Indian River County Purchasing Division
purchasing@ircgov.com

ADDENDUM NO. 3

Issue Date: January 19, 2021

Project Name: North County Water & Sewer System Phase 2

Bid Number: 2021019

Bid Opening Date: 2:00 PM **January 29, 2021**

This addendum is being released to answer questions received to date, provide the Soils Report, and modify bid documents. The information and documents contained in this addendum are hereby incorporated in the invitation to bid. **This addendum must be acknowledged where indicated on the bid form, or the bid will be declared non-responsive.**

Modifications to Bid Documents:

PLANS:

REPLACE plan sheet 1 with attached Sheet 1-Addendum 3

- Revised plan sheet to correct date of Addendum 2 Plan Revisions for future reference.

REPLACE plan sheet 6 with attached Sheet 6-Addendum 3

- Revised plan sheet to clarify existing pipe type(s).

REPLACE plan sheet 16 with attached Sheet 16-Addendum 3

- Revised plan sheet to correct graphical errors.

REPLACE plan sheet 19 with attached Sheet 19-Addendum 3

- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ STA. 3+56 on 80th Avenue and replace with 35 lineal feet of 8" D.I.P. Water Main with concrete utility encasement.
- Revised plan sheet to include approximately 300 lineal feet of existing 8" PVC Water Main vertical deflection from 80th Avenue STA. -0+10 to STA. 2+90.

REPLACE plan sheet 19A with attached Sheet 19A-Addendum 3

- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ STA. 3+56 on 80th Avenue and replace with 35 lineal feet of 8" D.I.P. Water Main with concrete utility encasement.
- Revised plan sheet to include approximately 300 lineal feet of existing 8" PVC Water Main vertical deflection from 80th Avenue STA. -0+10 to STA. 2+90.

REPLACE plan sheet 20 with attached Sheet 20-Addendum 3

- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ 80th Avenue STA. 3+56 and replace with 35 lineal feet of 8" D.I.P. Water Main with concrete utility encasement.
- Revised plan sheet to include approximately 300 lineal feet of existing 8" PVC Water Main vertical deflection from 80th Avenue STA. 0-10 to STA. 2+90.
- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ 80th Avenue STA. 12+00 and replace with 48 lineal feet of 8" D.I.P. Water Main with concrete utility encasement.

REPLACE plan sheet 22 with attached Sheet 22-Addendum 3

- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ 80th Avenue STA. 12+00 and replace with 48 lineal feet of 8" D.I.P. Water Main with concrete utility encasement.
- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ 142nd Street STA. 1+00 to STA. 2+80 and replace with 8" PVC Water Main to be installed via open-cut.
- Revised plan sheet to remove 4" HDPE Force Main Directional Bore @ 142nd Street STA. 1+50 to STA. 3+80 and replace with 4" PVC Force Main to be installed via open-cut.
- Revised 2.5" Force Main Service Stub-Outs with 4" Tee with 4" Gate Valve and 2" Service per IRCDUS Standard Detail S-22.

REPLACE plan sheet 23 with attached Sheet 23-Addendum 3

- Revised plan sheet to remove 8" HDPE Water Main Directional Bore @ 142nd Street STA. 1+00 to STA. 2+80 and replace with 8" PVC Water Main to be installed via open-cut.

REPLACE plan sheet 24 with attached Sheet 24-Addendum 3

- Revised plan sheet to remove 4" HDPE Force Main Directional Bore along 141st Street and replace with 4" PVC Force Main to be installed via open-cut.
- Revised 2.5" Force Main Service Stub-Outs with 4" Tee with 4" Gate Valve and 2" Service per IRCDUS Standard Detail S-22.

REPLACE plan sheet 25 with attached Sheet 25-Addendum 3

- Revised plan sheet to update "Notes" section to correct plan sheet references.

REPLACE plan sheet 30A with attached Sheet 30A-Addendum 3

- Revised plan sheet to add Detail B-5, IRCDUS Standard Detail S-22 'Force Main Service for Typical Private Pumping Station'.

REPLACE plan sheet 31 with attached Sheet 31-Addendum 3

- Revised plan sheet to correct Lift Station material specifications.

REPLACE plan sheet 35 with attached Sheet 35-Addendum 3

- Revised plan sheet to add Detail A-5, 'Utility Encasement'.

BID FORM:

REPLACE Bid Form Sheet 00300-4 with attached Sheet 00300-4-Addendum 3
Revised sheet as follows:

- Revise Line Item 11 'Quantity'
- Revise Line Item 12 'Quantity'

- Remove Line Item 14 per Plan Change
- Remove Line Item 15 per Plan Change
- Revise Line Item 16 'Item Description'

REPLACE Bid Form Sheet 00300-5 with attached Sheet 00300-5-Addendum 3

Revised sheet as follows:

- Add Line Item 29A – Remove & Replace (Open Cut) – Pavement Concrete 6" Thick
- Revise Line Item 30 'Quantity'
- Add Line Item 34A – 8" D.I.P Water Main (w/ Testing, Chlorination, & Utility Encasement)
- Add Line Item 44A – Ex. 8" PVC Water Main Adjustment
- Remove Line Item 56 per Plan Change
- Remove Line Item 57 per Plan Change

REPLACE Bid Form Sheet 00300-6 with attached Sheet 00300-6-Addendum 3

Revised sheet as follows:

- Revise Line Item 68 'Quantity'
- Add Line Item 68A – Remove & Replace (Open Cut) – Paver Driveway

REPLACE Bid Form Sheet 00300-7 with attached Sheet 00300-7-Addendum 3

- Revised sheet per revisions to previous Bid Form sheets.

Attachments:

Soils Report

Questions and Answers

1. The location of the lift station does not appear to have any available electrical power on site, who is responsible for working with FPL to secure a sufficient power drop for this lift station, the county or the contractor?
The Contractor is responsible for providing electrical service from FPL to the pumping station site. Service shall be 120/240 V, 3 PH, 100 Amp, Open Delta. Cost shall be included in the Lump Sum Bid for Item No. 10 'Lift Station "A"'.

2. Bid Items 14 & 15 call for 4" PVC Force Main Directional Bore w/MJ Fittings, but on Sheets 22 and 24 it says "Const. 4" FM under driveways via directional bore using HDPE…" Are we to use PVC or HDPE for the material?
Bid items 14 & 15 have been removed from the Bid Form and the proposed borings have been removed from the respective Plan sheets. These crossings have been changed from directional bores to open-cut crossings. The pipe type has been clarified on the Plan Sheet(s).

3. Does the lift station have to be lined, or will a water based epoxy suffice as the plans call out?
Wet well must be lined. GML (Green Monster Liner) or approved equal may be used as alternative.

4. At plan sheet 20 and STA 3+50 it calls for an 8" bore to go under the proposed sewer. 30 L.F. is not enough to get 6.5' deep. Furthermore, the HDPE ties into a wet tap limiting depth even more. This will need to be a deflection or the quantity will need to be increased.

The referenced directional bore has been removed from the Bid Form and the respective Plan sheet(s). This crossing has been revised to an 8" D.I.P. crossing with concrete utility encasement.

5. Same as question #2 Sheet 20 STA 12+00
The referenced directional bore has been removed from the Bid Form and the respective Plan sheet(s). This crossing has been revised to an 8" D.I.P. crossing with concrete utility encasement.

6. What material is the existing W.M. on this job? Sizes are called out, but not types.
The existing water main material has been clarified on the necessary Plan Sheet(s).

7. Are there designated staging areas permitted for this job, where ROW storage can't be utilized? If so, where?
The County will assist in identifying County-owned properties that may be used as lay-down areas. The Contractor will be responsible for lay-down areas.

8. The 4" F.M. calls for a 2.5" stub out in various places. 2.5" is an odd size and would require tees cut into the C-900 and the HDPE. I am requesting that this be changed to 4"X2" saddle w/ a corp, 2" poly and a 2" curb stop?
The proposed force main stub-outs have been revised per County Standard Detail S-22. The respective Plan Sheet(s) have been revised accordingly.

9. Sheet 30A calls out the specs for lining of the manholes, but the supposed reference on the plan sheets can't be found. I do see where the F.M. dumps into the manhole, but the (5) downstream manholes don't mention it. If these manholes need to be lined would the existing manhole at 140th street and STA 3+75 have to be lined as well? Please call out manhole numbers for clarity.
Manholes requiring lining are specified on the Plan Sheet(s). Attention is directed to the "Notes" section typically located at the bottom left of the Plan Sheet(s).

10. On sheet 31, plan view of the pump station, the note area indicates that all stainless steel to be 304, IRC standards typically require 316 SS. Please verify grade of SS required at this particular lift station.
All stainless steel to be 316. The Plans have been revised accordingly.

11. Please confirm that an HDPE or Fiberglass liner is required on the inside surface of the wet well. The note on the wet well elevation appears to indicate 2 coats of water based epoxy would be an acceptable interior liner material (in lieu of HPDE/Fiberglass).
Wet well must be lined. GML (Green Monster Liner) or approved equal may be used as alternative.

12. Kindly advise if we can use our Surety's AIA form or do you have a form included as it states on Section 00410. AIA Document A310 Bid Bond? There is no form attached to the package.
Yes; Bidders' Surety's forms are acceptable.

13. Can you provide clarity on items 26-28 as well as 70, 72-73 for the restorations? How did you arrive at the square yardage? Have done it multiple ways and cannot get the areas to match up. What is built into these line items? Is there a line item for the dirt road restoration?
Bid to stated quantities.

14. Upon review of addendum #1, it was stated a soil boring report (& recommendation?) would be posted for the bidders to review. Can you advise when this might be available for download?
Soils Report attached.

15. Which manholes are to get lined with GML coating? The specs say to apply liner to the five (5) upstream and five (5) downstream manholes from the pump station. I can't see from the plans which manholes these are.
Manholes requiring lining are specified on the Plan Sheet(s). Attention is directed to the "Notes" section typically located at the bottom left of the Plan Sheet(s).

*****END OF ADDENDUM NO. 3*****

SCHEDULE OF BID ITEMS

Project: Indian River County North County Water & Sewer System Phase 2
Indian River County Bid No. 2021019; UCP #3556

Item No.	Item Description	Quantity	Unit of Measure	Unit Price	Total Price
1	Standard Manholes 0'-6'	33	EA		
2	Standard Manholes 6'-8'	12	EA		
3	Standard Manholes 8'-10'	5	EA		
4	Standard Manholes 10'-12'	2	EA		
5	Standard Manholes 12'-14'	1	EA		
6	Core & Connect to existing Manhole 0'-6'	1	EA		
7	Core & Connect to Existing Manhole 8'-10'	1	EA		
8	Core & Connect to Existing Manhole 10'-12'	1	EA		
9	Reroute Existing Sewer Laterals	1	EA		
10	Lift Station "A"	1	LS		
11	4" Force Main (w/ Fittings & Testing)	~~1,193~~ 1,684	LF		
12	4" Gate Valve w/ Valve Box & Concrete Pad	~~1~~ 2	EA		
13	6" Ø HDPE Force Main Directional Bore w/ M.J. Fittings - Roseland Road STA. 3+00	44	LF		
~~14~~	~~4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 142nd Street STA. 0+77 to STA. 4+12~~	~~335~~	~~LF~~		
~~15~~	~~4" Ø PVC Force Main Directional Bore w/ M.J. Fittings - 141st Street STA. 2+80 to STA. 4+36~~	~~156~~	~~LF~~		
16	2~~.5~~" Force Main Service Stubout w/ 4" Tee & 4" Gate Valve, Box, Pad, & Cap	14	EA		
17	4" x 8" Wye	2	EA		
18	Sanitary Manual Air Release Valve	1	EA		
19	8" PVC Sewer 0'-6'	6,910	LF		
20	8" PVC Sewer 6'-8'	4,423	LF		
21	8" PVC Sewer 8'-10'	1,895	LF		
22	8" PVC Sewer 10'-12'	529	LF		
23	8" PVC Sewer 12'-14'	457	LF		
24	6" Single Lateral w/ Cleanout	166	EA		
25	6" Double Lateral w/ Cleanout	10	EA		
26	Remove & Replace (Open Cut) – Pavement Asphalt 2" Thick	7,462	SY		
27	Remove & Replace (Open Cut) – 6" Base Rock	1,492	SY		
28	Remove & Replace (Open Cut) – 8" Stabilized Subgrade	4,225	SY		
29	Curb Replacement – Type "F" Curb & Gutter	40	LF		

29A	Remove & Replace (Open Cut) – Pavement Concrete 6" Thick	105	SY		
30	Grassing – Sod (Bahia)	~~1,760~~ 2,090	SY		
31	Grassing – Seed & Mulch	267	SY		
				SEWER CONSTRUCTION COST SUBTOTAL:	

32	4" PVC Water Main (w/ Testing & Chlorination)	109	LF		
33	4" Gate Valve w/ Valve Box & Conc. Pad	1	EA		
34	6" PVC Water Main (w/ Testing & Chlorination)	14,509	LF		
34A	6" D.I.P. Water Main (w/ Testing, Chlorination, & Utility Encasement)	72	LF		
35	6" Gate Valve w/ Valve Box & Conc. Pad	27	EA		
36	6" 90° Restrained Bend	14	EA		
37	6" 45° Restrained Bend	12	EA		
38	6" 22.5° Restrained Bend	3	EA		
39	6" 11.25° Restrained Bend	3	EA		
40	6" x 6" x 2" Restrained Tee	1	EA		
41	6" x 6" x 6" Restrained Tee	9	EA		
42	6" x 6" x 8" Restrained Tee	1	EA		
43	6" Restrained Cross	1	EA		
44	8" PVC Water Main (w/ Testing & Chlorination)	2,150	LF		
44A	Ex. 8" PVC Water Main Adjustment	324	LF		
45	8" Gate Valve w/ Valve Box & Conc. Pad	6	EA		
46	8" 90° Restrained Bend	2	EA		
47	8" 45° Restrained Bend	3	EA		
48	6" x 4" Restrained Reducer	1	EA		
49	8" x 6" Restrained Reducer	3	EA		
50	Connect to Existing Water Main	6	EA		
51	Connect to Existing 6" Gate Valve	4	EA		
52	Connect to Existing 8" Gate Valve	4	EA		
53	6" x 8" Wet Tap w/ Tapping Valve & Sleeve	1	EA		
54	6" x 12" Wet Tap w/ Tapping Valve & Sleeve	4	EA		
55	Temporary Jumper	13	EA		
~~56~~	~~8" HDPE Directional Bore w/ M.J. Fittings - 80th ST (STA. 3+56)~~	~~30~~	~~LF~~		
~~57~~	~~8" HDPE Directional Bore w/ M.J. Fittings - 80th ST (STA. 12+00)~~	~~42~~	~~LF~~		
58	LF 8" HDPE Directional Bore w/ M.J. Fittings - 81st AVE (STA. 3+70 to STA. 5+10)	140	LF		
59	8" HDPE Directional Bore w/ M.J. Fittings - 140th ST (STA. -0+15 to STA 0+40)	55	LF		

60	10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 0+30 to 3+50)	320	LF		
61	10" HDPE Directional Bore w/ M.J. Fittings - Bay ST (STA. 3+57)	33	LF		
62	Fire Hydrant Assembly	21	EA		
63	Bacteriological Sample Points	31	EA		
64	Blind Flange w/ 2" Temporary Blow-off	4	EA		
65	Manual Air Release Valve	4	EA		
66	Single Water Service w/ Meter Box	113	EA		
67	Double Water Service w/ Meter Box	39	EA		
68	Remove & Replace (Open Cut) – Pavement Concrete 6" Thick	~~259~~ 275	SY		
68A	Remove & Replace (Open Cut) – Paver Driveway	15	SY		
69	Remove & Replace (Open Cut) – Sidewalk Concrete 6" Thick	14	SY		
70	Remove & Replace (Open Cut) – Pavement Asphalt 2" Thick	176	SY		
71	Dirt Driveway Apron Replacement – Pavement Asphalt 1" Thick	390	SY		
72	Remove & Replace – (Open Cut) 6" Base Rock	176	SY		
73	Remove & Replace – (Open Cut) 8" Stabilized Subgrade	503	SY		
74	Curb Replacement (Type "F" Curb & Gutter)	72	LF		
75	Grassing - Sod (Bahia)	6,997	SY		
76	Grassing - Seed & Mulch	2,068	SY		
	WATER CONSTRUCTION COST SUBTOTAL:				
77	Clearing / Grubbing / Tree Removal (Sewer & Water)	1	LS		
78	Erosion & Sediment Control (Sewer & Water)	1	LS		
79	Stake-out / As-built Survey (Sewer & Water)	1	LS		
80	Public Construction Bond	1	LS		
	CONSTRUCTION COST – SUBTOTAL "A": (ITEMS #1 THROUGH & INCLUDING #80)				
81	Mobilization, Demobilization, MOT (See Section 01025)	1	LS		
	CONSTRUCTION COST plus MOBILIZATION – SUBTOTAL "B":				
82	Force Account	1	LS	$ 440,000.00	$ 440,000.00
	BASIS OF AWARD – TOTAL LUMP SUM CONTRACT AMOUNT: (TOTAL AMOUNT OF ITEMS #1 THROUGH & INCLUDING #82)				

TOTAL PROJECT BID AMOUNT (IN WORDS) _____

_____

Note: The Basis for Award shall be the lowest correct, responsive, responsible "Total Lump Sum Contract Amount" price bid.

*The unit price bid for furnishing and installation of the sewer and water mains and appurtenances shall include, but is not limited to: utilities exploration/excavation; coordination with any permitting agencies (i.e., NPDES permit); storm water permit; audio-visual documentation; land clearing/tree removal necessary for utility installation; trenching, removing, disposing of and replacing unsuitable (i.e., plastic or organic) material; dewatering; sheeting/shoring of the excavation; installation of pipe; driveway bores; structures; all appurtenances; trace wires; sleeves; excavating existing pipe; restraining existing pipelines and fittings; density testing; filling trench; soil compaction; filling; chlorinating; bacteriological sampling & testing; pressure testing; flushing; Maintenance of Traffic (MOT); irrigation repair; removal and disposition of surface over trench; RESTORATION OF ALL landscaping damaged or destroyed; removal and resetting or replacing any existing guard rail necessary for utility installation; and Trench Safety Act Compliance. The unit price(s) bid will also include restoration of any existing utilities, drainage facilities, signs, mailboxes, driveways, etc. not listed as bid items that have been disturbed or damaged by the construction. All materials and installation shall be per Indian River County Utility Standards and Specifications dated May, 2019 or latest revision unless otherwise noted in the bid documents. Contractor will be provided with a copy of construction plans in AutoCADD format to use for use in preparing Record Drawings. The unit price(s) bid will include any and all labor & materials not listed as a bid item or stated herein necessary to furnish the County a complete and working sewer and water system as indicated on the Construction Plans and Bid Documents.

The undersigned hereby certifies that they have read and understand the contents of this solicitation and agrees to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to: 1) alter any resulting contract; or 2) request additional compensation.

Respectfully Submitted,

_____	_____
Name of Firm	Address
_____	_____
Authorized Signature	City, State, Zip Code
_____	_____
Name & Title	Phone
_____	
Date Signed	(Corporate Seal)

E-mail: _____

Business Tax Receipt No. _____

FEIN Number: _____

END OF SECTION

Headquarters:
11345 U.S. Highway 1
Sebastian, FL. 32958
Orlando:
723 Progress Way
Sanford, FL. 32771

KSM ENGINEERING AND TESTING

Mailing:
P.O. Box 78-1377
Sebastian, FL. 32978
Phone: 772-589-0712
C.A. # 5693
KSMengineering.net

January 4, 2021

Sean Green, EI
Masteller & Moler, Inc.
1655 27th Street, Suite 2
Vero Beach, FL 32960

Re: North County Water & Sewer System – Phase 2
Roseland Road
Indian River County, Florida
KSM Project #: 206780-b

Dear Mr. Green:

A visit was made to the above referenced site to determine the subsurface soil conditions for the proposed extension to the existing potable water and sewer systems north of Roseland Road in the city of Sebastian.

A. The scope of our study consisted of the following:

1. Performed Standard Penetration Test (SPT) borings in the proposed construction area to estimate the subsoil relative density and determine the subsurface material.
2. Measured the groundwater level.
3. Evaluated the existing soil conditions with respect to the proposed construction.
4. Prepared this report to document our findings.

B. Site Investigation:

The site investigation program consisted of performing twelve (12) Standard Penetration Test (SPT) borings in the proposed construction area. The SPT borings were terminated at depths of 10 to 25 feet below grade.

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The SPT boring was completed in accordance with procedures described in ASTM D-1586. A standard 1.5 inch I.D., 2 inch O.D. split-spoon sampler is driven into the soil by successive blows of a 140 pound hammer freely falling 30 inches. The number of blows required to drive the sampler 1 foot, after seating 6 in., is designated the Penetration Resistance, or "N" value. At regular intervals the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. Also, the groundwater table was allowed to stabilize and the depth of the groundwater elevation recorded from existing grade.

C. Engineering Evaluation and Conclusions:

Based on the information obtained from this site investigation we are pleased to offer the following evaluation:

The boring log indicates the subsurface soils consist of fine-grained sand and fine-grained slightly silty sand. No “muck” or other unsuitable soils were found in the test boring. “N” values recorded during the boring operation indicate the existing soil density is generally loose and becomes medium dense below a depth of 5 to 8 feet. In the area of the proposed structure (B-01), the soils were very loose from the surface to a depth of 4 feet. From 4 to 6 feet the soils become firm and then they were loose again from 6 to approximately 17 feet. At 17 feet below grade the soils were medium dense to firm. Please refer to the soil boring logs for more specific information relative to the soil description.

It is our understanding that loose sandy soils can be difficult for directional boring installation. Therefore, the contractor needs to have the equipment, knowledge and experience for Directional Boring through loose sandy soils.

During excavation for the structure and water/sewer lines, any soft or organic soils (if encountered), should be removed within 2 feet from the bottom of the pipe or structure and replaced with compacted clean sands.

Excavations should be sloped as necessary to prevent slope failure and to allow backfilling. As a minimum, temporary excavations below 4-foot depth should be sloped in accordance with OSHA regulations. Where lateral confinement will not permit slopes to be laid back, the excavation should be shored in accordance with OSHA requirements. During excavation, excavated material should not be stockpiled at the top of the slope within a horizontal distance equal to the excavation depth. Provisions for maintaining workman safety within excavations is the sole responsibility of the contractor.

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Backfill around the sides of the pipe and over the pipe should consist of clean sand (free of clay, rubble, organics and debris) with less than 10% passing the #200 sieve and placed in compacted lifts. Backfill material around the structure should consist of clean sand containing less than 5% fines passing the #200 sieve to the level of the water table and 10% fines passing the #200 sieve after the water table elevation.

A density of at least 95% of its modified dry Proctor value (ASTM D1557) is recommended for all fill materials in unpaved areas and 98% of its modified dry Proctor value in pavement areas.

D. Water Table:

The following table indicates the measured water table along with our estimated normal wet season water table and normal dry season water table for the test location:

TEST LOCATION (See Location Plan)	MEASURED WATER TABLE	ESTIMATED WET SEASON WATER TABLE	ESTIMATED DRY SEASON WATER TABLE
B-01	40" Below Grade	28" Below Grade	64" Below Grade
B-02	87" Below Grade	75" Below Grade	111" Below Grade
B-03	76" Below Grade	64" Below Grade	100" Below Grade
B-04	90" Below Grade	78" Below Grade	114" Below Grade
B-05	100" Below Grade	88" Below Grade	124" Below Grade
B-06	44" Below Grade	32" Below Grade	68" Below Grade
B-07	65" Below Grade	53" Below Grade	89" Below Grade
B-08	77" Below Grade	65" Below Grade	101" Below Grade
B-09	57" Below Grade	45" Below Grade	81" Below Grade
B-10	Not Encountered	Up to 108" Below Grade	
B-11	Not Encountered	"	
B-12	Not Encountered	"	

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Please note that the water table was not encountered to a depth of 10 feet in borings B-10, B-11 and B-12. Based on the water table elevations encountered at the other boring locations, we estimate that the maximum seasonal high water table in these locations will not exceed 108" below grade.

E. Lift Station:

In the area of the proposed lift station, an allowable bearing capacity of 2,000 pounds per square foot can be used at the bottom of the structure. No rock or other very hard material was encountered in the area of the proposed lift station structure. Backfill material around the structure should consist of clean sand containing less than 5% fines passing the #200 sieve to the level of the water table and 10% fines passing the #200 sieve after the water table elevation. All lifts should be compacted and tested per municipal regulations.

F. Closure:

This report has been prepared in accordance with generally accepted soil and engineering practices based on the results of the test boring.

We are pleased to be of assistance to you on this phase of your project. When we may be of further service to you or should you have any questions, please feel free to contact the office.

Respectfully,

JULIE KELLER
LICENSE
No. 68366
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been electronically signed and sealed by Julie Keller, P.E. Fl. Lic. 68366 on the date stated directly to the right using a digital signature.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Digitally signed by Julie Keller
Date: 2021.01.07 15:26:38 -05'00'

Julie E. Keller, P.E.
President
P.E. #68366

JEK/cv

E-mail to: sean.green@mastellermoler.com

KSM Engineering & Testing
P.O. Box 78-1377
Sebastian, FL 32978
Tel: (772)-589-0712
Fax: (772)-589-6469

BORING NUMBER B-01

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 COMPLETED 12/30/20
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ AT TIME OF DRILLING 3.33 ft
LOGGED BY SF/SR CHECKED BY JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Gray Sand with Traces of Root					
		Light Gray Sand	SS		2-2-1 (3)		
		Brown Sand ▽	SS		2-2-3 (5)		
5		Light Gray Sand, Slightly Silty	SS		3-4-3 (7)		
			SS		3-3-2 (5)		
		Brown Sand, Slightly Silty with Some Roots	SS		3-2-1 (3)		
10							
		Dark Brown Sand, Slightly Silty	SS		3-2-2 (4)		
15							
		Brown Sand, Slightly Silty					
20			SS		4-5-8 (13)		
25			SS		3-3-2 (5)		

Bottom of borehole at 25.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

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BORING NUMBER B-02

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ **AT TIME OF DRILLING** 7.25 ft
LOGGED BY DP/SH **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Clay					
		Light Gray Sand	SS		4-5-4 (9)		
			SS		2-2-1 (3)		
5			SS		2-3-3 (6)		
		▽	SS		3-3-3 (6)		
10			SS		3-4-4 (8)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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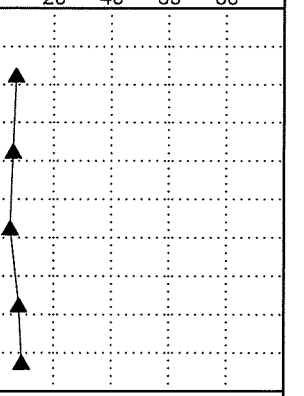
BORING NUMBER B-03

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ **AT TIME OF DRILLING** 6.33 ft
LOGGED BY DP/SH **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Shell					
			SS		3-4-3 (7)		
		Gray Sand					
		Light Gray Sand	SS		3-3-3 (6)		
5			SS		2-3-2 (5)		
		▽	SS		3-4-4 (8)		
10		Brown Sand	SS		4-4-5 (9)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



Bottom of borehole at 10.0 feet.

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BORING NUMBER B-04

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ **AT TIME OF DRILLING** 7.50 ft
LOGGED BY DP/SH **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Clay and Shell Fragments					
		Light Gray Sand	SS		3-3-3 (6)		
			SS		3-2-2 (4)		
5			SS		3-3-3 (6)		
		▽ Brown Sand	SS		3-4-4 (8)		
10			SS		5-5-4 (9)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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BORING NUMBER B-05

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ **AT TIME OF DRILLING** 8.33 ft
LOGGED BY DP/SH **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Clay					
		Light Gray Sand	SS		3-3-3 (6)		
			SS		2-3-2 (5)		
5			SS		2-3-3 (6)		
		▽ Dark Brown Sand	SS		3-3-4 (7)		
10			SS		6-8-9 (17)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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BORING NUMBER B-06

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 COMPLETED 12/30/20
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ AT TIME OF DRILLING 3.67 ft
LOGGED BY DP/SH CHECKED BY JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand					
		Light Gray Sand	SS		2-3-4 (7)		
		▽	SS		3-4-4 (8)		
5			SS		4-5-6 (11)		
		Brown Sand	SS		4-5-7 (12)		
10			SS		6-8-8 (16)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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BORING NUMBER B-07

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ **AT TIME OF DRILLING** 5.42 ft
LOGGED BY DP/SH **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Light Brown Sand with Some Shell Fragments	SS		4-5-5 (10)		
		Light Gray Sand	SS		5-5-4 (9)		
5		▽	SS		4-3-3 (6)		
			SS		4-5-5 (10)		
		Dark Brown Sand	SS		5-7-9 (16)		
10							

Bottom of borehole at 10.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

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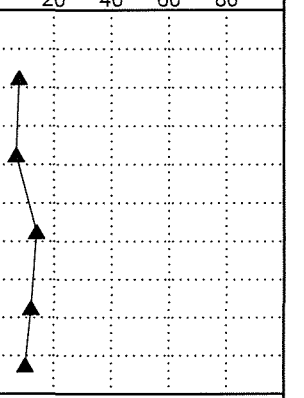
BORING NUMBER B-08

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 COMPLETED 12/30/20
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ AT TIME OF DRILLING 6.42 ft
LOGGED BY MS/JP CHECKED BY JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Dark Gray Sand with Traces of Roots					
		Light Brown Sand	SS		3-4-4 (8)		
		Gray Sand	SS		4-4-3 (7)		
5			SS		5-7-7 (14)		
		▽ Dark Gray Sand	SS		5-6-6 (12)		
		Gray Sand	SS		4-5-5 (10)		
10							

Bottom of borehole at 10.0 feet.

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



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BORING NUMBER B-09

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 COMPLETED 12/30/20
GROUND ELEVATION ____ HOLE SIZE inches
DRILLING CONTRACTOR ____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
▽ AT TIME OF DRILLING 4.75 ft
LOGGED BY MS/JP CHECKED BY JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Roots					
		Gray Sand	SS		3-4-5 (9)		
			SS		6-7-8 (15)		
5		▽					
		Dark Gray Sand	SS		5-5-4 (9)		
		Gray Sand	SS		3-4-4 (8)		
10			SS		4-4-5 (9)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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BORING NUMBER B-10

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
AT TIME OF DRILLING --- N/A
LOGGED BY MS/JP **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Gray Sand with Traces of Roots					
		Light Gray Sand	SS		3-2-2 (4)		
			SS		2-3-3 (6)		
5			SS		3-3-4 (7)		
			SS		3-4-3 (7)		
10		Brown Sand	SS		4-4-5 (9)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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BORING NUMBER B-11

CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
AT TIME OF DRILLING --- N/A
LOGGED BY MS/JP **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Dark Gray Sand with Traces of Roots					
		Light Gray Sand	SS		3-3-4 (7)		
			SS		2-3-3 (6)		
5			SS		3-3-4 (7)		
			SS		3-4-5 (9)		
		Brown Sand	SS		3-4-4 (8)		
10							

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 10.0 feet.

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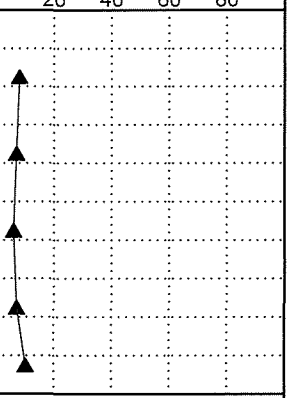
BORING NUMBER B-12

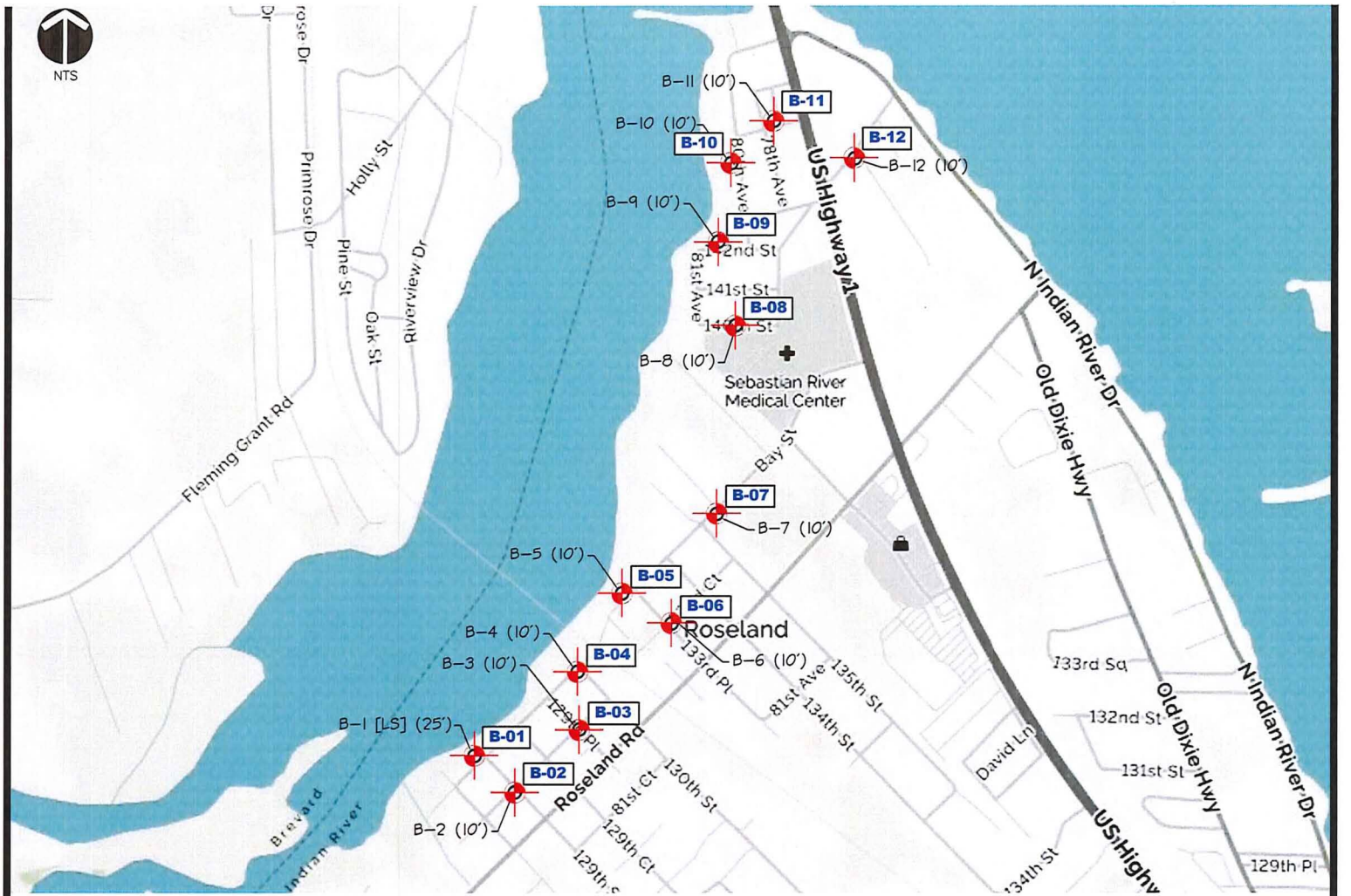
CLIENT Masteller & Moler, Inc.
PROJECT NAME North County Water & Sewer System - Phase 2
PROJECT NUMBER 206780-b
PROJECT LOCATION Indian River County, Florida
DATE STARTED 12/30/20 **COMPLETED** 12/30/20
GROUND ELEVATION _____ **HOLE SIZE** inches
DRILLING CONTRACTOR _____
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon Sample
AT TIME OF DRILLING --- N/A
LOGGED BY MS/JP **CHECKED BY** JEK
AT END OF DRILLING ---
NOTES See Attached Location Plan
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)
0		Brown Sand with Traces of Roots					
		Light Brown Sand	SS		3-4-4 (8)		
		Yellowish Brown Sand	SS		3-4-3 (7)		
5			SS		2-3-3 (6)		
		Orangish Brown Sand	SS		3-3-4 (7)		
10			SS		4-5-5 (10)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80



Bottom of borehole at 10.0 feet.



LOCATION OF SOIL BORINGS

PROJECT: North County Water & Sewer System - Phase 2, Indian River County, Florida

SHEET 1 OF 1 PERMIT #: PROJECT #: 206780-b	KSM ENGINEERING AND TESTING	DRAWN BY: C.V. DESIGNED BY: J.K. DATE: 20210104 SCALE: NONE	