

Date: January 17, 2013

To: Jack Osterholt, Director  
Department of Regulatory and Economic Resources

From: John W. Renfrow, P.E., Director   
Miami-Dade Water and Sewer Department

Subject: Review Item: Design-Build services for the replacement of the existing 54-inch sanitary sewage force main pipeline from the Central District Wastewater Treatment Plant to Fisher Island under, Norris Cut Channel – Project Number DB12-WASD-01

It is recommended that the Small Business Development division of the Department of Regulatory and Economic Resources review the attached request for Community Business Enterprise (CBE) and Community Small Business Enterprise (CSBE) measures for the above mentioned project, in order to proceed with the advertisement and subsequent consultant selection for this project.

The duration of the proposed design-build contract is 740 calendar days. The total compensation for the design-build contract is \$82,824,117.32, which includes the following:

- \$61,809,043.00 estimated construction cost;
- \$ 6,180,904.00 estimated engineering cost;
- \$ 3,708,542.58 contingency fees in accordance with Ordinance 00-65;
- \$ 9,271,356.45 dedicated allowance;
- \$ 1,854,271.29 permitting fees.

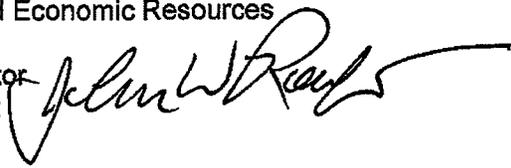
**ENGINEERING SERVICES:** The scope of engineering services will include, but is not limited to, engineering, design, permitting, and inspection to support the construction, installation, testing and commissioning activities associated with replacing the existing damaged 54-inch sanitary sewer force main pipeline with a 60-inch inside diameter pipeline. Engineering and design services will be required to address the following project elements:

- Approximately 5,200 linear feet of tunnel boring with precast segmental liners capable of accommodating a 60-inch internal diameter carrier pipeline, to be constructed with inert/non-corrosive material and encased in grout to achieve a minimum service life of 100 years.
- Approximately 2,100 linear feet of open-cut construction to install a 60-inch internal diameter pipeline within the Central District Wastewater Treatment Plant compound, connecting to the Central District Wastewater Treatment Plant grit chamber facility.
- Approximately 1,000 linear feet of horizontal directional drilling to install an 8-inch non-rigid pipeline under the Fisher Island Golf Course that will relay the sewage flow from the Fisher Island Pump Station 170 to the Fisher Island retrieval shaft facilitating a connection to the 60-inch replacement force main.
- Approximately 400 linear feet of open-cut construction to install an 8-inch pipe from the existing Fisher Island Pump Station 170 and interconnecting to 8-inch horizontal directional drilling installation.

**DEPARTMENTAL INPUT  
CONTRACT MEASURE ANALYSIS AND RECOMMENDATION**

TO: Jack Osterholt, Director  
Department of Regulatory and Economic Resources

FROM: John W. Renfrow, P.E., Director  
Water and Sewer Department



DATE:

CONTRACT TITLE: Design-Build services for the replacement of the existing 54-inch sanitary sewage force main from the Central District Wastewater Treatment Plant to Fisher Island, under Norris Cut Channel – Project Number DB12-WASD-01

CONTRACT	\$61,809,043.00	Construction cost
ESTIMATE:	\$ 3,090,452.15	Contingency Allowance 5%
	\$ 9,271,356.45	Dedicated Allowance
	\$ 1,854,271.29	Permitting Fees 3%
TOTAL:	\$76,025,122.89	

FUNDING: WASD Revenue Bonds

ITEM	SUBTRADE	ESTIMATED COST	% OF ITEM OF BASE BID	CSBE AVAILABILITY
1	SHAFT CONSTRUCTION & WASTE REMOVAL	\$3,063,000.00	5%	2%
2	TUNELLING & WASTE REMOVAL	\$36,065,250.00	58.3%	4%
3	HORIZONTAL DIRECTIONAL DRILLINGS & WASTE REMOVAL	\$369,900.00	0.6%	0
4	CARRIER/PRODUCT PIPE INSTALLATION	\$15,070,000.00	24.4%	0
5	OPEN CUT PIPE INSTALLATION	\$4,893,708.50	7.9%	2.5%
6	SITE PREP / RESTORATION	\$ 1,251,184.50	2.0%	2%
7	CUT /DEWATERING/PLUGGING OF EXISTING FORCE MAIN	\$274,000.00	0.4%	.5%
8	ENVIRONMENTAL, GEOTECHNICAL & INSTRUMENTATION MONTORING	\$822,000.00	1.3%	0
	<b>Total Construction Cost</b>	<b>\$61,809,043.00</b>	<b>100%</b>	<b>11%</b>
	Contingency Allowance 5%	\$ 3,090,452.15		
	Dedicated Allowance:	\$ 9,271,356.45		
	Permitting	\$ 1,854,271.29		
	<b>Total Estimated Construction Cost including Dedicated Allowance, Contingency and Permitting Fees</b>	<b>\$76,025,122.89</b>		

**CONSTRUCTION SERVICES:** The scope of services will include, but is not limited to, providing the labor, equipment, and materials as well as the management, supervision, quality control, cost and schedule controls, and safety services for the construction/installation, testing and commissioning activities associated with the replacing of the existing 54-inch sanitary sewage force main pipeline with a new 60-inch sanitary sewage force main pipeline that will extend from the Central District Wastewater Treatment Plant to Fisher Island, under the Norris Cut Channel.

Construction includes excavation of deep shafts in the uplands of Fisher Island and Virginia Key; tunneling from Virginia Key, under Norris Cut in Biscayne Bay, to Fisher Island; horizontal directional drilling to connect the existing Fisher Island Pump Station 170 to the proposed 60-inch sanitary sewage replacement force main; and open-cut installation of the force main on Virginia Key to the Central District Wastewater Treatment Plant. Other construction activities will include removal and disposal of excavated material, installing a 60-inch carrier sanitary sewage force main, grouting the replacement pipe in the lined tunnel and in the shafts, and connecting, testing and placing the new force main into service. The existing 54-inch sanitary sewage force main, under Norris Cut Channel that is to be replaced shall be cut at the terminus, purged of sewage, plugged, and abandoned in a manner that will facilitate rehabilitation in the future.

It is the intent of Miami-Dade Water and Sewer Department (WASD) to obtain a complete functional, satisfactory and legally-operable design and fully permitted installation of the replacement sanitary sewage force main pipeline under this project.

WASD is recommending a 20% CBE and 11% CSBE participation goal. Attached are WASD's Departmental Input Worksheets and CBE and CSBE minimum requirements for your review and approval.

Should you have any questions, please contact Patty David, A/E Professional Services Manager at [pattyd@miamidade.gov](mailto:pattyd@miamidade.gov) or (786) 552-8040.

Attachments

ITEM	BREAKDOWN	% of Design	CBE %
Prime 16.00	General Civil Engineering	3	1
TOTAL ENGINEERING		100%	20%

Understanding of general civil and site requirements such as paving, grade, drainage, and landscaping to support site development for the construction trailers and material staging areas, and restoration of golf courses and greenways.

**CSBE RECOMMENDATION  
Minimum Requirements**

Lead Constructors: Minimum requirements are for projects completed within the last ten (10) years, including projects that may be at least 50% complete prior to the required submittal date of the solicitation. There no minimum requirements for CSBE contractors. Lead constructors must demonstrate related minimum project experience as indicated below:

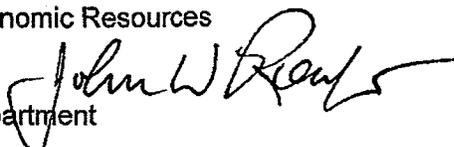
- i. The Lead Constructor firm performing the tunnel boring work must have constructed at least two (2) tunneling projects consisting of concrete segmental liners. A minimum of 2500 linear feet of installation and minimum 8 feet internal diameter of such tunnel installation is required. .
- ii. The Lead Constructor firm performing the installation of the carrier pipe within the tunnel bore shall have performed at least one (1) project involving the installation of a carrier pipe of minimum 36 inches inside diameter, and installation length that exceeds 1000 feet.
- iii. The Lead Constructor firm performing the shaft construction shall have constructed at least two (2) deep shafts constructions that were at least 40 foot deep (below grade).
- iv. The Lead Constructor firm performing the horizontal direction drill (HDD) installation shall demonstrate having performed one (1) project utilizing HDD with non-rigid pipe of at least six (6) inches or more, and for a distance of 1000 feet or more.
- v. The Lead Constructor firm performing the open cut installation of 60-inch pipe shall demonstrate having performed one (1) project utilizing the open cut method with pipe of 48-inches inside diameter or more, and total installed length of at least 1000 feet or more.
- vi. Design-Build Team includes a firm listing one (1) project demonstrating experience of tapping into an operating sewer system pipe, especially of reasonably similar size and type (this may be a specialty subcontractor).



Date: January 17, 2013

To: Jack Osterholt, Director  
Department of Regulatory and Economic Resources

From: John W. Renfrow, P.E., Director  
Miami-Dade Water and Sewer Department



Subject: Review Item: Design-Build services for the replacement of the existing 54-inch sanitary sewage force main pipeline from the Central District Wastewater Treatment Plant to Fisher Island under, Norris Cut Channel – Project Number DB12-WASD-01

It is recommended that the Small Business Development division of the Department of Regulatory and Economic Resources review the attached request for Community Business Enterprise (CBE) and Community Small Business Enterprise (CSBE) measures for the above mentioned project, in order to proceed with the advertisement and subsequent consultant selection for this project.

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**ENGINEERING SERVICES:** The scope of engineering services will include, but is not limited to, engineering, design, permitting, and inspection to support the construction, installation, testing and commissioning activities associated with replacing the existing damaged 54-inch sanitary sewer force main pipeline with a 60-inch inside diameter pipeline. Engineering and design services will be required to address the following project elements:

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- Approximately 2,100 linear feet of open-cut construction to install a 60-inch internal diameter pipeline within the Central District Wastewater Treatment Plant compound, connecting to the Central District Wastewater Treatment Plant grit chamber facility.
- Approximately 1,000 linear feet of horizontal directional drilling to install an 8-inch non-rigid pipeline under the Fisher Island Golf Course that will relay the sewage flow from the Fisher Island Pump Station 170 to the Fisher Island retrieval shaft facilitating a connection to the 60-inch replacement force main.
- Approximately 400 linear feet of open-cut construction to install an 8-inch pipe from the existing Fisher Island Pump Station 170 and interconnecting to 8-inch horizontal directional drilling installation.

- Approximately 5,600 linear feet of the existing 54-inch sanitary sewage force main to be cut, purged of sewage, plugged at the terminal locations, and abandoned in a manner that will permit rehabilitation in the future.

The firms providing these services must be certified in the following technical categories and the respective percentages of the disciplines as indicated below:

<b>Technical Category No.</b>	<b>Description</b>	<b>Total Percentage</b>	<b>Amount</b>	<b>CBE Percentage</b>
3.02A Prime	Highway Systems – Tunnel Design	34	\$2,101,507.35	0
6.01 Prime	Water Distribution and Sanitary Sewage Collection and Transmission Systems	20	\$1,236,180.80	5
12.00 Prime	General Mechanical Engineering	4	\$ 247,236.16	1
16.00 Prime	General Civil Engineering	3	\$ 185,427.13	1
3.12	Highway Systems – Underwater Engineering Inspection	2	\$ 123,618.08	0
5.01	Port and Waterway Systems – Engineering Design	1	\$ 61,809.04	1
9.01	Soils, Foundations and materials Testing-Drilling, Subsurface Investigations and Seismographic Services	2	\$ 123,618.08	2
9.02	Soils, Foundations and materials Testing -Geotechnical and Materials Engineering Services	2	\$ 123,618.08	1
9.03	Soils, Foundations and materials Testing –Concrete and Asphalt Testing Services	1	\$ 61,809.04	1
9.04	Soils, Foundations and materials Testing – Non-Destructive Testing and Inspection	1	\$ 61,809.04	1
10.05	Environmental Engineering - Contamination Assessment and Monitoring	1	\$ 61,809.04	1
11.00	General Structural Engineering	25	\$1,545,226.00	2
13.00	General Electrical Engineering	1	\$ 61,809.04	1
15.01	Surveying and Mapping- Land Surveying	2	\$ 123,618.08	2
15.03	Surveying and Mapping – Underground Utility Location	1	\$ 61,809.04	1
	<b>TOTAL</b>	<b>100</b>	<b>\$6,180,904.00</b>	<b>20</b>

**DEPARTMENTAL INPUT**  
**CONTRACT/PROJECT MEASURE ANALYSIS AND RECOMMENDATION**

**Contract/Project Title:** Design-Build Services for the Replacement of the existing 54-inch sanitary sewage force main pipeline from the Central District Wastewater Treatment Plant to Fisher Island, under, Norris Cut Channel

**Contract/Project No.** DB12-WASD-01

**Description:** Design-Build Services for the Replacement of the existing 54-inch sanitary sewage force main pipeline from the Central District Wastewater Treatment Plant to Fisher Island, under, Norris Cut Channel

**Department:** Miami-Dade Water and Sewer Department

**Contact:** Patty David

**Phone:** (786) 552-8040

**Estimated Cost:** \$6,180,904.00

**Funding Source:** WASD Revenue Bonds

**ANALYSIS**

Commodity/Service No. \_\_\_\_\_ SIC: \_\_\_\_\_

Trade/Commodity/Service Opportunities

**Contract/Project History of Previous Purchases for Previous Three (3) Years**  
 Check Here if this is a New Contract/Purchase with no Previous History

Existing  2<sup>nd</sup> Year 1<sup>st</sup> Year

Contractor	_____	_____	_____
Ethnicity/Race	_____	_____	_____
Gender	_____	_____	_____
Contract Value	_____	_____	_____

COMMENTS: \_\_\_\_\_

**RECOMMENDATIONS**

9BE GOAL  
20 %

BID PREFERENCE

NO MEASURE

Analysis for Goal Recommendation

<u>Sub-Trade</u>	<u>Est. Cost</u>	<u>% of Item to Base Bid</u>	<u>Availability</u>
_____	\$ _____	_____	_____
_____	\$ _____	_____	_____
_____	\$ _____	_____	_____
Total:	\$ _____	_____	_____

**Basis for Recommendation:** WASD proposes that the goal can be achieved with the CBE firm assisting with - 5% 6.01; 1% 12.00; 1% 5.01; 2% 9.01; 1% 9.02; 1% 9.03; 1% 9.04; 1% 10.05; 2% 11.00; 1% 13.00; 2% 15.01; 1% 15.03 and 1% 16.00

  
 By Department  
 John W. Renfrow, P.E., Director

Date: Small Business Development

**CBE RECOMMENDATION**  
**Minimum Requirements**  
**Design-Build Services for the Replacement of the Existing 54-inch Sanitary Sewage**  
**Force Main Pipeline from the Central District Wastewater Treatment Plant to Fisher**  
**Island, under Norris Cut Channel**

**MINIMUM EXPERIENCE AND QUALIFICATION:**

- 1) Lead Designer(s) may be a subconsultant to the Design-Builder or in Joint Venture with the Design-Builder:
  - i. The Lead Designer firm who will design the tunnel must have designed at least two (2) tunneling projects consisting of concrete segmental liners of a minimum 2500-foot length and 8 foot inside diameter.
  - ii. The Lead Designer firm performing the design of the carrier pipe within the tunnel shall have designed one (1) project with a carrier/product pipe of 36 inches minimum inside diameter, and for a distance of 1000 feet or more.
  - iii. The Lead Designer firm performing design for the deep shafts shall have designed a deep shaft project to support a tunnel boring operation. The shaft shall be at least at least 40 foot deep (below grade).
  - iv. The Lead Designer firm performing the installation of horizontal direction drill (HDD) shall demonstrate having performed one (1) project utilizing HDD with non-rigid pipe of minimum six (6) inches diameter for a distance of 1000 feet or more.

Lead Designer(s) may qualify for one or more of the above project work items. Categories indicated below as "Prime" are those categories expected that the Lead Designer shall possess.

- 2) Subconsultants to the Design-builder or Lead Designer providing services under technical categories listed below must demonstrate to have design of a least one (1) project that was completed within the last ten (10) years that involved all the project elements (tunnel/liner/large diameter/underwater shafts/geotechnical monitoring etc.) described below.

<b>ITEM</b>	<b>BREAKDOWN</b>	<b>% of Design</b>	<b>CBE %</b>
<b>Prime Highway Systems - Tunnel Design 3.02A</b>		<b>34</b>	<b>0</b>

Specialty experience in the design of minimum 8-foot inside diameter tunnel with pre-cast concrete segmental liners in geologies with limestone/rock formation and a high water table and the selection/procurement of Tunnel Boring Machines (TBMs).

ITEM	BREAKDOWN	% of Design	CBE %
	Special capability in the design of small diameter (less than 12-inches) non- rigid pipe using Horizontal Directional Drill (HDD) methods in geologies with limestone/rock formations and a high water table.		
3.12	Highway Systems - Underwater Engineering Inspection	2	0
	Specialty capability in conducting underwater inspections of structures which may include deep shafts; submerged tunnel bores; submerged rock anchors; large diameter vertical casings; large diameter pipes; and their associated ancillary features.		
5.01	Port and Waterway Systems – Engineering Design	1	1
	Specialty knowledge in general port operations, navigational requirements, and general engineering criteria relevant to construction under water ways, and involving ancillary supports such as docking facilities.		
<b>6.01</b>	<b>Prime Water and Sanitary Sewer Systems – Water Distribution and Sanitary Sewage Collection and Transmission Systems</b>	<b>20</b>	<b>5</b>
	Specialty knowledge in design, construction, and testing of: large diameter pressurized mains (54-inches and larger) installed as a carrier in a casing or tunnel, or via open cut methods; and smaller diameter (less than 12-inches) HDD pipe installations.		
9.01	Soils, Foundations and Materials Testing - Drilling, Subsurface Investigations and Seismographic Services	2	2
	Specialty knowledge in the performance of geotechnical explorations in the uplands and/or waterways, and the development and implementation of instrumentation and monitoring programs to measure settlement of surfaces, structures, utilities, and water levels.		
9.02	Soils, Foundations and Materials Testing – Geotechnical and Materials Engineering Services	2	1
	Providing material testing and quality assurance services for product acceptance. Testing for reliability/durability, water-tightness, densities, and pressure/hydrostatic of tunnel and piping systems.		
9.03	Soils, Foundations and Materials Testing – Concrete and Asphalt Testing Services	1	1
	Providing quality assurance and testing services for concrete and pavement installations. Testing to include compressive strength, slump, air, density, and proctor tests for product acceptance.		

ITEM	BREAKDOWN	% of Design	CBE %
9.04	Soils, Foundations and Materials Testing – Non-Destructive Testing and Inspections	1	1
10.5	Environmental Engineering - Contamination Assessment and Monitoring	1	1
Providing services such as environmental permitting, contamination screening, soil and ground water sampling, site characterization, and developing and implementing environmental remedial action plans, if required.			
11.00	General Structural Engineering	25	2
Structural design of deep water-tight shafts, with minimum depth of 40-feet, and in conditions with high water table and requiring tremie plugs and rock anchor supports; concrete segmental liners and their associated connections; thrust restraints for pipes in tunnel and in a trench.			
<b>Prime</b>	<b>General Mechanical Engineering</b>	4	1
<b>12.00</b>			
Design of pipe, fittings, and mechanical restraints for large diameter pipes, tapping connections, and temporary bypasses, and design of piping schemes to support tunnel slurry operations and grouting.			
13.00	General Electrical Engineering	1	1
Design of temporary electrical systems and controls to support tunnel operations, pumping and dewatering systems, and site trailers.			
15.01	Surveying and Mapping - Land Surveying	2	2
Surveying and mapping services related to establishing alignment and grades for deep tunnels, temporary/permanent/subterranean easements, marine surveying, and construction progress and as-built surveys.			
15.03	Survey and Mapping - Underground Utility Location	1	1
Understanding of mapping and survey requirements based on MDWASD standards and knowledge of the utility verification process.			