

## EXHIBIT B

**City of Delray Beach**  
**Tropic Isle Neighborhood Roadway & Utility Improvements - PHASE 1**  
**STAFF HOUR AND FEE ESTIMATE**

TASK	PRINCIPAL	PRINCIPAL ENGINEER	SR PROFESSIONAL	PROJECT ENGINEER	ANALYST	SR. DESIGNER	ADMIN ASST	TOTAL HOURS	LABOR FEE	NOTES/KEY ASSUMPTIONS
<b>PHASE 1 - PROGRAMMING AND IMPLEMENTATION PLAN / Basis of Design Report</b>	\$285.00	\$215.00	\$185.00	\$158.00	\$125.00	\$145.00	\$79.00			
<b>1 Early Coordination and Data Collection</b> a. plans and documents - street evaluation, record drawings, utilities, FM report, R/W, GIS, survey, etc. b. Kick-off meeting		2.0 4.0	4.0	8.0	16.0		8.0	0.0		
<b>2 Design Survey - coordination</b>		1.0		2.0	0.0					
<b>3 Geotechnical Services Coordination (items below by geotech Engr)</b> BDR narration and recommendation		2.0	6.0							
<b>4 Roadway Evaluation</b> <u>a. Pavement Analysis</u> Field work Review Existing Conditions Proposed pavement recommendations  Collaboration & report narration	0.0	9.0	10.0	10.0	16.0	0.0		45.0	\$7,365.00	
<u>b. Roadway Analysis</u> Typical section & Sidewalk analysis Valley gutter evaluation		2.0 2.0	16.0 6.0	12.0 2.0	12.0 4.0					
<u>c. Roadway Profiles</u> Roadway elevation / raising streets analysis Driveway impacts analysis Typical exhibits QC Meeting with City & team collaboration		2.0 2.0 6.0	8.0 2.0 4.0	16.0 8.0	12.0 8.0 24.0					
<b>Roadway Evaluation (pavement, roadway, profiles analysis) TasksTotal:</b>	0.0	17.0	54.0	54.0	64.0	0.0	0.0	189.0	\$30,177.00	
<b>6 Drainage System Evaluation and Coordination</b> a. Field Review/Identify flood problem areas b. Existing Permits/Records Review c. Stormwater Management Analysis Coordination d. Drainage exhibit e. deleted f. Prepare Engineer's OPC g. Meetings with City (combine with other mtg) h. QC		2.0	8.0	4.0	8.0					
<b>Drainage Task Total:</b>	0.0	3.0	12.0	8.0	12.0	0.0	0.0	35.0	\$5,629.00	
<b>7 Water and Sewer Utilities Evaluation</b> a. Site Visit b. Identify water and sewer construction method and location c. Meetings with the City (1) d. deleted e. deleted f. Prepare Basis of Design Report narration for Water and Sewer g. Prepare Engineer's OPC h. QC		2.0 6.0 4.0	6.0 8.0							
<b>Utilities Task Total:</b>	0.0	16.0	26.0	4.0	4.0	0.0	2.0	52.0	\$9,540.00	
<b>8 OH to UG Utility Conversion Feasibility</b> Site Visit Review Right of Way (typical street) Existing infrastructure Maps from survey Develop OPC Meeting with City Develop Summary of Findings QC		1.0 2.0	3.0	2.0	2.0 6.0 2.0 6.0					
<b>UG Feasibility Task Total</b>	5.0	0.0	9.0	2.0	22.0	0.0	0.0	38.0	\$6,156.00	

9 Landscape and Irrigation										
DELETED										
Landscape Task Total:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	\$0.00
10 Lighting										
Data Collection & coordination					4.0					
Field review (not required)										
Prepare Recommendations										
OPC (not required)										
QC			1.0							
Lighting Task Total:	0.0	0.0	1.0	0.0	4.0	0.0	0.0	5.0		\$685.00
11 Project Phasing Plan (5 phases / years)										
DELETED										
12 Traffic Management Plan										
DELETED										
Spoils Management Plan										
13 DELETED										
14 Permitting Requirements										
DELETED										
15 Opinion of Probable Cost										
a. Alternatives analysis phase (streets, utilities, drainage)			8.0	4.0	8.0					
b. Draft BDR phase			8.0	4.0	8.0					
c. Final BDR phase			6.0	4.0	8.0					
d. QC			4.0							
Plan Task Total:	0.0	0.0	26.0	12.0	24.0	0.0	0.0	62.0		\$9,706.00
16 Public Outreach										
Prepare outreach plan document		2.0	6.0							
Alternatives development phase - Prep, attend, document (1 mtg)	4.0		8.0							
Draft BDR phase - Prep, attend, document (DELETED)										
Commission meeting (DELETED)										
City progress meetings										
Project Flyers & mailers (for 1 combined HOA mtg)						8.0	32.0			
Exhibits Prep.										
Plan Task Total:	4.0	4.0	14.0	0.0	24.0	8.0	32.0	88.0		\$11,708.00
17 BDR Reports										
Draft BDR Development		12.0	32.0							
Address review comments include meeting		6.0	16.0	8.0						
Final BDR Development		2.0	16.0	8.0						
QC		8.0								
Plan Task Total:	0.0	28.0	64.0	16.0	0.0	0.0	0.0	108.0		\$20,388.00
Total Hours	9.0	79.0	216.0	106.0	170.0	8.0	34.0	622.0		0

K:\RCD\_Roadway\_Marketing\Delroy 2019 Proposals\Tropic Isle\Contract\Fee 1st Phase 1 Tropic Isle 2019-12-30 rev 2.xlsx\FEE

28.00	70.0	200.0	100.0	150	Design Labor Fee Subtotal:	\$101,354.00
					Other Services	
					Terracon Subconsultant (geotech) \$	21,739.00
					Subconsultant (Pipe video inspection allowance)	NA
					Design Survey \$	116,550.00
					Utility verification Soft digs allowance	NA
					ADA Subconsultant (Stormwater Analysis & Modeling) \$	34,319.60
					Other Services Subtotal: \$	172,608.60
					Direct Expenses (1% of labor)	\$1,013.54
					TOTAL FEE (Lump Sum)	\$274,976.14

December 19, 2019



Kimley-Horn and Associates, Inc.  
1920 Wekiva Way, Suite 200  
West Palm Beach, FL 33411

Attn: Mr. Marwan Mufleh  
P: (561) 840-0850  
E: Marwan.Mufleh@kimley-horn.com

Re: Proposal for Geotechnical Engineering Services  
Tropic Isle Neighborhood Improvements  
Delray Beach, Florida  
Terracon Proposal No. PHD195088

Dear Mr. Mufleh:

We appreciate the opportunity to submit this proposal to Kimley-Horn and Associates, Inc. (KHA) to provide Geotechnical Engineering services for the above referenced project. The following are exhibits to the attached Agreement for Services.

Exhibit A	Project Understanding
Exhibit B	Scope of Services
Exhibit C	Compensation and Project Schedule
Exhibit D	Site Location

Our base fee to perform the Scope of Services described in this proposal is \$21,739.10. See Exhibit C for more details of our fees and consideration of additional services.

Your authorization for Terracon to proceed in accordance with this proposal can be issued by sending us your Individual Project Order using this proposal as an attachment.

Sincerely,

**Terracon Consultants, Inc.**

Jaime Velez, P.E.  
Senior Geotechnical Engineer

Douglas S. Dunkelberger, P.E.  
Principal

Terracon Consultants, Inc. 1225 Omar Road West Palm Beach, FL 33405  
P (561) 689-4299 F (561) 689-5955 [terracon.com](http://terracon.com)

Environmental



Facilities



Geotechnical



Materials

## EXHIBIT A - PROJECT UNDERSTANDING

Our Scope of Services is based on our understanding of the project as described by KHA and the expected subsurface conditions as described below. We request the design team verify all information prior to our initiation of field exploration activities.

### Site Location and Anticipated Conditions

Item	Description
<b>Parcel Information</b>	The project consists of the roadways within the Tropic Isle Neighborhood in Delray Beach, Florida. The entire neighborhood area is roughly 200 acres. It is bounded to the east by the Intracoastal Waterway and to the west by Florida Blvd. The northernmost (east-west aligned) street is McCleary Street and the southernmost street is Spanish Circle. The center of the neighborhood is located near:  Latitude: 26°25'50"N, Longitude: 80° 4'4"W (See Exhibit D)
<b>Existing Improvements</b>	The site is a residential neighborhood mainly consisting of single-family waterfront homes. The roadways are all two-lane, undivided roadways surfaced with asphalt.
<b>Existing Topography</b>	The roadways appear to be gently sloping downwards from west to east, with surface elevations ranging between about +8 and +3 feet (Google Earth Pro, datum not known)
<b>Site Access</b>	We have assumed that the roadway alignment will be accessible with truck-mounted equipment without the need for a right-of-way permit.

### Planned Construction

Item	Description
<b>Information Provided</b>	The following information was provided to us by KHA.

## Proposal for Geotechnical Engineering Services

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida

December 19, 2019 ■ Terracon Proposal No. PHD195088



Item	Description
<b>Project Description</b>	<p>Over a number of years the Tropic Isle neighborhood roadways have experienced uneven surfaces, numerous surface depressions, asphalt cracking and deterioration which have adversely impacted roadway drainage and rideability and increased maintenance costs. In order to correct the current roadway situation, new roadway engineering and utility designs are required.</p> <p>We understand that KHA is to design roadway and underground utility improvements including potential replacement of water/drainage/sanitary /cable/phone/electric/irrigation lines as well as right-of-way landscaping, street lighting and roadway signage. Drainage pipes could bottom as deep as about 8 feet below grade with associated manhole structures potentially bearing at about 10 feet deep. Approximately 6 miles of roadway and underground utility improvements are planned. Consideration is also being given to raising the roadway elevations.</p> <p>The design/construction of the proposed improvements will need to allow for vehicular access (at all times) of residents to their homes during construction.</p>

## Existing Geotechnical Conditions

Earlier this year Terracon conducted a subsurface investigation across the Tropic Isle neighborhood that included the drilling of 45 Standard Penetration Test (SPT) borings to depths of 15 to 20 feet below grade (drilled in February 2019). The results of the subsurface exploration disclosed about 1 to 6 inches of asphalt concrete over (about) 5 to 11 inches of base course. Beneath the pavement section exists relatively clean to silty sands. In most of the borings, a layer of muck or peat (ranging from ½ to 9 ft in thickness) exists (typically) between about 4 and 12 feet below grade. Sands generally follow beneath the muck and either extend to the termination depth of the borings (i.e. 15 to 20 feet below grade) or to a limestone formation (starting usually between 11 and 18 feet below grade) that typically extends to the termination exploration depth. The sands above the muck are believed to be man-made fills that were placed during the dredging of the Intracoastal Waterway, which occurred sometime prior to 1940.

Groundwater was found at depths ranging from 0.3 to 8.8 feet below ground surface (bgs) while sampling. Variations in depth to groundwater are mainly attributed to three factors: 1) variations in ground surface elevation 2) influence from the adjacent Intracoastal Waterway which is tidal and 3) rainfall that occurred during the field work.

## **EXHIBIT B - SCOPE OF SERVICES**

Our proposed Scope of Services consists of field exploration, laboratory testing, and engineering/project delivery. The purpose of our work is to develop geotechnical recommendations for the proposed utility line installations and pavements. We will evaluate geotechnical related options for installation of the new utility lines and potentially raising the roadway grades while minimizing settlement due to muck compression. Over-excavation and replacement of the muck will be considered as well as ground modification options such as soil mixing and rigid inclusions (for the roadways) as well as helical piles (for support of the stormwater utility lines).

### **Field Exploration**

The proposed subsurface exploration program includes the drilling of borings along the eastern edge of the neighborhood (where muck is relatively deep) to obtain deeper subsurface information (than prior borings) as well as borings along or near Florida Boulevard, which was not explored in the prior subsurface exploration.

We proposed to perform the following field exploration program.

- Visit the project site, field mark exploration locations, and contact the Sunshine State One Call of Florida (SSOCOF) for the clearance of public utilities.
- Since the work will be within existing residential roadways, a maintenance of traffic plan will be developed and implemented in order to limit impacts to local traffic, and to provide a safe working zone.
- Once underground utility clearance is obtained, mobilize truck-mounted drilling rig and drill borings in accordance with the table that follows.

Number of Test Locations	Planned Boring Depth (feet) <sup>1</sup>	Type	Planned Location
7	15	SPT Boring	Along or near to Florida Boulevard
6	35		Eastern edge of neighborhood within roadways

<sup>1</sup>. Below ground surface

- The Standard Penetration Test (SPT) borings will be drilled using mud rotary methods and samples of the subsurface materials will be obtained at frequent vertical intervals in accordance with procedures outlined in ASTM D 1586 (the Standard Penetration Test).
- Soil sampling in the SPT borings will be completed in general accordance with industry standard procedures wherein split-barrel samples are obtained. In addition, we will observe

## Proposal for Geotechnical Engineering Services

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida

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and record groundwater levels during drilling. Once the samples have been collected and classified in the field, they will be placed in appropriate sample containers for transport to our laboratory.

- The boreholes will be backfilled with gravel or bentonite chips, followed by dry Sakrete and then surfaced with cold-patch asphalt mix.

We have assumed that we are not responsible for location of underground utilities beyond contacting SSOCOF locate service. Location of private lines is not part of the SSOCOF and is NOT included in the Terracon scope. If the locations of private lines are not known, and this information is desired, we have included a private utility locate under the Additional Services section of this proposal.

**Property Disturbance:** We have not budgeted to restore the site beyond backfilling our boreholes and cold-patching the surface in pavement areas. If there are any restrictions or special requirements regarding this site or exploration, please provide them with your acceptance of this proposal.

**Site Access:** We anticipate that the cleared portions of the site will be accessible to our truck-mounted drilling equipment and that our work can be performed during normal business hours and without the need of a right-of-way permit.

## Safety

At Terracon, we all have a personal and uncompromising commitment to everyone going home safely each and every day. Incident and Injury-Free (*IIF*) is about care and concern for people. It is our personal and organizational commitment at all levels of the company and is where safety is held as a core value as well as an operational priority. Working safely is an inseparable part of working correctly, just as much as other operational priorities, in particular quality, profitability and schedule. Incident and Injury-Free is our commitment to our people and others, who we value for who they are and what they do. *IIF* is not just something we do, it's in everything we do.

As part of our *IIF* process, we will prepare a "Pre-Task Plan" for this project where we will identify the potential site safety and job hazards associated with your site. Our Pre-Task Plan will identify and prepare our personnel to be able to handle conditions such as but not limited to traffic control, environmental contamination, site access issues, overhead and underground utilities, adverse weather conditions, and personal protection equipment and will continually be reviewed and reevaluated throughout the field work activities. We understand that each site is unique and may contain different safety conditions and as a company to protect our personnel as well as others, we look at each site individually to identify the potential concerns. For this project, the implementation of a MOT plan is an example of our focus on safety.

## Proposal for Geotechnical Engineering Services

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida

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### Laboratory Testing

The recovered soils and materials will be classified in the laboratory in accordance with the Unified Soil Classification System (ASTM D 2487) and appropriate geological terminology. Selected samples will be tested for moisture content and organic content to aid in the classification process and our analysis.

### Engineering and Project Delivery

Results of our field and laboratory programs will be evaluated by a professional engineer. The engineer will develop a geotechnical site characterization and perform the engineering calculations necessary to develop appropriate geotechnical engineering design criteria for the project.

Your project will be delivered using our [GeoReport®](#) system. Upon initiation, we provide you and your design team the necessary link and password to access the website (if not previously registered). Each project includes a calendar to track the schedule, an interactive site map, a listing of team members, access to the project documents as they are uploaded to the site, and a collaboration portal. The typical delivery process includes the following:

- Project Planning – Proposal information, schedule and anticipated exploration plan will be posted for review and verification
- Site Characterization – Findings of the site exploration
- Geotechnical Engineering – Recommendations and geotechnical engineering report

When utilized, our collaboration portal documents communication, eliminating the need for long email threads. This collaborative effort allows prompt evaluation and discussion of options related to the design and associated benefits and risks of each option. With the ability to inform all parties as the work progresses, decisions and consensus can be reached faster. In some cases, only minimal uploads and collaboration will be required, because options for design and construction are limited or unnecessary. This is typically the case for uncomplicated projects with no anomalies found at the site.

When services are complete, we upload a printable version of our completed geotechnical engineering report, including the professional engineer's seal and signature, which documents our services. Previous submittals, collaboration and the report are maintained in our system. This allows future reference and integration into subsequent aspects of our services as the project goes through final design and construction.

The geotechnical engineering report will provide the following:

- Site Location and Exploration Plans



## Proposal for Geotechnical Engineering Services

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida

December 19, 2019 ■ Terracon Proposal No. PHD195088



- Subsurface exploration procedures
- Thicknesses of pavement sections
- Boring logs with field and laboratory data
- Stratification based on visual soil classification and laboratory test results
- Groundwater levels observed during drilling
- Description of subsurface conditions
- Opinions and recommendations related to underground utility installation and new roadway construction considering utility/pavement performance (e.g. settlement) and site access limitations. Ground Modification options (such as soil mixing) and helical piles will be considered for purposes of addressing settlement of the roadways and utility lines.

### Additional Services

In addition to the services noted above, the following are often associated with geotechnical engineering services. Fees for services noted above do not include the following:

**Private Utility Locate:** Due to the narrow shoulders along these roadways, we understand that there may be numerous underground utilities pipelines and laterals near our boring locations. For an additional fee, Terracon can conduct a Ground Penetrating Radar (GPR) survey to supplement the SSOCOF public locate around our test locations. Even if the GPR survey is performed, Terracon will not be responsible for damage to existing underground utilities. We will take reasonable precautions to avoid damage to existing utilities.

**Review of Plans and Specifications:** Our geotechnical report and associated verbal and written communications will be used by others in the design team to develop plans and specifications for construction. Review of project plans and specifications is a vital part of our geotechnical engineering services. This consists of review of project plans and specifications related to site preparation and pavement construction. Our review will include a written statement conveying our opinions relating to the plans and specifications' consistency with our geotechnical engineering recommendations.

## EXHIBIT C - COMPENSATION AND PROJECT SCHEDULE

### Compensation

Based upon our understanding of the site, the project as summarized in Exhibit A, and our planned Scope of Services outlined in Exhibit B, fee is shown in the following table:

Task	Lump Sum Fee
Subsurface Exploration, Laboratory Testing, Geotechnical Consulting & Reporting	\$21,739.10

Additional services not part of the base fee include the following:

Additional Services (see Exhibit B)	Lump Sum Fee	Initial for Authorization
Private Utility Locate Service <sup>1</sup>	\$2,000	
Plans and Specifications Review	\$500	

1. If the owner/client is unable to accurately locate private utilities, we can subcontract a private utility locating firm and/or utilize geophysical equipment, if necessary. The detection of underground utilities is dependent upon the composition and construction of utility lines. Some utilities are comprised of non-electrically conductive materials and may not be readily detected. The use of a private locate service does not relieve the owner of their responsibilities in identifying private underground utilities.

Unless instructed otherwise, we will submit our invoice(s) to the address shown at the beginning of this proposal. If conditions are encountered that require Scope of Services revisions and/or result in higher fees, we will contact you for approval, prior to initiating services. A supplemental proposal stating the modified Scope of Services as well as its effect on our fee will be prepared. We will not proceed without your authorization.

## Proposal for Geotechnical Engineering Services

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida

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### Project Schedule

We developed a schedule to complete the Scope of Services based upon our existing availability and understanding of your project schedule. However, this does not account for delays in field exploration beyond our control, such as weather conditions, permit delays, or lack of permission to access the boring locations. In the event the schedule provided is inconsistent with your needs, please contact us so we may consider alternatives.

<b>GeoReport® Delivery</b>	<b>Posting Date from Notice to Proceed<sup>1, 2</sup></b>
Project Planning	1 week
Site Characterization	4 weeks
Geotechnical Engineering	6 weeks

1. Upon receipt of your notice to proceed we will activate the schedule component of our **GeoReport®** website with specific, anticipated calendar days for the three delivery points noted above as well as other pertinent events such as field exploration crews on-site, etc.
2. We will maintain a current calendar of activities within our **GeoReport®** website. In the event of a need to modify the schedule, the schedule will be updated to maintain a current awareness of our plans for delivery.

## EXHIBIT D – SITE LOCATION

Tropic Isle Neighborhood Improvements ■ Delray Beach, Florida  
December 19, 2019 ■ Terracon Proposal No. PHD195088

**Terracon**

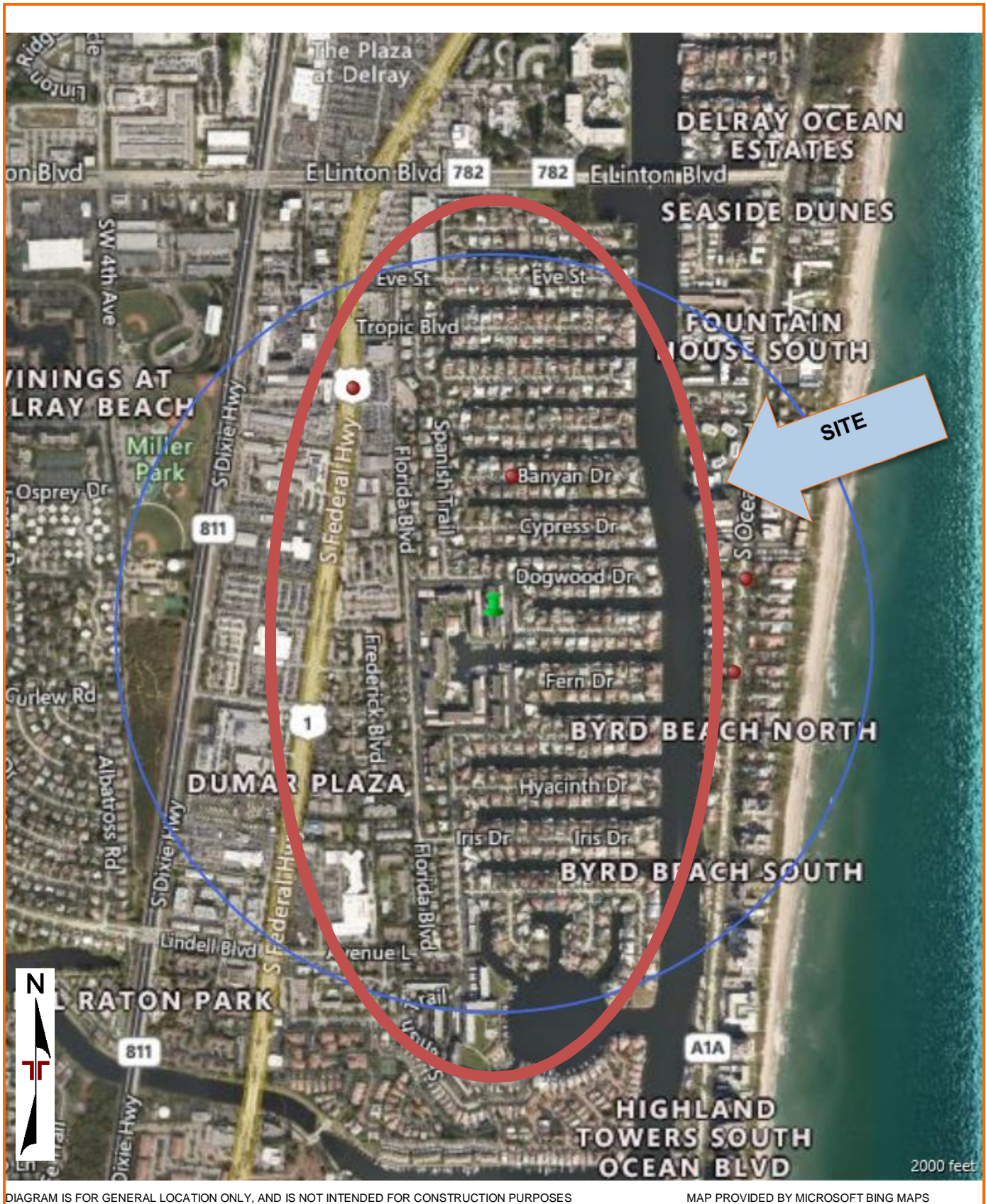


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS



**EXHIBIT E - FEE BREAKDOWN**  
**TROPIC ISLE NEIGHBORHOOD IMPROVEMENTS**  
**TERRACON CONSULTANTS, INC**  
**GEOTECHNICAL ENGINEERING SERVICES**

ITEM DESCRIPTION		UNITS	QUANT.	UNIT RATE	FEE
<b>GEOTECHNICAL</b>					
<b>I. PROJECT STARTUP</b>					
	A. Stake Boring Locations & Utility Clearance (Senior Eng. Tech)	hours	16	\$ 75.63	\$1,210.08
	B. Health and Safety Plan (Project Manager)	hours	6	\$ 99.18	\$595.08
<b>SUBTOTAL - PROJECT STARTUP</b>					<b>\$1,805.16</b>
<b>II. FIELD EXPLORATION</b>					
	A. Drilling Crew Mobilization	each	1	\$ 500.00	\$500.00
	B. SPT Borings (7 to 15 ft, 6 to 35 ft)				
	35-foot SPTs	each	6	\$ 700.00	\$4,200.00
	15-foot SPTs	each	7	\$ 600.00	\$4,200.00
<b>SUBTOTAL - FIELD EXPLORATION</b>					<b>\$8,900.00</b>
<b>III. LABORATORY TESTING</b>					
	A. Visual Engineering Classification (Senior Engineer)	hours	6	\$ 103.83	\$622.98
	B. Moisture Content	each	10	\$ 10.00	\$100.00
	C. Organic Content	each	6	\$ 50.00	\$300.00
	D. Grain Size Distribution	each	4	\$ 80.00	\$320.00
<b>SUBTOTAL - LABORATORY TESTING</b>					<b>\$1,342.98</b>
<b>IV. PROJECT MANAGEMENT, ENGINEERING &amp; REPORT PREPARATION</b>					
	A. Principal Engineer	hours	12	\$ 156.60	\$1,879.20
	B. Senior Engineer	hours	32	\$ 103.83	\$3,322.56
	C. Project Manager	hours	40	\$ 99.18	\$3,967.20
	D. Senior CADD Designer	hours	8	\$ 65.25	\$522.00
<b>SUBTOTAL - ENGINEERING</b>					<b>\$9,690.96</b>
<b>TOTAL</b>					<b>\$21,739.10</b>



December 19, 2019  
(updated January 6, 2020)

Marwan Mufleh, PE  
Principal  
Kimley-Horn  
1920 Wekiva Way, Suite 200  
West Palm Beach, FL 33411  
Phone: 561-840-0850  
Cell: 954-815-6898  
Email: Marwan.Mufleh@kimley-horn.com

**RE: Agreement for Professional Services**  
Project Name: Tropic Isle Roadways  
Project Location: Delray Beach, FL  
Our Project/Proposal Number: 11201.M0

Dear Mr. Mufleh,

In accordance with your request and subsequent discussions between members of our association and yourself, this agreement between Keith and Associates, Inc. (KEITH) ("CONSULTANT") and Kimley-Horn ("CLIENT") for professional services is submitted for your consideration and approval. The purpose of this Agreement is to outline the scope of services recommended by CONSULTANT and accepted by CLIENT, and to establish the contractual conditions between CONSULTANT and CLIENT with respect to the proposed services. CONSULTANT will begin work after receipt of a fully executed copy of this Agreement. Such receipt shall constitute written notice to proceed.

#### **PROJECT UNDERSTANDING**

The CLIENT has requested that KEITH provide survey support of neighborhood improvements for the Tropic Isles roadways.

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Corporate Office  
301 E Atlantic Blvd  
Pompano Beach  
FL 33060  
954.788.3400

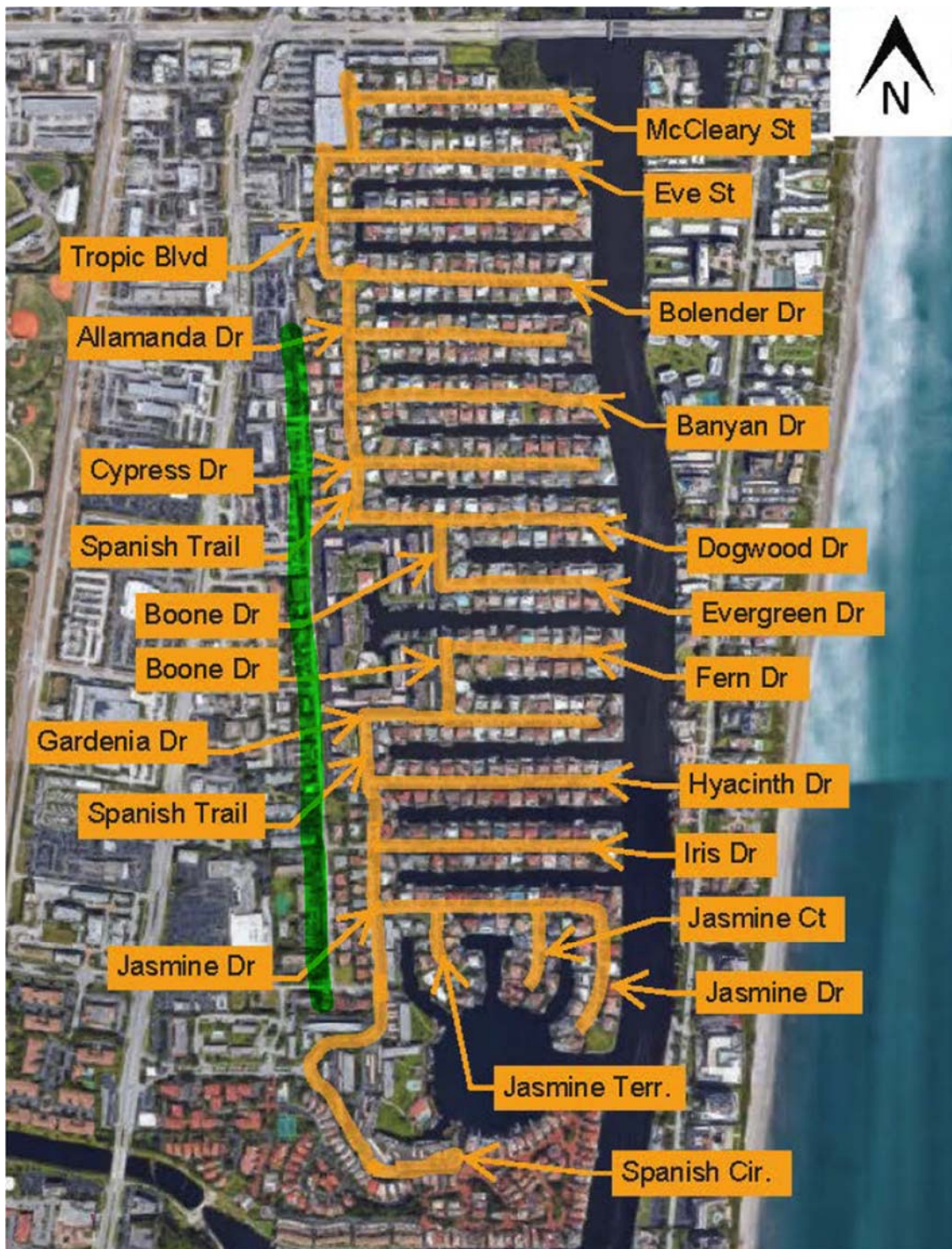
Miami-Dade County  
5805 Blue Lagoon Drive  
Suite 218  
Miami, FL 33122  
305.667.5474

Broward County  
2312 S Andrews Ave  
Fort Lauderdale  
FL 33316  
954.788.3400

Palm Beach County  
120 N Federal Hwy  
Suite 208  
Lake Worth, FL 33460  
561.469.0992

Orange County  
2948 E Livingston Street  
Suite 1  
Orlando, FL 32803  
954.788.3400

Project Areas – Site Map



## **PROJECT SCOPE**

KEITH services included for this project

☒ **Survey**

- ☐ ALTA/NSPS
- ☒ Topography
- ☐ Boundary
- ☐ Tree
- ☐ Sketch and Description
- ☐ Construction Layout
- ☐ Construction As-Built
- ☐ Other\_\_\_\_\_

☒ **SUE**

- ☒ Horizontal Designation (Quality Level B)
- ☐ Location Services (Quality Level A)
- ☒ Utility Mapping (Quality Level C)
- ☐ Records Research (Quality Level D)
- ☐ Other\_\_\_\_\_

*It is assumed adequate service points already exist on-site or at the abutting site boundary or in the adjacent public right-of-way. No sewage pump station or offsite improvements or extensions, other than service connections, are anticipated under this Proposal.*





## DESCRIPTION OF SERVICES AND DELIVERABLES

### SURVEY SERVICES

#### **Task 101 Route Survey**

KEITH shall prepare a Topographic Survey of the Tropic Isles Roadways highlighted in the exhibit above. The total length of the roadways is approximately 5.75 miles. Survey shall show all surface features within the rights-of-way including roadways, traffic striping, driveways, signs, landscaping, surface utilities, etc. Trees will be noted by common name and trunk diameter. Storm and Sanitary structures will be noted with rim elevations only. (invert elevation, diameter, material and direction are an optional service listed below) Survey shall include the right-of-way lines of the roadways together with the parcel lines of the adjoining properties. Elevations shall be shown at an interval of approximately 50 feet, including intermediate changes in grade and shall extend across the roadway and include 20 feet beyond both right-of-way lines, including elevations on all driveways. Finished floor elevations of each structure adjoining the roadways shall be noted. Water meters and sewer cleanouts of each structure shall be searched for and located. Cleanouts shall be noted by top of nut elevation. Survey shall be referenced to the Florida State Plane Coordinate System (NAD83/11) and the North American Vertical Datum of 1988 (NAVD88). Deliverables shall include a signed and sealed Topographic Survey, AutoCAD Civil3D file and a DTM surface in XML and Civil3D formats.

<u>Street Name</u>	<u>From</u>	<u>To</u>	<u>Centerline Length</u>
McCleary Street	Spanish Trail	End	1220'
Eve Street	Spanish Trail	End	1390'
Tropic Boulevard	Spanish Trail	End	1390'
Bolender Drive	Spanish Trail	End	1390'
Allamanda Drive	Spanish Trail	End	1240'
Banyan Drive	Spanish Trail	End	1280'
Cypress Drive	Spanish Trail	End	1335'
Dogwood Drive	Spanish Trail	End	1670'
Boone Drive	Dogwood Drive	Evergreen Drive	370'
Evergreen Drive	Boone Drive	End	905'
Fern Drive	Boone Drive	End	885'
Boone Drive	Fern Drive	Gardenia Drive	365'
Gardenia Drive	Spanish Trail	End	1355'
Hyacinth Drive	Spanish Trail	End	1335'
Iris Drive	Spanish Trail	End	1315'
Jasmine Drive	Spanish Trail	End	1965'
Jasmine Terrace	Jasmine Drive	End	495'
Jasmine Court	Jasmine Drive	End	445'
Spanish Trail	McCleary Street	Dogwood Drive	2425'
Spanish Trail	Gardenia Drive	Spanish Circle	2945'
Florida Boulevard	Beginning	Avenue L	3850'
Avenue L	Florida Boulevard	Spanish Trail	255'
Iris Drive	Florida Boulevard	Spanish Trail	255'
Avenue C	Florida Boulevard	Spanish Trail	285'



## SUBSURFACE UTILITY ENGINEERING (SUE) SERVICES (Phase 2)

KEITH will follow ASCE Standard 38-02 – “Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data” during the field and office operations for this project. The quality levels discussed below are defined within the standard. CONSULTANT is to provide professional services associated with designation and mapping of existing subsurface utilities. KEITH shall designate all known tone able and non-tone able utilities (from right of way to right of way) Gravity systems, service laterals, irrigation or overhead facilities are not included in this investigation.

### **Task 201      Horizontal Designation Services**

KEITH will horizontally mark any known tone able and non-tone able underground utilities that are represented on as-built plans, above ground appurtenances, and other miscellaneous utility records (to be provided by CLIENT). Conductive utilities will be marked on the surface utilizing active geophysical prospecting techniques in conjunction with electromagnetic equipment utilizing passive radio and audio frequencies. Known non-conductive utilities and/or structures will be marked on the surface utilizing Ground Penetrating Radar (GPR), above ground features, professional judgment, utility plats and/or as-builts. This task does not include identifying gravity systems, service laterals, irrigation, or overhead facilities unless specifically requested by the CLIENT and included in the scope of services.

### **Task 202      Utility Mapping**

KEITH will identify surface features on a topographic plan or ground surface that are surface appurtenances of existing subsurface utilities. KEITH will survey such features, check accuracy and completeness for applicability with the existing project correlating applicable utility records to these surveyed features, considering the geometries and indications on the records of these surface features. KEITH will determine when records and features do not agree and resolve discrepancies. Additional resolution may result from consultation with utility owners.

### Subsurface Utility Engineering Conditions and Understandings

CLIENT is required by law to contract Sunshine State One Call of Florida forty-eight (48) hours in advance of any CLIENT excavation. KEITH will not access confined spaces. If confined spaces need to be accessed for locating purposes, then the client will be notified, and further arrangements will be made for said access. Additional fees may be applicable. If additional MOT is required beyond the capability of KEITHS standard MOT operations, KEITH will notify the client. Additional requests outside the scope of services, when requested by client and/or client's representative, will be invoiced on an hourly basis. This proposal assumes site access is available and work can be performed between the hours of 7:30 AM and 5:00 PM Monday through Friday.



**SCHEDULE**

**SURVEY SERVICES**

Task 101 Route Survey

12 week duration

**SUE SERVICES**

Task 201 Horizontal Utility Designation

12 weeks duration

**COMPENSATION**

**SURVEY SERVICES**

Task 101 Route Survey

Control

\$13,450 (Lump Sum)

Topographic Data Collection

\$64,000 (Lump Sum)

Storm & Sanitary Inverts (*optional*)

\$ 8,250 (*Lump Sum – optional*) **Phase 2**

Right-of-way and Parcels

\$22,600 (Lump Sum)

Finished Floor Elevations

\$16,500 (Lump Sum)

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**\$116,550 (Phase 1)**

**SUE SERVICES** **(Phase 2)**

Task 201 SUE Services

Horizontal Utility Designation

\$78,400 (Lump Sum)

Utility Mapping Services

\$22,000 (Lump Sum)

**~~Total Fee \$216,950 (Lump Sum)~~**

+

\$8,250 (Optional Service) **Phase 2**

If you concur with the foregoing as well as the attached General Terms and Conditions dated June 1, 2018 and wish to direct us to proceed with the aforementioned work, please execute the agreement in the space provided and return same to the undersigned.

IN WITNESS WHEREOF, CONSULTANT and CLIENT have executed this agreement the day and year indicated below.

As to CONSULTANT  
KEITH

As to CLIENT  
Kimley-Horn

Alex Lazowick

Client: \_\_\_\_\_

Executive Vice-President

Title: \_\_\_\_\_

DATED: \_\_\_\_\_

DATED: \_\_\_\_\_



TABLE 1

**Kimley Horn & Associates / City of Delray Beach  
Tropic Isle Underground Utility Improvements**

Date: 12/17/2019

## Man-hour and Fee Estimate

Task /Subtask	Task Description	ADA Engineering, Inc.			TOTALS			
		Project Manager	Project Engineer	Administrative	Total Labor Hours	Total Labor Costs	Other Direct Expenses**	Total
	Rate	\$195.00	\$140.00	\$70.00				
<b>1</b>	<b>Update Model</b>	<b>56</b>	<b>154</b>	<b>8</b>	<b>222</b>	<b>\$33,320.00</b>	<b>\$ 999.60</b>	<b>\$34,319.60</b>
1.1	Input FFE and Roadway Elevations from Survey	4	24		28	\$4,140.00	\$ 124.20	\$4,264.20
1.2	Update to new SLR Projections	2	2		4	\$670.00	\$ 20.10	\$690.10
1.3	Produce Results for 5y 1d and 100y 3d events	2	16		18	\$2,630.00	\$ 78.90	\$2,708.90
1.4	Update CIP Problem Area 10 Map	2	12		14	\$2,070.00	\$ 62.10	\$2,132.10
1.5	Update Working Inundation Maps for Problem Area 10		4		4	\$560.00	\$ 16.80	\$576.80
1.6	Update Working Finsihed Floor Projected Flooding Graphic		4		4	\$560.00	\$ 16.80	\$576.80
1.7	Produce Model Update verbiage for Basis of Design Report	30	60	4	94	\$14,530.00	\$ 435.90	\$14,965.90
1.8	Update Engineer's Opinion of Construction Cost Estimate for Area 10	4	8	4	16	\$2,180.00	\$ 65.40	\$2,245.40
1.9	Coordination with Geotechincal regarding raising road profile	6	12		18	\$2,850.00	\$ 85.50	\$2,935.50
1.10	Coordination with KHA regarding Report formatting	6	12	4	22	\$3,130.00	\$ 93.90	\$3,223.90
	<b>Total Hours</b>	<b>56</b>	<b>154</b>	<b>8</b>				
	<b>Total \$ Per Individuals</b>	<b>\$10,920</b>	<b>\$21,560</b>	<b>\$560</b>				
	<b>TASK ORDER TOTAL</b>				<b>222</b>	<b>\$33,320.00</b>	<b>\$ 999.60</b>	<b>\$34,319.60</b>

\*\* Assume 3% for Expenses