



3100 SW 15th Street
Deerfield Beach, Florida 33442
Office: (954) 426-1221
Fax: (954) 426-1226

City of Miami Beach
1700 Convention Center Drive
Miami Beach, FL 33139

April 8, 2020
Sent Via Email

Attn: Jorge Rodriguez

Re: West Ave North 091/South 090

Subject: Water Quality Wells

Jorge,

Enclosed please find the proposal with back-up documentation for the cost of the Water Quality Wells Alternate 2 for review and approval. As discussed, we recommend Alternate 2, the cylindrical approach for the following reasons:

- Secant pile structures will take less time than conventional cofferdams- therefore less impact to residents.
- Drilling is the prime approach to forming the permanent structures as opposed to pile driving a watertight cofferdam for pre-cast structures – therefore noise will be significantly less for the residents.
- Secant piles will be less costly than rectangular structures.

Please review and if approved issue a Change Order to proceed with design development as follows:

Alternate 2 North- \$1,042,761
Alternate 2 South -\$581,195

Considering projected design time of 90 days from NTP and an estimated 180 days to permit, RMCF would appreciate an expedited review and approval of this change, since the design and permitting of this work runs through the critical path of the project.

Should you have any questions please let us know.



3100 SW 15th Street
Deerfield Beach, Florida 33442
Office: (954) 426-1221
Fax: (954) 426-1226

Regards,

Michael Fischer

Michael R. Fischer, COO
Ric-Man Construction FL, Inc.

CC:

Sabrina Baglieri
Tyson DiPetrillo
Danny Mancini
Jose Caraballo

Attachments:

- Water Quality Proposal Detail – West Ave

City of Miami Beach
Design / Build Services for West Avenue Improvements
Phase II North and South of 14th Street

2016-090-KB

2016-091-KB

Water Quality Drainage Wells Design

Scope of Services

March 27, 2020

Prepared By:



880 SW 145th Avenue, Suite 106
Pembroke Pines, Florida 33027

INTRODUCTION

At the request of the City of Miami Beach, CES Consultants, Inc. (CES) is pleased to submit this proposal to perform the design of 11 water quality facilities throughout the West Avenue project area. The design is based on discussions with City staff, an analysis performed by the RMCF DB Team, and a directive provided by the City of Miami Beach.

The design will expand on the conceptual design prepared during the analysis phase of this effort. The water quality design is for 11 individual stormwater lift stations that will pump stormwater into 15 shallow drainage wells. The shallow drainage well depth will be approximately 100 feet, and the pumps will simply produce a pressure similar to four (4) feet of head.

The system will collect a portion of the stormwater from the main lines on West Avenue and Bay Road and convey it to an underground settling tank. These tanks will be designed to retain the stormwater for 90 seconds, at which point, the stormwater flows into a wet well. A single pump will be located inside each wet well and pump the stormwater into drainage wells. The discharge piping will have a passive relief system to assure that the pressure equivalent to four (4) feet of head is not exceeded.

Each of the 11 systems that will be located throughout the project area. Each system will have unique features due to the variation in above and below ground features at each location, as well as, the varying connection points along the main system on West Avenue and Bay Road. Due to these factors, each system will require a complete design.

DESCRIPTION OF SERVICES

Services to be provided shall include, but are not limited to, the following activities:

1. Perform soil borings at each location.
2. Development of complete engineering plans for each of the 11 systems. Plans will be submitted to CMB at 30%, 60% and 90% for review, including informal reviews with DERM. IFC package will be prepared once all permits are issued.
3. Preparation of permit package, and all necessary meetings and revisions to attain a permit. **Permit fees are not included.**
4. Preparation of IFC plans once all permits are issued by the regulatory agencies.
5. Revision to the stormwater model to incorporate this water quality component.
6. Revision to the drainage report to incorporate this water quality component.
7. Revision to stormwater drainage plans. Adjustment to the stormwater plan to make connections to the water quality systems.
8. Revision to landscaping plans. Adjustment to the landscaping plan to make space for the control panels.

9. Revision to potable watermain plans. Relocating a segment of watermain along Lincoln Road to make space for the water quality system.
10. Revision to sanitary sewer plans. Relocating a segment of sanitary sewer along Lincoln Road to make space for the water quality system.
11. Engineering Services During Construction

GEOTECHNICAL INVESTIGATION

CES Consultants, Inc. shall prepare a listing of the specific geotechnical investigation requirements specific to the scope of work. The Design Consultant will manage the geotechnical task. The goals and objectives of the geotechnical investigation may include the following:

1. Identify soil types within the project area
2. Identify the characteristics and properties of the soils present
3. Use available soil characteristics, properties and potential project geometrics to identify possible geotechnical concerns
4. Provide geotechnical recommendations for engineering design
5. Evaluate groundwater conditions

Upon completion of the geotechnical investigation, a report will be prepared and submitted with the 30%. The report shall include the following:

1. Brief description of soil conditions observed in the field and in the laboratory
2. Conclusions and recommendations regarding:
 - a. Primary geotechnical engineering concerns and mitigating measures, as applicable
 - b. Site preparation and grading including treatment of weak, porous, compressible and expansive surface soils and the construction of fills.
 - c. Preparation of subgrade and aggregate base for pavement areas
 - d. Pavement sections (if required)

One (1) soil boring to a depth of 100 feet below the top of ground elevation at the location of the proposed wet well. If additional soil borings are required, CES will request additional funds to obtain soil information.

DESIGN AND PLANS PERMITTING

CES Consultants, Inc. will prepare and submit design plans to CMB for the following phases:

1. 30% Design Submittal

For the development of this sub-task, CES Consultants, Inc. will provide the following services:

- Perform a water quality analysis of the site.
- Participate in one (1) informal meeting with DERM to discuss conceptual design.
- Develop alternative options to satisfy the water quality needs.
- Develop conceptual drawings of the system, and identify locations for installation.

- Revise the drainage model utilizing ICPR4.
- Perform engineering calculations to define the size of structures and pumping requirements.
- Preparation of system curve and pump selection.
- Perform a utility conflict evaluation and coordination. Identify possible conflicts and necessary resolutions.
- Develop 30% plans for each of the 11 independent water quality systems.

The water quality system design to be presented will include the following drawings sheets (min. 35 sheets per system; 385 total sheets) for each of the 11 systems:

- **General:**
 - **G1 - Cover and Index**
 - **G2 - General Notes**
- **Civil:**
 - **C1 - Existing Conditions and Demolition Plan**
 - **C2 - Proposed Site Plan**
 - **C3 - Proposed Section Plan**
 - **C4 - Grading and Restoration Plan**
 - **C5 - Standard Details**
 - C6 - Well Drill Plan (Not part of this submittal)
- **Mechanical:**
 - **M1 - Mechanical Notes**
 - **M2 - General Plan**
 - **M3 - General Profile**
 - **M4 - Settling Tank Plan and Sections**
 - **M5 - Wet Well Plan and Sections**
 - **M6 - Drainage Well Plan and Sections**
 - **M7 - Drainage Pipe and Force Main Profiles**
 - **M8 - Passive Relief System Profile**
 - **M9 - Mechanical Details**
- **Structural:**
 - **S1 - Structural Notes**
 - **S2 - General Plan**
 - **S3 - General Profile**
 - **S4 - Settling Tank Plan**
 - S5 - Settling Tank Section (Not part of this submittal)
 - **S6 - Wet Well Plan**
 - S7 - Wet Well Sections (Not part of this submittal)
 - **S8 - Drainage Well Plan and Sections**
 - S9 - Control Slab (Not part of this submittal)
 - S10 - Secant Piles Details (Not part of this submittal)
 - **S11 - Structural General Details**
- **Electrical:**
 - **E1 - Electrical Notes**
 - **E2 - General Plan and Grounding**
 - E3 - Equipment Layout and Sections (Not part of this submittal)
 - E4 - One-Line Diagram and Schedules (Not part of this submittal)

- E5 – Controls Diagram (Not part of this submittal)
- E6 – RTU Installation (Not part of this submittal)
- **E7 – Electrical Details**

2. 30% Deliverables:

Provide 30% Design Plans as follows:

- One (1) Copy, 11" x 17" Design Plans.
- One (1) Copy of Draft Drainage Report
- One (1) Draft Geotechnical Report
- Electronic Submittal of Design Plans, Drainage Report, and Geotechnical Report (Uploaded to E-Builder)

3. 60% Design Submittal

For the development of this sub-task, CES Consultants, Inc. will provide the following services:

- Review and incorporate comments from CMB.
- Participate in one (1) informal meeting with DERM to discuss progress and direction of design.
- Develop a well drill plan.
- Prepare structural settling tank and wet well section plans.
- Develop secant pile details.
- Develop control panel slab.
- Finalize electrical equipment selection.
- Develop electrical equipment layout and sections.
- Develop controls diagram, one-line diagram, electrical schedule, and RTU installation.
- Develop 60% plans for each of the 11 independent water quality systems.

The water quality system design to be presented will include the following drawings sheets for each of the 11 systems:

- **General:**
 - **G1 - Cover and Index**
 - **G2 - General Notes**
- **Civil:**
 - **C1 - Existing Conditions and Demolition Plan**
 - **C2 - Proposed Site Plan**
 - **C3 - Proposed Section Plan**
 - **C4 - Grading and Restoration Plan**
 - **C5 - Standard Details**
 - **C6 - Well Drill Plan**
- **Mechanical:**
 - **M1 - Mechanical Notes**

- M2 - General Plan
- M3 - General Profile
- M4 - Settling Tank Plan and Sections
- M5 - Wet Well Plan and Sections
- M6 - Drainage Well Plan and Sections
- M7 - Drainage Pipe and Force Main Profiles
- M8 - Passive Relief System Profile
- M9 - Mechanical Details
- **Structural:**
 - S1 - Structural Notes
 - S2 - General Plan
 - S3 - General Profile
 - S4 - Settling Tank Plan
 - S5 - Settling Tank Section
 - S6 - Wet Well Plan
 - S7 - Wet Well Sections
 - S8 - Drainage Well Plan and Sections
 - S9 - Control Slab
 - S10 - Secant Piles Details
 - S11 - Structural General Details
- **Electrical:**
 - E1 - Electrical Notes
 - E2 - General Plan and Grounding
 - E3 - Equipment Layout and Sections
 - E4 - One-Line Diagram and Schedules
 - E5 - Controls Diagram
 - E6 - RTU Installation
 - E7 - Electrical Details

4. 60% Deliverables:

Provide 60% Design Plans as follows:

- One (1) Copy, 11" x 17" Design Plans.
- One (1) Copy of the Revised Drainage Report
- One (1) Signed and Sealed Geotechnical Report
- Electronic Submittal of Design Plans, Drainage Report, and Geotechnical Report (Uploaded to E-Builder)

5. 90% Design Submittal

For the development of this sub-task, CES Consultants, Inc. will provide the following services:

- Review and incorporate comments from CMB.
- Finalize all aspects of design in preparation for permitting.
- Participate in one (1) informal meeting with DERM to discuss progress and direction of design.

- Develop 90% plans for each of the 11 independent water quality systems.

The water quality system design to be presented will include the following drawings sheets for each of the 11 systems:

- **General:**
 - G1 - Cover and Index
 - G2 - General Notes
- **Civil:**
 - C1 - Existing Conditions and Demolition Plan
 - C2 - Proposed Site Plan
 - C3 - Proposed Section Plan
 - C4 - Grading and Restoration Plan
 - C5 - Standard Details
 - C6 - Well Drill Plan
- **Mechanical:**
 - M1 - Mechanical Notes
 - M2 - General Plan
 - M3 - General Profile
 - M4 - Settling Tank Plan and Sections
 - M5 - Wet Well Plan and Sections
 - M6 - Drainage Well Plan and Sections
 - M7 - Drainage Pipe and Force Main Profiles
 - M8 - Passive Relief System Profile
 - M9 - Mechanical Details
- **Structural:**
 - S1 - Structural Notes
 - S2 - General Plan
 - S3 - General Profile
 - S4 - Settling Tank Plan
 - S5 - Settling Tank Section
 - S6 - Wet Well Plan
 - S7 - Wet Well Sections
 - S8 - Drainage Well Plan and Sections
 - S9 - Control Slab
 - S10 - Secant Piles Details
 - S11 - Structural General Details
- **Electrical:**
 - E1 - Electrical Notes
 - E2 - General Plan and Grounding
 - E3 - Equipment Layout and Sections
 - E4 - One-Line Diagram and Schedules
 - E5 - Controls Diagram
 - E6 - RTU Installation
 - E7 - Electrical Details

6. 90% Deliverables:



City of Miami Beach
D/B Services for West Avenue Improvements
2016-090-KB; 2016-091-KB
Water Quality Drainage Wells Design
Scope of Services

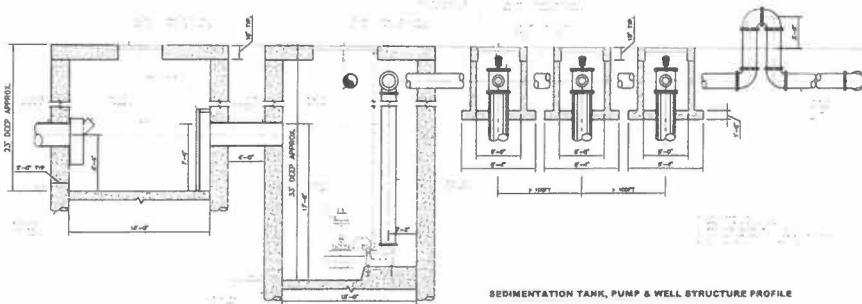
Provide 90% Design Plans as follows:

- One (1) Copy, 11" x 17" Design Plans
- One (1) Signed and Sealed Drainage Report
- Completed permit applications
- Electronic Submittal of Design Plans and Drainage Report (Uploaded to E-Builder)

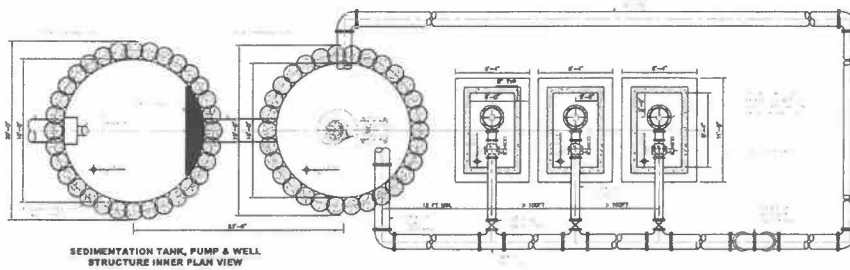
ASSUMPTIONS

This scope of work and deliverables are based on the following assumptions:

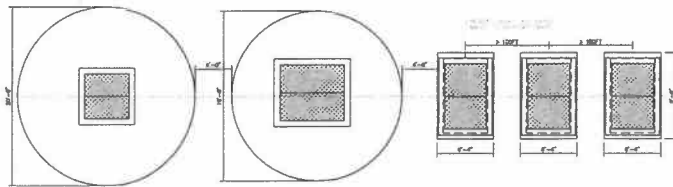
- At the end of each design deliverable (30%, 60%, and 90%), CMB will review the plans and forward review comments to the RMCF DB Team within 14 calendar days.
- The design team will use the existing project survey provided by CMB.
- Permitting fees are not part of this scope of work or fee proposal.
- This scope of work and fee is based on the design of 11 independent water quality systems and a total of 15 drainage wells with a depth of 100 feet.



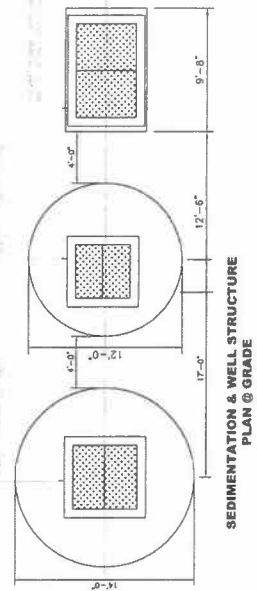
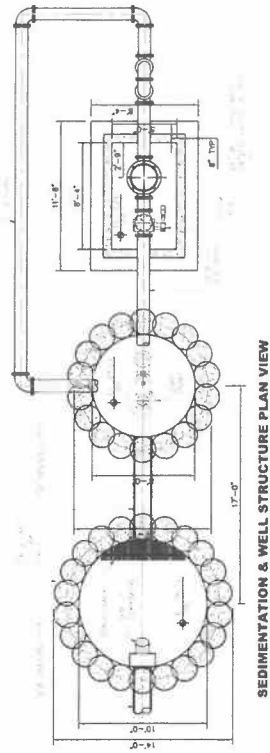
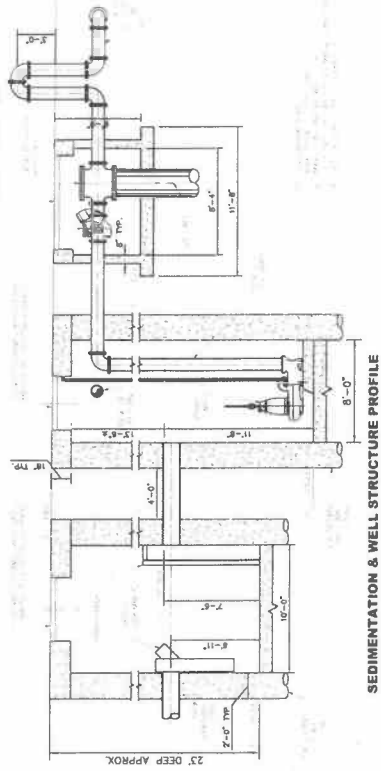
SEDIMENTATION TANK, PUMP & WELL STRUCTURE PROFILE

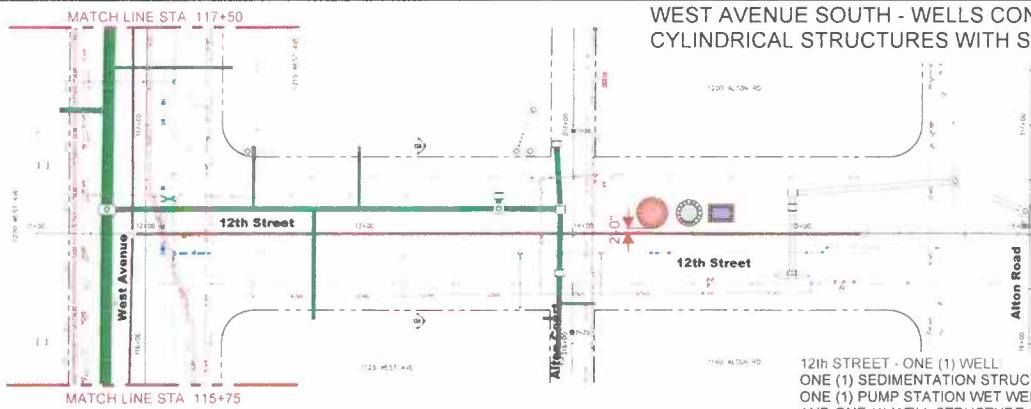


SEDIMENTATION TANK, PUMP & WELL STRUCTURE INNER PLAN VIEW



SEDIMENTATION TANK, PUMP & WELL STRUCTURE
PLAN @ GRADE





**WEST AVENUE SOUTH - WELLS CONCEPT:
CYLINDRICAL STRUCTURES WITH SECANT PILES**

12th STREET - ONE (1) WELL
ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER),
ONE (1) PUMP STATION WET WELL (12' DIAMETER),
AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')

NO.	DESCRIPTION	DATE	BY	CHKD.
1	12th STREET - ONE (1) WELL	11/11/11	J. L. HARRIS	J. L. HARRIS
2	ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
3	ONE (1) PUMP STATION WET WELL (12' DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
4	AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')	11/11/11	J. L. HARRIS	J. L. HARRIS
5	12th STREET - ONE (1) WELL	11/11/11	J. L. HARRIS	J. L. HARRIS
6	ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
7	ONE (1) PUMP STATION WET WELL (12' DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
8	AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')	11/11/11	J. L. HARRIS	J. L. HARRIS
9	12th STREET - ONE (1) WELL	11/11/11	J. L. HARRIS	J. L. HARRIS
10	ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
11	ONE (1) PUMP STATION WET WELL (12' DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
12	AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')	11/11/11	J. L. HARRIS	J. L. HARRIS
13	12th STREET - ONE (1) WELL	11/11/11	J. L. HARRIS	J. L. HARRIS
14	ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
15	ONE (1) PUMP STATION WET WELL (12' DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
16	AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')	11/11/11	J. L. HARRIS	J. L. HARRIS
17	12th STREET - ONE (1) WELL	11/11/11	J. L. HARRIS	J. L. HARRIS
18	ONE (1) SEDIMENTATION STRUCTURE (14' OUTER DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
19	ONE (1) PUMP STATION WET WELL (12' DIAMETER)	11/11/11	J. L. HARRIS	J. L. HARRIS
20	AND ONE (1) WELL STRUCTURE (8.5' x 11.5' x 8')	11/11/11	J. L. HARRIS	J. L. HARRIS

MIAMI BEACH
PUBLIC WORKS DEPARTMENT

2016 - 090-KB WEST AVE PHASE II IMPROVEMENTS
SOUTH OF 14TH STREET
UTILITIES
PLAN

ces

CITY MANAGER: JIMMY L. HARRIS
DIRECTOR: ROY COHEN
CITY ENGINEER: NELSON PEREZ-JACOME

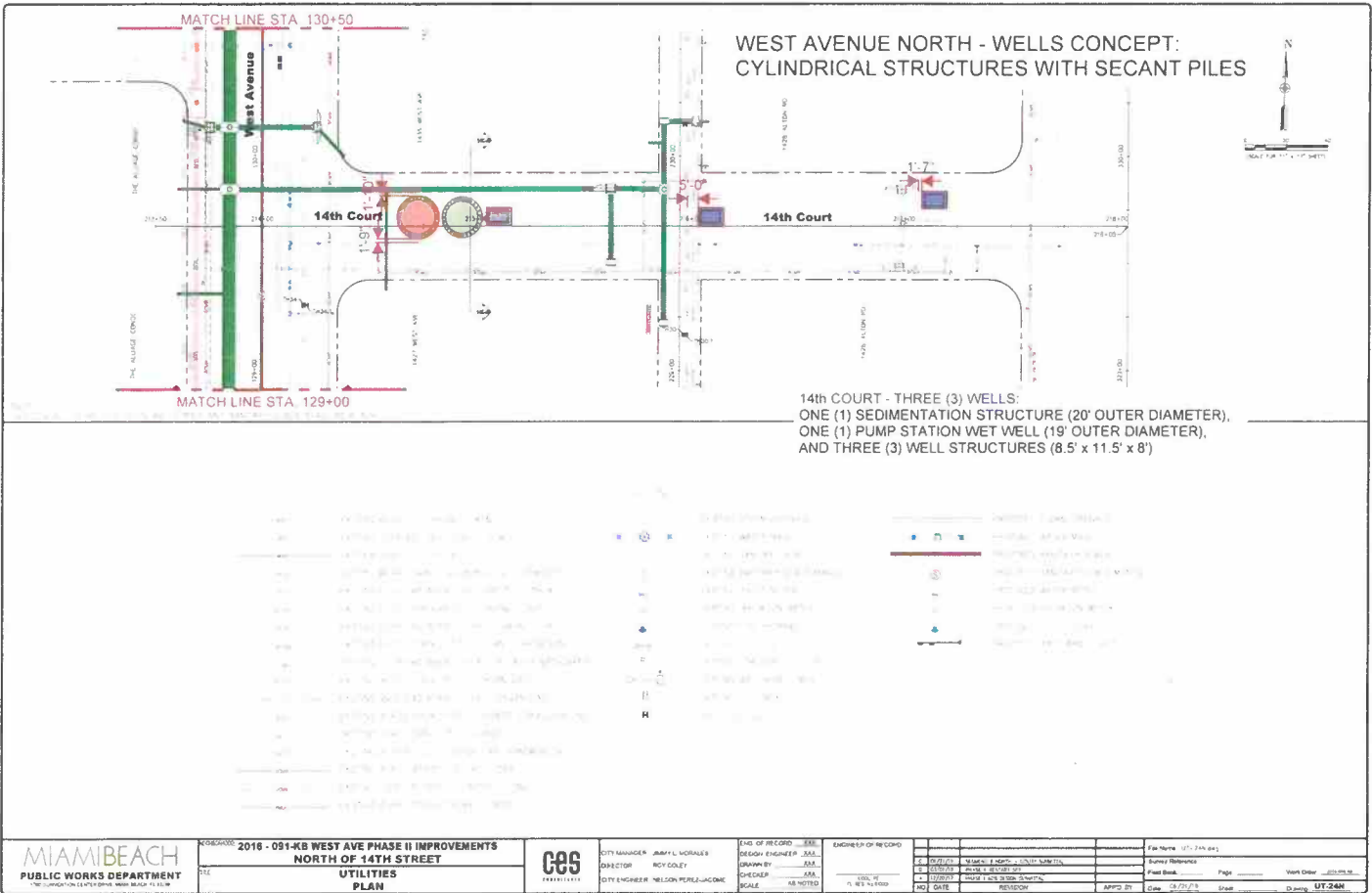
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DRAWN BY: J. L. HARRIS
CHECKED BY: J. L. HARRIS
SCALE: AS NOTED

ENGINEER OF RECORD: J. L. HARRIS
DATE: 11/11/11

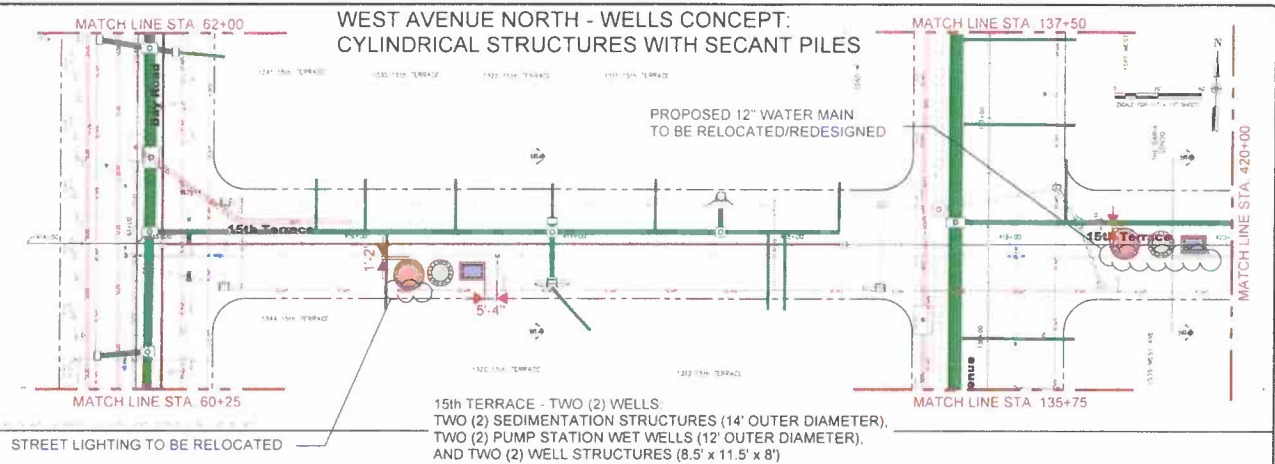
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Total Sheets: 1

Print Date: 11/11/11
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WEST AVENUE NORTH - WELLS CONCEPT: CYLINDRICAL STRUCTURES WITH SECANT PILES



15th Terrace - TWO (2) WELLS:
TWO (2) SEDIMENTATION STRUCTURES (14' OUTER DIAMETER),
TWO (2) PUMP STATION WET WELLS (12' OUTER DIAMETER),
AND TWO (2) WELL STRUCTURES (8.5' x 11.5' x 8')

STREET LIGHTING TO BE RELOCATED



MIAMI BEACH
PUBLIC WORKS DEPARTMENT

PROJECT: 2016 - 091-KB WEST AVE PHASE II IMPROVEMENTS
NORTH OF 14TH STREET
UTILITIES
PLAN

COS

CITY MANAGER: ANITA L. MORRIS
DIRECTOR: ROBERT COLETT
CITY ENGINEER: NELSON PEREZ-JACOBE

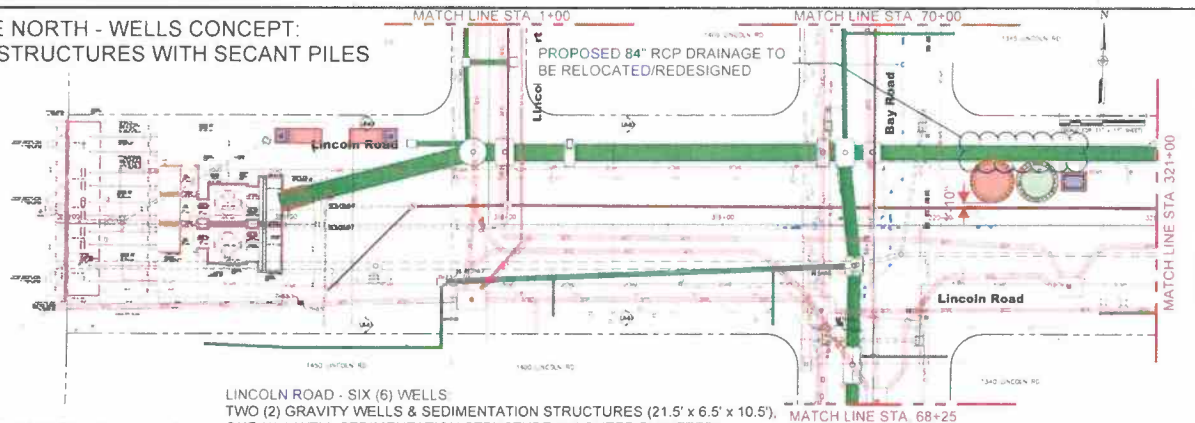
DESIGN ENGINEER: JAMES
DESIGNER: JAMES
CHECKER: JAMES
SCALE: AS SHOWN

ENGINEER OF RECORD
DESIGNER: JAMES
CHECKER: JAMES
SCALE: AS SHOWN

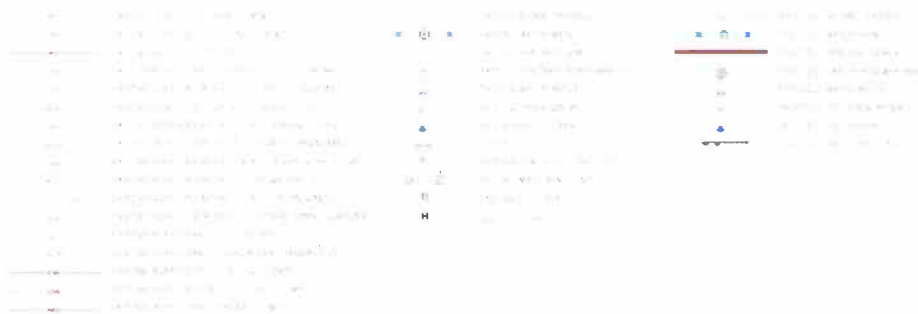
DATE: 11/11/16
BY: JAMES
REVISION: 1
APPD BY: JAMES
DATE: 11/11/16

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Sheet: 1 of 1
Date: 11/11/16
Drawn: JAMES
Quantity: 11.28N

WEST AVENUE NORTH - WELLS CONCEPT:
CYLINDRICAL STRUCTURES WITH SECANT PILES



LINCOLN ROAD - SIX (6) WELLS:
TWO (2) GRAVITY WELLS & SEDIMENTATION STRUCTURES (21.5' x 6.5' x 10.5'),
ONE (1) 1-WELL SEDIMENTATION STRUCTURE (14' OUTER DIAMETER),
ONE (1) 3-WELL SEDIMENTATION STRUCTURE (20' OUTER DIAMETER),
ONE (1) 1-WELL PUMP STATION WET WELL (12' OUTER DIAMETER),
ONE (1) 3-WELL PUMP STATION WET WELL (19' OUTER DIAMETER),
AND FOUR (4) WELL STRUCTURES (8.5' x 11.5' x 8')



MIAMI BEACH
PUBLIC WORKS DEPARTMENT
1400 NORTH BEACH BLVD., SUITE 100, MIAMI BEACH, FL 33139

2016-091-KB WEST AVE PHASE II IMPROVEMENTS
NORTH OF 14TH STREET
UTILITIES
PLAN

CCS
CONSULTANTS

CITY MANAGER: JAMES L. MORGAN
DIRECTOR: ROY COLEY
CITY ENGINEER: NELSON PEREZ-JACOBO

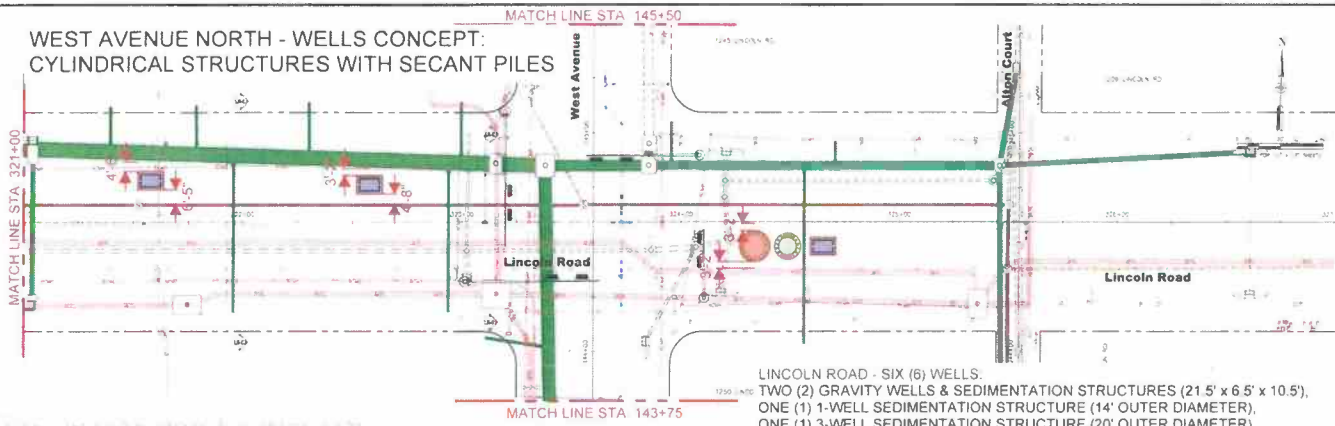
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DESIGN ENGINEER: JAP
DRAWN BY: JAL
CHECKED BY: JAL
SCALE: AS NOTED

ENGINEER OF RECORD:
DATE: 10/10/16
BY: JAL

NO.	DATE	REVISION
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2	10/10/16	ISSUED FOR CONSTRUCTION
3	10/10/16	ISSUED FOR CONSTRUCTION
4	10/10/16	ISSUED FOR CONSTRUCTION

File Name: 16-141.dwg
Survey Reference:
Field Book: _____ Page: _____
Map Sheet: _____
Drawn By: JAL
Checked By: JAL
Grading: UT-34N

WEST AVENUE NORTH - WELLS CONCEPT: CYLINDRICAL STRUCTURES WITH SECANT PILES



LINCOLN ROAD - SIX (6) WELLS:
TWO (2) GRAVITY WELLS & SEDIMENTATION STRUCTURES (21.5' x 6.5' x 10.5'),
ONE (1) 1-WELL SEDIMENTATION STRUCTURE (14' OUTER DIAMETER),
ONE (1) 3-WELL SEDIMENTATION STRUCTURE (20' OUTER DIAMETER),
ONE (1) 1-WELL PUMP STATION WET WELL (12' OUTER DIAMETER),
ONE (1) 3-WELL PUMP STATION WET WELL (19' OUTER DIAMETER),
AND FOUR (4) WELL STRUCTURES (8.5' x 11.5' x 8')

1. WEST AVENUE NORTH - WELLS CONCEPT	2. LINCOLN ROAD - SIX (6) WELLS
3. WEST AVENUE NORTH - WELLS CONCEPT	4. LINCOLN ROAD - SIX (6) WELLS
5. WEST AVENUE NORTH - WELLS CONCEPT	6. LINCOLN ROAD - SIX (6) WELLS
7. WEST AVENUE NORTH - WELLS CONCEPT	8. LINCOLN ROAD - SIX (6) WELLS
9. WEST AVENUE NORTH - WELLS CONCEPT	10. LINCOLN ROAD - SIX (6) WELLS
11. WEST AVENUE NORTH - WELLS CONCEPT	12. LINCOLN ROAD - SIX (6) WELLS
13. WEST AVENUE NORTH - WELLS CONCEPT	14. LINCOLN ROAD - SIX (6) WELLS
15. WEST AVENUE NORTH - WELLS CONCEPT	16. LINCOLN ROAD - SIX (6) WELLS
17. WEST AVENUE NORTH - WELLS CONCEPT	18. LINCOLN ROAD - SIX (6) WELLS
19. WEST AVENUE NORTH - WELLS CONCEPT	20. LINCOLN ROAD - SIX (6) WELLS
21. WEST AVENUE NORTH - WELLS CONCEPT	22. LINCOLN ROAD - SIX (6) WELLS
23. WEST AVENUE NORTH - WELLS CONCEPT	24. LINCOLN ROAD - SIX (6) WELLS
25. WEST AVENUE NORTH - WELLS CONCEPT	26. LINCOLN ROAD - SIX (6) WELLS
27. WEST AVENUE NORTH - WELLS CONCEPT	28. LINCOLN ROAD - SIX (6) WELLS
29. WEST AVENUE NORTH - WELLS CONCEPT	30. LINCOLN ROAD - SIX (6) WELLS
31. WEST AVENUE NORTH - WELLS CONCEPT	32. LINCOLN ROAD - SIX (6) WELLS
33. WEST AVENUE NORTH - WELLS CONCEPT	34. LINCOLN ROAD - SIX (6) WELLS
35. WEST AVENUE NORTH - WELLS CONCEPT	36. LINCOLN ROAD - SIX (6) WELLS
37. WEST AVENUE NORTH - WELLS CONCEPT	38. LINCOLN ROAD - SIX (6) WELLS
39. WEST AVENUE NORTH - WELLS CONCEPT	40. LINCOLN ROAD - SIX (6) WELLS
41. WEST AVENUE NORTH - WELLS CONCEPT	42. LINCOLN ROAD - SIX (6) WELLS
43. WEST AVENUE NORTH - WELLS CONCEPT	44. LINCOLN ROAD - SIX (6) WELLS
45. WEST AVENUE NORTH - WELLS CONCEPT	46. LINCOLN ROAD - SIX (6) WELLS
47. WEST AVENUE NORTH - WELLS CONCEPT	48. LINCOLN ROAD - SIX (6) WELLS
49. WEST AVENUE NORTH - WELLS CONCEPT	50. LINCOLN ROAD - SIX (6) WELLS
51. WEST AVENUE NORTH - WELLS CONCEPT	52. LINCOLN ROAD - SIX (6) WELLS
53. WEST AVENUE NORTH - WELLS CONCEPT	54. LINCOLN ROAD - SIX (6) WELLS
55. WEST AVENUE NORTH - WELLS CONCEPT	56. LINCOLN ROAD - SIX (6) WELLS
57. WEST AVENUE NORTH - WELLS CONCEPT	58. LINCOLN ROAD - SIX (6) WELLS
59. WEST AVENUE NORTH - WELLS CONCEPT	60. LINCOLN ROAD - SIX (6) WELLS
61. WEST AVENUE NORTH - WELLS CONCEPT	62. LINCOLN ROAD - SIX (6) WELLS
63. WEST AVENUE NORTH - WELLS CONCEPT	64. LINCOLN ROAD - SIX (6) WELLS
65. WEST AVENUE NORTH - WELLS CONCEPT	66. LINCOLN ROAD - SIX (6) WELLS
67. WEST AVENUE NORTH - WELLS CONCEPT	68. LINCOLN ROAD - SIX (6) WELLS
69. WEST AVENUE NORTH - WELLS CONCEPT	70. LINCOLN ROAD - SIX (6) WELLS
71. WEST AVENUE NORTH - WELLS CONCEPT	72. LINCOLN ROAD - SIX (6) WELLS
73. WEST AVENUE NORTH - WELLS CONCEPT	74. LINCOLN ROAD - SIX (6) WELLS
75. WEST AVENUE NORTH - WELLS CONCEPT	76. LINCOLN ROAD - SIX (6) WELLS
77. WEST AVENUE NORTH - WELLS CONCEPT	78. LINCOLN ROAD - SIX (6) WELLS
79. WEST AVENUE NORTH - WELLS CONCEPT	80. LINCOLN ROAD - SIX (6) WELLS
81. WEST AVENUE NORTH - WELLS CONCEPT	82. LINCOLN ROAD - SIX (6) WELLS
83. WEST AVENUE NORTH - WELLS CONCEPT	84. LINCOLN ROAD - SIX (6) WELLS
85. WEST AVENUE NORTH - WELLS CONCEPT	86. LINCOLN ROAD - SIX (6) WELLS
87. WEST AVENUE NORTH - WELLS CONCEPT	88. LINCOLN ROAD - SIX (6) WELLS
89. WEST AVENUE NORTH - WELLS CONCEPT	90. LINCOLN ROAD - SIX (6) WELLS
91. WEST AVENUE NORTH - WELLS CONCEPT	92. LINCOLN ROAD - SIX (6) WELLS
93. WEST AVENUE NORTH - WELLS CONCEPT	94. LINCOLN ROAD - SIX (6) WELLS
95. WEST AVENUE NORTH - WELLS CONCEPT	96. LINCOLN ROAD - SIX (6) WELLS
97. WEST AVENUE NORTH - WELLS CONCEPT	98. LINCOLN ROAD - SIX (6) WELLS
99. WEST AVENUE NORTH - WELLS CONCEPT	100. LINCOLN ROAD - SIX (6) WELLS

MIAMI BEACH
PUBLIC WORKS DEPARTMENT

2016 - 091-KB WEST AVE PHASE II IMPROVEMENTS
NORTH OF 14TH STREET
UTILITIES
PLAN

COS

CITY ENGINEER JAMES J. MORAN
DIRECTOR ROY COULT
CITY ENGINEER HELEN PEREZ JACOBI

DESIGN ENGINEER J.S.L.
DRAWN BY J.M.
CHECKER J.M.
SCALE AS NOTED

ENGINEER OF RECORD
DATE 05/17/16
NO DATE

REVISION
APPROVED BY

File Name: 091-KB.dwg
Sheet Reference
Title Block
Page
Plan Date: 05/17/16
Drawing: UT-35H

ALTERNATE 2- CYLINDRICAL		Feb-20	West Ave Project		
			Alternate 2 Water Quality Wells - Cylindrical settlement and Separate pumping structure with shallow wells		
Description	South Quantity	South -090	North Quantity	North 091	
Design and Construction Inspection		\$476,112.00		\$883,458.00	
Pre-design Investigation- revise drainage model					
Revise drainage report					
Storm Water WM re-designs					
Concept development					
30% 60% 90% Design - civil, elect, mech'l					
Subsurface investigations					
Surveying, Utility Interferences					
Permitting - DERM, SFWMD, etc.					
MOT development					
Construction Inspection, well certification					
Meetings, Misc expenses					
As-built documentation					
Ins & Bond- 3%		\$ 14,283.00		\$ 26,503.00	
RMCF Coordination During design		\$ 38,000.00		\$ 38,000.00	
RMCF Mark-up		\$ 52,800.00		\$ 94,800.00	
Subtotal design and Coordination		\$ 581,195.00		\$ 1,042,761.00	
Utility relocation					
MOT					
Mobilize Equipment					
Fencing/Barriers					
Settling structure/Secant pile /Civil	3 secant Pile @ 14' dia		3 Secant @ 20' dia		
	3 secant pile @ 12' dia		4 secant @ 14' dia		
Pump Well Structures			2 Secant @ 19'		
			5 secant @ 12' dia		
Well Structures	3 @ 8.5' x 13.5' x 8'	3 EA			
Pumping units/Mechanical	3 @ 2,000 GPM	3 EA	2 @ 6,000 GPM		
			5 @ 2,000 GPM		
Electric and Controls		3 EA			
Platforms		3 EA			
Screening Controls					
Lincoln Rd PS Modifications		N/A	2 Wells Plus 2 - 1,000 jockey pumps		
			Incl Well and Settlement struct.		
Totals					

West Avenue Phase II Storm Drainage - South Contract (090) - Drainage Wells

CES

TITLES	Principal	Project Manager/ EOR	QA/QC	Engineering Manager	Senior Civil Engineer	Structural Engineer	Electrical Engineer	Hydraulic Engineer	Project Engineer	Civil Engineer	Staff Engineer	Designer / CAD Manager	CAD Designer	Inspector	Public Relations Coordinator	Accounting	Admin.	Total Hours	Total Loaded Labor
CONTRACT RATES	\$ 362.50	\$ 357.93	\$ 233.64	\$ 209.16	\$ 226.93	\$ 217.60	\$ 188.50	\$ 158.97	\$ 145.00	\$ 130.80	\$ 104.82	\$ 115.00	\$ 99.50	\$ 139.50	\$ 102.25	\$ 115.71	\$ 78.10		
Change Order																			
Design and Permitting Services for the Storm Drainage System (Drainage Wells)																			
1 Water Quality Analysis		8		8	8			40	16	12	80							152	\$ 23,067.71
2 Preliminary Evaluation and Development of Well Concepts		16		16	16			40	16	12	80							160	\$ 31,310.02
3 Revise RCPR Drainage Model		16		2	16			16			40							80	\$ 13,540.08
4 Revise Drainage Report		16		2	16			24			80							118	\$ 19,222.13
5 Perform Engineering Calculations			2	2	2			40	50	50	120							248	\$ 38,369.90
6 Utility Conflicts Evaluation and Coordination		8		2	8				4		20	4	8					54	\$ 8,220.22
7 Storm Drainage Redesign		12	4	4	12				5		24	8	16				2	92	\$ 14,150.55
8 Prepare and submit 60% Wells Design Package to CMB for Review																			
8a Civil Design		2	4	2	8				40		40	8	12					118	\$ 15,775.54
8b Structural Design		2	4	2	8	120			8		16	8	12					172	\$ 23,567.15
8c Mechanical Design		2	4	2	8						40	8	12					84	\$ 11,130.54
8d Electrical Design		2	4	2	8		50				40	8	12					138	\$ 21,285.54
9 Prepare and submit 90% Wells Design Package to CMB for Review																			
9a Civil Design		2	4	2	8				40		32	8	12					108	\$ 14,455.58
9b Structural Design		2	4	2	8	120					16	8	12					170	\$ 33,113.30
9c Mechanical Design		2	4	2	8				8		32	8	12					74	\$ 9,845.58
9d Electrical Design		2	4	2	8		40				32	8	12					108	\$ 18,225.56
10 Prepare and submit 100% Wells Design Package to CMB for Review																			
10a Civil Design		2	4	2	8				24		24	8	8					74	\$ 10,249.18
10b Structural Design		2	4	2	8	100					16	8	8					142	\$ 27,863.05
10c Mechanical Design		2	4	2	8				8		24	8	8					58	\$ 7,829.18
10d Electrical Design		2	4	2	8		24				24	8	8					74	\$ 11,283.18
11 Permitting																			
11a DERM Class V Permit Preparation and Submittal		12	4		8			8	16									48	\$ 9,786.41
11b DERM Class II Permit Modification and Submittal		8	2		4			4	16									34	\$ 6,554.08
11c SPWAD ERP Permit Modification and Submittal		8	2		4			4	16									34	\$ 6,554.08
11d Coordination with Permitting Agencies		4			4			8	8							2	2	28	\$ 5,078.77
11e Well Certification Inspections		8		2	4				8					24				40	\$ 8,377.40
SUB-TOTAL																			\$ 399,189.82
Project Coordination Meetings and Management																			
12 Attend Project Coordination Meetings		32		16	16				16		16							80	\$ 19,223.00
SUB-TOTAL																			\$ 19,223.00
Sub-Consultants																			
13 Geotechnical Investigation - Langan Engineering																			\$ 57,500.00
SUB-TOTAL																			\$ 57,500.00
TOTAL HOURS PER TITLE	-	172	82	76	180	540	124	384	312	84	758	100	152	24	-	4	4	2,588	\$ 476,112.68
TOTAL FEE PER TITLE	\$ -	\$ 44,363.27	\$ 14,478.29	\$ 18,313.54	\$ 43,115.75	\$ 71,950.00	\$ 23,374.08	\$ 36,810.30	\$ 45,246.00	\$ 10,892.00	\$ 79,014.19	\$ 11,800.00	\$ 14,987.20	\$ 3,629.00	\$ -	\$ 482.84	\$ 312.99		

West Avenue Phase II Storm Drainage - North Contract (091) - Drainage Wells

CES

TITLES	Principal	Project Manager EOR	QA/QC	Engineering Manager	Senior Civil Engineer	Structural Engineer	Electrical Engineer	Hydraulic Engineer	Project Engineer	Civil Engineer	Design Engineer	Designer / CAD Manager	CAD Designer	Inspector	Public Relations Coordinator	Accounting	Admin.	Total Hours	Total Loaded Labor
CONTRACT RATES	\$ 362.60	\$ 287.93	\$ 233.54	\$ 209.16	\$ 224.93	\$ 217.40	\$ 189.50	\$ 199.97	\$ 149.00	\$ 130.60	\$ 194.62	\$ 116.00	\$ 98.80	\$ 169.50	\$ 162.28	\$ 118.71	\$ 76.10		
Change Order																			
Design and Permitting Services for the Storm Drainage System (Drainage Wells)																			
1 Water Quality Analysis	8			18				60	20	18	80							218	\$ 34,228.00
2 Preliminary Evaluation and Development of Well Concepts	16			15	24			60	20	18	80							232	\$ 36,208.80
3 Revise ICRP Drainage Model	16			2	20			40			60							138	\$ 23,313.33
4 Revise Drainage Report	16			2	20			15			40							84	\$ 18,447.70
5 Perform Engineering Calculations		4	2	1				40	60	80	120							324	\$ 47,788.52
6 Utility Conflicts Evaluation and Coordination	8			2	8				4		20	4	8					54	\$ 8,220.22
7 Storm Drainage Redesign	12	4	4	18					8		32	8	18			4	4	108	\$ 18,281.88
8 Water Main Redesign	4	4	2	12					8		24	8	15			4	4	88	\$ 12,656.44
9 Prepare and submit 60% Wells Design Package to CMB for Review																			
9a Civil Design	2	4	2	32				80	80	18	32							202	\$ 44,542.38
9b Structural Design	2	4	2	32	200				8	18	32							312	\$ 60,357.35
9c Mechanical Design	2	4	2	80					8	80	18	32						304	\$ 44,684.78
9d Electrical Design	2	4	2	24		100			16	80	15	32						278	\$ 41,624.68
10 Prepare and submit 80% Wells Design Package to CMB for Review																			
10a Civil Design	2	4	2	18				80	60	60	12	24						240	\$ 32,088.48
10b Structural Design	2	4	2	15	160				8	18	12	24						244	\$ 48,773.25
10c Mechanical Design	2	4	2	40				8	80	60	12	24						232	\$ 34,583.36
10d Electrical Design	2	4	2	16		80			18	80	12	24						218	\$ 32,696.48
11 Prepare and submit 100% Wells Design Package to CMB for Review																			
11a Civil Design	2	4	2	16				40	40	40	8	16						188	\$ 22,705.34
11b Structural Design	2	4	2	16	120				8	18	8	16						192	\$ 38,820.55
11c Mechanical Design	2	4	2	40				8	40	40	8	16						160	\$ 24,011.54
11d Electrical Design	2	4	2	16		60			18	40	8	16						184	\$ 25,583.34
12 Permitting																			
12a DERM Class V Permit Preparation and Submittal	16	8	2	18				18	40									98	\$ 18,027.71
12b DERM Class II Permit Modification and Submittal	12	4	2	8				8	24									56	\$ 11,334.71
12c SPWMD ERP Permit Modification and Submittal	12	4	2	8				8	24									56	\$ 11,334.71
12d Coordination with Permitting Agencies	8			8				15	18							4	4	88	\$ 10,375.84
12e UPRC Certification Inspections	18			8					18					48				84	\$ 15,478.61
SUB-TOTAL																			\$ 789,487.32
Project Coordination Meetings and Management																			
13 Attend Project Coordination Meetings		40		24	24				24		24							136	\$ 26,771.18
SUB-TOTAL																			\$ 26,771.18
Sub-Consultants																			
14 Geotechnical Investigation - Langan Engineering																			\$ 147,200.00
SUB-TOTAL																			\$ 147,200.00
TOTAL HOURS PER TITLE:	-	208	76	108	560	480	240	264	488	544	1,068	184	328	40	-	12	12	4,590	\$ 883,458.50
TOTAL FEE PER TITLE:	\$ -	\$ 53,048.51	\$ 17,748.61	\$ 22,169.59	\$ 127,078.00	\$ 104,400.00	\$ 45,240.00	\$ 52,527.82	\$ 70,750.00	\$ 70,892.00	\$ 111,822.08	\$ 10,024.00	\$ 32,340.80	\$ 8,350.00	\$ -	\$ 1,388.52	\$ 937.16		

WEST AVENUE SOUTH - WELLS CONCEPT
CYLINDRICAL STRUCTURES WITH SECANT PILES

9th Street	Quantity	Unit
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	1	EA
1-Well Sedimentation Structure (14' Outer Diameter, 18' Depth) - 2,000 gpm	1	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 22' Depth) - 2,000 gpm	1	EA
15-inch Gravity Drainage Pipe (Cover Depth = 9-10 feet)	60	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	60	LF
10-inch Check Valve	1	EA
Drainage Manhole (6'x4'x15.5'; J7 Rectangular bottom)	1	EA
12th Street		
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	1	EA
1-Well Sedimentation Structure (14' Outer Diameter, 20' Depth) - 2,000 gpm	1	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 24' Depth) - 2,000 gpm	1	EA
15-inch Gravity Drainage Pipe (Cover Depth = 8-9 feet)	250	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	60	LF
10-inch Check Valve	1	EA
Drainage Manhole (4'x4'x12.5'; J7 Rectangular bottom)	1	EA
13th Street		
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	1	EA
1-Well Sedimentation Structure (14' Outer Diameter, 21' Depth) - 2,000 gpm	1	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 25' Depth) - 2,000 gpm	1	EA
15-inch Gravity Drainage Pipe (Cover Depth = 9-10 feet)	60	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	60	LF
10-inch Check Valve	1	EA
Drainage Manhole (7'x7'x16'; J7 Rectangular bottom)	1	EA

WEST AVENUE NORTH - WELLS CONCEPT
CYLINDRICAL STRUCTURES WITH SECANT PILES

14th Court		
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	3	EA
3-Well Sedimentation Structure (20' Outer Diameter, 23' Depth) - 6,000 gpm	1	EA
3-Well Pump Station Wet Well (19' Outer Diameter, 28' Depth) - 6,000 gpm	1	EA
30-inch Gravity Drainage Pipe (Cover Depth = 8-9 feet)	70	LF
18-inch DIP Pressure Pipe (Cover Depth = 4 feet)	530	LF
10-inch Check Valve	3	EA
Drainage Manhole (8'x4'x17'; J7 Rectangular bottom)	1	EA
15th Terrace		
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	2	EA
1-Well Sedimentation Structure (14' Outer Diameter, 19' Depth) - 2,000 gpm	2	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 23' Depth) - 2,000 gpm	2	EA
15-inch Gravity Drainage Pipe (Cover Depth = 9-10 feet)	205	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	120	LF
10-inch Check Valve	2	EA
Drainage Manhole (7'x4'x15.5'; J7 Rectangular bottom)	1	EA

16th Street

Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	2	EA
1-Well Sedimentation Structure (14' Outer Diameter, 20' Depth) - 2,000 gpm	2	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 24' Depth) - 2,000 gpm	2	EA
15-inch Gravity Drainage Pipe (Cover Depth = 8-9 feet)	220	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	120	LF
10-inch Check Valve	2	EA
Drainage Manhole (8'x6'x16.5'; J7 Rectangular bottom)	2	EA

Lincoln Road

	Quantity	Unit
Well & Structure (8.5' x 11.5' x 8') - 2,000 gpm	4	EA
Gravity Well & Sedimentation Structure (21.5' x 6.5' x 10.5') - 1,000 gpm	2	EA
1-Well Sedimentation Structure (14' Outer Diameter, 26' Depth) - 2,000 gpm	1	EA
1-Well Pump Station Wet Well (12' Outer Diameter, 30' Depth) - 2,000 gpm	1	EA
3-Well Sedimentation Structure (20' Outer Diameter, 31' Depth) - 6,000 gpm	1	EA
3-Well Pump Station Wet Well (19' Outer Diameter, 36' Depth) - 6,000 gpm	1	EA
15-inch Gravity Drainage Pipe (Cover Depth = 8-9 feet)	130	LF
10-inch DIP Pressure Pipe (Cover Depth = 4 feet)	120	LF
12-inch DIP Pressure Pipe (Cover Depth = 4 feet)	125	LF
30-inch Gravity Drainage Pipe (Cover Depth = 8-9 feet)	70	LF
18-inch DIP Pressure Pipe (Cover Depth = 4 feet)	480	LF
10-inch Check Valve	4	EA
12-inch Plug Valve	2	EA
Drainage Manhole (8'x8'x16.5'; J7 Rectangular bottom)	1	EA

SUMMARY: WEST AVENUE SOUTH

Well & Structure - 2,000 gpm	3	EA
1-Well Sedimentation Structure - 2,000 gpm	3	EA
1-Well Pump Station Wet Well - 2,000 gpm	3	EA
15-inch Gravity Drainage Pipe	370	LF
10-inch DIP Pressure Pipe	180	LF
10-inch Check Valve	3	EA
Drainage Manhole (Size Varies)	3	EA

SUMMARY: WEST AVENUE NORTH

Well & Structure - 2,000 gpm	11	EA
Gravity Well & Sedimentation Structure (21.5' x 6.5' x 10.5') - 1,000 gpm	2	EA
1-Well Sedimentation Structure - 2,000 gpm	5	EA
1-Well Pump Station Wet Well - 2,000 gpm	5	EA
3-Well Sedimentation Structure - 6,000 gpm	2	EA
3-Well Pump Station Wet Well - 6,000 gpm	2	EA
15-inch Gravity Drainage Pipe	555	LF
10-inch DIP Pressure Pipe	360	LF
12-inch DIP Pressure Pipe (Cover Depth = 4 feet)	125	LF
30-inch Gravity Drainage Pipe	140	LF
18-inch DIP Pressure Pipe	1010	LF
10-inch Check Valve	11	EA
12-inch Plug Valve	2	EA
Drainage Manhole (Size Varies)	5	EA