

**Work Authorization No. CDMS 13-20**  
**Under**  
**Agreement between Broward County and CDM Smith Inc.**  
**for**  
**Continuing Engineering Services for Water Treatment and Raw Water Production**  
**Systems (RLI No. R1025211R1)**  
**for**  
**Project No. 9293-101192 WTP Chemical Feed System Improvements – Design,**  
**Permit, Bid, and Professional Services During Construction**

1. This Work Authorization is issued pursuant to the Agreement between Broward County ("County") and CDM Smith Inc. ("Consultant") for Continuing Engineering Services for Water Treatment and Raw Water Production Systems (the "Agreement"), which was approved by the Board of County Commissioners on January 14, 2014.

2. This Work Authorization requires Consultant to provide the services described in Exhibit A, attached hereto and incorporated herein. These services are authorized by Article 3 of the Agreement.

3. Compensation and Method of Payment.

3.1 Payment for the services authorized by this Work Authorization will be in accordance with Article 5 of the Agreement and the agreed method of compensation is as follows (check those boxes that apply):

- Maximum Amount Not-To-Exceed Compensation. County shall pay Consultant as compensation for the performance of all services set forth in Exhibit A to this Work Authorization, and as required under the terms of the Agreement, based upon the Salary Costs as described in Section 5.2 of the Agreement up to a maximum amount not-to-exceed of \$384,789.21. It is understood that the method of compensation is that of "maximum amount not-to-exceed," meaning that Consultant shall perform all services set forth herein for total compensation in the amount of or less than that stated above.

3.2 Payments for this Work Authorization shall be charged against:

Budget No. 44250-44100-67301010-512110-101192

4. Consultant shall perform the services described in Exhibit A to this Work Authorization within the time periods specified in the Project Schedule included in Exhibit A ("Time for Performance"); said time periods shall commence from the

date of the Notice to Proceed for such services.

5. CBE Goals.

5.1 In an effort to assist County in achieving its overall goal as set forth in the Agreement, Consultant agrees to meet the following CBE participation goals by utilizing the CBE firms for the work and dollar values described in paragraph 5.2 below: 70.57%.

5.2 In performing services for this Project, County and Consultant hereby incorporate Consultant's participating CBE firms, addresses, scope of work, and dollar value identified in the Letters of Intent (attached hereto and incorporated herein as Exhibit B).

6. The terms and conditions of the Agreement are hereby incorporated into this Work Authorization. Nothing contained in this Work Authorization shall alter, modify, or change in any way the terms and conditions of the Agreement with County.

[Remainder of This Page Is Intentionally Left Blank.]

IN WITNESS WHEREOF, the parties have made and executed this Work Authorization No. CDMS 13-20: BROWARD COUNTY, by and through its BOARD OF COUNTY COMMISSIONERS, signing by and through its Mayor or Vice-Mayor, authorized to execute same by Board action on the \_\_\_\_ day of \_\_\_\_\_, 20\_\_, and CDM Smith Inc., signing by and through its President or Senior Vice President, duly authorized to execute same.

COUNTY

ATTEST:

BROWARD COUNTY, by and through its Board of County Commissioners

\_\_\_\_\_  
Broward County Administrator, as  
Ex-officio Clerk of the Broward County  
Board of County Commissioners

By \_\_\_\_\_  
Mayor

\_\_\_\_ day of \_\_\_\_\_, 20\_\_

Insurance requirements  
approved by Broward County  
Risk Management Division

Approved as to form by  
Andrew J. Meyers  
Broward County Attorney  
Governmental Center, Suite 423  
115 South Andrews Avenue  
Fort Lauderdale, Florida 33301  
Telephone: (954) 357-7600  
Telecopier: (954) 357-7641

By Colleen Pounall 10/09/18  
Signature (Date)

By Keoki M. Baron 10/09/18  
Signature (Date)

Colleen Pounall Risk Analyst  
Print Name and Title above

By Michael J. Kerr 10/10/18  
Signature (Date)  
Deputy County Attorney

CONSULTANT

ATTEST:

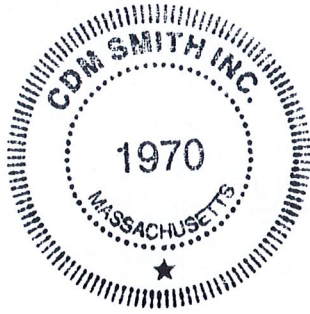
Paul Milligan  
Corporate Secretary

CDM SMITH INC.

By Kevin C. Leo  
President or Senior Vice President

Kevin C. Leo  
(Print Name and Title)

(SEAL)



4 day of Oct, 20 18.

**EXHIBIT B**  
**LETTERS OF INTENT**

[Applicable when work authorization has assigned CBE goals]

Consultant represents that the CBE participants referenced in the attached Letters of Intent have agreed by written subcontract to perform the percentage of work amounts set forth and that the following information regarding participating subconsultants is true and correct to the best of his/her knowledge.

**Exhibit A**  
**Work Authorization No. CDMS 13-20**

Agreement No: RLI No. R1025211R1  
Agreement Title: Continuing Engineering Services for Water Treatment and Raw Water Production Systems (January 14, 2014)  
Work Authorization Name: Work Authorization No. CDMS 13-20 for Project No. 9293-101192 WTP Chemical Feed System Improvements – Design, Permit, Bid, and Professional Services During Construction

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**PROJECT DESCRIPTION**

Broward County Water and Wastewater Services (BCWWS) owns and operates Water Treatment Plants 1A and 2A. The polymer, fluoride, ferric chloride, sodium hypochlorite, caustic, and lime feed systems at Water Treatment Plants 1A and 2A have reached their useful life and need upgrade. CONSULTANT shall provide engineering services for the upgrade of the abovementioned systems (the "Project") as described in the task summaries that follow.

**PROJECT SITE**

The Water Treatment Plant 1A Project site is located at 3701 North State Road 7, Lauderdale Lakes, Florida, 33319. The Water Treatment Plant 2A Project site is located at 1390 N.E. 50<sup>th</sup> Street, Pompano Beach, Florida 33064.

**BASIC SERVICES**

CONSULTANT shall prepare documents (drawings and technical specifications) for the upgrade of various chemical systems at Water Treatment Plants 1A and 2A.

**Task 1 – Design and Construction Documents**

CONSULTANT shall prepare Construction Documents based on the July 13, 2016 Meeting Notes (last amended November 9, 2017) for WTP Chemical Feed System Improvements – Site Meeting (CDMS13-20), attached hereto and incorporated herein as "Attachment to Exhibit A," and shall perform the following associated tasks as described:

- A. **Design Definition** services by CONSULTANT consist of an overview summary of the design approach.
  1. **Draft Health Department Permit Application Letter ("Application Letter")** services shall consist of CONSULTANT performing the following tasks:
    - a. Review available information, record drawings, site plans, and other relevant information provided by BCWWS.
    - b. Meet with BCWWS staff to review the record drawings, data, budget, and schedule.
    - c. Conduct a site visit to validate record information for the room dimensions, materials, and condition.
    - d. Prepare an Application Letter summarizing the design approach and sequence of construction approach.
  2. **Milestone Deliverable** consists of one (1) draft electronic copy (Microsoft Word format) of the

Application Letter. CONSULTANT shall incorporate into the final Application Letter the review comments of COUNTY as required. The final Application Letter shall be prepared by CONSULTANT and distributed electronically along with one (1) final electronic copy (PDF format).

B. **Design Development** services by CONSULTANT consist of the development and finalization of drawings and technical specifications based on the findings in the Design Definition above.

1. CONSULTANT shall develop Project specific drawings.
2. CONSULTANT shall develop Project specific specifications.
3. **Milestone Deliverable** consists of four (4) bound paper copies (11-inch by 17-inch) and two (2) electronic copies (PDF format) of the drawings and technical specifications consisting of the entire Construction Documents for review. CONSULTANT'S Project schedule provides for thirty (30) calendar days of review time for COUNTY after each milestone deliverable. CONSULTANT shall meet with COUNTY to receive and discuss COUNTY'S review comments. CONSULTANT shall incorporate into the Construction Documents the review comments of COUNTY as required. CONSULTANT shall provide a written response to the review comments explaining how each review comment has been addressed.

C. **Services for Permitting** by CONSULTANT consist of preparing necessary construction license applications to the following regulatory agencies having jurisdiction on any portion of the Project. License application forms are to be delivered by CONSULTANT to the appropriate regulatory agencies.

1. CONSULTANT shall submit the permit application and necessary supporting documents to the State of Florida Department of Environmental Protection (Application for a Public Drinking Water Facility Construction Permit Form 62-555.900(1)).
2. CONSULTANT shall submit the permit application and necessary supporting documents for a preliminary review to the appropriate City Building Department on behalf of COUNTY. All technical comments received will be addressed by inclusion into the post-procurement documents or by inclusion through an addendum to the bid documents.

D. **Services for Final Design** by CONSULTANT shall consist of finalizing drawings and technical specification sections. These documents include review comments from regulatory agencies, COUNTY, and CONSULTANT.

1. CONSULTANT shall prepare an estimated opinion of probable construction cost of the Project consistent with AACE International Class 2 level. An estimate of this type is normally expected to be accurate within (+) 15 percent and (-) 10 percent.
2. **Milestone Deliverable** consists of two (2) electronic copies (PDF format) of the drawings and technical specifications, plus three (3) hard copies in three-ring binders (Purchasing Review Submittal).

**Task 2 – Bidding and Award of Contract**

CONSULTANT shall prepare one construction bid package, and shall perform the following associated tasks as described:

- A. **Preparation of Final Bid Documents** shall consist of CONSULTANT revising the bid documents based on review comments received from the permitting agencies and the COUNTY Purchasing Department. CONSULTANT shall provide COUNTY four (4) bound paper copies (11-inch by 17-inch) and one (1) electronic copy (PDF format).
- B. **Pre-Bid Conference and Job Walk Through** shall consist of CONSULTANT attending one pre-bid conference and job walk-through prior to the advertised bid date.
- C. **Issue Bid Documents and Addenda** shall consist of CONSULTANT providing timely responses through written addenda to the technical inquiries of potential bidders that it receives from COUNTY. If necessary, CONSULTANT shall prepare addenda and send to COUNTY for approval and distribution.
- D. **Bid Evaluation** shall consist of COUNTY forwarding the lowest responsible bid to CONSULTANT in order for CONSULTANT to provide support in reviewing the bidder's qualifications and the reasonableness of the bid amount. This scope of services does not include time spent by CONSULTANT in assisting COUNTY in the event of a bid protest.
- E. **Preparation of Construction Documents for Execution** shall consist of CONSULTANT providing seven (7) sets of Construction Documents and addenda for execution by COUNTY and the Contractor.

**Task 3 – Construction Management Services**

CONSULTANT shall perform the following tasks associated with the construction of the Project:

- A. **Building Department** – CONSULTANT shall provide assistance to the Contractor in procuring the Building Department permit from the applicable authority. CONSULTANT shall address up to two (2) sets of comments from the Building Department and prepare drawing modifications in response to such comments as required.
- B. **Construction Meetings, Pre-Construction Conference, and Visits** – CONSULTANT shall conduct up to twelve (12) meetings and concurrent site visits with the Contractor and COUNTY to review the Project status and identify issues that may affect the Project schedule.
- C. **Pay Requests** – CONSULTANT shall review up to twelve (12) applications for payment and accompanying data, determine the amounts owed, and recommend approval of payments due to the Contractor. CONSULTANT'S recommendation of any payment requested in an application for payment constitutes a representation by CONSULTANT to COUNTY, based on CONSULTANT'S onsite observations of construction in progress and on CONSULTANT'S review of the application for payment and the accompanying data and schedules, that construction has progressed to the point indicated in the application for payment. In addition, CONSULTANT'S recommendation of any payment requested in an application for payment constitutes a representation by CONSULTANT to COUNTY that to the best of



CONSULTANT'S knowledge, information, and belief, the quality of construction is in general conformance with the Construction Documents, subject to an evaluation of construction upon substantial completion, the results of any subsequent tests called for in the Construction Documents, and any qualifications stated in the recommendation, and that the Contractor is due the amount recommended.

- D. **Construction Schedule** – CONSULTANT shall perform up to three (3) reviews of the initial construction schedule that the Contractor submits to COUNTY, review each of the monthly schedule updates that the Contractor submits to COUNTY, keep COUNTY informed of any perceived problems with the schedule, and advise the Contractor of noted errors in logic or inconsistencies with the Construction Documents.
- E. **Submittals** – Within twenty-one (21) working days of receipt of shop drawings (for up to five (5) shop drawings) and any other submittals that the Contractor is required to submit, CONSULTANT shall log, track, and review such submittals, except for special items requiring longer review time if so noted in the Construction Documents. The review shall be for general conformance with the design intent and compliance with the information presented in the Construction Documents. CONSULTANT shall determine the acceptability of materials and equipment proposed by the Contractor.
- F. **Contractor Provided O&M Manuals** – CONSULTANT shall log, track, and code up to one (1) Contractor provided operation and maintenance manual that is required as part of the Construction Documents.
- G. **Contract Interpretations and Clarifications** – CONSULTANT shall log and answer technical requests for information and issue necessary interpretations and clarifications of the Construction Documents in a timely manner. Non-technical administrative interpretations will be issued by COUNTY.
- H. **Record Drawings** – CONSULTANT shall prepare and distribute to COUNTY within thirty (30) days of the date of receipt of Contractor supplied as-built plans, two (2) sets of 24" x 36" signed and sealed record drawings. CONSULTANT shall also deliver the AutoCAD electronic version of the record drawings on compact disk. The record drawings shall incorporate those changes made during the construction process based on the marked-up prints, drawings, and as-built survey.

### **Assumptions**

1. Paving, irrigation, landscape, and stormwater designs are not contemplated.
2. Topographic site survey plan of the site properties is not contemplated.
3. Environmental investigation for lead paint or asbestos is not contemplated.
4. Structural, plumbing, and ventilation designs are not contemplated.
5. SCADA programming and graphic screens are not contemplated. These are to be provided by COUNTY.
6. Bid protest assistance or litigation support are not contemplated.

7. Latent defect correction assistance is not contemplated.
8. Florida Power & Light Company services related to the Project are not contemplated.
9. Specialty inspection services required by any Building Department are not contemplated.
10. COUNTY will pay any permit or license fees.

**Task 4 – Optional Additional Services**

CONSULTANT shall provide additional basic services as identified by the Contract Administrator that are related to but beyond the level of effort of the scope of services outlined above. These services must be initiated by a separate written authorization from the Contract Administrator.

**PROJECT SCHEDULE**

The estimated schedule duration for each task of the Project is presented below.

<b>Task</b>	<b>Duration</b>
Task 1 - Design and Construction Documents: (includes 30 calendar days for County to review Construction Documents after each milestone deliverable)	9 months
Task 2 - Bidding and Award Support:	6 months
Task 3 – Construction Management Services:	
First NTP to Second NTP	3 months
Construction Period Commencement to Final Completion	9 months



## Meeting Notes

*To: Attendees*

*From: Frank Brinson*

*Date: July 13, 2016; Amended July 5, 2017; September 21, 2017; October 24, 2017, and November 9, 2017*

*Subject: WTP Chemical Feed System Improvements - Site Meeting (CDMS13-20)*

## Attendees

Steven Doyle – Broward County  
William (Pat) Mitchell – Broward County  
Frank Brinson – MBC  
Tim O’Neil – CDM Smith

## Water Treatment Plant 2A

The Broward County Water and Wastewater Services (BCWWS) District 2A water treatment plant (WTP) utilizes conventional lime softening of the Biscayne Aquifer raw water supply for the removal of hardness and dissolved organics, including disinfection by-product (DBP) precursors. The facility includes storage and feed systems for the following water treatment chemicals:

- Lime (pH adjustment for precipitation of hardness)
- Polymer (coagulant/coagulant aid to enhance settling of precipitated hardness)
- Ferric chloride (coagulant to enhance settling of precipitated hardness)
- Sodium hydroxide, caustic (system is not currently used)
- Sodium hypochlorite (primary disinfection and residual disinfectant)
- Anhydrous ammonia (formation of combined chloramine residual disinfectant)
- Hydrofluosilicic acid (fluoride, fluoridation)

The chemical systems are aging and currently require varying degrees of rehabilitation or renewal and replacement of the housing structures or chemical storage and feed equipment. In addition, historical operating experience and chemical usage rates has indicated that some of the chemical systems are oversized. Brown and Caldwell has prepared a report titled *Water Treatment Plant 1A and 2A Chemical Systems Evaluation*

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*Basis of Design Report* (March 2016) that summarizes the general sizing criteria for the chemical systems and generally describes the proposed improvements (hereinafter referred to as the BODR).

The following summarizes the proposed improvements to the WTP 2A chemical systems.

#### Lime and Polymer Room

- Replace the existing six polymer preparation batching units and piping. It is likely that the County will be able to meet the required system capacity and desired redundancy with two or three batching units, simplifying the system and providing greater accessibility to the equipment for operations, repair, and maintenance. Provide a revised system layout based on updated capacity requirements and new equipment.
- Replace the existing polymer metering pumps and piping. Similarly, it is possible that the County will be able to meet capacity requirements and desired redundancy with fewer metering pumps (i.e., two duty, one standby). Provide a revised metering system layout.
- The electrical and control gear associated with the new polymer will be wired to the existing power or control panels located on the second-floor walls near 25 MCC 1 or exterior east wall, first floor.
- Remove the existing lime slurry feed system and replace with an eductor system.

#### Chemical System Store Room

- Demolish and remove the existing sodium hydroxide metering system and containment walls.
- Attempt to provide a second floor dry storage area in connection with the elevator.
- New electrical gear associated with the polymer, lime, fluoride, and possibly other chemical systems will be wired to the existing power or control panels in this room or to the exterior east wall, first floor.

#### Ferric Chloride System (metering pumps are currently located in the same room as the caustic transfer pumps and ammoniators)

- Replace the existing bulk storage tanks and piping (consider installing a single tank, or provide chemical storage in delivered totes, if feasible based on current usage rates). Consider eliminating the day tank and relocating the metering pumps to the polymer and lime room if space is made available due to the removal of existing, unused polymer batching units.

- If feasible, design the new bulk storage system to transfer by gravity to the day tank (eliminate the transfer pumps), or directly to the metering pump suction if the day tank can be eliminated.
- Replace the existing metering pumps with three (two duty, one standby) AC pumps and piping (pump type and capacity to be confirmed during final design).
- Complete the following improvements in the ferric chloride metering pump room
  - Demolish and remove all non-ammonia related equipment, pipe and conduit(e.g., metering pumps, suction and feed piping and accessories, lights, conduit, electrical, and controls equipment).
  - Following demolition and removal of the existing equipment, prepare and repaint the interior floor, walls, and ceiling of the room.
  - Provide new corrosion-resistant LED lighting.
  - New electrical conduit and boxes in the ferric chloride room shall be PVC.
  - Demolish and remove the caustic transfer pumps, pads, piping, and associated electrical and controls.

#### Caustic System

- Demolish and remove all existing caustic bulk storage tanks, transfer pumps and piping (located in the existing ferric chloride metering pump room), and metering pumps, piping, and accessories (located in the Chemical System Store Room).

#### Hypochlorite System (to be designed as a bid alternate)

- Provide a new dedicated primary disinfection (4-log treatment) feed pipe from the existing metering pumps to the four-log disinfection application point. This will require construction of new concrete pipe trench from the existing trench adjacent to the bulk storage area to the four-log disinfection application point.
- Complete the following improvements in the hypochlorite metering pump room:
  - Evaluate the possibility of removing the hypochlorite dilution system and recirculation pumps and piping (not used); simplify day tank and metering pump suction piping. Incorporate in final design if feasible and desired by the County.
  - Evaluate the possibility of replacing the existing two horizontal day tanks with two smaller vertical tanks, or eliminate day tanks entirely. Incorporate in the final design if feasible and desired by the County.
  - Consider reducing the number of existing air-actuated valve actuators.

#### Fluoride (Hydrofluorosilicic Acid) System

- Replace the existing bulk storage tank. Due to the relatively small bulk storage requirement (estimated 810 gallons in BODR), consider providing bulk storage in 275-gallon delivered totes (maximum of three) rather than a permanent bulk storage tank.
- Design the bulk storage facility to transfer by gravity to the day tank if feasible (eliminate the transfer pumps), or eliminate day tank entirely.
- Replace the existing day tank, metering pumps, and piping. Consider relocating the fluoride application points to a single application point in existing four-log virus treatment (transfer) piping. This will require fewer metering pumps: two (one duty, one standby). The metering pump type and capacity will be confirmed during final design.
- Complete the following improvements in the fluoride metering pump room
  - Demolish, remove, and replace all equipment (e.g., day tank, metering pumps, suction and feed piping and accessories, electrical, and controls equipment).
  - Following demolition and removal of the existing equipment, prepare and repaint the interior floor, walls, and ceiling of the room.
  - Replace all interior electrical equipment and provide new corrosion-resistant LED lighting.
  - Move equipment panels outside of the room into the adjacent south room . New electrical conduit and boxes in the fluoride room shall be PVC.

#### Bulk Storage Area

- As necessary for above scope components, provide partition walls to separate chemicals from co-mingling. Validate secondary containment storage volume. Fill in trenches and run new pipe exposed. Leave a sump area for rain water removal. Existing deck coatings bubble up, remove and replace deck coating system.

#### Water Treatment Plant 1A

The Broward County Water and Wastewater Services (BCWWS) District 1A water treatment plant (WTP) utilizes conventional lime softening of the Biscayne Aquifer raw water supply for the removal of hardness and dissolved organics, including disinfection by-product (DBP) precursors. The facility includes storage and feed systems for the following water treatment chemicals:

- Lime (pH adjustment for precipitation of hardness)

- Ferric chloride (coagulant to enhance settling of precipitated hardness)
- Polymer (coagulant/coagulant aid to enhance settling of precipitated hardness)
- Anhydrous ammonia (formation of combined chloramine residual disinfectant)
- Hydrofluosilicic acid (fluoride, fluoridation)

The chemical systems are aging and currently require varying degrees of rehabilitation or renewal and replacement of the housing structures or chemical storage and feed equipment. In addition, historical operating experience and chemical usage rates has indicated that some of the chemical systems are oversized.

The following summarizes the proposed improvements to the WTP 1A chemical systems.

#### General

- Review the overall layout of the fluoride, ferric chloride, polyphosphate, and sodium hydroxide metering systems. Evaluate whether the available space may be more effectively and efficiently utilized considering that some existing systems are not used (e.g., polyphosphate and sodium hydroxide) while some systems are located in spaces that do not allow sufficient access to equipment for easy operation and maintenance.

#### Polymer

- Demolish, remove, and replace the existing polymer batching units and feed pumps. It is likely that the County will be able to meet the required system capacity and desired redundancy with two or three batching units, simplifying the system and providing greater accessibility to the equipment for operations, repair, and maintenance. Provide a revised system layout based on updated capacity requirements and new equipment.

#### Fluoride (Hydrofluosilicic Acid) System

- Evaluate fluoride system capacity requirements based on recent historical fluoride usage rates.
- Replace existing piping, instrumentation, and accessories associated with the bulk storage tank.
- Complete the following improvements to the fluoride metering system.
  - Demolish, remove, and replace all equipment (e.g., day tanks, scales, metering pumps, suction and feed piping and accessories, electrical, and controls equipment).

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- Following demolition and removal of existing equipment, prepare and repaint interior floor and walls of the room.
- Replace interior electrical equipment and provide new corrosion-resistant LED lighting.
- Move new electrical panels to a location that will not be as susceptible to corrosion from fluoride fumes. New electrical conduit and boxes in the fluoride room shall be PVC.

#### Ferric Chloride System

- Evaluate ferric chloride system capacity requirements based on recent historical usage rates.
- Replace existing piping, instrumentation, and accessories associated with the bulk storage tank. Consider AC drives. Consider gravity feed from bulk tank to day tank.
- Complete the following improvements in the ferric chloride metering system
  - Demolish, remove, and replace all equipment (e.g., day tanks, scales, metering pumps, suction and feed piping and accessories, electrical, and controls equipment).
  - Following demolition and removal of existing equipment, prepare and repaint interior floor and walls of the room.
  - Replace interior electrical equipment and provide new corrosion-resistant LED lighting.
  - Move new electrical equipment to a location that will not interfere with access to chemical metering equipment. New electrical conduit and boxes in the ferric chloride room shall be PVC.



CDM Smith Inc.  
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LEVEL OF EFFORT ESTIMATING TOOL  
Water Treatment and Raw Water Production Systems  
WTP Chemical Feed System - DN Ph B D  
Broward County Water and Wastewater Services Working Document  
R.L.I. No. K1025211K1, Category 2, Work Authorization CDM513-20

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Total Sheet Count 43  
CDM Smith Sheet Count 14  
Estimated Construction Cost \$ 2,000,000

PHASE AND DESCRIPTION	Other employees, categories and hours may be applicable to the services as allowable in the Agreement. Phases are interdependent and build upon each other throughout the project.	Designer	Principle/Associate	Professional	Project Administration	TOTAL HOURS	HOURLY COSTS
Task 1.1 - Design and Construction Document Phase		67	67	168	42	277	\$12,043.20
Task 1.1 - Project Initiation		0	0	68	42	110	\$1,081.20
Task 1.1 - Project Kick-Off Meeting with Pre and Post Activities		8	8	0%	18	26	\$856.40
Task 1.1 - Provide Project Management and Administration for up to Nine (9) Months		2	23	60	0	65	\$1,628.40
Task 1.A - Design Definition		8	8	36%	0	16	\$2,744.40
Task 1.A - Site Visit, Data Review, Construction Schedule, Sequencing		4	4	0%	0	8	\$0.00
Task 1.A - Technical Review before Deliverable to County		4	4	0%	0	8	\$288.20
Task 1.A - Prepare Draft Documents, Four Bound and One PDF		12	12	60	0	72	\$288.20
Task 1.B - County Comments Review Meeting with Pre and Post Activities		18%	18%	36%	0%	26%	\$3,027.60
Task 1.B - Design Development Drawings		6	6	36%	0	12	\$424.80
Task 1.B - Technical Review before Deliverable to County		6	6	0	0	12	\$0.00
Task 1.B - Prepare Draft Documents, Four Bound and One PDF		0	0	0	0	0	\$0.00
Task 1.B - County Comments Review Meeting with Pre and Post Activities		0	0	0	0	0	\$424.80
Task 1.C - Permitting		0	0	0	0	0	\$0.00
Task 1.C - RFP Form 62-553, 900(1)		0%	0%	0%	0%	0%	\$0.00
Task 1.C - City Building Department Preliminary Review		12	12	40	0	52	\$3,301.60
Task 1.D - Pre Purchasing Design		6	6	24%	0%	19%	\$242.80
Task 1.D - Technical Review before Deliverable to County		6	6	24%	0	12	\$0.00
Task 1.D - Prepare Draft Documents, Four Bound and One PDF		6	6	24%	0	12	\$0.00
Task 1.D - County Comments Review Meeting with Pre and Post Activities		6	6	24%	0	12	\$424.80
Task 2 - Bidding and Award of Contract		2	2	8	6	16	\$744.17
Task 2 - Provide Project Management and Administration for up to Six (6) Months		3%	3%	5%	14%	7%	\$242.40
Task 2.A - Preparation of Final Bid Documents		1	1	0	6	7	\$0.00
Task 2.B - Pre Bid Conference and Job Walk Through		1	1	0	0	1	\$70.80
Task 2.C - Issue Bid Documents and Addenda		8	8	0	0	8	\$290.40
Task 2.D - Bid Evaluation		0	0	0	0	0	\$0.00
Task 2.E - Preparation of Contract Documents for Execution		0	0	0	0	0	\$0.00
Estimated Hours		67	67	168	42	277	\$12,043.20
Hourly Rate		\$180.80	\$180.80	\$180.80	\$180.80	\$180.80	\$180.80

CDM Smith Estimated Hours 277  
CDM Smith Estimated Hourly Costs \$12,043.20  
CDM Smith Multiplier 3.07  
CDM Smith Estimated Billing Rate Costs \$ 36,972.82

Estimated Subconsultant Salary Costs (McCarthy Brinson Consulting, LLC) \$ 162,920.00  
Estimated Subconsultant Salary Costs (CS Consulting, Inc.) \$ -  
Estimated Subconsultant Salary Costs (Keirn and Associates, Inc.) \$ -  
Estimated Subconsultant Salary Costs (Thompson & Associates, Inc.) \$ -  
Task 1 & 2, Maximum Amount Not-To-Exceed Compensation for Basic Services \$ 199,892.62  
Task 4 Optional Additional Services \$ 35,000.00

Bid Subtotal \$12,043.20  
prime's portion \$8,320.00  
Sub's portion \$3,723.05  
Bid Portion \$12,043.20  
277 hrs

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 LEVEL OF EFFORT ESTIMATING TOOL  
 Water Treatment and Raw Water Production Systems  
 MRP Chemical Feed System Improvements - CMS  
 Broward County Water and Wastewater Services Working Document  
 RFP No. R10292211R1, Category 2, Work Authorization CDM513-20

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PHASE AND DESCRIPTION	Estimated Hours	Principal/Associate	Senior Professional	Professional I	Senior Support Services	Project Administration	TOTAL HOURS	HOURLY COSTS
Other employees, categories and hours may be applicable to the services as allowable in the Agreement. Phases are interdependent and build upon each other throughout the project.								
<b>Task 3 - Construction Management Services</b>								
Task 3 A - Building Department up to two (2) Set of Comments to resolve issues	22	8%	31%	92	40	48	293	\$13,448.40
Task 3 B - Pre Construction Conference - One (1) Meeting			6	16			22	\$940.24
Task 3 C - Construction Meetings, Conference and Visits - Twelve (12) Meetings			36	20			56	\$2,872.76
Task 3 D - Construction Schedule - Two (2) Reviews			2	6			8	\$337.70
Task 3 E - Submittals - Five (5) Shop Drawings			16	20			36	\$1,681.56
Task 3 F - Vendor Provided O&M Manuals - One (1) Vendor Manual			2	3			5	\$228.41
Task 3 G - Contract Interpretations and Clarifications - Five (5) RH's			21	25			46	\$2,161.51
Task 3 H - Record Drawings			0				0	\$0.00
<b>Estimated Hours</b>							<b>293.00</b>	<b>\$13,448.40</b>
<b>Hourly Rate</b>								
		\$70.84	\$59.56	\$36.43	\$43.64	\$28.60		
		\$1,558.48	\$5,419.96	\$3,351.56	\$1,745.60	\$1,372.80		
<b>CDM Smith Estimated Hours</b>							<b>293</b>	
<b>CDM Smith Estimated Hourly Costs</b>								<b>13,448.40</b>
<b>CDM Smith Multiplier</b>								<b>3.07</b>
<b>CDM Smith Estimated Billing Rate Costs</b>								<b>41,286.59</b>
<p>Estimated Subconsultant Salary Costs (McCauffery Brinson Consulting, LLC) \$ 106,610.00</p> <p>Estimated Subconsultant Salary Costs (CES Consulting, Inc.) \$ -</p> <p>Estimated Subconsultant Salary Costs (Keith and Associates, Inc.) \$ -</p> <p>Estimated Subconsultant Salary Costs (Thompson &amp; Associates, Inc.) \$ -</p> <p>Task 3: Maximum Amount Not-To-Exceed Compensation for Basic Services \$ 149,896.59</p>								

Water Treatment and Raw Water Production Systems - RLI No. R1025211R1  
 Broward County Water and Wastewater Services - WA No. CDM513-20  
 WTP Chemical Feed System Improvements - DN PR BD CMS  
 McCafferty Brinson Consulting, LLC - Level of Effort

ATTACHMENT TO EXHIBIT A  
 PAGE 9 OF 9

Task Description	Principal Engineer \$200 per hour hours budget	Engineer Intern \$85 per hour hours budget	Project Admin. \$50 Per hour hours budget	Total Labor hours budget	Reimbursable	Total Budget
1. Kick-off Meeting, Site Visit, and Data Request	16	16	4	36		\$4,760
1. Technical Memorandum	87	176	50	313		\$34,860
1. Construction Drawings	88	204	0	292		\$34,940
1. Technical Specifications	125	248	56	429		\$48,880
1. Design Document Progress Submittals and Review Meetings	72	72	12	156		\$21,120
1. Permitting	34	34	11	79		\$10,240
2.0 Bidding Services	24	32	12	68		\$8,120
3.0 Construction Management Services						
A. Building Department	16	32	18	65		\$6,820
B. Pre Construction Conference	8	8	4	20		\$2,480
C. Construction Progress Meetings - NO MBC SERVICES	96	96	16	208		\$28,160
D. Site Observations	8	8	4	20		\$2,480
E. Pre-Start Up Conference						
F. Pay Requests - NO MBC SERVICES						
G. Construction Schedules - NO MBC SERVICES						
H. Submittals	112	188	53	353		\$41,030
I. Vendor-Provided O&M Manuals	22	34	11	67		\$7,840
J. Contract Interpretations and Clarifications	20	20	8	48		\$6,100
K. Change Management	8	16	8	32		\$3,360
L. Project Closeout	16	24	8	48		\$5,640
M. Record Drawings	13	20	8	41		\$4,700
N. Field Observation Services - NO MBC SERVICES						
<b>Totals</b>	<b>765</b>	<b>1228</b>	<b>283</b>	<b>2275</b>	<b>\$271,530</b>	<b>\$271,530</b>

Note: MBC's services include Process/Mechanical engineering disciplines, General, Structural, Architectural, HVAC/Plumbing, Electrical, and Instrumentation and Controls by others.

task 3  
\$108,610

task 1 & 2  
\$162,920

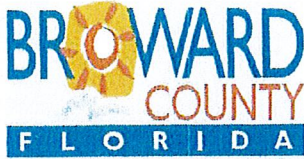


EXHIBIT B  
PAGE 1 OF 1

**LETTER OF INTENT**

**To Utilize a County Business Enterprise (CBE) Subcontractor/Subconsultant**

From (Name of Proposer/Bidder): CDM Smith Inc.

Firm Address: 621 NW 53rd Street, Suite 265, Boca Raton, FL, 33487

Project Description: 101092 - WTP Chemical Feed System Improvements

In response to Broward County's RLI/Bid No. R1015211R1, the undersigned hereby agree to utilize the CBE firm listed below, if awarded the contract. The undersigned further certify that the firm has been contacted and properly apprised of the projected work assignment(s) upon execution of the contract with Broward County.

Name of CBE Firm: McCafferty Brinson Consulting, LLC

Address of CBE Firm: 633 Andrews Avenue, Suite 402, Fort Lauderdale, FL, 33301

Expiration of CBE Certification: \_\_\_\_\_ Projected CBE Work Assignment (description of work assignment): Water System Process Design

Projected Percentage of Prime's Contract Fees to be Awarded to CBE: \$271,530 or 70.57%  
(Dollar Amt. or Percentage %)

[Signature] (Signature of Owner or Authorized Rep. Prime) 12/4/17 (Date)

Print Name (owner or authorized Rep. Prime): SUZANNE MECHLER

Subscribed and sworn to before me this 4 day of DECEMBER, 2017

Notary's Signature Kathryn E. McArdle Notary Seal:

**(ACKNOWLEDGEMENT BY THE PROPOSED CBE FIRM)**

The undersigned intends to perform work in connection with the above Contract as (check one) LLC  
\_\_\_ an individual \_\_\_ a partnership \_\_\_ a corporation \_\_\_ a joint venture. The undersigned agrees with the prime contractor's/consultant's proposal and further certifies that all information provided herein is true and correct.

Audra McCafferty (Signature of Owner or Authorized Rep. CBE) 12/3/17 (Date)

Print Name (owner or authorized Rep. CBE): Audra McCafferty

Subscribed and sworn to before me this 3 day of December, 2017

Notary's Signature: Andrew Barba Notary Seal: