



**REPUBLIC OF LEBANON**  
**COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION**

**Routine Maintenance for Bridges and Streets  
in Beirut**

**Tender Documents**

**Volume 3**

**Bill of Quantities  
Rev 1**

**(August 2025)**

## **ROUTINE MAINTENANCE FOR BRIDGE EXPANSION JOINTS AND STREETS IN BEIRUT**

### **BILL OF QUANTITIES**

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#### **TOTAL SUMMARY**

## **PREAMBLE TO BILL OF QUANTITIES**

## **PREAMBLE**

### **1. Introduction:**

The works include but not limited to essential routine maintenance activities on selected bridges and streets in Beirut, as listed the following tables.

The maintenance works for bridges listed in table-1 will primarily focus on the expansion joints of the identified structures. This involves the replacement and/or repair of damaged joints in full compliance with the requirements and technical specifications outlined in the Tender Documents.

**Table-1: Bridges Scope of Works table**

Location	Bridge Reference	Bridge Name
Beirut Municipality	BR-I.1	Charles Helou Bridge
	BR-I.2	Joseph Chader Bridge
	BR-I.3	Salim Salam (Bridge and Tunnel)
	BR-I.4	Adlieh Bridge
	BR-I.5	Ring Bridge
	BR-I.6	Fiat Bridge
	BR-I.7	Hawd Al Wilaya Bridge
	BR-I.8	Sassine Tunnel Bridge

The maintenance activities for the streets listed in Table-2 will primarily focus on repairing defective pavement areas to enhance safety and ensure smoother traffic flow. These works will be carried out in addition to miscellaneous routine maintenance operations.

**Table-2: Streets Scope of Works Table**

Location	Scope of Works
Beirut Municipality	Routine Maintenance of Gouraud Street
	Routine Maintenance of Jeane d' Arc Street
	Routine Maintenance of Ouzaai Street <b>(Optional)</b>
	Routine Maintenance of Makdessi Street <b>(Optional)</b>
	Miscellaneous Routine Maintenance Works

### **2. Bridge Expansion Joints Quality Plan:**

The Contractor is required to submit a Quality Plan related to the proposed bridge expansion joints as part of their bid documents. This plan should include the specific documentation detailed in the following table:

No	Description of document
1	Description of the proposed expansion joint, material specifications, and arrangement drawings showing the details of the proposed expansion joint
2	Laboratory test certificates
3	Certification from the manufacturer of the expansion joint
4	Details and /or procedures for installation

- The expansion joint must be manufactured by a company which has a third party certified quality management system (i.e. ISO or equivalent) for the manufacture and supply of bridge joints. This certification must be submitted to the Engineer for approval.
- Laboratory test certificates must be provided to the Engineer to verify that the material used in the manufacture and the proposed joint has been tested in a laboratory meeting the requirements of this specifications. Testing must be performed by a laboratory which is accredited by an International Certified Laboratory.

The provided Joint Quality Plan will be taken into consideration when the tenders are examined and evaluated.

3. The Bill of Quantities shall be priced in USD. The rates inserted in the Bill of Quantities shall be in words (letters) and in figures. In the case of discrepancy between the two, the rates written in words shall govern.

4. The items in the Bill of Quantities do not necessarily contain full description of the required Works, and when pricing, the Contractor shall allow in his unit rates for all obligations, liabilities and services stipulated in the relevant sections of:

Volume I: Bid Conditions and Procedures, Conditions of Contract;

Volume II: Technical Specifications;

Volume IV: Drawings/ Manual;

and all other related Tender and Contract Documents.

5. The methods of measurement used and which will be used for re-measurement shall be in accordance with the Method of Measurement included in the Specifications and/or as noted in the Bill of Quantities with the item description. These methods of measurement shall be strictly adhered to notwithstanding any trade, general or local custom.

6. The Contractor shall, during his study of the Tender, address his queries, if any, to the Employer, who will study and clarify all such queries.

Should the Contractor, during his study of the Tender Documents, consider that there is any shortage, error or inconsistency in the Contract Documents, which would affect the rates of his Tender, or the value of the works, the Contractor must have all such points clarified by the Employer before submitting his Tender.

7. The text of the Bill of Quantities shall not be altered or qualified in any way by the Tenderer. Any such alteration or qualification to the text shall be ignored and the text shall remain as printed; Moreover, such alteration or qualification is liable to result in a Tender, which is otherwise favorable, not being considered.

8. The rates inserted by the Contractor will be deemed to cover the full cost of the Works, including all direct and indirect expenses, overhead and profit. Any item, which is not priced, shall be deemed to have been included in other rates and prices and in the Contract Price.

9. The Contractor shall satisfy himself as to the meaning of every item in the Bill of Quantities. Unless otherwise described or measured separately, the rates and prices inserted by the Contractor shall be deemed to cover all costs, expenses, risks, liabilities, obligations and services described in the Conditions of Contract and General Requirements, and all other Contract Documents, and all matters for the proper execution and completion of the Works and remedying defects therein. These rates shall allow, but not by way of limitation, for complying with all Contract Documents; for all labour and material, including samples, sampling and

testing; for all temporary work of every description required; for the provision and use of all equipment and plant of every kind, whether mechanical or manual, required for the expeditious carrying out of the Works in their proper sequence; for shifting, altering and adapting such temporary work and equipment as may be required during the progress of the Works and removing at completion and making good any surfaces disturbed; for executing the requirements of the CDR Health and Safety Manual, for full customs and other import duties; for cooperation and coordination of the Works, with other Contractors; for the guarantees and bonds required; for providing all insurances and the like; for all necessary temporary services associated with these Works; for establishing and furnishing the Engineer's site office and providing the required vehicles, driver fuel, lubricants and maintenance for the Engineer's representative transportation, as specified; for the work in connection with measurements and the final account; for profit and for all other establishment charges and all costs of whatever nature. No claim for additional payment will be considered for any error or misunderstanding by the Contractor in these respects.

10. The Contractor is expected to take all necessary precautions to avoid damaging existing structures and services and where they are interrupted to reconnect them immediately. No separate payment shall be made and the rates in the Bill of Quantities shall be deemed to cover adequately all costs. The Contractor's attention is drawn to the fact that the service authorities may impose, in addition to the cost of repair, statutory penalties. Details of these requirements may be obtained from the respective authorities.
11. The Contractor shall allow in his rates for protecting all Works against damage by whatever method deemed necessary and approved. Any work damaged before the Works are handed over is to be replaced or made good at the Contractor's expense and to the entire satisfaction of the Engineer.
12. The Quantities set-out in the Bill of Quantities are estimated quantities, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract.

Notwithstanding the quantities given, all Works itemized in the Bill of Quantities will be subject to re-measurement in the unit of measurement indicated, and payment made at the corresponding unit rates on the re-measured quantities.

13. Unless otherwise stated, all measurements shall be measured net and are applicable to finished work only as completed and no allowance shall be made for wastage, working spaces, bulking, shrinkage, overlaps and the like. Unless otherwise described, the unit of measurement for each item shall be as indicated in the Bill of Quantities. Measurement shall be rounded up or down to the nearest whole number and exact half units shall be rounded up. Any thickness, which is stated in this Document, shall be the finished and specified thickness.
14. When the expression "Ditto" appears under an item in the Bill of Quantities, it shall be deemed to mean that the said item shall include the whole relevant description of the preceding item together with any description written before and/or after the said expression.
15. Any item of work included in the Bill of Quantities, which is not carried out, shall be omitted from the interim and final statements. Any additional item of work carried out on the Engineer's instructions shall be subject of a variation order and comparison Table included in the relevant interim and final statements, after Employer's approval.
16. Contractor should maximize the use of Labor under each item of work under the project as this issue of an essence to the Road and Employment Project.

17. The Contractor should be responsible and should determine the skilled and/or semi-skilled labors to be carried out as the task may present, especially for items where labor content is obviously high.
18. Traffic management and control plans: Prior to execution, the Contractor shall prepare and submit a Traffic Management Plan (TMP) along with all related Traffic Control Plans (TCPs) for consultant approval. The proposed TMP must cover all construction phases and include detailed proposals for traffic diversion, specifically directing traffic to the edge lanes to ensure safety and maintain continuous traffic flow at an acceptable service level. Additionally, the TMP shall specify the implementation of all necessary temporary traffic signs and safety devices.
19. The Contractor should submit for consultant approval a specific traffic management plan (specific TMPs) related to each bridge during the first 28 days from notice to commence. The specific TMPs shall include the various traffic diversion plan layouts for various type of activities; Analysis of impacted roads; Risk Assessment; Protection of Work Zones and road users including pedestrians.  
The method of measurement of the temporary safety devices and movable sign boards related to the activities to be carried out within the working areas shall be as specified in the technical specifications (Volume-2) and as indicated in the related BOQ Items.
20. The Employer reserves the unrestricted right to reduce the awarded Contract value, either partially or in full (up to the entire amount), as well as the corresponding scope of work, based on the availability of funds. In this regard, the Employer possesses the prerogative to modify, decrease/eliminate, and/or augment the quantity of any item in the Bill of Quantities. The revised contract amount will be calculated accordingly. The Contractor must take these potential adjustments into account when setting the rates in the Bill of Quantities and, as such, shall not have the right to make claims against these alterations.
21. **This Bill of Quantities (BOQ) consisting of fixed bills and optional bills. The Contractor is obligated to use identical unit rates for the same items in both the fixed and optional bills. In the event of any discrepancies, the lowest unit rate will prevail, resulting in an adjustment to the bid price. The unit rates and prices provided by the Contractor will remain in effect throughout the duration of the Contract and will apply to any additional work that may be instructed by the Engineer.**
22. The following notations are used in the Bill of Quantities:

Linear Meter	lm
Square Meter	m <sup>2</sup>
Cubic Meter	m <sup>3</sup>
Number	No.
Tonne	ton.
Kilogram	kg
Lump Sum	LS
Centimeter	cm
Millimeter	mm
Reinforced Concrete	RC
Drawing	Dwg

Description of work and materials in the specifications details and dimensions shown on the drawings are not necessarily repeated in the Bill of Quantities

**\*\*END OF PREAMBLE\*\***

**BILL NO. I**  
**GENERAL CONTRACT REQUIREMENTS**

**BILL NO. I: GENERAL CONTRACT REQUIREMENTS**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
I.1	Division-1	<p><b>GENERAL CONTRACT REQUIREMENTS</b></p> <p>The rate shall be a lump sum paid on equal monthly installments over the contract period which includes but not limited to:</p> <ul style="list-style-type: none"> <li>- MOBILIZATION &amp; DEMOBILIZATION</li> <li>The cost of all necessary mobilization and demobilization for the works.</li> <li>- INSURANCE</li> <li>The cost of providing all required insurances in accordance with the Contract Documents in general, and in volume 1- Conditions of Contract particularly.</li> <li>- TEMPORARY FACILITIES AND SERVICES FOR THE ENGINEER</li> <li>The cost of all necessary "Temporary Facilities For the Engineer and/Or Employer" specified in the contract documents.</li> <li>- TOPOGRAPHICAL SURVEY</li> <li>Includes all necessary works for the execution of the site topographical survey for verification of design levels, quantity measurements and the design of permanent and temporary works as specified and as directed by the Engineer.</li> <li>- MATERIAL SUBMITTALS AND CONSTRUCTION SHOP DRAWINGS</li> <li>Includes all necessary works and materials for the preparation and submission to the Engineer's approval of all execution and shop drawings concerning all temporary and permanent works under this contract.</li> <li>And shall also include but not limited to the detailed design, all necessary site survey, design calculations, working drawing, details and complete information concerning work, methods of erection, construction method and program work taking into consideration safety and non-stop traffic along the main roads.</li> <li>In addition to the submission of materials and construction documents in complete submittal packages to the Engineer for approval.</li> <li>Construction shall not commence before the receipt of approval of the relevant materials and construction documents.</li> </ul> <p>Unit Rate in letters .....</p> <p>.....USD</p>	Month	12.00		
<b>Subtotal Bill No. I: General Contract Requirements</b>						

Only in letters .....

.....United States Dollars

**BILL NO. II**  
**ROUTINE MAINTENANCE OF CHARLES HELOU BRIDGE**

**BILL NO. II: ROUTINE MAINTENANCE OF CHARLES HELOU BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	330.00		
II.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	650.00		
II.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels and joint gap opening .</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	650.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	20.00		
II.5		Not Applicable				
II.6	5.18.08	<p>Supply and installation of expansion Joint on the bridge deck in kind</p> <p>This item includes the supply and installation of new expansion joints to replace the existing deteriorated joints on Charles Helou Bridge (Highway Deck), in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	330.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II.6 Biss	5.18.08	<p>Replacement of the longitudinal joint of the Highway deck. This item includes the removal of the damaged existing longitudinal joints, cleaning, surface preparation and all necessary works, material and connections to provide a waterproof joint; all as per the International Standards and to the satisfaction of the Engineer's.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	100.00		
II.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for: Dismantling and removal of the damaged Barrier sections. Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet.</p> <p>All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	200.00		
II.8		Not Applicable				
II.9	4.08.14.1	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	100.00		
II.10	6.01.04	<p>Dismantling of damaged concrete curbstones and replacement with new ones of similar type and dimensions, including all necessary materials, base preparation, and installation works.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	100.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II.11	6.01.04	<p>Dismantling of damaged sidewalk tiles and replacement with new tiles of similar type and finish, including all necessary materials, surface preparation, and installation.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	500.00		
II.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices : It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		
II.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities: Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include: Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads Secure installation of plates to prevent displacement, noise, or safety hazards Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
II.14		<p>Structural Bridges Inspection and Assessment Reports This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. II: CHARLES HELOU BRIDGE</b>						

Only in letters .....

.....United States Dollars

**BILL NO. III**  
**ROUTINE MAINTENANCE OF JOSEPH CHADER BRIDGE**

**BILL NO. III: ROUTINE MAINTENANCE OF JOSEPH CHADER BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
III.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	220.00		
III.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	300.00		
III.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	300.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
III.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	30.00		
III.5	2.03.03	<p>Maintenance and repair works of existing expansion bridge joints. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, mixed material all in accordance to the satisfaction of the Engineer. The works should not be limited to:</p> <ul style="list-style-type: none"> <li>- Remove all existing material</li> <li>- Remove all debris</li> <li>- Roughen the surface</li> <li>- Clean the surface</li> <li>- Thoroughly mix Conditioner and brush it over the entire repair area.</li> <li>- Thoroughly mix Base and Solidifier until a homogeneous mix is achieved. Slowly add Aggregate into the mix until the desired consistency is obtained.</li> <li>- Trowel mixed product up to the former to rebuild the expansion joint nosings. Make sure to fill in all the empty spaces with the mixed product.</li> <li>- Rehabilitation and re-establishing the continuity of the waterproofing by supplying and installing an SBS membrane and reconnecting with the deck's waterproofing.</li> </ul> <p>Unit Rate in letters ..... .....USD</p>	lm	100.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
III.6	5.18.08	<p>Supply and installation of Expansion Joint in Kind</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Joseph Chader Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	220.00		
III.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for: Dismantling and removal of the damaged Barrier sections. Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet. All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	50.00		
III.8		NOT APPLICABLE				
III.9	4.08.14.1	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	500.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
III.10	6.01.04	<p>Dismantling of damaged concrete curbstones and replacement with new ones of similar type and dimensions, including all necessary materials, base preparation, and installation works.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	100.00		
III.11	6.01.04	<p>Dismantling of damaged sidewalk tiles and replacement with new tiles of similar type and finish, including all necessary materials, surface preparation, and installation.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	200.00		
III.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
III.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		
III.14		<p>Structural Bridges Inspection and Assessment Reports This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		
<b>Subtotal Bill No. III: Routine Maintenance of Joseph Chader Bridge</b>						

**Only in letters .....** .....**United States Dollars**

**BILL NO. IV**  
**ROUTINE MAINTENANCE OF SALIM SALAM**  
**(BRIDGE & TUNNEL)**

**BILL NO. IV: ROUTINE MAINTENANCE OF SALIM SALAM (BRIDGE& TUNNEL)**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IV.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	50.00		
IV.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	100.00		
IV.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VI.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	20.00		
IV.5	2.03.03	<p>Maintenance and repair works of existing expansion bridge joints. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, mixed material all in accordance to the satisfaction of the Engineer. The works should not be limited to:</p> <ul style="list-style-type: none"> <li>- Remove all existing material</li> <li>- Remove all debris</li> <li>- Roughen the surface</li> <li>- Clean the surface</li> <li>- Thoroughly mix Conditioner and brush it over the entire repair area.</li> <li>- Thoroughly mix Base and Solidifier until a homogeneous mix is achieved. Slowly add Aggregate into the mix until the desired consistency is obtained.</li> <li>- Trowel mixed product up to the former to rebuild the expansion joint nosings. Make sure to fill in all the empty spaces with the mixed product.</li> <li>- Rehabilitation and re-establishing the continuity of the waterproofing by supplying and installing an SBS membrane and reconnecting with the deck's waterproofing.</li> </ul> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	20.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IV.6	5.18.08	<p>BRIDGE EXPANSION JOINTS (Salim Salam Bridge)</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Salim Salam Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	50.00		
IV.6 Biss	5.18.08	<p>BRIDGE EXPANSION JOINTS (End of Salim Salam Tunnel)</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Salim Salam Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, all in accordance with specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	20.00		
IV.7		Not Applicable				
IV.8		Not Applicable				
IV.9	4.08.14	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	50.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IV.10	6.01.04.1/2	<p>Dismantling of damaged concrete curbstones and replacement with new ones of similar type and dimensions, including all necessary materials, base preparation, and installation works.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	70.00		
IV.11	6.01.04	<p>Dismantling of damaged sidewalk tiles and replacement with new tiles of similar type and finish, including all necessary materials, surface preparation, and installation.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	100.00		
IV.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IV.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
IV.14		<p>Structural Bridges Inspection and Assessment Reports</p> <p>This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. IV:Routine Maintenance of Salim Salam (Brige &amp; Tunnel)</b>						

Only in letters .....

.....United States Dollars

**BILL NO. V**  
**ROUTINE MAINTENANCE OF ADLIEH BRIDGE**

**BILL NO. V: ROUTINE MAINTENANCE OF ADLIEH BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	20.00		
V.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	40.00		
V.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	40.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	15.00		
V.5	2.03.03	<p>Maintenance and repair works of existing expansion bridge joints. The rates provided shall constitute full compensation for furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, mixed material all in accordance to the satisfaction of the Engineer. The works should not be limited to:</p> <ul style="list-style-type: none"> <li>- Remove all existing material</li> <li>- Remove all debris</li> <li>- Roughen the surface</li> <li>- Clean the surface</li> <li>- Thoroughly mix Conditioner and brush it over the entire repair area.</li> <li>- Thoroughly mix Base and Solidifier until a homogeneous mix is achieved. Slowly add Aggregate into the mix until the desired consistency is obtained.</li> <li>- Trowel mixed product up to the former to rebuild the expansion joint nosings. Make sure to fill in all the empty spaces with the mixed product.</li> <li>- Rehabilitation and re-establishing the continuity of the waterproofing by supplying and installing an SBS membrane and reconnecting with the deck's waterproofing.</li> </ul> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	165.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.6	5.18.08	<p>Supply and installation of Expansion Joint in Kind. This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Adlieh Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	35.00		
V.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for: Dismantling and removal of the damaged Barrier sections. Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet.</p> <p>All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	125.00		
V.7a		Not Applicable				
V.8	6.06.05	<p>Dismantling damaged galvanized steel guardrail and replacing it with a new one including terminal units, complete in all respects as per the Drawings, Specifications, and as directed by the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	15.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.9	4.08.14	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	50.00		
V.10	6.01.04.1/2	<p>Dismantling of damaged concrete curbstones and replacement with new ones of similar type and dimensions, including all necessary materials, base preparation, and installation works.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	30.00		
V.11	6.01.04.6/7/8	<p>Dismantling of damaged sidewalk tiles and replacement with new tiles of similar type and finish, including all necessary materials, surface preparation, and installation.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	50.00		
V.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
V.14		<p>Structural Bridges Inspection and Assessment Reports:</p> <p>This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. V:Routine Maintenance of Adlieh Bridge (USD)</b>						

**Only in letters .....**

.....**United States Dollars**

**BILL NO. VI**  
**ROUTINE MAINTENANCE OF RING BRIDGE**

**BILL NO. VI:ROUTINE MAINTENANCE OF RING BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VI.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	85.00		
VI.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	170.00		
VI.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	170.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VI.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	10.00		
VI.5		Not Applicable				
VI.6	5.18.08	<p>Supply and installation of Expansion Joint in Kind.</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Ring Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.(4 joints on the bridge leading to Achrafieh Charle Malek Avenue and 2 joints on the bridge leading to BCD).</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work.</p> <p>This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	85.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VI.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for:</p> <p>Dismantling and removal of the damaged Barrier sections.</p> <p>Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet.</p> <p>All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	100.00		
VI.8		Not Applicable				
VI.9	4.08.14	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	500.00		
VI.10	6.01.04	<p>Dismantling of damaged concrete curbstones and replacement with new ones of similar type and dimensions, including all necessary materials, base preparation, and installation works.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	30.00		
VI.11	6.01.04	<p>Dismantling of damaged sidewalk tiles and replacement with new tiles of similar type and finish, including all necessary materials, surface preparation, and installation.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	50.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VI.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
VI.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
V.14		<p>Structural Bridges Inspection and Assessment Reports: This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. VI: Routine Maintenance of Ring Bridge</b>						

Only in letters ..... United States Dollars

**BILL NO. VII**  
**ROUTINE MAINTENANCE OF FIAT BRIDGE**

**BILL NO. VII: ROUTINE MAINTENANCE OF FIAT BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VII.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	30.00		
VII.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	60.00		
VII.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	60.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VII.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5.00		
VII.5		Not Applicable				
VII.6	5.18.08	<p>Supply and installation of Expansion Joint in Kind</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Fiat Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.(2 joints on the Eastern side and 2 Joints on the western side) .</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	30.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VII.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for:</p> <p>Dismantling and removal of the damaged Barrier sections.</p> <p>Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet.</p> <p>All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	20.00		
VII.8	6.06.05	<p>Dismantling damaged galvanized steel guardrail and replacing it with a new one including terminal units, complete in all respects as per the Drawings, Specifications, and as directed by the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	10.00		
VII.9	4.08.14	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	120.00		
VII.10		Not Applicable				
VII.11		Not Applicable				

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VII.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
VII.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VII.14	5.03.04.6	<p>Structural Bridges Inspection and Assessment Reports This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited to the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. VII: Fiat Bridge</b>						

Only in letters .....  
.....United States Dollars

**BILL NO. VIII**  
**ROUTINE MAINTENANCE OF HAWD AL WILAYA BRIDGE**

**BILL NO. VIII:ROUTINE MAINTENANCE OF HAWD AL WILAYA BRIDGE**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VIII.1	2.01.03	<p>Dismantling of damaged expansion joints and all related materials and accessories, along with the cleaning of the gap of expansion joints, completed all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	15.00		
VIII.2	2.02.03	<p>Demolition and removal of the damaged concrete joint support (cracked /not sound) including the removal of demolished parts of concrete and the cleaning of the steel reinforcement all as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	30.00		
VIII.3	5.25.04	<p>Concrete Repair Using Fast-Hardening Micro Concrete: Localized repair works for damaged concrete at Bridge Expansion joints support locations (Deck and/or Backwall). The unit rates shall include full compensation for all materials, labor, equipment, and incidental works necessary to complete concrete repair works at the bridge expansion joint support locations, including but not limited to:</p> <ul style="list-style-type: none"> <li>-Supply and installation of additional steel reinforcement bars, including drilling, anchoring with approved epoxy resin, and cleaning and brushing of existing reinforcement.</li> <li>-Resizing the gaps of the expansion joints where necessary, taking into consideration the maximum bridge movements and the new joint capacity pertaining to the maximum allowable gap.</li> <li>-Supply and application of polymer-modified, non-shrink structural repair mortar in accordance with project specifications.</li> <li>-Application of anti-corrosion protective coating to exposed steel reinforcement prior to mortar application.</li> <li>-Surface preparation, formwork, curing, and provisions to achieve proper finishing consistent with the required levels.</li> <li>-All associated works necessary to complete the repairs in accordance with project specifications and to the satisfaction of the Engineer.</li> </ul> <p>The structural repair mortar shall be fast hardening micro-concrete (Minimum compressive strength in one day 35 MPa) with a maximum aggregate size of 10mm (Sikacrete or equivalent)</p> <p>Unit Rate in letters ..... .....USD</p>	lm	30.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VIII.4	5.27.06	<p>Concrete Surface Repair Using Cementitious Repair Mortar:</p> <p>Concrete Surface Repair: Carrying out surface repairs to deteriorated or damaged concrete surfaces in bridge structures, including removal of unsound concrete, surface preparation, cleaning and treatment of existing reinforcement, application of bonding agent, placement of polymer-modified cementitious repair mortar in layers as per manufacturer's recommendations, finishing to match adjacent surfaces, curing using approved curing compound, and disposal of all debris — all in accordance with Specifications and as directed by the Engineer.</p> <p>The rate shall include for all labor, materials, tools, equipment, scaffolding, access arrangements, bonding agents, curing, cleaning of reinforcement, additional reinforcement, disposal of waste, and all incidentals necessary to complete the work to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5.00		
VIII.5		Not Applicable				
VIII.6	5.18.08	<p>Supply and installation of Expansion Joint in Kind.</p> <p>This item includes the supply, and installation of new expansion joints to replace the existing deteriorated joints on Hawd Al Wilaya Bridge, in kind, matching the type, size, movement capacity, and technical specifications of the existing joints.</p> <p>The rates provided shall constitute full compensation for all necessary site surveys and inspections, preparation and submission of all required material submittals, design calculations, and shop drawings for engineering approval prior to the procurement of materials, as well as furnishing all materials, labor, equipment, tools, supplies, and any other items essential for the proper completion of the work. This includes transition strips, anchor bolts, epoxy resin, and all other associated components, in accordance with the specifications and to the satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	15.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VIII.7	5.20.04	<p>Replacement of damaged steel bridge barrier with new barrier matching the existing in type, dimensions, profile, and specifications.</p> <p>The unit rates shall include full compensation for:</p> <p>Dismantling and removal of the damaged Barrier sections.</p> <p>Transportation and disposal of removed materials to an approved location outside the project site.</p> <p>Supply, fabrication, and installation of new steel Barrier sections identical to the existing.</p> <p>Surface preparation and painting of the new Barrier to match the color, finish, and quality of the existing parapet.</p> <p>All associated works necessary to complete the replacement in accordance with project specifications and to the and to the Engineer's satisfaction.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	10.00		
VIII.8		Not Applicable				
VIII.9	4.08.14	<p>Asphalt pavement patching works for the bridge deck and approach areas, including milling up to 5 cm, applying one layer of tack coat, and one layer of asphalt wearing course (Th = 5 cm).</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	60.00		
VIII.10		Not Applicable				
VIII.11		Not Applicable				
VIII.12	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
VIII.13	5.03.04.6	<p>Temporary Steel Plate Cover Joints This item shall include, but not be limited to, the following activities: Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours. The works shall include: Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads Secure installation of plates to prevent displacement, noise, or safety hazards Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		
VIII.14	5.03.04.6	<p>Structural Bridges Inspection and Assessment Reports This item shall include, but is not limited to, the following: 1-Detailed visual Inspection of all bridge components, including the substructure, superstructure, bearings, expansion joints, parapets, deck, abutments, piers, and associated elements, to identify visible defects, deterioration. 2-Structural Condition Assessment for the bridge, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings. 3-Preparation of a Comprehensive Structural Assessment Report for the bridge including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the bridge, Prioritized recommendations for required repair and maintenance works. 4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the bridge, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters ..... .....USD</p>	LS	1.00		
<b>Subtotal Bill No. VIII: Hawd Al Wilaya Bridge</b>						

Only in letters .....  
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United States Dollars

**BILL NO. IX**  
**ROUTINE MAINTENANCE OF SASSINE TUNNEL**

**BILL NO. IX: ROUTINE MAINTENANCE OF SASSINE TUNNEL**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
		<b>Demolition and Concrete Surface Preparation</b>				
IX.1	2.02.03.2	<p>Supply all required labor, materials, equipment and tools for the following demolition and concrete surface preparation work, complete including, but not limited to the following:</p> <ul style="list-style-type: none"> <li>- Provision of adequate scaffolding and work surfaces to enable work to be carried out under good condition including supply and installation of scaffolding towers or others to ensure access to the work areas in the soffit of the tunnel slab ensuring that one lane is available and safe for the use of motorists in each direction;</li> <li>- Demolition, removal and carting away to approved dumping areas existing concrete cover of slab to the level of the reinforcing steel;</li> <li>- Surface preparation by Bush Hammering and removal of all damaged or weak concrete to the existing slab , but not to an extent to go beyond the reinforcement cover, except by the express instructions of the Engineer;</li> <li>- Provision of daily and final cleaning;</li> <li>- all as per approved Contractor's methodology and shop drawings, to the satisfaction of the Engineer, and with full coordination with the relevant local authorities.</li> </ul>				
IX.1.1	2.02.03.2	<p>Above work related to existing apparent damaged slab soffit.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	500.00		
IX.1.2	2.02.03.2	<p>Above works related to damaged slab soffit to be uncovered by inspections and hammering . Quantity is estimated . Only valid damaged areas to be settled according to engineer's instructions .</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	250.00		
IX.2	5.03.04.3	<p><b><u>Supply &amp; Erection of Reinforcement &amp; Anchoring by Using Epoxy Resin (Injection Mortar) to Existing Slab</u></b></p> <p>Supply all required labor, materials of approved quality and source, equipment and tools for the following work, complete including, but not limited to the following:</p> <ul style="list-style-type: none"> <li>- Provision of adequate scaffolding and work surfaces to enable work to be carried out under good conditions;</li> <li>- Supply and installation of Steel reinforcement in place of highly corroded reinforcement. The new bars shall be laid parallel to those found corroded. Their ends shall be turned into the concrete for a depth of 15 cm and anchored with epoxy of suitable composition, all according to shop drawings approved by the engineer;</li> <li>- Supply, installation and welding of longitudinal steel bars to the requested shape ;</li> <li>- Provision of daily and final cleaning;</li> <li>- all as per approved Contractor's methodology and shop drawings, to the satisfaction of the Engineer, and with full coordination with the relevant local authorities.</li> </ul>				

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IX.2.1	5.03.04.3	<p>Above work related to reinforcement in apparent damaged slab soffit. The quantity is estimated and the contractor shall take into account that he shall execute the quantity required and paid for this quantity without possibility of claiming additional works.</p> <p>Unit Rate in letters ..... .....USD</p>	Kg	25,000.00		
IX.2.2	5.03.04.3	<p>Above works related to damaged slab soffit uncovered by inspections . Quantity is estimated . Only valid damaged areas to be settled according to engineer's instructions.</p> <p>Unit Rate in letters ..... .....USD</p>	Kg	12,500.00		
IX.3	5.26.04.01	<p><b>Shotcreting to Soffit of Upper Slabs</b> Supply all required labor, materials, equipment and tools for the following work, complete including, but not limited to the following:</p> <ul style="list-style-type: none"> <li>- Provision of adequate scaffolding and work surfaces to enable work to be carried out under good conditions;</li> <li>- Surface preparation;</li> <li>- Execution of shotcrete works to slab soffit surfaces, using Ordinary Portland Cement to ASTM C150 Type I and to the min. thickness of 70 mm thick or as requested by the Engineer to slab soffit after detailed study by the contractor and approval of the engineer.</li> </ul> <p>Complete work including completion of shotcreting to the areas where previously scaffolding was present, coordination with the scaffolding Contractor, and preparation of shotcrete edges prior to undertaking shotcrete to these areas;</p> <ul style="list-style-type: none"> <li>- Provision of adequate mechanical and/or hand tools to undertake the work with the required precision and speed;</li> <li>- Provision of adequate safety measures for alkali hydroxides and other chemicals contained in shotcrete admixtures;</li> <li>- Performing inspection and testing;</li> <li>- Provision of daily and final cleaning;</li> <li>- all as per approved Contractor's methodology and shop drawings, to the satisfaction of the Engineer, and with full coordination with the relevant local authorities.</li> </ul>				
IX.3.1	5.26.04.01	<p>Above work related to apparent damaged slab soffit (70 mm thick of shotcrete). The quantity is estimated and the contractor shall take into account that he shall execute the quantity required and paid for this quantity without possibility of claiming additional works</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	500.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IX.3.2	5.26.04.01	<p>Above works related to damaged slab soffit uncovered by inspections. Quantity is estimated . Only valid damaged areas to be settled according to engineer's instructions .</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	250.00		
IX.4		<b><u>Water Leakage in Tunnel Walls &amp; Soffit of Tunnel Top Slab</u></b>				
IX.4.1	2.07.04.1	<p>Inspect and examine all water leakage in the tunnel walls &amp; soffit of tunnel top slab, complete including preparing &amp; submitting to the Engineer for approval all necessary reports and shop drawings showing the locations of water leakage in the tunnel, components needed to be repaired, and the repair methodology, all as specified, to the satisfaction of the Engineer, &amp; with full coordination with the relevant local authorities.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
IX.5		<b><u>Negative Crystalline Waterproofing and Protection for Concrete to Tunnel Upper Slab after repair and other areas.</u></b>				
IX.5.1	2.08.04.1	<p>Supply and apply crystalline negative waterproofing to concrete upper tunnel slab, complete that can:</p> <ul style="list-style-type: none"> <li>- penetrate deep inside the concrete by using water as the migrating solution</li> <li>- plug the pores beneath the surface,</li> <li>- must not blister and peel off.</li> <li>- be of slurry consistency for easy and fast application, And submit the methodology of application to the satisfaction of the Engineer, &amp; with full coordination with the relevant local authorities.</li> </ul> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	500.00		
IX.5.2	2.08.04.1	<p>Above works related to damaged slab soffit uncovered by inspections. Quantity is estimated . Only valid damaged areas to be settled according to engineer's instructions in coordination with CDR project manager.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	250.00		
IX.5.3	2.08.04.1	<p>Other areas upon instructions of the Engineer in accord with CDR project Manager (optional)</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	500.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IX.6	5.18.08	<p><b>Rehabilitation of Joints</b></p> <p>Supply all required materials and rehabilitate the following joints , complete including remove and replace to match existing all the damaged joint devices, filler materials, backing rod, mastic sealant, accessories, jet cleaning, etc., all as per approved Contractor's methodology and shop drawings, to the satisfaction of the Engineer, and with full coordination with the relevant local authorities.</p>				
IX.6.1	5.18.08	<p>Rehabilitation of all damaged joints in the tunnel. The quantity is estimated and the contractor shall take into account that he shall execute the quantity required and paid for this quantity without possibility of claiming additional works.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	30.00		
IX.7	6.09	<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
IX.8	5.03.04.6	<p>Temporary Steel Plate Cover Joints</p> <p>This item shall include, but not be limited to, the following activities:</p> <p>Supply, Installation, Reinstallation, and Dismantling of Temporary Steel Plate covers over bridge expansion joints and/or work areas to ensure the safe and continuous flow of traffic during non-working hours.</p> <p>The works shall include:</p> <p>Selection and provision of steel plates of adequate thickness and dimensions to safely carry anticipated traffic loads</p> <p>Secure installation of plates to prevent displacement, noise, or safety hazards</p> <p>Regular inspection, adjustment, or reinstallation as required based on site conditions and traffic demands</p> <p>Removal of steel plates prior to the resumption of works, and reinstatement as needed during project execution</p> <p>All works shall be carried out in compliance with applicable safety standards, traffic management plans, and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
IX.9		<p>Structural Tunnel Inspection and Assessment Reports This item shall include, but is not limited to, the following:</p> <p>1-Detailed visual Inspection of all tunnel components and associated elements, to identify visible defects, deterioration.</p> <p>2-Structural Condition Assessment for the tunnel, utilizing appropriate non-destructive testing (NDT) methods such as rebound hammer testing, ultrasonic pulse velocity, half-cell potential measurements, and corrosion mapping, as required based on site conditions and initial inspection findings.</p> <p>3-Preparation of a Comprehensive Structural Assessment Report for the tunnel including but not limited the following: Documentation of inspection findings and photographic records, Results of NDT investigations and Structural analysis, Classification of identified defects based on severity and urgency, Evaluation of the Structural adequacy and serviceability of the tunnel, Prioritized recommendations for required repair and maintenance works.</p> <p>4-Preparation of a Detailed Cost Estimate for the proposed repair and maintenance works for the tunnel, based on the identified defects and recommended interventions, including estimated quantities, unit rates, and total costs for each item of work.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. IX: Sassine Tunnel</b>						

**Only in letters .....**

**United States Dollars**

**BILL NO. X**  
**ROUTINE MAINTENANCE OF GOURAUD STREET**

**BILL NO. X: ROUTINE MAINTENANCE OF GOURAUD STREET**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
		<b>Rehabilitahtion of Block Pavement Streets:</b>				
X.1	2.05.03	<p><b>Dismantling of Existing Block Pavement and Removal of Underlying Layers</b>  The rates provided shall constitute full compensation for the complete execution of the following works:</p> <p>-Dismantling of all existing block pavement, including the excavation and removal of the underlying base and subgrade layers within the designated work limits.  -The removal shall be carried out to a depth of up to 80 cm, or as otherwise directed by the Engineer.  -The exact extent and depth of removal shall be determined and confirmed on-site by the Engineer prior to the commencement of works.  -Existing paving blocks shall be carefully dismantled, cleaned, and properly stored in a suitable, secure location for future reuse in the street paving works, as directed by the Engineer.</p> <p>All debris, excavated material, and unsuitable materials shall be removed and disposed of in strict accordance with the project specifications and applicable environmental regulations, at locations approved by the Engineer.</p>				
X.1	2.05.03	<p>Dismantling of all damaged block pavement areas, including the removal of underlying base and subgrade layers in Gouraud Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	12,000.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
X.2	4.09.09	<p><b><u>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers</u></b></p> <p>The rates provided shall constitute full compensation for supplying all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the following works:</p> <p>1-Reinstallation of existing stone pavers found in good condition, as directed by the Consultant Engineer, and the supply and installation of new stone pavers in kind where replacement is necessary.</p> <p>2-Reconstruction of pavement foundation layers, including:</p> <ul style="list-style-type: none"> <li>-Sub-base layer: 25 cm thickness,</li> <li>-Base granular layer: 15 cm thickness,</li> <li>-Cement-Treated Base (CTB) layer: 15 cm thickness,</li> <li>-Sand bedding layer: 5 cm thickness,</li> <li>-Jointing materials, edge restraints, and all related accessories.</li> </ul> <p>Scope of work includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>-Careful compaction and preparation of the subgrade.</li> <li>-Placement, spreading, and compaction of all pavement foundation layers in accordance with the approved material specifications and compaction requirements.</li> <li>-Reinstallation of stone pavers in their original pattern, or as otherwise instructed by the Engineer.</li> <li>-Filling of joints and final compaction works.</li> <li>-Collection and disposal of all surplus materials, debris, and unsuitable excavated material to an approved disposal site.</li> </ul> <p>All works shall be carried out in accordance with the approved drawings, technical specifications, and to the full satisfaction of the Engineer.</p>				
X.2	4.09.09	<p>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers in Kind for the damaged areas at Gouraud Street</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	12,000.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
X.3	6.01.04.9	<p>Supply and Installation of Transversal Edge Restraint Basalt Curbs</p> <p>The rate shall include the supply of all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the works, comprising:</p> <ul style="list-style-type: none"> <li>-Supply and installation of transversal edge restraint basalt curbs to stabilize and support stone pavers.</li> <li>-Excavation and preparation of curb bedding, including compacted sand or concrete foundation as per the drawings and project specifications.</li> <li>-Proper alignment, leveling, and setting of basalt curbs in mortar or concrete bedding as specified.</li> <li>-Jointing, finishing, and backfilling works as required.</li> <li>-Disposal of all surplus materials, debris, and unsuitable excavated materials to an approved dumping site.</li> </ul> <p>The works shall be carried out in accordance with the approved shop drawings, technical specifications, and to the full satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	550.00		
X.4		<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>BILL NO. X: ROUTINE MAINTENANCE OF GOURAUD STREET</b>						

Only in letters .....

.....United States Dollars

**BILL NO. XI**  
**ROUTINE MAINTENANCE OF JEANNE DARC STREET**

**BILL NO. XI: ROUTINE MAINTENANCE OF JEANNE DARC STREET**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
		<b>Rehabilitahtion of Block Pavement Streets:</b>				
XI.1	2.05.03	<p><b>Dismantling of Existing Block Pavement and Removal of Underlying Layers</b></p> <p>The rates provided shall constitute full compensation for the complete execution of the following works:</p> <ul style="list-style-type: none"> <li>-Dismantling of all existing block pavement, including the excavation and removal of the underlying base and subgrade layers within the designated work limits.</li> <li>-The removal shall be carried out to a depth of up to 80 cm, or as otherwise directed by the Engineer.</li> <li>-The exact extent and depth of removal shall be determined and confirmed on-site by the Engineer prior to the commencement of works.</li> <li>-Existing paving blocks shall be carefully dismantled, cleaned, and properly stored in a suitable, secure location for future reuse in the street paving works, as directed by the Engineer.</li> </ul> <p>All debris, excavated material, and unsuitable materials shall be removed and disposed of in strict accordance with the project specifications and applicable environmental regulations, at locations approved by the Engineer.</p>				
XI.1	2.05.03	<p>Dismantling of all damaged block pavement areas, including the removal of underlying base and subgrade layers in Jeanne Darc Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5,000.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XI.2	4.09.09	<p><b><u>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers</u></b></p> <p>The rates provided shall constitute full compensation for supplying all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the following works:</p> <p>1-Reinstallation of existing stone pavers found in good condition, as directed by the Consultant Engineer, and the supply and installation of new stone pavers in kind where replacement is necessary.</p> <p>2-Reconstruction of pavement foundation layers, including:</p> <ul style="list-style-type: none"> <li>-Sub-base layer: 25 cm thickness,</li> <li>-Base granular layer: 15 cm thickness,</li> <li>-Cement-Treated Base (CTB) layer: 15 cm thickness,</li> <li>-Sand bedding layer: 5 cm thickness,</li> <li>-Jointing materials, edge restraints, and all related accessories.</li> </ul> <p>Scope of work includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>-Careful compaction and preparation of the subgrade.</li> <li>-Placement, spreading, and compaction of all pavement foundation layers in accordance with the approved material specifications and compaction requirements.</li> <li>-Reinstallation of stone pavers in their original pattern, or as otherwise instructed by the Engineer.</li> <li>-Filling of joints and final compaction works.</li> <li>-Collection and disposal of all surplus materials, debris, and unsuitable excavated material to an approved disposal site.</li> </ul> <p>All works shall be carried out in accordance with the approved drawings, technical specifications, and to the full satisfaction of the Engineer.</p>				
XI.2	4.09.09	<p>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers in Kind for the damaged areas at Jeanne Darc Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5,000.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XI.3	6.01.04.9	<p>Supply and Installation of Transversal Edge Restraint</p> <p>The rate shall include the supply of all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the works, comprising:</p> <ul style="list-style-type: none"> <li>-Supply and installation of transversal edge restraint basalt curbs to stabilize and support stone pavers.</li> <li>-Excavation and preparation of curb bedding, including compacted sand or concrete foundation as per the drawings and project specifications.</li> <li>-Proper alignment, leveling, and setting of basalt curbs in mortar or concrete bedding as specified.</li> <li>-Jointing, finishing, and backfilling works as required.</li> <li>-Disposal of all surplus materials, debris, and unsuitable excavated materials to an approved dumping site.</li> </ul> <p>The works shall be carried out in accordance with the approved shop drawings, technical specifications, and to the full satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	250.00		
XI.4		<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>Subtotal Bill No. XI: ROUTINE MAINTENANCE OF JEANNE DARC STREET</b>						

Only in letters .....

.....United States Dollars

**BILL NO. XII**  
**ROUTINE MAINTENANCE OF OUZAAI STREET**  
**(Optional)**

**BILL NO. XII: ROUTINE MAINTENANCE OF OUZAAI STREET (OPTIONAL)**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
		<b>Rehabilitahtion of Block Pavement Streets:</b>				
XII.1	2.05.03	<p><b>Dismantling of Existing Block Pavement and Removal of Underlying Layers</b>  The rates provided shall constitute full compensation for the complete execution of the following works:</p> <p>-Dismantling of all existing block pavement, including the excavation and removal of the underlying base and subgrade layers within the designated work limits.</p> <p>-The removal shall be carried out to a depth of up to 80 cm, or as otherwise directed by the Engineer.</p> <p>-The exact extent and depth of removal shall be determined and confirmed on-site by the Engineer prior to the commencement of works.</p> <p>-Existing paving blocks shall be carefully dismantled, cleaned, and properly stored in a suitable, secure location for future reuse in the street paving works, as directed by the Engineer.</p> <p>All debris, excavated material, and unsuitable materials shall be removed and disposed of in strict accordance with the project specifications and applicable environmental regulations, at locations approved by the Engineer.</p>				
XII.1	2.05.03	<p>Removal of all damaged block pavement areas, including the removal of underlying base and subgrade layers in Ouzaai Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5,900.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XII.2	4.09.09	<p><b><u>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers</u></b></p> <p>The rates provided shall constitute full compensation for supplying all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the following works:</p> <p>1-Reinstallation of existing stone pavers found in good condition, as directed by the Consultant Engineer, and the supply and installation of new stone pavers in kind where replacement is necessary.</p> <p>2-Reconstruction of pavement foundation layers, including:</p> <ul style="list-style-type: none"> <li>-Sub-base layer: 25 cm thickness,</li> <li>-Base granular layer: 15 cm thickness,</li> <li>-Cement-Treated Base (CTB) layer: 15 cm thickness,</li> <li>-Sand bedding layer: 5 cm thickness,</li> <li>-Jointing materials, edge restraints, and all related accessories.</li> </ul> <p>Scope of work includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>-Careful compaction and preparation of the subgrade.</li> <li>-Placement, spreading, and compaction of all pavement foundation layers in accordance with the approved material specifications and compaction requirements.</li> <li>-Reinstallation of stone pavers in their original pattern, or as otherwise instructed by the Engineer.</li> <li>-Filling of joints and final compaction works.</li> <li>-Collection and disposal of all surplus materials, debris, and unsuitable excavated material to an approved disposal site.</li> </ul> <p>All works shall be carried out in accordance with the approved drawings, technical specifications, and to the full satisfaction of the Engineer.</p>				
XII.2	4.09.09	<p>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers in Kind for the damaged areas at Ouzaai Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	5,900.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XII.3	6.01.04.9	<p>Supply and Installation of Transversal Edge Restraint</p> <p>The rate shall include the supply of all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the works, comprising:</p> <ul style="list-style-type: none"> <li>-Supply and installation of transversal edge restraint basalt curbs to stabilize and support stone pavers.</li> <li>-Excavation and preparation of curb bedding, including compacted sand or concrete foundation as per the drawings and project specifications.</li> <li>-Proper alignment, leveling, and setting of basalt curbs in mortar or concrete bedding as specified.</li> <li>-Jointing, finishing, and backfilling works as required.</li> <li>-Disposal of all surplus materials, debris, and unsuitable excavated materials to an approved dumping site.</li> </ul> <p>The works shall be carried out in accordance with the approved shop drawings, technical specifications, and to the full satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	270.00		
XII.4		<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>tal Bill XII: ROUTINE MAINTENANCE OF OUZAAI STREET (OPTIONAL)</b>						

Only in letters .....

.....United States Dollars

**BILL NO. XIII**  
**ROUTINE MAINTENANCE OF MAKDESSI STREET**  
**(Optional)**

**BILL NO. XIII: ROUTINE MAINTENANCE OF MAKDESSI STREET (OPTIONAL)**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
		<b>Rehabilitahtion of Block Pavement Streets:</b>				
XIII.1	2.05.03	<p><b>Dismantling of Existing Block Pavement and Removal of Underlying Layers</b>  The rates provided shall constitute full compensation for the complete execution of the following works:</p> <p>-Dismantling of all existing block pavement, including the excavation and removal of the underlying base and subgrade layers within the designated work limits.</p> <p>-The removal shall be carried out to a depth of up to 80 cm, or as otherwise directed by the Engineer.</p> <p>-The exact extent and depth of removal shall be determined and confirmed on-site by the Engineer prior to the commencement of works.</p> <p>-Existing paving blocks shall be carefully dismantled, cleaned, and properly stored in a suitable, secure location for future reuse in the street paving works, as directed by the Engineer.</p> <p>All debris, excavated material, and unsuitable materials shall be removed and disposed of in strict accordance with the project specifications and applicable environmental regulations, at locations approved by the Engineer.</p>				
XIII.1	2.05.03	<p>Dismantling of all damaged block pavement areas, including the removal of underlying base and subgrade layers in Makdessi Street.</p> <p>Unit Rate in letters ..... .....USD</p>	m <sup>2</sup>	7,700.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XIII.2	4.09.09	<p><b><u>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers</u></b></p> <p>The rates provided shall constitute full compensation for supplying all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the following works:</p> <p>1-Reinstallation of existing stone pavers found in good condition, as directed by the Consultant Engineer, and the supply and installation of new stone pavers in kind where replacement is necessary.</p> <p>2-Reconstruction of pavement foundation layers, including:</p> <ul style="list-style-type: none"> <li>-Sub-base layer: 25 cm thickness,</li> <li>-Base granular layer: 15 cm thickness,</li> <li>-Cement-Treated Base (CTB) layer: 15 cm thickness,</li> <li>-Sand bedding layer: 5 cm thickness,</li> <li>-Jointing materials, edge restraints, and all related accessories.</li> </ul> <p>Scope of work includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>-Careful compaction and preparation of the subgrade.</li> <li>-Placement, spreading, and compaction of all pavement foundation layers in accordance with the approved material specifications and compaction requirements.</li> <li>-Reinstallation of stone pavers in their original pattern, or as otherwise instructed by the Engineer.</li> <li>-Filling of joints and final compaction works.</li> <li>-Collection and disposal of all surplus materials, debris, and unsuitable excavated material to an approved disposal site.</li> <li>All works shall be carried out in accordance with the approved drawings, technical specifications, and to the full satisfaction of the Engineer.</li> </ul>				
XIII.2	4.09.09	<p>Reconstruction of Base Pavement Layers and Reinstallation of Stone Pavers in Kind for the damaged areas at Makdessi Street</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	m <sup>2</sup>	7,700.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XIII.3	6.01.04.9	<p>Supply and Installation of Transversal Edge Restraint</p> <p>The rate shall include the supply of all materials, labor, equipment, tools, and any other resources necessary for the complete and proper execution of the works, comprising:</p> <ul style="list-style-type: none"> <li>-Supply and installation of transversal edge restraint basalt curbs to stabilize and support stone pavers.</li> <li>-Excavation and preparation of curb bedding, including compacted sand or concrete foundation as per the drawings and project specifications.</li> <li>-Proper alignment, leveling, and setting of basalt curbs in mortar or concrete bedding as specified.</li> <li>-Jointing, finishing, and backfilling works as required.</li> <li>-Disposal of all surplus materials, debris, and unsuitable excavated materials to an approved dumping site.</li> </ul> <p>The works shall be carried out in accordance with the approved shop drawings, technical specifications, and to the full satisfaction of the Engineer.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	lm	450.00		
XIII.4		<p>Traffic Management Plan (TMP) and supply, install and reinstall and dismantle as necessary temporary safety devices :</p> <p>It includes preparation of various TMP and TCP plans plan layouts for various type of activities that focus on construction staging during different phases of maintenance/repair/construction, Daily mobilization of Temporary Traffic Safety devices on the Site location (supply , install, reinstall and dismantle as necessary the temporary signing and channelizing devices complete all in accordance with the related TMP and TCP plans and in coordination with the concerned authorities and subject to the Engineer's approval.</p> <p>Unit Rate in letters .....</p> <p>.....USD</p>	LS	1.00		
<b>No. XIII: ROUTINE MAINTENANCE OF MAKDESSI STREET (OPTIONAL)</b>						

Only in letters .....

.....United States Dollars

**BILL NO. XIV**  
**MISCELLANEOUS ROUTINE MAINTENANCE WORKS**

**BILL NO. XIV: MISCELLANEOUS ROUTINE MAINTENANCE WORKS**

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XIV.1	4.08.14.1	<p><b>Maintenance of Asphalt roads by Surface Patching Works</b> Surface patching works, including milling of existing asphalt surface, cleaning, applying tack coat, and reinstating the wearing asphalt course to a compacted thickness of 5 cm, complete in all respects as per specifications and Engineer's instructions.</p> <p>Unit Rate in letters ..... ..... USD</p>	m <sup>2</sup>	500.00		
XIV.2	4.08.14.1	<p><b>Maintenance of Asphalt roads by Deep Patching works</b> Deep patching works, including removal and excavation of existing damaged pavement and subgrade as required, reinstatement of base course layer (30 cm thick), application of prime coat, provision and laying of asphalt binder course (one layer, 5 cm thick), application of tack coat, and reinstatement of asphalt wearing course (one layer, 5 cm thick).</p> <p>Unit Rate in letters ..... ..... USD</p>	m <sup>2</sup>	200.00		
XIV.3	2.06.04	<p>Cleaning of storm and sewer pipes by jetting machine where needed and as necessary to ensure proper functionality.</p> <p>Unit Rate in letters ..... ..... USD</p>	lm	200.00		
XIV.4	5.01.08	<p>Cast in situ Reinforced concrete Class 250/20 (B 25) for storm water drainage channels, precast covers channels and all types of hydraulic structures</p> <p>Unit Rate in letters ..... ..... USD</p>	m <sup>3</sup>	30.00		
XIV.5	2.04.03.1	<p>Repair and re-leveling of damaged concrete frame manholes by reuse the existing cover. The class of concrete to be used for frame manholes shall be 450/20 including SBR additive and including all necessary materials, labor, and associated works to restore structural integrity and proper functionality completed as specified to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... ..... USD</p>	Nr	50.00		

Item	Relevant Specifications Measurement Items	Description	Unit	Quantities	Unit Rate (USD)	Amount (USD)
XIV.6	2.04.03.2	<p>Supply and install new ductile iron heavy-duty circular manhole covers with a load capacity of 40 tons to replace existing damaged or missing units.</p> <p>The new covers shall match the existing type and standard size, with an internal diameter up to 80 cm. Work includes all necessary materials, labor, and associated works to restore structural integrity and proper functionality and shall be completed as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	Nr	50.00		
XIV.7	2.04.03.3	<p>Supply and install new ductile iron (heavy-duty) square grating covers to replace existing damaged or missing ones. The new covers shall match the existing type and standard size, with an internal side dimension up to 70 cm. Work includes all necessary materials, labor, and associated works to restore structural integrity and proper functionality and shall be completed as specified and to the Engineer's satisfaction.</p> <p>Unit Rate in letters ..... .....USD</p>	Nr	50.00		
XIV.8	10.04.04	<p>Road Gullies internal dimensions 60x60cm with heavy duty cast iron grating cover with 40 tons load capacity including excavation and all necessary materials and pipe connection to existing storm water network.</p> <p>Unit Rate in letters ..... .....USD</p>	Nr	40.00		
XIV.9	5.22.04	<p>Dismantling of damaged steel interceptor and replacement with new heavy duty cast iron cover 40 tons as instructed by the Engineer.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	100.00		
XIV.10	6.06.05	<p>Replacement of Steel parapet (Coastal Corniche) to match the existing parapet including dismantling of the damaged sections and supply and installation of new parapet to match the same color and specifications of the existing one, all as instructed by the Engineer.</p> <p>Unit Rate in letters ..... .....USD</p>	lm	100.00		
<b>BILL NO. XIV: MISCELLANEOUS ROUTINE MAINTENANCE WORKS</b>						

Only in letters .....

.....United States Dollars

## **TOTAL SUMMARY**

***Routine Maintenance for Bridges and Streets in Beirut***

***BILL OF QUANTITIES***

**Total Summary**

BILL NO	DESCRIPTION	AMOUNT IN USD
BILL I	General Contract Requirements	
BILL II	Routine Maintenance Of Charles Helou Bridge	
BILL III	Routine Maintenance Of Joseph Chader Bridge	
BILL IV	Routine Maintenance Of Salim Salam (Bridge And Tunnel)	
BILL V	Routine Maintenance Of Adlieh Bridge	
BILL VI	Routine Maintenance Of Ring Bridge	
BILL VII	Routine Maintenance Of Fiat Bridge	
BILL VIII	Routine Maintenance Of Hawd Al Wilaya Bridge	
BILL IX	Routine Maintenance Of Sassine Tunnel Bridge	
BILL X	Routine Maintenance of Gouraud Street	
BILL XI	Routine Maintenance of Jeanne Darc Street	
BILL XII	Routine Maintenance of Ouzaai Street ( <b>Optional</b> )	
BILL XIII	Routine Maintenance of Makdessi Street ( <b>Optional</b> )	
BILL XIV	Miscellaneous Routine Maintenance Works	
<b>(1) TOTAL AMOUNT OF BILL OF QUANTITIES (USD)</b>		
<b>(2) DEDUCTION BY BIDDERS IF ANY (USD)</b>		
<b>(3)= (1)-(2) :TOTAL AMOUNT OF BILL OF QUANTITIES AFTER DEDUCTION WITOUT VAT(USD)</b>		
<b>(4) VAT 11% (USD)</b>		
<b>(5)= (3)+(4) :TOTAL AMOUNT OF BILL OF QUANTITIES AFTER DEDUCTION INCLUDING VAT(USD)</b>		

TOTAL AMOUNT OF BILL OF QUANTITES AFTER DEDUCTION INCLUDING VAT IN LETTERS (United States Dollars)