

**TASK ORDER 8-22 STM**  
**ENGINEERING SERVICES FOR THE CITY OF KEY WEST STORMWATER**  
**10<sup>TH</sup> STREET AND HARRIS AVENUE NEIGHBORHOOD RESILIENCY**  
**IMPROVEMENTS**

This TASK ORDER 8-22 STM is issued under the terms and conditions of the AGREEMENT TO FURNISH GENERAL ENGINEERING SERVICES TO THE CITY OF KEY WEST ("AGREEMENT") between the City of Key West ("CITY") and CH2M HILL Engineers, Inc. ("CONSULTANT") dated November 3, 2017 which is incorporated herein by this reference.

A. SCOPE OF SERVICES

Specific services which the CONSULTANT agrees to furnish are summarized on the attached statement entitled TASK ORDER 5-22 "SCOPE OF SERVICES." The "Scope of Services" defines the work effort anticipated for the Task Order.

This Task Order, when executed, shall be incorporated in and shall become an integral part of the November 3, 2017, Master Agreement.

B. TIME OF COMPLETION

Work under this Task Order will begin immediately following acceptance and completed expeditiously subject to coordination with the City of Key West staff.

C. COMPENSATION

Compensation for the labor portions of TASK ORDER 8-22 STM, will be on a lump sum fee basis as stipulated in Article 5, Paragraph 5.1.1 of the AGREEMENT. Compensation for all expenses will be on a Cost Reimbursable-Per Diem basis as stipulated in Article 5, Paragraph 5.1.2 of the AGREEMENT. The estimated compensation is shown on the attached statement entitled TASK ORDER 8-22 STM COMPENSATION.

D. ACCEPTANCE

By signature, the parties each accept the provisions of this TASK ORDER 8-22 STM and authorize the CONSULTANT to proceed at the direction of the CITY's representative in accordance with the "SCOPE OF SERVICES." Start date for this project will be no later than two (2) days after execution of this authorization.

For CH2M HILL ENGINEERS, INC.

For CITY OF KEY WEST

By:  11/01/2022  
Diana Francois, P.E.  
Portfolio Manager

By: \_\_\_\_\_  
Patti McLaughlin  
City Manager

Dated the \_\_\_\_ day of \_\_\_\_\_, 2022

  
11-01-2022  
Gisselly Anania  
Key West Project Manager

ATTEST: \_\_\_\_\_

**TASK ORDER 8-22 STM**  
**ENGINEERING SERVICES FOR THE CITY OF KEY WEST**  
**10TH ST. AND HARRIS NEIGHBORHOOD RESILIENCY IMPROVEMENTS**

**SCOPE OF SERVICES**

**Project Background**

The streets near the intersection of Harris Avenue and 10th Street floods frequently because tides levels affect the roadway. 10<sup>th</sup> Street is relatively low and is adjacent to a saltwater pond. Because a gravity-fed injection well would not provide capacity at these low elevations, this neighborhood was recommended in the 2012 Stormwater Master Plan to include a new outfall into the saltwater pond. The CITY obtained a drainage design for this work but it was not constructed (Figure 1).

To be consistent with the CITY's 2021 Sea Level Rise (SLR) Policy, road raising and a barrier wall against the salt pond will also be included. Figure 1 illustrates where a proposed sea wall would be located. The wall would be about 530 linear feet. To supplement the sea wall, CONSULTANT proposes to modify 10th Street by raising the elevation some. Harmonization with adjacent properties, intersecting roads, the drainage pipes, the boardwalk, and boat ramp need to be considered in this neighborhood's design.

To implement this project, the CITY obtained funding through the state Hazard Mitigation Grant Program (HMGP) and federal Community Development Block Grant Mitigation Program (CDBG). New design work must perform tasks in accordance with rules and requirements of these grant agreements. This Task Order is to complete the design work with SLR considerations.

Given the new SLR considerations, the CITY wishes to add a sea wall along the sides of the saltwater pond. This project is for the 10<sup>th</sup> Street side of the pond. Future additions to a barrier system would be part of a long-term effort. An outfall to the pond with a check valve will work during lower tides and current ocean levels. An alternative discharge may be needed for future ocean conditions. A pump station to discharge to either the pond or a pressurized injection well system may be required in the future. The design will consider infrastructure needs (pipe sizes and potential pump station location) for a future pump station at the north end of 10th Street.

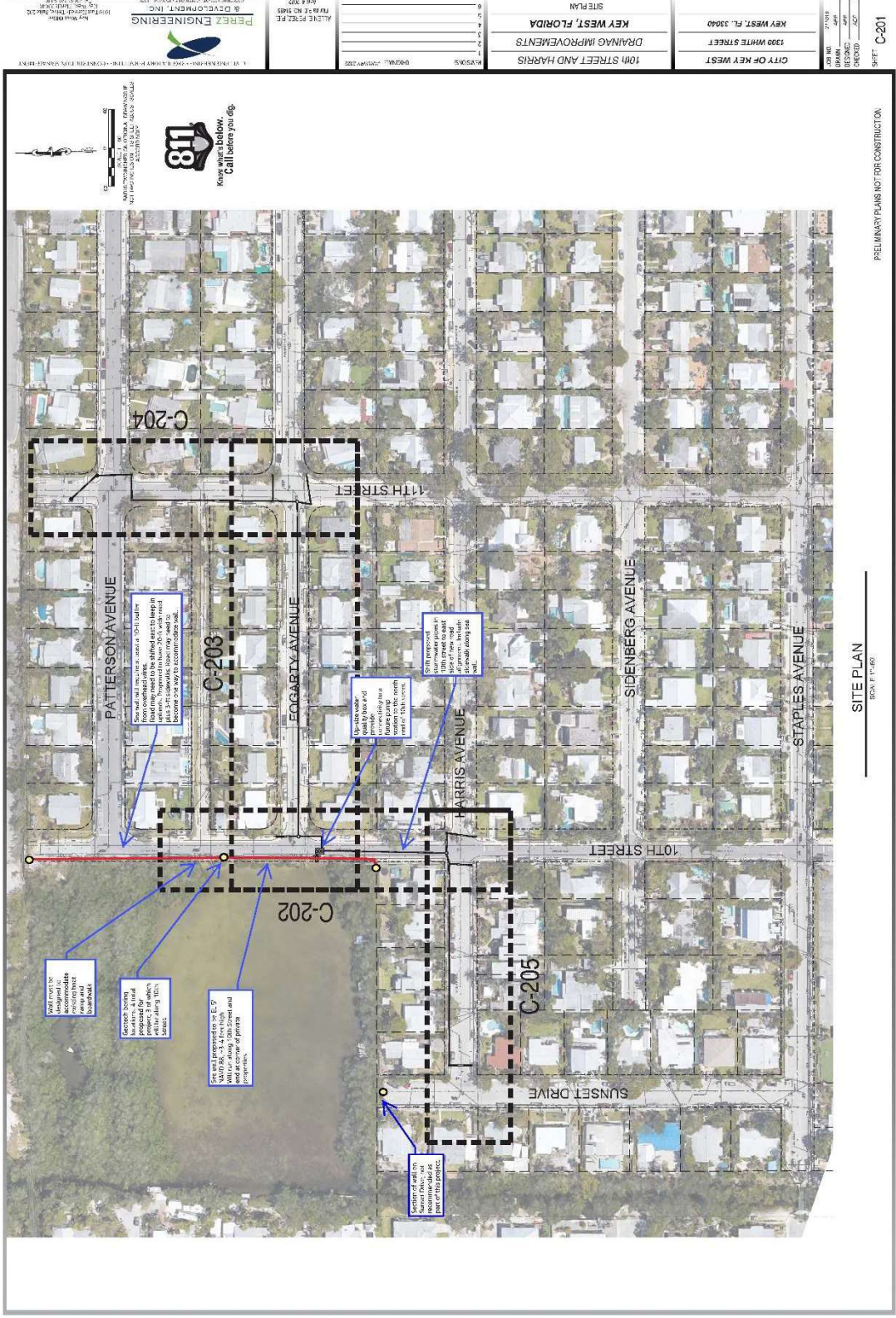


FIGURE 1. PROPOSED 10<sup>TH</sup> ST. AND HARRIS NEIGHBORHOOD TIDAL BARRIER (SEA WALL) AND PEREZ 2021 STORMWATER DESIGN

<b>PEREZ ENGINEERING</b> 1300 WHITE STREET KEY WEST, FL 33040 TEL: 305.857.2100 FAX: 305.857.2101 WWW.PEREZENGINEERING.COM		DATE: 04/04/2022 DRAWN BY: JRM CHECKED BY: JRM	SHEET: C-201 PRELIMINARY PLANS NOT FOR CONSTRUCTION
<b>KEY WEST, FL 33040</b> <b>1300 WHITE STREET</b> <b>CITY OF KEY WEST</b>		PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001	PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001
<b>10th STREET AND HARRIS</b> <b>DRAINAGE IMPROVEMENTS</b> <b>KEY WEST, FLORIDA</b>		PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001	PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001
<b>SITE PLAN</b>		PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001	PROJECT: 2022-001 DRAWING NO.: 2022-001-001 SHEET NO.: 001 OF 001

## Scope of Services

The objective of this work is to select drainage improvements to minimize flooding in this area and provide resilience for future sea level rise.

This work will include a seawall (about 530 LF), shifting 10th Street to the east and raising the roadway, in addition to potential layout and pipe size changes that may accommodate a future pump station at the north end of 10th Street. The new drainage will include new stormwater pipes, inlets, water quality triple chamber box, check valve, and an outfall through the wall. The roadway design will include modifications for transitions to a higher elevation of 10th Street where it intersects with Harris Street, Fogarty Avenue, Patterson Avenue and Lucy Lane. CONSULTANT will coordinate with Perez Engineering to understand their basis of design. The stormwater pipes in the neighborhood will follow the Perez Engineering's design (dated March 2022) unless new computations indicate changes are warranted. The sea wall, drainage, and improvements to 10th Street, including up-sizing pipe segments along 10th Street for a potential pump station) would be taken through final design and permitted.

The scope of work also includes a planning level design of two alternatives for road configurations allowing the city to choose the best option for the community and the utility uses to be further detailed at conceptual design level. One alternative being a one-way road configuration and the other showing the road configuration remaining two-way. Both design configurations will include the design of a new seawall, redesign of the boat launch to retain its primary uses and redesigning where needed the pocket park (boardwalk area) to remain functional with the elevations of the proposed new sea wall height.

The following tasks are included:

### **Task A. Data Collection**

A project feasibility meeting will be held with local permitting agencies as part of the Environmental Assessment. CONSULTANT will obtain the following information from the CITY:

- Available GIS layers for parcels and CITY rights-of-way.
- Survey CADD files for neighborhood roads. This work was recently conducted by the CITY.
- CADD files from Perez Engineering.

CONSULTANT will obtain the following information from the new field work:

- A geotechnical investigation with soil boring locations on 10th Street, along the proposed seawall alignment are in roads around the project boundary (including north end of Sunset Drive by the pond). No additional roadway corings will be obtained for street design. (Conducted by Geosol)
- Field investigation of vegetation types and locations by CONSULTANT biologists along 10th Street and adjacent pond (about 20-feet beyond the proposed ends on north and south sides). Collect data using GPS coordinates and flag items for mapping. Collect data for a Unified Mitigation Assessment Method (UMAM) for proposed stormwater pipe outfall location or tie-in by corners of the wall.
- After the Preliminary Design, additional field survey may be required to complete the design of the wall or roadway. CONSULTANT will work with CITY-contracted

surveyor to expand the existing survey. Since this scope is indeterminate, the CITY will secure the survey with CONSULTANT input.

**Deliverables:**

- Meeting with local permitting agents to determine project feasibility
  - 1 Permit Specialist
  - Meeting agenda, exhibits, and post-meeting notes, pdf
- New data collected by subconsultants will be provided to the CITY:
  - Draft and final Geotechnical Report, pdf

**Task B. Preliminary Alternatives and Conceptual Design (10%)**

The objective of the conceptual design is to define the elements of the project (for example, type of wall), assess existing design and modify if necessary for future conditions, plan and document conditions for permitting, and to develop planning level schematics.

- Assess Perez stormwater system design using the 2021 stormwater master plan ICPR4 model. Examine flood stage levels in the subbasins of this neighborhood and evaluate the flood benefits of a pump station sized for a pressurized injection well. Consider how to accommodate a future pump station and injection well system.
- Characterize the biological factors related to the project. Collect data from available literature on potential species of concern. Prepare an environmental report to support the permitting.
- Using geotechnical data, develop a typical detail for a seawall. Plan how to execute the work (constructability).
- Develop a schematic plan sheet to illustrate the proposed work and potential wetland impacts. Adjustments to the dock, boat launch and road to the points of ties are included in the design.

Preliminary alternative design will include applying the information developed above and then preparing a presentation on the following options for the CITY to consider and select.

- Develop 2 options to the CITY for one-way or two-way roadway design of 10th Street.
- Provide 2 alternatives to the CITY as part planning design on how to terminate the wall at the north end of 10<sup>th</sup> Street, after one-way or two-way roadway options is determined. The alternatives will consider access to a future deep injection or pump station.
- Develop a PowerPoint presentation on the project for the CITY to use with public outreach. Develop a Class 5 opinion of cost.

The Conceptual Design will conclude with a report that describes the project elements, design criteria, cut sheets or similar exhibits to illustrate work, and a cost estimate. One alternative for the wall termination and roads will be carried through with this conceptual design. Roadway design (pavement design, shoulder/sidewalk, signing, striping) is included in the design.



**Deliverables:**

- Meeting with CITY to review proposal. Meeting agenda, exhibits, and post-meeting notes, pdf
- Draft and final PowerPoint presentation on alternatives
- Draft and Final Conceptual Design Report. This report will be in electronic format.

**Task C. Preapplication Meetings**

The CONSULTANT and CITY will hold preapplication meeting (on-line Team meetings) with necessary permitting agency including:

- South Florida Water Management District (SFWMD)
- U.S. Army Corps of Engineers (USACE)
- Florida Keys Marine Sanctuary (Sanctuary)

**Deliverables:**

- Meeting with each agency to review proposal. Meeting agenda, exhibits, and post-meeting notes, pdf.

**Task D. Design (60%) and Permitting Applications**

The CONSULTANT will prepare 60% level contract documents based on the approved design concept. Contract documents consist of drawings and specifications. Mitigation plans for impact to trees, if necessary.

After CITY review and approval, the CONSULTANT will prepare a permit application for the SFWMD and USACE. The SFWMD will issue an Environmental Resources Permit (ERP) for stormwater and wetland impacts. It is assumed for the level of effort that a Section 404 Nationwide General Permit is all that is required since work will be primarily on uplands. The contractor will be required to apply for a dewatering permit (Consumptive Use Permit) from SFWMD to complete the work.

If the SFWMD or USACE requires wetland mitigation credits, the CITY will purchase these from a 3<sup>rd</sup> party mitigation bank. The cost for this mitigation is not included in the scope and budget. Work in wetlands will be minimized but some mitigation may be required.

**Deliverables:**

Deliverables will be provided in electronic format. Comments from the CITY will be provided in electronic format too.

- 60% level drawings, hydrologic and hydraulic Technical Memorandum, and Forms will be provided to the CITY
- Permit Application Forms will be drafted by the CONSULTANT and executed by the CITY. The CONSULTANT will be made an agent to process the applications.
- Cost Estimate

**Task E. Final Design**

CONSULTANT will incorporate CITY comments and develop a final design package. The final design will include drawings, final cost estimate, and technical specifications.

**Deliverables:**

Deliverables will be provided in electronic format. Comments from the CITY will be provided in electronic format too.

- Draft Final Design package (90%)
- Final Design package. (100%)
- Cost Estimate

**Task F. Bidding Services**

The CITY will take the lead in soliciting construction proposals (bids) that utilize the CONSULTANT's final design. Project bid instructions, definitions, and general conditions for the specifications will be provided by the CITY. The CONSULTANT will support the CITY with the following services:

- Respond to questions from bidders through CITY
- Conform contract documents for the approved bidders.

**Deliverables:**

- Deliverables will be provided in electronic format.
- Conformed Drawings and Specifications

**Task G. Services During Construction**

CONSULTANT will provide services during construction consisting of answering Request for Information (RFI) from CONTRACTOR, issuing clarifications to Contract Documents and reviewing and approving submittals. At the end of Construction, CONSULTANT will prepare Record Drawings based on CONTRACTOR's annotations.

**Deliverables:**

- Response to RFI
- Review and Comment Forms to Submittals
- Record Drawings

**Task H. Project Management and Administration**

Project Management and Administration for completion of 10th St. and Harris Avenue Neighborhood design. Project Manager to conduct progress calls with CONSULTANT Engineering and CITY's teams as to completed and planned task order activities, project schedule updates, budget and billing.

**Deliverables:**

- Project Progress invoices

**Task I. Pumping Station Conceptual Design**

This task includes a conceptual design of the pumping station including flow design basis, pump conceptual sizing, siting recommendations and overall building footprint. In addition, the scope of work includes evaluation of pump station timeframe for implementation.

### **Deliverables:**

- Pumping station conceptual design and cost estimate.

### **Task J. Additional Design and Report (Time and Material)**

This task includes additional deliverable and/or additional design to account for 1) Traffic flow analysis to support roadway changes, if required and 2) additional flood protection as agreed during Task B. Preliminary Alternatives and Conceptual Design (10%).

### **Deliverables:**

- Traffic flows analysis to support roadway changes
- Boat launch flood control design

## **Task Order Assumptions**

The following assumptions were used in the development of this Task Order:

- The scope of work presented in this Task Order includes a planning analysis of two-way and one way road. Engineer will request approval of task J, If it is determined by the City during the 10% Conceptual design phase that a traffic flow analysis is required to support changes in existing roadway conditions.
- Any changes made by Perez Engineering to the design dated March 2022 during or after the CONSULTANT'S design will be considered outside of this current scope of work.
- Modifications will include areas of the boardwalk that will need to be adjusted due to raising of road elevations and changes to boat launch. Additional changes to the main boardwalk viewing area impacted by the rising elevations of the tie-in areas will be noted in drawings to be constructed by a design-built approach.
- The existing boat launch on 10th Street will retain its location but may be raised to transition to a higher road. This transition will try to minimize fill in the salt pond to avoid significant Section 404/ERP mitigation requirements.
- Meetings/workshops will be conducted online (MS Teams) therefore remote staff can participate without traveling to the CITY. Deliverables (reports, presentations, etc.) will be by electronic files (.pdf) via email and file transfer portal (ftp) unless otherwise specified.
- Project will be based on standard engineering practices, rules, and codes in effect at the time of Task Order notice to proceed (NTP).
- One 2-day field visit to assess environmental conditions by 1 staff. No boat will be used.
- No wetland mitigation bank costs are included. The project is expected to avoid significant impacts.



- CONSULTANT will reasonably rely upon the accuracy, and completeness of the information/data provided by the CITY or other third parties without independent verification.
- Cost Estimating: In providing opinions of cost, financial analyses, economic feasibility projections, for the project, CONSULTANT will use existing information developed primarily by others. Any forecasts or opinion of future costs will be prepared in conjunction with the CITY in an open manner. CONSULTANT makes no warranty that CITY's actual project costs, financial aspects, economic feasibility, will not vary from CONSULTANT's opinions, analyses, projections, or estimates.
- It is assumed CONSULTANT will receive one round of review comments from the CITY on all deliverables within 2 weeks after delivery. If the CITY needs additional review time, the schedule will need to be updated. The CITY's project manager must coordinate City staff attendance internally.
- Design services for the seawall and suggested changes to the stormwater improvements currently under designed by Perez Engineering are included. Other future improvements are not included in this project. Any changes made by Perez Engineering to the design dated March 2022 during or after the CONSULTANT'S design will be considered outside of this current scope of work.
- This task will be mainly focused on projects related to the stormwater management system, seawall, and adjoining roads affected by the project, but no other area of infrastructure.
- Identification grant or other funding capture strategy and the allocation of funding is not included in the scope of this project.
- Public outreach required for this design is limited to CONSULTANT supporting CITY staff with exhibits and presentation materials.
- CONSULTANT does not assume any liability for work product(s) prepared by third parties, including but not limited to design and related work and makes no representation or warranty regarding same. Jacobs will reasonably rely upon the accuracy, and completeness of the information/data provided by the Client or other third parties.
- The presence or duties of CONSULTANT'S personnel at a construction site, whether as onsite representatives or otherwise, do not make CONSULTANT or CONSULTANT'S personnel in any way responsible for those duties that belong to CITY and/or the construction contractor or other entities, and do not relieve the construction contractor or any other entity of their obligations, duties, and responsibilities, including, but not limited to, all construction methods, means, techniques, sequences, and procedures necessary for coordinating and completing all portions of the construction work in accordance with the construction Contract Documents and any health or safety precautions required by such construction work.
- Record drawings will be prepared, in part, on the basis of information compiled and furnished by others, and may not always represent the exact location, type of various components, or exact manner in which the project was finally constructed.

CONSULTANT is not responsible for any errors or omissions in the information from others that is incorporated into the record drawings

- In soils, foundation, groundwater, utilities, and other subsurface investigations, the actual characteristics may vary significantly between successive test points and sample intervals and at locations other than where exploration and investigations have been specifically made. Because of the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that could affect total project cost and/or execution. These conditions and cost/execution effects are not the responsibility of CONSULTANT.

## **Exclusions**

The following items are not included in this Work Order:

- Video or graphic renderings.
- Coordination with on-going third-party projects, except for the stormwater design by Perez Engineering in this neighborhood.
- Meetings beyond the ones described in the scope.

## **Obligations of the CITY**

To assist meeting schedule and budget estimates contained in this proposal, the CITY will provide the following:

- CITY will assist in obtaining available files and survey.
- Prompt review and comment on all deliverables.
- Attendance of key personnel at meeting as requested.

## **Additional Services**

The CONSULTANT will, as directed, provide additional services that are related to the project but not included within this Scope of Services. These and other services can be provided, if desired by the CITY, as an amendment to the Task Order. Work will begin for the Additional Services after receipt of a written notice to proceed from the CITY.

Additional services may include, but are not limited to, the following:

- Additional planning or design services if requested by the CITY
- Meetings, including in-person meetings and expenses
- Construction phase services beyond Task G

## **Compensation**

The estimated total for TASK ORDER NO. 8 is **\$278,861.82 including \$18,380.34 of Time and Material and lump sum amount of \$260,481.48**. Compensation listed by task and per diem rate is included as Attachment A.

Travel is anticipated and included in the compensation schedule.

A fee for the ERP individual permit is included (\$5,500 for projects less than 40 acres). There are no fees for USACE permits. No mitigation bank or other mitigation fees are included.

## **Schedule**

The following items will be scheduled:

- Project Kickoff and Meeting - December 1<sup>st</sup>, 2022
- Completion of survey and data collection - December 20<sup>th</sup>, 2022
- 10% Conceptual Design Report - January 29, 2023
- Pre-Application Meeting - TBD
- 60% Design - March 14, 2023
- Permitting Application Submittal - TBD
- Final Design - June 12, 2023

**ATTACHMENT A  
COMPENSATION**

**City of Key West - 10th Street and Harris Avenue Neighborhood Resiliency Improvements**

Role	Project Manager	Lead Design Engineer (FL PE), Engineer of Record, QC Reviewer	Jr/Mid Engineer	Jr/Mid Engineer	Civil CAD Designer	Sr. Structural Engineer & QA/QC	Mid Structural Engineer (FL PE)	Structural CAD Designer	Cost Estimator	Specs Processor	STC/QC Reviewer	Permit Specialist	Subcontract Admin	Document Controls	Project Controls	Total Hours	Labor Cost	Permitting Fee or Expense (Subconsultant)	Travel Expenses	Total Cost
Rate Category	Engineer 4	Engineer 6	Engineer 2	Engineer 3	Technician 4	Engineer 5	Engineer 3	Technician 3	Technician 5	Specification Process	Engineer 7	Engineer 6	Clerical Office Support	Clerical Office Support	Clerical Office Support					
Billing Rate FY 2023	\$182.23	\$230.37	\$136.66	\$156.17	\$118.45	\$210.85	\$156.17	\$102.81	\$132.77	\$92.40	\$251.20	\$230.37	\$83.30	\$83.30	\$83.30					
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours					
<b>Task A: Data Collection (FY2023)</b>																				
Review available data (topo survey, record drawings, etc.) and determine need for additional Survey, which may include bathymetric		1	1													2	\$367.03			
Procure geotechnical borings and survey. Prepare scope of work for additional survey and geotechnical borings and coordinate with Subconsultants. 4 Geotechnical Borings	4	1	4										8			17	\$2,172.33			
Subconsultant - GEOSOL																0	\$0.00	\$12,296.00		
Pre-Design Site Visit, and Client Meetings Travel ( 1 PM and 1 Engineer) - 2 day trip to Key West	16	16									4					36	\$7,606.40		\$2,500.00	
Environmental Assessment and feasibility meeting with permitting agencies (2 day, 1 permit specialist)	4											32				36	\$8,100.76		\$1,500.00	
Coordinate with subconsultants, review data and provide comments to subconsultants	6	2	4	2	2											16	\$2,650.00			
<b>TASKS A HOURS TOTAL</b>	<b>30</b>	<b>20</b>	<b>9</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>32</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>107</b>				
<b>TASK A TOTAL COST</b>	<b>\$5,466.90</b>	<b>\$4,607.40</b>	<b>\$1,229.94</b>	<b>\$312.34</b>	<b>\$236.90</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,004.80</b>	<b>\$7,371.84</b>	<b>\$666.40</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>107</del>	<b>\$20,896.52</b>	<b>\$12,296.00</b>	<b>\$4,000.00</b>	<b>\$37,192.52</b>
<b>Task B: Conceptual Design (10%) (FY2023)</b>																				
Develop Concept to Present to City for Final Approval (Prepare Presentation)	6	2	4	4							6					22	\$4,232.64			
Meet with City (Virtual) and Prepare Post-Meeting Notes	4	2									2					8	\$1,692.06			
Prepare Environmental Report												60				60	\$13,822.20			
Prepare Conceptual Design Report	4	12	24	24	4	6	4				12					90	\$15,899.26			
Class V Cost Estimate									20							20	\$2,655.40			
<b>TASK B HOURS TOTAL</b>	<b>14</b>	<b>16</b>	<b>28</b>	<b>28</b>	<b>4</b>	<b>6</b>	<b>4</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>20</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>200</b>				
<b>TASK B TOTAL COST</b>	<b>\$2,551.22</b>	<b>\$3,685.92</b>	<b>\$3,826.48</b>	<b>\$4,372.76</b>	<b>\$473.80</b>	<b>\$1,265.10</b>	<b>\$624.68</b>	<b>\$0.00</b>	<b>\$2,655.40</b>	<b>\$0.00</b>	<b>\$5,024.00</b>	<b>\$13,822.20</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>200</del>	<b>\$38,301.56</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$38,301.56</b>
<b>Task C: Pre-Application Meetings (FY2023)</b>																				
Prepare Pre-Application Material	8	1			8						2	8				27	\$4,981.17			
Coordinate and Participate in Pre-Application Meeting with following Agencies: Florida Keys Energy (to be done before Conceptual Design, but one more to follow-up with the specific plan) South Florida Water Management District (SFWMD) U.S. Army Corps of Engineers (USACE) Florida Keys Marine Sanctuary (Sanctuary) Travel (1 PM and 1 Permit Specialist) - 1 day trip to Permitting Agency	12	2									4	16				34	\$7,338.22		\$1,800.00	
<b>TASK C HOURS TOTAL</b>	<b>20</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>61</b>				
<b>TASK C TOTAL COST</b>	<b>\$3,644.60</b>	<b>\$691.11</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$947.60</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,507.20</b>	<b>\$5,528.88</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>61</del>	<b>\$12,319.39</b>	<b>\$0.00</b>	<b>\$1,800.00</b>	<b>\$14,119.39</b>
<b>Task D: Permitting, Design (60%) and Applications (FY2023)</b>																				
Prepare 60% Level Plans		12	84		108		22	22						8		256	\$33,400.44			
Final Submission of Permitting Forms and Supporting documents	8	2									4	32				46	\$10,295.22			
Front End and Technical Specifications	8	20					16			16						60	\$10,042.36			
Design Coordination with Perez Engineering	8	6			2		4	2			2					24	\$4,409.66			
Cost Estimate									20							20	\$2,655.40			
Quality Assurance/Review	2	8				8					4					22	\$4,899.02			
H&H Modeling Updates and Coordination with Perez Design, and TM Preparation		4		48							8	4				64	\$11,348.72			
ERP Fee less than 40 acres of drainage area																0	\$0.00	\$5,500.00		
<b>TASK D HOURS TOTAL</b>	<b>26</b>	<b>52</b>	<b>84</b>	<b>48</b>	<b>110</b>	<b>8</b>	<b>42</b>	<b>24</b>	<b>20</b>	<b>16</b>	<b>18</b>	<b>36</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>492</b>				
<b>TASK D TOTAL COST</b>	<b>\$4,737.98</b>	<b>\$11,979.24</b>	<b>\$11,479.44</b>	<b>\$7,496.16</b>	<b>\$13,029.50</b>	<b>\$1,686.80</b>	<b>\$6,559.14</b>	<b>\$2,467.44</b>	<b>\$2,655.40</b>	<b>\$1,478.40</b>	<b>\$4,521.60</b>	<b>\$8,293.32</b>	<b>\$0.00</b>	<b>\$666.40</b>	<b>\$0.00</b>	<del>492</del>	<b>\$77,050.82</b>	<b>\$5,500.00</b>	<b>\$0.00</b>	<b>\$82,550.82</b>
<b>Task E: Final Design (100%) (FY2023)</b>																				

Role	Project Manager	Lead Design Engineer (FL PE), Engineer of Record, QC Reviewer	Jr/Mid Engineer	Jr/Mid Engineer	Civil CAD Designer	Sr. Structural Engineer & QA/QC	Mid Structural Engineer (FL PE)	Structural CAD Designer	Cost Estimator	Specs Processor	STC/QC Reviewer	Permit Specialist	Subcontract Admin	Document Controls	Project Controls	Total Hours	Labor Cost	Permitting Fee or Expense (Subconsultant)	Travel Expenses	Total Cost
Rate Category	Engineer 4	Engineer 6	Engineer 2	Engineer 3	Technician 4	Engineer 5	Engineer 3	Technician 3	Technician 5	Specification Process	Engineer 7	Engineer 6	Clerical Office Support	Clerical Office Support	Clerical Office Support					
Billing Rate FY 2023	\$182.23	\$230.37	\$136.66	\$156.17	\$118.45	\$210.85	\$156.17	\$102.81	\$132.77	\$92.40	\$251.20	\$230.37	\$83.30	\$83.30	\$83.30					
	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours	Hours					
Prepare 100% Level Plans		8.5	63.5		90		20	10						8		200	\$26,114.46			
Front End and Technical Specifications	6	10					10			12						38	\$6,067.58			
Design Coordination with Perez Engineering	0	0			0		0	0			0					0	\$0.00			
Quality Assurance / Review	2	8				8					4					22	\$4,899.02			
<b>TASK E HOURS TOTAL</b>	<b>8</b>	<b>26.5</b>	<b>63.5</b>	<b>0</b>	<b>90</b>	<b>8</b>	<b>30</b>	<b>10</b>	<b>0</b>	<b>12</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>260</b>				
<b>TASK E TOTAL COST</b>	<b>\$1,457.84</b>	<b>\$6,104.81</b>	<b>\$8,677.91</b>	<b>\$0.00</b>	<b>\$10,660.50</b>	<b>\$1,686.80</b>	<b>\$4,685.10</b>	<b>\$1,028.10</b>	<b>\$0.00</b>	<b>\$1,108.80</b>	<b>\$1,004.80</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$666.40</b>	<b>\$0.00</b>	<del>260</del>	<b>\$37,081.06</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$37,081.06</b>
<b>Task F: Bidding Services (FY2023)</b>																				
Issue Bid Set of Plans	1				1											2	\$300.68			
Answer Bidders Questions	2	2	2		2		2	1			2					13	\$2,252.97			
Deliver Conformed "Issue for Construction" Plans and Specs	2	2				4	2				4					14	\$2,985.74			
<b>TASK F HOURS TOTAL</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>				
<b>TASK F TOTAL COST</b>	<b>\$911.15</b>	<b>\$921.48</b>	<b>\$273.32</b>	<b>\$0.00</b>	<b>\$355.35</b>	<b>\$843.40</b>	<b>\$624.68</b>	<b>\$102.81</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,507.20</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>29</del>	<b>\$5,539.39</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$5,539.39</b>
<b>Task G: Services During Construction (FY2023)</b>																				
Review Submittals	4	6				4	8				2					24	\$4,706.30			
Respond to RFIs	4	6				4	8				2					24	\$4,706.30			
<b>TASK G HOURS TOTAL</b>	<b>8</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>48</b>				
<b>TASK G TOTAL COST</b>	<b>\$1,457.84</b>	<b>\$2,764.44</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,686.80</b>	<b>\$2,498.72</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$1,004.80</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>48</del>	<b>\$9,412.60</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$9,412.60</b>
<b>Task H: Project Management and Administration</b>																				
Manage Project Schedule and Financials	24														28	52	\$6,705.92			
Bi-Weekly Client Meetings	24														28	52	\$6,705.92			
<b>TASK H HOURS TOTAL</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>	<b>104</b>				
<b>TASK H TOTAL COST</b>	<b>\$8,747.04</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>104</del>	<b>\$13,411.84</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$13,411.84</b>
<b>Task I: Pump Station Conceptual Design</b>																				
Conceptual Design and Timeframe for Implementation	8	2	32			4	60	8	16							130	\$19,452.10			
Deliverable		4		16												20	\$3,420.20			
<b>TASK I HOURS TOTAL</b>	<b>8</b>	<b>6</b>	<b>32</b>	<b>16</b>	<b>0</b>	<b>4</b>	<b>60</b>	<b>8</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>150</b>				
<b>TASK I TOTAL COST</b>	<b>\$1,457.84</b>	<b>\$1,382.22</b>	<b>\$4,373.12</b>	<b>\$2,498.72</b>	<b>\$0.00</b>	<b>\$843.40</b>	<b>\$9,370.20</b>	<b>\$822.48</b>	<b>\$2,124.32</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<del>150</del>	<b>\$22,872.30</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$22,872.30</b>
<b>Task J: Additional Design and Study (Time and Material) (Elective Task-It needs prior authorization from client to proceed with the work)</b>																				
Traffic Flow	2	4	40		16						2	2			2	68	\$9,777.28			
Additional Design for Flood Protection, Specs/Drawings Update	2		16		8	8		16	4	8	2					64	\$8,603.06			
<b>TASK J HOURS TOTAL</b>	<b>4</b>	<b>4</b>	<b>56</b>	<b>0</b>	<b>24</b>	<b>8</b>	<b>0</b>	<b>16</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>132</b>				
<b>TASK J TOTAL COST</b>	<b>\$728.92</b>	<b>\$921.48</b>	<b>\$7,652.96</b>	<b>\$0.00</b>	<b>\$2,842.80</b>	<b>\$1,686.80</b>	<b>\$0.00</b>	<b>\$1,644.96</b>	<b>\$531.08</b>	<b>\$739.20</b>	<b>\$1,004.80</b>	<b>\$460.74</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$166.60</b>	<del>132</del>	<b>\$18,380.34</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$18,380.34</b>
<b>TASKS A THRU J HOURS TOTAL</b>	<b>159</b>	<b>133.5</b>	<b>186.5</b>	<b>78</b>	<b>217</b>	<b>34</b>	<b>96</b>	<b>35</b>	<b>40</b>	<b>28</b>	<b>62</b>	<b>152</b>	<b>8</b>	<b>16</b>	<b>56</b>	<b>1301</b>				
<b>TASKS A THRU J TOTAL COST</b>	<b>\$31,161.33</b>	<b>\$33,058.10</b>	<b>\$37,513.17</b>	<b>\$14,679.98</b>	<b>\$28,546.45</b>	<b>\$9,699.10</b>	<b>\$24,362.52</b>	<b>\$6,065.79</b>	<b>\$7,966.20</b>	<b>\$3,326.40</b>	<b>\$16,579.20</b>	<b>\$35,476.98</b>	<b>\$666.40</b>	<b>\$1,332.80</b>	<b>\$4,831.40</b>	<del>1301</del>	<b>\$255,265.82</b>	<b>\$17,796.00</b>	<b>\$5,800.00</b>	<b>\$278,861.82</b>

**ATTACHMENT B**  
**GEOSOL PROPOSAL**



JACOBS  
550 W Cypress Creek Road, Suite 400  
Fort Lauderdale, Florida, 33309

July 18, 2022

Attention: Ms. Elaine Tolon, P.E. - Water Resource Engineering Professional Associate

Re: **Proposal for Geotechnical Services**  
10<sup>th</sup> Street and Harris Avenue Tidal Barrier Wall  
City of Key West, Florida  
GEOSOL Proposal No. P-222157

Dear Ms. Tolon:

In accordance with your request on July 18, 2022, Geosol, Inc. (GEOSOL) is pleased to submit this proposal pertaining to geotechnical services for the above-referenced project. The enclosed proposal includes an estimate of the work effort and our anticipated approach, based on our understanding of the project.

### **PROJECT INFORMATION**

As we understand it, the City of Key West planning the design and construction of a tidal barrier wall along the west side of 10<sup>th</sup> Street from north of Harrison Avenue to north of Patterson Avenue with a total length of about 550 feet.

### **SCOPE OF SERVICES**

#### **General**

As requested, geotechnical services will be required consisting of the performance of Standard Penetration Test (SPT) borings along the alignment for the proposed tidal barrier wall. The following section provides a discussion regarding the proposed geotechnical investigation program.

#### **Field Exploration and Laboratory Testing Programs**

1. Perform site reconnaissance, locate and coordinate for existing utilities that may interfere with the drilling operations.
2. Provide traffic control in accordance with the Index 600 series of the FDOT Roadway and Traffic Design Standards.
3. Perform a total of four (4) SPT borings to depths of 20 feet below grades for proposed tidal barrier wall. Specifically, as requested, three (3) SPT borings are required along 10<sup>th</sup> Street and one (1) SPT boring will be required at the north end of Sunset Drive.
4. Backfill the boreholes using cement grout mix.



5795-A N.W. 151<sup>st</sup> Street  
Miami Lakes, FL 33014  
Phone (305) 828-4367; Fax (305) 828-4235  
E-mail: [geosolusa@bellsouth.net](mailto:geosolusa@bellsouth.net)

5. Visually examine all recovered soil/rock samples and asphalt pavement specimen in the laboratory. A geotechnical engineer will examine all recovered soil and rock samples.

The location of the tests will be determined and paint marked during a site walk through with a City of Key West representative prior to commencing work.

### **Traffic Control**

The work will be coordinated to minimize the amount of traffic disruption. Flagmen, barricades, signs, cones and off-duty police officers will be used in accordance with Index 600 Series of the FDOT Roadway and Traffic Design Standards to allow for continuous traffic flow. Based on our site review, some test locations may need to be performed adjacent to on-going traffic and/or lane closure. We are anticipating that some borings will require MOT.

### **REPORTING**

The data will be used in performing geotechnical engineering evaluations and developing foundation recommendations in the following areas:

1. Location of Borings with GPS coordinates
2. Identification of groundwater levels.
3. Estimation of seasonal high groundwater tables (SHGWT).
4. Discussion of some critical design or construction considerations based on the subsurface conditions developed from the test borings.
5. A review of surface features and site conditions that could affect construction and site preparation.
6. General evaluation of the site considering the proposed project and estimated subsurface conditions.
7. Foundation analysis and recommendations for the proposed tidal barrier wall.
8. Construction considerations.



## **Geotechnical Report**

A geotechnical report will be prepared for this study to summarize the course of the study pursued and for support of the design plans. The report will contain the field and laboratory data generated, and subsurface conditions encountered. The reports will contain the results of the SPT borings, as well as geotechnical recommendation for proposed tidal barrier wall.

## **SCHEDULE**

Our study can begin within one (1) day upon receiving your formal notice to proceed. We will begin by calling SunShine One Call Services to have underground utilities marked and cleared. This task typically takes up to five (5) days. Given the scope described herein, we can complete the field study for the site within two (2) working days. The laboratory testing can be completed within a period of five (5) working days. The geotechnical reports can be completed in ten (10) working days after completion of the laboratory testing program. Therefore, we can complete the requested services in about a five (5)-week period upon receiving Notice to Proceed.

## **FEES**

Based on our general knowledge and an interpretation of your requirements, we are willing to complete the subsurface exploration and report preparation for the subject site for a total sum of \$12,296.00. We have enclosed a detailed Fee Proposal for your review in Attachment 1.

GEOSOL appreciates your consideration of our firm to undertake this project. If you have any questions, please do not hesitate to contact us.

Sincerely,  
**GEOSOL, INC.**



Oracio Riccobono, P.E.  
Chief Geotechnical Engineer/President



Adnan Ismail, P.E.  
Senior Geotechnical Engineer

Attachment 1 – Fee Proposal



**ATTACHMENT 1**

FEE PROPOSAL



**GEOSOL, INC.**  
**FEE PROPOSAL FOR GEOTECHNICAL SERVICES**  
**10th Street and Harris Avenue Tidal Barrier Wall**  
**City of Key West, Florida**

**GEOSOL PROPOSAL No. P-222157**

<u>DESCRIPTION</u>	UNITS	# OF UNITS	UNIT RATE (\$)	TOTAL \$
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**1. MOBILIZATION/DEMOBILIZATION**

Mobilization of Truck Mounted Drill Rig	each	1	\$1,000.00	\$1,000.00
Traffic Control- Cones, Flags, Barricades,etc	day	2	\$225.00	\$450.00
Traffic Control- Arrow Board	day	2	\$150.00	\$300.00
Traffic Control- Off-duty Police Officer	day	2	\$440.00	\$880.00
Engineering Technician (Boring Layout, Utility Clearance, Field Meetings, & MOT Set-up)	hour	24	\$90.00	\$2,160.00

**SUB-TOTAL (MOBILIZATION/DEMOBILIZATION)**

**\$4,790.00**

**2. FIELD INVESTIGATION**

Standard Penetration Test Borings - 4 locations to 20 ft in depth for proposed tidal barrier wall (3 along 10th Street, and 1 at the north end of Sunset Drive)	feet	80	\$13.80	\$1,104.00
Grout Seal Boreholes	feet	80	\$4.80	\$384.00
Visual Classification of Samples (By Engineering Intern)	hour	4	\$110.00	\$440.00

**SUB-TOTAL (FIELD EXPLORATION)**

**\$1,928.00**

**4. LABORATORY PROGRAM**

Natural Moisture Test	each	4	\$12.00	\$48.00
Grain Size Analysis (Full Gradation - w/o -200 Sieve)	each	4	\$55.00	\$220.00
Fine Content Determination - Single Sieve (-200 Sieve)	each	2	\$30.00	\$60.00
Organic Content Determination	each	2	\$40.00	\$80.00
Corrosion Series (pH, Chloride, Sulfate & Resist.)	each	1	\$130.00	\$130.00

**SUB-TOTAL (LABORATORY TESTING)**

**\$538.00**

**TOTAL FIELD AND LABORATORY PROGRAM**

**\$7,256.00**

**5. ENGINEERING AND TECHNICAL SERVICES**

Senior Geotechnical Engineer	hour	8	\$200.00	\$1,600.00
Project Geotechnical Engineer	hour	12	\$160.00	\$1,920.00
Engineering Intern	hour	8	\$110.00	\$880.00
CADD Technician	hour	4	\$95.00	\$380.00
Clerical	hour	4	\$65.00	\$260.00

**SUB-TOTAL (ENGINEERING SERVICES)**

**\$5,040.00**

**TOTAL GEOTECHNICAL FEES FOR PROJECT**

**\$12,296.00**