

Task Order No. 16

Dated the _____ day of _____ 2012

CITY PROJECT NO. _____

SEWER COLLECTION BASIN A-7 FLOW DIVERSION AND PUMP STATION A-8 IMPROVEMENTS ANALYSIS AND CONCEPTUAL DESIGN REPORT

**CDM SMITH INC. f/k/a Camp & Dresser McKee Inc.
(Consultant) FOR CITY OF FORT LAUDERDALE PUBLIC
WORKS ENGINEERING (City)**

On May 3, 2011, the City Commission authorized a Continuing Services Agreement with CDM Smith Inc. for the General Wastewater Consulting Professional Architectural - Engineering Services (RFQ No. 606-10482) associated with the City's wastewater and stormwater systems ("Master Agreement") as amended and approved by City Commission on May 1, 2012. This Task Order is being performed under the terms and conditions of the Amended Master Agreement.

BACKGROUND

The Wastewater Master Plan Update (August 2007, developed by CDM Smith, Figure 4-6 and Table 7-1 Items 24, 25, 26) identified the need to divert a portion of the gravity sewer collection system east of Federal Hwy to a new pump station in order to help relieve the recent high flows occurring in the downtown sewer collection systems and high runtimes at wastewater pump station (PS) A-7 which is located at the west end of the Riverwalk complex. The new station was proposed to be located one block east of Federal Hwy and just north of Broward Boulevard in a vacant lot easement, and based on spatially calculated flow projections, would relieve sewer collection basin A-7 of approximately 1 MGD of wastewater flow and associated I/I and allow capacity for continued growth and development in the downtown areas tributary to PS A-7 (the Downtown RAC Zoning area). The tributary areas from Section 4 and the pump station flow projections from Appendix G developed in the 2007 Master Plan Update for each collection basin are attached as Exhibits 1 and 2 respectively for reference.

Further, the City desired to perform no further upgrades to PS A-7 at the time due to the potential of a developer proposing to relocate the station, and additionally elected to defer the rehabilitation of PS A-8 due to interim acceptable operation and other funding priorities.

The City has discussed that a potential alternative (not considered in the Master Plan due to the small scale) to a new station would be to investigate the partial diversion of a smaller portion of the wastewater flow in the A-7 sewer collection basin east of Broward Boulevard to existing PS A-8 located at SE 2nd Street and SE 8th Avenue.

SCOPE OF SERVICES

1.0 Data Investigations

The Consultant will coordinate with City Staff to collect, review, and analyze available data from the City on the tributary gravity sewer collection system in the A-7 sewer collection basin, and associated operation and maintenance record data, record drawings, and related pump runtimes.

The Consultant will perform City-escorted site visits to the collection system project area and to PS A-8 to assess the operational state and condition of the existing structures and equipment, and review constructability of potential improvements.

2.0 Conceptual Design Services

The Consultant will perform calculations and preliminary engineering required to estimate and determine the flow to be used for the conceptual design in the study area.

The Consultant will analyze and layout modifications to the existing gravity collection system, and identify improvements required at PS A-8 to convey and pump a diverted portion of the flow currently tributary to PS A-7. It is intended to analyze two levels of flow diversion (if possible): A) one which considers minimal system improvements without requiring major sewer or pump station modifications, and B) one which involves more complex or extensive modifications in order to determine the relative benefit of additional construction with respect to the quantity of flow able to be diverted, and to compare to the cost of the new pump station concept previously identified in the 2007 Master Plan Update.

The conceptual design will consist of piping plan layout figure depicting modifications to the existing collection system in the area required to divert flow to PS-A-8 and will be developed for alternatives A and B. Known utility conflicts and/or crossings that may affect the construction of the conceptual design will be noted. PS A-8 will be analyzed for present operating capacity and future required capacity, and a list of improvements required to provide the capacity including the diverted flows will be developed. The hydraulic model will be run to analyze wetwell capacity, pump selection, and controls requirements, and to determine the effect of the flow diversion on the other pumps stations in the area.

An estimate of probable cost of the identified improvements and a conceptual project implementation schedule will be developed for Alternative A and B.

3.0 Report Services

The Consultant will summarize the findings and recommendations in a technical memorandum with applicable tables and figures describing the conceptual capital improvements required for each alternative, figures depicting the plan layouts of gravity sewer improvements required, list of required pump station improvements, and a discussion of constructability, probable costs, and implementation schedule for Alternatives A and B.

A draft technical memorandum will be provided for City review, and a follow-up meeting to discuss the technical memorandum will be attended. A final technical memorandum including addressed review comments will be provided. Technical memorandum will be transmitted electronically to the City in pdf format.

4.0 Project Management, Quality Control, Meeting and Presentation

The Consultant will attend two meetings to present the findings of the analysis and will produce summary meeting notes from the meetings. Project management and quality management will be performed concurrent to task order execution.

DATA OR ASSISTANCE TO BE PROVIDED BY THE CITY

- a) Meeting attendance
- b) Available survey, geotechnical data, and easements
- c) Available existing record drawings for water, wastewater, and stormwater facilities to be impacted in the project area, as well as atlas, zoning, roadway, and special right-of-way information, parcel information as needed in GIS or CAD format
- d) Assistance with field verification of existing structures as requested and escort the Consultant within project site and on private property for field verifications as required
- e) Timely reviews of submittals

DELIVERABLES

The deliverables for this project will be an electronic transmittal (pdf format) of the draft and final Technical Memorandum developed in Task 3.

TIME OF COMPLETION

The draft Technical Memorandum will be delivered within three months of the receipt of the authorized purchase order and notice to proceed. The final Technical Memorandum will be transmitted within two weeks of the receipt of review comments.

PAYMENT AND COMPENSATION

Invoicing for the services will be monthly based on services performed and costs incurred at applicable billing rates. A status report will accompany each progress invoice.

<u>Description</u>	<u>Amount</u>
Consultant Services Allowance Upper Limit	\$ 40,330
Task Order No. 16 Total (Not to Exceed)	\$ 40,330

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CONSULTANT SERVICES

<u>Labor Category</u>	<u>Hours</u>
Officer (\$190)	16
Principal/Associate (\$170)	51
Senior Professional (\$150)	105
Professional II (\$125)	20
Professional I (\$100)	48
Senior Support (\$115)	8
Staff Support (\$75)	21
Project Administrator (\$65)	6
Senior QC Officer (\$225)	1
<u>Senior QC Manager (\$205)</u>	<u>12</u>
Total Estimated Hours	288
*Total Estimated Labor Cost (Not to Exceed)	\$40,330

** For estimating purposes only. Actual hours may vary per category depending on tasks assigned. Other labor categories and hours may be applicable to the services as allowable in the Master Agreement.*

A breakdown of labor estimates by Task is provided separately in Exhibit 3.

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CONSULTANT:

CDM Smith Inc. (f/k/a Camp Dresser & McKee Inc.)

Witnesses:

Timothy J. O'Neil

Signature

Timothy J O'Neil

Printed Name

Allyson Nunes

Signature

Allyson Nunes

Printed Name

By: _____

Title: Client Services Manager / Associate

ATTEST:

By: _____

Title: Assistant Secretary

STATE OF FLORIDA:
COUNTY OF BROWARD:

BEFORE ME, an officer duly authorized by law to administer oaths and take acknowledgments, on the 17 day of September 2012 personally appeared Jonathan Z. Goldman P.E., BCEE as Associate and Mario J Marcaccio as Assistant Secretary of CDM Smith Inc., a Massachusetts corporation, authorized to do business in the State of Florida, and acknowledged they executed the foregoing Agreement as the proper officials of CDM Smith Inc., for the use and purposes mentioned in it and they affixed the official seal of the legal entity, and that the instrument is the act and deed of that entity.

(SEAL)

Maria C. Monroe

Notary Public, State of Florida

(Signature of Notary taking Acknowledgment)



Maria C. Monroe

Name of Notary Typed, Printed or Stamped

My Commission Expires: February 18, 2013

Commission Number: DD0862647

IN WITNESS OF THE FOREGOING, the parties have set their hands and seals the day and year first written above.

CITY:

WITNESSES:

CITY OF FORT LAUDERDALE

Witness Print Name

Witness Print Name

(CORPORATE SEAL)

By _____
LEE R. FELDMAN, City Manager

ATTEST:

JONDA K. JOSEPH, City Clerk

Approved as to form:

CARRIE L. SARVER, Assistant City Attorney

Exhibit 1

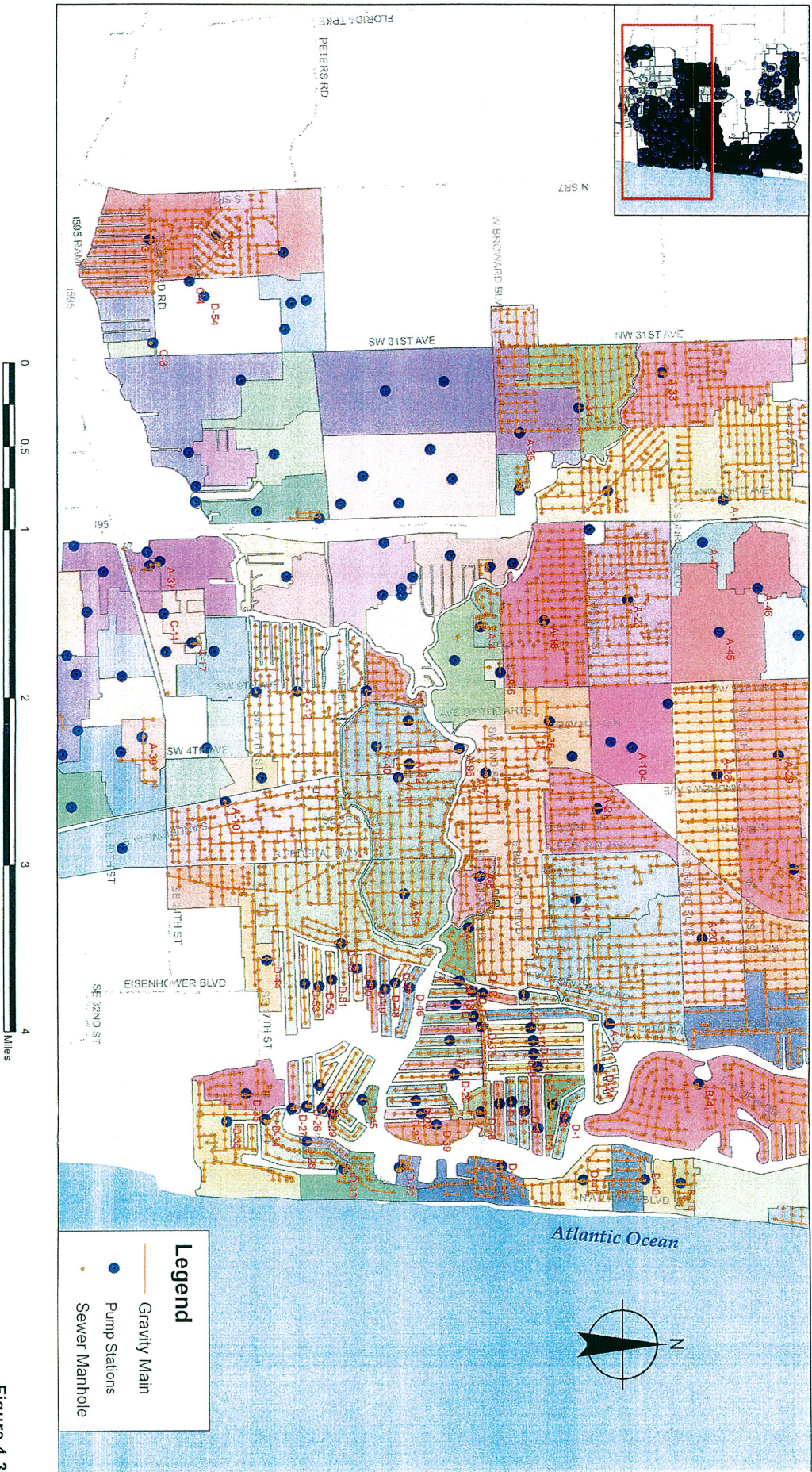


Figure 4-3a
 Pump Station Tributary Areas - South
 City of Fort Lauderdale Wastewater Master Plan



Exhibit 2

Appendix C: Table of Residential, Non-residential and I/I Flow for each pump station

Basin	Basin_Serv	Residential Population	Residential Flow (gpm)	Pseudo Nonresidential Population	Nonresidential Flow (gpm)	Peak Factor	Length of Gravelly Pipes (Feet)	Infiltration Rate (gpm/ft)	Infiltration Allowance (gpm)	Average from other Pump Stations (gpm)	Max from other Pump Stations (gpm)	Estimated Ave. Flow	Estimated Max. Flow	Previous Estimated Ave. Flow	Previous Estimated Max. Flow	Capacity Comment
6-Street Wastewater Treatment Plant	-	0	0.0	22	1.1	4.4	0	0.00000	0.0	0	0	1	5			
A-1	-	2,527	122.8	-	118.7	3.5	43,551	0.01063	462.9	0	0	704	1,372	906	1,745	Sufficient Capacity
A-2	-	3,205	155.8	-	60.9	3.4	28,523	0.01007	287.3	0	0	504	1,104	593	1,280	Sufficient Capacity
A-4	-	253	12.3	362	17.6	4.0	4,801	0.00369	17.7	0	0	48	115			
A-6	-	200	9.7	-	0.0	4.1	438	0.02225	9.8	0	0	19	58	33	112	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-7	A-9	5,940	288.8	-	134.1	3.2	70,095	0.01141	800.0	41	91	1,264	2,564	1,388	3,397	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-8	-	575	28.0	-	11.9	3.9	7,879	0.00271	21.4	0	0	61	160	138	391	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-9	-	227	11.0	-	10.1	4.1	6,256	0.00316	19.8	0	0	41	91	106	328	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-10	A-16	1,175	57.1	2,833	137.7	3.5	32,486	0.00789	258.2	208	423	659	1,413	777	1,615	Sufficient Capacity
A-11	-	2,161	105.0	-	26.4	3.6	30,417	0.00677	205.8	0	0	337	765	479	1,294	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-12	A-99	4,221	205.2	-	13.1	3.3	52,887	0.00422	223.3	66	179	508	1,269	647	1,649	Sufficient Capacity
A-14	-	2,565	124.7	4,537	220.5	3.3	44,022	0.00008	3.6	0	0	349	855	865	1,450	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-15	-	1,585	78.1	-	7.5	3.7	22,437	0.00653	148.9	0	0	232	551	278	692	Sufficient Capacity
A-16	-	601	29.2	745	38.2	3.9	18,099	0.00789	142.7	0	0	208	423			
A-17	A-26	3,083	149.9	-	41.5	3.4	40,045	0.00513	205.4	8	24	405	945	683	1,698	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-18	-	4,461	218.9	-	58.2	3.3	48,189	0.01023	493.1	0	0	768	1,648	922	2,059	Sufficient Capacity
A-19	-	3,602	175.1	-	39.6	3.4	40,736	0.00283	115.4	0	0	330	835	638	1,802	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-20	-	3,978	193.4	-	61.2	3.3	30,962	0.00010	3.1	0	0	258	712	417	1,170	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow
A-21	-	2,951	143.5	-	30.3	3.4	28,928	0.01893	547.5	0	0	721	1,498	805	1,795	Sufficient Capacity
A-22	-	2,018	98.1	-	19.2	3.6	35,141	0.00009	3.2	0	0	120	376	281	856	Sufficient Capacity, but New Estimated Flow is More Than 30% Less Than Previous Estimated Flow



EXHIBIT 3

CITY OF FORT LAUDERDALE

TASK ORDER No. 16
SEWER COLLECTION BASIN A-7 FLOW DIVERSION AND PUMP STATION A-8 IMPROVEMENTS

CONSULTANT SERVICES

12-Sep-12

TASK AND DESCRIPTION	OFFICER	SENIOR QC OFFICER	SENIOR QC MANAGER	PRINCIPAL/ ASSOCIATE	SENIOR PROF	PROF II	PROF I	SENIOR SUPPORT	STAFF SUPPORT	PROJ ADMINSTR	TOTAL HOURS	LABOR COSTS
PS A-8 Diversion Analysis												
Data Gathering And Data Review and Analysis	0	0	0	2	2	0	8	0	2	0	14	\$1,590
Site Inspections	2	0	0	8	0	8	8	0	0	0	26	\$3,540
WW Flow Calculations	1	0	0	1	4	4	8	0	0	0	18	\$2,260
Sewer System Modifications Alts A&B	1	0	0	8	12	0	0	0	0	0	21	\$3,350
Pump Station Analysis Alts A&B	1	0	0	8	16	0	2	0	0	0	27	\$4,150
Hydraulic Model Manifold Impacts	3	0	0	10	23	0	2	0	0	0	38	\$5,920
Cost Estimates Alts A&B	0	0	0	1	12	0	2	0	0	0	15	\$2,170
Schedule and Constructability Alts A&B	1	0	2	1	4	0	2	0	0	0	10	\$1,570
Technical Memorandum and Figures Draft and Final	2	0	2	8	16	8	12	6	8	0	62	\$8,040
Meetings (2)	2	0	0	4	4	0	4	2	8	0	24	\$2,890
Quality Assurance / Quality Control	3	1	8	0	2	0	0	0	1	0	15	\$2,810
Project Management	0	0	0	0	10	0	0	0	2	6	18	\$2,040
Sub Total Design Tasks	16	1	12	51	105	20	48	8	21	6	288	\$40,330
Contract Labor Rates	\$190.00	\$225.00	\$205.00	\$170.00	\$150.00	\$125.00	\$100.00	\$115.00	\$75.00	\$65.00		

For Fee Estimation Purposes Only - Not To Be Used for Invoicing. Actual hours may vary per category depending on tasks assigned. Other labor categories and hours may be applicable to the services as allowable in the Master Agreement.