

# **Terms of Reference**

**Sint Maarten Emergency Recovery Project I (ERP I, World Bank ref. P167339)  
Consultancy Services for Technical Assessment of Single Family Home Repairs 2**

**Under the Government of Sint Maarten Roof Repair Program – Phase 2**

**Executing Agency: National Recovery Program Bureau**

# Contents

<b>1. INTRODUCTION AND BACKGROUND.....</b>	<b>3</b>
<b>2. OBJECTIVES .....</b>	<b>3</b>
<b>3. DESCRIPTION OF THE CONSULTANTS' DUTIES.....</b>	<b>4</b>
<b>4. METHODOLOGY AND STANDARDS .....</b>	<b>5</b>
<b>5. DETAILED SCOPE OF WORK.....</b>	<b>5</b>
<b>Task 1: Assessment of Structural Integrity of the Houses: .....</b>	<b>5</b>
<b>Task 2: Prepare Technical Tendering Documents of the Repair / Reconstruction Works: .....</b>	<b>5</b>
<b>Task 3: Final Report .....</b>	<b>6</b>
<b>6. SCHEDULE AND REPORTING REQUIREMENTS .....</b>	<b>6</b>
<b>6.1. Schedule.....</b>	<b>6</b>
<b>6.2. Reporting Requirements.....</b>	<b>7</b>
<b>7. QUALIFICATION REQUIREMENTS .....</b>	<b>8</b>
<b>7.1. Project Team of the Consultancy .....</b>	<b>9</b>

## **1. INTRODUCTION AND BACKGROUND**

Hurricane Irma turned into a Category 5 hurricane with winds of more than 185 mph (296 km/h) and left a trail of devastation on the country. The hurricane hit Sint Maarten on September 6, 2017. During the landfall, the storm's eye passed directly through Sint Maarten exposing it to the highest wind velocities in the storm. The World Bank estimates damages and losses related to Hurricane Irma at US\$ 1.4 billion and US\$ 1.3 billion respectively (each about 129 percent of GDP), , affecting 90 percent of all infrastructure and large parts of the natural environment.

The Government of Sint Maarten has prepared a National Recovery and Resilience Plan (NRRP) outlining the recovery needs across the socio-economic sectors of the country. The NRRP outlines the Government's vision, principles and a proposed approach for rebuilding a "better and stronger Sint Maarten" following Hurricane Irma. It aims at accelerating the restoration of the social and economic infrastructure, based on a consensus of all stakeholders, and following the "Build Back Better" principle. The NRRP, amongst its priority activities, highlights the need to restore housing capacity and living standards.

Repairs of the homes of the most vulnerable households is one of the sub-components of the Emergency Recovery Project 1 (ERP1), which is financed by a Trust Fund from the Government of the Netherlands, administered by the World Bank. This program will support quick repairs to single family homes, assisting persons who otherwise are not able to repair their own homes. The program targets repairs of the homes of the most vulnerable households. It includes an application process and formal screening procedure to qualify eligible recipients, against a set of administrative, socio-economic and technical criteria.

The execution of this contract will be under the responsibility of National Recovery Program Bureau (NRPB) as the Employer.

## **2. OBJECTIVES**

The objective of the assignment is to 1) conduct structural assessments and 2) identify scope of works and prepare renovation designs, including consideration of non-structural elements, cost estimates, bills of quantities and technical specifications, of about 100-150 selected houses for execution of the repair/ reconstruction works.

The assessors will conduct the assessment using the guidelines for scope of works and standard format for bill of quantities which will be provided by the Employer.

Technical assessments for the Single Family Home Repairs 2 will follow a social assessment of more than 600 houses being conducted by a separate team. An engineering consulting firm will be hired under this assignment to provide services and should work in parallel with the team of social assessments which will define the eligible for technical assessments.

## **3. GENERAL INFORMATION**

The successful consultant will be provided with street addresses including certificates of admeasurements for this assignment in Excel. A redacted version of the list can be shared provided to ensure the privacy of the home owners. The types and general status of the homes are however not known and currently not being assessed.

The selected consultant will also be assisted by the Activity Coordinator for the social assessment. In this regard, social assessors will be made available to ensure that the stakeholder management is addressed in an appropriate manner.

#### 4. DESCRIPTION OF THE CONSULTANTS' DUTIES

The assignment requires visiting each house for physical measurement and observation. The tasks for the assignment are summarized as follows:

- Conduct ONE site visit per house for assessment and take measurements.
- Undertake a vulnerability assessment for each selected building to report back if the house is eligible for retrofit or not.
- Document photos of each house (outside and inside) during the site visit.
- Provide a 3D video inside and outside of five (5) homes.
- Submit an assessment report, categorizing the houses into two groups (eligible for retrofit or require new construction) based on the results of vulnerability assessment. In the event a home is not recommended for repair a new design will be provided.

For homes eligible for retrofit:

- Prepare Scope of Works, detailed Bill of Quantities using the format provided by the Employer, and cost estimate of the repairs. These documents should be provided for each house.
- Preparation of all design development, 'for tender' and 'for construction' drawings as may be required for the successful execution of the works, including a simple drawing of each house to show the house plan, roof plan, interior walls etc.
- Prepare structural, architectural, mechanical (if needed) and electrical (if needed) designs and design details. The design needs to recommend solutions of how to repair/reconstruct the roofs/homes in a more hurricane-resilient way. Locally available materials and the local building methodologies should be preferred.
- Make a cost estimate of the repairs.
- Submit complete sets of technical documents for single family home repairs (scope of works, drawings, bill of quantities, designs). *A simpler BoQ format has been developed for the house/roof repairs program. Contractor may provide suggestions/inputs on the new format.*
- Attend and when required chair meetings and provide technical advice.
- The consulting firm is responsible for the establishment of a site assessment group and a design group who are experienced in the preparation of architectural, structural, electrical, mechanical and infrastructure design. Therefore, the firm shall indicate the staff to be assigned in the site assessment and preparation of designs and documents by indicating positions planned to be assigned for the named staff in their proposal.
- The consulting firm shall prepare the technical part of the tender documents in close cooperation with the Employer and with due care and diligence. Any of the items in these documents shall not contradict each other and all material specifications shall be in accordance with the specifications of local and/or international standards.
- Work to ensure that the proposed works can be accommodated within the timeline and budgetary constraints of the Project.

It should be noted here that existing defects not a part of hurricane damage should be reported on for clarity and for consideration in the selection process.

## 5. METHODOLOGY AND STANDARDS

In identifying a methodology for assessment and structural performance, Building Ordinance of Sint Maarten and other relevant ordinances, codes and regulations to be followed, Consultant will develop and present a method for approval by the Employer before undertaking field investigations, evaluations, and design, including the definition of a process and identifying the steps to be followed, the type of analyses to be done at each step, and the expected outcomes and deliverables at each step.

Each assessment team should include at least two people where one of them should be a civil engineer to comment on structural integrity of the houses.

Final designs should be consistent with the following;

- The roofs shall be designed to withstand Category 5 storm (Saffir-Simpson scale) using local and international codes and standards.
- The designs should target at the relevant sections of IBC, IRC and IEBC codes or the California Building Codes to cover the “Life Safety” performance level.

*The Consultant is expected to collect the needed information and data through ONE visit to each of the houses. More than one visit is disturbing to the house owners and is therefore not recommended.*

## 6. DETAILED SCOPE OF WORK

### **TASK 1: ASSESSMENT OF STRUCTURAL INTEGRITY OF THE HOUSES:**

Assessment of each house’s current situation, but not limited to:

- Identify methodology for assessment and standard of structural performance to be followed.
- Conduct site visit to collect the needed information and carry out measurements as needed.

Assess existing buildings and report on the structural integrity of the buildings.

- Assess all the non-structural elements.

Outputs of Task1:

- **Output 1.1:** Methodology of Structural Assessment
- **Output 1.2:** Assessment Report on Structural Integrity of the Houses

### **TASK 2: PREPARE TECHNICAL TENDER DOCUMENTS OF THE REPAIR / RECONSTRUCTION WORKS:**

Under this Task, Scope of Works (SoW) will be prepared for all houses . Detailed technical tender documents include a) SoW, b) Bill of Quantities (BoQs), c) drawings, and d) cost estimates. **The measurements per house will be done immediately following the structural integrity assessment, during the same visit.**

- Develop a preliminary design:
  - Note sensitive areas of the building, such as historical spaces, traffic corridors, etc. that may not be impacted by proposed renovation works,
  - Meet with the Employer to review the alternatives and to agree on the appropriateness of the recommended approach,
  - Perform supporting calculations to a sufficient level of detail to confirm that the overall size and scope of the recommendations are appropriate,
  - Design needs to help improve resilience of the house to future hazards such as hurricanes and earthquakes etc.
- Develop cost estimate for home repair and associated work (Prepare preliminary cost estimates for the recommended repair work, for each performance criterion, together with required collateral upgrades).
- Prepare the technical specifications for the tendering documents of the repair/reconstruction works.
- The Consultant shall carry out all the services for the Technical Documents and submit a report indicating their findings and designs concerning the services outlined above, to the satisfaction of the Employer. It will include for every house assessed i) the SoW, ii) BoQ, iii) schematic drawings, iv) the upgrade recommendations, and v) cost estimating worksheets.

Outputs of Task 2:

- **Output 2.1:** template for the Technical Specifications and method for cost estimate
- **Output 2.2:** Designs, BoQs, SoW and cost estimations to be reviewed by the Employer
- **Output 2.3:** A complete set of final technical part of the tender Dossier

### **TASK 3: FINAL REPORT**

Prepare a final report: Final report is a compilation all the outputs, findings, conclusions and recommendations for the assignment.

Output of Task 3

- **Output 3:** Final Report

## **7. SCHEDULE AND REPORTING REQUIREMENTS**

### **7.1. SCHEDULE**

The duration of the study is 24 weeks (excluding approval of the Final Report) after the signing of the Contract. Site assessments and design works will be carried out in parallel to complete the tasks within the timeline.

**Table of Deliverables Schedule**

<b>Output</b>	<b>Timeline (time after contract signing)</b>
<b>Output 1.1:</b> Methodology of Structural Assessment <b>And work plan</b>	4 wk

<b>Output 2.1:</b> template for the Technical Specifications and method for cost estimate	
<b>1<sup>st</sup> 50 houses</b> <b>Output 1.2:</b> Draft assessment report on structural integrity of the Houses For the houses <u>eligible for retrofit</u> : <ul style="list-style-type: none"> <li>• <b>Output 2.2:</b> Designs, BoQs, SoW and cost estimations to be reviewed by the Employer</li> <li>• <b>Output 2.3:</b> A complete set of Final Technical Tender Documents</li> </ul>	7 wks
<b>50An additional continuous 50 homes</b> <b>Output 1.2:</b> Draft assessment Report on Structural Integrity of the Houses For the houses <u>eligible for retrofit</u> : <ul style="list-style-type: none"> <li>• <b>Output 2.2:</b> Designs, BoQs, SoW and cost estimations to be reviewed by the Employer</li> <li>• <b>Output 2.3:</b> A complete set of Final Technical Tender Documents</li> </ul>	10 wks
<b>An additional continuous 50 homes</b> <b>Output 1.2:</b> Draft assessment Report on Structural Integrity of the Houses For the houses <u>eligible for retrofit</u> : <ul style="list-style-type: none"> <li>• <b>Output 2.2:</b> Designs, BoQs, SoW and cost estimations to be reviewed by the Employer</li> <li>• <b>Output 2.3:</b> A complete set of Final Technical Tender Documents</li> </ul>	13 + 3 weeks per 50 homes wks
<b>Output 3: Final report</b>	One week after final batch is delivered

## 7.2. REPORTING REQUIREMENTS

The requirement for the submission of reports, drawings, and other documentation are given in Schedule No.1 at the end of this Section. All reports, drawings, calculations and other documentation that are not mentioned in Schedule No.1 shall be submitted one copy in draft form and three copies in final form. All reports shall also be submitted electronically at each Phase.

The reports, drawings, calculations and all other documents submitted by the Consultants to the Employer for review and approval shall be reviewed and approved or sent back to the Consultants for modification or asked for some other action by the Employer within seven (7) calendar days unless stated otherwise.

All reports, drawings, and other documentation shall be prepared in English. The metric system of weights and measures shall be used.

### SCHEDULE No. 1

#### Submission of Reports, Drawings, and Documents

The consulting firm must report to the Employer on a weekly basis as to ensure that all stakeholders are up to date with all events of the project. Communication can be done in the form of email. This must include progress charts and photographs in color giving all information regarding the progress of site assessments and preparation of designs/SoWs/BoQs. The Firm should also report on any delay in the deliverables, the reason, the projected impact and the remedial actions to be taken and any other problems relating to this assignment.

The Consultants shall submit to the Employer the various reports, drawings, and documents that are either specified or implied in these Terms of References in respect of the various components and stages of the Project as described in Terms of References.

About the ongoing stages of the Consultants' work, the submission requirements given below should be allowed by the Consultants as a guideline for the extent and type of documentation that will be required by the Employer during the performance of the Services.

### Submission Requirements

#### General

The format of Reports: A4 or A3 including where appropriate drawings reduced to the A3 size

The format of Drawings: A1 size (unless otherwise required or agreed)

The scale of Drawings: To be agreed with the Employer.

Two draft copies of all reports and drawings shall first be submitted to the Employer for discussion purposes following which the Consultants shall be required to prepare the final copy, incorporating any amendments arising from such discussions.

- |      |   |          |
|------|---|----------|
| (i)  | Final Assessment Report and all attachments | 3 copies |
| (ii) | Final Technical Tender Documents            | 3 copies |

The Consultant shall also submit three (3) electronic copies in USB drive of the all the above documents in addition to hard copies. All the reports, manuals, and other documentation shall be prepared in English. The metric system of weights and measures shall be used. The drawings shall be submitted in the format, labeling, grouping, and details as required by the Employer. The plot size, parcel, map sheet for all buildings shall be listed and integrated into the drawings and other required documents.

As indicated in the General Conditions of Contract all the drawings, reports, plans, specifications, and any other documents produced under this Contract are the property of the Employer, and therefore, upon the completion of the assignment, the consulting firm shall submit all the original copies of correspondences, documents, test results, drawings etc., to the Employer together with indices in acceptable files and forms by the Employer.

## **8. QUALIFICATION REQUIREMENTS**

The works will be assigned to one engineering consulting firm who will be responsible for the execution of the contract.

The Firm is responsible for the establishment of two groups;



1. **A site assessment group** which includes experts experienced in the survey of the existing buildings and roof structures. Each assignment team in this group will comprise at least a qualified civil engineer and a technician with demonstrated capacities of making SoWs and preparing BoQs.
2. **A design group** which includes experts experienced in the preparation of architectural, structural, electrical, mechanical and infrastructure design.

### 7.1. PROJECT TEAM OF THE CONSULTANCY

A consulting firm would be required to form a multi-disciplinary team for this assignment. The staff can be either the firm's own staff or sub-consultant.

No.	Key Personnel	Expected qualification and Experience
1.	Team Leader	Master's Degree in Civil Engineering or Architecture with minimum 7 years' experience and has led project preparation of at least one major similar project with a construction value equal or greater than US\$ 4 Million.
2.	Senior Structural Engineers (at least one per group)	Masters in Structural Engineering with minimum 5 years' experience in similar projects and familiar with modern design approaches to hurricanes and earthquakes.
3.	Architects/ Engineers (at least two per group)	Minimum 5 years of experience in similar projects
4.	Autodesk CAD(Revit) Operators (2 for design team)	Associate Degree with 3 years of experience

Other non-key personnel such as technicians, support staff and backstopping are the responsibility of the Consultancy.