1112 Manatee Avenue West
Bradenton, FL 34205
purchasing@mymanatee.org

Solicitation Addendum

Addendum No.:	1
Solicitation No.:	21-TA003544DJ
Project No.:	6089980
Solicitation Title:	Basin 16 Infiltration - Inflows Rehabilitation
Addendum Date:	February 10, 2021
Procurement Contact:	Dave Janney Senior Procurement Agent

IFBC 21-TA003544DJ is amended as set forth herein. Responses to questions posed by prospective bidders are provided below. This addendum is hereby incorporated in and made a part of IFBC 21-TA003544DJ.

ADD:

BID ATTACHMENT 4, GEOTECHNICAL REPORT

The Bid Attachment 4 is hereby incorporated as a separate attachment to the IFBC.

REPLACE:

SECTION B, BID FORMS, APPENDIX K, BID PRICING FORM

Replace Appendix K Bid Pricing Form, with the Revised Appendix K Bid Pricing Form hereby incorporated into the IFBC.

REPLACE:

SECTION C, BID ATTACHMENTS, BID ATTACHMENT 2, TECHNICAL SPECIFICATIONS, SECTION 01150

Replace Section 01150 Measure and Payment in its entirety.

REPLACE:

SECTION C BID ATTACHMENT 3, PLANS

Replace Sheets C-1 through C-28 available for download as a separate attachment.

QUESTIONS AND RESPONSES:

Q1. Is the planholder's list available for this project?

R1. The system Procurement uses to advertise solicitations currently does not have the planholder's list functionality activated. Procurement is working with the vendor to engage this feature. A planholder's list will not be available for this IFBC.

Q2. I am requesting approval for Epoxytec CPP Sprayliner / series as an "or equal" to material section 09970 Surface Protection Spray System for Concrete Wet Wells, basins, and manholes that require field-lined epoxy – Coatings Products.

R2. The County and the Engineer of Record will not provide review and approval of "or equal" products prior to bid award. Prospective bidders are directed to bid on the products specified within the respective sections of the Technical Specifications. After award of the project, the County and the Engineer of Record will review requests for substitutions from the awarded Contractor, if requested, during shop drawing submittals to determine "or equal" status to the product(s) specified in the Technical Specifications.

Q3. Would Stucture Guard 100% solids epoxy be approved as an equal for the manhole lining on Basin 16 Gravity Sewer Rehabilitation project?

R3. Please see R2.

Q4. Per note 48 on G-2, please confirm all disturbed grass areas are to be sodded and modify the bid tabulation form as necessary.

R4. Bid item #26 describes "seeding and sodding" in green areas for restoration. Seeding has been removed from bid item 26, sod is required for restoration in green areas.

Q5. Please confirm which work site roadways are FDOT.

R5. Work completed on sheet C-3 and C-28 is FDOT work on U.S. 41.

Q6. Please confirm the required MOT plan will not require a PE seal and signature.

R6. MOT will not require a PE S&S signature for FDOT right-of-way if standard series FDOT 600 indexes are used. MOT will not require a PE S&S signature for Manatee County right-of-way if there is no road closure and standard FDOT series 600 indexes are used.

Q7. Reference plan and profile sheets note 1. It seems the laterals requiring replacement have generally been confirmed. Please detail which sewer laterals will require CCTV inspection prior to commencing work, providing a quantity so that all bids can be similar in nature.

R7. Note to be changed to: "CCTV post construction inspection required on all gravity sewer improvements including new laterals and lateral reconnections. The new

laterals and lateral reconnections will require video inspection of the connection to the gravity main."

Q8. Reference plan and profile sheets note 3, as well as sewer lateral details. Please confirm the sewer lateral work is intended to stop at the property line, with cleanout added per the details on D-1.

R8. Confirmed, including the reconnection to the existing lateral at the cleanout on the back of the right-of-way for a fully operational system.

Q9. Please provide expected maximum flows for bypass work. Will any of this work required to be performed at night?

R9. 350 gpm is the expected maximum bypass needed, no night work anticipated.

Q10. Please confirm the bypass of flow can be from one manhole, and then dumped into downstream manholes.

R10. Confirmed.

Q11. Please confirm the extent of testing required after rehabilitation. It seems mandrel and air-test should be omitted as the Contractor is required to connect to existing pipeline / invert elevations. Additionally, will the County/EOR consider visual inspection of point repairs, rather than CCTV from MH to MH?

R11. Air testing inspection is required on the main and lateral services (to the clean out) if the collection system is being fully replaced from manhole to manhole (i.e. sheet 4). Mandrel testing will also be required if the main is being replaced from manhole to manhole. CCTV post inspection is required for all point repairs, service lateral replacement, and gravity main replacements, as well as visual inspection.

Q12. Will road closures (local traffic only, no through traffic) be allowed during construction?

R12. Road closures are not anticipated, however the contractor may submit a request to the County if deemed necessary. The County requires a signed and sealed MOT plan for road closures with detours. Access to residential houses must be maintained.

Q13. Please confirm milling and overlay will not be required.

R13. Confirmed.

Q14. Please consider splitting the driveway and sidewalk bid tabulations.

R14. Concrete restoration will stay the same.

Q15. **Please confirm the permits required to be obtained by the Contractor and provide the associated costs.**

R15. Manatee County right-of-way use permit (no fee). The FDOT permit will be pulled by the EOR.

Q16. **Please provide a geotechnical report, if one is available.**

R16. See attached, Bid Attachment 4 Geotechnical Report.

Q17. **Will 2 project information signs be required?**

R17. Yes.

Q18. **Please provide the Engineer's Estimate, if available.**

R18. The engineers estimated opinion of cost is $1,438,643.80.

Q19. **It appears much of this work is adjacent storm pipe and structures. If the rehabilitation work necessitates, how will the Contractor be compensated for removal and replacement of storm pipe and/or structures? Please consider adding an allowance for storm drain repairs/replacements.**

R19. The County and EOR will determine if the work is extra. If we determine it is extra, we will request a proposal from the contractor and pay with a field directive or change order.

Q20. **The plans generally indicate point repairs of +/- 10 LF, but the bid item description indicates up to 20 LF. Please clarify the expected length of repairs and/or update the pay item description. The method for replacing a +/- 10 LF section vs. +/- 20 LF section will be significantly different, particularly on the deeper cuts.**

R20. The intent for the gravity sewer point repair bid items are to cover up to 20 LF of pipe repair if needed. However, the anticipated lengths based on CCTV videos shown are on the plans. Anything that was discovered past 20 LF needed for a repair is covered in the gravity sewer replacement or pipe bursting bid items.

NOTE:
Items that are ~~struck through~~ are deleted. Items that are <u>underlined</u> have been added or changed. All other terms and conditions remain as stated in the IFBC.

INSTRUCTIONS:
Receipt of this addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the response being deemed non-responsive.

END OF ADDENDUM

AUTHORIZED FOR RELEASE

Jacob Erickson, MBA, CPPO, NIGP-CPP

Digitally signed by Jacob Erickson, MBA, CPPO, NIGP-CPP
Date: 2021.02.09 15:24:48 -05'00'

SITE CONDITIONS

Our scope of services was developed based on this understanding of the project, so the details below should be verified. Aspects of the project that are undefined or assumed at this point are highlighted as shown here in the following table. We request input from the design team to verify any such information as noted.

Item	Description
Project information	The existing water main along the following roadways is to be replaced: ■ US-41 from 69th Ave. W. to approximately 400 feet south of 69th Ave. W. ■ 69th Ave. W. from US-41 to 11th St. W. ■ 11th St. W. from 69th Ave. W. to 67th Ave. Terr. W. ■ 67th Ave. Terr. W. from 11th St. W. to 8th St. Ct. W. ■ 8th St. Ct. W. from 67th Ave. Terr. W. to 67th Ave. Dr. W. ■ 67th Ave. Dr. W. from 8th St. Ct. W. to 5th St. E. ■ 5th St. E. from 67th Ave. Dr. W. to 63rd Ave. W. Total approximate length = 6,900 linear feet **See Exhibit 1: Site Location** (See **Exhibit 1: Site Location**)
Existing improvements	Asphalt paved roadways with grassed shoulders
Current ground cover	Asphalt pavement, short grasses, and bare earth
Existing topography	The northeast end of the site is at an elevation of about +18 ½ to + 20 feet-NAVD88 and slopes downward to the southwest end of the site at an elevation of about +10 feet-NAVD88. Site grades are to remain relatively unchanged.

EXPLORATION AND TESTING PROCEDURES

Based on our understanding of the project as noted in **Project Understanding**, and as requested by you, we completed the following scope of services for field exploration and laboratory testing for this project.

Field Exploration

Our field exploration work included the drilling and sampling of exploratory soil borings consistent with the following schedule.

Number of Borings	Boring Depth (ft)	Planned Location
22	8	Water Main
2	16	Jack and Bore Locations

Locations of soil borings are provided on **Exhibit 2A through 2G: Anticipated Exploration Plan**. The locations were established in the field by Terracon's exploration team using a measuring wheel/tape and/or a hand-held GPS unit with reference to known points. The two 16-foot deep borings will be located in the vicinity of the planned Jack and Bore. The accuracy of the exploration points is usually within 10 feet of the noted location. The ground surface elevations are estimated from the most recent USGS topographic maps, and the accuracy of the ground surface at each point is probably about 2 feet.

We advanced the soil borings with a truck-mounted drill rig using a cutting head and stabilizing with the use of bentonite (drillers' mud). We obtained representative samples primarily by the split-barrel sampling procedure. In the split-barrel sampling procedure, a standard, 2-inch O.D., split-barrel sampling spoon is driven into the boring with a 140-pound rope and cathead operate SPT (Standard Penetration Test) hammer falling 30 inches. We recorded the number of blows required to advance the sampling spoon the middle 12 inches of a 24-inch sampling interval as the standard penetration resistance value, N.

Our exploration team prepared field boring logs as part of the drilling operations. These field logs include visual classifications of the materials encountered during drilling and driller's interpretation of the subsurface conditions between samples. Ground water observations were also recorded. The final boring logs included with this report represent the engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in the laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned various laboratory tests to better understand the engineering properties of the various soil and rock strata as necessary for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216-10: Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D422-63(2007)e2: Standard Test Method for Particle-Size Analysis of Soils
- ASTM D2974-04: Standard Test Method for Organic Content
- Standard Test Method for laboratory determination of pH (EPA 9045C), resistivity (ASTM D1125), sulfate content (EPA 9056), and chloride content (EPA 300.0)

The laboratory testing program also included examination of soil samples by an engineer. Based on observation and test data, the engineer classified the soil samples in accordance with the Unified Soil Classification System (ASTM D2487). Additionally, nine (9) samples were transported to Palm Beach Environmental Laboratories, Inc. for corrosion series testing (pH, resistivity, sulfate content, and chloride content).

GEOTECHNICAL MODEL

Subsurface conditions on the project site can be generalized as follows:

Stratum	Approximate Depth to Bottom of Stratum	Material Description	Consistency/Density
1	4 to 6 inches	Asphalt pavement	Not applicable
	7 to 11 inches	Sand-shell base course	
2 [1]	4 feet	Organic SAND, with silt	Medium dense
3	4 to 16 feet	Fine SAND with trace to slight amounts of silt, trace shell fragments, and occasionally trace to some organic material (SP, SP-SM)	Very loose to dense
4[2]	16 feet	Weathered LIMESTONE	Very hard

1. Only found in Boring B-10 at a depth of 2 to 4 feet bgs.
2. Only found in Boring B-15 at a depth of 15 ½ to 16 feet bgs.

Conditions encountered at each boring location are indicated on the individual boring logs. Stratification boundaries on the boring logs represent the approximate location of changes in soil types; in situ, the transition between materials may be gradual. Details for each of the borings can be found in **Exploration Results**. A discussion of field sampling and laboratory testing procedures and test results are presented in **Exploration and Testing Procedures**.

The percent by weight of the organic content identified in samples from Strata 2 and 3 soils are presented below. Generally, soils with an organic content greater than 5% are not suitable for pipe backfill or bedding.

Boring No.	Depth of the layer	Organic Content (%)
B-4	4 to 6 feet	4.8
B-7	6 to 8 feet	1.2
B-10	2 to 4 feet	7.8
B-16	4 to 6 feet	3.7
B-18	0 to 2 feet	4.8

Groundwater

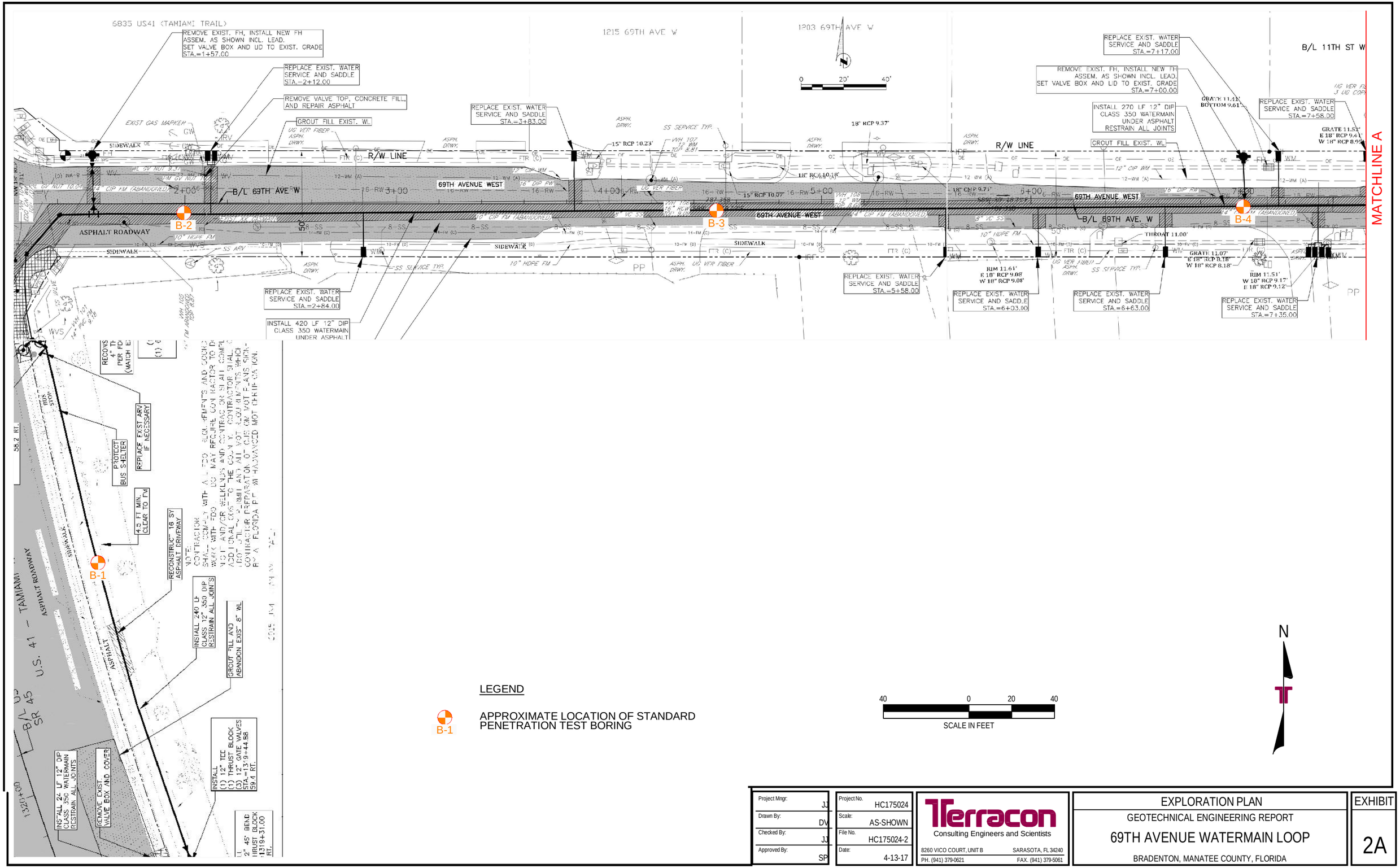
The boreholes were observed while drilling for the presence and level of groundwater. The water levels observed in the boreholes can be found in **Exploration Results**, and are summarized below.

Boring number	Depth to groundwater while drilling, ft.	Boring number	Depth to groundwater while drilling, ft.
B-1	8	B-13	5 ½
B-2	8	B-14	8
B-3	8	B-15	5
B-4	8	B-16	4 ½
B-5	4 ½	B-17	4 ½
B-6	5	B-18	7 ½
B-7	5	B-19	4 ½
B-8	6	B-20	4 ½
B-9	5	B-21	5
B-10	3 ½	B-22	5 ½
B-11	3 ½	B-23	4 ½
B-12	3 ½	B-24	5

The groundwater measurements are influenced by the drilling process and ambient weather conditions which have been very dry.

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

If a more detailed seasonal high groundwater level estimate is needed, we recommend the installation of shallow groundwater monitoring wells (i.e. piezometers) for the collection of stabilized groundwater level measurements.



LEGEND

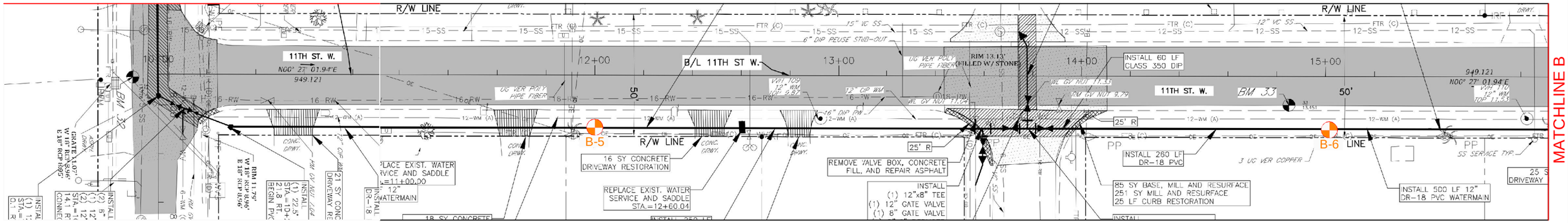
B-1 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40
SCALE IN FEET

N

Project Mngr: JJ Drawn By: DV Checked By: JJ Approved By: SP	Project No. HC175024 Scale: AS-SHOWN File No. HC175024-2 Date: 4-13-17	Terracon Consulting Engineers and Scientists 8260 VICO COURT, UNIT B SARASOTA, FL 34240 PH. (941) 379-0621 FAX. (941) 379-5061	EXPLORATION PLAN GEOTECHNICAL ENGINEERING REPORT 69TH AVENUE WATERMAIN LOOP BRADENTON, MANATEE COUNTY, FLORIDA	EXHIBIT 2A

MATCHLINE A



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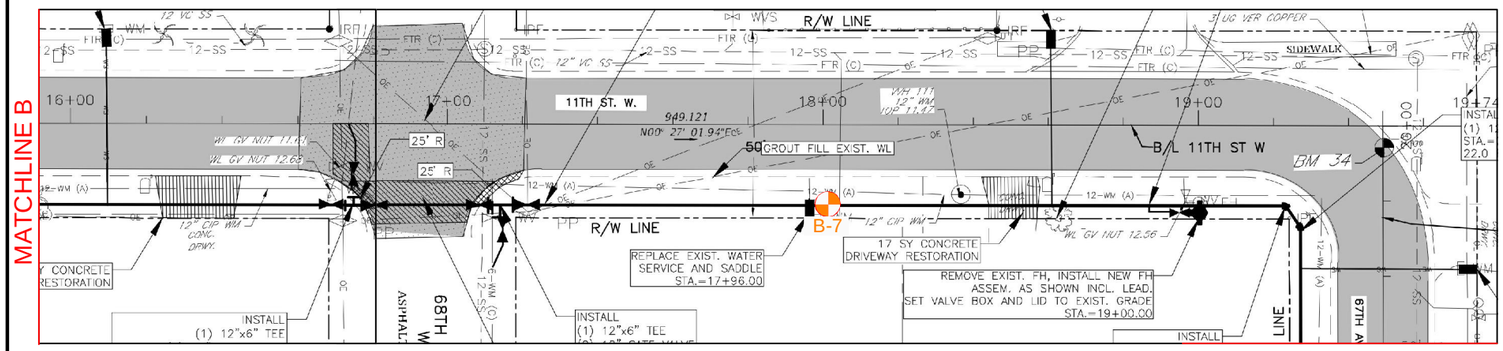


MATCHLINE C

LEGEND

B-5 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

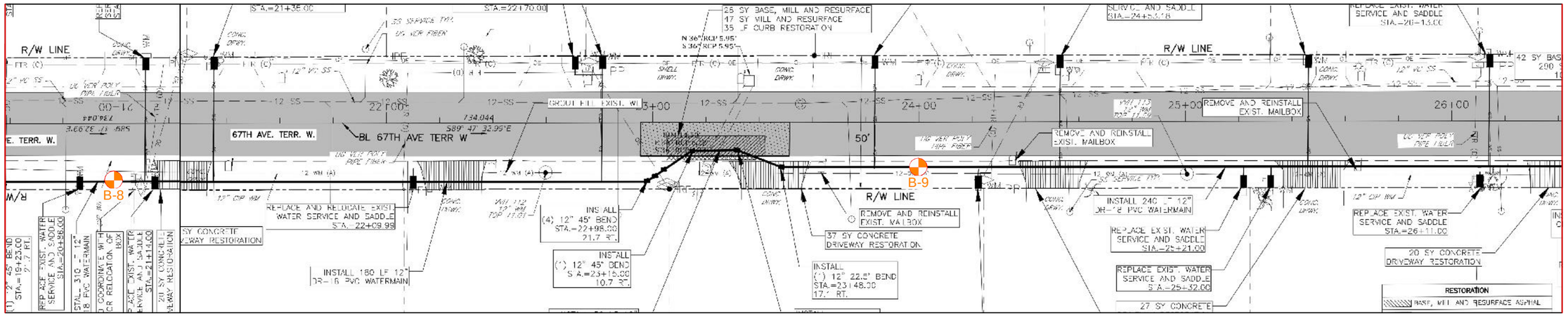
40 0 20 40
SCALE IN FEET

N

Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA

EXHIBIT 2B

MATCHLINE C



MATCHLINE D

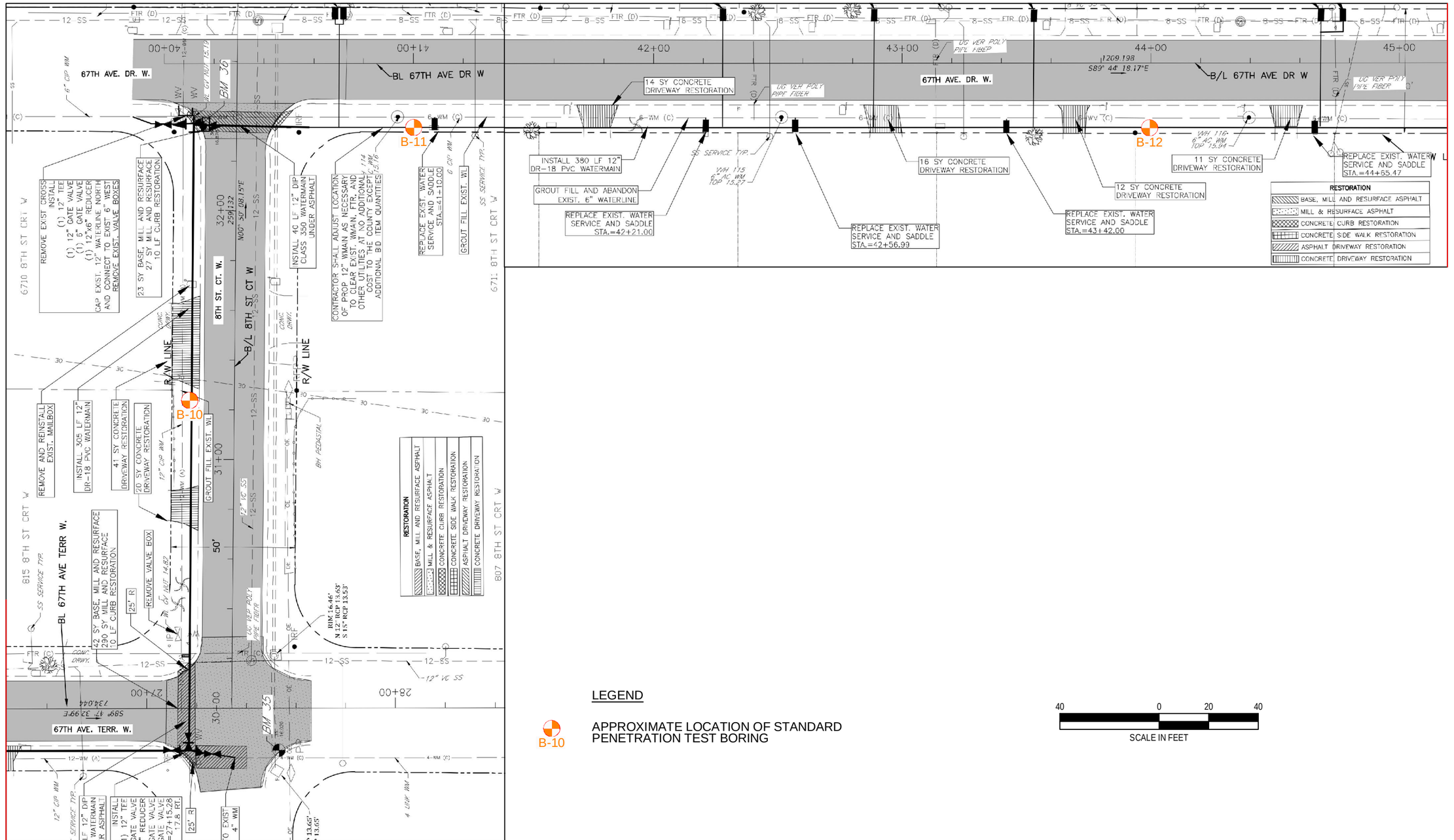
LEGEND

B-8 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40
SCALE IN FEET

N

Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN	EXHIBIT
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT	2C
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP	
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA	



LEGEND

B-10 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40

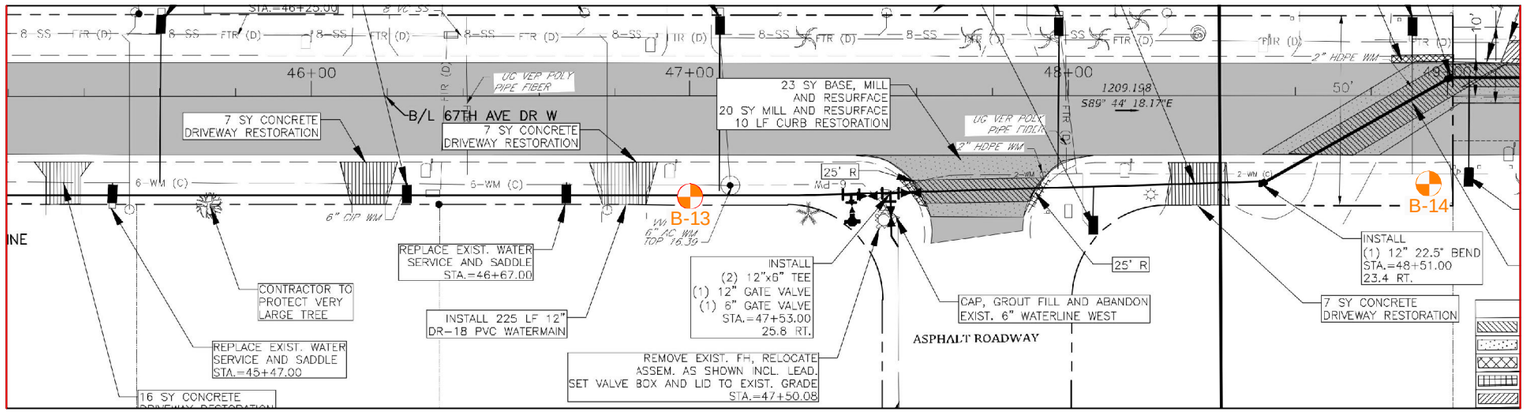
SCALE IN FEET

N

Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA

EXHIBIT 2D

MATCHLINE E



MATCHLINE F

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LEGEND

B-13 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40
SCALE IN FEET

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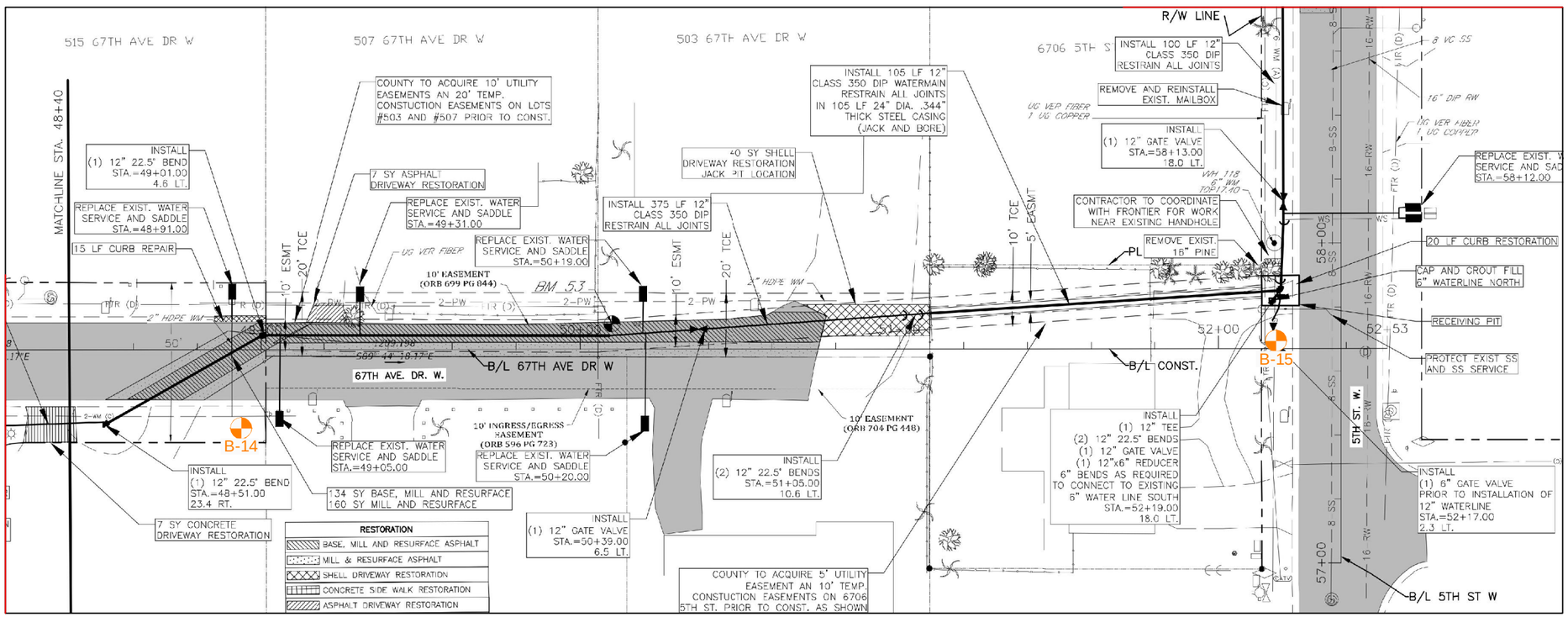
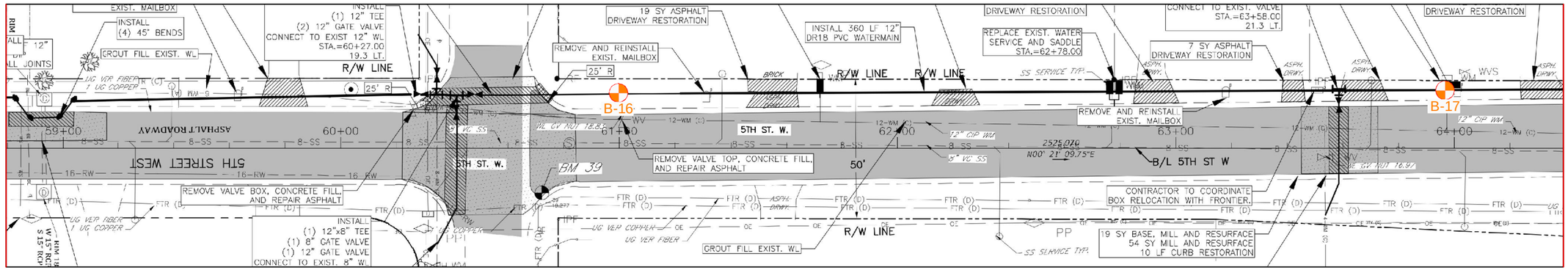


Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN	EXHIBIT
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT	2E
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP	
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA	

MATCHLINE G



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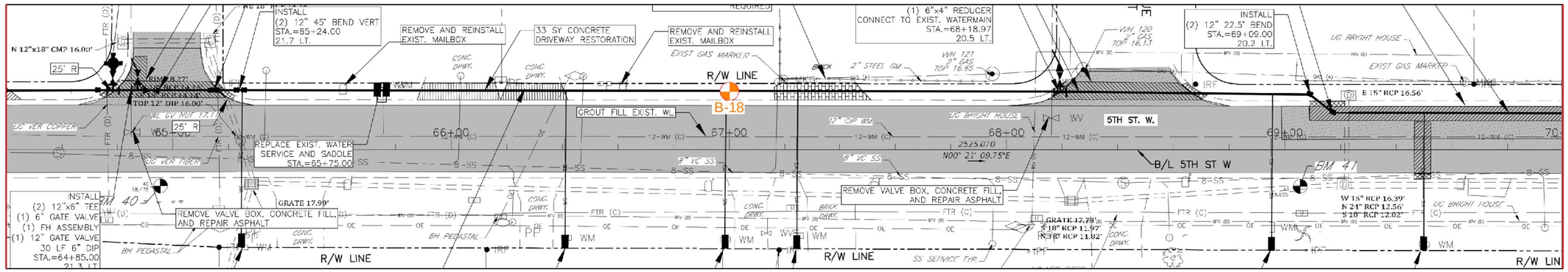
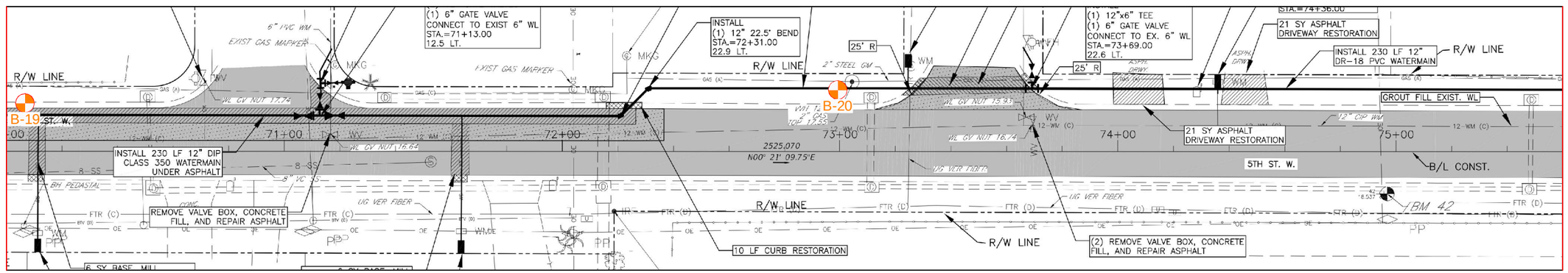


MATCHLINE I

MATCHLINE I



MATCHLINE J

N

LEGEND

B-16 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40
SCALE IN FEET

Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA

EXHIBIT 2F

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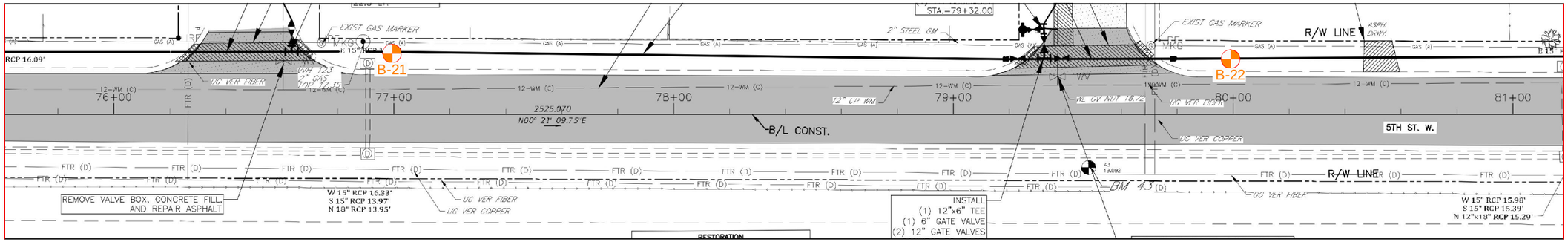
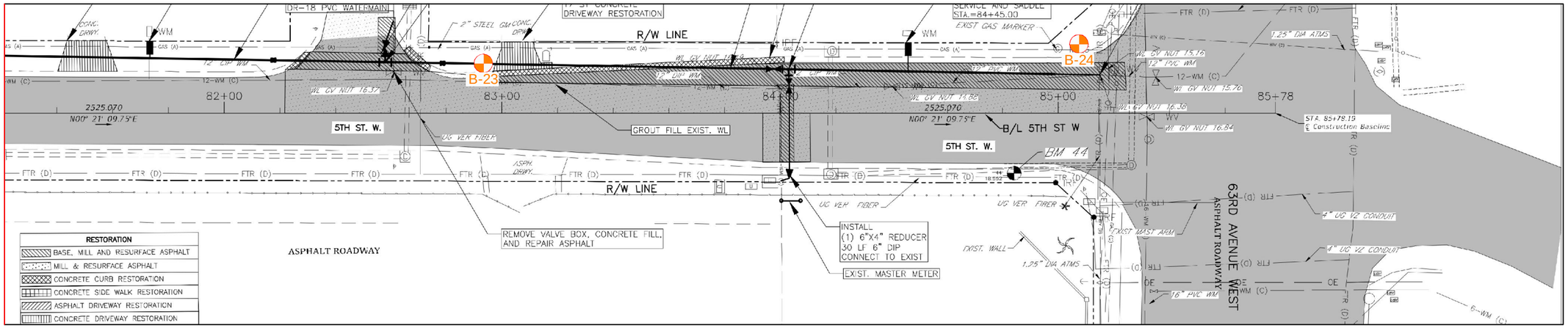


MATCHLINE K

MATCHLINE K



LEGEND

B-21 APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

40 0 20 40
SCALE IN FEET

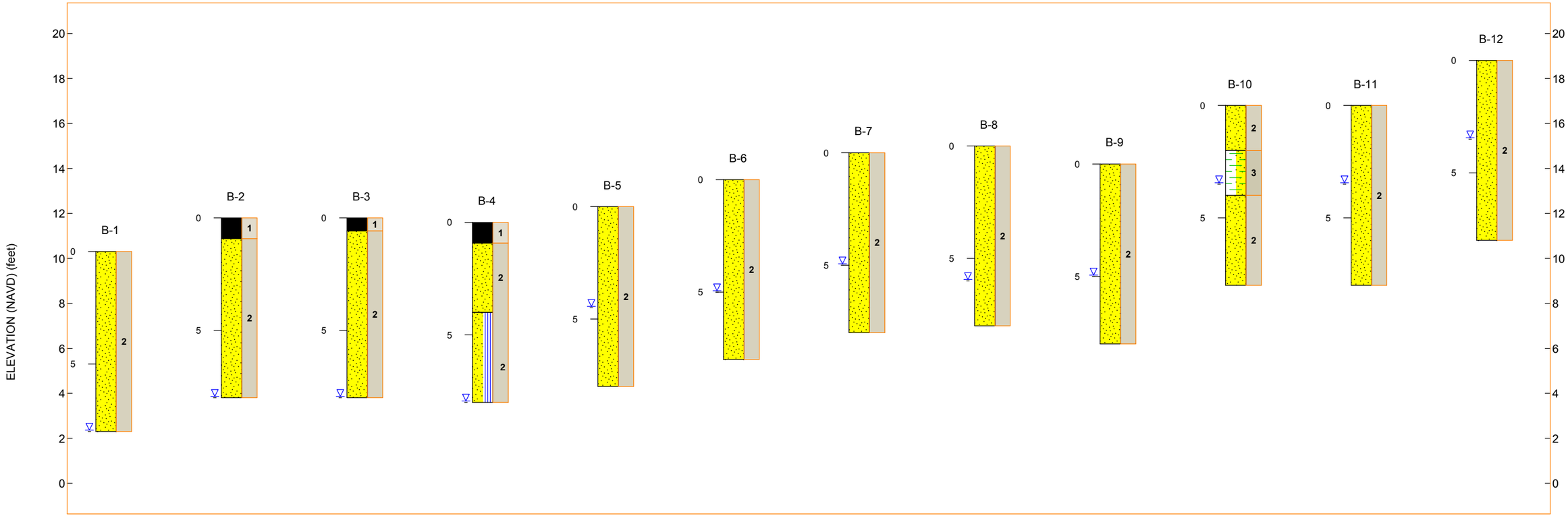
N

Project Mngr: JJ	Project No. HC175024	Terracon Consulting Engineers and Scientists	EXPLORATION PLAN
Drawn By: DV	Scale: AS-SHOWN	8260 VICO COURT, UNIT B SARASOTA, FL 34240	GEOTECHNICAL ENGINEERING REPORT
Checked By: JJ	File No. HC175024-2	PH. (941) 379-0621 FAX. (941) 379-5061	69TH AVENUE WATERMAIN LOOP
Approved By: SP	Date: 4-13-17		BRADENTON, MANATEE COUNTY, FLORIDA

EXHIBIT 2G

GEOTECHNICAL MODEL
69th Avenue Watermain Loop ■ Bradenton, FL
5/18/2017 ■ Terracon Project No. HC175024

Terracon GeoReport



Position Along Baseline - Generally South to North

Poorly-graded Sand
Asphalt
Poorly-graded Sand with Silt
Organic Sand with Silt

Model Layer	Termed	General Description
1	**PAVEMENT**	4 to 6 inches of Asphalt 6 to 11 inches of Aggregate Base
2	**SP, SP-SM**	Fine SAND with trace to slight amounts of silt, trace shell fragments, and occasionally trace to some organic material
3	**ORGANIC SAND**	Organic SAND, with silt
4	**Limestone**	Weathered Limestone

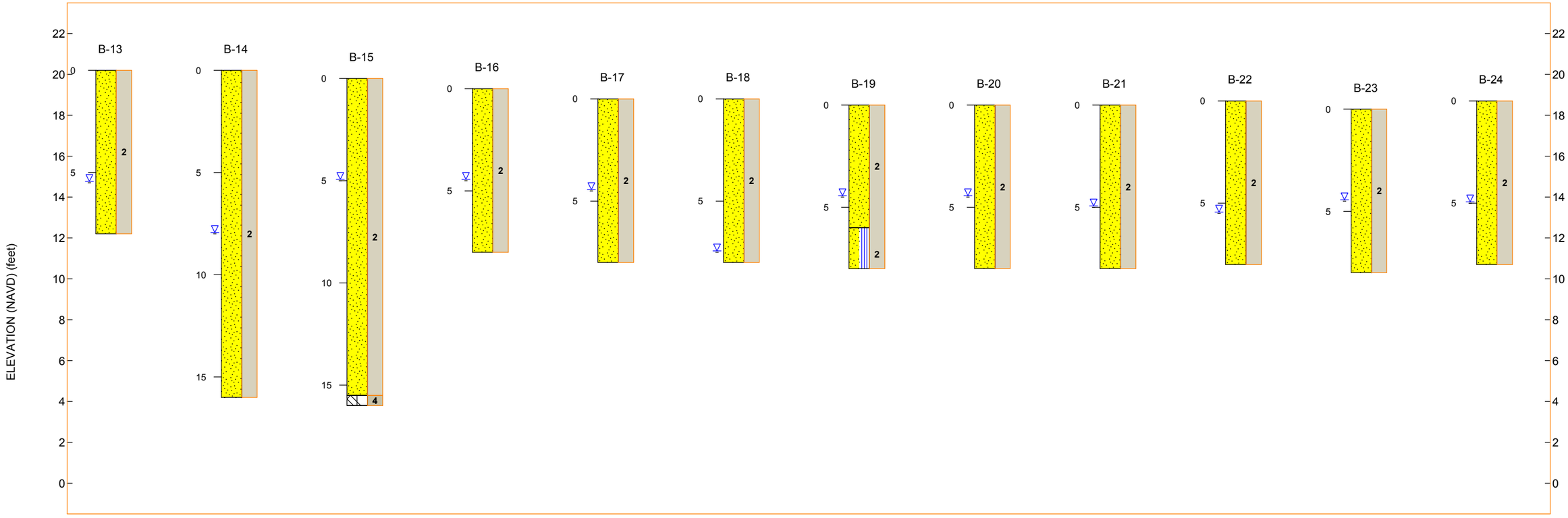
NOTES:
See boring logs for more detailed conditions specific to each boring.
GeoModel provided for illustration purposes only. Actual subsurface conditions between borings will vary.

Layering shown on this figure has been developed by the geotechnical engineer for purposes of characterization of subsurface conditions as required for the subsequent geotechnical engineering for this project.

LEGEND
▽ Grounwater observation during drilling

GEOTECHNICAL MODEL
69th Avenue Watermain Loop ■ Bradenton, FL
5/18/2017 ■ Terracon Project No. HC175024

Terracon GeoReport



Position Along Baseline - Generally South to North

Poorly-graded Sand
Weathered Limestone
Poorly-graded Sand with Silt

Model Layer	Termed	General Description
1	**PAVEMENT**	4 to 6 inches of Asphalt 6 to 11 inches of Aggregate Base
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NOTES:
See boring logs for more detailed conditions specific to each boring.
GeoModel provided for illustration purposes only. Actual subsurface conditions between borings will vary.

Layering shown on this figure has been developed by the geotechnical engineer for purposes of characterization of subsurface conditions as required for the subsequent geotechnical engineering for this project.

LEGEND
▽ Groundwater observation during drilling

BORING LOG NO. B-1

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.417854° Longitude: -82.575161°

Approximate Surface Elev: 10.3 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, trace shell, fine grained, brown and gray, medium dense	5	▽		6-5-5-13 N=10			
							5-6-8-9 N=14			
							5-6-7-10 N=13			
							8-8-13-19 N=21			
		8.0	2.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-2

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.41834° Longitude: -82.575036°

Approximate Surface Elev: 11.8 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
0.9	11+/-	1							
		2	5			4-6-7-8 N=13			
				▽		5-5-7-9 N=12		18	1
8.0	4+/-								

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-3

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.41835° Longitude: -82.57353°

Approximate Surface Elev: 11.8 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	1	0.6	11+/-							
	2		**Pavement: 4" Asphalt and 3" Aggregate base** **POORLY GRADED SAND (SP)**, fine grained, brown and gray, medium dense						13	3
				5			3-5-14-16 N=19			
							10-12-11-13 N=23			
		8.0	4+/-		▽					
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-4

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.418897° Longitude: -82.573176°

Approximate Surface Elev: 11.6 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
0.9	10.5+/-	1							
		Pavement: 5" Asphalt and 6" Aggregate base							
		POORLY GRADED SAND (SP), fine grained, brown and gray							
4.0	7.5+/-	2							
		POORLY GRADED SAND WITH SILT (SP-SM), trace organics, fine grained, brown, loose to medium dense	5			7-7-12-13 N=19	4.8	29	7
		2				6-4-5-10 N=9			
8.0	3.5+/-			▽					
		Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-5

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.419728° Longitude: -82.573179°

Approximate Surface Elev: 12.3 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, fine grained, brown and gray, medium dense	5	▽		3-9-6-6 N=15			
							4-5-8-11 N=13			
		8.0	4.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-6

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.420555° Longitude: -82.573176°

Approximate Surface Elev: 13.5 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, fine grained, brown and gray, loose to medium dense				2-2-3-4 N=5			
							4-4-6-11 N=10			
				5	▽		3-6-12-15 N=18			
							12-12-11-16 N=23			
		8.0	5.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-7

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.420906° Longitude: -82.572906°

Approximate Surface Elev: 14.7 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	0	14.7							
							2-2-2-3 N=4			
							2-1-2-3 N=3			
				5	▽		2-4-8-10 N=12			
							6-8-9-15 N=17	1.2	23	4
		8.0	6.5+/-							

POORLY GRADED SAND (SP), trace organics, fine grained, brown and gray, loose to medium dense

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-8

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.42093° Longitude: -82.572003°

Approximate Surface Elev: 15.0 (Ft.) +/-

DEPTH ELEVATION (Ft.)

GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	5	▽		2-3-3-4 N=6			
					2-3-3-3 N=6			
					2-3-7-9 N=10			
					5-6-7-9 N=13			

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

8.0 7+/-

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 6' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-9

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.420919° Longitude: -82.571082°

Approximate Surface Elev: 14.2 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
			2				2-4-4-5 N=8			
							2-2-2-2 N=4			
				5	▽		2-2-3-5 N=5			
							4-5-5-7 N=10		18	2
8.0	6+/-									

POORLY GRADED SAND (SP), fine grained, brown and gray, loose

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-10

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421614° Longitude: -82.570735°

Approximate Surface Elev: 16.8 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	**POORLY GRADED SAND (SP)**, fine grained, brown and gray, loose					3-3-6-6 N=9			
		2.0	15+/-							
	3	**ORGANIC SAND (SP-SM)**, with silt, fine grained, brown and gray, medium dense			▽		5-4-9-12 N=13	7.8		
		4.0	13+/-							
	2	**POORLY GRADED SAND (SP)**, fine grained, brown and gray, medium dense		5			3-5-7-14 N=12			
							7-10-14-20 N=24			
		8.0	9+/-							
		Boring Terminated at 8 Feet								

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 3.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-11

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421612° Longitude: -82.569822°

Approximate Surface Elev: 16.8 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	0	9+/-	5	▽		3-4-5-6 N=9			
							3-10-19-14 N=29			
							6-5-10-17 N=15			
							11-13-20-27 N=33			
		8.0								

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to dense

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 3.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-12

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421612° Longitude: -82.568897°

Approximate Surface Elev: 18.8 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	0	11+/-	5	▽		2-3-5-7 N=8			
							8-6-6-8 N=12			
							5-8-15-16 N=23			
							8-9-9-12 N=18			

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

8.0

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 3.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-13

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421616° Longitude: -82.568297°

Approximate Surface Elev: 20.2 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
							3-2-2-3 N=4			
							5-6-7-7 N=13			
			2	5	▽		5-5-6-11 N=11			
							8-7-7-9 N=14			
8.0	12+/-									

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-14

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421709° Longitude: -82.567926°

Approximate Surface Elev: 20.2 (Ft.) +/-

DEPTH | ELEVATION (Ft.)

GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	0			2-3-4-6 N=7			
					6-7-6-8 N=13			
		5			7-6-11-13 N=17			
			▽		11-9-10-11 N=19			
					10-11-10-13 N=21			
		10			6-6-7-5 N=13			
					5-6-6-8 N=12			
		15			5-5-6-6 N=11			

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

16.0 4+/-

Boring Terminated at 16 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 8' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/26/2017 Boring Completed: 4/26/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-15

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.421697° Longitude: -82.567291°

Approximate Surface Elev: 19.8 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
		2				5-5-7-7 N=12			
						8-6-7-11 N=13			
			5	▽		5-6-10-15 N=16			
						9-9-10-15 N=19			
						8-11-14-16 N=25			
			10			11-12-13-14 N=25			
						3-3-10-13 N=13			
			15			9-7-50/5"			
15.5	4.5+/-								
16.0	4+/-	4							

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

LIMESTONE, gray, very hard

Boring Terminated at 16 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-16

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.422596° Longitude: -82.5673°

Approximate Surface Elev: 19.3 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2			5	▽		6-8-6-8 N=14			
							5-6-5-6 N=11	3.7		
							5-4-6-7 N=10			
							5-5-5-6 N=10			
		8.0	11.5+/-							

POORLY GRADED SAND (SP), trace organics, fine grained, brown and gray, medium dense

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-17

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.423424° Longitude: -82.567309°

Approximate Surface Elev: 18.8 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
			2				3-4-5-7 N=9			
							7-6-7-8 N=13			
				5	▽		2-4-6-7 N=10			
							3-3-5-7 N=8			
8.0	11+/-									

POORLY GRADED SAND (SP), fine grained, brown and gray, loose to medium dense

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-18

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.424246° Longitude: -82.5673°

Approximate Surface Elev: 18.8 (Ft.) +/-

DEPTH ELEVATION (Ft.)

GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2	5	▽		2-2-3-3 N=5	4.8		
					6-8-9-11 N=17			
					3-4-4-6 N=8			
					4-4-4-8 N=8			

POORLY GRADED SAND (SP), trace organics, fine grained, brown and gray, loose to medium dense

8.0 11+/-

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 7.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-19

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.425075° Longitude: -82.567304°

Approximate Surface Elev: 18.5 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, trace shell, fine grained, brown and gray, medium dense				5-7-4-5 N=11			
	2						5-4-4-5 N=8			
	2			5	▽		2-2-2-3 N=4			
	2	6.0	12.5+/-				3-3-5-7 N=8		24	5
		8.0	10.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-20

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.425904° Longitude: -82.567304°

Approximate Surface Elev: 18.5 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, fine grained, brown and gray, loose to medium dense	5	▽		3-2-3-3 N=5			
							2-3-3-3 N=6			
							2-1-2-3 N=3			
							7-11-15-20 N=26			
		8.0	10.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-21

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.426992° Longitude: -82.567296°

Approximate Surface Elev: 18.5 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
			2				2-2-3-4 N=5			
							3-4-4-4 N=8			
				5	▽		2-2-2-2 N=4			
							2-3-5-9 N=8			
8.0	10.5+/-									

POORLY GRADED SAND (SP), fine grained, brown and gray, loose

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-22

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.427822° Longitude: -82.567291°

Approximate Surface Elev: 18.7 (Ft.) +/-

DEPTH	ELEVATION (Ft.)	GRAPHIC LOG	MODEL LAYER	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
			2				2-3-3-2 N=6			
							3-3-5-7 N=8			
				5	▽		3-4-4-5 N=8			
							3-3-3-3 N=6			
8.0	10.5+/-									

POORLY GRADED SAND (SP), fine grained, brown and gray, loose

Boring Terminated at 8 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-23

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

LOCATION See Exploration Plan

Latitude: 27.428622° Longitude: -82.567286°

Approximate Surface Elev: 18.3 (Ft.) +/-

GRAPHIC LOG	MODEL LAYER	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, fine grained, brown and gray, loose	5	▽		3-1-2-3 N=3			
							3-3-5-8 N=8			
		8.0	10.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 4.5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

BORING LOG NO. B-24

PROJECT: 69th Avenue Watermain Loop

CLIENT: Manatee County Government
1022 26th Ave East

SITE: 67th Avenue Drive West
Bradenton, FL

GRAPHIC LOG	MODEL LAYER	DEPTH	LOCATION See Exploration Plan Latitude: 27.429211° Longitude: -82.567307° Approximate Surface Elev: 18.7 (Ft.) +/- ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	ORGANIC CONTENT(%)	WATER CONTENT (%)	PERCENT FINES
	2		**POORLY GRADED SAND (SP)**, fine grained, brown and gray, medium dense	5	▽		4-7-8-8 N=15			
							7-11-15-15 N=26			
							4-5-7-11 N=12			
							10-10-12-17 N=22			
		8.0	10.5+/-							
			Boring Terminated at 8 Feet							

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Rope and Cathead

Advancement Method:
Mud Rotary Drilling

Abandonment Method:
Backfilled with grout

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevations were interpolated from a topographic site plan.

Notes:

WATER LEVEL OBSERVATIONS

▽ *Groundwater encountered at 5' while drilling*

Terracon
8260 Vico Ct Unit B
Sarasota, FL

Boring Started: 4/27/2017 Boring Completed: 4/27/2017

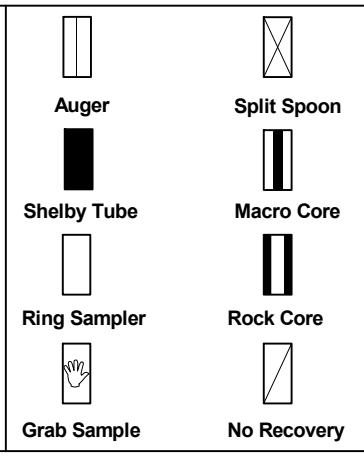
Drill Rig: BR-2500 Driller: SD

Project No.: HC175024

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING



WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

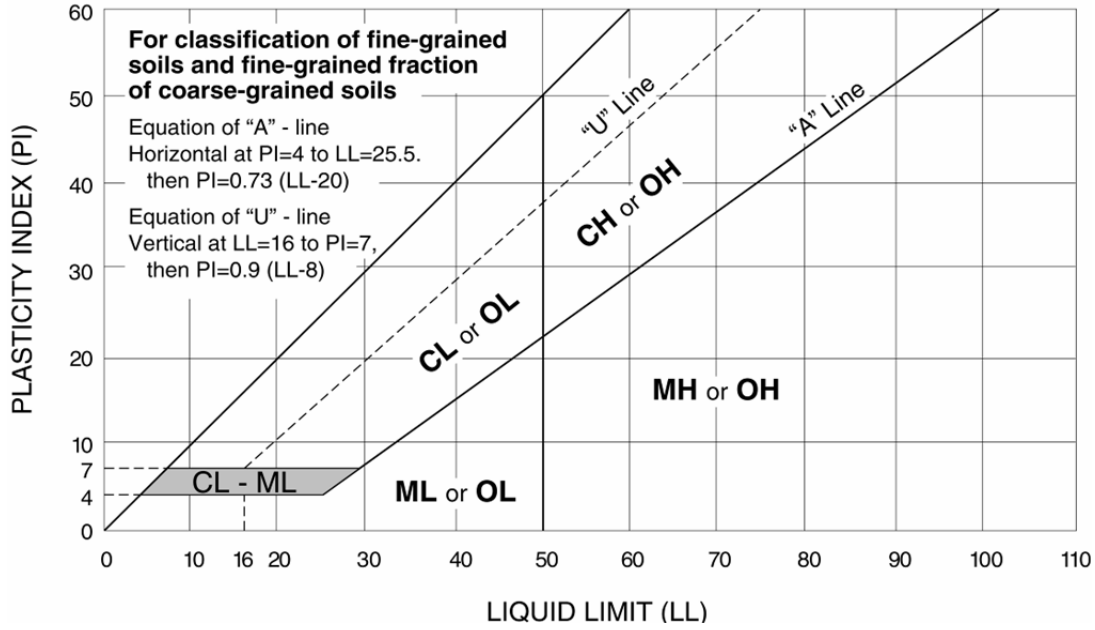
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DESCRIPTION OF ROCK PROPERTIES

WEATHERING	
Term	**Description**
Unweathered	No visible sign of rock material weathering, perhaps slight discoloration on major discontinuity surfaces.
Slightly weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition.
Moderately weathered	Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.
Highly weathered	More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones.
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

STRENGTH OR HARDNESS		
Description	**Field Identification**	**Uniaxial Compressive Strength, PSI (MPa)**
Extremely weak	Indented by thumbnail	40-150 (0.3-1)
Very weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife	150-700 (1-5)
Weak rock	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer	700-4,000 (5-30)
Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer	4,000-7,000 (30-50)
Strong rock	Specimen requires more than one blow of geological hammer to fracture it	7,000-15,000 (50-100)
Very strong	Specimen requires many blows of geological hammer to fracture it	15,000-36,000 (100-250)
Extremely strong	Specimen can only be chipped with geological hammer	>36,000 (>250)

DISCONTINUITY DESCRIPTION			
Fracture Spacing (Joints, Faults, Other Fractures)		**Bedding Spacing (May Include Foliation or Banding)**	
Description	**Spacing**	**Description**	**Spacing**
Extremely close	< ¾ in (<19 mm)	**Laminated**	< ½ in (<12 mm)
Very close	¾ in – 2-1/2 in (19 - 60 mm)	**Very thin**	½ in – 2 in (12 – 50 mm)
Close	2-1/2 in – 8 in (60 – 200 mm)	**Thin**	2 in – 1 ft (50 – 300 mm)
Moderate	8 in – 2 ft (200 – 600 mm)	**Medium**	1 ft – 3 ft (300 – 900 mm)
Wide	2 ft – 6 ft (600 mm – 2.0 m)	**Thick**	3 ft – 10 ft (900 mm – 3 m)
Very Wide	6 ft – 20 ft (2.0 – 6 m)	**Massive**	> 10 ft (3 m)

Discontinuity Orientation (Angle): Measure the angle of discontinuity relative to a plane perpendicular to the longitudinal axis of the core. (For most cases, the core axis is vertical; therefore, the plane perpendicular to the core axis is horizontal.) For example, a horizontal bedding plane would have a 0 degree angle.

ROCK QUALITY DESIGNATION (RQD*)	
Description	**RQD Value (%)**
Very Poor	0 - 25
Poor	25 – 50
Fair	50 – 75
Good	75 – 90
Excellent	90 - 100

*The combined length of all sound and intact core segments equal to or greater than 4 inches in length, expressed as a percentage of the total core run length.

Reference: U.S. Department of Transportation, Federal Highway Administration, Publication No FHWA-NHI-10-034, December 2009 Technical Manual for Design and Construction of Road Tunnels – Civil Elements

APPENDIX K PRICING FORM (REVISED) (BID "A" BASED ON 440 CALENDAR DAYS) IFBC NO. 21-TA003544DJ BASIN 16 GRAVITY SEWER REHABILITATION MANATEE COUNTY PROJECT #6089980					
ITEM	**DESCRIPTION**	**QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**AMOUNT**
I. PRE-CONSTRUCTION					
1	Mobilization	1	LS		
2	Maintenance of Traffic	1	LS		
3	Preconstruction Video	1	LS		
4	Record Drawings	1	LS		
				PRE-CONSTRUCTION SUBTOTAL	
II. PROPOSED IMPROVEMENTS					
5	Erosion and Sediment Control	1	LS		
6	Utility Locates	1	LS		
7	8" HDPE DR 17 IPS Pipe (Pipe Burst)	296	LF		
8	8" Gravity Sewer Point Repair, 0' - 6' Depth	36	EA		
9	8" Gravity Sewer Point Repair, 6' - 8' Depth	1	EA		
10	8" Gravity Sewer Point Repair, 8' - 10' Depth	3	EA		
11	8" Gravity Sewer Point Repair, 10' - 12' Depth	2	EA		
12	8" Gravity Sewer Point Repair, 12' - 14' Depth	2	EA		
13	10" Gravity Sewer Point Repair, 0' - 6' Depth	1	EA		
14	12" Gravity Sewer Point Repair, 8' - 10' Depth	1	EA		
15	8" PVC SDR 26 Pipe, Gravity Sewer Replacement	200	LF		
16	10" PVC SDR 26 Pipe, Gravity Sewer Replacement	100	LF		
17	12" PVC SDR 26 Pipe, Gravity Sewer Replacement	100	LF		
18	Reconnect Sewer Lateral to Gravity Sewer Main	12	EA		
19	Remove and Replace Sewer Lateral	38	EA		
20	Reconnect Gravity Sewer Main to Manhole	15	EA		
21	Manhole Rehabilitation	4	EA		
22	Bypass Pumping	1	LS		
23	Pavement Repair and Road Restoration (Base & Resurface)	1950	SY		
24	Concrete Restoration	480	SY		
25	Remove and Replace Curb	1100	LF		
26	Sodding	1050	SY		
				PROPOSED IMPROVEMENTS SUBTOTAL	
27	Contract Contingency (Section II)	10%		$0.00	
				TOTAL PROJECT COST BID A BASED ON 440 CALENDAR DAYS	

APPENDIX K PRICING FORM (REVISED) (BID "B" BASED ON 500 CALENDAR DAYS) IFBC NO. 21-TA003544DJ BASIN 16 GRAVITY SEWER REHABILITATION MANATEE COUNTY PROJECT #6089980					
ITEM	**DESCRIPTION**	**QUANTITY**	**UNIT OF MEASURE**	**UNIT PRICE**	**AMOUNT**
I. PRE-CONSTRUCTION					
1	Mobilization	1	LS		
2	Maintenance of Traffic	1	LS		
3	Preconstruction Video	1	LS		
4	Record Drawings	1	LS		
				PRE-CONSTRUCTION SUBTOTAL	
II. PROPOSED IMPROVEMENTS					
5	Erosion and Sediment Control	1	LS		
6	Utility Locates	1	LS		
7	8" HDPE DR 17 IPS Pipe (Pipe Burst)	296	LF		
8	8" Gravity Sewer Point Repair, 0' - 6' Depth	36	EA		
9	8" Gravity Sewer Point Repair, 6' - 8' Depth	1	EA		
10	8" Gravity Sewer Point Repair, 8' - 10' Depth	3	EA		
11	8" Gravity Sewer Point Repair, 10' - 12' Depth	2	EA		
12	8" Gravity Sewer Point Repair, 12' - 14' Depth	2	EA		
13	10" Gravity Sewer Point Repair, 0' - 6' Depth	1	EA		
14	12" Gravity Sewer Point Repair, 8' - 10' Depth	1	EA		
15	8" PVC SDR 26 Pipe, Gravity Sewer Replacement	200	LF		
16	10" PVC SDR 26 Pipe, Gravity Sewer Replacement	100	LF		
17	12" PVC SDR 26 Pipe, Gravity Sewer Replacement	100	LF		
18	Reconnect Sewer Lateral to Gravity Sewer Main	12	EA		
19	Remove and Replace Sewer Lateral	38	EA		
20	Reconnect Gravity Sewer Main to Manhole	15	EA		
21	Manhole Rehabilitation	4	EA		
22	Bypass Pumping	1	LS		
23	Pavement Repair and Road Restoration (Base & Resurface)	1950	SY		
24	Concrete Restoration	480	SY		
25	Remove and Replace Curb	1100	LF		
26	Sodding	1050	SY		
				PROPOSED IMPROVEMENTS SUBTOTAL	
27	Contract Contingency (Section II)	10%		$0.00	
				TOTAL PROJECT COST BID B BASED ON 500 CALENDAR DAYS	

Bidder Name: _____

Bidder Signature: _____

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.

B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

1.02 ESTIMATED QUANTITIES

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The County does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

1.03 WORK OUTSIDE AUTHORIZED LIMITS

No payment will be made for work constructed outside the authorized limits of work.

1.04 MEASUREMENT STANDARDS

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.05 AREA MEASUREMENTS

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

1.06 LUMP SUM ITEMS

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

1.07 UNIT PRICE ITEM

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Replacement of unpaved roadways, and shrubbery plots.
7. Cleanup and miscellaneous work.
8. Foundation and borrow materials, except as hereinafter specified.
9. Testing and placing system in operation.
10. Any material and equipment required to be installed and utilized for the tests.
11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
12. Maintaining the existing quality of service during construction.
13. Maintaining or detouring of traffic.
14. Appurtenant work as required for a complete and operable system.
15. Seeding and hydromulching.
16. As-built Record Drawings.

BID ITEM NO. 1 - MOBILIZATION

Measurement and payment for this Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project and the Contractor's mobilization and demobilization costs as shown in the Bid Form. Mobilization includes, but it not limited to: preparation and movement of personnel, equipment, supplies and incidentals such as safety and sanitary supplies/ facilities

Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%).

Partial payments for this Bid Item will be made in accordance with the following schedule:

Percent of Original Contract Amount:	Percent Allowable Payment of Mobilization/Demobilization Bid Item Price:
5	25
10	35
25	45
50	50
75	75
100	100

These payments will be subject to the standard retainage provided in the Contract. Payment of the retainage will be made after completion of the work and demobilization.

BID ITEM NO. 2 – MAINTENANCE OF TRAFFIC

Payment for all work included in this Bid Items will be made at the applicable Contract lump sum bid for the maintenance of traffic during the construction of the proposed improvements. Payment shall represent full compensation for all labor, materials, necessary equipment, coordination, and incidentals necessary to safely complete the work while complying to FDOT Design Standards 600 Series, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 3 – PRECONSTRUCTION VIDEO

Payment for all work included in this Bid Items will be made at the applicable Contract lump sum bid for the preconstruction video of the existing site conditions. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 4 – RECORD DRAWINGS

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for as-built record drawings or any other required certifications to put proposed project into service. All items are subject to approval by the Engineer and the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 5 – EROSION AND SEDIMENT CONTROL

Payment for all work included, but is not limited to, under this Bid Item shall represent full compensation in accordance with the lump sum price bid for erosion and sediment control, including permitting if required, coordination with federal, state and local agencies and all equipment and manpower necessary to comply with necessary agencies.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM NO. 6 – UTILITY LOCATES

Payment for all work included in this Bid Items will be made at the applicable Contract lump sum bid for the location of existing utilities in the project area. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor In accordance with the Contract Documents.

BID ITEM NO. 7 – 8" HDPE DR 17 IPS PIPE (PIPE BURST)

Payment for all work included in these Bid Items shall be made at the applicable Contract unit price bid per the schedule of prices for furnishing and installing the listed 8” HDPE DR 17 pipe by pipe bursting methodology and associated manhole connections as shown on the Contract Drawings and listed on the Bid Form. As part of the testing methods for the HDPE pipe installation, the Contractor shall pull a mandrill through the installed HDPE pipe to verify sound installation. Contractor shall also test the pipe per the requirements in Specification Section 02623.

Measurement and Payment shall be made for the actual length of the listed 8” pipe installed, and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, backfill, compaction, testing, shoring, mud trailer, and equipment required to complete these Bid Items. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement. No additional compensation shall be made for extensive dewatering or any water treatment services or equipment that may be required for

contaminated groundwater.

BID ITEM NO. – GRAVITY SEWER POINT REPAIR

Payment for all work included in these Bid Items shall be made at the applicable Contract unit price bid per the schedule of prices for each point repair (up to 20 linear feet). The repair includes, but is not limited to, removal of the existing sewer line and replacing it with the listed size and length of PVC ASTM D3034 SDR 26 pipe by open cut method and connections as shown on the Contract Drawings and listed on the Bid Form. Connections to existing pipe shall use Fernco Coupling series 5000 RC. Coupling shall have 316 SS clamp band, bolts, and nuts. The shear band shall be min. 304 SS. Testing requirements in Specification Section 02623 for gravity sewer including post-TV inspection, pull a mandrill through the gravity sewer pipe, and final cleaning are required.

Measurement and Payment shall be made for each point repair, and will represent full compensation for all labor, materials, excavation, including rock, dewatering, bedding, shoring, sheeting, backfill, compaction, testing, pipe couplings, landscaping restoration, and equipment required to complete these Bid Items. No additional compensation shall be made for excavation below the bottom of the pipe, for rock removal or bedding and backfill material, or for repair of any trench settlement.

BID ITEM	DESCRIPTION	UNITS
8	8" Gravity Sewer Point Repair, 0' - 6' Depth	EA
9	8" Gravity Sewer Point Repair, 6' - 8' Depth	EA
10	8" Gravity Sewer Point Repair, 8' - 10' Depth	EA
11	8" Gravity Sewer Point Repair, 10' - 12' Depth	EA
12	8" Gravity Sewer Point Repair, 12' - 14' Depth	EA
13	10" Gravity Sewer Point Repair, 0' - 6' Depth	EA
14	12" Gravity Sewer Point Repair, 8' - 10' Depth	EA

BID ITEM - GRAVITY SEWER REPLACEMENT

Payment for all work included under these Bid Item shall be made at the applicable Contract unit price bid per linear foot for removing the existing gravity sewer main, furnishing, and installing the listed diameter sanitary sewer PVC ASTM D3034 SDR 26 mains, as illustrated in the Contract Drawings. This bid items includes any gravity sewer pipe that extends past the 20 linear foot point repair. Connections to existing pipe shall use Fernco Coupling series 5000 RC. Coupling shall have 316 SS clamp band, bolts, and nuts. The shear band shall be min. 304 SS. Testing requirements in Specification Section 02623 for gravity sewer including post-TV inspection and final cleaning are required.

Payment shall represent full compensation for all labor, excavation, including rock as necessary, dewatering, pipe, bedding, materials, backfill, compaction, sheeting, testing, pipe couplings, landscaping restoration, and equipment. Also included shall be the installation of all wyes and/or tees as required for service connections and the recording of their location by station and offset method and all other appurtenances and incidentals required or specified to complete the gravity sewer main. No additional compensation will be made by the County for excavation performed below the bottom of the pipe, for rock removal or materials or for repair of any trench settlement. Class of pipe to be as specified or as listed on the Bid Form.

BID ITEM	DESCRIPTION	UNITS
15	8" PVC SDR 26 Pipe, Gravity Sewer Replacement	LF
16	10" PVC SDR 26 Pipe, Gravity Sewer Replacement	LF
17	12" PVC SDR 26 Pipe, Gravity Sewer Replacement	LF

BID ITEM NO. 18 – RECONNECT SEWER LATERAL TO GRAVITY SEWER MAIN

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid for each lateral reconnection to the gravity main, including Inserta Tee fittings and 316 stainless steel shield couplings for HDPE gravity mains or ASTM D3034 SDR 26 PVC fittings for PVC gravity mains, as shown on the Contract Drawings and listed on the Bid Form. Connections to existing pipe shall use Fernco Coupling series 5000 RC. Shielded coupling shall have 316 SS clamp band, bolts, and nuts. The shear band shall be min. 304 SS. Payment shall represent full compensation for all labor, materials, equipment, ancillary PVC SDR 26 gravity sewer pipe required to make lateral connection, fittings, connections, excavation, including rock, bedding, backfill, compaction, testing and disinfection and equipment required to complete this Bid Item.

BID ITEM NO. 19 – REMOVE AND REPLACE SEWER LATERAL

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid for each lateral removal and replacement up to the right of way line including the installation of a new clean out at the right of way line, and reconnection to the gravity main and existing service lateral, as shown on the Contract Drawings and listed on the Bid Form. Payment shall represent full compensation for all labor, materials, equipment, pipe, fittings, cleanout, connections, excavation, including rock, bedding, backfill, compaction, demolition, and testing required to complete this bid item per Manatee County detail US-13 and US-13B.

BID ITEM NO. 20 – RECONNECT GRAVITY SEWER MAIN TO MANHOLE

Payment for work under this Bid Item shall be made at the Contract unit price bid for each gravity sewer pipe connection to existing manhole, as shown on the Contract Drawings. Payment shall represent full compensation for all labor, materials, equipment and incidental items necessary to complete each manhole connection, ready for approval and service by the County.

No additional compensation will be made by the County for any damage to manhole structures due to the gravity sewer connection. It shall be the responsibility of the contractor to repair the manhole structure connection point. Repair work shall ensure manhole structure is structurally rigid and leakproof. Sealants used shall be flexible and withstand horizontal and vertical movement due to traffic loading, and shall be approved by the County. Jack-in resilient boots conforming to ASTM C923 shall be used. The external take down clamp and its hardware shall be 316 SS. The internal expansion band and its hardware shall be min. 304 SS.

BID ITEM NO. 21 – MANHOLE REHABILITATION

Payment for work under this Bid Item shall be made at the Contract unit price bid for each manhole lining including removing the existing liner if applicable, pressure washing, injection grouting to stop any infiltration, concrete restoration to ensure a smooth surface for coating,

applying a primer and protective liner, repairing dilapidated bench work and inverts, removing and replacing ring and cover with a heavy duty composite ring and cover, and installing 304 SS rainwater insert with County approved products as shown on the Contract Drawings. Payment shall represent full compensation for all labor, materials, equipment and incidental items necessary to complete each manhole rehabilitation, ready for approval and service by the County.

No additional compensation will be made by the County for any damage to manhole structures due to liner installation. It shall be the responsibility of the contractor to repair the manhole structure. Repair work shall ensure manhole structure is structurally rigid and leakproof. Sealants used shall be flexible and withstand horizontal and vertical movement due to traffic loading, and shall be approved by the County.

BID ITEM NO. 22 – BYPASS PUMPING

Payment for all work included in this Bid Item shall represent full compensation in accordance with the lump sum price bid for bypassing the existing manholes and gravity sewer pipe to be rehabilitated or replaced. Payment shall represent full compensation in accordance with the lump sum price bid for all labor, equipment, pumps, piping, fittings, and temporary line stops required to bypass the existing manholes and gravity sewer pipe in order to complete the proposed improvements while maintaining sewer flows.

Measurement for periodic payments of this lump sum bid item will be in accordance with the approved Schedule of Values, to be supplied by the Contractor in accordance with the Contract Documents.

BID ITEM 23 – PAVEMENT REPAIR AND ROAD RESTORATION (BASE & RESURFACE)

Payment for all work included in these Bid Items will be made at the applicable Contract unit price listed below for soil, crushed concrete, and asphaltic concrete for the pavement restoration as listed on the Bid Form and contract documents. Payment shall represent full compensation for all labor, materials and equipment for cutting the edges of existing pavement, compacting subgrade, furnishing and installing the crushed concrete, asphaltic concrete and all incidentals necessary to complete the restoration as shown on the Contract Drawings and included in the Specifications, all ready for approval and acceptance by the County.

BID ITEM NO. 24 – CONCRETE RESTORATION

Payment for all work included in this Bid Item shall be made at the applicable Contract unit price bid for removal and replacement of the existing concrete sidewalk or driveway to the current condition or better, as listed on the Bid Form. Payment shall represent full compensation for all labor, materials and equipment for cutting the edges of existing sidewalk or driveway, compacting subgrade, concrete and all incidentals necessary to complete the restoration as shown on the Contract Drawings and included in the Specifications, all ready for approval and acceptance by the County.

BID ITEM NO. 25 – REMOVE AND REPLACE CURB

Payment for all work included in this Bid Item will be made at the applicable Contract unit price bid per linear foot for removal of existing curbing and for furnishing and placing the curb as shown on the Drawings and listed on the Bid Form. Measurement will be per actual number of linear feet of curbing installed. Payment shall represent full compensation for removal of existing curb and all labor, material and equipment for compacting subgrade, forming, furnishing, placing the concrete, and finishing as specified and all incidentals necessary for completion of this Bid Item, ready for approval and acceptance by the County.

BID ITEM NO. 26 – SODDING

Payment for all work included in these Bid Items will be made at the applicable Contract unit price bid per square yard for furnishing and installing sodding in green areas impacted by construction as shown in the Contract Drawings. Payment shall represent full compensation for all labor, materials, necessary equipment, and incidentals necessary to complete the work, ready for approval and acceptance by the County.

BID ITEM NO. 27 – CONTRACT CONTINGENCY

Payment for all work under this Bid Item shall be made only at the County's discretion. This Bid Item shall not exceed 10% of the Bidders Total Base Bid. The Bidder shall calculate and enter a dollar amount for this Bid Item.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION