



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



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

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.



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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
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 - 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**

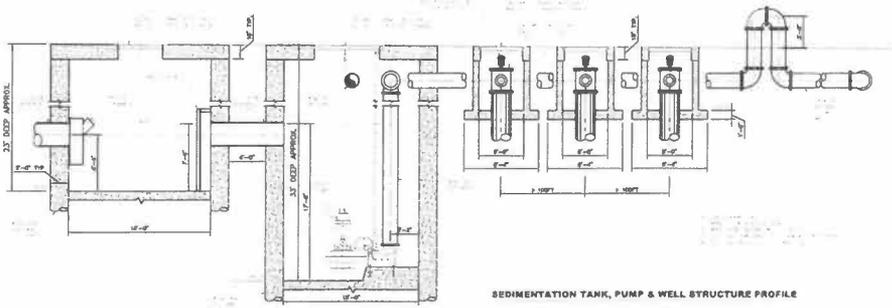
Provide 90% Design Plans as follows:

- 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)

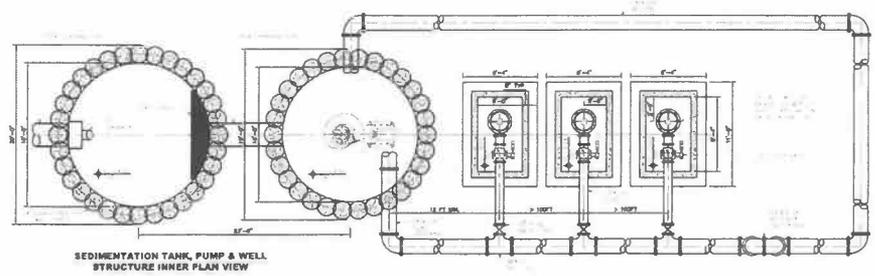
ASSUMPTIONS

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

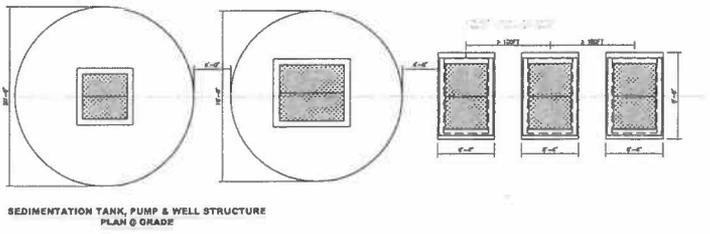
- At the end of each design deliverable (30%, 60%, and 90%), CMB will review the plans and forward review comments to the RMCF DB Team within 14 calendar days.
- The design team will use the existing project survey provided by CMB.
- Permitting fees are not part of this scope of work or fee proposal.
- 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.



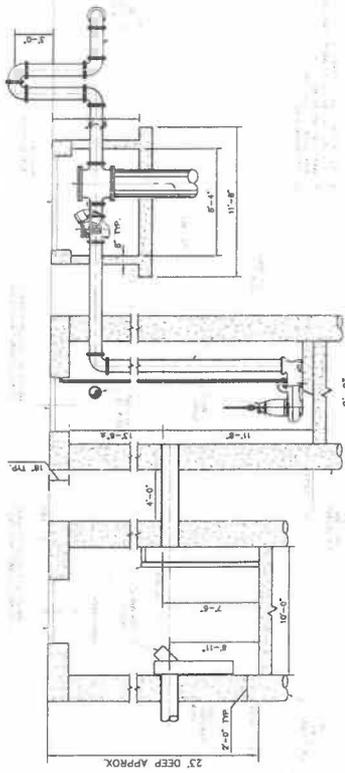
SEDIMENTATION TANK, PUMP & WELL STRUCTURE PROFILE



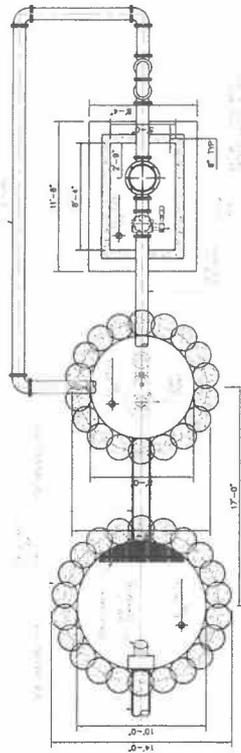
SEDIMENTATION TANK, PUMP & WELL STRUCTURE INNER PLAN VIEW



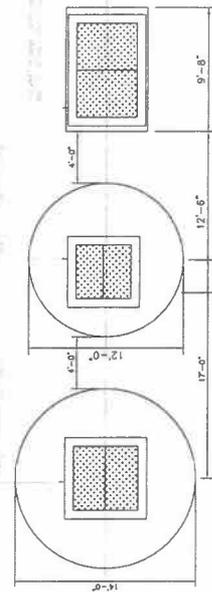
SEDIMENTATION TANK, PUMP & WELL STRUCTURE PLAN @ GRADE



SEDIMENTATION & WELL STRUCTURE PROFILE

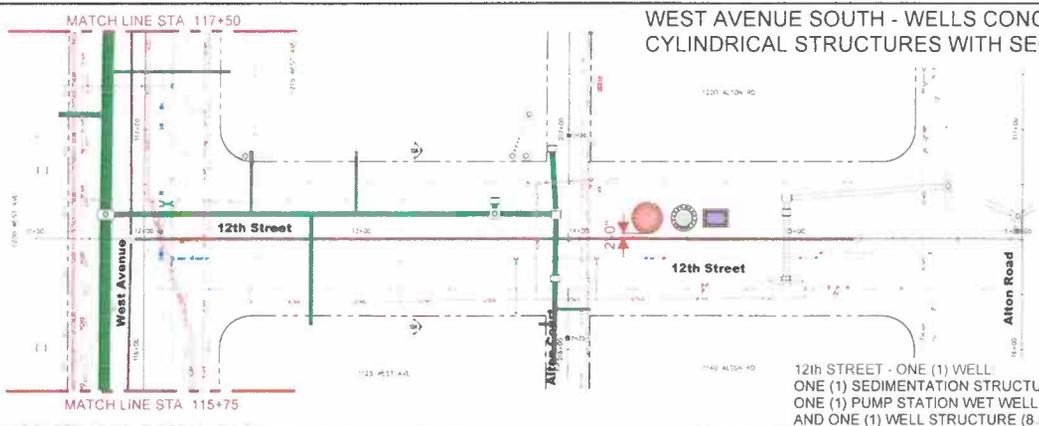


SEDIMENTATION & WELL STRUCTURE PLAN VIEW



SEDIMENTATION & WELL STRUCTURE
PLAN @ GRADE

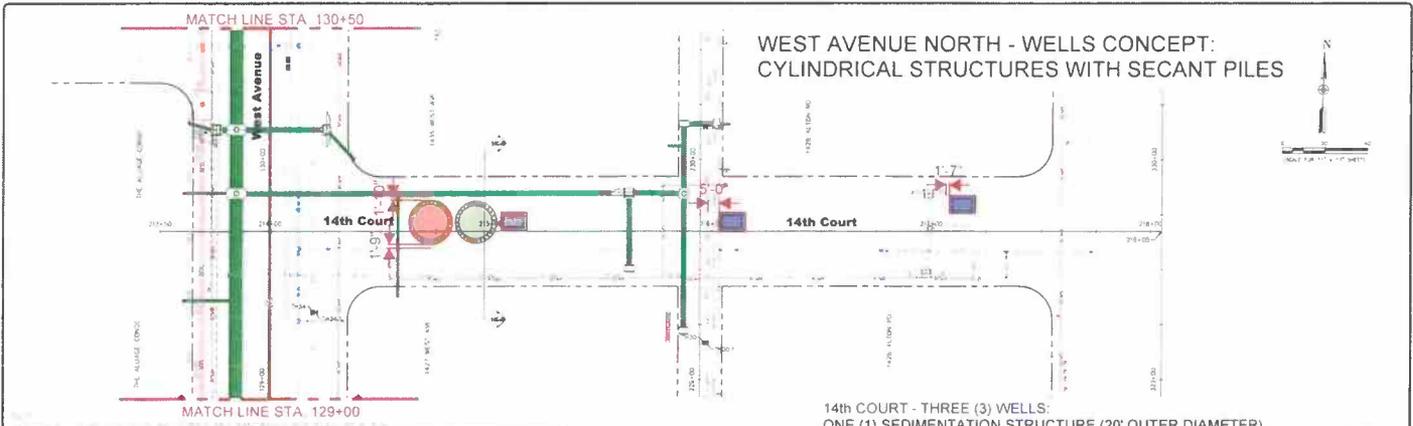
**WEST AVENUE SOUTH - WELLS CONCEPT:
CYLINDRICAL STRUCTURES WITH SECANT PILES**



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	CHECKED BY
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100	ISSUED FOR AS-BUILT	08/14/2016	JMM	JMM

MIAMI BEACH PUBLIC WORKS DEPARTMENT <small>1000 S.W. 15th Street, Miami Beach, FL 33134</small>	PROJECT: 2016 - 090-KB WEST AVE PHASE II IMPROVEMENTS SOUTH OF 14TH STREET		CITY MANAGER: JIMMY L. HERNANDEZ DIRECTOR: ROY COHEN CITY ENGINEER: NELSON PEREZ-JACOME	DATE OF RECORD: 08/14/2016 DESIGN ENGINEER: JMM DRAWN BY: JMM CHECKED BY: JMM SCALE: AS NOTED	ENGINEER OF RECORD: JMM DATE: 08/14/2016	SHEET NO.: 01 TOTAL SHEETS: 01	FILE NAME: 2016-090-KB
	UTILITY PLAN		TITLE: UTILITY PLAN	DATE: 08/14/2016	DRAWING NO.: UT-218		



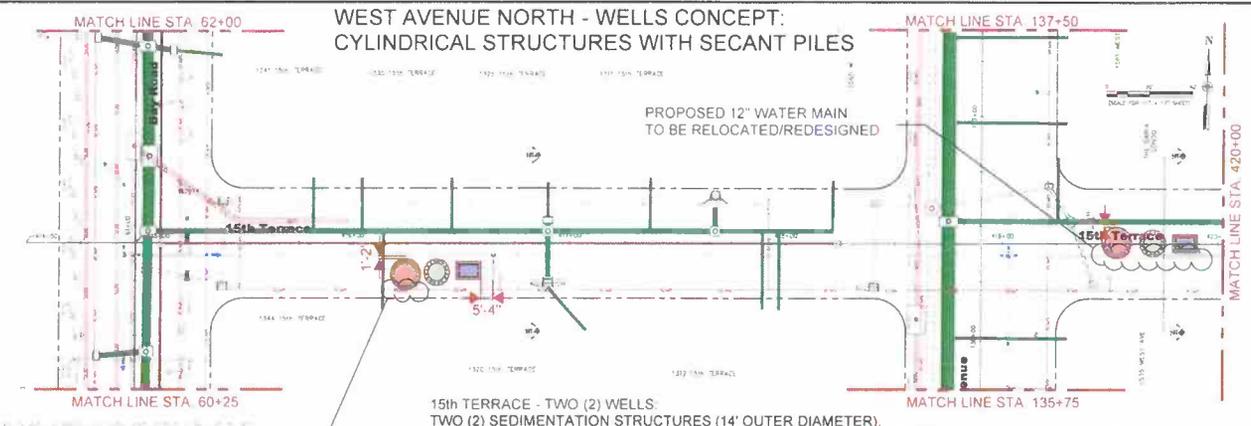
**WEST AVENUE NORTH - WELLS CONCEPT:
CYLINDRICAL STRUCTURES WITH SECANT PILES**

**14th COURT - THREE (3) WELLS:
ONE (1) SEDIMENTATION STRUCTURE (20' OUTER DIAMETER),
ONE (1) PUMP STATION WET WELL (19' OUTER DIAMETER),
AND THREE (3) WELL STRUCTURES (8.5' x 11.5' x 8')**

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
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69	REVISED PER COMMENTS	12/25/2016	JMM	AMA	NPL
70	REVISED PER COMMENTS	01/01/2017	JMM	AMA	NPL

MIAMI BEACH PUBLIC WORKS DEPARTMENT <small>1000 BAYVIEW BLVD. MIAMI BEACH, FL 33139</small>	NO. 2016-091-KB WEST AVE PHASE II IMPROVEMENTS NORTH OF 14TH STREET UTILITIES PLAN		CITY MANAGER JIMMY L. NORRIS DIRECTOR ROY COLEY CITY ENGINEER NELSON PEREJILICIONE	END OF RECORD DATE DESIGN ENGINEER JMM DRAWN BY AM CHECKER AMA SCALE AS NOTED	EXPIRES DATE DATE OF REVISION NO. DATE REVISION	APPD. BY DATE	FILE NAME: UT-24A.dwg SHEET NO.: SHEET TOTAL: DATE PLOTTED: PLOT SCALE:
	APPD. BY DATE		APPD. BY DATE	APPD. BY DATE			

**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

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
1	ISSUED FOR PERMIT	08/14/2016	JAA	JAA	JAA
2	ISSUED FOR BIDDING	08/14/2016	JAA	JAA	JAA
3	ISSUED FOR CONSTRUCTION	08/14/2016	JAA	JAA	JAA
4	ISSUED FOR AS-BUILT	08/14/2016	JAA	JAA	JAA
5	ISSUED FOR RECORD	08/14/2016	JAA	JAA	JAA

MIAMI BEACH
PUBLIC WORKS DEPARTMENT

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

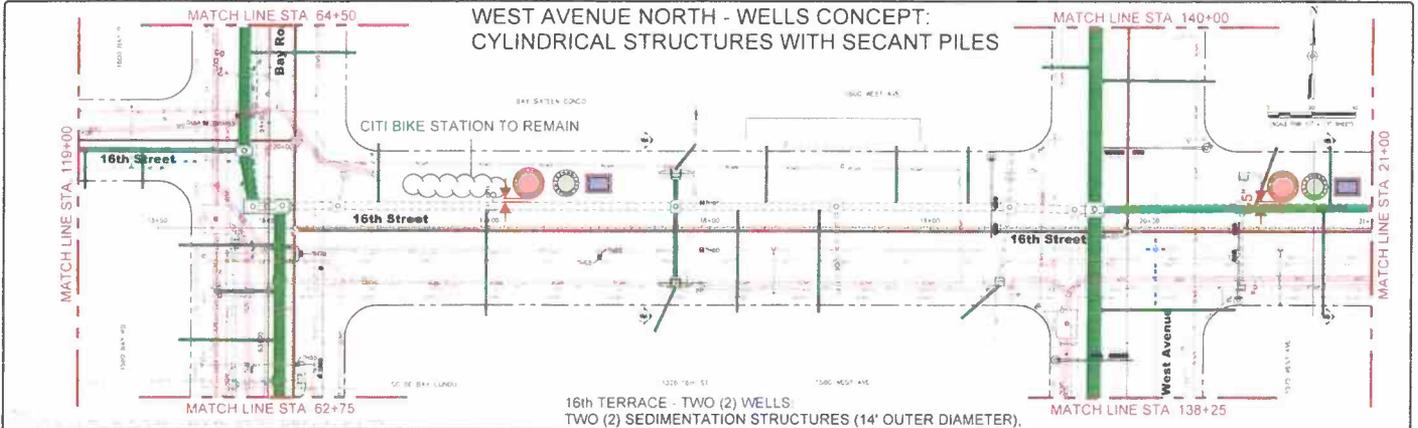
CCS
CITY MANAGER: ANITA L. MORAN
DIRECTOR: ROJ COLETT
CITY ENGINEER: NELSON PEREZ-JACOBE

DATE OF RECORD: 08/14/2016
DESIGN ENGINEER: JAA
DRAWN BY: JAA
CHECKED: JAA
SCALE: AS SHOWN

ENGINEER OF RECORD: [Signature]
DATE: 08/14/2016
NO. 2016
REVISION:

FILE NAME: UT-20N.dwg
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PROJECT NUMBER: [Blank]
PAGE: [Blank] OF [Blank]
APP'D BY: [Signature]
DATE: 08/14/2016
DRAWN BY: [Signature]
CHECKED BY: [Signature]
CITY: MIAMI BEACH

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

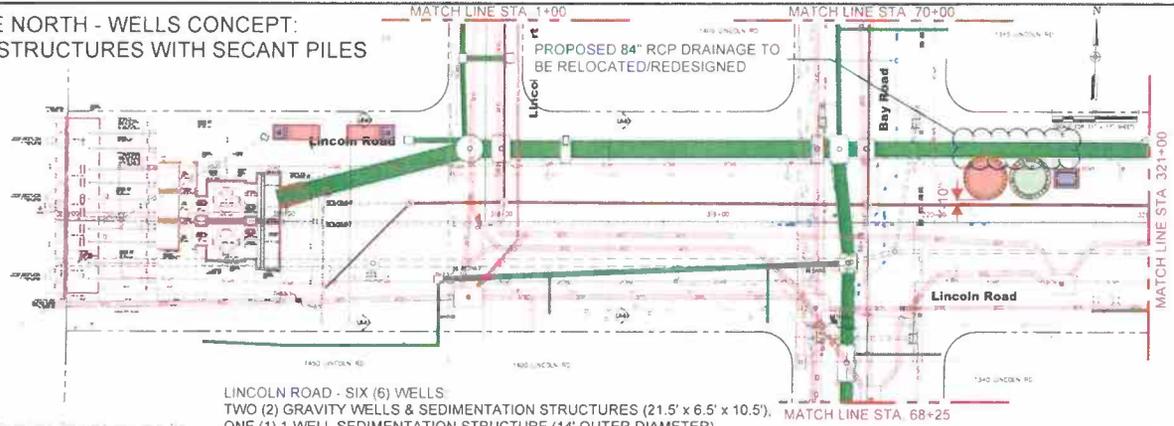


16th TERRACE - TWO (2) WELLS;
TWO (2) SEDIMENTATION STRUCTURES (14' OUTER DIAMETER),
TWO (2) PUMP STATION WET WELLS (12' OUTER DIAMETER),
AND TWO (2) WELL STRUCTURES (8.5' x 11.5' x 8')

NO.	DESCRIPTION	DATE	BY	CHECKED BY
1	ISSUED FOR PERMIT	01/15/16	JAC	JAC
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3	REVISED PER COMMENTS	01/25/16	JAC	JAC
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7	REVISED PER COMMENTS	02/15/16	JAC	JAC
8	REVISED PER COMMENTS	02/20/16	JAC	JAC
9	REVISED PER COMMENTS	02/25/16	JAC	JAC
10	REVISED PER COMMENTS	03/01/16	JAC	JAC
11	REVISED PER COMMENTS	03/05/16	JAC	JAC
12	REVISED PER COMMENTS	03/10/16	JAC	JAC
13	REVISED PER COMMENTS	03/15/16	JAC	JAC
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15	REVISED PER COMMENTS	03/25/16	JAC	JAC
16	REVISED PER COMMENTS	04/01/16	JAC	JAC
17	REVISED PER COMMENTS	04/05/16	JAC	JAC
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22	REVISED PER COMMENTS	05/01/16	JAC	JAC
23	REVISED PER COMMENTS	05/05/16	JAC	JAC
24	REVISED PER COMMENTS	05/10/16	JAC	JAC
25	REVISED PER COMMENTS	05/15/16	JAC	JAC
26	REVISED PER COMMENTS	05/20/16	JAC	JAC
27	REVISED PER COMMENTS	05/25/16	JAC	JAC
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35	REVISED PER COMMENTS	07/05/16	JAC	JAC
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41	REVISED PER COMMENTS	08/05/16	JAC	JAC
42	REVISED PER COMMENTS	08/10/16	JAC	JAC
43	REVISED PER COMMENTS	08/15/16	JAC	JAC
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58	REVISED PER COMMENTS	11/01/16	JAC	JAC
59	REVISED PER COMMENTS	11/05/16	JAC	JAC
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65	REVISED PER COMMENTS	12/05/16	JAC	JAC
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69	REVISED PER COMMENTS	12/25/16	JAC	JAC
70	REVISED PER COMMENTS	01/01/17	JAC	JAC

MIAMI BEACH PUBLIC WORKS DEPARTMENT <small>1000 S. BEACH BLVD. SUITE 1000 MIAMI BEACH, FL 33139</small>	PROJECT: 2016-001-K8 WEST AVE PHASE II IMPROVEMENTS NORTH OF 14TH STREET UTILITIES PLAN	ces CITY MANAGER: JIMMY J. MORALES DIRECTOR: BOB COLEY CITY ENGINEER: NELSON PEREZ-JACOBE	END OF RECORD: JAC DESIGN ENGINEER: JAC DRAWN BY: JAC CHECKER: JAC SCALE: AS NOTED	ENGINEER OF RECORD: DATE: 11/15/16	FILE NAME: 16-231-04g SURVEY REFERENCE: FIELD BOOK: _____ PAGE: _____ SHEET: _____ OF _____ DRAWING: UT-31H
	NO. DATE REVISION APPROVED BY: _____ DATE: 11/15/16				

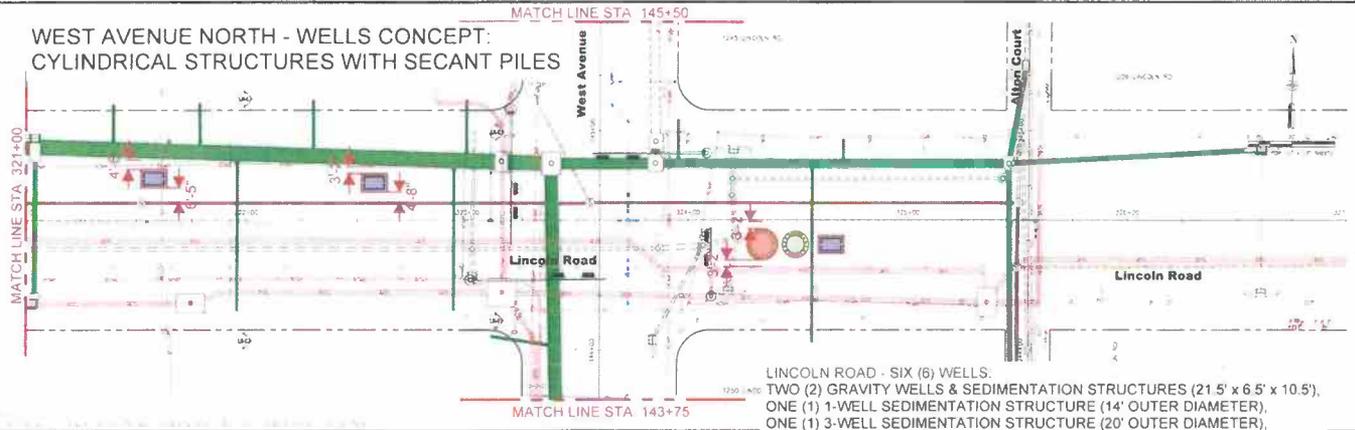
**WEST AVENUE NORTH - WELLS CONCEPT:
CYLINDRICAL STRUCTURES WITH SECANT PILES**



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')

NO.	DESCRIPTION	DATE	BY	CHECKED
1	PROPOSED 84" RCP DRAINAGE TO BE RELOCATED/REDESIGNED		JAL	JAL
2	PROPOSED 12" RCP DRAINAGE		JAL	JAL
3	PROPOSED 18" RCP DRAINAGE		JAL	JAL
4	PROPOSED 24" RCP DRAINAGE		JAL	JAL
5	PROPOSED 30" RCP DRAINAGE		JAL	JAL
6	PROPOSED 36" RCP DRAINAGE		JAL	JAL
7	PROPOSED 42" RCP DRAINAGE		JAL	JAL
8	PROPOSED 48" RCP DRAINAGE		JAL	JAL
9	PROPOSED 54" RCP DRAINAGE		JAL	JAL
10	PROPOSED 60" RCP DRAINAGE		JAL	JAL
11	PROPOSED 66" RCP DRAINAGE		JAL	JAL
12	PROPOSED 72" RCP DRAINAGE		JAL	JAL
13	PROPOSED 78" RCP DRAINAGE		JAL	JAL
14	PROPOSED 84" RCP DRAINAGE		JAL	JAL
15	PROPOSED 90" RCP DRAINAGE		JAL	JAL
16	PROPOSED 96" RCP DRAINAGE		JAL	JAL
17	PROPOSED 102" RCP DRAINAGE		JAL	JAL
18	PROPOSED 108" RCP DRAINAGE		JAL	JAL
19	PROPOSED 114" RCP DRAINAGE		JAL	JAL
20	PROPOSED 120" RCP DRAINAGE		JAL	JAL
21	PROPOSED 126" RCP DRAINAGE		JAL	JAL
22	PROPOSED 132" RCP DRAINAGE		JAL	JAL
23	PROPOSED 138" RCP DRAINAGE		JAL	JAL
24	PROPOSED 144" RCP DRAINAGE		JAL	JAL
25	PROPOSED 150" RCP DRAINAGE		JAL	JAL
26	PROPOSED 156" RCP DRAINAGE		JAL	JAL
27	PROPOSED 162" RCP DRAINAGE		JAL	JAL
28	PROPOSED 168" RCP DRAINAGE		JAL	JAL
29	PROPOSED 174" RCP DRAINAGE		JAL	JAL
30	PROPOSED 180" RCP DRAINAGE		JAL	JAL
31	PROPOSED 186" RCP DRAINAGE		JAL	JAL
32	PROPOSED 192" RCP DRAINAGE		JAL	JAL
33	PROPOSED 198" RCP DRAINAGE		JAL	JAL
34	PROPOSED 204" RCP DRAINAGE		JAL	JAL
35	PROPOSED 210" RCP DRAINAGE		JAL	JAL
36	PROPOSED 216" RCP DRAINAGE		JAL	JAL
37	PROPOSED 222" RCP DRAINAGE		JAL	JAL
38	PROPOSED 228" RCP DRAINAGE		JAL	JAL
39	PROPOSED 234" RCP DRAINAGE		JAL	JAL
40	PROPOSED 240" RCP DRAINAGE		JAL	JAL
41	PROPOSED 246" RCP DRAINAGE		JAL	JAL
42	PROPOSED 252" RCP DRAINAGE		JAL	JAL
43	PROPOSED 258" RCP DRAINAGE		JAL	JAL
44	PROPOSED 264" RCP DRAINAGE		JAL	JAL
45	PROPOSED 270" RCP DRAINAGE		JAL	JAL
46	PROPOSED 276" RCP DRAINAGE		JAL	JAL
47	PROPOSED 282" RCP DRAINAGE		JAL	JAL
48	PROPOSED 288" RCP DRAINAGE		JAL	JAL
49	PROPOSED 294" RCP DRAINAGE		JAL	JAL
50	PROPOSED 300" RCP DRAINAGE		JAL	JAL
51	PROPOSED 306" RCP DRAINAGE		JAL	JAL
52	PROPOSED 312" RCP DRAINAGE		JAL	JAL
53	PROPOSED 318" RCP DRAINAGE		JAL	JAL
54	PROPOSED 324" RCP DRAINAGE		JAL	JAL
55	PROPOSED 330" RCP DRAINAGE		JAL	JAL
56	PROPOSED 336" RCP DRAINAGE		JAL	JAL
57	PROPOSED 342" RCP DRAINAGE		JAL	JAL
58	PROPOSED 348" RCP DRAINAGE		JAL	JAL
59	PROPOSED 354" RCP DRAINAGE		JAL	JAL
60	PROPOSED 360" RCP DRAINAGE		JAL	JAL
61	PROPOSED 366" RCP DRAINAGE		JAL	JAL
62	PROPOSED 372" RCP DRAINAGE		JAL	JAL
63	PROPOSED 378" RCP DRAINAGE		JAL	JAL
64	PROPOSED 384" RCP DRAINAGE		JAL	JAL
65	PROPOSED 390" RCP DRAINAGE		JAL	JAL
66	PROPOSED 396" RCP DRAINAGE		JAL	JAL
67	PROPOSED 402" RCP DRAINAGE		JAL	JAL
68	PROPOSED 408" RCP DRAINAGE		JAL	JAL
69	PROPOSED 414" RCP DRAINAGE		JAL	JAL
70	PROPOSED 420" RCP DRAINAGE		JAL	JAL
71	PROPOSED 426" RCP DRAINAGE		JAL	JAL
72	PROPOSED 432" RCP DRAINAGE		JAL	JAL
73	PROPOSED 438" RCP DRAINAGE		JAL	JAL
74	PROPOSED 444" RCP DRAINAGE		JAL	JAL
75	PROPOSED 450" RCP DRAINAGE		JAL	JAL
76	PROPOSED 456" RCP DRAINAGE		JAL	JAL
77	PROPOSED 462" RCP DRAINAGE		JAL	JAL
78	PROPOSED 468" RCP DRAINAGE		JAL	JAL
79	PROPOSED 474" RCP DRAINAGE		JAL	JAL
80	PROPOSED 480" RCP DRAINAGE		JAL	JAL
81	PROPOSED 486" RCP DRAINAGE		JAL	JAL
82	PROPOSED 492" RCP DRAINAGE		JAL	JAL
83	PROPOSED 498" RCP DRAINAGE		JAL	JAL
84	PROPOSED 504" RCP DRAINAGE		JAL	JAL
85	PROPOSED 510" RCP DRAINAGE		JAL	JAL
86	PROPOSED 516" RCP DRAINAGE		JAL	JAL
87	PROPOSED 522" RCP DRAINAGE		JAL	JAL
88	PROPOSED 528" RCP DRAINAGE		JAL	JAL
89	PROPOSED 534" RCP DRAINAGE		JAL	JAL
90	PROPOSED 540" RCP DRAINAGE		JAL	JAL
91	PROPOSED 546" RCP DRAINAGE		JAL	JAL
92	PROPOSED 552" RCP DRAINAGE		JAL	JAL
93	PROPOSED 558" RCP DRAINAGE		JAL	JAL
94	PROPOSED 564" RCP DRAINAGE		JAL	JAL
95	PROPOSED 570" RCP DRAINAGE		JAL	JAL
96	PROPOSED 576" RCP DRAINAGE		JAL	JAL
97	PROPOSED 582" RCP DRAINAGE		JAL	JAL
98	PROPOSED 588" RCP DRAINAGE		JAL	JAL
99	PROPOSED 594" RCP DRAINAGE		JAL	JAL
100	PROPOSED 600" RCP DRAINAGE		JAL	JAL

**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')

NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
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3	REVISION	11/05/18	JAS	JAS	JAS
4	REVISION	11/12/18	JAS	JAS	JAS
5	REVISION	11/20/18	JAS	JAS	JAS
6	REVISION	12/03/18	JAS	JAS	JAS
7	REVISION	12/10/18	JAS	JAS	JAS
8	REVISION	12/17/18	JAS	JAS	JAS
9	REVISION	12/24/18	JAS	JAS	JAS
10	REVISION	1/07/19	JAS	JAS	JAS
11	REVISION	1/14/19	JAS	JAS	JAS
12	REVISION	1/21/19	JAS	JAS	JAS
13	REVISION	1/28/19	JAS	JAS	JAS
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17	REVISION	2/25/19	JAS	JAS	JAS
18	REVISION	3/04/19	JAS	JAS	JAS
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21	REVISION	3/25/19	JAS	JAS	JAS
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25	REVISION	4/22/19	JAS	JAS	JAS
26	REVISION	4/29/19	JAS	JAS	JAS
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36	REVISION	7/08/19	JAS	JAS	JAS
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41	REVISION	8/12/19	JAS	JAS	JAS
42	REVISION	8/19/19	JAS	JAS	JAS
43	REVISION	8/26/19	JAS	JAS	JAS
44	REVISION	9/02/19	JAS	JAS	JAS
45	REVISION	9/09/19	JAS	JAS	JAS
46	REVISION	9/16/19	JAS	JAS	JAS
47	REVISION	9/23/19	JAS	JAS	JAS
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65	REVISION	1/27/20	JAS	JAS	JAS
66	REVISION	2/03/20	JAS	JAS	JAS
67	REVISION	2/10/20	JAS	JAS	JAS
68	REVISION	2/17/20	JAS	JAS	JAS
69	REVISION	2/24/20	JAS	JAS	JAS
70	REVISION	3/02/20	JAS	JAS	JAS
71	REVISION	3/09/20	JAS	JAS	JAS
72	REVISION	3/16/20	JAS	JAS	JAS
73	REVISION	3/23/20	JAS	JAS	JAS
74	REVISION	3/30/20	JAS	JAS	JAS
75	REVISION	4/06/20	JAS	JAS	JAS
76	REVISION	4/13/20	JAS	JAS	JAS
77	REVISION	4/20/20	JAS	JAS	JAS
78	REVISION	4/27/20	JAS	JAS	JAS
79	REVISION	5/04/20	JAS	JAS	JAS
80	REVISION	5/11/20	JAS	JAS	JAS
81	REVISION	5/18/20	JAS	JAS	JAS
82	REVISION	5/25/20	JAS	JAS	JAS
83	REVISION	6/01/20	JAS	JAS	JAS
84	REVISION	6/08/20	JAS	JAS	JAS
85	REVISION	6/15/20	JAS	JAS	JAS
86	REVISION	6/22/20	JAS	JAS	JAS
87	REVISION	6/29/20	JAS	JAS	JAS
88	REVISION	7/06/20	JAS	JAS	JAS
89	REVISION	7/13/20	JAS	JAS	JAS
90	REVISION	7/20/20	JAS	JAS	JAS
91	REVISION	7/27/20	JAS	JAS	JAS
92	REVISION	8/03/20	JAS	JAS	JAS
93	REVISION	8/10/20	JAS	JAS	JAS
94	REVISION	8/17/20	JAS	JAS	JAS
95	REVISION	8/24/20	JAS	JAS	JAS
96	REVISION	8/31/20	JAS	JAS	JAS
97	REVISION	9/07/20	JAS	JAS	JAS
98	REVISION	9/14/20	JAS	JAS	JAS
99	REVISION	9/21/20	JAS	JAS	JAS
100	REVISION	9/28/20	JAS	JAS	JAS
101	REVISION	10/05/20	JAS	JAS	JAS
102	REVISION	10/12/20	JAS	JAS	JAS
103	REVISION	10/19/20	JAS	JAS	JAS
104	REVISION	10/26/20	JAS	JAS	JAS
105	REVISION	11/02/20	JAS	JAS	JAS
106	REVISION	11/09/20	JAS	JAS	JAS
107	REVISION	11/16/20	JAS	JAS	JAS
108	REVISION	11/23/20	JAS	JAS	JAS
109	REVISION	11/30/20	JAS	JAS	JAS
110	REVISION	12/07/20	JAS	JAS	JAS
111	REVISION	12/14/20	JAS	JAS	JAS
112	REVISION	12/21/20	JAS	JAS	JAS
113	REVISION	12/28/20	JAS	JAS	JAS
114	REVISION	1/04/21	JAS	JAS	JAS
115	REVISION	1/11/21	JAS	JAS	JAS
116	REVISION	1/18/21	JAS	JAS	JAS
117	REVISION	1/25/21	JAS	JAS	JAS
118	REVISION	2/01/21	JAS	JAS	JAS
119	REVISION	2/08/21	JAS	JAS	JAS
120	REVISION	2/15/21	JAS	JAS	JAS
121	REVISION	2/22/21	JAS	JAS	JAS
122	REVISION	2/29/21	JAS	JAS	JAS
123	REVISION	3/06/21	JAS	JAS	JAS
124	REVISION	3/13/21	JAS	JAS	JAS
125	REVISION	3/20/21	JAS	JAS	JAS
126	REVISION	3/27/21	JAS	JAS	JAS
127	REVISION	4/03/21	JAS	JAS	JAS
128	REVISION	4/10/21	JAS	JAS	JAS
129	REVISION	4/17/21	JAS	JAS	JAS
130	REVISION	4/24/21	JAS	JAS	JAS
131	REVISION	5/01/21	JAS	JAS	JAS
132	REVISION	5/08/21	JAS	JAS	JAS
133	REVISION	5/15/21	JAS	JAS	JAS
134	REVISION	5/22/21	JAS	JAS	JAS
135	REVISION	5/29/21	JAS	JAS	JAS
136	REVISION	6/05/21	JAS	JAS	JAS
137	REVISION	6/12/21	JAS	JAS	JAS
138	REVISION	6/19/21	JAS	JAS	JAS
139	REVISION	6/26/21	JAS	JAS	JAS
140	REVISION	7/03/21	JAS	JAS	JAS
141	REVISION	7/10/21	JAS	JAS	JAS
142	REVISION	7/17/21	JAS	JAS	JAS
143	REVISION	7/24/21	JAS	JAS	JAS
144	REVISION	7/31/21	JAS	JAS	JAS
145	REVISION	8/07/21	JAS	JAS	JAS
146	REVISION	8/14/21	JAS	JAS	JAS
147	REVISION	8/21/21	JAS	JAS	JAS
148	REVISION	8/28/21	JAS	JAS	JAS
149	REVISION	9/04/21	JAS	JAS	JAS
150	REVISION	9/11/21	JAS	JAS	JAS
151	REVISION	9/18/21	JAS	JAS	JAS
152	REVISION	9/25/21	JAS	JAS	JAS
153	REVISION	10/02/21	JAS	JAS	JAS
154	REVISION	10/09/21	JAS	JAS	JAS
155	REVISION	10/16/21	JAS	JAS	JAS
156	REVISION	10/23/21	JAS	JAS	JAS
157	REVISION	10/30/21	JAS	JAS	JAS
158	REVISION	11/06/21	JAS	JAS	JAS
159	REVISION	11/13/21	JAS	JAS	JAS
160	REVISION	11/20/21	JAS	JAS	JAS
161	REVISION	11/27/21	JAS	JAS	JAS
162	REVISION	12/04/21	JAS	JAS	JAS
163	REVISION	12/11/21	JAS	JAS	JAS
164	REVISION	12/18/21	JAS	JAS	JAS
165	REVISION	12/25/21	JAS	JAS	JAS
166	REVISION	1/01/22	JAS	JAS	JAS
167	REVISION	1/08/22	JAS	JAS	JAS
168	REVISION	1/15/22	JAS	JAS	JAS
169	REVISION	1/22/22	JAS	JAS	JAS
170	REVISION	1/29/22	JAS	JAS	JAS
171	REVISION	2/05/22	JAS	JAS	JAS
172	REVISION	2/12/22	JAS	JAS	JAS
173	REVISION	2/19/22	JAS	JAS	JAS
174	REVISION	2/26/22	JAS	JAS	JAS
175	REVISION	3/05/22	JAS	JAS	JAS
176	REVISION	3/12/22	JAS	JAS	JAS
177	REVISION	3/19/22	JAS	JAS	JAS
178	REVISION	3/26/22	JAS	JAS	JAS
179	REVISION	4/02/22	JAS	JAS	JAS
180	REVISION	4/09/22	JAS	JAS	JAS
181	REVISION	4/16/22	JAS	JAS	JAS
182	REVISION	4/23/22	JAS	JAS	JAS
183	REVISION	4/30/22	JAS	JAS	JAS
184	REVISION	5/07/22	JAS	JAS	JAS
185	REVISION	5/14/22	JAS	JAS	JAS
186	REVISION	5/21/22	JAS	JAS	JAS
187	REVISION	5/28/22	JAS	JAS	JAS
188	REVISION	6/04/22	JAS	JAS	JAS
189	REVISION	6/11/22	JAS	JAS	JAS
190	REVISION	6/18/22	JAS	JAS	JAS
191	REVISION	6/25/22	JAS	JAS	JAS
192	REVISION	7/02/22	JAS	JAS	JAS
193	REVISION	7/09/22	JAS	JAS	JAS
194	REVISION	7/16/22	JAS	JAS	JAS
195	REVISION	7/23/22	JAS	JAS	JAS
196	REVISION	7/30/22	JAS	JAS	JAS
197	REVISION	8/06/22	JAS	JAS	JAS
198	REVISION	8/13/22	JAS	JAS	JAS
199	REVISION	8/20/22	JAS	JAS	JAS
200	REVISION	8/27/22	JAS	JAS	JAS
201	REVISION	9/03/22	JAS	JAS	JAS
202	REVISION	9/10/22	JAS	JAS	JAS
203	REVISION	9/17/22	JAS	JAS	JAS
204	REVISION	9/24/22	JAS	JAS	JAS
205	REVISION	10/01/22	JAS	JAS	JAS
206	REVISION	10/08/22			

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' x11.5' 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	5-	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	\$ 362.60	\$ 387.93	\$ 233.64	\$ 299.16	\$ 226.93	\$ 217.60	\$ 188.50	\$ 198.97	\$ 148.00	\$ 136.80	\$ 104.82	\$ 116.00	\$ 99.60	\$ 139.50	\$ 182.28	\$ 116.74	\$ 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	60								152	\$ 23,067.71	
2 Preliminary Evaluation and Development of Well Concepts		16		16	16		40	16	12	80								196	\$ 31,310.02	
3 Revises ROPR Drainage Model		16		2	16		16			40								80	\$ 13,540.08	
4 Revises Drainage Report		16		2	16		24			60								118	\$ 19,222.13	
5 Perform Engineering Calculations			2	2	2		40	60	60	120								248	\$ 38,569.90	
6 Utility Conflicts Evaluation and Coordination		8	2	2	8				4	26	4							54	\$ 8,220.22	
7 Storm Drainage Redesign		12	4	4	12				6	24	8	16						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				16	8	12						172	\$ 23,667.15	
8c Mechanical Design		2	4	2	8				8	40	8	12						84	\$ 11,132.54	
8d Electrical Design		2	4	2	8		60			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	6				40		32	8	12					108	\$ 14,455.58	
9b Structural Design		2	4	2	6	120				16	8	12						170	\$ 33,113.30	
9c Mechanical Design		2	4	2	6				8	32	8	12						74	\$ 9,845.58	
9d Electrical Design		2	4	2	6		40			32	8	12						108	\$ 16,225.58	
10 Prepare and submit 100% Wells Design Package to CMB for Review																				
10a Civil Design		2	4	2	4				24		24	8	8					74	\$ 10,249.18	
10b Structural Design		2	4	2	4	100				16	8	8						142	\$ 27,663.05	
10c Mechanical Design		2	4	2	4				8	24	8	8						58	\$ 7,929.18	
10d Electrical Design		2	4	2	4		24			24	8	8						74	\$ 11,283.18	
11 Permitting																				
11a DERM Class V Permit Preparation and Submittal		12	4		8			8	16									48	\$ 9,796.41	
11b DERM Class II Permit Modification and Submittal		8	2		4			4	16									34	\$ 6,554.08	
11c SPWMD 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	8					24				46	\$ 8,377.40	
SUB-TOTAL																			\$ 399,189.82	
Project Coordination Meetings and Management																				
12 Attend Project Coordination Meetings		32		16	16				16									80	\$ 19,223.00	
SUB-TOTAL																			\$ 19,223.00	
Sub-Consultants																				
13 Geotechnical Investigation - Langan Engineering																			3	\$ 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	2,584	\$ 476,112.68	
TOTAL FEE PER TITLE:	\$ -	\$ 44,563.27	\$ 14,478.29	\$ 16,313.54	\$ 43,115.75	\$ 71,950.00	\$ 23,374.00	\$ 36,810.30	\$ 45,246.00	\$ 10,892.00	\$ 79,014.10	\$ 11,800.00	\$ 14,997.20	\$ 3,629.00	\$ -	\$ 482.84	\$ 312.90			

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	Plant Engineer	Designer / CAD Manager	CAD Designer	Inspector	Public Relations Coordinator	Accounting	Admin.	Total Hours	Total Loaded Labor																			
CONTRACT RATES																			\$ 362.60	\$ 267.93	\$ 233.54	\$ 209.16	\$ 226.93	\$ 217.40	\$ 189.50	\$ 192.97	\$ 146.00	\$ 130.60	\$ 194.62	\$ 116.00	\$ 98.40	\$ 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				18				00	20	18	80							218	\$ 34,228.00																		
2	Preliminary Evaluation and Development of Well Concepts	16			15	24			60	20	18	80							232	\$ 36,206.80																		
3	Revise ICRP Drainage Model	16			2	20			40			60							138	\$ 23,313.33																		
4	Revise Drainage Report	16			2	20			15			40							34	\$ 18,447.70																		
5	Perform Engineering Calculations		4		2	1			40	60	80	120							534	\$ 43,708.52																		
6	Utility Conflicts Evaluation and Coordination		4		2	1					20		4	8					54	\$ 8,220.22																		
7	Storm Drainage Redesign	12	4		4	18			6			32	8	18			4	4	106	\$ 18,281.99																		
8	Water Main Redesign	4	4		2	12			6			24	6	15			4	4	66	\$ 12,054.64																		
9	Prepare and submit 60% Wells Design Package to CMB for Review																			\$ -																		
9a	Civil Design	2	4		2	32			60		60	60	18	32					322	\$ 44,542.39																		
9b	Structural Design	2	4		2	32	200				8	16	18	32					312	\$ 60,357.35																		
9c	Mechanical Design	2	4		2	80			8		80	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			60		60	60	12	24					240	\$ 32,088.48																		
10b	Structural Design	2	4		2	15	160				8	18	12	24					244	\$ 48,773.73																		
10c	Mechanical Design	2	4		2	40			8		80	60	12	24					232	\$ 34,563.36																		
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	\$ 22,205.54																		
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					180	\$ 24,011.54																		
11d	Electrical Design	2	4		2	15		60			16	40	8	16					184	\$ 25,583.34																		
12	Permitting																			\$ -																		
12a	DERM Class V Permit Preparation and Submittal	16			8	16			16	40									96	\$ 18,027.71																		
12b	DERM Class II Permit Modification and Submittal	12			4	8			8	24									56	\$ 11,334.71																		
12c	SPWARD ERP Permit Modification and Submittal	12			4	8			8	24									56	\$ 11,334.71																		
12d	Coordination with Permitting Agencies	8			4	8			15	18							4	4	58	\$ 10,275.84																		
12e	USEE Certification Inspections	16			4	8				16					40				84	\$ 15,478.61																		
SUB-TOTAL																																						\$ 789,487.32
Project Coordination Meetings and Management																																						\$ -
13	Attend Project Coordination Meetings				40		24	24			24									136	\$ 28,771.18																	
SUB-TOTAL																																						\$ 28,771.18
Sub-Consultants																																						\$ -
14	Geotechnical Investigation - Langan Engineering																				\$ 147,200.00																	
SUB-TOTAL																																						\$ 147,200.00
TOTAL HOURS PER TITLE:																																						4,590
TOTAL FEE PER TITLE:																			\$ -	\$ 33,048.61	\$ 17,748.61	\$ 22,169.69	\$ 127,076.00	\$ 104,400.00	\$ 45,240.00	\$ 52,527.82	\$ 70,750.00	\$ 70,892.00	\$ 111,822.09	\$ 19,024.00	\$ 32,340.80	\$ 8,330.00	\$ -	\$ 1,338.52	\$ 927.16	\$ 76.10	\$ 4,590	\$ 883,459.50

**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