

BRIEF ON SCOPE OF WORK

**CONSTRUCTION OF STORM WATER DRAINAGE SYSTEM FOR BASIN H OF MANNAR
TOWN, SRI LANKA**

**PACKAGE 15: CONSTRUCTION OF STORM WATER DRAINAGE SYSTEM AT SINNAKADAI AND
CHAVATKADDU IN MANNAR TOWNSHIP, SRI LANKA.**

PROJECT NO. SL36P1-1500

June 2017

BRIEF ON SCOPE OF WORK**Construction of Storm Water Drainage System at Sinnakadai and Chavatkaddu in Mannar Township, Sri Lanka****1. EXECUTIVE SUMMARY**

This report has been commissioned by UNOPS- Sri Lanka Office in support of the Tender Documentation for the Construction of Storm Water Drainage System of Mannar Town, Sri Lanka, funded by European Union.

The project will construct a drainage system for Mannar Township to address the difficulties faced by the inhabitants owing to flooding. The target areas regularly experience flooding during the monsoon months and endure weeks of flood water stagnation due to the absence of facilities for storm water to flow freely out of these areas. The project will construct drainage canals and rehabilitate roads, culverts, bridges, and ponds in 5 basins in Mannar township (B,E,H,J and K). This is an extension of the previous construction of storm water drainage in 2 basins, funded by the EU.

The drainage system construction for the Mannar Township shall be implemented in cooperation with the Mannar Urban Council and the office of the Assistant Commissioner of Local Government- Mannar and the Divisional Secretariat of Mannar.

The proposed Construction of Storm Water Drainage System of Mannar Town has been implemented through Fourteen (14) separate work packages as below. Package 01 to 13 has been completed and construction works are ongoing for package 14.

No	Package No	Contract No	Name of the Contract	
			Ref: Chainage	Description
1	Package 01	SL36C1-1502A	Drain B1: 212m~ 698m	Construction of RCC covered drain
2	Package 02	SL36C1-1502B	Drain B: 296m ~ 628m	Construction of RCC covered Drain
3	Package 03	SL36C1-1502C	Drain E: 0m ~ 300m & Drain B: 468m ~ 568m	Construction of Gabion wall Drains
4	Package 04	SL36C1-1502C D	Drain E: 300m ~ 835m Drain E1: 0m ~ 350m	Construction of RRM wall Drains and 5nos of RCC Box culverts
5	Package 05	SL36C1-1502E	Drain E: 1,100m ~1,426m	Construction of RRM covered drain with 7nos RCC box culvert

6	Package 06	SL36C1-1502F	Basin B -RCC drain B1 (Chainage 0-212m) ,RCC drain B2 (Chainage 0-106), RCC drain B3 (Chainage 0-191 m) , RCC drain B5 (Chainage 0-119) - and Basin E RCC drain E1 (610-910) & RCC drain E8(0-140), and RCC box culverts.	Concrete cover drains, and Culverts.
7	Package 07	Under Direct Implementation	Basin B & Basin E RCC drain & Pond Renovation work	Concrete cover drains, and Culverts. RRM work
8	Package 08	SL36C1-1502G	Construction of RCC Drains and Culverts in Basin H & J.	Concrete cover drains, and Culverts. RRM work
9	Package 09	SL36C1-1502H	Construction of RCC Drains (D1 to D12) and Culverts in Basin K.	Concrete cover drains, and Culverts. RRM work
10	Package 10	SL36C1-1502J	Construction of RCC Drains (D13 to D18) and Culverts in Basin K	Concrete cover drains, and Culverts. RRM work
11	Package 11	SL36C1-1502K	Construction of Culverts along Station Road, Mannar	RCC Culverts
12	Package 12	SL36C1-1502L	RRM work for Basin H Drain Wall and pond renovation work in Uppulkulam and Nedunkulam	RRM work & RCC Culvert
13	Package 13	SL36C1-1502M	Pond Rehabilitation in Mannar UC Area	Dredging, Gabion wall construction.
14	Package 14	SL36C1-1502N	RCC drain along Thomier road & Culverts acrossing Dutch canal and Drain	Concrete cover drains, and Culverts.

2. INTRODUCTION

The liability of UNOPS- Sri Lanka Office in respect of the information contained in this report will not be extended to any third party.

This document is a qualified assessment based on current information and is subject to refinement as the project evolves. UNOPS- Sri Lanka Office has prepared this document to outline how this project will be implemented including a review of the construction methodology and site logistics.

This report describes the proposed outline Programme and key activities along with the subsequent works & finishing works and various risks associated with the project. Potentially significant environmental impacts associated with these activities are identified and, where necessary, proposals for mitigation are outlined.

Planning for construction is necessarily broad at this stage and may be subject to modification during detailed construction planning. Consequently, a number of aspects of construction in relation to environmental issues cannot, at this stage, be accurately predicted.

3. PROGRAMME OF WORKS AND SCOPE OF WORK

The total duration for all the work packages as indicated in our high level target programme is estimated to be 4 months and will comprise the following key stages:

- Site cleaning and setting out
- Excavation
- Construction of drains/Culverts
- Back filling
- Handing over

4. MATERIALS AND RESOURCE USE

4.1. Waste management

The Contractor shall propose a special waste management procedure that will be followed during the construction works with specific responsibility for the coordination of the disposal of all debris, surplus materials and the management of an effective document control system to track and confirm that the proper procedures have been followed.

The Contractor shall provide Employer Representative the details of the location/s of the waste handling site that the materials will be taken to dependent upon their specific make up. Wherever possible, materials shall be recycled and re-used either onsite, or provided for use elsewhere with UNOPS-Sri Lanka Office prior approval.

4.2. Construction

Bidders shall refer to the Drawings, Pricing Notes and Bill of Quantities provided for the estimated quantities of key construction materials such as Rubble, concrete, steel reinforcement etc.

Bidders should consider the ground conditions and should make a proper plan to work with traffic, passengers, etc. Necessary safety and security measures such as warning boards, safety barricades, security night lamps, etc should install during the construction.

Bidders should not damage any of existing structures, cables, water supply lines, etc during implementing the works. UNOPS is not responsible to any of the damages or extra works due to negligence. If any damages to the existing properties or services bidders should rectify at their own cost.

4.3. Plant and Equipment

Consideration has been given to the types of plant that are likely to be used on-site during the construction phase.

4.4. Hours of Work

It is anticipated that the core working hours for construction will be set out as follows:

- 08:00 – 17:00 hours Weekdays;
- 08:00 – 17:00 hours Weekends; and
- Working on night time and holidays will be subject to prior notice.

All work outside these hours will be subject to prior agreement, and/or reasonable prior notice to the Engineers representative. Although night time working will not normally be undertaken, it is expected that some deliveries will take place at night and that certain works may have to be undertaken during this period.

5. PROPOSED CONSTRUCTION METHODOLOGY

5.1. Constriction sequence

The Contractor shall follow the construction works of particular work package simultaneously & reach the given deadlines.

Once again, the Contractor shall implement mitigation measures, as and when required, to minimize the potential environmental impacts and disturbances to the traffic , passengers and neighboring owners as discussed in sections 7 & 8 of this report.

5.2. Site Enabling

Prior to start of any construction work, the Contractor shall prepare and submit a detailed method statement for the works (in line with the specifications provided by UNOPS-Sri Lanka Office) associated with each drain for employers representative's approval. Refer section 7.1 of this report for more information.

6. SITE LOGISTICS

6.1. Introduction

The management of the site logistics is key to the success of the project and will require a dedicated logistics team to develop a detailed plan to control and manage the site.

Taking into consideration the above, the Contractor shall prepare and submit a detailed logistic plan for UNOPS-Sri Lanka Office approval prior to start any construction works at site.

It is anticipated that site logistics will form a significant part of the pre-appointment meetings with the Contractor and that regular coordination meetings will be held throughout the construction phase of the project. In view of the location of the site, the constraints on traffic and the permits that will be required for vehicles to access the site, it is the responsibility of the Contractor to communicate with the authorities and neighbors with regard to traffic problems, planned large deliveries and road maintenance issues.

In this way it is anticipated that the risk of material shortages at key times can be reduced to a minimum.

6.2. Concrete Pumps

If concrete pumps need to be used, need to plan the concreting considering the possible locations to station the pump & trucks and waiting area for trucks

6.3. Temporary site office and stores

The contractor should manage locations for site temporary shelters and storage facilities.

7. POTENTIAL ENVIRONMENTAL IMPACTS

7.1. Potential Impacts during Construction

A review has been undertaken of the potential sources of adverse impacts associated with construction works. The results of this have been presented below:

Issue	Potential Impacts
Dust/Air Quality	Windblown dust from ground surfaces, stockpiles, vehicles, work faces and cutting and grinding of materials. Exhaust emissions from lorries and plant delivering and removing materials including dust and particulates.
Energy Usage	Indirect impacts associated with energy consumption such as CO2 emissions, depletion of natural resources, air pollution etc.
Fuel & construction materials storage	Accidental spills, discharges to drains/storm water systems, contamination to ground.

Hazardous materials & contaminated land	Exposure of the workforce to deleterious/hazardous materials and contaminated land, mobilization of any source contaminants and creation of pathway from source to groundwater receptor.
Noise	Increased road noise levels from vehicles. Increased noise levels from plant during general construction works (e.g. from the use of concrete mixtures) on-site.
Site & surroundings pedestrian access	Restrictions on pedestrian access to walkways, footpaths and roads.
Traffic	Traffic congestion caused by site operations. Transfer of mud and material from vehicles onto the public roads. Disruption from abnormal or hazardous loads. Exhaust emissions.
Waste	Waste generation and its disposal.
Water and Water Usage	Increased sediment loadings to storm water system. Potentially contaminated storm water runoff. Natural resources depletion.
Vibration	Increased vibration levels from vehicles. Increased vibration levels from plant during general construction works

8. MITIGATION MEASURES

8.1. Construction Method Statement

The Contractor shall develop and submit a Construction Method Statement (CMS) for Engineer's Representative's prior approval. The CMS will identify all the procedures to be adhered to through construction. All sub-contracts will incorporate environmental control, health and safety regulations, and current guidance. This will ensure that all sub contractors involved with the construction phases are committed to agreed best practice. The contractors shall demonstrate how they will meet the targets of the CMS. The CMS will include the following items:

- Construction programme;
- Broad plan of the construction works, highlighting the various stages and their context within the whole project;
- Details of the Environmental Management Plan , including restricted operations, site access and housekeeping procedures;
- Detailed site layout arrangements (including requirements for temporary works) during the

project, including plans for storage, accommodation, vehicular movement, delivery and access;

- Site working hours;
- Details of operations likely to result in disturbance, with an indication of the expected duration of each phase with key dates. This should include a procedure for prior notification and relevant statutory and non-statutory (including neighbours) parties, so that local arrangements can be agreed;
- Provisions for affected parties to register complaints and procedures for responding to complaints; and

8.2. Public Relations

A designated Project Team member will deal with complaints and enquiries. This individual will be named at the site entrance, with a contact number, and will be identified to the Client, UNOPS-Sri Lanka Office, and community groups prior to the start of construction, and whenever a change of responsibility occurs.

8.3. Environmental Management Plan (EMP)

Matters concerning site activities during construction that relate to environmental issues will be discussed and agreed with UNOPS- Sri Lanka Office in advance of works commencing. As such, the site will be managed in accordance with best practice. This includes the agreement of the CMS and the EMP, which will include:

- A commitment to environmental protection
- Document planning provisions. This section provides background information and considerations on impact types to help the project team plan both their activities in relation to environmental issues and their control measures. References will also be included on what will be needed to comply with the environmental elements of any planning conditions;
- Detail on control measures and activities to be undertaken to minimize environmental impact;
- Monitoring and record-keeping requirements;
- Establishment of baseline levels for noise, vibration and dust;
- Details of a dedicated point of contact during both normal working hours and after hours, with responsibility to deal with environmental issues if they arise; and

- Commitment to a periodic review of the EMP and regular environmental audits of its implementation.

Any complaints will be logged on-site, fully investigated and reported to UNOPS-Sri Lanka Office and the relevant parties as soon as possible. The complainant will be informed as to what action has been taken. In the event of unusual activities or events, UNOPS-Sri Lanka Office and other relevant third parties (i.e. statutory and non statutory bodies) will be notified in advance of the work being carried out.

8.4. Construction Vehicle Management

The Contractor shall agree local traffic management measures during the construction with the Engineers Representative prior to start of any construction work.

8.5. Road Cleanliness

To minimize site-generated material on roads, the Contractor will take measures to include the provision of suitable facilities during the construction, where necessary. This will include wheel-washing facilities and, in addition, the use of a suitable means to clean all roads in the vicinity of the construction area from any site generated matter.

Collected debris will be disposed of as controlled waste as directed by UNOPS-Sri Lanka Office.

8.6. Management of Noise, Vibration and Dust

The Contractor shall carryout a full assessment of activities with the potential to generate high levels of noise and vibration prior to implementation works. Mitigation measures will be incorporated within the CMS. Best practicable means of preventing, reducing and minimizing noise shall be adopted in agreement with UNOPS-Sri Lanka Office.

In addition, it is expected that the Proposed Development will adhere to the relevant Code of Practice during demolition and construction.

On-site good practice procedures shall be followed in order to mitigate noise, vibration and air pollution Measures currently planned to be adopted include:

- Use of hoarding around the entire perimeter of the construction site or the zone to assist in the screening of noise and dust generation from low-level sources;
- Hydraulic demolition and construction to be used in preference to percussive techniques where practical;

- All plant and equipment to be used for the works to be properly maintained, silenced where appropriate, and operated to prevent excessive noise and switched off when not in use and where practicable;
- Threshold vibration limits will be set and monitoring equipment established at locations outside the site that are deemed sensitive, such as nearby office areas.
- Deviation from approved method statements to be permitted only with UNOPS-Sri Lanka Office prior approval from the Principal Contractor and other relevant parties. This will be facilitated by formal review before any deviation is undertaken;
- Brushing and water spraying of heavily used site hard surfaces and access points as required;
- Wherever possible, plant and equipment will be switched off when not in use;
- Vehicles transporting materials capable of generating dust to and from site to be suitably sheeted on each journey to prevent release of materials and particulate matter;
- Effective wheel/body washing facilities to be provided and used as necessary;
- Burning of wastes or unwanted materials will not be permitted on-site; and
- As far as possible, demolition and construction works will be carried out using methods that minimize noise.

8.7. Site Waste Management Plan

The Contractor shall prepare and submit a formal and detailed Waste Management Plan for UNOPS-Sri Lanka Office prior approval. Further the Contractor shall investigate opportunities to minimize and reduce waste generation, such as:

- Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- Attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- Segregation of waste at source where practical;

- Re-use and recycling of materials off-site where re-use on-site is not practical
- Overall, the waste management for the site.

8.8. Energy and Water Usage

The Contractors shall investigate opportunities to minimize and reduce use of energy and water, such as:

- Use of alternatives to diesel/petrol powered equipment where possible;
- The incorporation of sources of renewable energy to offset the use of main utilities will be considered;
- Selection and specification of energy efficient plant and equipment wherever viable;
- Implementation of staff based initiatives such as turning off taps, plant and equipment when not in use both on-site and within site offices;

9. SAFETY AND SECURITY

Contractor should consider traffic control procedures and make a proper plan to work with traffic, passengers, etc. Necessary safety and security measures such as warning boards, safety barricades, security night lamps, etc should install during the construction.