

Consent  
II.C.4



**AGENDA REPORT  
December 5, 2017**

**SUBJECT:**

Approval of Task Order No. 1 with Kimley-Horn & Associates, Inc. for South Beaches I&I Smoke Testing – Phase 1. (District 4)

**FISCAL IMPACT:**

\$184,130

**DEPT/OFFICE:**

Utility Services

**REQUESTED ACTION:**

It is requested that the Board approve and authorize the Chairman to execute Task Order No. 1 with Kimley-Horn & Associates, Inc. for South Beaches Inflow & Infiltration Smoke Testing-Phase 1 and authorize any associated budgetary changes.

**SUMMARY EXPLANATION and BACKGROUND:**

The County has identified the need to reduce Inflow and Infiltration (I & I) in the South Beaches sewer service area. Projects are underway to reline gravity sewers to eliminate leaks of groundwater into the sewer treatment system. In addition to the I & I directly entering the county's sewer mains, the I & I entering the system through unmaintained infrastructure on the private property side of the sewer connection needs to be addressed. Identifying problems on the customer side of the connection will entail smoke testing each building or private residence to determine if leaks or illegal connections are present. While the entire area served by the South Beaches sewer plant in Melbourne Beach needs to be smoke tested, Phase 1 of the project involves partnering with the City of Satellite Beach to perform smoke testing of all of the approximately 5400 buildings and residences within the city.

Kimley-Horn and Associates, Inc. (Kimley-Horn) was recently selected by the county for continuing consultant engineering services. Kimley-Horn has experience with the smoke testing of buildings and grounds for identification of leaks within sewer systems on private and public property and the county wishes to issue a task order in the amount of \$184,130 to Kimley-Horn Engineering to provide services to manage the project to include public information and coordination, smoke testing, evaluation and reporting. The entire Phase 1 project is expected to take six to nine months to complete.

Funds are available in Fund 4150 – Utility Services Water/Wastewater

Contact: Teresa Camarata, Central Services Director, 321-637-5492, [Teresa.Camarata@brevardfl.gov](mailto:Teresa.Camarata@brevardfl.gov)  
Jim Helmer, Utility Services Director, 321-633-2091, [Jim.Helmer@brevardfl.gov](mailto:Jim.Helmer@brevardfl.gov)

**CLERK TO THE BOARD INSTRUCTIONS:**

Please call Utility Services to pick-up two originals after execution. Rose Lyons 633-2091 (Retain 1 copy for Clerk's Records). Non-original copy to Central Services.

**ATTACHMENTS:**

**Description**

No Attachments Available

**REVIEWERS:**

Department	Reviewer	Action
Asst. County Manager	John Denninghoff	
County Manager	Frank Abbate	



Tammy Rowe, Clerk to the Board, 400 South Street • P.O. Box 999, Titusville, Florida 32781-0999

Telephone: (321) 637-2001  
Fax: (321) 264-6972  
Tammy.Rowe@brevardclerk.us

December 6, 2017

MEMORANDUM

TO: Jim Helmer, Utility Services Department Director

RE: Item II.C.4., Task Order No. 1 with Kimley-Horn & Associates, Inc. for South Beaches Inflow & Infiltration Smoke Testing – Phase 1

The Board of County Commissioners, in regular session on December 5, 2017, executed Task Order No. 1 with Kimley-Horn & Associates, Inc. for South Beaches Inflow & Infiltration Smoke Testing - Phase 1; and authorized any associated budgetary changes. Enclosed are two fully-executed copies of the Task Order.

Your continued cooperation is greatly appreciated.

Sincerely yours,

BOARD OF COUNTY COMMISSIONERS  
SCOTT ELLIS, CLERK

Tammy Rowe, Deputy Clerk

/cmw

Encls. (2)

cc: Contracts Administration  
Budget  
Finance

**Task Order No. 01**

to the  
Agreement for Engineering and Consulting Services Between

Brevard County Utilities  
and  
Kimley-Horn and Associates, Inc. (Kimley-Horn)

**Project Name**  
South Beaches I/I Smoke Testing – Phase 1

In accordance with the terms and conditions of the agreement dated October 24, 2017, Kimley-Horn is pleased to present this scope and fee for the Infiltration and Inflow Smoke Testing services in the Satellite Beach portion of the South Beaches service area.

**A. BACKGROUND**

Per discussions with Brevard County (County) staff, it was noted that the collection system within the South Beaches service area suffers greatly from either high rates of groundwater infiltration and/or rainfall inflow (I/I). The portion of the service area within the City limits of Satellite Beach has been prioritized as a First Priority Area and is the focal point for Phase 1 of the South Beaches I/I Smoke Testing effort. Based on the GIS information provided by the County, this basin constitutes approximately 40 miles of gravity sewer and 841 manholes.

**B. OBJECTIVES**

The objective of this task order is to locate and document the sources of inflow from the Satellite Beach portion of the South Beaches service area and determine the likely costs to reduce each source identified.

**C. PROJECT APPROACH**

Project Objectives will be achieved through a condition assessment through the use of smoke testing investigation. As this basin has multiple sources of inflow, it is appropriate to first implement smoke testing geared toward locating a specific type of leakage source.

Kimley-Horn will perform smoke testing with the following steps:

- Prepare a smoke-testing workplan, field locate all required sanitary sewer manholes, and prepare spreadsheet and GIS geodatabases to support the work.
- Conduct smoke-testing of the sewers.
- Identify location and nature of leakage sources.
- Develop recommendations for rehabilitation to achieve various reductions in flows and improvements to the structural and hydraulic condition of the collection system.

- Prepare GIS geodatabases, maps, and figures reporting on the findings of the smoke testing and potential courses of actions to address excess inflow.
- Provide conceptual ranges of rehabilitation costs needed to achieve various levels of reduction of inflow or levels of service.
- Prepare an initial capital improvements budget and schedule.

Below is the specific scope of work proposed to accomplish these requirements.

#### **D. SCOPE OF WORK**

##### **Task 1: Preliminary Field Work, Investigations, and Work Plan Development**

Kimley-Horn will examine the basin identified to establish smoke-test locations, and will coordinate with the County operations group for manholes that require cleaning prior to actual work. A number of subtasks need to be accomplished during this work. These include:

- Perform visual surveys of the study areas to confirm trunk line and interceptor routing to confirm how the collection systems connect to them and open manholes as required to determine the connectivity.
- Develop public notifications such as door hangers and public information letters for distribution to potentially impacted residents. This effort will be coordinated with County staff to determine the most effective mean of disseminating this information.
- Meet with County personnel to discuss any potential areas that require special provisions.
- Prepare work plans for smoke-testing including resource plans, schedules, QA/QC protocols, safety plans, notification plans (including emergency services), and deliverable outlines.

##### **Task 2 – Smoke-Testing**

The second component of the detailed investigation will be conducting daytime smoke-testing in the subject area. Smoke testing identifies sources of inflow such as stormwater cross connections and roof drains illegally connected to the sewer. It also identifies locations where there are major defects in the pipe integrity, such as missing lateral cleanout caps, pipe and lateral breaks, and separated joints.

Under this subtask, Kimley-Horn will prepare the following upon approval by the County:

- Post notices throughout the First Priority Smoke-Test Areas advertising that smoke-testing work on the sewers will be conducted.
- Smoke-test at approximately 75 different locations throughout the subject area. The final number of smoke testing locations will be as described in the work plan established in Subtask 1.
- Photograph all areas where smoke appears to escape, other than at a building vent stack. Identify the smoke release point on the map and reference the appropriate picture number with address. If building or smoke release point (catch basin, ground, etc.) cannot be identified on the map, create a schematic

of the area showing smoke release points, document with photos and nearby landmarks.

- Conduct manhole inspections and photo-documentation of the manholes being smoke tested.
- Summarize the data gathered by the smoke-testing crew on a GIS map and excel spreadsheet indicating the locations and types of inflow sources identified and prepare a photolog identifying the exact location each emission.
- Coordinate with County staff to perform minor repairs to identified inflow emissions such as clean out caps. During the testing, we can work with staff to have cleanout caps installed where identified to provide some immediate remediation.
- Meet with the Brevard personnel to discuss the findings identified in the report and further planning recommendations to address I/I impacts to the Satellite Beach gravity collection system.

### **Task 3 – Sanitary Sewer System Assessment: Presentation of Findings and Recommendations**

Kimley-Horn will synthesize the findings of smoke-testing and prepare a final report documenting the results. This assessment will evaluate the field data to determine the nature, extent, and location of inflow in the subject area. Data will be presented as tables, photologs, and maps/figures identifying conditions and problems. Interpretation of these data will be presented in written and graphic form. The data will also be presented in a manner that the Utility can use to inform homeowners of defects in the homeowner portions of the system and track completed repairs.

Kimley-Horn will identify potential methods for reducing the inflow, including follow-up investigations needed to locate specific sources and points of entry, reasonable expectations for inflow reductions for each method, and estimates of costs and timelines required to achieve these reductions. These will generally be divided into cost-benefit groupings (i.e., bang for the buck) for the various sources/types of I/I or for specific locations of inflow.

#### **E. SCHEDULE**

Upon Notice to Proceed, Kimley-Horn will begin work with a kickoff meeting with County staff. This initial meeting will establish the goals for each milestone. Subtask 1 will begin with data acquisition and an evaluation of the field conditions for the testing. This is used to establish the smoke testing areas and the overall schedule for the smoke testing. The written work plan in Task 1 will be drafted for review within eight (8) weeks of authorization and submitted for review by County staff. Assuming 2 weeks for County review, the final work plan is expected to be completed within twelve (12) weeks of authorization.

The smoke testing plan established in the work plan will be initiated following the approval of the written work plan. The actual smoke testing is preliminarily expected to be 6-7 weeks of testing, but is highly dependent on the results of the work plan. Prior to the testing, Kimley-Horn will coordinate with the County for public notifications for the smoke testing. Notifications will begin with a broad notification of the anticipated

schedule to the impacted residents. Individual notifications will be distributed 1-2 weeks in advance of the testing of any given area and street signs will be placed in the community the week of and days of the smoke testing efforts. Smoke testing can be weather dependent, so some flexibility in the schedule is accounted for by extending the potential testing periods. Including public notifications Task 2 is anticipated to be completed within ten (10) weeks of acceptance of the work plan.

A draft of the final report will be submitted within four (4) weeks of the completion of the smoke testing. Assuming two weeks for County review and revisions, Task 3 will be completed within eight (8) weeks from the completion of the smoke testing.

- Task 1 – 12 weeks to completion
- Task 2 – 10 weeks to completion
- Task 3 – 8 weeks to completion
- Total – 30 weeks to completion

**F. BASIS OF COMPENSATION**

The fee for the scope of work described in Section D, above, shall not exceed a total of \$ 184,130 and shall not exceed the amounts shown in the table below for each specific task. The County shall periodically compensate the Consultant a portion of the task fee based on mutually agreed upon percentages of completion of each task.

<b>Task Number</b>	<b>Task Description</b>	<b>Cost</b>
1	Preliminary Field Work, Investigations, and Work Plan Development	\$53,296
2	Smoke Testing	\$98,136
3	Baseline Sanitary Sewer Assessment and Presentation of Findings and Recommendations	\$32,698
	<b>Total</b>	<b>\$184,130</b>

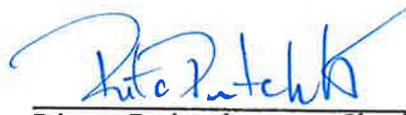
**G. ACCEPTANCE**

IN WITNESS WHEREOF, this 5 day of December, 2017.

ATTEST:

  
\_\_\_\_\_  
Scott Ellis, Clerk

For: BOARD OF COUNTY COMMISSIONERS  
OF BREVARD COUNTY, FLORIDA

By:   
\_\_\_\_\_  
Rita Pritchett, Chair  
As approved by the Board on 12/5/17

WITNESS:

  
\_\_\_\_\_

For: Kimley-Horn and Associates

By:   
\_\_\_\_\_  
Jay Jackson, Sr. Vice President