



SUPPLEMENTAL ORDER INITIATION FORM for the CITY OF CLEARWATER

Date: November 1, 2016

M&C Project Number: 09920223

City Project Number: 15-0004-UT

1. PROJECT TITLE:

Inflow and Infiltration Flow Reduction: Northeast Basin Smoke Testing and Dye Testing

2. SCOPE OF SERVICES:

A phased approach to the issues of inflow and infiltration (I/I) to the City's wastewater collection system has been the primary focus of the initial Work Order for 15-0004-UT. That Work Order includes the completion of Tasks for the Northeast Basin.

Proposed Phase 2 of the Northeast Basin Scope of Services:

As previously described the next phase of the project (Phase 2) is intended to identify the primary rain derived inflow and infiltration (RDI/I) sources through the use of smoke testing. Smoke testing will be completed to identify sources of storm water inflow. These are the projections based on Phase 1 flow monitoring:

- Smoke Testing of Flow Meter Basins NE5 , NE6, NE6A, NE6B, NE6C, & NE6E – 471,035 Linear Feet
- Dye Water Flooding – 15 Locations (Estimated)
- Perform Data Analysis and Prepare Technical Memorandum – 1 Each

3. PROJECT GOALS:

- 1) Complete smoke testing in six (6) flow meter sub-basins (471,035 LF)
- 2) Provide technical report on findings with recommendations.
- 3) Attend meeting with City staff to present findings.

4. BUDGET:

See Attachment "B"

This price includes all labor and expenses anticipated to be incurred by McKim & Creed for the completion of Phase 2 in accordance with **Professional Services Method "B" – Lump Sum – Percentage of Completion by Task for a fee not to exceed One hundred ninety nine thousand one hundred twelve dollars and twenty five cents (\$199,112.25).**

5. SCHEDULE:

The project milestones have been modified to be completed as follows:

Smoke Testing	February 18, 2016
Dye Water Flooding	March 1, 2016
Final TM Submittal	March 25, 2017

6. STAFF ASSIGNMENT (Consultant):

McKim & Creed – Aubrey Haudricourt, Greg Anderson, PE, Sunil Khanal, Daniel EdgellNick Anderson, Pat Goode, Anthony Goode, Delvin Carter and Le’Roy Wilson

7. CORRESPONDENCE/REPORTING PROCEDURES:

Engineer’s/Architect’s project correspondence shall be directed to:
McKim & Creed – Aubrey Haudricourt,

All City project correspondence shall be directed to:
Jeff Walker with copies to others as may be appropriate.

8. INVOICING/FUNDING PROCEDURES:

Invoices for work performed shall be submitted monthly to the City of Clearwater, Engineering Department, Attn.: Veronica Josef, Senior Staff Assistant, PO Box 4748, Clearwater, Florida 33758-4748.

City Invoicing Code: **0315-96665-561300-535-000-0000**

9. INVOICING PROCEDURES

At a minimum, in addition to the invoice amount(s) the following information shall be provided on all invoices submitted on the Work Order:

- A. Purchase Order Number and Contract Amount.
- B. The time period (begin and end date) covered by the invoice.
- C. A short narrative summary of activities completed in the time period.

- D. Contract billing method – Lump Sum or Cost Times Multiplier.
- E. If Lump Sum, the percent completion, amount due, previous amount earned and total earned to date for all tasks (direct costs, if any, shall be included in lump sum amount).
- F. If Cost Times Multiplier, hours, hourly rates, names of individuals being billed, amount due, previous amount earned, total earned to date for each task and other direct costs (receipts will be required for any single item with a cost of \$50 or greater or cumulative monthly expenses greater than \$100).
- G. If the Work Order is funded by multiple funding codes, an itemization of tasks and invoice amounts by funding code.

10. SPECIAL CONSIDERATIONS:

The consultant named above is required to comply with Section 119.0701, Florida Statutes (2013) where applicable.

PREPARED BY:

**A. Street Lee, PE
Senior Vice President
McKim & Creed Inc.**

Date

APPROVED BY:

**Michael D. Quillen, PE
City Engineer
City of Clearwater**

Date

SUPPLEMENTAL WORK ORDER

CITY OF CLEARWATER DELIVERABLES STANDARDS

FORMAT:

The design plans shall be compiled utilizing one of the following standards:

City of Clearwater CAD standards or Consultant's CAD standards (please provide all supporting documents when utilizing Consultant's Standards).

DATUM:

Horizontal and Vertical datum shall be referenced to North American Vertical Datum of 1988 (vertical) and North American Datum of 1983/90 (horizontal). The unit of measurement shall be the United States Foot. Any deviation from this datum will not be accepted unless reviewed by City of Clearwater Engineering/Geographic Technology Division.

DELIVERABLES:

A minimum of two (2) signed and sealed Plans and Contract Documents (specifications book) labeled "ISSUED FOR BID" shall be provided at the onset of the bid phase, as well as electronic copies. Electronic plan copies in PDF and CAD and electronic contract documents in PDF and MS Word.

The design plans shall be produced on bond material, 24" x 36" at a scale of 1" = 20' unless approved otherwise. The consultant shall also deliver all digital files in CAD drawing format and PDF format together with all project data in AutoCAD Civil 3D file format. All references, such as other drawings attached, images and graphic files, custom fonts and shapes shall be included in hard copy and electronic copy.

Prior to the City Council award date, a minimum of two (2) copies of signed and sealed plans and contract documents (specifications book) labeled "CONFORMED" shall be provided. All revisions made during the bid phase shall be included in the plan sets and noted in the revision block or as a footnote. Copies of each Addendum shall be included at the front of the contract and all revisions made during the bid phase shall be incorporated into the Contract Documents.

Electronic copies of "CONFORMED" plans (PDF and CAD) and contract documents (PDF and MS Word) shall be provided prior to the City Council award date.

NOTES:

- If approved deviation from using Clearwater CAD standards, the consultant shall include all necessary information to aid in manipulating and printing/plotting the drawings. Please address any questions regarding file format to Mr. Tom Mahony, Geographic Technology Manager, at (727) 562-4762 or email address: tom.mahony@myclearwater.com.

**Inflow & Infiltration Flow Reduction
McKim & Creed, Inc.**

**SUPPLEMENTAL WORK ORDER
PROJECT BUDGET**

Phase/Task	Description	Sub-Consultant Services	Labor	Total
Phase 2				
Task 2.0	Smoke Testing	N/A		\$164,862.25
Task 2.1	Dye Water Flooding	N/A		\$14,250.00
Task 2.2	Technical Report	N/A		\$20,000.00
Grand Total				\$199,112.25

***Note:** The Additional Phase 2 Costs Do Not Include Inventory/Inspection of Manholes or Conduction of Night Flow Isolations

REVIEW PERIOD SUBMITTAL REQUIREMENTS

This list is intended as a guideline of the items to be completed at various levels of project completion. The specific list for each project shall be finalized in the work order.

I/I Analysis Technical Memorandum Submittal

Requirements for the I/I Analysis Technical Memorandum submittal shall include the following:

- a. Cover Sheet,
- b. Table of Contents,
- c. Description of Services Completed
- d. Results of Services Completed

Identification of I/I Sources & Abatement Activities

Requirements for the I/I Source Identification & Abatement Activities shall include the following:

- a. Smoke Testing Forms & Recommendations

Smoke Testing

1. Select area to be tested and develop working field maps of the area.
2. Field review the area selected and note on the map all "hundred block" addresses.
3. Distribute smoke notice to all homes, businesses, schools, etc
4. During the initial field review, identify all types of businesses, specifically any doctors offices, hospitals, schools, retirement homes (communities) or any other establishment that may need special consideration and handling during the actual smoke test. Strict consideration and coordination with customers who have sensitive needs must be adhered to, some of whom will not be included on any smoke testing schedule as the nature of their business, such as hospitals, is far too delicate.
5. Twenty Four hours minimum must expire from the issuance of smoke testing notices to allow all affected to prepare for the testing or call with special exceptions, such as persons with health problems living at home in, etc.
6. On the day of the testing the selected portion of the study area will be identified and all street names and related hundred block addresses will be given to the fire department/emergency personnel for the area where the testing will occur. UNDER NO CIRCUMSTANCES WILL THE AREA SELECTED FOR THAT DAY'S TESTING BE MODIFIED TO INCLUDE ADDITIONAL WORK UNLESS THE FIRE DEPARTMENT/EMERGENCY PERSONNEL HAVE BEEN NOTIFIED FIRST. The name and ID number of the fire department person spoken to must be documented on the appropriate form. The fire department/emergency personnel must know the exact locations and specific time frames of where and when the tests will be performed.
7. Multi day scheduling with one time reporting to the fire department/emergency personnel will not be permitted. .
8. The City's Project Representative will be notified on a daily basis with the same information.
9. Should the fire department/emergency personnel respond to the target area during the actual smoke testing, all testing will cease immediately and the Smoke Testing Team's field supervisor in charge will contact the fire unit responding to answer any questions that the fire department officer may have.

Attachment "C"

10. All testing activity must cease when any resident complains of smoke entering their establishment. Smoke Testing Team's field personnel will then attempt to isolate where the smoke is entering the establishment and make the occupant aware of what the problem may be. All defective plumbing found inside should be documented appropriately for future reference. The occupant will be advised to have the defect repaired by a registered plumber.
11. During the actual smoke testing, Smoke Testing Team field personnel will scout the area for smoke escaping from ground sources, roof vents, storm drain structures, etc. All sources of Infiltration/Inflow should be photographed, measured, drawn, and documented accordingly with addresses, data, and sketches. The smoke test form will identify which sewer reach is being tested by its component identification.

It is understood that City staff members may accompany McKim & Creed field staff during the smoke testing initiative to gain a better understanding of how to quantify potential inflow volumes from the smoke defects recorded and how to compare the smoke testing defect results to the previously recorded flow data. McKim & Creed will develop a 'Smoke Testing Results' spreadsheet that identifies each pipe section tested and the results of the test, whether positive or negative. A separate spreadsheet; 'Smoke Testing Defects', will be prepared that identifies all defects encountered during the smoke testing activity. This spreadsheet will contain a column which identifies the surface area associated with each defect, the associated inflow volume based on a one inch rainfall event at the defect and if there is a need to conduct dye water testing/flooding. If a dye test is necessary a service order number will be prepared for the work effort using the City's CMMS system and a description of what personnel and equipment will be needed provided.

Dyed Water Flooding:

The Dye Water Flooding results will be documented for each location where the testing occurs. Each Dye Water Flood Report will identify the section of wastewater gravity piping being tested, the location(s) where the storm water system piping was isolated and flooded, photographs of each setup and CCTV inspection results identifying the location(s) where dye water was identified entering the wastewater collection system. Upon completion of the dye testing the Service Order identifying the need of the test will be closed and a new Service Order developed to address an effective form of abatement. In some cases the necessary abatement activity will include the use of City staff, or third party contracting. The Service Order will include the Dye Test Report as well as verbiage describing the necessary work which must be completed to eliminate the storm water inflow source.