the resident of Armed Veng Locality regarding Sewerage sub project before start of sewerage network work.



Location: Luangmual

Description: Consultation with Local Council, PWD, NGO and Traffic Department regarding pipe route for water supply feeder main and alternate suitable diversion for vehicle movement.



Location: Vanapa Hall, Aizawl

Description: Kick-off- Program on "Source Segregation on Solid Waste Resource Management, Aizawl City"



Location: Armed Veng, Chite & Bethlehem Veng

Description: Public Awareness being conducted on best practice of source segregation on solid waste.

ANNEXURE 7.1: PUBLIC CONSULTATIONS AND DISCLOSURE:

Consultation, Information Dissemination, Disclosure Public meetings and consultations had been conducted in educating the project covered area. During these consultations not only the project proceedings are informed but as well the compensation mechanism of the entitlement matrix is also discussed.

Date/ Month	Location	No. of Participa nts	Type of Participants	Topics Discussed	Issues Raised/ Findings
Water Supply					
12 th Septem ber 2015	YMA Hall Govt Comple x	M-165, F- 67	Local Council members, NGOs from the Locality, 1 representative from each house, PHED representative.	<ol style="list-style-type: none"> 1. Water supply household connection 2. Project work, proceedings and its benefits. 3. Contractor work program, public grievances mechanism, 4. Women labour will be equally paid as men for equal work were also informed during the consultations. 5. ADB Safeguard Procedures 	<ol style="list-style-type: none"> 1. The house connection is proposed for existing only, participants requiring new connection may apply to PHED for those newly constructed house. 2. Road restoration. 3. The participants are aware of the projects and all the other safeguards procedures.
Sewerage					
1 st October 2015	New Market Line Bus owner associati on Chairma n's residenc e, Chhinga	M-7, F-6	Members from New Market Line Bus Owner Association, Traffic Police, Local Council Members Bethlehem Veng.	<ol style="list-style-type: none"> 1. Route diversion for bus service and vehicle for sewerage pipe laying work. 2. Identification 	<ol style="list-style-type: none"> 1. Shortage possible duration of work in the particular stretch. 2. Identified suitable route for buses during

	Veng.			<p>n of possible route for diversion with minimal impact.</p> <p>3. ADB Safeguard Procedures</p>	construction of work.
2 nd October 2015	YMA Hall, Armed Veng	M-115, F-44	Resident locality members, Local Council and NGOs	<p>1. Project work and benefits along with Contractor's work plan.</p> <p>2. Project procedure for sewerage works related.</p> <p>3. Information regarding GRC, priority for interested female workers and ADB safeguard proceedings.</p> <p>4. Traffic diversion</p>	<p>1. The participants are aware of the projects and all the other safeguards procedures.</p> <p>2. Explanation regarding road restoration.</p>
9 th October 2015	Sport Complex, Chite Veng	M-36, F-17	Resident locality members, Local Council and NGOs	<p>1. Project procedure for sewerage works related and STP</p> <p>2. Road restoration work</p> <p>3. Information regarding GRC, priority for interested female workers and ADB</p>	<p>1. Road restoration on immediate basis after pipe laying is completed.</p> <p>2. Understand the project procedures, safeguard aspects and GAP.</p>

				safeguard proceedings. 4. Traffic diversion	
Solid Waste Management (SWM)					
4 th December 2015	Vanapa Hall	M- 93, F- 60	83 Local Council Representatives , PHED, AMC, Trade & Commerce Deptt, UD&PA Deptt.	1. Kick-off-Program on Source Segregation on Solid Waste Resource Management, Aizawl City. 2. Household segregation and introduction of two bins for dry and wet. 3. Public Private Partnership (PPP) mode 4. ADB Safeguard Procedures	1. Arrangement of vehicle regarding waste collection 2. Understand the SWM project and procedures.
Between 7 th Dec 2015 to 18 th Dec 2015	21 Local Council Areas	One representative from each house as per size of locality	One representative from each house, Local Council members, Ward Councillor	1. Household segregation and introduction of two bins for dry and wet. 2. Importance of SWM project. 3. ADB Safeguard Procedures	1. Understand dry and wet waste and importance of segregation at household end. 2. Garbage bags, collection time and vehicle arrangements.

ANNEXURE 8: HIV/AIDS Awareness program: Conducted on 29th May 2015 at M/s Tanta Construction Limited Based Camp, Aizawl. Prominent NGO for HIV/AIDS in Aizawl "The Samaritan Society of Mizoram" was approached for conducting the awareness campaign. All Contractors as informed had organised in transporting their workers to the locations. The campaign was conducted in four different languages Bengali, Hindi, Riang and Mizo as per the suitability of workers. During the campaign free medical check up and medicine were also distributed. Some photographs of the program is shown below:



ANNEXURE 9: Site work Photos:

View Showing STP Work which is in progress.



View Showing STP approach road, with provision of retain wall for slope protection.



View showing stretch using precast manhole for sewerage network pipe laying.



View of remaining 5 completed toilets blocks.

Semi Annual Environmental Monitoring Report

Loan Number: 2528 IND
Reporting Period: July - December 2015

INDIA: North Eastern Region Capital Cities
Development Investment Program (Tranche 1)
Project City: Gangtok, Sikkim State

Implementing Agency: State Investment Program Management and Implementation Unit
Executing Agency: Urban Development & Housing Department, Government of Sikkim

April 2016
Gangtok

ABBREVIATIONS

ADB	- Asian Development Bank
BTA	- Bridging Technical Assistance
CC	- Construction Contractor
DOC	- Date of Completion
DOS	- Date of Start
DSMC	- Design, Supervision and Management Consultant
EA	- Executing Agency
EARP	- Environmental Assessment & Review Procedure
EHS	- Environmental Health and Safety
EIA	- Environmental Impact Assessment
EO	- Environmental Officer
GLSR	- Ground Level Service Reservoir
GoI	- Government of India
GRC	- Grievance Redress Committee
IA	- Implementing Agency
IEE	- Initial Environmental Examination
IPCC	- Investment Program Coordination Cell
IPEC	- Investment Program Empowered Committee
MoUD	- Ministry of Urban Development
MFF	- Multi-tranche Financing Facility
MLD	- Million Liters per Day
Mn	- Million
NEA	- National Executing Agency
NERCCDIP	- North Eastern Region Capital Cities Development Investment Program
NSC	- National level steering committee
PAP	- Project Affected Person
PD	- Project Director
PMMC	- Program Management & Monitoring Consultants
PPTA	- Project Preparatory Technical Assistance
SEA	- State level Executing Agency
SR	- Service Reservoir
UD&HD	- Urban Development and Housing Department

Table of Contents

I.	INTRODUCTION	1
A.	Background	1
B.	Project Profile	1
II.	ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE	3
A.	Environmental Legal Requirements	3
B.	Compliance with Environmental Regulations	4
C.	Compliance of Environmental Loan Covenants	5
D.	Environmental Organization and Management	5
III.	EMP COMPLIANCE STATUS	6
IV.	OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN	7

List of Tables

Table 1: Sub Project Details under Tranche-1 (Loan No. 2528 IND)	2
Table 2: Present Status of Environment & Forest and Other Clearances	4
Table 3: Compliance of Environmental Loan Covenants	5

I. INTRODUCTION

A. Background

1. North Eastern Region Capital Cities Development Investment Program (NERCCDIP) is being undertaken for improvement of existing infrastructure, environmental quality and access to basic urban services of Gangtok Municipal Corporation area. The NERCCDIP's objective is to improve the urban environment and promote reforms for sustainable, efficient, and responsive urban service delivery. The various Program components are Water supply, Sewerage and Sanitation, and Municipal Solid Waste Management infrastructure.
2. With an overall objective of sustainable urban development, the NERCCDIP is being implemented in the five capital cities - Gangtok, Aizawl, Kohima, Gangtok and Shillong. NERCCDIP will be implemented over a six year period beginning in 2009, and is funded by a loan via the Multitranche Financing Facility (MFF) of the Asian Development Bank (ADB).
3. In Gangtok, capital city of Sikkim, the Executing Agency (EA) for the program is the Urban Development and Housing Department (UD&HD) of the Government of Sikkim (GoS); and the Implementing Agency (IA) is the State-level Investment Program Management and Implementation Unit (SIPMIU), created within the UD&HD, specifically for the Investment Program implementation. At central level Investment Program Coordination Cell (IPCC) is established in MOUD. IPCC is responsible for overall management of the Investment Program and is supported by Program Management & Monitoring Consultants (PMMC).
4. The Water Supply subproject of Gangtok under Tranche-1 (Loan No. 2528 IND) was classified as Category B as per the ADB Environmental Policy, and accordingly IEE report was prepared during PPTA/BTA and was approved by the ADB. During the implementation stage, the IEE was updated and reapproved by the ADB.
5. Environmental Management Plan: An EMP which addresses the potential impacts and risks identified by the environmental assessment was included in the IEE report. The level of details and complexity of the EMP and the priority of the identified measures and actions are commensurate with the Project's impact and risks. The EMP was part of bidding and contract documents. The IEE has been disclosed in the ADB and SIPMIU websites.

B. Project Profile

6. Tranche-1 of NERCCDIP in Gangtok was focused on water supply improvements. This subproject covered the following:
 - (i) Construction of Distribution Network of 17.75 km length for Burtuk Zone-1, 10.57km length for Burtuk Zone-2 and 15.87km length for Chandmari Zone
 - (ii) Construction of Pump House and installation of pumps of capacity 1930 lpm for a head of 101m, at Selep Water Treatment Plant
 - (iii) Construction of New R.C.C Reservoir of 11.50 LL capacity located at All India Radio (AIR) Transmission Station Road for Burtuk Zone-1 and Chandmari Zone,
 - (iv) Supply and Installation of Electromagnetic Flow meters at outlet of Pump house at Selep, outlet of storage reservoir for Burtuk Zone-1 and at outlet of storage reservoir for Chandmari Zone.
7. All the civil works of Tranche-1 subproject were completed by December 2013. Details of the project activities under Tranche-1 (Loan No. 2528 IND) as of December 2015 are presented in the following Table.

Table 1: Sub Project Details under Tranche-1 (Loan No. 2528 IND)

Sl. No	Name of Work	Location	Description	Changes if any from approved scope
1.	ADB/SIPMIU/01 of 2011: Supplying and Laying distribution system in Burtuk and Chandmari, construction of pump house, installing pump sets and allied works in Gangtok, Sikkim	Burtuk Zone 1 Burtuk Zone 2 Chandmari Zone GLSR at Bulbuley Pump house at Selep	<p>(i) Distribution system for Burtuk Zone 1:</p> <ul style="list-style-type: none"> • 63mm -3.52 km (HDPE) • 90mm– 2.16 km (HDPE) • 110mm: 0.19 km (HDPE) • 80mm: 0.94 m (DI) • 100mm: 0.61 km (DI) • 150mm: 3.31 km 200mm: 4.55 km <p>(ii) Distribution system for Burtuk Zone 2:</p> <ul style="list-style-type: none"> • 63mm -3.26 km (HDPE) • 90mm– 0.63 km (HDPE) • 80mm: 0.89 m (DI) • 100mm: 1.65 km (DI) • 150mm: 1.14 km (DI) • 200mm: 1.38 km (DI) <p>(iii) Distribution system for Chandmari Zone:</p> <ul style="list-style-type: none"> • 63mm -3.50 km (HDPE) • 90mm– 0.76 km (HDPE) • 80mm: 0.62 m (DI) • 100mm: 1.9 km (DI) • 150mm: 3.86 km (DI) • 200mm: 0.39 km (DI) • 250mm: 2.15 km (DI) <p>(iv) Pumping main for Burtuk Zone I and Chandmari Area</p> <ul style="list-style-type: none"> • 200mm: 1.18 km (DI) <p>(v) Ground level service reservoir (1,150 KL RCC Tank)</p> <p>(v) Pump house</p> <ul style="list-style-type: none"> • Centrifugal pumps (50 HP) <p>(vi) Electromagnetic full bore meters</p>	Nil

DI- Ductile Iron; HDPE – High Density Poly Ethylene; GLSR - Ground Level Service Reservoir; HP – Horse Power; KL – Kiloliter; km – kilometer; RCC – Reinforced Cement Concrete

8. Civil works under Tranche-1 commenced on December 6, 2011 and the estimated duration of works was 18 months. All the civil works were completed by December 2013.

9. The Semi Annual Environmental Monitoring Report presents the status of sub project implementation, details of compliance with environmental regulations of the Government and policies of ADB, details of compliance with environmental loan covenants, details of complaints received and their redress and the status of compliance with various aspects of EMP as stated in the IEE reports.

10. Monitoring of compliance with EMP is a continuous activity carried out by the DSMC and SIPMIU. Guidelines on general construction EHS measures to be followed / implemented by the Contractor were issued to the Contractor. A reporting format to be filled by the Supervisory staff of DSMC on a monthly basis on compliance with EMP by the Contractor was also implemented. Since all the civil works were completed by December 2013, these formats were not filled during the current reporting period. This report presents the compliance status of the Tranche 1 subproject to the Environmental Management Plan and other legal requirements as on December 2015, and is prepared in compliance with the ADB Policies.

II. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE

A. Environmental Legal Requirements

11. Following Regulations are currently in force in India that deals with environmental issues that could apply to infrastructure development. Acts and Rules related to monuments and archeological sites are also listed herein.

- (i) The Water (Prevention and Control of Pollution) Act, 1974, amended 1988
 - The Water (Prevention and Control of Pollution) Rules, 1975
 - The Water (Prevention and Control of Pollution) Cess Rules, 1971
- (ii) The Air (Prevention and Control of Pollution) Act 1981, amended 1987
 - The Air (Prevention and Control of Pollution) Rules, 1982
- (iii) The Environment (Protection) Act, 1986, amended in 1991 and including the following Rules/Notification issued under this Act
 - The Environment (Protection) Rules, 1986, including amendments
 - The Municipal Solid Wastes (Management and Handling) Rules, 2000
 - The Hazardous Wastes (Management and Handling) Rules, 1989
 - Eco Sensitive Zone Notification, Doon Valley, 1989
 - The Bio-Medical Waste (Management and Handling) Rules, 1998
 - Noise Pollution (Regulation and Control) Rules, 2000,
 - Wild Life (Protection) Amendment Act, 2002
 - Environmental Impact Assessment Notification, 2006
 - Environmental Standards of Central Pollution Control Board (CPCB)
- (iv) The Indian Wildlife (Protection) Act, 1972, amended 1993
 - The Wildlife (Protection) Rules, 1995
- (v) The Indian Forest Act, 1927
- (vi) Forest (Conservation) Act, 1980, amended 1988
 - Forest (Conservation) Rules, 1981 amended 1992 and 2003
 - Guidelines for Diversion of Forest Lands for Non-Forest Purpose under the Forest (Conservation) Act, 1980

- (vii) Ancient Monuments and Archaeological Sites and Remains Act 1958
 - Ancient Monuments and Archaeological Sites and Remains Rules 1959
 - Government of India Notification of 1992 under the above-stated Rules

B. Compliance with Environmental Regulations

12. The GoI, EIA Notification of 2006 sets out the requirement for Environmental Assessment in India. The water supply improvement subproject under Tranche-1 does not fall under the ambit of the EIA Notification, and therefore does not require environmental clearance.

13. Since the Ground Level Service Reservoir (GLSR) at Bulbuley was constructed in forest land, forest clearance under the Forest (Conservation) Act, 1980 was applicable to the water supply subproject under Tranche-1. Tree cutting permission from the State Forest department was also required for this sub project. These clearances were obtained.

14. Following Table shows the regulatory requirements of subprojects/components under Tranche-1 and the present status of compliance. Copies of Forest Clearance and Tree Cutting permission for GLSR construction were presented in the semi Annual Environmental Monitoring Report for the period, July - December 2013.

Table 2: Present Status of Environment & Forest and Other Clearances

Town	Work (Package No.)	Applicable Legislation / Type of Clearance	Clearance given by and date	Conditions	Remarks / Action needed
Gangtok	Storage reservoir (GLSR) for Burtuk and Chandmari wards (ADB/ SIPMIU/01 of 2011)	The GLSR site is located on a forest land; transfer of land from Forest Department to Implementing Agency and permission to construct GLSR was required under the Forest (Conservation) Act, 1980	Director of Forests – Himalayan Zoological Park vide letter dated 30.01.12	There were sixteen conditions	All the conditions have been complied and the details were presented in the Semi Annual Environmental Monitoring Report for the period, July – December 2013.
		Tree cutting permission from the Forest Department was required under the Sikkim Private and other Non Forest land Tree Felling Rules, 2006	Divisional Forest Officer, East Territorial Division vide letter dated 14.03.12	Nil	Nil

GLSR – Ground Level Service Reservoir

C. Compliance of Environmental Loan Covenants

15. Table 3 shows the environmental safeguard related loan covenants and their compliance status in implementation. All the covenants were complied during implementation.

16. Tranche-1 subproject was classified as Category B as per the ADB Environmental Policy, and accordingly IEE report was prepared during PPTA/BTA and was approved by the ADB. During this implementation stage, the IEE was updated and reapproved by the ADB.

Table 3: Compliance of Environmental Loan Covenants

S. No	Project Specific Covenants (Environmental)	Status / Issues
1	<p>GOI and the States will ensure that the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment and review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government and ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002).</p> <p>Any adverse environmental impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. . Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MOEF.</p> <p>GOI will prepare and submit annually to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered and measures adopted; and compliance with the relevant assurances and loan covenants</p>	<p>IEE approved by ADB, disclosed in public, and included in bid document and contract.</p> <p>Clearances obtained as per applicable regulations.</p> <p>Semi-annual environmental monitoring report is being submitted to ADB</p>

ADB – Asian Development Bank; EARP – Environmental Assessment & Review Procedures; EIA – Environmental Impact Assessment; IEE – Initial Environmental Examination; MOEF – Ministry of Environment and Forest; SEIAA – State Environmental Impact Assessment Authority

D. Environmental Organization and Management

17. The main agencies involved in managing and implementing the subproject are:

- (i) **Ministry of Urban Development (MOUD)** - The national-level Executing Agency (NEA) for the Investment Program;
- (ii) **Investment Program Coordination Cell (IPCC)** – It is established in MOUD. IPCC is responsible for overall management of the Investment Program in the city and they include social/environmental safeguard specialists whose tasks include monitoring Program implementation and reviewing and screening the subprojects submitted by State in accordance with subproject selection criteria, including the environmental provisions;

(iii) **State Investment Program Management and Implementation Unit (SIPMIU) –**

It was established in SEA and headed by a Program Director (PD). SIPMIU will oversee the Program's environment and resettlement planning. This includes the preparation of all documentation needed for decision-making, contracting, and supervision of work and providing progress-monitoring information to the PD;

The SIPMIU shall comprise of a Safeguards and Social Cell staffed with an Environmental Officer (EO). The EO shall be responsible for implementing the environmental safeguard provisions in the project including (i) ensuring environmental criteria for subproject selection in the EARP are followed, (ii) ensuring mitigation requirements are in contractor bidding documents, and (iii) liaising with various Central and State government agencies on compliance matters. The SIPMIU will appoint and manage Construction Contractors (CC) to build elements of the infrastructure who are required to submit Environmental Implementation Plans (EIPs) for SIPMIU approval

(iv) **Design, Supervision and Management Consultant (DSMC) -** The SIPMIU is assisted by the DSMC, who is responsible for design the infrastructure, manage tendering of contracts, and supervise the construction process;

An Environmental Specialist (ES) in the DSMC is responsible for addressing the environmental issues in the project components during design and implementation. The ES will ensure all mitigation requirements are in contractor bidding documents and EIPs, and will supervise the effective implementation of environmental provisions during construction. In addition, the ES will assist the SIPMIU on the procurement needs and other project implementation aspects and shall play a central role in ensuring capacity building on environmental management of the SIPMIU, Contractor and Line Departments through capacity development support and training.

18. A grievance redress mechanism has been established in SIPMIU. Minor grievances of affected persons (APs) will first be brought to the attention of the implementing NGO / Resettlement Officer (RO) of SIPMIU. Grievances not redressed within 30 days by the NGO or RO will be brought to the grievance redress committee (GRC), established in SIPMIU. Major grievances will be directly brought to the GRC. The GRC was constituted vide UD&HD notification dated 25.01.2012. The GRC notification for Gangtok was presented as Annexure in the previous Semi Annual Environmental Monitoring Report. The GRC comprise the Investment Program Director, Officer of Land Revenue Department, Project Manager – SIPMIU, Resettlement Officer of Social / Resettlement Unit – SIPMIU, Representative of Implementing NGO, and representative (male / female) from APs. The GRCs will continue to function throughout the project duration. The GRC will meet every month, determine the merit of each grievance, and resolve grievances within a month of receiving the complaint; failing which the grievance will be addressed by the Investment Program Empowered Committee (IPEC). The IPEC would meet as often as necessary at the request of the Project Director. Grievance not redressed by the IPEC will be referred to the appropriate courts of law. All costs involved in resolving grievances will be borne by the SIPMIU. The SIPMIU through the DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. No grievances were received during the reporting period.

III. EMP COMPLIANCE STATUS

19. This section presents the compliance status of Environmental Management and Monitoring Plans of tranche-1 subproject under implementation.

20. Under this subproject, all civil works have been completed. No environmental quality monitoring was conducted during the construction period. The Contractor had not prepared any Environmental Implementation Plan. He was following the EMP, which is part of the IEE and Contract document. In addition to that, guidelines on general construction EHS measures to be followed / implemented by the Contractor were issued to the Contractor.

21. A reporting format to be filled by the Supervisory staff of DSMC on a monthly basis on compliance with EMP by the Contractor was implemented. Since all the civil works were completed by December 2013, these formats were not filled during the current reporting period. Details of compliance of EMP and OH&S norms by the Contractor were presented in the Semi Annual Environmental Monitoring Report for the period, July – December 2013. Health and safety training was given to the Contractor's Supervisors by the Environmental Expert of ADB on 13.11.2013. Instruction was given to the Contractor to conduct training to all his personnel.

IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN

22. As presented in this report, all the civil works of tranche-1 of this Investment Program was completed by December 2013 and the subproject was implemented in compliance with the loan covenants, subproject selection criteria and overall EARF. However, the Contractor was not complying with most of the occupational health and safety measures and community health and safety measures suggested in the EMP. Strict instructions were given to the Contractor to comply with the mitigation measures suggested in the EMP. Training on health, safety and environment was given to the Contractor by the Environmental Expert of ADB on 13.11.2013. No ambient air quality monitoring and water quality monitoring was conducted by the contractor during the construction period. As per the observations / comments received on February 27, 2015 from ADB on the Semi Annual Environmental Monitoring Report for the period, January – June 2014, no action has to be taken for the Tranche-1 report except disclosing the report to affected people. Accordingly, English version of the previous Semi Annual Environmental Monitoring Report has been disclosed in the SIPMIU website, <http://sipmiugangtok.org/reports.html>. Translation of the report to Nepalese, the local language is being carried out and it will also be published in the website.

Semi Annual Environmental Monitoring Report

Loan Number: 2528 IND
Reporting Period: July – Dec 2015

INDIA: North Eastern Region Capital Cities
Development Investment Program (Tranche 1)
Project City: Kohima, Nagaland State

Implementing Agency: State Investment Program Management and Implementation Unit
Executing Agency: Urban Development Department, Government of Nagaland

March 2016
Kohima

ABBREVIATIONS

ADB	- Asian Development Bank
BTA	- Bridging Technical Assistance
CC	- Construction Contractor
DOC	- Date of Completion
DOS	- Date of Start
DSMC	- Design, Supervision and Management Consultant
EA	- Executing Agency
EARP	- Environmental Assessment & Review Procedure
EHS	- Environment, Health and Safety
EIA	- Environmental Impact Assessment
EMR	- Environmental Monitoring Report
EO	- Environmental Officer
ES	- Environmental Specialist
Gol	- Government of India
IA	- Implementing Agency
IEE	- Initial Environmental Examination
IPCC	- Investment Program Coordination Cell
MFF	- Multi-tranche Financing Facility
MLD	- Million Liters per Day
mn	- Million
MoUD	- Ministry of Urban Development
NEA	- National Executing Agency
NERCCDIP	- North Eastern Region Capital Cities Development Investment Program
NSC	- National level steering committee
PD	- Project Director
PPTA	- Project Preparatory Technical Assistance
SEA	- State level Executing Agency
SIPMIU	- State Investment Program Management and Implementation Unit
SWM	- Solid Waste Management
UDD	- Urban Development Department

Table of Contents

I. INTRODUCTION	1
A. BACKGROUND.....	1
B. PROJECT PROFILE	2
II. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE	3
A. ENVIRONMENTAL LEGAL REQUIREMENTS.....	3
B. COMPLIANCE WITH ENVIRONMENTAL REGULATIONS	4
C. COMPLIANCE OF ENVIRONMENTAL LOAN COVENANTS	6
D. ENVIRONMENTAL ORGANIZATION AND MANAGEMENT	7
III. EMP COMPLIANCE STATUS.....	8
IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN	11

List of Tables

Table 1. Sub Project Details under Tranche-1 (Loan No. 2528 IND)	2
Table 2: Present Status of Environment & Forest and Other Clearances	5
Table 3: Compliance Status of Environmental Loan Covenants	6
Table 4: Compliance of EMP and OH&S Norms	9

List of Appendices

Appendix 1: Consent to Establish for Water Supply Sub Project	13
Appendix 2: Environmental Clearance for SWM Sub Project	14
Appendix 3: Consent to Establish and Authorization for SWM Sub Project	15
Appendix 4: Grievance Redressal Mechanism	16
Appendix 5: Site Photographs.....	18
Appendix 6: Daily EMP Implementation Monitoring Reports (July to December 2015)	19

I. INTRODUCTION

A. Background

1. North Eastern Region Capital Cities Development Investment Program (NERCCDIP) is being undertaken for improvement of existing infrastructure, environmental quality and access to basic urban services of Kohima Municipal Council area. The NERCCDIP's objective is to improve the urban environment and promote reforms for sustainable, efficient, and responsive urban service delivery. The Program components are Water supply and Solid Waste Management infrastructure.

2. With an overall objective of sustainable urban development, the NERCCDIP is being implemented in the five capital cities- Gangtok, Aizawl, Kohima, Gangtok and Shillong. NERCCDIP will be implemented over a six year period beginning in 2009, and is funded by a loan via the Multitranche Financing Facility (MFF) of the Asian Development Bank (ADB).

3. In Kohima, capital city of Nagaland, the Executing Agency (EA) for the program is the Urban Development Department (UDD) of the Government of Nagaland (GoN); and the Implementing Agency (IA) is the State-level Investment Program Management and Implementation Unit (SIPMIU), created within the UDD, specifically for the Investment Program implementation. At central level an Investment Program Coordination Cell (IPCC) is established in MOUD. IPCC is responsible for overall management of the Investment Program and is supported by Program Management & Monitoring Consultants (PMMC).

4. One solid waste management subproject is currently under implementation at Kohima under Tranche-1 (Loan No. 2528 IND). One water supply sub project was also under implementation under Tranche-1. However, all civil works under the water supply sub project were completed in 2014. Both the sub projects have been classified as Category B as per the ADB Environmental Policy, and accordingly Initial Environmental Examination (IEE) reports were prepared during PPTA/BTA and they were approved by the ADB.

5. Changes in location of some water tanks were proposed in the water supply sub project during implementation and IEE including Environmental Monitoring Plan was updated to address the changes in the location of tanks. The updated IEE was approved by ADB in December, 2013. Solid waste management sub project is being implemented as a design, build, operate and transfer project. Some additional works were proposed as part of this sub project. Therefore, IEE including EMP was updated and it was approved by ADB in December 2013. However, these additional works were not approved by MoUD in Tranche 1 and they have been proposed as a new subproject in tranche 2, for which a separate IEE has been prepared. Hence, the updated IEE is not applicable now. The sub projects in Tranche 1 were screened using ADB checklist for any change in scope and it was found that re-categorization of the sub projects is not required.

6. An Environmental Monitoring Plan which addresses the potential impacts and risks identified by the environmental assessment has been included in the IEE reports. The level of complexity of the EMP and the priority of the identified measures and actions commensurate with the Project's impact and risks. The EMP is part of bidding and contract documents. The EMPs were updated as part of the IEEs updated for the changes in the sub projects. The updated EMPs were issued to the Contractors and the updated IEEs were disclosed in the SIPMIU website (<http://sipmiunagaland.com/Downloads.html>). However, the updated IEE for the solid waste management subproject is not applicable now since the proposed changes in the subproject were not approved by MoUD.

B. Project Profile

7. At present, Subprojects under Tranche-1 (Loan No. 2528 IND) are under implementation in Kohima and focus on water supply improvements and solid waste disposal facilities. The water supply subproject (package no. KHM-WA 1) covers construction of 18 ground level RCC tanks (service reservoirs) and refurbishment of an existing water treatment plant.

8. The solid waste management subproject (package no. KHM-SWM 1) covers design, build, operation and transfer of a sanitary land fill, compost plant and internal access roads.

9. Details of the project activities under Tranche-1 (Loan No. 2528 IND) as of December 2015 are presented in the following Table.

Table 1. Sub Project Details under Tranche-1 (Loan No. 2528 IND)

S. No.	Name of Work	Location	Description	Changes if any from approved scope
1	Refurbishment of Kohima water supply scheme (KHM-WA 1)	Spread over Kohima Municipal Council	construction of 18 ground level RCC tanks (service reservoirs) and rehabilitation of the Water Treatment Plant	Locations of 8 ground level service reservoirs were changed and hence the IEE report was updated and it was approved by ADB in December 2013.
2	Civil works and procurement of equipment for development of sanitary land fill, compost plant and internal access (KHM-SWM 1)	At Landfill site, Lerie	Design, build, operate and transfer of sanitary landfill, compost plant, leachate treatment plant and associated infrastructure	Additional infrastructure such as trommel, shredding, pressing and packing unit, canteen, barracks, toilets, retaining walls, culverts, and step drain were proposed and hence the IEE report was updated and it was approved by ADB in December 2013. However, these additional works were not approved by MoUD under Tranche 1. Hence, these additional infrastructure have been proposed as a new subproject under Tranche 2, for which a separate IEE report has been prepared. Hence, the updated IEE is not applicable now.

10. Civil works of water supply sub project under Tranche-1 commenced during December 2011 and the estimated duration of works was 18 months. This sub project was originally for the construction of 18 ground level rectangular RCC tanks. During implementation, there was difficulty in starting works at 8 tank sites due to severe space constraint & accessibility (at 7 sites) or non-availability of land (at one site). Hence, it was decided to re-locate these 8 tanks to 4 new sites to resolve the problem. Repair and renovation of existing RCC tank/clarifier at Assam Rifles compound was also included as an additional work in the sub project. In addition to the construction of tanks at the newly identified sites, small distribution tanks had to be constructed at the original locations having constraints for construction. Hence, the IEE report was updated and it was approved by ADB

in December 2013. Physical progress of this sub project as of December 2015 is 100%. Construction of 17 tanks has been completed. Construction of the tank at Assam Rifles HQ has been removed from the scope of the Contractor due to non-availability of land and it has been shifted to tranche 2. All the completed tanks have been commissioned. All the civil works under this sub project were completed in 2014. Installation of two new electro chlorinators and some minor works as part of refurbishment of the old water treatment plant at Jotsoma were completed in 2015.

11. Civil works of the solid waste management sub project under Tranche-1 commenced during January 2012 and the estimated duration of works was 24 months. Additional infrastructure were proposed at the landfill site such as, (i) A 70 mm Trommel unit for pre-sorting of Municipal Solid Waste along with ancillaries for shredding, pressing and packing (ii) Provision of basic amenities such as canteen, barracks and separate toilet block for males & females, (iv) Retaining walls at 5 locations to control landslide and to develop a Y junction on the access road to landfill site and (v) One step-drain and two culverts for the control of storm water over flow from the approach road drain to the farm lands below. Hence, the IEE report was updated and it was approved by ADB in December 2013. However, these additional works were not approved by MoUD under Tranche 1. They have been proposed as a new subproject under Tranche 2, for which a separate IEE Report has been prepared. Hence, the updated IEE is not applicable now. Construction of landfill site and compost plant has been completed. Physical progress of this sub project as of December 2015 is 97.82 %. All works are targeted to be completed by March 2016.

12. The Semi Annual Environmental Monitoring Report presents the status of sub project implementation, details of compliance with environmental regulations of the Government and policies of ADB, details of compliance with environmental loan covenants, details of complaints received and their redressal and the status of compliance with various aspects of EMP as stated in the IEE reports.

13. Monitoring of compliance with EMP is a continuous activity carried out by the DSMC and SIPMIU. Guidelines on general construction EHS measures to be followed / implemented have been issued to the Contractor. A reporting format to be filled up by the Contractor on a daily basis on compliance with EMP has been issued and they are being compiled on a monthly basis. Daily EMP Implementation Monitoring Reports from July to December 2015 have been attached to this report as **Appendix 6**. This is the consolidated report on implementation of Environmental Management Plan (EMP) from July to December 2015, and is prepared in compliance with the ADB Policies.

II. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURE

A. Environmental Legal Requirements

14. The following Regulations are currently in force in India that deals with environmental issues that could apply to infrastructure development. Acts and Rules related to monuments and archeological sites are also listed herein.

- (i) The Water (Prevention and Control of Pollution) Act, 1974, amended 1988
 - The Water (Prevention and Control of Pollution) Rules, 1975
- (ii) The Air (Prevention and Control of Pollution) Act 1981, amended 1987
 - The Air (Prevention and Control of Pollution) Rules, 1982

- (iii) The Environment (Protection) Act, 1986, amended in 1991 and including the following Rules/Notification issued under this Act
 - The Environment (Protection) Rules, 1986, including amendments
 - The Municipal Solid Wastes (Management and Handling) Rules, 2000
 - The Hazardous Wastes (Management and Handling) Rules, 1989
 - The Bio-Medical Waste (Management and Handling) Rules, 1998
 - Noise Pollution (Regulation and Control) Rules, 2000,
 - Environmental Impact Assessment Notification, 2006
 - Environmental Standards of Central Pollution Control Board (CPCB)
- (iv) The Indian Wildlife (Protection) Act, 1972, amended 1993
 - The Wildlife (Protection) Rules, 1995
- (v) The Indian Forest Act, 1927
- (vi) Forest (Conservation) Act, 1980, amended 1988
 - Forest (Conservation) Rules, 1981 amended 1992 and 2003
 - Guidelines for Diversion of Forest Lands for Non-Forest Purpose under the Forest (Conservation) Act, 1980
- (vii) Ancient Monuments and Archaeological Sites and Remains Act 1958
 - Ancient Monuments and Archaeological Sites and Remains Rules 1959
 - Government of India Notification of 1992 under the above-stated Rules

B. Compliance with Environmental Regulations

15. The Gol EIA Notification of 2006 sets out the requirement for Environmental Assessment in India. The Tranche-1 water supply improvement subproject does not fall under the ambit of the EIA Notification, and therefore does not require environmental clearances. However, the Tranche-1 water supply subproject requires consent to establish and operate under the Water Act and Air Act from the State Pollution Control Board.

16. The Tranche-1 Solid Waste Management subproject requires environmental clearance under the EIA Notification from Nagaland State EIA Authority. The Tranche-1 Solid Waste Management subproject further requires authorization under the Hazardous Wastes (Management and Handling) Rules, 1989 and Municipal Solid Waste (Management and Handling) Rules 2000 and consents to establish and operate under the Air and Water Acts from the State Pollution Control Board.

17. No other environmental or forest clearances are required for the subprojects in Kohima.

18. The following Table shows the regulatory requirements of subproject/components under Tranche-1 and the present status of compliance. Copy of Consent to Establish for water supply sub project is presented as **Appendix 1**. Copy of Environmental Clearance for Solid Waste Management subproject is presented as **Appendix 2**. Copy of Consent to Establish and Authorization for Solid Waste Management subproject is presented as **Appendix 3**.

Table 2: Present Status of Environment & Forest and Other Clearances

Town	Work (Package No.)	Applicable Legislation / Type of Clearance	Clearances given by and Date	Conditions	Remarks / Action needed
Kohima	Refurbishment of Kohima water supply scheme (KHM-WA 1)	Consent to establish under Water Act	Consent to establish has been issued by Nagaland Pollution Control Board vide consent no. 203 dated 07.07.2009.	<p>1. The consent is valid for establishing a WTP, Jotsoma, Kohima</p> <p>2. The applicant shall ensure environmentally sound management practices</p> <p>3. The applicant shall submit the analysis report of the treated water sample while applying for consent to operate</p> <p>4. The applicant shall apply for consent to operate before operation of the plant.</p> <p>5. The consent is liable to be cancelled if terms and conditions are not implemented</p>	<p>1. No action needed</p> <p>2. EMP is being implemented</p> <p>3. Will be submitted before beginning the operation</p> <p>4. Application has been submitted.</p> <p>5. No violation of terms and conditions</p>
	Civil works and procurement of equipment for development of sanitary land fill, compost plant and internal access (KHM-SWM 1)	Environmental clearance under the EIA Notification 2006	Application for Environmental Clearance (EC) was submitted to Nagaland State EIA Authority. Since clearance was not issued by the EIA Authority within the time period specified in the EIA Notification, Government of Nagaland has granted deemed approval of the EC vide letter no. UDD/19-ADB/02/ 2009 dated 28.10.2011 as per the provisions of EIA Notification 2006.	No conditions	No action needed

Town	Work (Package No.)	Applicable Legislation / Type of Clearance	Clearances given by and Date	Conditions	Remarks / Action needed
		Consent to establish under Air and Water Acts and authorization to setup landfill and compost plant under the MSW (Management and Handling) Rules 2000 and Hazardous Wastes (Management and Handling) Rules 1989	Consent to establish and Authorization to set up landfill and compost plant has been issued by Nagaland Pollution Control Board vide consent no. 202 dated 07.07.2009.	<p>1. The consent is valid for establishing a SWM Facility at Lerie, Kohima</p> <p>2. The applicant shall ensure environmentally sound management practices</p> <p>3. The applicant shall ensure that SWM facility will be taken up as per the DPR and MSW Rules.</p> <p>4. The applicant shall apply for consent to operate before operation of the facility.</p> <p>5. The consent is liable to be cancelled if terms and conditions are not implemented</p>	<p>1. No action needed</p> <p>2. EMP is being implemented</p> <p>3. Complying with MSW rules. Any changes in design will be intimated to PCB.</p> <p>4. Application has been submitted.</p> <p>5. No violation of terms and conditions</p>

C. Compliance of Environmental Loan Covenants

19. Table 3 shows the environmental safeguard related loan covenants and their compliance status in implementation. All the covenants are being complied in implementation.

20. Tranche-1 water supply and solid waste management subprojects have been classified as Category B as per the ADB Environmental Policy. Accordingly IEE reports were prepared during PPTA/BTA and were approved by the ADB. During the implementation of water supply sub project, there was a change in the location of eight ground level service reservoirs. Hence, an updated IEE report was prepared and it was approved by ADB in December 2013. Similarly, for the solid waste management subproject, some additional infrastructures were proposed and hence, an updated IEE report was prepared and it was approved by ADB in December 2013. However, these additional infrastructures were not approved by MoUD in Tranche 1 and hence the updated IEE is not applicable now.

Table 3: Compliance Status of Environmental Loan Covenants

Project Specific Covenants	Status / Issues
GOI and the States will ensure that the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment and review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government and ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002).	IEE approved by ADB, disclosed in public (http://sipmiunagaland.com/Downloads.html), and included in bid document and contract.

Project Specific Covenants	Status / Issues
Any adverse environmental impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MOEF.	Clearances obtained as per applicable regulations.
GOI will prepare and submit annually to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered and measures adopted; and compliance with the relevant assurances and loan covenants	Semi-annual environmental monitoring report is being submitted to ADB

ADB – Asian Development Bank; EARP – Environmental Assessment & Review Procedures; EIA – Environmental Impact Assessment; IEE – Initial Environmental Examination; MOEF – Ministry of Environment and Forest; SEIAA – State Environmental Impact Assessment Authority.

D. Environmental Organization and Management

21. The main agencies involved in managing and implementing the subproject are:
- (i) **Ministry of Urban Development (MOUD)** - The national-level Executing Agency (NEA) for the Investment Program;
 - (ii) **Investment Program Coordination Cell (IPCC)** -It is established in MOUD. IPCC is responsible for overall management of the Investment Program in the 5 cities. It comprise of social/environmental safeguard specialists whose tasks include monitoring Program implementation and reviewing and screening the subprojects submitted by the States in accordance with subproject selection criteria, in accordance with the environmental provisions;
 - (iii) **State Investment Program Management and Implementation Unit (SIPMIU)**- It is established under the State Government and headed by a Program Director (PD). SIPMIU will oversee the implementation of the sub projects as per the Program's environment and resettlement planning. This includes the preparation of all documentation needed for decision-making, contracting, and supervision of work, providing progress-monitoring information as well as the compliance of all environmental safeguards.
- The SIPMIU comprises of a Safeguards and Social Cell staffed with an Environmental Officer (EO). The EO is responsible for implementing the environmental safeguard provisions in the project including (i) ensuring environmental criteria for subproject selection in the EARP, (ii) ensuring mitigation requirements in the Bid documents and (iii) liaising with various Central and State government agencies on compliance matters. The SIPMIU will appoint and manage Construction Contractors (CC) to build elements of the infrastructure who are required to submit Environmental Implementation Plans (EIPs) to SIPMIU approval.
- (iv) **Design, Supervision and Management Consultant (DSMC)** - The SIPMIU is assisted by the DSMC, who is responsible for the design of the infrastructure, manage tendering of contracts, and supervise the construction process;

An Environmental Specialist (ES) in the DSMC is responsible for addressing the environmental issues in the project components during design and implementation. The ES will ensure that all mitigation requirements are in the bidding documents and EIPs, and will supervise the effective implementation of environmental provisions during construction. In addition, the ES will assist the SIPMIU on the procurement needs and other project implementation aspects and shall play a central role in ensuring capacity building on environmental management of the SIPMIU, the Contractor and the Line Departments through capacity development support and training.

22. No grievances were received during the reporting period. A grievance redressal mechanism has been established. Grievances of affected persons will first be brought to the attention of the SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Kohima. The GRC will determine the merit of each grievance, and resolve grievances within 10 days of receiving the complaint. Grievance not redressed by the IGRC will be referred to the appropriate courts of law. The DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were affected, and the final outcome. The IGRC was constituted vide SIPMIU notification dated 18.01.2013. Details of grievance redressal mechanism and the IGRC notification for the sub projects are presented as **Appendix 4**.

III. EMP COMPLIANCE STATUS

23. This section presents the compliance status of Environmental Management and Monitoring Plans of tranche-1 subprojects under implementation.

24. Under the water supply subproject no civil works were carried out during the reporting period because the Contractor had completed all the civil works as per the revised scope of work in 2014 itself. Installation of two new electro chlorinators and some minor works as part of refurbishment of the old water treatment plant at Jotsoma were completed in 2015. Under the solid waste management subproject, the civil works and procurement of equipment for development of sanitary land fill, compost plant and internal access are in progress. Photographs of ongoing construction works and environmental management measures are presented as **Appendix 5**. The SWM Contractor is following the Environmental Monitoring Plan (EMP), which is part of the IEE and Contract document. The Contractor has not prepared any Environmental Implementation Plan. Alternatively, the Contractor is following the guidelines on general construction EHS measures to be followed / implemented issued to them. The EMP was updated as part of the IEE updated for the changes in the sub projects and the updated EMP was issued to the Contractor. A reporting format to be filled up by the Contractor on a daily basis on compliance with EMP has been issued and they are being compiled on a monthly basis. Daily EMP Implementation Monitoring Reports from July to December 2015 have been attached to this report as **Appendix 6**.

25. Air quality, noise level, ground water quality, surface water quality, and soil quality monitoring was conducted by the SWM Contractor during the previous reporting period (June 2015). Monitoring results of all the parameters were within the standards. No environmental monitoring was conducted by the Contractor during this reporting period.

Table 4: Compliance of EMP and OH&S Norms

Sl. No.	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status
Civil Works and Procurement of Equipment for Development of Sanitary Landfill, Compost Plant & Internal Access						
1	All the vehicles used for construction should comply with relevant environmental standard	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Vehicles are keeping pollution under control certificate and fitness certificate
2	It should be ensured that the workers are provided with PPEs like earplugs, dust masks etc. to minimize the health impacts	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	workers are provided with PPEs
3	It should be ensured that construction at night time is restricted to the extent possible	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	No work is conducted during night-time
4	Regular water sprinkling should be undertaken to ensure the dust suppression	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Water sprinkling is being done
5	Two trees should be planted for every one removed	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Trees have already been planted along the approach road and in the vacant land around the landfill site. However, very less trees have survived the summer. Hence, the contractor has to plant trees again.
6	Excavated earth should be conserved for re-use	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Excavated earth is used for levelling landfill
7	Water supply and sanitation facilities should be provided in labour camps	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Labour camps are provided with Water supply and sanitation facilities
8	50% of the work force should be employed from local community near work site	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Local workforce is being used to the extent available. However, 50% local workers

Sl. No.	Mitigation Activities and Method	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Compliance Status
9	Contractor should prepare a construction site management plan	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	are not available.
10	This plan should have measures to exclude public from all construction sites	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Contractor has not prepared a construction site management plan. Hence, guidelines on general EHS measures have been issued to the Contractor. These include measures to exclude public from all construction sites. Compliance being strictly monitored by the DSMC
11	Health and safety training should be imparted to all personnel	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	Health and safety training was given to the Contractor's Supervisors by the ES of DSMC. The Contractor has not repeated the health and safety training to all their personnel. Instruction has been given to the Contractor to do so.
12	Restoration of borrow areas should be undertaken after borrowing	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	No borrow areas have been opened
13	All accident reports and records should be maintained periodically and appropriately	Landfill site at Lerie Colony	Contractor	Visual Observation	DSMC	The Contractor is maintaining an accident report register. No accidents have been reported during the reporting period.



IV. OBSERVATIONS, RECOMMENDATIONS AND ACTIONS TAKEN

26. As presented in this report, tranche-1 of this Investment Program is being implemented in compliance with the loan covenants, subproject selection criteria and overall EARF. There are some non-compliant EMP activities noticed in the monitoring report regarding the solid waste management sub project. The Contractor has not prepared a construction site management plan. To compensate this, guidelines on general EHS measures to be followed at construction sites have been issued to the Contractor. These include measures to exclude public from all construction sites. Compliance to these measures is being strictly monitored by the DSMC. Health and safety training was given to the Contractor's Supervisors by the ES of DSMC. The Contractor has not repeated the health and safety training to all their personnel. Instruction has been given to the Contractor to do so. Since very less trees planted around the landfill site have survived, the Contractor has to plant trees again. The Contractor has provided caution boards and information boards at the work site. The Contractor is maintaining an Accident Report Register. No accidents were reported during July – December 2015. No environmental monitoring was conducted by the Contractor during the reporting period.

27. Necessary instructions have been given to the Contractor by DSMC/SIPMIU to specifically focus on safety aspects, training to their staff, and in general on EMP measures to improve the compliance.

APPENDICES

Appendix 1: Consent to Establish for Water Supply Sub Project

NAGALAND POLLUTION CONTROL BOARD SIGNAL POINT : DIMAPUR: NAGALAND	
<u>Consent Order / Authorization</u>	
Consent No. 203	Dated 07.07.2009
<p>Consent to Establish under Section 25/ 26 of the Water (Prevention & Control of Pollution) Act, 1974, as amended and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, as amended to be referred as Water Act and Air Act respectively.</p> <p>Consent is granted to State Investment Program Management and Implementation Unit, Asian Development Bank, (ADB) Assisted Project Kohima, Nagaland, located in the area declared under the provisions of the Water Act & Air Act and subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:-</p> <ol style="list-style-type: none">1. The Consent is valid for: Establishing a Water Treatment Plant, Jotsoma, Kohima, Nagaland.2. The applicant shall also ensure environmentally sound management practices by taking necessary steps to protect health and environment against adverse effects which may result from the plant.3. The applicant shall submit the analysis report of the treated water sample from a recognized laboratory while applying for consent to operate.4. The applicant shall apply for Consent to operate for the Unit before the operation of the Plant.5. The Consent/Authorization is liable to be cancelled /revoked if the terms and conditions specified are not observed/ implemented. <div><div><p>Member Secretary</p><p>Member Secretary Nagaland Pollution Control Board Nagaland : Dimapur</p></div></div>	

Appendix 2: Environmental Clearance for SWM Sub Project

GOVERNMENT OF NAGALAND URBAN DEVELOPMENT DEPARTMENT

NOTIFICATION

Dated Kohima, the 28th Oct.' 2011.

NO.UDD/19-ADB/02/2009 :: As provided in clause 8(iii) of the Environmental Clearance Notification, dated 14th September, 2006 of the Ministry of Environment and Forests, Government of India, the Governor of Nagaland is pleased to grant deemed approval of the Environmental Clearance for Solid Waste Management Project at Kohima under the ADB assisted NERCCDIP by the State Environmental Impact Assessment Authority (SEIAA) in terms with the recommendations of the State Expert Appraisal Committee (SEAC).

Sd/- NEIHU C. THUR, IAS
Secretary to the Govt. of Nagaland.

NO.UDD/19-ADB/02/2009

Dated Kohima, the 28th Oct.' 2011.



Copy to:-

1. The Secretary to Governor of Nagaland, Raj Bhavan, Nagaland, Kohima.
2. The Addl. Chief Secretary to Chief Minister, Nagaland, Kohima.
3. The Sr. P.S to Minister, Urban Development, Nagaland, Kohima.
4. The OSD to Chief Secretary, Nagaland, Kohima.
5. The Secretary, Government of India, Ministry of Urban Development, Nirman Bhawan, New Delhi -110011. Fax: 011-23061459.
6. The Secretary, Government of India, Ministry of Environment & Forests, 104, New Moti Bagh, New Delhi - 110023. Fax: 011-24362746.
7. The Director, ADB, Urban Development and Water Division, South Asia Department, 6-ADB Avenue, Mandaluyong City, 1550 Metro Manila, Phillippines. Fax: 0632-636-2444.
8. The Commissioner & Secretary, Forest Department, Nagaland, Kohima.
9. The Chairman, State Environmental Impact Assessment Authority (SEIAA), Nagaland, Kohima.
10. The Principal Chief Conservator of Forest, Nagaland, Kohima.
11. *The Publisher, Nagaland Gazette, Kohima for kind publication in the next issue of the State Gazette.*
12. The Director, Urban Development, Nagaland, Kohima.
13. ~~The Program Director, SIPMIU-ADB assisted project, Kohima.~~
14. Guard file/office copy.

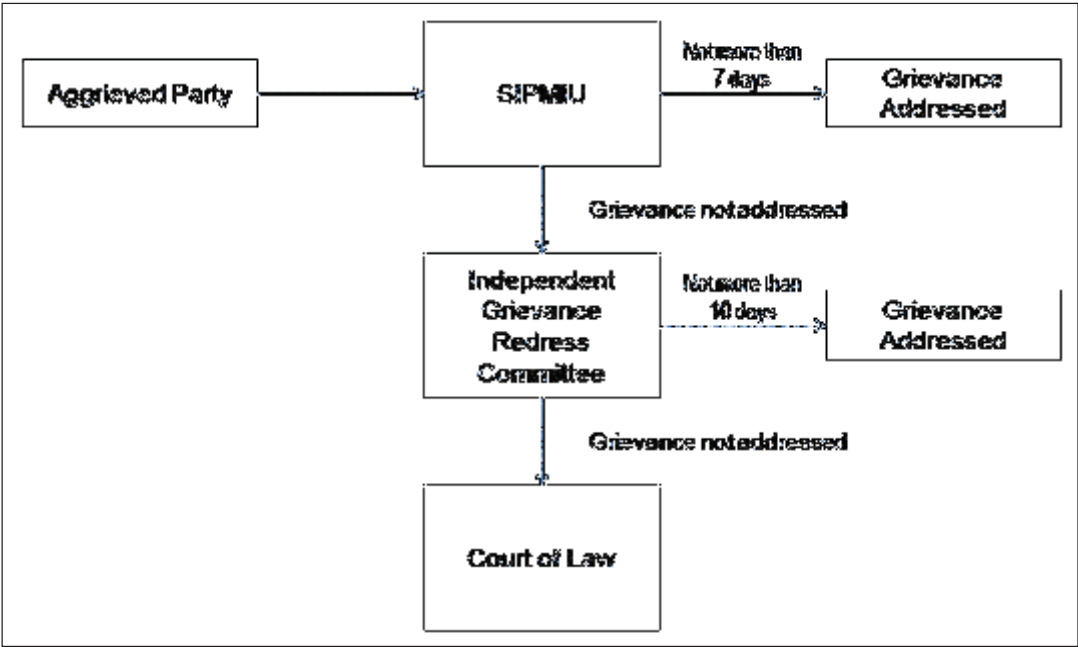

(Ahola Those)

Joint Secretary to the Govt. of Nagaland.

Appendix 3: Consent to Establish and Authorization for SWM Sub Project

NAGALAND POLLUTION CONTROL BOARD SIGNAL POINT : DIMAPUR: NAGALAND	
<u>Consent Order / Authorization</u>	
Consent No. 202	Dated 07.07.2009
<p>Consent to Establish under Section 25/ 26 of the Water (Prevention & Control of Pollution) Act, 1974, as amended and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, as amended and Authorization/ Renewal of Authorization under Rule 5 of the Hazardous Wastes (Management & Handling) Rules, 1989 , as amended (to be referred as Water Act, Air Act and HW (M&H) Rules, respectively).</p> <p>Consent is granted to State Investment Program Management and Implementation Unit, Asian Development Bank, (ADB) Assisted Project, Kohima, Nagaland, located in the area declared under the provisions of the Water Act/ Air Act and authorization under the provisions of HW (M&H) Rules subject to the provisions of the Act and the Rules and the Orders that may be made further and subject to the following terms and conditions:-</p> <ol style="list-style-type: none">1. The Consent is valid for: Establishing a Solid Waste Management Facility at Lerie, Kohima, Nagaland.2. The applicant shall also ensure environmentally sound management practices by taking necessary steps to protect health and environment against adverse effects which may result from the plant.3. The applicant shall ensure that the Solid Waste Management Facility be taken up as per the DPR and shall comply with the standards and terms & conditions as laid down in the Municipal Solid Waste (Management & Handling) Rules, 2000.4. The applicant shall apply for Consent to operate for the Unit before the operation of the facility.5. The Consent is liable to be cancelled /revoked if the terms and conditions specified are not observed/ implemented. <div><div><p>Member Secretary Member Secretary Nagaland Pollution Control Board</p></div></div>	

Appendix 4: Grievance Redressal Mechanism



**STATE INVESTMENT PROGRAMME MANAGEMENT AND IMPLEMENTATION UNIT
ASIAN DEVELOPMENT BANK (ADB) – ASSISTED PROJECT
KOHIMA : NAGALAND**

NOTIFICATION

Dated Kohima, the 18th January 2013

NO.SIPMIU/SCL/CP/2011:: In pursuance to Asian Development Bank (ADB) guidelines; the Independent Grievance Redress Committee (IGRC) is hereby constituted to address the grievances of persons affected due to the sub-projects implemented in Kohima under the ADB assisted North Eastern Region Capital Cities Development Investment Program.

- | | | |
|--|---|------------------|
| i. Program Director, SIPMIU | : | Chairman |
| ii. Addl. Program Director, SIPMIU | : | Member Secretary |
| iii. Dy. Program Director/ Environment Officer, SIPMIU | : | Member |
| iv. Sociologist, SIPMIU | : | Member |
| v. Assistant Engineer, SIPMIU | : | Member |
| vi. Team Leader, DSMC | : | Member |
2. The IGRC shall determine the merit of each grievance and resolve the grievance/s within 10 (ten) days of receiving the complaint.
3. Grievances not redressed by the IGRC will be referred to the appropriate court of law.
4. All costs involved in resolving the grievances shall be borne by SIPMIU.
5. The Design Supervision & Management Consultants shall keep records of all grievances received including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date of redressing the grievance and the final outcome.

Sd/-
K. HARALU
Program Director

NO.SIPMIU/SCL/CP/2011

Dated Kohima, the 18th January 2013

Copy to:

- i) The Commissioner & Secretary, Urban Development Department, Nagaland, Kohima for information.
- ii) The Director, Urban Development, Nagaland, Kohima for information.
- iii) The Chief Engineer, PHE, Nagaland, Kohima for information.
- iv) The CEO, Kohima Municipal Council, Kohima, Nagaland for information.
- v) All the members
- vi) Office copy


(NELL VASA)
Dy. Program Director

Appendix 5: Site Photographs

Civil Works & Procurement of Equipment of Sanitary Landfill, Compost Plant and Approach Road at Lerie (Photographs taken during October 2015)

	
Compost Plant Nearing Completion	Machineries Installed at Compost Plant
	
Machineries Installed at Compost Plant	Leachate Treatment Plant under Construction
	
Rainwater Collection Pond under Construction	Workers Wearing PPEs
	
Landfill Lining Works in Progress	Landfill Lining Works in Progress

Appendix 6: Daily EMP Implementation Monitoring Reports (July to December 2015)
Civil Works & Procurement of Equipment of Sanitary Landfill, Compost Plant and Approach Road at Lerie

Northeastern Region Capital Cities Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Daily EMP Implementation Monitoring Report for Solid Waste Management (Lunglei I)

Contract No. RHVI-SWM-1 Name of the Contractor Ramky Enviro Engineers Ltd. Date of Start of Construction Feb - 2012 Reporting Month and Year July - 2015

Sl. No.	Mitigation Measures as per EMP	Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.	Whether all the construction vehicles have PUC certificate?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.	Whether workers are provided with PPE's like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.	Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.	Whether regular water sprinkling is undertaken for dust suppression?																														
5.	Whether two trees are planted for every one removed?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6.	Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.	Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.	Whether 50% of the work force is employed from local community?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9.	Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10.	Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11.	Whether health and safety training has been imparted to all personnel?																														
12.	Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13.	Whether all accident reports and records are maintained periodically?																														

Signature of Engineer (NDSN)

[Handwritten signatures of multiple personnel]



Note: ✓ for Complied, Blank for Not Complied

North-eastern Region Capital Cities Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Daily EMP Implementation Monitoring Report for Solid Waste Management (Tranche 1)

Contract Package No: RRM-SWM-1 Name of the Contractor: Ramko Enviro Engineers Ltd PWSP: CDM Smith Inc.
 Date of Start of Construction: JAN 2012 Reporting Month and Year: Aug - 2015

Sl. No.	Mitigation Measures as per EMP	Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Whether all the construction vehicles have PIC certificate?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Whether workers are provided with PPE's like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Whether regular water sprinkling is undertaken for dust suppression?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Whether two trees are planted for every one removed?																														
6	Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Whether 50% of the work force is employed from local community?																														
9	Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Whether health and safety training has been imparted to all personnel?																														
12	Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Whether all accident reports and records are maintained periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Signature of Engineer of DSMU

[Handwritten signatures of multiple personnel]



Note: ✓ for Complied, Blank for Not Complied

Northeastern Region Capital City Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Bath EMP Implementation Monitoring Report for Solid Waste Management (Branch: 1)

Contract Package No: **EMD-SWM-1** Name of the Contractor: **Randy Enviro Engineers Ltd** DSMT: **PDP/ST/001/100**
 Date of Start of Construction: **Jan - 2012** Reporting Month and Year: **SEPTEMBER - 2015**

Sl. No.	Mitigation Measures as per EMP	Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.	Whether all the construction vehicles have PUC certificate?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.	Whether workers are provided with PPD's like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.	Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.	Whether regular water sprinkling is undertaken for dust suppression?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.	Whether two trees are planted for every one removed?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6.	Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.	Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.	Whether 50% of the work force is employed from local community?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9.	Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10.	Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11.	Whether health and safety training has been imparted to all personnel?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.	Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13.	Whether all accident reports and records are maintained periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Signature of Engineer of DSMT

[Handwritten signatures and initials across the bottom of the table]

Note: ✓ for Complied, Blank for Not Complied



Northeastern Region Capital Cities Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Daily EMP Implementation Monitoring Report for Solid Waste Management (Tranche 1)

Contract Package No: KHM-SWM-1 Date of Start of Construction: Jan 2012 Name of the Contractor: Ramky Enviro Engineers Ltd. Reporting Month and Year: October 2015 DS/IC: CDM Smith Inc.

Sl. No.	Mitigation Measures as per EMP	Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Whether all the construction vehicles have not terminate?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Whether workers are provided with PPE's like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Whether regular water sprinkling is undertaken for dust suppression?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Whether two trees are planted for every one removed?																														
6	Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Whether 50% of the work force is employed from local community?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Whether health and safety training has been imparted to all personnel?																														
12	Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Whether all accident reports and records are maintained periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signature of Engineer of Contractor																															
Signature of Engineer of DSMU																															

Note: ✓ for Complied, Blank for Not Complied



Northeastern Region Capital Cities Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Daily EMP Implementation Monitoring Report for Solid Waste Management (Tranche 1)

Contract Package No.: **KHM-SWM-1** Name of the Contractor: **Raniky Enviro Engineers Ltd.** DSMIC: **CDM Smith Inc.**
 Date of Start of Construction: **Jan 2012** Reporting Month and Year: **November 2015**



Sl. No.	Mitigation Measures as per EMP	Compliance Status																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1	Whether all the construction vehicles have eco certificate.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Whether workers are provided with PPEs like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Whether regular water sprinkling is undertaken for dust suppression?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	Whether two trees are planted for every one removed?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Whether 50% of the work force is employed from local community?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Whether health and safety training has been imparted to all personnel?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Whether all accident reports and records are maintained periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signature of Engineer of Contractor																															
Signature of Engineer of DSMIC																															

Note: ✓ for Complied, Blank for Not Complied



Northeastern Region Capital Cities Development Investment Programme
State Investment Program Management and Implementation Unit, Government of Nagaland
Daily EMP Implementation Monitoring Report for Solid Waste Management (Tranche 1)

Contract Package No: KHM-SWM-1 Name of the Contractor: Ramky Enviro Engineers Ltd. DSMC: CDM Smith Inc.
 Date of Start of Construction: Jan 2012 Reporting Month and Year: December, 2015

Sl. No.		Mitigation Measures as per EMP	Compliance Status																													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.		Whether all the construction vehicles have P.A. Certificate?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.		Whether workers are provided with PPE's like earplugs, dust masks etc.?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.		Whether it is ensured that construction at night time is restricted?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.		Whether regular water sprinkling is undertaken for dust suppression?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5.		Whether two trees are planted for every one removed?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6.		Whether excavated earth is conserved for re-use?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7.		Whether water supply and sanitation facilities are provided in labour camps?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8.		Whether 50% of the work force is employed from local community?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9.		Whether contractor has prepared a construction site management plan?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10.		Whether measures are taken to exclude public from all construction sites?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11.		Whether health and safety training has been imparted to all personnel?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12.		Whether restoration of borrow areas is undertaken after borrowing?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13.		Whether all accident reports and records are maintained periodically?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Signature of Engineer of Contractor																														
		Signature of Engineer of DSMC																														



Note: ✓ for Complied, Blank for Not Complied

Semi Annual Environmental Monitoring Report

Project Number 35290-01

Loan 2528 - IND

(December, 2015)

India: North Eastern Region Capital Cities
Development Investment Program – Shillong

Solid Waste Management Subproject (Tranche-I,
Shillong, Meghalaya) (July – December 2015)

Prepared by the State Investment Project Management and Implementation Unit (SIPMIU),
Urban Affairs Department for the Asian Development Bank.

ABBREVIATIONS

ADB	— Asian Development Bank
CBO	— Community Building Organization
CLC	— City Level Committees
CPHEEO	— Central Public Health and Environmental Engineering Organization
CTE	— Consent to Establish
CTO	— Consent to Operate
DSMC	— Design Supervision Management Consultant
EAC	— Expert Appraisal Committee
EIA	— Environmental Impact Assessment
EMP	— Environmental Management Plan
GSPA	— Greater Shillong Planning Area
GRC	— Grievance Redress Committee
H&S	— Health and Safety
IEE	— Initial Environmental Examination
IPCC	— Investment Program Coordination Cell
lpcd	— liters per capita per day
MFF	— Multi tranche Financing Facility
MOEF	— Ministry of Environment and Forests
MSW	— Municipal Solid Waste
NAAQS	— National Ambient Air Quality Standards
NEA	— National-Level Executing Agency
NER	— North Eastern Region
NERCCDIP	— North Eastern Region Capital Cities Development Investment Program
NGO	— Nongovernmental Organization
NSC	— National Level Steering Committee
O&M	— Operation and Maintenance
PMIU	— Project Management and Implementation Unit
PSP	— Private Sector Participation
SEA	— State-level Executing Agency
SEIAA	— State Environment Impact Assessment Authority
SIPMIU	— State-level Investment Project Management and Implementation Unit
SMB	— Shillong Municipal Board
SPS	— Safeguard Policy Statement
TOR	— Terms of Reference
UD&PAD	— Urban Development & Poverty Alleviation Department
UAD	— Urban Affairs Department
UDD	— Urban Development Department
ULB	— Urban Local Body

I. INTRODUCTION

A. BACKGROUND

1. The North-Eastern Region Capital Cities Development Investment Program (NERCCDIP) envisages achieving sustainable urban development in the Project Cities of Agartala, Aizawl, Kohima, Gangtok and Shillong through investments in urban infrastructure sectors. Urban infrastructure and services improvement is proposed in the following sectors: (i) water supply; (ii) sewerage and sanitation; and (iii) solid waste management. The expected impact of NERCCDIP is increased economic growth potential, reduced poverty, and reduced imbalances between the North-Eastern Region (NER) and the rest of the country. The expected outcomes of the Investment Program will be an improved urban environment and better living conditions for the 1.65 million people expected to be living in the NERCCDIP cities by 2018. To this end, NERCCDIP will (i) improve and expand urban infrastructure and services in the cities, including slums; and (iii) strengthen urban institutional management and the financing capacity of the institutions, including the urban local bodies (ULBs). Based on considerations of economic justification, absorptive capacity and sustainability of the implementing agencies, subprojects have been identified in each city in the priority infrastructure sectors.

2. Though NERCCDIP aims to improve the environmental condition of urban areas, the proposed improvements of infrastructure facilities may exert certain adverse impacts on the natural environment. While developing urban infrastructure facilities, impacts during the construction stage are expected to be more severe than impacts during the operation phase, though for a short duration. Exceptions being some facilities such as solid waste landfills and sewage treatment plants, which may also exert adverse impacts during the operation phase, if due care is not taken.

3. NERCCDIP will be implemented over an eight year period beginning in 2010, and will be funded by a loan via the Multitranche Financing Facility (MFF) of the Asian Development Bank (ADB). The Ministry of Urban Development (MOUD) is the national Executing Agency. State-level Investment Program Management and Implementation Units (SIPMIU) in each state are responsible for overall technical supervision and execution of all subprojects funded under the Investment Program. The SIPMIU is being assisted by design, management and supervision consultants (DMSC) who are designing the infrastructure, managing the tendering of contracts, and will supervise construction.

4. ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for Environmental Assessment are described in ADB's Safeguards Policy Statement (SPS, 2009). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program

loans, loans involving financial intermediaries, and private sector loans. ADB has provided on its part, a Project Preparatory Technical Assistance (TA 4348-IND) for the preparation of an urban sector profile of the North-Eastern states, followed by a Technical Assistance (TA 4779-IND) for Project Implementation and Urban Management in the North-Eastern Region (Phase I) to initiate the works under Tranche 1.

5. An Initial Environmental Examination (IEE) has been prepared for the Shillong Solid Waste Management Subproject as part of NERCCDIP -Tranche 1. Under the NERCCDIP Tranche-1 programme, the subproject covers construction of a short-term sanitary landfill site over an area of 6500 sqm.

Extent of the IEE Study

6. The IEE report covers the general environmental profile of Shillong and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the subproject's influence area during design, construction, and operation stages. An Environmental Management Plan (EMP) is also proposed as part of this report which includes mitigation measures for significant environmental impacts during implementation of the Project, environmental monitoring program, and the responsible entities for mitigation and monitoring.

ADB Policy

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

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

- (i) **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- (ii) **Category B.** Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are

likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.

(iii) **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.

(iv) **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all Projects will result in insignificant impacts.

9. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

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

- (i) For environmental category A projects, draft EIA report at least 120 days before Board consideration;
- (ii) Final or updated EIA and/or IEE upon receipt; and
- (iii) Environmental Monitoring Reports submitted by SIPMIU during project implementation upon receipt.

B. PROJECT PROFILE

Type, Category and Need

11. **Type.** This is a solid waste management subproject intended to improve the current situation in Shillong in terms of providing a disposal area, improving the collection system, and raising the awareness of the community of their responsibility to place their waste at collection points, and to segregate waste that is suitable for recycling.

12. **Category.** Environmental examination indicates the proposed subproject falls within ADB's environmental Category B projects. The Project components will only have small-scale, localized impacts on the environment, and can be mitigated. Under ADB procedures such projects require an IEE to identify and mitigate the impacts, and to determine whether further study or a more detailed EIA may be required.

13. **Need.** The subproject is needed because the present solid waste infrastructure in Shillong is inadequate for the needs of the growing population. There are too few collection points and people deposit their solid waste on open grounds where it creates unhealthy environment and produces health hazard. Although the municipality collects the waste from these areas periodically, the service is not systematic. Similarly for the final disposal of the waste generated by the city, although there is a 100 TPD compost plant in operation, there is no systematic and scientific way for the final disposal of the rejects from the compost plant.

14. The primary objective of the subproject is to adopt sanitary landfilling for ultimate disposal of the rejects from the compost plant as per Municipal Solid Waste (Management and Handling) Rule (MSW Rules) (2000) in the interests of health and economic well being of the people of Shillong.

Location and Implementation Schedule

15. The subproject site is located on a vacant land within the existing landfill site at Marten about 8 km outside Shillong city.

16. Although implementation was originally scheduled to start from 2010-2011, actual implementation could only start during March 2012. The original completion period for the work was 18 months. However, due to change in design and quantum of work, the completion period was expected to be completed by October 2015. The change of design includes changes from masonry wall to RCC counterfort wall for more stability and increase of capacity by 27000 cubic meters. Water table is not available at 100 meters so drilling depth has been increased to 248 meters. The contractor was unable to complete the task within the stipulated period and has been terminated due to non-performance. The selection process of fresh contract is under process and will be completed soon for the remaining work.

Description of the Subproject

1. Existing Solid Waste Management

17. **Management.** Solid Waste Management is managed by three different authorities for each town and village viz. (i) the Shillong Municipal Board (SMB) within the municipal area (ii) the Dorbars, outside the municipal area, and (iii) The Shillong Cantonment Board, within the cantonment area. The Meghalaya Government oversees all solid waste management in GSPA.

- (i) Shillong Municipal Board – The SMB is responsible for collection transportation and disposal of solid waste generated in Shillong city. The area covered by SMB is 10.25 square kilometers (km²). The Chief Executive Officer looks after the administration of SMB.
- (ii) The Dorbars – The 10 census towns of Shillong Urban Agglomeration (SUA) include Mawlai, Nongthymmai, Madanryting, Pynthorumkhrah, Nongmynsong, Mawpat, Umpling, Nongkseh, Umlyangka and Lawsohtun. Each town is divided into a number of Dorbar Shnongs and each Dorbar Shnong has a Headman. The Dorbar Shnong looks after the collection and transportation of solid waste generated in their respective localities.
- (iii) Shillong Cantonment Board (SCB) - This is a military area covering 1.84 km². The solid waste generated in the Cantonment area is collected and transported, separately by cantonment vehicles. The Cantonment Executive Officer (CEO) looks after the administration of Shillong Cantonment Board (SCB).

18. **Waste Generation.** The solid waste generated in GSPA is 160 metric ton per day (MTD) with waste generation rate at 367 grams per capita per day in Shillong Urban Agglomeration (SUA) area and 270 grams per capita in the areas outside SUA but falling under GSPA. The major solid waste generation sources are households (56 %), markets (23 %), hotels & restaurants (7 %), construction waste (2 %), and street sweeping (7 %).

19. **Segregation.** Waste segregation is not practiced in Shillong. The absence of segregation poses problems to the operation of the existing compost plant in Marten dumpsite.

20. However, as far as bio-medical waste is concerned, the system adopted by SMB is found to be satisfactory. The bio-medical waste is collected by a van designed for this purpose and the waste is disposed off at incinerator, installed at Marten dumpsite.

21. **Collection and Transportation System.** The Health and Conservancy Department (HCD) of SMB looks after the work of collection and transportation of solid waste generated within the SMB.

22. House-to-house collection is at present in existence in a few localities only. There are about 23 vehicles which would stop on particular location on the side of the road at a particular time and the households and shops handover the waste to these vehicles. Some of the vehicles are more than 10 years old and need urgent replacement. The SMB vehicles collect only from SMB area which generates about 50 MTD of waste out of the total generation of 135 MTD from GSPA. SMB has provided 11 trucks, 3 compactors and 9 primary collection vehicles. 257 road sweepers, 5 conservancy supervisors, 6 sanitary inspectors and a chief medical and health officer. As per the SMB, there are 105 dustbins within the area of 10.8 sq. km. However, due to less coverage and delay of collecting vehicles, many households keep their waste on the streets, and dogs scatter these waste on the roads and create unhygienic, unhealthy conditions.

23. **Disposal.** The collected wastes are disposed at a disposal site located in Marten, located about 8 km from the city. A 100 TPD compost Plant is in operation in the same site. The disposal site has been in existence since 1938. To improve the practice of dumping of rejects from the compost plant at the existing site and to comply with the requirements of MSW Rules, the component funded under NERCCDIP Tranche I is construction of an engineered landfill and associated infrastructures (leachate collection facilities, environmental protection measures etc.) in a portion of the site covering an area of 6500 sqm in Tranche-1.. The bid evaluation report for all the works under Tranche I has been approved by ADB on 12th March 2010 and the approval for issuance of acceptance letter for successful bidders has been issued on 1st April 2010. The actual work has started from March 2012.

24. A compost plant with a capacity of 100 MTD was constructed in the Marten dumpsite in 2002. The compost plant has now become defunct and in its stead a new compost plant of 170 MTD capacity will be constructed in the same area under Tranche-2. Construction of the new compost plant of 170 MTD capacity is under bidding process.

2. Subproject Component

25. The subproject covers construction of a short-term sanitary landfill site with associated works over an area of 6500 sqm at Marten and as detailed in Table-1 below.

Table 1: Shillong Solid Waste Management Subproject Components

Component		Location	Function	Description	Remarks
(i) Civil Works					
Development of emergency sanitary landfill measuring 6,500 m ²		Marten, Mawlai	Final disposal of the rejects/ inert materials of the waste collected from the city.	It is proposed to develop a sanitary landfill for an area of 6,500 sqm in Tranche – 1	No land acquisition required
Reinforced cement concrete (RCC) counterfort retaining wall		Marten, Mawlai	To protect the waste from sliding.	7.5 Mtr To 12.5 mtr	
Leachate holding and treatment system	Marten, Mawlai	To treat the leachate collected from the landfill area.	Capacity of the leachate holding tank and material proposed.		All required clearances and approvals obtained for 15,000 m ² emergency landfill site including 6500 m ² .
Concrete drains for surface run off	Marten, Mawlai	As surface drains	250X250 (L= 150 meter)		
Approach Road	Marten Mawlai	Access	Length of approach road is 583 meter and width 3.5		
Construction of leachate holding	Marten Mawlai	Collection of leachate	1 No.		
Tube well with pumping main and pump set	Marten Mawlai	Water supply for maintenance and monitoring of ground water.	248m deep		
Construction of ground level service reservoir	Marten Mawlai	Storage of water for maintenance	1 lakh litres capacity (1no)		

Table 2: Progress of work till date

Component and Location	Scheduled Start and Completion dates	Actual and targeted Physical and Financial Progress Remarks
(i) Civil Works		
Development of emergency sanitary landfill measuring 6,500 m ² at Marten Mawlai.	March-2012 October 2015	Target- 100% Achieved - 50%

II. ENVIRONMENT ASSESSMENT& REVIEW FRAMEWORK

A. ENVIRONMENT LEGAL REQUIREMENT

EIA Notification (2006)

26. The Government of India's EIA Notification of 2006 (replacing the EIA Notification of 1994), sets out the requirement for environmental assessment in India. This states that Environmental Clearance is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts.

27. Category A projects requires Environmental Clearance from the National Ministry of Environment and Forests (MOEF). The proponent is required to provide preliminary details of the project in the form of a Notification, after which an Expert Appraisal Committee (EAC) of the MOEF prepares comprehensive Terms of Reference (TOR) for the EIA study, which are finalized within 60 days. On completion of the study and review of the report by the EAC, MOEF considers the recommendation of the EAC and provides the Environmental Clearance if appropriate.

28. Category B projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA). The State level EAC categorizes the project as either B1 (requiring EIA study) or B2 (no EIA study), and prepares TOR for B1 projects within 60 days. On completion of the study and review of the report by the EAC, the SEIAA issues the Environmental Clearance based on the EAC recommendation. The Notification also provides that any project or activity classified as category B will be treated as category A if it is located in whole or in part within 10 km from the boundary of protected areas, notified areas or inter-state or international boundaries.

29. The only type of infrastructure provided by the NERCCDIP that is specified in the EIA Notification is solid waste management.¹

30. The Environmental Clearance has been received from SEIAA on 14th August 2009 for proposed landfill site at Marten dumpsite developed under Tranche 1.

¹ Per EIA Notification (2006) and also Annex 1 of the Project's Environmental Assessment and Review Framework, EC is required for preparation of land by the project management except for securing the land.

Water (Prevention and Control of Pollution) Act (1974)

31. Any component of urban infrastructure project having potential to generate sewage or trade effluent will come under the purview of the Water (Prevention and Control of Pollution) Act, 1974. Such projects have to obtain Consent for Establishment (CFE) under Section 25 of the Act from Meghalaya State Pollution Control Board before starting implementation and Consent to Operate (CTO) before commissioning. The Water Act also requires the occupier of such subprojects to take measures for abating the possible pollution of receiving water bodies.

32. The CFE for the proposed landfill at Marten dumpsite to be developed under Tranche I has been received from MSPCB on 26th November 2009 with validity till October 2010 which is further extended by MSPCB till 31st October 2015. Further extension of the CFE is under process.

Air (Prevention and Control of Pollution) Act (1981)

33. The subprojects having potential to emit air pollutants into the atmosphere have to obtain CTE under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 from Meghalaya State Pollution Control Board before starting implementation and CTO before commissioning the project. The occupier of the project/facility has the responsibility to adopt necessary air pollution control measures for abating air pollution. If stone crushers, generators and other air pollution sources are to be established as part of the subproject, they will fall under the purview of the Air Act.

Municipal Solid Waste (Management and Handling) Rules (2000)

34. The Government of India notified Municipal Solid Waste (Management and Handling) Rules (2000) in exercise of the powers conferred by Sections 3, 6 and 25 of the Environment (Protection) Act (1986) with the objective of regulating the management and handling of the municipal solid waste. Under the Rules, the municipal authority is required to take all steps to ensure that the municipal solid wastes generated in their jurisdiction are handled and disposed of without causing any adverse impact on human health or environment. This subproject is required to obtain authorization for setting up waste processing and disposal facility (including landfills) from Meghalaya State Pollution Control Board.

Forest Legislation

35. Forest legislation in India dates back to enactment of the Indian Forest Act, 1927. This Act empowers the State Government to declare “any forest land or waste-land, which is the property of Government or over which the Government has proprietary rights or to the whole or any part of the forest-produce of which the Government is entitled”, a reserved forest or protected forest. The State Government may assign to any village-community the rights of

Government over a reserved forest - those are called village-forests. Act also allows Government control over forest and lands not being the property of Government.

36. Acts like clearing or break up of any land for cultivation or for any other purpose, damage to vegetation/trees and quarrying or removing any forest produce from reserved forest is prohibited. All these are also applicable to village-forests. For protected forests, with the provision of the Act, the State Government makes rules to regulate activities like cutting of trees and removal of forest produce, clearing or breaking up of land for cultivation or any other purpose, and for protection and management of any portion of protected forest.

37. The Government of India's Forest (Conservation) Act, 1980 (amended in 1988) restricts the deforestation of forests for use of non-forest purposes. According to the Act, State Government requires prior approval of the Government of India for the use of forest land for non-forest purposes (means the breaking up or clearing of any forest land) or for assigning least to any private person or agency not controlled by government. The Forest (Conservation) Rules, 2003 issued under this Act, provide specific procedures to be followed for conversion of forest land for non-forest purposes.

38. Conversion of forest lands that are part of National Parks/Sanctuaries and Tiger Reserve areas (notified under Indian Wildlife [Protection] Act, 1972) is not permitted. In exceptional case, the State Government requires consent of the Indian Board of Wildlife for obtaining approval of the State Legislature for de-notification of the area as a sanctuary.

39. Cutting of trees in non-forest land, irrespective of land ownership, also requires permission from the Meghalaya Forest and Environment Department (MFED). Afforestation to the extent of two trees per each tree felled is mandatory. The SMB with the assistance of the State Government has made a payment of INR 78,76,400/- to the State Forest Department for compulsory afforestation and net present value as per directive of the Govt. of India.

Table 2: Present status of environment& forest and other clearances

Town	Work Package	Applicable Legislation/ Type Of Clearance	Clearance Given By And Date	Subject/ Issue	Remark/ Action Needed
SHILLONG	Tranche I SWM Landfill site	EIA Notification 2006	SEIAA, Meghalaya 14 August 2009	Environmental Clearance	Already received and valid till end of the project.
		Forest Conservation Act 1980	MOEF 21 November 2011	Forest Clearance	Already received and valid till end of the forest
		Air Act 1981 and Water Act 1974	Meghalaya PCB 26 November 2009	Consent To Establish (CTE)	Already received and valid till 31 st October 2015. Further extension of the validity of CFE is under process. Renewal required every year.

C. COMPLIANCE ON ENVIRONMENTAL LOAN COVENANTS

40. The Environment Loan Covenants under NERCCDIP requires the design, construction, operation and implementation of all sub-project facilities is carried out in accordance with the environmental assessment and review procedures and Initial Environmental Examinations (IEEs) for core sub-components agreed upon between the Government and ADB, and complies with the Government's environmental laws and regulations and ADB's Environment Policy (2002). Any adverse environmental impacts arising from the construction, operation and implementation of sub-component facilities will be minimized by implementing the environmental mitigation and management measures, and other recommendations specified in environmental assessment reports (e.g., IEEs). The Government will ensure environmental requirements will be incorporated in bidding documents and civil works contracts. . Issuance of bid documents will be made after review and clearance of IEE/EIA by ADB and SEIAA or MOEF. SIPMIU/DSMC will prepare and submit semi-annual report to ADB an environmental monitoring report that describes progress in implementation of the EMP and EARP and issues encountered and measures adopted; and compliance with the relevant assurances and loan covenants.

41. The sub project in Shillong is categorized as "B" and accordingly an IEE report has been prepared. The IEE maps the potential environmental impacts and mitigation measures and also specifies an environmental budget for environmental mitigation measures, monitoring requirements and capacity building at various stages of project implementation. IEE was made a part of the bidding document. In view of the fact that the actual implementation of the sub project has started in March 2012. The details of compliance with the environmental loan covenants are reflected in following Table-3.

Table 3: Compliance of Environmental Loan Covenants

Project Specific Covenants	Status/Issues
Preparation of IEE	Prepared and uploaded in SIPMIU website http://sipmiu.nic.in/iee_report.html
Environmental Management Plan	Part of IEE report
Environmental budget	Part of IEE report
IEE to be part of bidding document	Incorporated
Semi-annual environmental monitoring report	To be submitted in January 2016.

D. ENVIRONMENTAL ORGANISATION AND MANAGEMENT**1. Details of Environmental cells setup in SIPMIU and DSMC**

42. An Environmental Expert with intermittent input has been provided in DSMC with assistance being provided by an Engineering Assistant. SIPMIU has posted an Assistant Environmental expert being assisted by an administrative staff.

Sl. No.	Officer's Name	Designation	Mobile No	Email Address
1.	Shri. Biswajit Dutta	Project Director	---	b_dutta59@yahoo.co.in
2.	Shri. F. B. Chyne	Project Manager and Solid Waste Management Specialist, SIPMIU.	9436100719	f.b.chyne@gmail.com
3.	Shri. L. C. J. Lyngdoh	Assistant Environment Specialist, SIPMIU	9774591279	carrylaw85@gmail.com
4.	Shri Sanjiva Kumar Sharma	Team Leader, DSMC		sanjeev.sharma@mottmac.com
5.	Prasad Joshi	Deputy Team Leader, DSMC	9402197676	prasad.joshi@mottmac.com
6.	Anjay Kumar	Environmental Specialist, DSMC	9313329631	anjay.kumar@mottmac.com
7.	Raghavendra Gopal	Solid Waste Management Specialist, DSMC	8259059183	raghavendra.gopal@mottmac.com

2. Responsibilities for supervision of environmental matters

43. To ensure proper compliance of environmental safeguards, the Environmental Experts of DSMC and Environmental Officer SIPMIU monitors environmental matters and reports to the Project Manager who advises the Project Director.

3. Responsible for carrying out mitigation measures

44. During construction stage, implementation of mitigation measures is the construction contractor's responsibility while during operation stage, Government will decide agency that will be responsible for of maintenance or repair works after completion of construction and start of operation of Landfill.

45. To ensure implementation of mitigation measures during the construction period, contract clauses for environmental provisions will be part of the civil works contracts. Contractors' conformity with contract procedures and specifications during construction will be carefully monitored by SIPMIU and DSMC.

4. Responsible for carrying out monitoring measures

46. During construction, Environmental Specialist (ES) of DSMC and the Assistant Environmental Specialist (AES) of SIPMIU will monitor the construction contractor's environmental performance.

47. During the operation stage, monitoring will be the responsibility of an operator appointed by authority as well as Meghalaya Pollution Control Board.

5. Responsible for reporting

48. DSMC will submit periodic monitoring and implementation reports to SIPMIU, who will take follow-up actions, if necessary. SIPMIU will submit monitoring reports to the PD who will then submit to ADB. SIPMIU will also prepare semi-annual monitoring reports for IPCC and assist IPCC in preparing an semi-annual monitoring report to ADB. The annual report is to focus on the progress of implementation of the EMP and EARP and issues encountered and measures adopted, follow-up actions required, if any, as well as the status of Program compliance with subproject selection criteria, and relevant loan covenants. IPCC will seek clearance for submission and disclosure of the annual environmental monitoring report to ADB.

6. Third Party Agency for EMP

49. No Third Party Agency has been engaged.

7. GRIEVANCE REDRESS MECHANISM

50. Grievance redressal is being handled by SIPMIU. Grievances not redressed by the SIPMIU will be brought to the Independent Grievance Redress Committee (IGRC) set up to monitor project implementation in Shillong. The IGRC, is chaired by Principal Secretary, Urban Affair Department with representatives from the ULB, state government agencies, community-based organizations (CBOs) and NGOs. The IGRC will determine the merit of each grievance, and resolve grievances within 10 days of receiving the complaint. Grievance not redressed by the IGRC will be referred to the appropriate courts of law. The DSMC will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The grievance redress process is shown in Annexure-2.

51. There have been no complaints or grievance reported on the sub project till date.

52. All costs involved in resolving the complaints will be borne by the SIPMIU. The IGRCs will continue to function throughout the project duration.

III. EMP COMPLIANCE STATUS

53. Following Table 4 reflects the requirement and status of implementation of the Environmental Management Plan.

Table 4: Compliance with Environmental Monitoring Plan

Description of Impact	Monitoring of Mitigation	Frequency of Monitoring	Monitoring Conducted by	Compliance Status
Top soil conservation & Adequate Drainage arrangements within / around the disposal site	Stockpiles of earth not to be higher than 2 and side slopes shall not be more than 1:2. Proper Drainage arrangements to prevent any water logging within / around the site especially in the area around the leachate pits.	Quarterly verification with site activities	DSMC / SIPMIU	Complied. Steps are being taken for conservation of soil. Work is held up due to termination of contractor.
Sources of Materials	Construction Contractor documentation	Quarterly submission for construction contractor As needed for DSMC	DSMC / SIPMIU	Complied. Material being sourced from the local market. Work is held up due to termination of contractor.
Air Quality	(i) Location of stockpiles; (ii) complaints from sensitive receptors; (iii) heavy equipment and machinery with air pollution control devices; (iv) ambient air for respirable particulate	Twice a year for checking records	Contractor/ DSMC / SIPMIU	Complied. Meghalaya Pollution Control Board has conducted the Ambient Air Quality Testing on 11 and 12 June 2015. The results are given in

Description of Impact	Monitoring of Mitigation	Frequency of Monitoring	Monitoring Conducted by	Compliance Status
	matter (RPM) and suspended particulate matter (SPM); (v) vehicular emissions such as sulphur dioxide (SO ₂), nitrous oxides (NO _x), carbon monoxide (CO), and hydrocarbons (HC)			annexure 5.
Surface Water Quality	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) number of silt traps installed along drainages leading to water bodies; (iii) records of surface water quality inspection; (iv) effectiveness of water management measures; (v) for inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.	Thrice a year	Contractor/ DSMC/SIPMIU	Complied. No such instances found on the site. Meghalaya Pollution Control Board has collected samples on 11 June 2015 and the results are given in Annexure – 5 .
Noise Levels	(i) Complaints from sensitive receptors; (ii) use of silencers in noise-producing equipment and sound barriers; (iii) Equivalent day and night time noise levels	Twice a year	Contractor/ DSMC/ SIPMIU	Complied. Meghalaya Pollution Control Board has conducted of Environmental Monitoring on 11 and 12 June 2015 & the results are given in Annexure 5.
Landscape and Aesthetics	i) Waste Management Plan; (ii) complaints from sensitive receptors; (iii) SIPMIU/DSMC to report in writing that the necessary	Quarterly	DSMC/ SIPMIU	Complied. There is no sensitive receptor at the construction site.
Socio-Economic - Employment	(i) Employment records; (ii) records of sources of materials	Quarterly	DSMC/ SIPMIU	Complied. All labourers are from the local area.
Occupational Health and Safety	(i) Site-specific Health and Safety (H&SH&S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances;	Quarterly	Contractor/ DSMC/ SIPMIU	Work is held up due to termination of contractor and fresh bidding process has been initiated.

Description of Impact	Monitoring of Mitigation	Frequency of Monitoring	Monitoring Conducted by	Compliance Status
	(vii) record of H&SH&S orientation trainings (viii) personal protective equipment; (ix) % of moving equipment outfitted with audible back-up alarms; (x) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.			
Community Health and Safety	(i) Traffic Management Plan; (ii) complaints from sensitive receptors	Quarterly	Contractor/ DSMC/ SIPMIU	Complied. There is no intervention from any community with the project.
Quarry Sites and Borrow Pits	i) List of approved quarry sites and borrow pits; (ii) SIPMIU/DSMC report in writing that all necessary environmental restoration work has been adequately performed before acceptance of work.	Quarterly		Complied. Materials are procured from the local market. So, there is no borrow pits and quarry site.
Work Camps	(i) Complaints from sensitive receptors; (ii) water and sanitation facilities for employees; and (iii) SIPMIU/DSMC report in writing that the camp has been vacated and restored to pre-project conditions	Quarterly	Contractor/ DSMC / SIPMIU	contractor has been terminated so no work camp is present.

OBSERVATION RECOMMENDATION AND ACTION TAKEN

54. The work under the sub project has started in March 2012 and expected completion was October 2015. The contractor has been terminated due to non-performance. The remaining work will be retendered.

55. The excavated soil was transported to a privately owned land situated near the National Highway which being used by the landowner themselves for levelling their land. Some part of the excavated soil is used as back fill at the construction site of Garage cum workshop. Photographs are given in the Annexure-4.

Ambient Air Quality

56. Ambient Air Quality monitoring is being conducted at 2 locations. Meghalaya State Pollution Control Board has been engaged in compliance to the conditions of Environmental Clearance granted by the state level Environmental Impact Appraisal Committee. Particulate Matter (PM₁₀), SO₂, NO_x parameters have been selected for monitoring by MSPCB.

57. Ambient Air Quality monitoring at the landfill site was conducted on 25 and 26 June 2014. Second round of air quality sampling was conducted on 11th & 12th June, 2015. The concentration of Particulate Matter (PM₁₀) is well within the permissible limit of 100 µg/m³. The 24 hour average concentration is 59.7 and 42.3 µg/m³ near proposed Garage-cum-workshop area and 59.7 and 33.1 µg/m³ near Emergency landfill site. In 2014 and 2015 respectively.

58. Comparing to the baseline condition of Particulate matter (PM₁₀) which varies from 42.1 to 53.3 µg/m³ in the summer season of May and June 2010 and samples collected at the backside and middle of landfill site. While the construction stage monitoring results to 59.7 and 42.3 µg/m³ is acceptable comparing to the baseline condition.

59. The concentration of sulphur dioxide and oxides of nitrogen are also well within the permissible limit of 80 microgram per cubic meter. The 24 hour average observed concentration of sulphur dioxide (SO₂) is 2 µg/m³ in 2014 and 2015 both µg/m³.

60. Comparing to the baseline condition of sulphur dioxide of concentration varies from 2 to 6.2 microgram per cubic meters. While observed value of the construction time in June 2014 and June 2015 is 2 µg/m³. Oxides of nitrogen vary from 19.9 to 34.8 microgram per cubic meters while observed concentration during construction time is 9.4 µg/m³ in June 2014 and 8.9 µg/m³ in June 2015.

Noise level

61. Noise level testing has been conducted at 2 locations first one near the emergency SLF site at the gate and second at near the proposed Garage-cum-workshop at SLF at Marten. The proposed construction site is surrounded by a reserved forest and encircled by the Guwahati-Shillong road National Highways on one side and on the other side lies the old Guwahati Shillong road.

62. The discussion being presented here are of sampling conducted in the month of June 2015 and June 2014. Noise level presented in dB(A) of 24 hour sampling has been segregated in day and night time samples. The results have been compared with Ambient Noise Level under category of residential zone. While residential habitations are sufficiently away from the project site to get adverse impact. The noise recipients are the workers of the

emergency landfill and construction workers only. The local habitations are not impacted due to noise generated from the construction activity at Emergency Landfill site of Mawiong. Although noise levels at the sampling site are beyond the limit specified for residential zone, the source of noise is traffic of national highways.

63. The ambient noise level near the construction site of RCC counterfort wall has been conducted 11/12 June 2015 and 25/26 June 2014. The average of two years data of one day sampling of same season has been discussed here. The average day time noise level near emergency land fill site at Marten is 51.7 dB(A) while night time is 48.95 dB(A). The day time noise level is below the permissible limit specified for residential zone of 55dB(A) and also commercial area of 65 dB(A). The night time noise level is higher than permissible limit of residential zone of 45 dB(A) but lesser than commercial zone of 55 dB(A)

Water Quality

64. Samples of all location have pH value, total dissolved solids (TDS), total suspended Solids (TSS), dissolved oxygen, Chlorides, Zinc. Total Hardness and nitrates are within the desirable limits or permissible limits. Heavy metals tested for Lead, Arsenic, Copper, Cadmium and Nickel are below detectible limits (BDL). The observed monitoring values are consistent with the baseline conditions observed in the 2010.

65. Water sampling conducted at three streams near Marten Landfill site. All the parameters are within the permissible limits specified in Water (Prevention and Pollution) Act 1974. The parameters are also consistent with baseline condition. It is assessed during the monitoring there is no impact on water environment due to construction work at the landfill site. The impact which is estimated is due to the operation of Landfill at Marten.

Leachate Testing

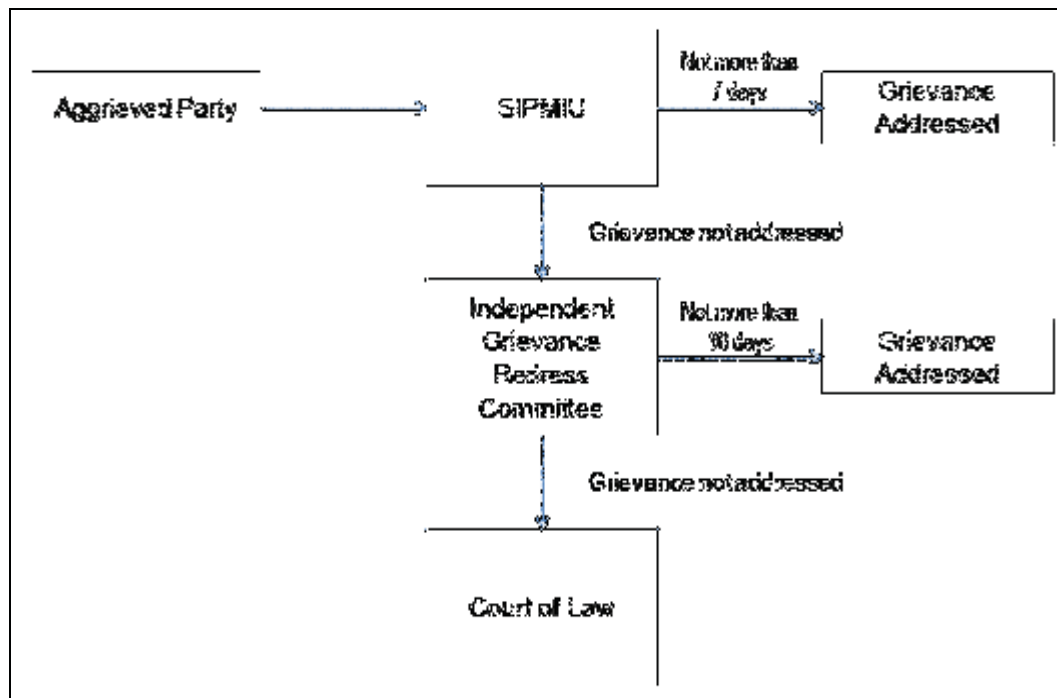
66. Marten landfill site is operating since 1938. It does not have leachate treatment facility and leachate collection system. Leachate sample has been collected from the bottom of the Landfill. The parameters tested for the untreated leachates are beyond the permissible limited but consistent with the baseline condition

67. Total Dissolved Solids (TDS) in leachate collected in June 2014 is 9870 mg/l and leachate collected in 2015 is 17043. The permissible limit for disposal of leachate having TDS concentration as per Municipal Solid Waste (Management and Handling) Rule 2000 is 2100 mg/l. Disposal of such high concentration is neither safe for environment nor Municipal Solid Waste Rule 2000 allows.

Annexure – 1: Environment Monitoring Team Details.**City: Shillong****Office Address: Urban Affairs Complex, Dhankheti, Shillong**

Sl. No.	Officer's Name	Designation	Mobile No	Email Address
1.	Sri Biswajit Dutta	Project Director	---	b_dutta59@yahoo.co.in
2.	Shri. F. B. Chyne	Project Manager and Solid Waste Management Specialist, SIPMIU.	9436100719	f.b.chyne@gmail.com
3.	Shri. L. C. J. Lyngdoh	Assistant Environment Specialist, SIPMIU	9774591279	carrylaw85@gmail.com
4.	Shri Sanjiva K Sharma	Team Leader, DSMC		sanjiva.sharma@mottmac.com
5.	Shri Prasad Joshi	Deputy Team Leader, DSMC	9402197676	prasad.joshi@mottmac.com
6.	Anjay Kumar	Environmental Specialist, DSMC	9313329631	anjay.kumar@mottmac.com
7.	Shri Raghavendra Gopal	Solid Waste Management Expert, DSMC	8259059183	raghavendra.gopal@mottmac.com

Annexure 2: Grievance Redress Mechanism



SIPMIU= State-level Investment Project Management and Implementation Unit.

Annexure 3: Contractor Environment Implementation Plan Requirements.

The contractor is required to ensure that the following activities are complied with during the construction period:

1. All the vehicles used for the construction shall comply with relevant environmental standard. Worker to be provided with PPE's like earplugs to minimize the health impacts. Construction in the night time to be restricted to the extent possible.
2. Re-use excavated material in this project wherever possible (eg bunds), Retain soil for covering waste when landfill is operating.
3. Remove waste soil for disposal as soon as it is excavated; Spray stockpiled soil and working areas in windy weather.
4. Conduct all excavation in the dry season.
5. Do not store toxic materials at or near the landfill site; include accident & spill prevention in Method Statement.
6. Contractor should employ at least 50% of workforce from communities in vicinity of work sites if possible.
7. Prepare and implement a site Health and Safety Plan that includes measures to: Exclude the public from all construction sites; Ensure that workers use Personal Protective Equipment; Provide Health & Safety Training for all personnel; Follow documented procedures for all site activities; Keep accident reports and records.
8. Regular water sprinkling to be ensured to minimize the impact. Worker to be provided with PPE's like dust masks.
9. The Design consideration will take care of temporary silt runoff due to construction. Silt fences will be used to mitigate siltation impacts.

Annexure 4 – Project Photographs

Photo 1 – Construction site of construction of RCC counterfort wall at Marten dated 18.06.2015



Photo – 2 – Iron Gate has been provided to prevent entry of unauthorised people



Photo – 3 – Construction of counterfort retaining wall at Marten dated 18.06.2015



Photo – 4 – Air Quality Sample collection near Landfill site of Marten on June 2015



Photo 5 – Noise Samples collection at Marten on June 2015



Photo 6 – Sample Preparation for transportation under the supervision of SIPMIU Environmental Officer



Photo 7 – Water Sample collection at Marten Landfill Site



Photo 8 – Samples of Leachate collection from Marten Landfill Site



Photo 9 – Construction of Retaining Wall at Sanitary Landfill site at Marten

Annexure – 5 – Environmental Testing Analysis and Results

Water Quality Testing

Water Sampling was also conducted at the same locations as done in June 2014. The concentration does not vary significantly. The results are given below.

	Parameters	Downstream 800 meters 11.6.2015	Downstream 800 meters 25.6.2015	Middle Stream 200 meters 11.6.2015	Middle Stream 200 meters 25.6.2014	Spring 1 km from landfill site 11.6.2015	Spring 1 km from landfill site 25.6.2014
1	pH	7.6	7.3	7.2	7.2	6	6.2
2	Total Dissolved Solids (TDS) (mg/l)	66	68	102	115	54	55
3	Total Suspended Solids (mg/l)	5	20	25	15	10	10
4	Chlorides (mg/l)	7	6	13	15	6	5
5	Total Hardness (CaCO ₃) (mg/l)	38	36	56	62	26	26
6	Sulphate (mg/l)	13.8	9.8	15.7	23.6	3.8	8.9
7	Nitrate (mg/l)	0.44	0.6	5.3	5.95	1.4	1.6
8	Dissolved Oxygen (mg/l)	4.8	7.5	6.2	7.1	6.6	7
9	Lead (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL
10	Chromium (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL
11	Zinc (mg/l)	BDL	0.06	BDL	BDL	BDL	0.06
12	Copper (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL
13	Cadmium (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL
14	Manganese (mg/l)	0.08		0.14		0.13	
15	Nickel (mg/l)	BDL	BDL	BDL	BDL	BDL	BDL
16	Arsenic 9mg/l)	BDL	BDL	BDL	BDL	BDL	BDL

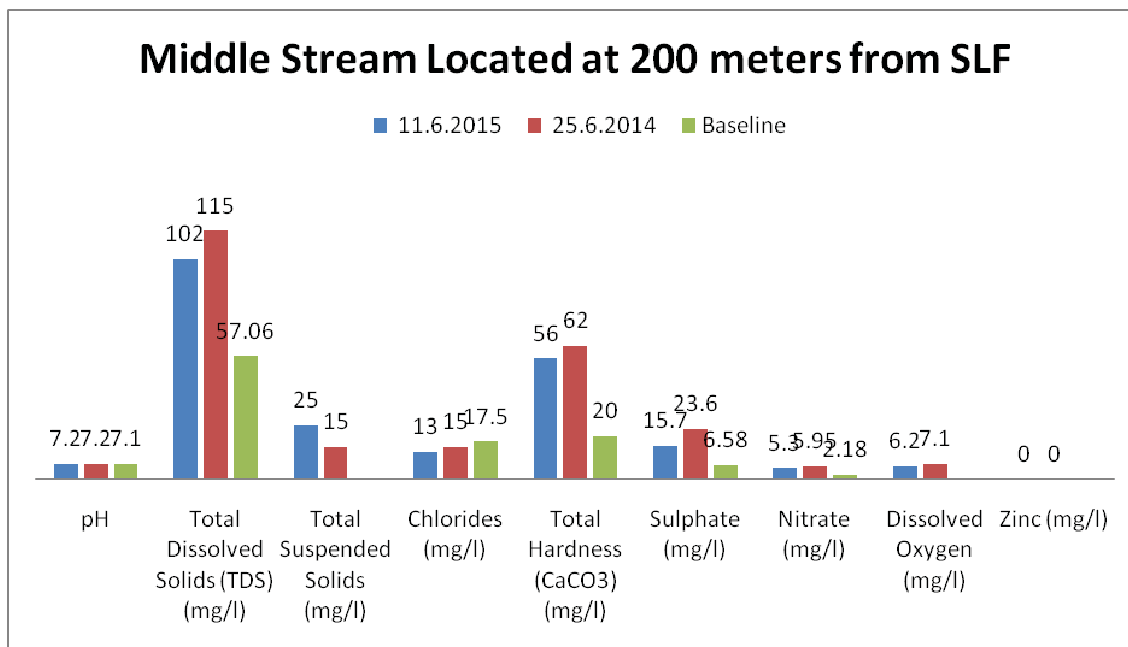
Water sampling conducted at three streams near Marten Landfill site. All the parameters are within the permissible limits specified in Water (Prevention and Pollution) Act 1974. The parameters are also consistent with baseline condition. It is assessed during the monitoring there is no impact on water environment due to construction work at the landfill site. The impact which is estimated is due to the operation of Landfill at Marten Mawiong. The analysis is given below.

The trend of concentration of TDS, total hardness and Sulphates indicates the influence of landfill. The baseline condition shows that TDS, total hardness and Sulphates are 57.06 mg/l, 20 mg/l and 6.58 mg/l. Samples have been taken from different streams at different distances.

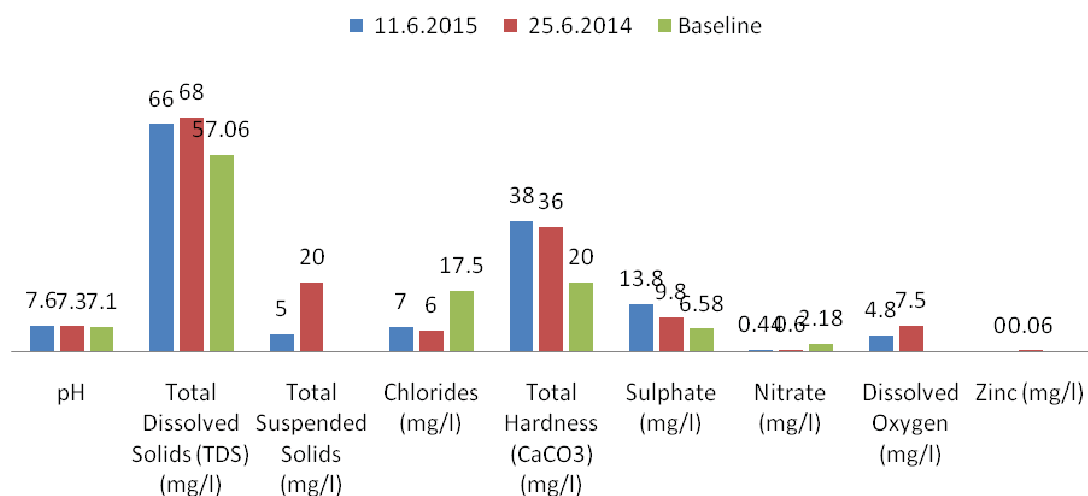
TDS is highest in sample closest to Landfill at distance of 200 meter which is 102 and 115 mg/l in 2015 and 2014. This decreases to 66 and 68 mg/l at distance of 800 meters from the landfill. TDS comes down to 54 and 55 mg/l in samples collected at a distance of 1 km.

Total Hardness is also highest in sample closest to Landfill at distance of 200 meter which is 56 and 62 mg/l in 2015 and 2014. This decreases to 38 and 36 mg/l at distance of 800 meters from landfill. It comes down to 26 mg/l in samples collected at a distance of 1 km.

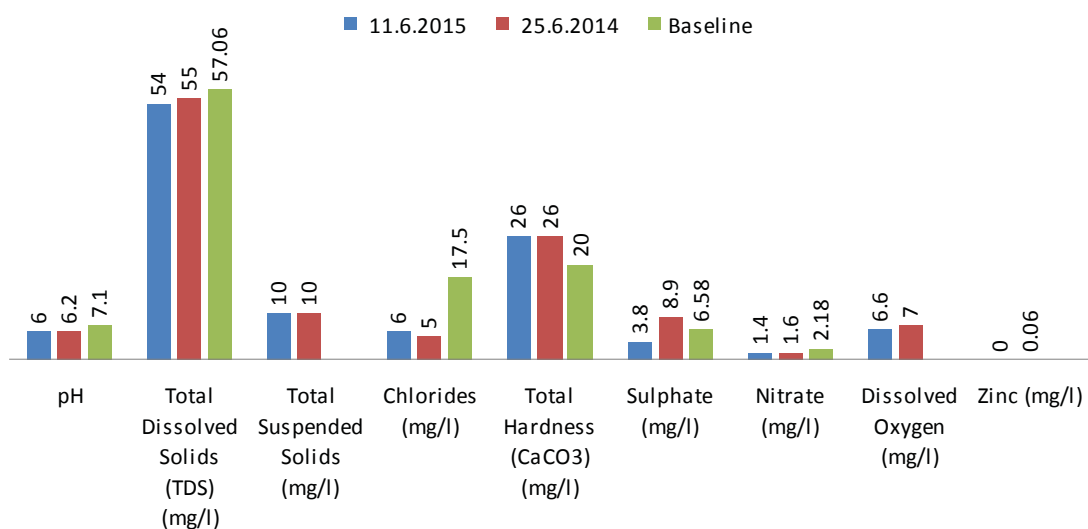
Sulphate is also highest in sample closest to Landfill at distance of 200 meter which is 15.7 and 23.6 mg/l in 2015 and 2014. This decreases to 13.8 and 9.8 mg/l with increase of distance of 800 meters from landfill. It comes to the 3.8 and 8.9 mg/l in samples collected at a distance of 1 km.



Stream located at distance of 800 meters from SLF

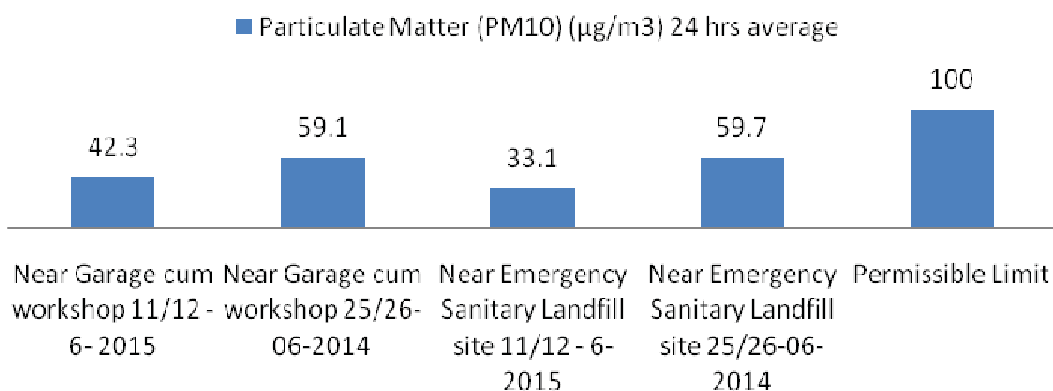


Spring located at distance of 1km from SLF

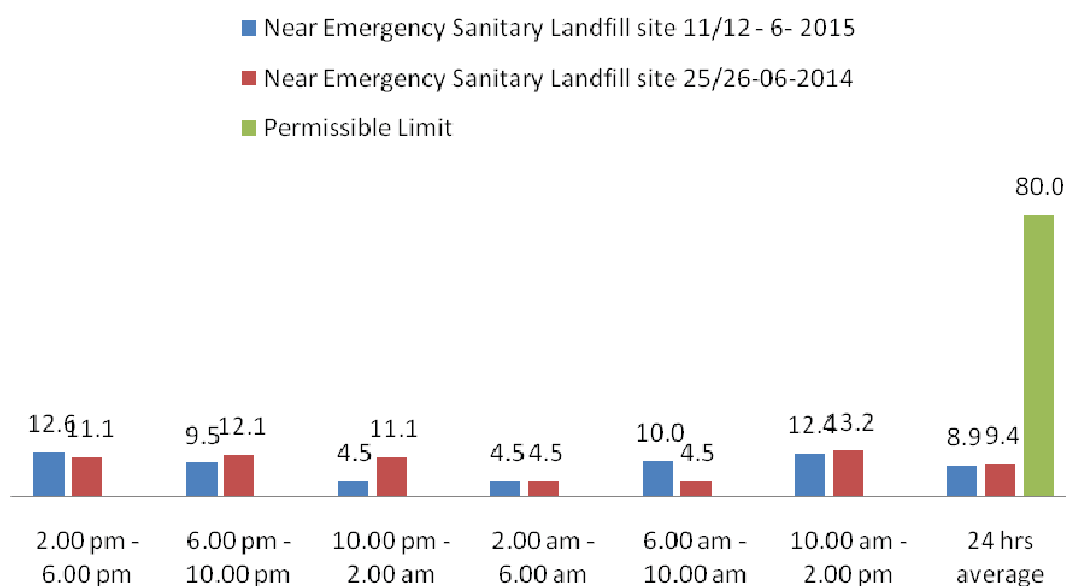


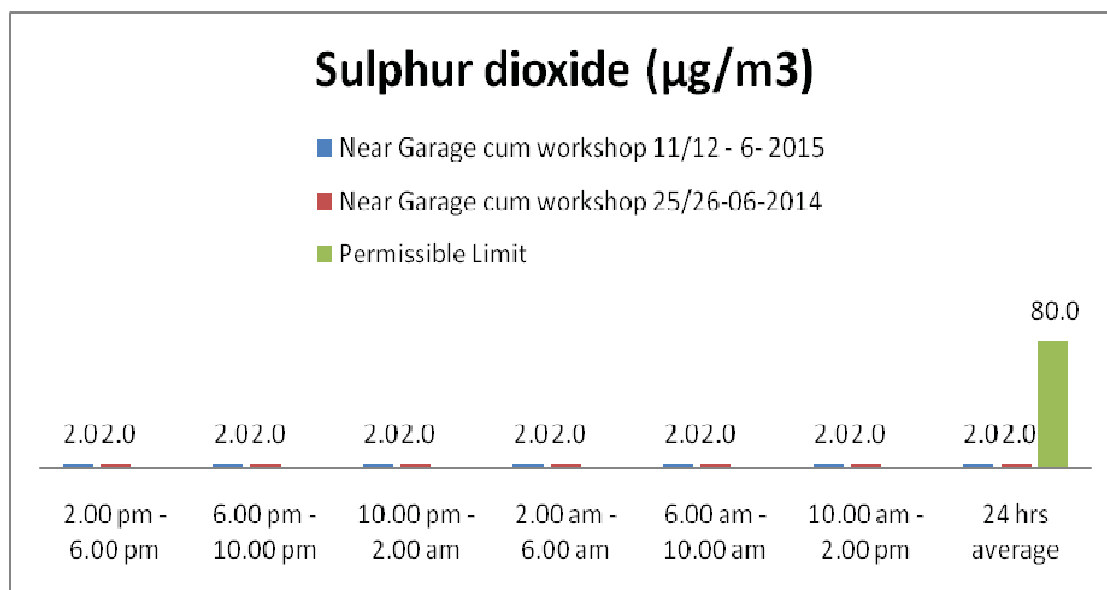
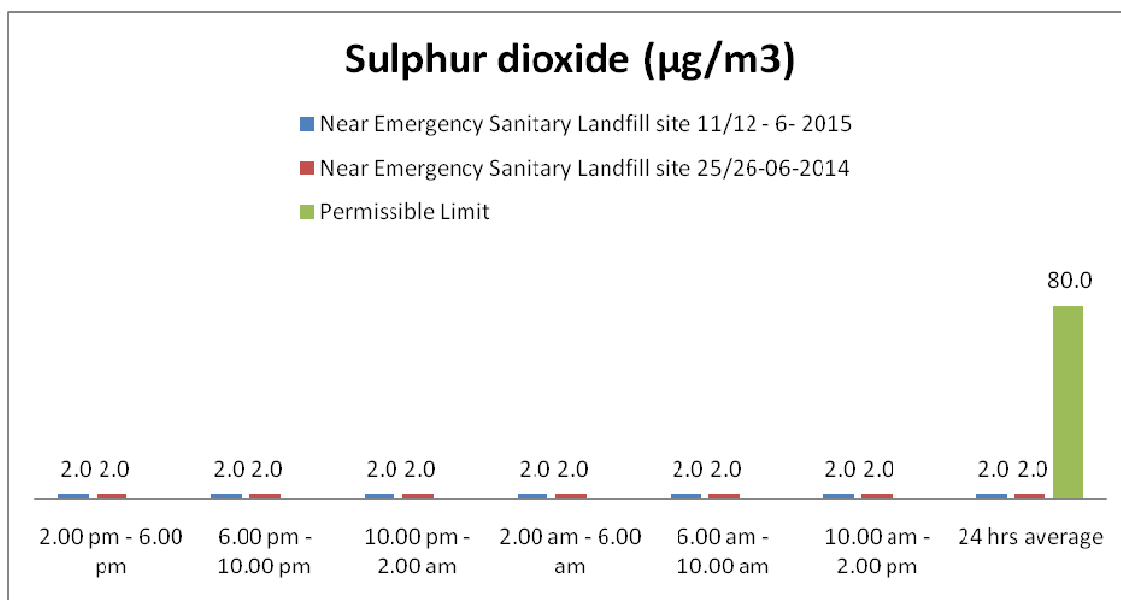
Ambient Air Quality

Particulate Matter (PM10) ($\mu\text{g}/\text{m}^3$) 24 hrs average



Oxides of Nitrogen ($\mu\text{g}/\text{m}^3$)





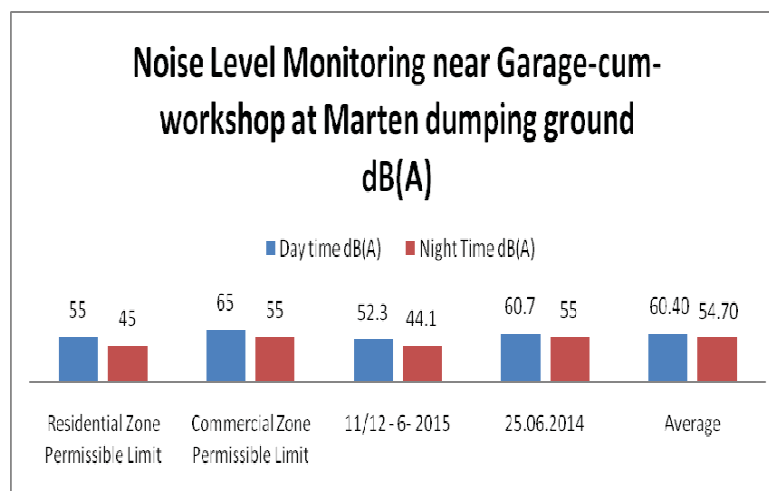
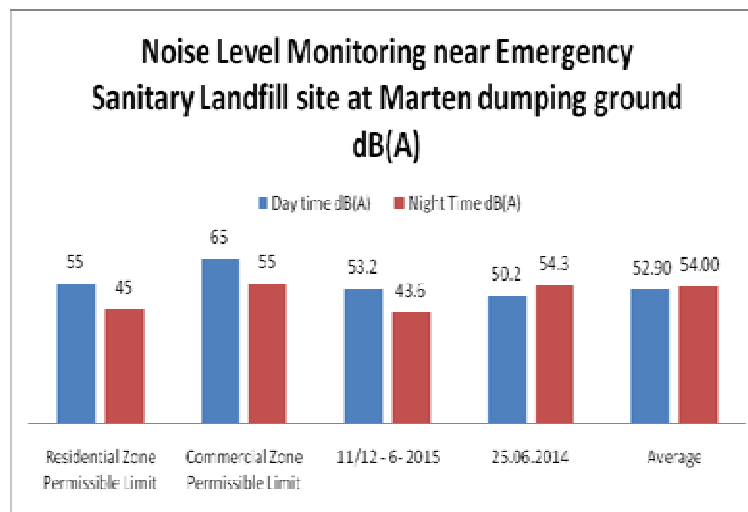
Noise Level Testing

68. Noise level testing has been conducted at 2 locations first one near the emergency SLF site at the gate and second at near the proposed Garage-cum-workshop at SLF at Mawiong. The proposed construction site is surrounded by reserved forest and encircled by road. Onside is Shillong Guwahati National Highways and other side is old Shillong Guwahati road.

69. The discussion being presented here are of sampling conducted in the month of June 2015 and June 2014. Noise level presented in dB(A) of 24 hour sampling has been segregated in day and night time samples. The results have been compared with Ambient Noise Level under category of residential zone. While residential habitations are sufficiently

away from the project site to get adverse impact. The noise recipients are the workers of the emergency landfill and construction workers only. The local habitations are not impacted due to noise generated from the construction activity at Emergency Landfill site of Mawiong. Although noise levels at the sampling site are beyond the limit specified for residential zone, the source of noise is traffic from the National highway.

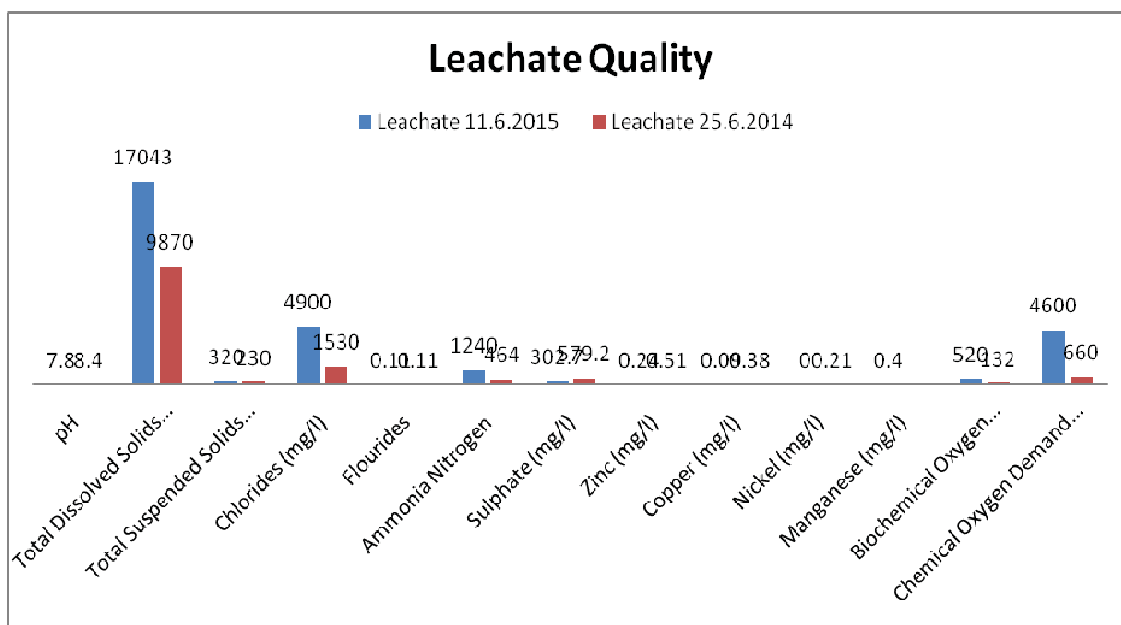
70. The ambient noise level near the construction site of RCC counterfort wall has been conducted 11/12 June 2015 and 25/26 June 2014. The average of two years data of one day sampling of same season has been discussed here. The average day time noise level near emergency land fill site at Marten is 51.7 dB(A) while night time is 48.95 dB(A). The day time noise level is below the permissible limit specified for residential zone of 55dB(A) and also commercial area of 65 dB(A). The night time noise level is higher than permissible limit of residential zone of 45 dB(A) but lesser than commercial zone of 55 dB(A)



Leachate Testing Report

Marten Mawiong landfill site is operating since 1938. It does not have leachate treatment facility and leachate collection system. Leachate sample has been collected from the bottom of the Landfill.

Total Dissolved Solids (TDS) in leachate collected in June 2014 is 9870 mg/l and leachate collected in 2015 is 17043. The permissible limit for disposal of leachate having TDS concentration as per Municipal Solid Waste (Management and Handling) Rule 2000 is 2100 mg/l. Disposal of such high concentration is neither safe for environment nor Municipal Solid Waste Rule 2000 allows.



Chemical oxygen demand (COD) and Chlorides are also higher in concentration compare to the standards specified in Municipal Solid Waste Management Rule 2000 of 600 mg/l for chlorides.

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNAD, SHILLONG – 793014**

ANALYSIS REPORT

1. Sender's name & address: Collected by MSPCB, Shillong
2. Name of source & place of Collection of sample: Downstream (800m from Landfill site)
3. Purpose of analytical study: Physical & Chemical
4. Date of receipt of the sample: 11.06.2015
5. Laboratory reference: B/14/15

Sl No	Parameters	Results	Desirable Limits for drinking water (Indian Standard)
1.	pH	7.6	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	66.0	500.0
3.	Total Suspended Solids (mg/l)	5.0	
4.	Chlorides (mg/l)	7.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	38.0	300.0
6.	Sulphate (mg/l)	13.8	200.0
7.	Nitrate (mg/l)	0.44	45.0
8.	Dissolved Oxygen (mg/l)	4.8	
9.	Lead (mg/l)	BDL	0.05
10.	Chromium (mg/l)	BDL	0.05
11.	Zinc (mg/l)	BDL	5.0
12.	Copper (mg/l)	BDL	0.05
13.	Cadmium (mg/l)	BDL	0.01
14.	Manganese	0.03	0.10
15.	Nickel (mg/l)	BDL	
16.	Arsenic (mg/l)	BDL	0.2


 Sr. Scientist 16.12.2015
 Meghalaya State Pollution Control Board,
 Shillong

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN" LUMPYNGNGAD, SHILLONG – 793014**

ANALYSIS REPORT

1. Sender's name & address Collected by MSPCB, Shillong
2. Name of source & place of Collection of sample Middle stream (200m from Landfill side)
3. Purpose of analytical study Physical & Chemical
4. Date of receipt of the sample 11.06.2015
5. Laboratory reference B/15/15

Sl No	Parameters	Results	Desirable Limits for drinking water (Indian Standard)
1.	pH	7.2	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	102.0	500.0
3.	Total Suspended Solids (mg/l)	25.0	-
4.	Chlorides (mg/l)	13.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	56.0	300.0
6.	Sulphate (mg/l)	15.7	200.0
7.	Nitrate (mg/l)	5.3	45.0
8.	Dissolved Oxygen (mg/l)	6.2	-
9.	Lead (mg/l)	BDL	0.05
10.	Chromium (mg/l)	BDL	0.05
11.	Zinc (mg/l)	BDL	5.0
12.	Copper (mg/l)	BDL	0.05
13.	Cadmium (mg/l)	BDL	0.01
14.	Manganese	0.14	0.10
15.	Nickel (mg/l)	BDL	-
16.	Arsenic (mg/l)	BDL	0.2


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG - 793014**

ANALYSIS REPORT

- | | |
|---|--|
| 1. Sender's name & address | Collected by MSPCB, Shillong |
| 2. Name of source & place of Collection of sample | Leachate (Back of Marten, foothill of the main dumping site) |
| 3. Purpose of analytical study | Physical & Chemical |
| 4. Date of receipt of the sample | 11.06.2015 |
| 5. Laboratory reference | 8/16/15 |

Sl No	Parameters	Results	Standards for Land Disposal as per Municipal Solid Waste (Management & Handling) Rules 2000
1.	pH	7.8	5.5-9.0
2.	Total Dissolved Solids (TDS) (mg/l)	17043.0	2100.0
3.	Total Suspended Solids (mg/l)	320.0	200.0
4.	Chlorides (mg/l)	4900.0	600.0
5.	Fluorides (mg/l)	0.12	
6.	Ammonia Nitrogen (mg/l)	1240.0	
7.	Sulphate (mg/l)	302.7	
8.	Lead (mg/l)	NDL	
9.	Chromium (mg/l)	NDL	
10.	Zinc (mg/l)	0.24	
11.	Copper (mg/l)	0.00	
12.	Nickel (mg/l)	NDL	
13.	Manganese (mg/l)	0.4	
14.	Arsenic (mg/l)	0.01	0.2
15.	Biochemical Oxygen Demand (BOD) (mg/l)	520.0	100.0
16.	Chemical Oxygen Demand (COD) (mg/l)	4600.0	



 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG – 793014**

ANALYSIS REPORT

1. Sender's name & address: Collected by MSPCB, Shillong
2. Name of source & place of Collection of sample: Spring (1 km from Landfill side)
3. Purpose of analytical study: Physical & Chemical
4. Date of receipt of the sample: 11.06.2015
5. Laboratory reference: B/17/15

Sl No	Parameters	Results	Desirable Limits for drinking water (Indian Standard)
1.	pH	6.0	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	54.0	500.0
3.	Total Suspended Solids (mg/l)	10.0	-
4.	Chlorides (mg/l)	6.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	26.0	300.0
6.	Sulphate (mg/l)	3.8	300.0
7.	Nitrate (mg/l)	1.8	45.0
8.	Dissolved Oxygen (mg/l)	6.6	-
9.	Lead (mg/l)	BDL	0.05
10.	Chromium (mg/l)	BDL	0.05
11.	Zinc (mg/l)	BDL	5.0
12.	Copper (mg/l)	BDL	0.05
13.	Cadmium (mg/l)	BDL	0.01
14.	Manganese	0.13	0.10
15.	Nickel (mg/l)	BDL	-
16.	Arsenic (mg/l)	BDL	0.2


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG – 793014**

ANALYSIS REPORT

- | | |
|---|---|
| 1. Sender's name & address | Collected by MSPCB, Shillong |
| 2. Name of source & place of Collection of sample | Stream South West (800m from Landfill side) |
| 3. Purpose of analytical study | Physical & Chemical |
| 4. date of receipt of the sample | 25.06.2014. |
| 5. Laboratory reference | B/71/14 |

Sl No	Parameters	Results
1.	pH	7.3
2.	Total Dissolved Solids (TDS) (mg/l)	68.0
3.	Total Suspended Solids (mg/l)	20.0
4.	Dissolved Oxygen (mg/l)	7.5
5.	Chlorides (mg/l)	6.0
6.	Total Hardness (mg/l)	36.0
7.	Nitrate-N(mg/l)	0.6
8.	Sulphate (mg/l)	9.8
9.	Lead (mg/l)	BDL
10.	Arsenic (mg/l)	BDL
11.	Chromium (mg/l)	BDL
12.	Zinc (mg/l)	0.06
13.	Copper (mg/l)	BDL
14.	Cadmium (mg/l)	BDL
15.	Nickel (mg/l)	BDL

Dated, Shillong,
23.07.2014


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong.

MEGHALAYA STATE POLLUTION CONTROL BOARD
'ARDEN' LUMPYGNAGAD, SHILLONG-14

AMBIENT AIR QUALITY ANALYSIS REPORT

Name of Industry/Firm/Organisation	State Investment Project Management & Implementation Unit, Shillong.
Location of sampling	Marten Landfill site, Mawlong.
Date of sampling	11.06.15 - 12.06.15
Station No.	1 (Near Garage and Workshop)
Air Quality Survey No.	A/21/15
Time duration of sampling	24 hrs (6 hrs interval for spm, 3 hrs interval for gaseous).
Weather	Partially Clear
Ambient temperature	22.3°C
Maximum:	
Minimum:	17.0°C
Relative Humidity	
Maximum:	90.0 %
Minimum:	82.0 %

Pollutants	Analysis Results						24 hrs average	Permissible limits
	2:00pm	6:00pm	10:00pm	2:00am	6:00am	10:00am		
	0:00pm	10:00am	2:00am	6:30am	10:00am	2:00pm		
Particulate Matter (PM ₁₀) (µg/m ³)	48.6		40.0		38.3		42.3	100
Sulphur dioxide (µg/m ³)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	80
Nitrogen dioxide (µg/m ³)	12.6	10.1	9.5	10.2	13.4	13.8	11.3	80

Remarks: Parameters tested were found to be within the permissible limits of Ambient Air Quality Standards as per EPA Notification (S&E 526/E), dated 20.06.2010, vide 16th Nov. 2009.

Drawn/Shillong
 on 14/12/15


 Scientist
 Meghalaya State Pollution Control Board
 Shillong

MEGHALAYA STATE POLLUTION CONTROL BOARD
'ARDEN' LUMPYGNAGAD, SHILLONG-14

AMBIENT AIR QUALITY ANALYSIS REPORT

Name of Industry/Firm/Organisation	State Investment Project Management & Implementation Unit, Shillong.
Location of sampling	Marten Landfill site, Mawiong.
Period of sampling	11.06.15 - 12.06.15
Station No.	1 (Near Garage cum Workshop)
Air Quality Survey No.	A-23/15
Time duration of sampling	24 hrs (8 hrs interval for spm, 4 hrs interval for gaseous)
Weather	Partially Clear
Ambient temperature:	
Maximum	22.5°C
Minimum	17.0°C
Relative Humidity	
Maximum	90.0 %
Minimum	82.0 %

Pollutants	Analysis Results						24 hrs average	Permissible limits
	2:00pm	6:00pm	10:00pm	2:00am	6:00am	10:00am		
	6:00pm	10:00pm	2:00am	6:00am	10:00am	2:00pm		
Particulate Matter (PM ₁₀) (µg/m ³)	48.0		40.0		38.5		42.3	100
Sulphur dioxide (µg/m ³)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	80
Nitrogen dioxide (µg/m ³)	12.6	10.0	9.5	10.2	13.4	13.8	11.5	80

Remarks: Parameters tested were found to be within the permissible limits of Ambient Air Quality Standards as per EPA Notification GSR 826(E) dated 19th July, the 10th Nov. 2009.

Dated Shillong,

14/12/15


 St. Schindler
 Meghalaya State Pollution Control Board
 Shillong

MEGHALAYA STATE POLLUTION CONTROL BOARD
'ARDEEN, LUMPYNGNAGAD, SHILLONG-14

AMBIENT AIR QUALITY ANALYSIS REPORT

Name of Industry/Firm/Organisation	State Investment Project Management & Implementation Unit, Shillong.
Location of sampling	Marten Landfill site, Mawiong.
Date of sampling	11.06.15 – 12.06.15
Station No.	2 (Near Emergency Sanitary landfill site)
Air Quality Survey No.	✓ 24 / 15
Time duration of sampling	24 hrs (8 hrs interval for spm, 4 hrs interval for gaseous)
Weather	Partially Clear
Ambient temperature:	
Maximum:	22.5°C
Minimum:	17.0°C
Relative Humidity	
Maximum:	90.0 %
Minimum:	82.0 %

Pollutants	Analysis Results							Permissible limits
	2:30pm	6:30pm	10:30pm	2:30am	6:30am	10:30am	24 hrs average	
	0:30pm	10:30pm	2:30am	6:30am	10:30am	2:30pm		
Particulate Matter (PM ₁₀) ($\mu\text{g}/\text{m}^3$)	42.4		29.9		27.0		33.1	100
Sulphur dioxide ($\mu\text{g}/\text{m}^3$)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	80
Nitrogen dioxide ($\mu\text{g}/\text{m}^3$)	12.6	9.5	4.5	4.5	10.0	12.4	8.9	80

Remarks: Parameters tested were found to be within the permissible limits of Ambient Air Quality Standards as per EPA Notification GSR 820(E), dated New Delhi, the 16th Nov, 2009.

Dated Shillong,
the 14/12/15


 Sr. Scientist
 Meghalaya State Pollution Control Board
 Shillong

MEGHALAYA STATE POLLUTION CONTROL BOARD
'ARDEN' LUMPYGNNGAD, SHILLONG-14

AMBIENT NOISE LEVEL TESTING REPORT

Name & Address of Industry	State Investment Project Management & Implementation Unit(SIPMIU), Shillong		
Location of Sampling	Near Emergency Sanitary landfill Site, Marten Dumping Ground, Mawiong		
Date of Sampling	11.06.2015 – 12.06.2015		
Category & Area	Residential		
Laboratory Reference	N/13/2015		
	Time	Observed value	Prescribed Standard
Ambient Noise Level	Day	53.1	55.0
DB(A) Leq	Night	43.6	45.0

Remarks: Ambient Noise level monitored during day time and night time was found to be within the limit of standard for Residential Area as prescribed vide EPA Notification (GSR 1063 (E), dated 26th Dec. 1989).

Date: Shillong,
 Dec. 14/12/15


 Senior Scientist
 Meghalaya State Pollution Control Board
 Shillong

MEGHALAYA STATE POLLUTION CONTROL BOARD
'ARDEN' LUMPYGNNGAD, SHILLONG-14

AMBIENT NOISE LEVEL TESTING REPORT

Name & Address of Industry		State Investment Project Management & Implementation Unit (SIPMIU), Shillong.	
Location of sampling		Near Garage cum Workshop, Marten Dumping Ground, Nawong.	
Date of Sampling		11.06.2015 – 12.06.2015	
Category of Area		Residential	
Laboratory Reference		N/14/2015	
	Time	Observed value	Prescribed Standard
Ambient Noise Level	Day	53.5	55.0
dB(A) Leq	Night	44.1	45.0

Remarks: Ambient Noise levels monitored during day and night time was found to be within the limit of standards for Residential Area as prescribed vide EPA Notification [GSR 1063 (E), Dated 26th Dec. 1989].

Analysed by:
 the 14/12/15


 Senior Scientist
 Meghalaya State Pollution Control Board
 Shillong


**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG – 793014**

ANALYSIS REPORT

1. Sender's name & address Collected by MSPCB, Shillong
2. Name of source & place of Collection of sample Spring, South West (1km from Landfill side)
3. Purpose of analytical study Physical & Chemical
4. date of receipt of the sample 25.06.2014
5. Laboratory reference B/72/14

Sl No	Parameters	Results	Desirable Limits for drinking water (Indian Standard)
1.	pH	6.2	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	55.0	500.0
3.	Total Suspended Solids (mg/l)	10.0	
4.	Dissolved Oxygen (mg/l)	7.0	
5.	Chlorides (mg/l)	5.0	250.0
6.	Total Hardness (mg/l)	26.0	300.0
7.	Nitrate-N(mg/l)	1.6	45.0
8.	Sulphate (mg/l)	8.9	200.0
9.	Lead (mg/l)	BDL	0.05
10.	Arsenic (mg/l)	BDL	0.05
11.	Chromium (mg/l)	BDL	0.05
12.	Zinc (mg/l)	0.06	5.0
13.	Copper (mg/l)	BDL	0.05
14.	Cadmium (mg/l)	BDL	0.01
15.	Nickel (mg/l)	BDL	-

Dated, Shillong,
23.07.2014


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong.

**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG – 793014**

ANALYSIS REPORT

- | | | |
|----|--|--|
| 1. | Sender's name & address | Collected by MSPCB, Shillong |
| 2. | Name of source & place of Collection of sample | Leachate (Back of Marten, foothill) of the main dumping site |
| 3. | Purpose of analytical study | Physical & Chemical |
| 4. | date of receipt of the sample | 25.06.2014. |
| 5. | Laboratory reference | B/73/14 |

Sl No	Parameters	Results	Standards for Land Disposal as per Municipal Solid Waste (Management & Handling) Rules 2000
1.	pH	8.4	5.5-9.0
2.	Total Dissolved Solids (TDS) (mg/l)	9870.0	2100.0
3.	Total Suspended Solids (mg/l)	230.0	200.0
4.	Biological Oxygen Demand (mg/l)	132.0	100.0
5.	Chemical Oxygen Demand (mg/l)	660.0	
6.	Chloride (mg/l)	1530.0	600.0
7.	Fluoride (mg/l)	0.11	
8.	Ammonia (mg/l)	464.0	
9.	Sulphate (mg/l)	579.2	
10.	Lead (mg/l)	BDL	
11.	Arsenic (mg/l)	BDL	0.2
12.	Chromium (mg/l)	0.08	
13.	Zinc (mg/l)	0.51	
14.	Copper (mg/l)	0.38	
15.	Cadmium (mg/l)	0.01	
16.	Nickel (mg/l)	0.21	

Dated, Shillong,
23.07.2014


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong.


**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG - 793014**

ANALYSIS REPORT

- | | |
|---|--|
| 1. Sender's name & address | Collected by MSE/CB, Shillong |
| 2. Name of source & place of Collection of sample | Leachate (Back of Marten, foothill of the main dumping site) |
| 3. Purpose of analytical study | Physical & Chemical |
| 4. Date of receipt of the sample | 05.11.2014 |
| 5. Laboratory reference | B/144/13 |

Sl No	Parameters	Results	Standards for Land Disposal as per Municipal Solid Waste (Management & Handling) Rules 2000
1.	pH	4.7	5.5 - 9.0
2.	Total Dissolved Solids (TDS) (mg/l)	2000.0	2100.0
3.	Total Suspended Solids (mg/l)	275.0	300.0
4.	Chlorides (mg/l)	1743.0	600.0
5.	Fluorides (mg/l)	0.17	
6.	Ammonia Nitrogen (mg/l)	40.0	
7.	Total Kjeldahl Nitrogen (mg/l)	650.0	
8.	Sulphate (mg/l)	950.0	
9.	Lead (mg/l)	0.12	
10.	Cadmium (mg/l)	BDL	
11.	Cobalt (mg/l)	BDL	
12.	Copper (mg/l)	0.14	
13.	Nickel (mg/l)	0.11	
14.	Manganese (mg/l)	0.21	
15.	5-day Chemical Oxygen Demand (BOD) (mg/l)	746.5	100.0
16.	Chemical Oxygen Demand (COD) (mg/l)	2250.0	

Gated, Shillong,
17.12.2014.


Meghalaya State Pollution Control Board,
Shillong.

MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGINGAD, SHILLONG – 793014

ANALYSIS REPORT

- | | |
|---|----------------------------------|
| 1. Sender's name & address | Collected by MS/CE, Shillong. |
| 2. Name of source & place of Collection of sample | Spring (400m from Landfill site) |
| 3. Purpose of analytical study | Physical & Chemical |
| 4. Date of receipt of the sample | 05.11.2014 |
| 5. Laboratory reference | B/141/14 |

Sr No.	Parameters	Results	Desirable Limits (for drinking water (Indian Standard))
1.	pH	7.3	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	116.0	500.0
3.	Total Suspended Solids (mg/l)	15.0	
4.	Chlorides (mg/l)	16.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	46.0	800.0
6.	Sulphate (mg/l)	16.5	200.0
7.	Nitrate (mg/l)	0.71	85.0
8.	Dissolved Oxygen (mg/l)	6.8	
9.	Lead (mg/l)	NDL	0.05
10.	Chromium (mg/l)	NDL	0.05
11.	Zinc (mg/l)	0.02	5.0
12.	Copper (mg/l)	NDL	0.05
13.	Cadmium (mg/l)	NDL	0.01
14.	Manganese	NDL	0.10
15.	Nickel (mg/l)	NDL	

Dated, Shillong,
17.12.2014.


 Meghalaya State Pollution Control Board
 Shillong

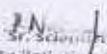
**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGGAD, SHILLONG - 793014**

ANALYSIS REPORT

- | | |
|---|---|
| 1. Sender's name & address | Collected by MSPCB, Shillong |
| 2. Name of source & place of Collection of sample | Stream South West (800m from Landfill site) |
| 3. Purpose of analytical study | Physical & Chemical |
| 4. Date of receipt of the sample | 05.11.2014 |
| 5. Laboratory reference | 0/142/14 |

Sl No	Parameters	Results	Desirable limits for drinking water (Indian Standard)
1.	pH	7.7	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	83.6	500.0
3.	Total Suspended Solids (mg/l)	15.0	
4.	Chlorides (mg/l)	2.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	53.0	300.0
6.	Sulphate (mg/l)	4.35	200.0
7.	Nitrate (mg/l)	1.53	45.0
8.	Dissolved Oxygen (mg/l)	7.7	
9.	Lead (mg/l)	BDL	0.05
10.	Chromium (mg/l)	BDL	0.05
11.	Zinc (mg/l)	BDL	5.0
12.	Copper (mg/l)	BDL	0.05
13.	Cadmium (mg/l)	BDL	0.01
14.	Manganese	BDL	0.10
15.	Nickel (mg/l)	BDL	

Dated, Shillong,
17.12.2014.


Sr. Scientist
Meghalaya State Pollution Control Board
Shillong


**MEGHALAYA STATE POLLUTION CONTROL BOARD
CENTRAL LABORATORY
"ARDEN", LUMPYNGNGAD, SHILLONG - 793014**

ANALYSIS REPORT

1. Sender's name & address	Collected by MSPCB, Shillong
2. Name of source & place of Collection of sample	Spring, South West (1km from Landfall side)
3. Purpose of analytical study	Physical & Chemical
4. Date of receipt of the sample	05.11.2014
5. Laboratory reference	B/143/14

Sr No.	Parameters	Results	Desirable Limits for drinking water (Indian Standard)
1.	pH	6.2	6.5-8.5
2.	Total Dissolved Solids (TDS) (mg/l)	63.0	500.0
3.	Total Suspended Solids (mg/l)	10.0	-
4.	Chlorides (mg/l)	2.0	250.0
5.	Total Hardness (CaCO ₃) (mg/l)	34.0	300.0
6.	Sulphate (mg/l)	3.86	200.0
7.	Nitrate (mg/l)	1.53	45.0
8.	Dissolved Oxygen (mg/l)	6.1	-
9.	Lead (mg/l)	BDL	0.05
10.	Chromium (mg/l)	BDL	0.05
11.	Zinc (mg/l)	BDL	5.0
12.	Copper (mg/l)	BDL	0.05
13.	Cadmium (mg/l)	BDL	0.01
14.	Manganese	0.04	0.10
15.	Iron (mg/l)	BDL	-

Dated, Shillong,
17.12.2014.


 Sr. Scientist
 Meghalaya State Pollution Control Board,
 Shillong

Annexure – 6 – Environmental Clearance, Forest Clearance and Consent to Establish obtained for the current period.

Environmental Clearance

ANNEXURE - VII

**STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
'ARDEN' LUMPYNGNGAD, SHILLONG - 793 014**

No. SEIAA/PROJECT-13/2009/8 Dated Shillong, the 14th August 2009

To:

✓ The Chief Executive Officer
Shillong Municipal Board

Sub: *Sanitary Landfill site for Non-biodegradable Municipal Solid Waste Disposal and Compost Plant rejects at Marten, Mawiong, East Khasi Hills District - Environmental Clearance -Regarding*

Dear Sirs,

This has a reference to your application No. SMB/PW/163/08/09/11 Dtd. 09-03-2009 and subsequent letter from the Director, Urban Affairs & Project Director, State Investment Project management & Implementation Unit vide No. SIPM/UM/IG/NERCCDIP/B/2009/7 Dtd. 22-05-2009 seeking prior Environmental Clearance for the above project under the EIA Notification, 2006. The proposal has been appraised as per prescribed procedure in the light of provisions under the EIA Notification, 2006 on the basis of the mandatory documents enclosed with the application viz. Form I, Techno-Economic Feasibility Report, Detailed Project Report, EIA, EMP and the additional clarifications furnished in response to the Terms of Reference for the purpose of carrying out the cumulative Impact Assessment issued by the State Expert Appraisal Committee.

2. It is, interalia, noted that the project involves a sanitary landfill site for solid waste disposal on a plot of existing area of 5.25 acres. The existing power available is 125 KVA which is sufficient to meet the requirement. Total cost of the Project is Rs 76.60 million INR. The project is expected to benefit 0.16 million persons and above 0.032 million households in Shillong Municipal Board area directly.

3. The State Expert Appraisal Committee after due considerations of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations have recommended for Environmental Clearance as per the provisions of Environmental Impact Assessment Notification - 2006 and its subsequent amendments, subject to strict compliance of the terms and conditions as follows: -

A. SPECIFIC CONDITIONS

- i) Given the amount of rainfall that is experienced in the region that would harbor the landfill site and the likelihood of pollution of land and water if a landfill is subjected to flooding, the applicant shall ensure that the surface water drains at the site are adequate to retain and dispose of the heaviest rains. Further, storm drains shall be constructed around the landfill site of the kind capable of withstanding heaviest monsoons.
- ii) Appropriate leachate capturing measures shall be implemented. Drainage interceptors shall be constructed to capture direct runoff from the landfill site such as to redirect the runoff into

- (iv) Monitoring plan as envisaged by the applicant in the DPR shall be scrupulously followed without any deviation.
- (v) A separate Environmental Management Cell equipped with adequate laboratory facilities shall be set up to carry out the environmental management and environmental quality monitoring functions.
- (vi) Implementation of the project vis-à-vis environmental action plans would be monitored by the Regional Office, Ministry of Environment & Forests and SEIAA / SEAC duly assisted by the SPCB. A six monthly compliance status report shall be submitted to the latter institutions apart from posting the same on the website of the applicant.
- (vii) The lease terms issued by the State Forest Deptt. vide Notification No. FOR.76/99/16 Dtd. 25th February 2000 need to be strictly adhered to.
- (viii) All provisions under Solid Waste (Management & Handling) Rules, 1999 should be strictly complied with.
- (ix) In the light of condition 10 under Schedule III of Municipal Solid Waste (Management & Handling) Rules, 1999, for site selection, the Government may consider the appropriateness of obtaining the approval of the Airport Authority if the location is within 20 kms. of the nearest Airport.

The Regulatory Authority may revoke or suspend the clearance on the recommendation of the SEAC, if implementation of any of the above conditions is not satisfactory.

The Regulatory Authority may on the recommendation of SEAC reserve the right to stipulate additional conditions, if found necessary. The Shillong Municipal Board in a time bound manner shall implement these conditions too.

The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and Hazardous Wastes (Management & Handling) Rules, 2003 along with their amendments and Rules.


MEMBER SECRETARY

State Environment Impact Assessment Authority
Meghalaya, Shillong

Forest Clearance



MINISTRY OF ENVIRONMENT & FORESTS
NORTH EASTERN REGIONAL OFFICE
LAW-U-SIB, LUMBATNGEN
NEAR N.T.C. WORKSHOP, SHILLONG-793021
PHONE NO: 0364-2537609
FAX NO: 0364-2536041
GRAM: PARYAVARAN, SHILLONG.

No. 3-MG C 074/2010-SHI/2291-92

21st November 2011

To

✓ The Commissioner & Secretary
Forest & Environment Department
Government of Meghalaya
Shillong

Sub: Proposal under the Forest (Conservation) Act, 1980 for diversion of 7.28 ha of Reserve Forest land for construction of Sanitary System for disposal of Shillong City Garbage in East Khasi Hills District, Meghalaya.

Sir,

Please refer to the State Government's letter No. FOR.76/99/244 dated 13.04.2011 on the subject mentioned above, seeking approval of the Central Government in accordance with Section 2 of the FCA, 1980, and to say that the proposal has been examined by the State Advisory Group Committee, approval was granted vide this office letter of even number dated 21.07.2011 subject to fulfillment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government vide letter No. FOR.76/99/257 dt. 03.11.2011, final approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 7.28 ha of Reserve Forest land for construction of Sanitary System for disposal of Shillong City Garbage in favour of Chief Executive Officer, Municipal Board, Shillong in East Khasi Hills District, Meghalaya, subject to the following conditions:

- (i) Legal status of the Forest land shall remain unchanged.
- (ii) Compensatory afforestation shall be carried out over 14.56 Ha identified at Umdiker proposed Protected Forest in one compact Block as per the fund deposited by the User Agency.
- (iii) In addition to the above normal compensatory afforestation, Penal Compensatory Afforestation equivalent to above CA i.e. 14.56 Ha. is to be carried over the identified land for raising Penal C.A..
- (iv) Tree felling shall be done only when it is unavoidable under strict supervision of the State Forest Department.
- (v) No damage to the flora and fauna of the surrounding area shall be caused.

- (vi) The forest land shall not be used for any purpose other than that specified in the proposal.
- (vii) No labour camps shall be established either inside the diverted area or other forest land.
- (viii) The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person either through lease or otherwise.
- (ix) The layout of the plan of the proposal shall not be changed without the prior approval of the Central Government.
- (x) The matter of violation of F (C) Act, 1980 has been kept presently in abeyance as the Govt. of the State is in urgent need of land for the sake of public health and sanitation; but this approval shall be subject to the final decision of the competent authority in the matter of related violation of F (C) Act, 1980.
- (xi) Any other conditions as may be found appropriate in future for the betterment of environment & wildlife, may be imposed by CCF (C), North Eastern Regional Office.

Yours faithfully,


(B. S. Khamtawphlang)
Conservator of Forests (C)

Copy to:

1. Principal Chief Conservator of Forests & Head of Forest Force, Department of Forests & Environment, Government of Meghalaya, Shillong.

Conservator of Forests (C)



MEGHALAYA STATE POLLUTION CONTROL BOARD

'ARDEN' LUMPYNGNGAD,
SHILLONG - 793014

email : megspcb@rediffmail.com

PHONE : 0364 - 2521533
2522802
2521514
2522728
TELEFAX : 0364 - 2521217
2521764

No. MPCB/CON-8(2009)/2015-2016/44

Did. Shillong, the 2nd April, 2015

RENEWAL OF CONSENT TO ESTABLISH

CONSENT TO ESTABLISH under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, as amended and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981, as amended (to be referred as Water Act and Air Act respectively).

CONSENT is granted to M/s SHILLONG MUNICIPAL BOARD vide T.O. No. MPCB/CON-8(2009)/2009-2010/12, dt: 26/11/2009 for Setting up a SANITARY LANDFILL over an area of 5.2503 acres at MARTEN, MAWJONG, East Khasi Hills District under the following **terms and conditions**:

General Conditions:

1. This Consent has been accorded based on the particulars furnished by the applicant on behalf of M/s SHILLONG MUNICIPAL BOARD and subject to addition of further or more conditions if so warranted by subsequent developments. The Consent will automatically become invalid if any change or alteration or deviation is made in actual practice;
2. The Consent to Establish is valid for a period upto 31st OCTOBER 2015 unless otherwise suspended or revoked. The validity period shall be extended if necessary till such time the industry is commissioned for commercial production.
3. This Consent may be modified, suspended or revoked by the Board in whole or in part during its term for cause including, but not limited to the following: -
 - (a) Violation of any Terms and Conditions of this Consent;
 - (b) Obtaining the Consent by misrepresentation or failure to disclose fully all relevant facts;
 - (c) A change in any condition that requires temporary or permanent reduction or elimination of the authorized discharge/emission..
4. This Consent does not convey any property right in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or Local Laws or Regulation;
5. Applications for Consent to Operate (in prescribed Forms) and Authorisation (in prescribed Form) under Municipal Solid Wastes (Management and Handling) Rules, 2000 shall have to be submitted at least 3(three) months prior to commissioning of the Landfill;
6. No air, water and soil pollution shall be created by the Landfill beyond the prescribed permissible limits;

SHILLONG - 793014

Ref No. 1356

Date 10.4.15

Chief Officer




MEGHALAYA STATE POLLUTION CONTROL BOARD

'ARDEN' LUMPYNGNGAD,
SHILLONG - 793014

email : megspcb@rediffmail.com

PHONE : 0364 - 2521533
2522802
2521514
2522726
TELEFAX : 0364 - 2521217
2521764

3. The SMB should ensure that the liner system at the base and sides of the landfill are efficient enough to prevent migration of leachate or gas to the surrounding soil;
4. Final cover system at the top of the landfill should be such that it enhances surface drainage, prevents infiltrating of water and supports surface vegetation.


MEMBER SECRETARY
Meghalaya State Pollution Control Board,
Shillong

Copy to:-

1. The Director, Urban Affairs, Meghalaya, Shillong for kind information.
2. The CEO, M/s SHILLONG MUNICIPAL BOARD, Bishop Cotton Road, Opp. Sherwood Bungalow, Shillong - 793001 for information and necessary action.
3. RCTE-2015

Annexure 7 Public Consultation

Regular public consultations were conducted among the local people. Two way consultations about the project activity and its progress are shared with the local community. The awareness of solid waste management is done through these consultations, pumplets are distributed, pledges are taken and Bins are also distributed.

<p>Conduct of 1 consultation per program city, among community members (target: 50% women) including SCs and STs, and NGOs on the manner and schedule of trash collection</p>	<p>100 Women and men community members consulted.</p>	<p>32 Public Consultation organised and about 63% of participants are women. Over 94% of the women participants of public consultations were ST women. The consultation also dwelt on schedules of trash collection.</p> <p>Conducted one Public Consultation Meeting on Gender issues in June 2014 in which 45 women and 6 men participated</p> <p>7 Public Consultation in Lachauchiere, Nongmali III, Madanryting, Mission Compound, Lawmali and Nongthymmai have been organised between Feb and Dec 2015</p> <p>On 28th Sept 2015, a workshop was organised for the Commerce students of Shillong College who wanted to explore business opportunities through waste recycling and waste re-use. A total of 35 participants attended the presentation and discussions. Shillong College is deciding to integrate a syllabus of waste management into their curriculum for which two teachers have kept in touch with DSMC.</p> <p>A workshop was co-organised with the Deputy Commissioner, East Khasi Hills District and his office on Promoting Best Practices of Solid Waste and Plastic Waste Management. The programme was held at the Urban Complex on the 1st October 2015. Altogether 27 participants attended the programme.</p> <p>A Public Consultation cum training was organised for the Teachers of the North Eastern Hill University in the NEHU conference Hall on 7th October 2015. DSMC staff was the resource persons to share information on the waste management scenario and the ways of best practices like segregation and recycling that leads to Zero Waste. Altogether 63 Professors, Lecturers and administrative staff of the University attended the programme.</p> <p>On 16th October 2015, A planning meeting was held in coordination with the Deputy Commissioner, on how best waste management and clean city can be shown during the International Terra Madre Festival could be managed. Since about 60 country representatives are visiting the city, it was important to give a face lift and the consultation was on how to go about. DSMC presented a brief on the Zero Littering Campaign and what school and college children can do to make the city cleaner. A few</p>
---	---	---

		<p>schools and colleges offered to organise cleaning drives in their surroundings. Altogether 60 participants attended the consultative meeting.</p> <p>On 31st October 2015, About 360 students from various schools participated in a painting competition on the theme "The City I want to live in" and the paintings depicted an ideal Shillong city that is Clean Orderly and peaceful by the young artists. This competition was organised as part of the Swachh Bharat Mission that was entrusted to the NERCCDIP staff to give a lead.</p> <p>A review and Input session was organised fro the Supervisors and Inspectors of the Shillong Municipal Board on the 30th November 2015. The SIPMIU Director gave a lead and shared a perspective and well as the attitude required to implement the NERCCDIP properly in the city. A total of 21 second layer functionaries of SMB attended the session.</p>		
<p>Consultative Meeting with the Executive Committee members of Umpling Dorbar Shnong August 14 2013</p>	12	<table> <tr> <td> <ol style="list-style-type: none"> 1. Details of project 2. Development of the area 3. Employment opportunity for the locals 4. Pollution in the area </td> <td> <p>After detail discussion held on nature & technical aspect of the project they are now convinced that no adverse effect will be on them.</p> <ol style="list-style-type: none"> 1. They want environment to be clean, which has been planned in the project. 2. The local youth should get employment according to their education and capability. 3. Local poor families should be involved in collecting and sorting garbage, if required, as proposed in the plan. 4. The cultivators should get green manure, at a subsidized rate, if not free of cost depending on their economic condition. 5. Overall development of the area should be of priority to the project authority. 6. There should be more discussion with the locality people. 7. Project authority should take proper care to combat jaundice & other diseases afflicting the locality </td> </tr> </table>	<ol style="list-style-type: none"> 1. Details of project 2. Development of the area 3. Employment opportunity for the locals 4. Pollution in the area 	<p>After detail discussion held on nature & technical aspect of the project they are now convinced that no adverse effect will be on them.</p> <ol style="list-style-type: none"> 1. They want environment to be clean, which has been planned in the project. 2. The local youth should get employment according to their education and capability. 3. Local poor families should be involved in collecting and sorting garbage, if required, as proposed in the plan. 4. The cultivators should get green manure, at a subsidized rate, if not free of cost depending on their economic condition. 5. Overall development of the area should be of priority to the project authority. 6. There should be more discussion with the locality people. 7. Project authority should take proper care to combat jaundice & other diseases afflicting the locality
<ol style="list-style-type: none"> 1. Details of project 2. Development of the area 3. Employment opportunity for the locals 4. Pollution in the area 	<p>After detail discussion held on nature & technical aspect of the project they are now convinced that no adverse effect will be on them.</p> <ol style="list-style-type: none"> 1. They want environment to be clean, which has been planned in the project. 2. The local youth should get employment according to their education and capability. 3. Local poor families should be involved in collecting and sorting garbage, if required, as proposed in the plan. 4. The cultivators should get green manure, at a subsidized rate, if not free of cost depending on their economic condition. 5. Overall development of the area should be of priority to the project authority. 6. There should be more discussion with the locality people. 7. Project authority should take proper care to combat jaundice & other diseases afflicting the locality 			

Annexure 8 – Map Showing Environmental Sampling Location

