

**STATE PROJECT IMPLEMENTATION UNIT
NATIONAL CYCLONE RISK MITIGATION PROJECT PHASE – II, WEST BENGAL
DEPARTMENT OF DISASTER MANAGEMENT, GOVERNMENT OF WEST BENGAL
Tran Bhawan, 5th Floor, 87 A, S. N. Banerjee Road, Kolkata – 700 014
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REQUEST FOR EXPRESSIONS OF INTEREST (CONSULTING SERVICES – FIRMS SELECTION)

NO. : WB/DMD/NCRMP/04/2014-15

Date : 30-01-2015.

[INDIA] [NATIONAL CYCLONE RISK MITIGATION PROJECT PHASE II (NCRMP– II)] PROJECT ID : P144726. Assignment Title: **THIRD PARTY QUALITY AUDITOR FOR NCRMP II. Package No. NCRMP-II/WB/CONS 2/TPQA.** The Government of India has applied for financing from the World Bank towards the cost of the NATIONAL CYCLONE RISK MITIGATION PROJECT PHASE II (NCRMP – II), and intends to apply part of the proceeds for consulting services. The consulting services (“the Services”) include **THIRD PARTY QUALITY AUDITOR FOR NCRMP-II** to assist the State Project Implementation Unit (SPIU) in maintaining the quality standards of the works by independent assessment/audit of quality of works at various stages of construction of multipurpose cyclone shelters and through training to the SPIU staff in improving their Engineering/ Technical/ Managerial skills. The Project Director, SPIU, NCRMP – II, Department of Disaster Management on behalf of the Governor of West Bengal now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultant should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are: **1.** The firm should have at least 2 similar experiences as TPQA consultant (costing not less than INR 4.50 cores in same or different contracts) in assignments related to Civil engineering projects such as buildings, roads and bridges and Electrical Engineering projects such as Underground Cabling etc. Experience in rehabilitation or restoration projects will have advantage over general experiences. **2.** The firm should demonstrate that they have enough capacity (including personnel) in handling Civil engineering projects such as building, roads and bridges and Electrical Engineering projects such as Underground Cabling etc. **3.** The firms should have an average annual turnover of at least INR 6.75 cores in the last 3 years; and **4.** Experience in handling externally aided projects such as the World Bank and ADB will be an advantage. **5.** Prior work experience in similar geographical conditions would be an advantage. **Expressions of interest (EOI) must include:** **1.** Introductory letter on letter head (with complete contact details – name of contact person, mailing address, telephone, fax, email etc.) explaining how the firm is best to deliver the task; **2.** Organization profile; **3.** Two years annual report (Yr 2012-13 and Yr 2013-14) and 3 years Financial statement; **4.** Short note on the similar projects implemented by the firm pertaining to the shortlisting criteria along with the contact details of past clients; **5.** The EOI should contain sufficient supporting document to substantiate the claim of the Consultant towards their qualification as per the shortlisting criteria. The draft Terms of Reference will be available on the website <http://wbdmd.gov.in> The attention of interested Consultants is drawn to paragraph 1.9 of the World Bank’s Guidelines: Selection and Employment of Consultants [under IBRD Loans and IDA Credits & Grants] by World Bank Borrowers January 2011 (“Consultant Guidelines”), setting forth the World Bank’s policy on conflict of interest. Consultants may associate with other firms in the form of a joint venture or a sub-consultancy to enhance their qualifications. The submission should clearly state the nature of Association (JV or sub-consultant). A Consultant will be selected in accordance with the Quality and Cost Based Selection (QCBS) method set out in the “Consultant Guidelines”. Further information can be obtained at the above mentioned address during office hours **10:00 hrs to 17:30 hrs.** Expressions of interest must be delivered in a written form to the above mentioned address (in person, or by mail, or by fax, or by e-mail) by **20-02-2015 within 17:30 hrs.** Contact Person: **Sri Rahul Nath, Procurement Officer, SPIU. Mobile No. 9434688779.**

**Project Director, SPIU, NCRMP-II
Disaster Management Department, Govt. of West Bengal**

Terms of Reference
for
Third Party Quality Auditor
(Package No. NCRMP-II/WB/CONS 2/TPQA)

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Third Party Quality Audit- NCRMP-II

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1.0 PROJECT BACKGROUND AND OBJECTIVE

1. Background

- The Government of India has initiated a number of initiatives to reconcile the aims of protection of life and livelihood of coastal communities; conservation of ecological resources in the coastal and marine areas; and, promotion of economic activities that have necessarily to be located in the coastal regions. As one of the different initiatives, the Government of India along with the respective State Governments is implementing a World Bank financed project called the “National Cyclone Risk Mitigation Project” (NCRMP-II). The Project has specific objectives to support the long-term vision of the Government by (a) building national capacity for implementation of National Cyclone Risk Mitigation Project approach in the country, and (b) piloting the approach in the states of Gujarat, Orissa and West Bengal. The National Component of the Project focuses on expanding the institutional capacity and knowledge base needed for National Cyclone Risk Mitigation Project. The State Components include capacity building at the state level, preparation of National Cyclone Risk Mitigation Project plans, and a range of complementary local pilot investments.
- The coastal districts of West Bengal are vulnerable severe cyclonic storms. South 24 Parganas, North 24 Parganas and Purba Medinipur experience frequent tropical cyclones, having disastrous consequences on the lives of human beings as well as animal population of the region. It must be mentioned here that the vulnerability due to cyclones cannot be determined solely by its frequency of occurrence, the vulnerability depends on associated storm surge, coastal inundation or flooding and socio economy of the affected region.
- The Sundarban Delta Complex which has geo-genetic link to the tectonic Bengal Basin known for its startling coastal landforms that include back dunal mudflats, back swamps, saltmarshes and tidal creeks enshrouded with mangrove vegetation, low gradient supratidal and intertidal shores with mud bank, swales and berms, rivulets, tidal flats etc. However despite the mind boggling floral and faunal diversity Sundarban is very much vulnerable to natural hazards e.g. storm surge, flood, tidal wave, cyclone etc. Moreover due to rising sea level, the existing coastline is retreating at alarming rate which is symptomatic to some impending natural catastrophes. The inhabitants of the Sundarban estuary probably have acclimatized themselves how to live on facing the nature’s wrath. Sundarban is still recuperating from the brunt of Cyclone Aila that devastated thousands of hectares of once fertile agricultural land adjoining the mangrove forests into a wasteland. The loss of human life and property is beyond any estimation in real terms. The aftermath of these kinds of cyclones and storm surges is on the livelihood of the people at large as due to the ingress of saline sea water into the lush green fertile fields used for paddy cultivation, these tracts of land rendered useless for any kind of agricultural activities.
- The NCRM Project understands that fructification of the project can be done only when the people living on the vulnerable coastal zones can be safeguarded to a certain extent from the natural calamities like flood, cyclone, hail storm, thunder squall and sometimes even to tsunamis that occurred due to geo-morphological, climatic and seismic conditions.
- After the enactment of Disaster Management Act, 2005, there has been a major shift in the disaster management strategy of this State Government from a relief centric response to a composite approach based on preparedness, prevention & mitigation.
- Department of Disaster Management, Government of West Bengal (**DoDM**) has been entrusted with the construction, operation and maintenance of the proposed Multi-Purpose Cyclone Shelters (MPCS) and Underground cabling of 70 Km. HT and 100 Km. LT Electrical Network at Dogha –Sankarpur area in the district of Purba Medinipur , West Bengal as envisaged in the NCRM Project. The estimated cost of the project is around 609 crores. Department of Disaster Management has been assigned this project component because it plays a pioneering role in establishing necessary systems, structures, programs, resources, capabilities for reducing disaster risks in the State in order to save human lives and property, avoid disruption of economic activity and damage to environment and also to ensure the continuity and sustainability of development.

- The construction of MPCs will not only pave the way for increase the communities resilience during calamity, but also opening avenue for social coordination and enhanced the capacity to shoulder responsibility by operating the shelters in a gainful pro-social way.
- The MPCs has a multi-pronged approach in catering to the needs especially of the disadvantaged sections of the populace through a string of activities such as:-
 - (a) Minimization of loss of lives, property and livestock by providing it shelters during cyclone calamity
 - (b) MPCs will act nodal points for receipt and dissemination of cyclone warnings
 - (c) MPCs will provide the warehousing facilities of essential stocks/ items for post disaster usage
 - (d) The nodal points for carrying out post disaster response and relief activities will be from MPCs
 - (e) MPCs will also provide temporary protection from the heavy downpour during the monsoon and also from the scorching heat during the summer to the shelter less people.
 - (f) Basic health services like immunization programmes can be administered through these MPCs
 - (g) MPCs will act as models for safe construction in vulnerable seismic zones.

2. The key objectives of the Project are as follows:

- Reduction in cyclone vulnerability of coastal states, through creation of appropriate infrastructure which can help mitigate the adverse impacts of cyclones
- Strengthening of cyclone warning systems enabling quick dissemination of warnings and advisories from source/district/sub-district level to the community and vice versa for their timely reception and adequate response.

1.1 Project Components

3. Based on the above objectives, the Project has been divided into four components, namely:
- **Component A** – Last Mile Connectivity for the dissemination of cyclone warnings and advisories from district/sub-district level to communities and vice versa. This will be implemented by NDMA in consultation with participating States/UTs.
 - **Component B** - Construction of physical infrastructure for cyclone risk mitigation and underground electrical network. This Component will be implemented by the States/UTs.
 - **Component C** - Technical assistance for capacity building on hazard risk management. NDMA and NIDM are the implementation agencies for this component.
 - **Component D** – Multi Hazard Risk Management.
 - **Component E**- Project Management and Monitoring applicable to all implementing agencies.
4. This term of reference pertains to appointment of Third Party Quality Auditor for the state of West Bengal.

5. In the State of West Bengal, the Project envisages implementation of following components:

Implementing Agency	Components	Total number of units	Implementation status Phase – I	Implementation status Phase – II	Implementation status Phase – III
Department of Disaster Management, Govt. of West Bengal	i) Construction of Multi-Purpose Cyclone Shelters	150 Nos.	101 Nos.	49 Nos.	-
	ii) Underground Cabling at Digha – Sankarpur area , Purba Medinipur.	70 Km. HT & 100 Km. LT	-	-	-
	Project Management and Monitoring applicable to all implementing agencies.				

1.2 Project Implementation Arrangements

1. A State Project Implementation Unit (SPIU) in the State of West Bengal has been set up. The Principal Secretary, Department of Disaster Management, Government of West Bengal heads the SPIU as Project Director. The SPIU is responsible for coordinating and monitoring the implementation of the Project by the Public Works Department, Government of West Bengal. A separate technical wing is opened in the SPIU, Disaster Management Department itself headed by a Chief Engineer, PWD who shall be responsible to ensure timely completion of the works at desired quality levels.
2. The Third Party Quality Auditor ('TPQA') will be appointed by the SPIU who shall report to it on its findings..

2.0 OBJECTIVES OF THE THIRD PARTY QUALITY AUDIT

2.1 The objectives of the assignment are:

- a) The primary objective of this consultancy is to assist the SPIU and Employer in maintaining the quality standards of the works by independent assessment/audit of quality of works at various stages of construction such as i) Pre-construction stage, ii) Construction stage, iii) Commissioning, Trial run and Testing Stage; and through training to the SPIU staff in improving their Engineering/ Technical/ Managerial skills. Assess and report on the compliance by the SPIU and the contractors with the requirements of environment and social frame work (ESMF), including the management measures provided in the environmental management plans and the resettlement of action plans in

consultation with Social Development Specialist, Environment Specialist, GIS Specialist deployed by SPIU.

- b) The Secondary objective is to assist the SPIU for effective project monitoring by providing project management and monitoring support.

3.0 OUTLINE OF TASKS TO BE CARRIED OUT

3.1 The scope of services for the TPQA assignment includes:

Project Inception

1. At this stage the Consultant shall conduct a preliminary review of standard contract documents, drawings, specifications, materials reports and status of the work for the current contracts to obtain understanding of the scope and complexities of the assignment. This exercise will also include familiarization with the Environment and Social Framework (ESMF) and Environment Management Plans (EMP) with the assistance of Social Development Specialist, Environment Specialist, GIS Specialist deployed by SPIU.
2. The Consultant will also have discussions with the key stakeholders at SPIU to understand implementation status, basis for site selection, the various manuals and guidelines prepared for the project, specific concerns of SPIU (if any) and the nature and frequency of various field tests to be performed on civil works and reporting arrangements.
3. After the initial study and discussions, the Consultant will prepare and submit a Project Inception Report, within 30 days of issue of work order. The Inception report would include items like:
 - a) Detailed methodology for execution of the audit, including the various tests that will be conducted and outlining quality audit procedures.
 - b) Detailed methodology for checking compliance to Environment and Social Management Framework (ESMF) including the EMPs and applicable laws pertaining to environment protection and labour welfare.
 - c) Audit plan for the first year clearly identifying the audit stage for each type of work.
 - d) Overall team deployment schedule
 - e) Reporting formats including schedule of reporting and verification of compliance to observations.
 - f) Reporting and escalation protocols including methodology for integrating the audit results in payment certification system and
 - g) Evaluation of the project MIS and suggesting updating requirements for capturing the audit reports, compliance and linking with payment certification system with assistance of MIS Specialist deployed by the SPIU.

Audit Planning

1. During the inception for first year and subsequently at the beginning of each year an audit plan will be prepared in consultation with SPIU. Each site shall be audited at least once during each stage of work and for certification of compliance of reported non compliances. The audit plan would be updated quarterly and may be revised on the basis of findings of the audits conducted in the preceding quarter.

Execution of audits

1. The execution of audits will be in accordance with the approach and methodology agreed in the Inception Report and in accordance with the audit plan. In general the purpose of quality audit exercise is to ensure that the works are:
 - Executed according to the designs, drawings and specifications as specified in the bidding documents / applicable standards, and that good engineering practices are followed in construction.
 - True to desired lines, levels and finishing.
 - Executed following the EMP provisions included in the bidding documents and in general follow the agreed provisions in the ESMF.
 - Executed following the relevant laws / statutes and practices / guidelines related to workers welfare, safety at worksite, insurances, etc.
2. The quality audit at construction sites shall include (but not be limited to) the following:
3. Assess independently the quality of construction vis-à-vis the standards specified in the bidding documents and good engineering practices including disaster resistant construction standards.
4. Review the degree of quality control exercised during the construction by the contractor maintaining adequate arrangements / practices (tests, numbers, frequency, approach and timing etc.) / documentation (QC registers, test reports, observations of supervisory staff, compliances etc) and the degree of monitoring done by the line department identify non-compliances and suggests necessary improvements and compliance methodologies.
5. Through the agreed Audit strategy and a series of test procedures:
 - a) Review that the materials have been procured stored and used in accordance with the quality standard requirements set forth in the contract agreement.
 - b) Review that the workmanship of the work confirms to specified standards.
 - c) Review that the test reports of the materials / workmanship that were tested by the contract as required in the individual contract document are satisfactory.
6. Carry out additional testing of the materials and works where necessary at site or in the approved laboratories. Care should be taken to minimize the additional testing and shall preferably be carried out where a prime facie doubt arises related to quality of works and / or compliance of standards.
7. Review the action taken on the earlier reported non-compliances and re-certify including following up with the heads of implementing agencies for action on earlier reported non-compliances.

- 8.** Assist the SPIU/PWD(Line departments) in resolving the issues related to non compliances. The consultant's responsibility does not end by merely pointing the defects rather they should facilitate the follow up action required to rectify the defects.
- 9.** Create photo documentation of quality related issues including its compliances with date and geo tags
- 10.** Check and report on compliance to:
 - a) Environment Management Plans (EMP) defined in the contract document and the Resettlement Action Plans (RAP) mentioned in the DPR
 - b) Environment laws / regulations of Govt. of India and rules formulated by the concerned State Government.
 - c) Labor laws/ regulations applicable to construction sites.
 - d) Safety management at the construction sites as per the relevant IS codes.
 - e) Specifications of agencies like Indian Road Congress, Ministry of Shipping and Road Transport, Central Public Health Engineering Organization, Bureau of Indian Standards, Ministry of Rural Development (MORD), Ministry of Road Transport and Highways (MORTH) etc as applicable.
- 11.** The Consultants shall also
 - a) Inspect, review and report the adequacy and competence of contractor's staff, labor and machinery.
 - b) Review contractors work program and advice on need for corrective measures in cases where such matters are referred by the Engineers.
- 12.** Review the works progress in accordance with agreed milestones and work schedules and provide regular updates to including need for increasing resources and / or change in work plan for timely execution.
- 13.** Subject to quality of works covered under every bill submitted, counter-sign the Quality certificate along with the Engineer of PWD.
- 14.** All the apparatus and equipment for the field testing shall be procured by the Firm at its own cost. The Firm shall be free to take back these apparatus and equipment on completion of the contract. The tests shall include all common tests as specified by technical specification and as prescribed by BIS. Where use of back office laboratory is necessary, consultants will take the samples and get it tested in accredited/approved laboratories. The minor testing equipment includes as but is not limited to: sieves and weights, moisture meter, soil density meter, temperature recorder, surface finish recording instruments such as straight edges, measuring tapes, calipers, etc. for 'on spot field testing' of material and workmanship.
- 15.** In case any specific quality testing is required by the SPIU/PWD for any work within the site, it shall be carried out and report shall be furnished with a reasonable time.
- 16.** To the extent possible field testing and sampling shall be done in the presence of Engineer/Contractor's representative and the process should be photo documented with geo tagging.

17. The Consultant will use approved laboratory in the region which will be first inspected and recommended for accrediting by Consultant under the project by SPIU. The identification and certification of the testing agency will be specific to the tests that can be carried out in a particular laboratory.
18. The Consultant may propose alternative independent testing laboratories also. Full details and information on the testing laboratories are to be provided. On approval the alternative laboratories may be used.
19. It is proposed that the some field visits shall also be carried out without advance information to be decided randomly.
20. Upon field inspection and tests the Consultants, where required and in critical cases through the Engineer in Charge shall arrange to issue 'stop work' notice in consultation with SPIU, to the contractors and assist in remedying the defects. This shall be done only in exceptional cases where continuance of works may jeopardize the ultimate quality and safety of structure, safety of workers and of third parties etc.
21. The Contract Documents are the basis of all works to be undertaken under the Project. These are standard documents which will be made available to the Consultant.
22. **Annexure A** contains a list of indicative quality checks on materials, equipment and appurtenances that should not be considered as limiting. In consultation with the other consultants, SPIU and PWD (line Departments) ; based on Annex A of the ToR; the specifications in the bid documents and relevant standards; prepare standard Quality Assurance Plan (tests, stage, frequency, standards to be complied, guidance on judging from test results, critical workmanship requirements, critical stages of work that require Engineer's presence "as a must" etc.) for various types of works to be audited and formats for documenting the quality test results and reporting of such tests.

[FOR OTHER CONSULTANTS] Provide input in developing the QAP and test reporting formats to be developed by SPIU.

Reporting

23. SPIU of the State will be the nodal agency for the execution of this assignment. The consultants will submit all the reports to SPIU as per the specified timelines with one copy to the PWD with the assistance of MIS Specialist deployed by the SPIU.
24. The field visits – which shall be an ongoing activity – shall be undertaken as per the audit strategy finalized. Audit reports would be prepared once a week covering the sites visited, and submitted within 3 days of completion of the week. The reports shall highlight for each contract package, status and progress of work, audit opinion, status of compliance to earlier observations, critical issues, and follow-up actions. Any critical issues needing stoppage of work need to be reported immediately both to the PWD and the SPIU, through different means (telephone, SMS, e-mail, fax etc.) In addition to the site level reports, consolidated reports would be submitted every month and quarter, compiling the findings in the site reports, summary audit opinion, corrective actions, progress of works and issues etc. The Consultant may be also required to make presentations on audit findings at the designated forums as and when required by the client.

- 25.** Annual review report would be submitted at the end of financial year and a final review report would be submitted at the end of the project / this consultancy assignment. The monthly, quarterly annual and final review reports should also include good practices and lessons learnt with regard to quality systems and ESMF implementation.
- 26.** In addition, the consultant will comply with any other reporting requirements as agreed in the project inception stage. Reports on non compliances are to be transmitted immediately (on real time basis through email/ other means) and the communication shall be simultaneous to the concerned engineer, line department and the SPIU.

Training and Orientation of contractors and implementation agencies

- 27.** Trainings will be organized by the SPIU every quarter. The consultant will conduct training sessions for the staff of the implementing agency and the contractor teams to highlight the key audit findings, guide on the corrective action required and also train them on the required construction techniques, environment and social management aspects etc. The proceedings of each such individual training session shall be properly documented by the Consultant and shared with the SPIU. The cost and administrative arrangements for organizing these trainings will be the responsibility of the SPIU.

Update the Project monitoring system

- 28.** The Consultant would facilitate the MIS Specialist deployed by the SPIU in uploading the site visit reports, audit findings, suggested corrective action, status of completion of corrective action etc. in the project monitoring system or in such monitoring system that may be designed for NCRMP-II in West Bengal.

4.0 SCHEDULE FOR COMPLETION OF TASKS

- 29.** The consultancy will be initially for a period of two years which can be extended later with mutual consent if performance is satisfactory. The SPIU will facilitate for the Consultant to conduct audit as per the strategy.

- 30.** The key deliverables for the assignment along with respective timelines are as follows:

<u>Deliverable</u>	<u>Timeline</u>	<u>Percentage of Lump-sum payment against each deliverables</u>
Inception Report	Within 30 days of signing the contract	
Audit strategy	Within 1 month of signing the contract (for the first year) as part of Inception Report. Next years-Within 7 days from end of financial year (subsequent years)	
Quality Assurance Plan and Reporting Formats	By the end of 2 nd Month	

Weekly Audit Report	Within 3 days of completion of week.	
Non compliance event report/ Critical issue reports	Immediate	
Monthly progress report	Within seven days of the end of reporting month	
Quarterly Summary Report	Within 15 days from end of quarter	
Annual Review Report	Within 15 days from end of financial year	
Final Review Report	Three months prior to winding up of the Project or completion of the Consultant's contract, whichever is earlier	
Presentation to the SPIU on the findings of the audit and suggestions	Every quarter	

5.0 TEAM COMPOSITION AND ESTIMATED MAN MONTH INPUTS

31. Estimated input for the first year of consultancy services is around 915¹ man-months. However, depending on the number of sites getting approved in subsequent years, the number of man-month requirement may go up. The total estimated man-month requirement for the duration of the project is about 1830² man-months. However the details of the man-month input can be finalised at the inception stage.

32. The list of sites proposed to be audited in the first year has been provided as Annexure B.

33. The consultant's team shall be organized as follows:

1	Project Management Team	<ul style="list-style-type: none"> • Project Manager – 1 Nos. • Deputy Project Manager – 3 Nos. • Support Staff – 4 Nos. 	<p>One position each at the state level One position each at the District level</p>
2	Site Teams	<ul style="list-style-type: none"> • Site Engineers: 30 Nos. <ul style="list-style-type: none"> ○ Cyclone Shelters • Support Staff – 4 Nos. 	<p>A team of engineers will be deployed in each district. The number of engineers in each team may vary depending on the construction activity in progress in the district.</p>

1

The state will calculate the man-month input based on the number of sites for which tenders have been awarded.

2

The state will calculate man-month input based on the total number of construction sites proposed.

34. The desired qualifications for various team members are as follows:

<u>Sl. No</u>	<u>Key Position</u>	<u>Minimum Qualifications</u>	<u>Minimum desired Experience</u>	<u>Age</u>	<u>Estimated Man-month input³</u>
1	Project Management Team				
1.1	Project Manager	Graduate Civil Engineer with Post Graduation in Construction Management / Planning / Engineering/Business Administration	<p>At least 20 years experience in management of multi location civil engineering projects.</p> <p>Experience of managing multi-disciplinary teams is essential.</p> <p>Familiarization with disaster resistant construction techniques is essential. Experience of working in the coastal regions will be an added advantage.</p> <p>Past experience of having conducting technical audit for WB projects is desirable.</p>	Not more than 65 years	
1.2	Deputy Project Manager	Civil Engineer	<p>At least 12-15 years of experience in the field of civil engineering and should have managed technical audits in the past.</p> <p>Demonstrate expertise of working in the coastal areas,</p> <p>Past experience of conducting technical audits for WB projects is desirable</p> <p>Demonstrate expertise in one or more of the following areas</p> <ul style="list-style-type: none"> • construction of disaster resistant buildings in coastal zones • construction of roads/bridges 	Not more than 55 years	
2	Site Teams				
2.1	Site Engineer - Cyclone shelters	Civil Engineer	<p>At least 5-10 years of experience in the field of civil engineering and should worked in technical audits teams in the past.</p> <p>Should have relevant experience in construction of disaster resistant buildings. Experience of working in the coastal regions will be an added advantage.</p>	Not more than 50 years	
2.2	Site Engineer – Underground Cabling	Electrical Engineer	<p>At least 5-10 years of experience in the field of civil engineering and should worked in technical audits teams in the past.</p> <p>Should have relevant experience in construction of disaster resistant</p>	Not more than 50 years	

			buildings. Experience of working in the coastal regions will be an added advantage.		
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6.0 DATA AND SERVICES TO BE PROVIDED BY THE CLIENT

35. The Consultant will be provided access to all such information as is necessary to plan and execute the assignment. It shall include:

1. List of sites
2. Contracts/tenders for selected sites, including special specifications
3. Project documents available in public domain such as ESMF, procurement plan, Manuals etc.
4. Access to sites, and support of the nodal department

7.0 REVIEW AND MONITORING OF CONSULTANTS WORK

36. Consultants performance and quality of work will be continuously reviewed by the SPIU.

37. There would be formal review, annually by a committee set up at SPIU at the Inception stage. Unsatisfactory performance will invite action including pre closure of contract in accordance with the contract provisions.

8.0 ANNEXURE A: INDICATIVE TEST REQUIREMENTS:

38. An indicative list of tests on material and workmanship is listed here, which is to provide guidance to the Consultant. This list is not exhaustive and all the necessary tests on materials in accordance with contract documents, relevant specifications and good engineering practices need to be carried out to meet the objective of quality inspection which is to ensure that the works are carried out in conformity with required standards and specifications.

A. Civil Works

The main materials to be inspected are as follows:

- Reinforced concrete
- Building works
- Road materials
- Building service appurtenances and associated works
- Soil tests

1. Reinforced concrete

The relevant tests are included in the standard specifications; they shall include but not be limited to the following:

Tests for cement and aggregates

Cement	1. Consistency test
	2. Initial and final setting time test
	3. Compressive strength test
	4. Soundness test
	5. Fineness test
Coarse Aggregate	1. Sieve analysis test and grading.
	2. Bulk density test
	3. Flakiness index test
	4. Elongation index test

	<ol style="list-style-type: none"> 5. Water absorption test 6. Aggregate impact value test 7. Abrasion resistance test 8. Crushing value test 9. specific gravity 10. Aggregate crushing value
Fine Aggregate	<ol style="list-style-type: none"> 1. Sieve analysis test 2. Silt content test 3. Specific gravity 4. Uniformity co-efficient 5. Effective size Percentage of impurities 6. Loss on ignition 7. Acid Solubility 8. Bulkage of sand
Test for water	<ol style="list-style-type: none"> 1. Suitability for use in concrete e.g. pH etc
Concrete	<ol style="list-style-type: none"> 1. Cube Test 2. Slump test
Tests for reinforcement	
Reinforcing Steel	<ol style="list-style-type: none"> 1. Tensile test- 0.2% proof stress, 2. Bend test ultimate strength and % of elongation. 3. Re-bend test
Tests for Reinforced Concrete Members	
	<ol style="list-style-type: none"> 1. Rebound hammer test

In certain cases extraction of cores shall be carried out.

2. Building works

Structural steel	<ol style="list-style-type: none"> 1. Tensile test 2. Bend test 3. Thickness of galvanising
Bricks	<ol style="list-style-type: none"> 1. Compressive strength test 2. Water absorption test 3. Efflorescence test 4. Dimensional tolerance
Blocks	<ol style="list-style-type: none"> 1. Compressive strength test 2. Water absorption test 3. Density test
Tiles	<ol style="list-style-type: none"> 1. Water absorption test 2. Wet transverse strength test 3. Abrasion/wear resistance test
Ceramic tiles	<ol style="list-style-type: none"> 1. Water absorption test 2. Wet Transverse strength test 3. Abrasion / wear resistance test 4. Crazeing test
Galvanised sheeting	<ol style="list-style-type: none"> 1. Thickness of sheets 2. Thickness of galvanising

Water proofing compounds	1. Tests for permeability and compatibility
Paints	1. Performance tests 2. Thickness
Plumbing and sanitary fixtures	1. Dimensional verification, physical examination and relevant tests.

B. Mechanical and electrical works:

List of mechanical and electrical items required to be inspected by third parties

1. Mechanical

- Pumps by type

2. Electrical

- Motors by type
- Electrical starters
- Electrical panels
- Switchboards
- Motor control panels
- DC distribution panels
- Induction-cum-enunciation panels
- Bus ducts
- Battery chargers
- Transformers
- HV/MV/LV
- Power
- Voltage
- Current
- Capacitors
- Level switches
- Electrical cables

3. Miscellaneous

- Earthing equipment
- Lightning arrestors and essential fittings
- Cable trays
- Any other items as specified in the contract documents

4. Inspections

The main headings for these works are as follows:

- Pumps
- Motors
- Gear Boxes
- Transformers
- Capacitors
- Cables
- Pipe and special
- Valves
- Diesel generator sets

- | | | |
|---|-------------|---|
| 1 | Pumps | <ol style="list-style-type: none"> 1. Review of material test certificate for pump casing, bowls, shaft, impeller bearings, column pip etc. 2. Review of heat treatment certificate if any 3. Review of dynamic balancing or rotating parts / impeller 4. Examination of the shaft 5. Witnessing Hydro test of casing 6. Witnessing performance test at 49 Hz and 50 Hz frequency including vibration measurement covering following tests: <ul style="list-style-type: none"> • Capacity in LPM/LPS • Delivery head in metres • Efficiency at the specified duty • Power absorbed by the pump at the specified duty • NPSH required • Maximum power required by the pump • Shut off head of the pump • Discharge of the pump when only one pump is operated in the system • Delivery pressure when only one pump is operated in the system • Power absorbed by the pump when only one pump is operated in the system • Efficiency of the pump when only one pump is operated in the system • Visual and dimensional check • Strip test • Speed test at 49 Hz and 50 Hz frequency • Witnessing performance test at 49 Hz and 50 Hz frequency including vibration measurement covering following tests: <ul style="list-style-type: none"> • Capacity in LPM/LPS • Delivery head in metres • Efficiency at the specified duty • Power absorbed by the pump at the specified duty • NPSH required • Maximum power required by the pump • Shut off head of the pump • Discharge of the pump when only one pump is operated in the system • Delivery pressure when only one pump is operated in the system • Power absorbed by the pump when only one pump is operated in the system • Efficiency of the pump when only one pump is operated in the system • Visual and dimensional check • Strip test • Speed test at 49 Hz and 50 Hz frequency |
| 2 | Motors | <ol style="list-style-type: none"> 1. Dynamic balancing of rotor and visual examination of rotor assembly 2. Visual inspection and testing of stator assembly 3. Review of test certificate for conductor, stator coils, shaft bearings etc. 4. Witnessing routine test no load and load test vibration measurement as per IS 5. Verification of type test report 6. Visual and dimensional check |
| 3 | Gear Boxes | Review / witnessing test on gear boxes worm/helical Tests as specified in relevant IS or Special Specifications |
| 4 | Transformer | <ol style="list-style-type: none"> 1. Visual inspection, dimensional check and verification of bill of materials 2. Review of iron losses and copper losses test at 90% of the rated voltage, 100% rated voltage and 110% of the rated voltage 3. Witnessing resistance voltage test at HV side and LV side 4. Routine tests as per IS:2026 5. Verification of type results, temperature rise test, impulse test, insulating oil |

- test etc.
- | | | |
|---|------------------------|--|
| 5 | Capacitor | Witnessing all routine and type test as per IS:2834 such as sealing test, test for output/capacitance, insulation resistance test between terminals. Containers and loss angle measurements, test for efficiency of discharge device, test for dielectric loss angle, thermal stability test, self healing test, voltage test between terminals. |
| 6 | Cables | <ol style="list-style-type: none"> 1. Visual and dimensional check 2. Witnessing routine test as per IS:1554 3. Witnessing insulating test, resistance test, current rating test, star reactance test, star capacitance test, short circuit current test, voltage drop test |
| 7 | Pipe and specials | <ol style="list-style-type: none"> 1. Visual and dimensional check 2. Review of chemical and physical test certificates as per the relevant Indian Standard specifications 3. Witnessing hydrostatic pressure test as per the relevant Indian Standard specifications 4. Checking the integrity of epoxy lining for MS pipes at joints after laying and jointing pipes |
| 8 | Valves | <ol style="list-style-type: none"> 1. Visual and dimensional check 2. Review of material test certificates for valve body and internals 3. Operational smoothness 4. Witnessing hydrostatic test/leakage test as per applicable code |
| 9 | Diesel generating sets | <ol style="list-style-type: none"> 1. Review of tests as specified in relevant IS or Special Specifications |

5. Quality Checks On Materials, Equipment and Appurtenances

These lists are not to be considered as prescriptive. The Consultant is to develop a more detailed approach before commencing work in the field.

C. Overhead water tanks

The quality monitoring / auditing of various works shall be included but not be limited to the following:

1. Quality of materials
2. Quality of construction of various construction works at various stages
3. Witnessing the performance tests
4. Performance of the various mechanical equipment in treatment plants

1. Quality of materials

- Physical examination of materials brought to the site
- Perusal of test reports on materials furnished by the construction agency from time-to-time and also ensuring the frequency of such tests to be as per relevant standards
- Randomly selecting the samples at site and conducting necessary test for confirmation

2. Quality monitoring during the construction stage

(a) Structure:

Foundation stage

- Examining the soil encountered at site with respect to soil test reports furnished and also checking the adequacy of type of foundation system proposed to be adopted with respect to site condition
- Randomly checking grid markings
- Checking the fabrication of reinforcement and dimensions

- Witnessing concreting of foundation systems and reviewing the reports of cube testing

Superstructure

- Checking the fabrication of reinforcement, formwork, cover, etc.
- Checking the facilities available for the concreting, curing, etc.
- Dimensional verification and alignment of reinforced concrete members
- Checking the various levels to ascertain whether they are in accordance with the drawings and from hydraulic considerations
- Witnessing the concrete works of major structures and witnessing the tests on fresh concrete

Miscellaneous items

Checking the quality of pipes and pipe appurtenance

- Quality of water proof plaster on the interior surface
- Galvanised items

Tests on finished structure

- Conducting non-destructive tests at random to ascertain the quality/strength
- Witnessing the hydraulic tests on water retaining structures

3. Mechanical and Electrical Works

- Effectiveness of earthing systems
- Effectiveness of lightening arrestor systems
- Evaluating the performance of various mechanical equipment installed in various units in relation to the specification requirements

D. Quality monitoring during construction of pipelines

- Checking pipe work excavation levels, randomly
- Checking effectiveness of pipe joints
- Inspection of manholes, chambers and other structures
 - Base levels and concrete thickness
 - Walls
 - Roof slabs and covers
- Checking sewers for water tightness

E. Quality monitoring of building works

The total quality monitoring of various works will be included but not be limited to the following:

1. Quality of materials
2. Quality of construction of various works during different stages of construction.
3. Performance of mechanical and electrical equipment and systems.

1. Quality of materials

The checking of quality of materials includes:

- Physical examination
- Review of test reports
- Collecting representative samples wherever possible and conducting necessary tests for confirmation
- Informing the concerned agencies regarding the acceptance of material or otherwise
- Witnessing the performance tests on machinery carried out by the manufacturer at his factory, before dispatching to site.

2. Quality monitoring during construction

During the course of construction, independent unannounced visits shall be made to check the quality of construction. The visits shall be made at the following stages:

Foundation stage

- Checking the foundation with respect to the soil reports and its suitability as bearing strata including shoring, shuttering and dewatering arrangements.
- If under ream pile foundation is adopted, verify the results of test piles (if done), otherwise conduct test pile for results. Check the pile work being conducted at the site.
- Dimensional verification of selected footings
- Checking the layout marking and centre lines, at random
- Checking the reinforcement fabrication, at random
- Checking the concreting arrangements and witnessing concreting of a few footing at random including use of sweet water (not saline water) for concreting

Plinth stage

- Checking the quality of stone masonry with emphasis to quality of stones, joints, joint materials, etc.
- Checking the reinforcement fabrication of plinth beams at random
- Checking the quality of concrete in plinth beams, at random
- Checking the adequacy and compaction of floor filling, at random

Lintel stage

- Checking the quality of wall masonry with emphasis to joints, joint mortar, curing, etc.
- Checking the quality of column concrete
- Checking the reinforcement fabrication of lintels, at random
- Checking the quality of concrete in lintels

Roof stage / slab stage

- Checking the quality of centering, shuttering and formwork, with emphasis on lines and levels, joints and safety considerations
- Checking the reinforcement fabrication of selected panels
- Checking the arrangements for concreting, vibration and curing
- Checking the concrete while concreting, with respect to mix proportion, w/c ratio and compaction. Casting independent set of cubes for verification of strength
- Checking steel sheet fabricators for roof, roofing sheets and fencing and fixings.

Finishing stage

- Checking the quality of flooring with respect to levels and smoothness at random
- Checking the door and window opening locations
- Checking the quality of joinery with respect to workmanship and fixtures, at random
- Checking the plaster in walls and ceiling with regard to proportions, line and level and curing, at random
- Checking the finishing works at random, such as painting, dadoing, fixing of ceramic tiles, fixing of sanitary fixtures, steel grill works, etc.

3. Mechanical and electrical works

The standard and special specifications shall be referred, to determine the scope of the work to be undertaken. Test of earthing and lightening protection systems shall be included.

F. Quality monitoring during construction of landfills

- Checking the level of excavation, plan dimensions and side slopes
- Checking the type of soil available and its uniformity in the site

- Verifying the soil with respect to its suitability for mixing with bentonite in achieving required permeability
- Mixing of bentonite and compaction of layers through testing on compacted layers
- Checking the thickness of mixed liner through physical measurement at representative locations
- Checking the thickness of HDPE liner
- Checking the efficiency of jointing through appropriate tests
- Checking the laying of HDPE liner

ANNEXURE – B

List of Equipments (not limited to the following)

(To be established by the Consultants at their cost and the Laboratories are supposed to be positioned at the level of Dy. General Managers office locations, and other site positions whichever may be convenient during execution or convenience to the administration)

General Equipment

1	Digging tools pick axes, shovels, hammers, chisels etc.	Two sets
2	Sieve shaker:- With Standard set of sieves, lid and pan 450 mm dia for coarse aggregates and 200 mm dia for soils and fine aggregates	One set each
3	Roller boy measuring wheel/ odometer	One set
4	Sieves for Coarse Aggregates 125 mm, 106 mm ,100 mm ,90 mm, 80 mm, 75 mm, 63 mm, 53 mm, 50 mm 45 mm, 40 mm, 37.5 mm, 31.5 mm, 26.5 mm, 25 mm, 22.4 mm, 20 mm, 19 mm, 16 mm,13.2 mm, 12.5 mm, 11.2 mm, 10 mm, 9.5 mm, 6.3 mm , 5.6 mm, 4.75 mm, 2.80 mm, 2.36 size with lid and cover	One set
5	Sieves for Fine Aggregates & Soils 10 mm, 5.6 mm, 4.75 mm, 2.80 mm, 2.36 mm, 2.00 mm, 1.70 mm, 1.18 mm, 1 mm, 850 micron, 710, 600, 500, 425, 355, 300, 250, 212, 180, 150, 90 and 75 micron with pan and cover	One set
6	Electronic/digital balance (1 kg) with the least count of .01 g.	One no
7	Electronic/digital balance (5 kg)	One no.
8	Proving rings:- 10 kg, 50 kg, 100 kg capacity	One each
9	Dial gauges:- 25 mm, 50 mm travel, (sensitivity 0.01 mm/div)	one nos.
10	Water bath Electrically operated and thermostatically controlled Gas burner and sand bath	One no.
11	Digital thermometers	Three nos.
12	Infrared thermometers	One no's.

13	Glassware:- Flasks, graduated cylinders, stirring apparatus, spatulas, wire gauges, scoops, steel scales, measuring tapes, casseroles, assorted sizes of enameled trays, porcelain dish, filter paper, desiccator, funnel, measuring tape, glass marking pencils, heat resistant hand gloves, spirit levels, vernier calipers, mortar with rubber-covered pestle etc.	One set
14	Oven Electricity operated and thermostatically controlled up to 200C. (sensitively 1oC) with interior of non-corroding material	One no
15	Water still (capacity 4 litres per hour) for testing of soils.	One no.
16	Rapid Moisture Meter complete with Chemicals	One no.
17	Liquid Limit and Plastic Limit Testing Apparatus	One no.
18	Soil cone penetrometer (for liquid limit)	One no.
19	Sampling Pipette 10ml One no.	One no.
20	Standard Proctor Density Test Apparatus with Rammer (Light compaction)	One set
21	Standard Proctor Density Test Apparatus with Rammer(Heavy compaction)	One set
22	Sand Pouring Cylinder with Tray complete for field density test.	Four nos.
23	Sampling tins with lids 100 mm dia, 50 mm height	Twenty nos.
24	Lab CBR equipment (complete set) with 12 moulds	One set
25	Pocket Penetrometers	Four nos.
26	Flakiness Gauge	One no.
27	Standard equipment for Aggregate Crushing Value along with standard tamping rod	One set
28	Specific gravity determination test apparatus with pycnometre	One set
29	specific gravity bottles , vacuum pump	One set
30	Aggregate soundness test apparatus	One set
31	Water absorption test apparatus	One set
32	Aggregate Impact Value test apparatus	One set
33	Stripping test apparatus	One set
34	Abrasion value testing machine.	One set
35	Density buckets (10 lts,20lts &30 lts)	One set.
Equipment for Testing of Concrete		
36	Cement testing kit	One set.
37	Slump cone apparatus.	Two Nos.
38	Cube moulds (150 mm x 150 mm x 150 mm)	Twelve Nos.
39	Compression Testing machine (200 Tonnes Capacity)	One No.
40	Vicat apparatus for testing concrete.	One No
Equipment for Testing of Bitumen		
41	Penetration test apparatus with standard needles	One set
42	Bitumen Softening Point Test Apparatus	One set
43	Cleveland Open Cup Test	One set
44	Saybolt Furol Viscometrer Test Apparatus	One set
45	Residue on 600 Micron Sieve Test Apparatus	One set
	Mechanical mixer of 0.02 m3 capacity, electrically operated and fitted with heating jacket	One no.
46	Electrically operated centrifuge type bitumen extractor and commercial benzene	One no.
47	Camber Board / Template with 3m straight edge	One No.
48	Thickness gauges (aluminum)	Three No.

49	Measuring tapes	Three no,s.
Non - Destructive Equipment		
50	Rebound hammer	One no's.
51	Core cutter equipment for concrete crushing strength.	One no's.
52	Ductility Test Apparatus (for testing Bitumen)	One set.
53	Nuclear Density Gauge	Two sets
54	Dynamic cone penetrometer.	One no's.
55	Total station (leveling instrument)	One no's
56	GPS & GIS set (with hand held instrument)	One set
57	Hand held Roughometer-II, ARRB Model, Australia	One Set

10.0 ANNEXURE C: LIST OF SITES PROPOSED TO BE AUDITED

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
1	South 24 Parganas	BASANTI	RC Khal	Sonakhali	Sonakhali High School
2	South 24 Parganas	BASANTI	Fulmalancha	Nebukhali	Sarkarpara FP School
3	South 24 Parganas	BASANTI	RC Khali	Kalahazra	Kalahazra High School
4	South 24 Parganas	BASANTI	Kanthalberia	Bhangankhali	Bhangankhali FP School
5	South 24 Parganas	BASANTI	Uttar mokamberia	Naliyakhali	Naliyakhali FP School
6	South 24 Parganas	BASANTI	Jyotishpur	Harekrishnapur	Harekrishnapur CSFP School
7	South 24 Parganas	BASANTI	Bharatgarh	Garanbose	3 no Garanbose FP School
8	South 24 Parganas	BASANTI	Jharkhali	Herobhanga	4 no GSFP School
9	South 24 Parganas	MATHURAP UR II	Kumrapara	Kumrapara	Kumrapara Delwara Hossain Vidyapith
10	South 24 Parganas	MATHURAP UR II	Nandakumarpur	Narendrapur	Narendrapur Milon Vidyapith
11	South 24 Parganas	MATHURAP UR II	Dighirpar Bakultala	Chapla Khop	Subhas Nagar High School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
12	South 24 Parganas	KAKDWIP	Ramgopalpur	Dakshin Kasiabad	Amar Sridam Milan Vidyamandir
13	South 24 Parganas	KAKDWIP	Rishi Bankim chandra	Bamanagar	Bamanagar Subala High School
14	South 24 Parganas	KAKDWIP	Ramgopalpur	Uttar Kashiabad	Uttar Kasiabad Sri Krishna Chaitanya Nimna Madyamik Vidyalay
15	South 24 Parganas	KAKDWIP	Rabindra	Manmathapur	Manmathapur Siksha Bhaban High School
16	South 24 Parganas	KAKDWIP	Swami Vivekananda	Kakdwip	Kakdwip Birendra Vidyaniketan
17	South 24 Parganas	KAKDWIP	Swami Vivekananda	Akshyayn agar	Akshaynagar Kumar Narayan Madyamik Shikshayan
18	South 24 Parganas	PATHARPR ATIMA	Digambarpur	Indranarayanpur	Sukanta Najrul MSK
19	South 24 Parganas	PATHARPR ATIMA	Dk.Gangadhar pur	Abad Gangadhar pur	Mayrarchak Haripada high School
20	South 24 Parganas	PATHARPR ATIMA	S/Purnachand rapur	Meharpur	Meharpur Tulashi Rani Smriti Vidyapith
21	South 24 Parganas	PATHARPR ATIMA	S/Purnachand rapur	Purnachan drapur	Punachandrapur Chandmoni Sikshabhaban

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
22	South 24 Parganas	PATHARPR ATIMA	Banashyamnagar	Banashyam nagar	Purba Banashyamnagar F.P.S.
23	South 24 Parganas	PATHARPR ATIMA	Patharpratima	Bhagbatpur	Bhagbatpur Digambari F.P.S
24	South 24 Parganas	PATHARPR ATIMA	Achintyanagar	Kamdevpu r	Kamdevpur Snehabala Milan Vidyapith
25	South 24 Parganas	PATHARPR ATIMA	Herambagop alpur	Pb. Surendra nagar	J-Plot Purba Surendranagar F.P.S.
26	South 24 Parganas	KULTALI	Kundakhali Godabar	Panchuakhali	Panchuakhali High School
27	South 24 Parganas	KULTALI	Gopalgunj	Sankijahan	Sankijahan F.P. School
28	South 24 Parganas	KULTALI	Gurguria Bhubaneswari	Bhubaneswari	Debipur Karunamoyee Girls' High School
29	South 24 Parganas	KULTALI	Maipith Baikunthapur	Maipith	Baikunthapur High School
30	South 24 Parganas	KULTALI	Gurguria Bhubaneswari	Madhya Gurguria	Madhya Purba Gurguria Adarsha Vidyapith
31	South 24 Parganas	Namkhana	Haripur	DK. Chandanpiri	DK. Chandanpiri FP School
32	South 24 Parganas	NAMKHAN A	Moushuni	Kusumtala	Kusumtala Paschim Madhya FP School (Shibalaya)
33	South 24 Parganas	NAMKHAN A	Narayanpur	Narayanpur	Narayanpur 4th Gheri FP School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
34	South 24 Parganas	BASANTI	Charavidya	Charavidya	Sree Sree Ramakrishna Siksha Niketan
35	South 24 Parganas	BASANTI	RC Khali	Hogolduri	SK Para FP School
36	South 24 Parganas	BASANTI	Uttar Mokamberia	Uttar Sonakhali	Uttar Sonakhali State Plan FP School
37	South 24 Parganas	KULTALI	Deulbari Debipur	Kantamari	Kantamari Churamani H.S
38	South 24 Parganas	KAKDWIP	Rabindra	Mrinalnagar	Chintamanipur Balika Vidyalay (Jr. High School)
39	South 24 Parganas	KAKDWIP	Madhusudanpur	Shibkalinagar	Shibkalinagar Ishan Memorial High School
40	South 24 Parganas	MATHURAPUR II	Nagendrapur	Nagendrapur	Nagendrapur Hemanta Kumari High School
41	South 24 Parganas	NAMKHAN A	Budhakhali	Fatikpur	Fatikpur Rishi Bankim SSK
42	South 24 Parganas	NAMKHAN A	Shibrampur	Rajnagar	Near Nabin FP School
43	South 24 Parganas	NAMKHAN A	Namkhana	Debnagar	Paikbar F.P School
44	South 24 Parganas	NAMKHAN A	Narayanpur	Ganeshpur	Sarbadoy Ghola Para F.P School
45	Purba Medinipur	Ramnagar-I	Padima-I	Mandala	Mandala Harijan Primary School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
46	Purba Medinipur	Ramnagar-I	Padima-I	Padima	Padima Ramprasad Primary School Ground
47	Purba Medinipur	Ramnagar-I	Padima-I	Dakshin Shimulia	Digha D. J. Sikshya Sadan Ground
48	Purba Medinipur	Ramnagar-I	Talgachari-II	Jaldha	Jaldha Harijan Primary School
49	Purba Medinipur	Ramnagar-I	Talgachari-II	Chandpur	Chandpur Kamdeb Upper Primary School Ground
50	South 24 Parganas	KULTALI	Deulbari Debipur	Shyamnagar	Shymnagar School
51	South 24 Parganas	BASANTI	Jyotishpur	Radharanipur	19 no Radharanipur FP School
52	South 24 Parganas	NAMKHAN A	Moushuni	Baliara	Baliara FP School
53	South 24 Parganas	NAMKHAN A	Shibrampur	Patibunia	Patibunia Nanigopal FP School
54	South 24 Parganas	NAMKHAN A	Freserganj	Bijoybati	Bijoybati Parvartah FP School
55	South 24 Parganas	KAKDWIP	Bapuji Gram Panchayat	Chandipur	Manik Nagar Surendra Nath High School
56	South 24 Parganas	MATHURAPUR II	Kankandighi	Paschim Jata	Nikunja Bihari F.P School
57	South 24 Parganas	PATHARPRATIMA	Brajaballavpur	Rakhaskhali	Rakhaskhali High School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
58	South 24 Parganas	PATHARPR ATIMA	Patharpratima	Kishorinagar	Kishorinagar F.P.S
59	South 24 Parganas	PATHARPR ATIMA	Patharpratima	Madhabna gar	Madhabnagar F.P.S.
60	South 24 Parganas	PATHARPR ATIMA	Durbachati	Ps. Surendranagar	Paschim Surendranagar F. P S
61	South 24 Parganas	GOSABA	Rangabelia	Pakhirala	Pakhirala F.P. School
62	South 24 Parganas	GOSABA	Satjelia	Sudhansapur	Anandapur Colony F.P. School
63	South 24 Parganas	GOSABA	Rangabelia	Uttardanga	Uttardanga F.P. School
64	South 24 Parganas	GOSABA	Kachukhali	Ramnagar	Ramnagar High School
65	South 24 Parganas	GOSABA	Kachukhali	Kachukhali	Manmathapur High School
66	South 24 Parganas	GOSABA	Radhanagar Taranagar	Baramollakhali	Taranagar B.T.C. Vidyamandir
67	South 24 Parganas	GOSABA	Amtali	Puinjali	Puinjali Jr. High School
68	South 24 Parganas	GOSABA	Radhanagar Taranagar	Taranagar	Taranagar Saraswati High School
69	South 24 Parganas	GOSABA	Pathankhali	Gopalkata	Gopalkata Jelepura High School
70	South 24 Parganas	GOSABA	Sambhunagar	Jhowkhali	Jhowkhali Jr. High School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
71	South 24 Parganas	SAGAR	Rudranagar	Radhakrishnapur	Radhakrishnapur High School
72	South 24 Parganas	SAGAR	Ramkarchar	Harinbari	Harinbari Yudhistir Sikshayatan
73	South 24 Parganas	SAGAR	Rudranagar	Rudranagar	Sundarban Janakalyan sangha Vidyaniketan
74	South 24 Parganas	SAGAR	M.G-I	Fulbari	Fulbari Sitala High School
75	South 24 Parganas	SAGAR	Muriganga-II	Chakfuldubi	Krishnanagar Soudamini Balika Vidyalaya
76	South 24 Parganas	SAGAR	Dhablat	Prasadpur	Prasadpur Atal Vidyabhaban
77	South 24 Parganas	SAGAR	Gangasagar	Beguakhali	Dakshin Sagar Banitirtha High School
78	South 24 Parganas	SAGAR	D.S-II	Gobindapur	Gobindapur Tarachand High School
79	South 24 Parganas	SAGAR	M.G-I	Muriganga	Muriganga F.P. School
80	South 24 Parganas	SAGAR	Muriganga-I	Sikarpur	Sikarpur F.P. School
81	North 24 Parganas	HINGALGANJ	SANDELERBIL	SANDELERBIL	SANDELERBIL HOSPITAL (BPHC)
82	North 24 Parganas	HINGALGANJ	SANDELERBIL	SANDELERBIL	ABS MADANMOHAN VIDYAPITH

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
83	North 24 Parganas	HINGALGA NJ	SANDELERBIL	BANKRA DOBAR	BANKRA DOBAR FP SCHOOL
84	North 24 Parganas	HINGALGA NJ	KALITALA	PARGHUMTI	UTTAR PARGHUMTI BARNAPARICHAY SSK
85	North 24 Parganas	HINGALGA NJ	KALITALA	KALITALA	KALITALA HIGH SCHOOL
86	North 24 Parganas	HINGALGA NJ	JOGESHGANJ	HEMNAGAR	HEMNAGAR HIGH SCHOOL
87	North 24 Parganas	HINGALGA NJ	RUPAMARI	RUPAMARI	HALDA BANSTALA GOBARDHAN VIDYAPITH
88	North 24 Parganas	HINGALGA NJ	RUPAMARI	RUPAMARI	DAKSHIN RUPAMARI FP SCHOOL
89	North 24 Parganas	HINGALGA NJ	BISHPUR	BISHPUR	BISHPUR HIGH SCHOOL
90	North 24 Parganas	HINGALGA NJ	Jogeshganj	Jogeshganj	Jogeshganj High School(near community hall)
91	North 24 Parganas	HINGALGA NJ	Jogeshganj	Jogeshganj	Madhabkati Junior Basic School
92	North 24 Parganas	HINGALGA NJ	DULDULI	BHANDERKH ALI	BHANDERKHALI DWIJABAR FP SCHOOL
93	North 24 Parganas	HASNABAD	Makhalgachha	Harikati	Vested Land near Muragachha ICDS

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
					Centre (Harikati)
94	North 24 Parganas	HASNABAD	BHAWANIPUR-I	SULKUNI ABAD	JOGENDRA MAITY SADHARAN VIDYAMANDIR (Near Muktarachak)
95	North 24 Parganas	HASNABAD	MURARISHA	RAJAPUR	RAJAPUR HIGH SCHOOL FIELD
96	North 24 Parganas	HASNABAD	Chakpatli	Chakpatli	PATLIKHANPUR UPO SHASTHYO KENDRA
97	North 24 Parganas	HASNABAD	BARUNHAT-RAMESWARPUR	BARUNHAT	RAMESWARPUR UNION ADARSHA VIDYALAYA GROUND
98	North 24 Parganas	MINAKHAN	Atpukur	Atpukur	Baruni Chetana Kendra ICDS
99	North 24 Parganas	MINAKHAN	Atpukur	Atpukur	Karanjatala Subhashini Vidyapith(Atpukur Majherpara)
100	North 24 Parganas	MINAKHAN	MOHANPUR	MALLICKGHERI	MALLICKGHERI MSK GROUND
101	North 24 Parganas	MINAKHAN	CHAITAL	CHAITAL	CHAITAL PALLIMANGAL HS GROUND
102	North 24 Parganas	SANDESHKHALI - II	BERMAJUR-II	RAMPUR	RAMPUR JR BASIC SCHOOL

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
103	North 24 Parganas	SANDESHK HALI - II	BERMAJUR-I	BERMAJUR	BERMAJUR ADIBASI FP SCHOOL(HATKHOLA)
104	North 24 Parganas	SANDESHK HALI - II	SANDESHKHALI	DWARIRJANGAL	DWARIRJANGAL BANAMALIPUR VIDYAPITH
105	North 24 Parganas	SANDESHK HALI - II	JELIAKHALI	JELIAKHALI PURBA KHANDA	JELIAKHALI VIVEKANANDA VIDYAPITH
106	North 24 Parganas	SANDESHK HALI-II	KORAKATI	KORAKATI	KORAKATI HIGH SCHOOL
107	North 24 Parganas	SANDESHK HALI-II	KORAKATI	TUSHKHALI	TUSHKHALI KACHARIPARA FP SCHOOL
108	North 24 Parganas	SANDESHK HALI - II	MONIPUR	MONIPUR	PASCHIM MONIPUR BIJAY DAS SMRITI MSK
109	North 24 Parganas	SANDESHK HALI-II	Khulna	khulna	South khulna FP SCHOOL
110	North 24 Parganas	SANDESHK HALI-II	khulna	Sitaliya	Sitaliya High School
111	North 24 Parganas	SANDESHK HALI-II	Khulna	Hatgachha	Hatgachha KCA Institution

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
112	North 24 Parganas	SANDESHK HALI-II	DURGAMANDAP	DURGAMANDAP	DTD HIGH SCHOOL
113	North 24 Parganas	SANDESHK HALI - II	DURGAMANDAP	GABBERIA	GABBERIA GOUR SARDAR SSK
114	North 24 Parganas	SANDESHK HALI-I	SEHARA RADHANAGAR	BHOLAKHALI	BHOLAKHALI FP SCHOOL
115	North 24 Parganas	SANDESHK HALI - I	SEHARA RADHANAGAR	RADHANAGAR	RADHANAGAR MAJHERPARA FP SCHOOL
116	North 24 Parganas	SANDESHK HALI - I	SEHARA RADHANAGAR	NITYABERIA	CHHOTO SEHARA HIGH SCHOOL
117	North 24 Parganas	SANDESHK HALI - I	SEHARA RADHANAGAR	NITYABERIA	NITYABERIA FP SCHOOL
118	North 24 Parganas	SANDESHK HALI - I	KALINAGAR	GHOSHPUR	SOUTH GHOSHPUR FP SCHOOL
119	North 24 Parganas	SANDESHK HALI - I	KALINAGAR	KALINAGAR	JHANJHANIA FP SCHOOL
120	North 24 Parganas	SANDESHK HALI-I	BOYERMARI II	BOYERMARI	DAKSHIN BOYERMARI JR. HIGH SCHOOL
121	North 24 Parganas	SANDESHK HALI-I	HATGACHHI	KANMARI	KANMARI VIDYAMANDIR HIGH SCHOOL
122	North 24 Parganas	SANDESHK HALI - I	BOYERMARI-I	MATHBARI ABAD	UTTAR MATHBARI FP SCHOOL

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
123	North 24 Parganas	SANDESHK HALI - I	BOYERMARI-II	SANKARDAH A ABAD	DHEKNAMARI FP SCHOOL
124	North 24 Parganas	SANDESHK HALI - I	SARBERIA AGARHATI	LOWKHALI PATHARGHATA	LAWKHALI AHAMMADIA MADHYAMIK SIKSHA KENDRA (Agarhati G)
125	North 24 Parganas	SANDESHK HALI - I	NAZAT-II	BOYERMARI ABAD	BOYERMARI PARSEMARI BIRSHAMUNDA MSK
126	Purba Medinipur	Ramnagar-II	Kalindi	Mandarmoni	Mandarmoni
127	Purba Medinipur	Ramnagar-II	Kalindi	D.Purusottampur	Dakshin Purusottampur Bholanath SSK
128	Purba Medinipur	Contai-I	Majalapur	Birampur	Birampur Primary School Gournd
129	Purba Medinipur	Contai-I	Majalapur	Baguran Jalpai	Baguran Jalpai
130	Purba Medinipur	Contai-I	Nayapur	Cenchurapur	Cenchurapur Primary School Ground
131	Purba Medinipur	Contai-I	Sabajpur	P. Sikarput	Sabajpur G. P. Ground
132	Purba Medinipur	Contai-I	Sabajpur	Badalpur	Badalpur Primary School Ground
133	Purba Medinipur	Contai-I	Sabajpur	Samudrapur	Samudrapur Primary School Ground
134	Purba Medinipur	Contai-I	Sabajpur	Daudpur	Daudpur Pry. School

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
135	Purba Medinipur	Contai-I	Mahishagote	Mahishagote	Mahishagote SS Vidyamandir Ground
136	Purba Medinipur	Contai-I	Mahishagote	Nimdasbar	Pichhaboni High School Ground
137	Purba Medinipur	Deshapran	Dariapur	Bankiput	Bankiput High School Ground
138	Purba Medinipur	Deshapran	Dariapur	Dariapur	Dariapur Primary School Ground
139	Purba Medinipur	Deshapran	Bamunia	Faridpur	Faridpur Primary School Ground
140	Purba Medinipur	Deshapran	Dariapur	Benichak	Shyamchak Pry. School
141	Purba Medinipur	Deshapran	Bamunia	Bichunia	Bichunia High School Ground
142	Purba Medinipur	Deshapran	Dariapur	Uttar Haraschak	Uttar Haraschak Sorojani Sikshya Niketan Ground
143	Purba Medinipur	Deshapran	Bamunia	Jhawa	Jhawa Panchanan Primary School Ground
144	Purba Medinipur	Khejuri-II	Nijkasba	Gopichak	Hijli Gopichak High School
145	Purba Medinipur	Khejuri-II	Nijkasba	Sundarpur	Battallya Pry. School
146	Purba Medinipur	Khejuri-II	Nijkasba	Kayalchak	Vested Land in Kayalchak

Sl. No.	District	Block	Gram Panchayat	Mouza	Name of the site
147	Purba Medinipur	Khejuri-II	Nijkasba	Shillyaberia	Shillyaberia R. H. C.
148	Purba Medinipur	Khejuri-II	Khejuri	Khejuri	Ram Krishna Saraswati Jr. Basic Pry. School
149	Purba Medinipur	Khejuri-II	Khejuri	Sathkhanda	Sathkhanda Saheb Nagar Jr. Basic Primary School
150	Purba Medinipur	Khejuri-II	Khejuri	Dhobaghata Bamunchak	Khejuri Irrigation Bunglow