



MANATEE COUNTY FLORIDA

October 23, 2012

TO: All Interested Bidders
SUBJECT: Invitation for Bids #13-0003CD
Country Meadows Reclaim Waterline SWFWMD Project #12C00000052
(MC Project #404-6082090)

ADDENDUM #1

Bidders are hereby notified that this Addendum shall be acknowledged on page 00300-1 of the Bid Form and made a part of the above named bidding and contract documents. Bids submitted without acknowledgment of the Addendum will be considered incomplete.

The following items are issued to add to, modify, and clarify the quote and contract documents. These items shall have the same force and effect as the original quoting and contract documents, and cost involved shall be included in the quote prices. Quotes to be submitted on the specified quote date, shall conform to the additions and revisions listed herein.

1. **CHANGE** Article A.06, Deadline for Clarification Requests, on page 00010-3 of the bid documents to read as follows:

November 1, 2012 at 3:00 PM shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Office.

This deadline has been established to maintain fair treatment for all potential bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this work may achieve.

2. **CHANGE** Article C.06, Retainage, on page 00030-3 of the bid documents to read as follows:

A **retainage** of 10% of the total work in place shall be withheld from payments until 50% of the Work is complete. After 50% completion of the Work, this retainage shall be reduced to 5% of the total work in place until final completion and acceptance of the Work by the County. Upon final acceptance, the remaining retainage shall be included in the final payment.

Financial Management Department - Purchasing Division
1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205
PHONE: 941.749.3014 * FAX: 941.749.3034
www.myanatee.org

3. **CHANGE** the third and fourth paragraphs of Article C.16, on page 00030-8 of the bid documents to read as follows:

Failure of the County at any time, to require performance by the Contractor of any provisions set out in the Contract will in no way affect the right of the County, thereafter, to enforce the provisions.

Bonds procured as required above must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. § 255.05 absent prior written approval of the County's Purchasing Official.

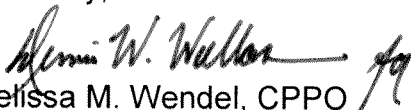
4. **DELETE** Bid Form Pages 00300-2 thru 00300-5, issued with the bid documents, and **INSERT** the REVISED Bid Form pages 00300-2 thru 00300-5 that are attached to this Addendum #1.
5. **DELETE** Section 00500 Form of Agreement pages 00500-1 thru 00500-4, issued with the bid documents, and **INSERT** Section 00500 Form of Agreement pages 00500-1 thru 00500-6 that are attached to this Addendum #1.
6. **ADD** the Subsurface Soil Exploration, Analysis and Recommendations Report, dated May 16, 2012 from Ardaman & Associates, Inc., that is attached to this Addendum #1 (13 pages).

All other questions asked at the Informational Conference held on October 23, 2012 as well as subsequent questions that may be asked before the deadline of November 1, 2012, will be addressed in a future addendum to be issued after the deadline for clarifications has passed.

END OF ADDENDUM #1

Bids will be received at Manatee County Purchasing, 1112 Manatee Avenue West, Bradenton, Florida 34205 until **Thursday, November 15, 2012 at 3:00 PM.**

Sincerely,


Melissa M. Wendel, CPPO
Purchasing Official

Financial Management Department –Purchasing Division
1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205
PHONE: 941.749.3014 * FAX: 941.749.3034
www.mymanatee.org

BID FORM

(Submit in Triplicate) Section 00300

COUNTRY MEADOWS RECLAIMED WATERLINE- SWFWMD PROJECT #12C00000052 (MC PROJECT #404-6082090)

Bid "A" Based on Completion Time of 270 Calendar Days

ITEM NO.	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
1	8" Reclaim Waterline HDPE C906 DR11, HDD	LF	310		
2	8" DIP CL 350 Direct Bury	LF	350		
3	10" Reclaim Waterline HDPE C906 DR11, HDD	LF	3,190		
4	10" DIP CL 350 Direct Bury	LF	60		
5	8" Gate Valve w/box	EA	3		
6	10" Gate Valve w/box	EA	3		
7	Sidewalk Restoration	SY	110		
8	Air release Valve assembly	EA	2		
9	Asphalt Road Restoration (Base & 1 1/2" SIII)	SY	95		
10	Asphalt Road Restoration (Mill & Overlay)	SY	290		
11	Connect to Existing Reclaim Main	EA	2		
12	Ductile Iron Fittings	LB	1,200		
13	Erosion Control	LS	1		
14	Pipe Restraints (10" and 8" Dia.)	EA	40		
15	HDPE/MJ Pipe Adapters (10" and 8" Dia.)	EA	14		
16	Driveway Restoration	SY	70		
17	Sodding	SY	600		
18	Reclaim Water Service w/boxes (Long Double)	EA	8		
19	Reclaim Water Service w/boxes (Long Single)	EA	5		

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

COUNTRY MEADOWS RECLAIMED WATERLINE- SWFWMD PROJECT #12C00000052
(MC PROJECT #404-6082090)

Bid "A" Based on Completion Time of 270 Calendar Days

ITEM NO.	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
20	Reclaim Water Service w/boxes (Short Double)	EA	12		
21	Reclaim Water Service w/boxes (Short Single)	EA	3		
22	Reclaim Hydrant Assembly	EA	3		
23	Concrete Curb Replacement	LF	80		
24	Mobilization (Max 10 % of Total Bid)	LS	1		
25	Miscellaneous Work & Clean Up	LS	1		
26	DISCRETIONARY WORK (USED ONLY WITH COUNTY APPROVAL)	LS	1		\$ 41,000.00
TOTAL PRICE FOR BID "A" - Based on Completion Time of <u>270</u> Calendar Days					

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

**COUNTRY MEADOWS RECLAIMED WATERLINE- SWFWMD PROJECT #12C00000052
 (MC PROJECT #404-6082090)**

Bid "B" Based on Completion Time of 210 Calendar Days

ITEM NO.	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
1	8" Reclaim Waterline HDPE C906 DR11, HDD	LF	310		
2	8" DIP CL 350 Direct Bury	LF	350		
3	10" Reclaim Waterline HDPE C906 DR11, HDD	LF	3,190		
4	10" DIP CL 350 Direct Bury	LF	60		
5	8" Gate Valve w/box	EA	3		
6	10" Gate Valve w/box	EA	3		
7	Sidewalk Restoration	SY	110		
8	Air release Valve assembly	EA	2		
9	Asphalt Road Restoration (Base & 1 1/2" SIII)	SY	95		
10	Asphalt Road Restoration (Mill & Overlay)	SY	290		
11	Connect to Existing Reclaim Main	EA	2		
12	Ductile Iron Fittings	LB	1,200		
13	Erosion Control	LS	1		
14	Pipe Restraints (10" and 8" Dia.)	EA	40		
15	HDPE/MJ Pipe Adapters (10" and 8" Dia.)	EA	14		
16	Driveway Restoration	SY	70		
17	Sodding	SY	600		
18	Reclaim Water Service w/boxes (Long Double)	EA	8		
19	Reclaim Water Service w/boxes (Long Single)	EA	5		

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

COUNTRY MEADOWS RECLAIMED WATERLINE- SWFWMD PROJECT #12C00000052
(MC PROJECT #404-6082090)

Bid "B" Based on Completion Time of 210 Calendar Days

ITEM NO.	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
20	Reclaim Water Service w/boxes (Short Double)	EA	12		
21	Reclaim Water Service w/boxes (Short Single)	EA	3		
22	Reclaim Hydrant Assembly	EA	3		
23	Concrete Curb Replacement	LF	80		
24	Mobilization (Max 10 % of Total Bid)	LS	1		
25	Miscellaneous Work & Clean Up	LS	1		
26	DISCRETIONARY WORK (USED ONLY WITH COUNTY APPROVAL)	LS	1		\$ 41,000.00
TOTAL PRICE FOR BID "B" - Based on Completion Time of <u>210</u> Calendar Days					

Bidder Name: _____

Authorized Signature: _____

SECTION 00500
**FORM OF AGREEMENT
BETWEEN THE
COUNTY OF MANATEE, FLORIDA
AND THE CONTRACTOR AS IDENTIFIED BELOW
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE**

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the state of Florida, hereinafter referred to as the "COUNTY" and XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the state of Florida, with offices located at XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Phone: () _____

ARTICLE 1. WORK

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for IFB No. **13-0003CD Country Meadows Reclaimed Waterline-SWFMD Project # 12C0000052 (MC Project #404-6082090)** in strict accordance with Contract Documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

ARTICLE 2. COMPENSATION

As compensation to the CONTRACTOR, the COUNTY shall pay and the CONTRACTOR will accept as full consideration for the performance of all Work required by (**IFB #13-0003CD Country Meadows Reclaimed Waterline- SWFMD Project # 12C0000052 (MC Project #404-6082090)**) subject to additions and deductions as provided therein, the sum of Dollars and xxxxxxxxxxxxxxxx Cents (\$ xxxxxxxxxxxxxxxx) for Bid " X " based on Completion Time of xxx calendar days

ARTICLE 3. LIQUIDATED DAMAGES

Time is of the essence in this Agreement. As of the date of this Agreement, the damages that will be suffered by the County in the event of the Contractor's failure to timely complete the Work are impossible to determine. In lieu thereof, it is agreed that if the Contractor fails to achieve Substantial Completion of the Work within _____ calendar days of issuance of the Notice to Proceed (accounting, however, for any extensions of time granted pursuant to approved Change Orders), the Contractor shall pay to the County, as liquidated damages (and not as a penalty), the sum of **\$566** per calendar day for each day beyond _____ days until the Contractor achieves Substantial Completion. The County shall have the option of withholding said liquidated damages from any Pay Application(s) thereafter submitted by the Contractor. Alternatively, the Contractor shall immediately pay said sums to the County upon the County's demand for same.

ARTICLE 4. ENGINEER

The County of Manatee, Public Works Department, is responsible as the COUNTY and **Manatee County Utility Engineering Division** hereinafter referred to as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract Documents.

All communication involving this project will be addressed to Anthony Benitez, P.E., Project Engineer II, Public Works Department. **All invoicing** will be addressed to the attention of Anthony Benitez, P.E. (address noted below) with **invoice copies** sent to James D. Stockwell, PE, Utilities Engineering Division, Manatee County (address noted below).

Manatee County Public Works Dept.
IFB #13-0003CD
Attention: Anthony Benitez, P.E.
Project Engineer II
1022 26th Avenue East
Bradenton, Florida 34208
Phone (941) 708-7450 ext. 7333

Manatee County Public Works Dept.
IFB# 13-0003CD
Attn: James D. Stockwell, P.E.
Sr. Project Engineer
1022 26th Avenue East
Bradenton, Florida 34208
Phone (941) 708-7463 ext. 7651

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

In order to induce COUNTY to enter into this Agreement, CONTRACTOR makes the following representations:

- 5.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid Documents, Work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- 5.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.

- 5.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Bid Documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 5.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid Documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.
- 5.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 5.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid Documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 5.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

ARTICLE 6. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 6.1 This Agreement and Bid Document (**IFB #13-0003CD**)
- 6.2 Performance and/or other Bonds and Insurance Certificate(s)
- 6.3 Drawings/Plans (not attached)
- 6.4 Addendum number # to # inclusive
- 6.5 CONTRACTOR'S Bid Form
- 6.6 Reports
- 6.7 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written Change Orders and other documents amending, modifying, or supplementing the Contract Documents.
- 6.8 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract Documents other than those listed above in this Article 6.

ARTICLE 7. MISCELLANEOUS

- 7.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.
- 7.2 No assignment by a party hereto of any rights under or interest in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract Documents.

7.3 COUNTY and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

**AGREEMENT
IFB #13-0003CD**

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their authorized representatives.

CONTRACTOR

By: _____

Print Name & Title of Signer

Date: _____

COUNTY OF MANATEE, FLORIDA

By: _____
Melissa M. Wendel, CPPO
Purchasing Official

Date: _____

**SUBSURFACE SOIL EXPLORATION,
ANALYSIS AND RECOMMENDATIONS
FOR PROPOSED
"COUNTRY MEADOWS RECLAIMED WATERLINE"
BRADENTON,
MANATEE COUNTY, FLORIDA
(MANATEE COUNTY PROJECT NO. 6082090)**



Ardaman & Associates, Inc.

OFFICES

FLORIDA

- Orlando**, 8008 S. Orange Avenue, Orlando, Florida 32809, Phone (407) 855-3860
Bartow, 1525 Centennial Drive, Bartow, Florida 33830, Phone (863) 533-0858
Cocoa, 1300 N. Cocoa Boulevard, Cocoa, Florida 32922, Phone (321) 632-2503
Fort Myers, 9970 Bavaria Road, Fort Myers, Florida 33913, Phone (239) 768-6600
Miami, 2608 W. 84th Street, Hialeah, Florida, 33016, Phone (305) 825-2683
Port St. Lucie, 460 NW Concourse Place, Unit #1, Port St. Lucie, Florida 34986-2248, Phone (772) 878-0072
Sarasota, 78 Sarasota Center Boulevard, Sarasota, Florida 34240, Phone (941) 922-3526
Tallahassee, 3175 West Tharpe Street, Tallahassee, Florida 32303, Phone (850) 576-6131
Tampa, 3925 Coconut Palm Drive, Suite 115, Tampa, Florida 33619, Phone (813) 620-3389
West Palm Beach, 2511 Westgate Avenue, Suite 10, West Palm Beach, Florida 33409, Phone (561) 687-8200

LOUISIANA

- Alexandria**, 3609 MacLee Drive, Alexandria, Louisiana 71302, Phone (318) 443-2888
Baton Rouge, 316 Highlandia Drive, Baton Rouge, Louisiana 70810, Phone (225) 752-4790
Monroe, 1122 Hayes Street, Monroe, Louisiana 71292, Phone (318) 387-4103
New Orleans, 1305 Distributors Row, Suite 1, Jefferson, Louisiana 70123, Phone (504) 835-2593
Shreveport, 7222 Greenwood Road, Shreveport, Louisiana 71119, Phone (318) 636-3723

MEMBERS:

A.S.F.E.

**American Concrete Institute
American Society for Testing and Materials
Florida Institute of Consulting Engineers**



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

May 16, 2012
File No. 12-7067

TO: Manatee County Government, Public Works Dept.
Project Management Division
1022 26th Avenue East
Bradenton, FL 34208

Attention: Anthony V. Benitez, P.E.

SUBJECT: Subsurface Soil Exploration, Analysis and Recommendations for Proposed
"Country Meadows Reclaimed Waterline," Bradenton, Manatee County, Florida
Manatee County Project No. 6082090, W.A. #78, IFAS #W1200140

Dear Mr Benitez:

As requested, our firm has completed a subsurface soil exploration program at the site referenced above. The purpose of this program was to assess subsurface soil conditions relative to the installation of the pipeline by directional drilling methods.

This report documents our findings and conclusions. It has been prepared for the exclusive use of Manatee County Public Works Department and their consultants for specific application to the subject project, in accordance with generally-accepted geotechnical engineering practices. No other warranty, expressed or implied, is made.

SCOPE

The scope of our services has included the following items:

1. Conducting four (4) Standard Penetration Test borings to determine the nature and condition of the subsurface soils.
2. Reviewing each soil sample obtained in our field testing program by a geotechnical engineer in the laboratory for further investigation and classification.
3. Analyzing the existing soil conditions with respect to the proposed construction.
4. Preparing this report to document the results of our field testing program, engineering analyses and recommendations.

Manatee County Government, Public Works Dept.
File No. 12-7067
May 16, 2012

SITE LOCATION

The subject site is located within Section 23, Township 34 South, Range 19 East, in Manatee County, Florida. The proposed force main route runs along 147th Street East, to the northwest of Rye Road.

FIELD EXPLORATION PROGRAM

Our field exploration program consisted of conducting four (4) Standard Penetration Test borings at the locations shown on the attached Figure 1. These borings were performed to determine the nature and condition of the subsurface soils to a maximum depth of 12 feet below the existing ground surface. Test boring depths, location and number were determined by Ardaman & Associates, Inc.

Test borings were located in the field by visual reference to available site landmarks, referencing it to an aerial photograph. The locations should be considered accurate only to the degree implied by the method used. Should more accurate locations be required, a registered land surveyor should be retained. The equipment and procedures used in the borings are described in Appendix I of this report.

GENERAL SUBSURFACE CONDITIONS

The general subsurface conditions encountered during the field exploration program are shown on the soil boring logs, included in Appendix I of this report. Soil stratification is based on examination of recovered soil samples and interpretation of field boring logs. The stratification lines represent the approximate boundaries between the soil types, while the actual transitions may be gradual.



Manatee County Government, Public Works Dept.
 File No. 12-7067
 May 16, 2012

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A generalization of the subsurface soil conditions encountered in the borings is described below:

DEPTH		SOIL DESCRIPTION
From (feet)	To (feet)	
0	7	Medium dense fine sand to fine sand with silt
7	12	Loose fine sand to fine sand with silt

On the date of our field exploration program, the groundwater table was encountered at depths ranging from 4.1 to 8.0 feet below the existing ground surface. The groundwater table is anticipated to fluctuate due to seasonal rainfall variations and other factors.

LABORATORY TESTING PROGRAM

Representative soil samples obtained during our field sampling operation were packaged and transferred to our office and, thereafter, examined by a geotechnical engineer to obtain more accurate descriptions of the existing soil strata. No additional testing was deemed necessary. The soil descriptions shown on the soil boring logs are based on the laboratory test results and a visual classification procedure in general accordance with the Unified Soil Classification System (ASTM D-2487 or D-2488).

ANALYSIS AND RECOMMENDATIONS

We understand that the reclaimed water line will be installed by directional drilling methods. We see no technical reason why the entire length could not be installed by the directional drilling method.

The soils consist of loose to medium dense sands. Rock or other problematic soils were not encountered within a depth of 12 feet at our boring locations.



Manatee County Government, Public Works Dept.
File No. 12-7067
May 16, 2012

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GENERAL COMMENTS

The analysis and recommendations submitted in this report are based upon the data obtained from four (4) test borings performed at the locations indicated on the attached Figure 1. This report does not reflect any variations which may occur between the borings. While the borings are representative of the subsurface conditions at their respective locations and within their respective vertical reaches, local variations characteristic of the subsurface materials of the region are anticipated and may be encountered. The nature and extent of variations may not become evident until during the course of construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report, after performing on-site observations during the construction period and noting the characteristics of any variations.

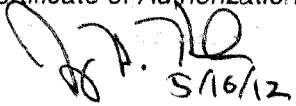
The boring logs and related information are based upon the driller's logs and visual examination of selected samples in the laboratory. The delineation between soil types shown on the logs is approximate, and the description represents our interpretation of the subsurface conditions at the designated boring location on the particular date drilled.

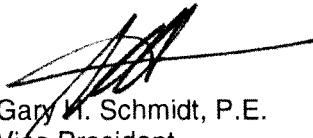
The water table depths shown on the boring logs represent the groundwater surfaces encountered on the dates shown. Fluctuation of the water table should be anticipated throughout the year.

It has been a pleasure to be of assistance to you with this project. Please contact us when we may be of further service to you, or should you have any questions concerning this report.

Very truly yours,

ARDAMAN & ASSOCIATES, INC.
Certificate of Authorization No. 5950


S/16/12
Jerry H. Kuehn, P.E.
Senior Project Engineer
Fl. License No. 35557


Gary M. Schmidt, P.E.
Vice President
Fl. License No. 12305

JHK/GHS:ly



Ardaman & Associates, Inc.

APPENDIX
SOIL BORING, SAMPLING & TEST METHODS
and
SOIL BORING LOGS

SOIL BORING, SAMPLING AND TESTING METHODS

Standard Penetration Test

The Standard Penetration Test (SPT) is a widely accepted method of in situ testing of foundation soils (ASTM D-1586). A 2-foot long, 2-inch O.D. split-barrel sampler attached to the end of a string of drilling rods is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for each 6 inches of penetration is recorded. The sum of the blows required for penetration of the second and third 6-inch increments of penetration constitutes the test result or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value has been empirically correlated with various soil properties allowing a conservative estimate of the behavior of soils under load. The following tables relate N-values to a qualitative description of soil density and, for cohesive soils, an approximate unconfined compressive strength (Qu):

Cohesionless Soils:	<u>N-Value</u>	<u>Description</u>	
	0 to 4	Very loose	
	4 to 10	Loose	
	10 to 30	Medium dense	
	30 to 50	Dense	
	Above 50	Very dense	
Cohesive Soils:	<u>N-Value</u>	<u>Description</u>	<u>Qu (ton/ft²)</u>
	0 to 2	Very soft	Below 0.25
	2 to 4	Soft	0.25 to 0.50
	4 to 8	Medium stiff	0.50 to 1.0
	8 to 15	Stiff	1.0 to 2.0
	15 to 30	Very stiff	2.0 to 4.0
	Above 30	Hard	Above 4.0

The tests are usually performed at 5-foot intervals. However, more frequent or continuous testing is done by our firm through depths where a more accurate definition of the soils is required. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. The circulating fluid, which is a bentonitic drilling mud, is also used to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, NX-size flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or prevent the loss of circulating fluid.

Representative split-spoon samples from each sampling interval and from every different stratum are brought to our laboratory in air-tight jars for further evaluation and testing, if necessary. Samples not used in testing are stored for at least six months prior to being discarded. After completion of a test boring, the hole is kept open until a steady-state groundwater level is recorded. The hole is then sealed, if necessary, and backfilled.

A hammer with an automatic drop release (auto-hammer) is sometimes used in place of the safety hammer. The auto-hammer has been calibrated to relate its blow counts to equivalent safety hammer N-values.

Laboratory Test Methods

Soil samples returned to our laboratory are examined by a geotechnical engineer or geotechnician to obtain more accurate descriptions of the soil strata. Laboratory testing is performed on selected samples as deemed necessary to aid in soil classification and to further define engineering properties of the soils. The test results are presented on the soil boring logs at the depths at which the respective sample was recovered, except that grain size distributions or selected other test results may be presented on separate tables, figures or plates as described in this report. The soil descriptions shown on the logs are based upon a visual-manual classification procedure in general accordance with the Unified Soil Classification System (ASTM D-2488-84) and standard practice. Following is a list of abbreviations which may be used on the boring logs or elsewhere in this report.

-200	- Fines Content (percent passing the No. 200 sieve); ASTM D-1140
DD	- Dry Density of Undisturbed Sample; ASTM D-2937
Gs	- Specific Gravity of Soil; ASTM D-854
k	- Hydraulic Conductivity (Coefficient of Permeability)
LL	- Liquid Limit; ASTM D-423
OC	- Organic Content; ASTM D-2974
pH	- pH of Soil; ASTM D-2976
PI	- Plasticity Index (LL-PL); ASTM D-424
PL	- Plastic Limit; ASTM D-424
Qp	- Unconfined Compressive Strength by Pocket Penetrometer;
Qu	- Unconfined Compressive Strength; ASTM D-2166 (soil), D-2938 (rock)
SL	- Shrinkage Limit; ASTM D-427
USCS	- Unified Soil Classification System; ASTM D-2487, D-2488
w	- Water (Moisture) Content; ASTM D-2216

Soil Classifications

The soil descriptions presented on the soil boring logs are based upon the Unified Soil Classification System (USCS), which is the generally accepted method (ASTM D-2487 and D-2488) for classifying soils for engineering purposes. The following modifiers are the most commonly used in the descriptions.

For Sands:	<u>Modifier</u>	<u>Fines, Sand or Gravel Content*</u>
	"with silt" or "with clay"	5% to 12% fines
	"silty" or "clayey"	12% to 50% fines
	"with gravel" or "with shell"	15% to 50% gravel or shell
For Silts or Clays:	<u>Modifier</u>	<u>Fines, Sand or Gravel Content*</u>
	"with sand"	15% to 30% sand and gravel; and % sand > % gravel
	"sandy"	30% to 50% sand and gravel; and % sand > % gravel
	"with gravel"	15% to 30% sand and gravel; and % sand < % gravel
	"gravelly"	30% to 50% sand and gravel; and % sand < % gravel

* may be determined by laboratory testing or estimated by visual/manual procedures. Fines content is the combined silt and clay content, or the percent passing the No. 200 sieve.

Other soil classification standards may be used, depending on the project requirements. The AASHTO classification system is commonly used for highway design purposes and the USDA soil textural classifications are commonly used for septic (on-site sewage disposal) system design purposes.

BORING LOCATION: see Figure 1 DATE DRILLED: 4/13/12 START: FINISH: GROUND SURFACE ELEVATION: WATER TABLE DEPTH: 8.0 TIME: DATE: 4/13/12	CLIENT: Manatee County Public Works PROJECT: Country Meadows Reclaimed Waterline LOCATION: Bradenton, Manatee County, Florida DRILL CREW: DP/MO LOGGED BY: DP
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DRILL MAKE & MODEL: CME-45 BIT: 2-3/8" tricone DRILLING RODS: AW
 DRILLING METHOD: rotary with SPT (auto-hammer) WEATHER CONDITIONS: _____

DEPTH (feet)	BLOW COUNTS PER 6-INCHES	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX
0	3-4-5	11	1		SP-SM	dark brownish gray fine sand with silt					
2	8-11-14	31	2		SP-SM	dark gray fine sand with silt					
			3		SP-SM	dark brown fine sand with silt					
4	6-7-11	22	4		SP	brown fine sand					
			5		SP	brownish gray fine sand					
6	6-6-5	14	6		SP-SM	gray fine sand with silt					
			7		SP	light gray fine sand					
8	6-6-8	17	7		SP-SM	dark gray fine sand with silt & shell					
			8								
10	7-4-3	9	8								
			9								
12	3-3-3	7	9								
			10								
14						end of boring					



BORING LOCATION: see Figure 1 DATE DRILLED: 4/13/12 START: FINISH: GROUND SURFACE ELEVATION: WATER TABLE DEPTH: 4.1 TIME: DATE: 4/13/12	CLIENT: Manatee County Public Works PROJECT: Country Meadows Reclaimed Waterline LOCATION: Bradenton, Manatee County, Florida DRILL CREW: DP/MO LOGGED BY: DP
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DRILL MAKE & MODEL: CME-45 **BIT:** 2-3/8" tricone **DRILLING RODS:** AW
DRILLING METHOD: rotary with SPT (auto-hammer) **WEATHER CONDITIONS:**

DEPTH (feet)	BLOW COUNTS PER 6-INCHES	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX
0					SP	brown fine sand					
2-2-3	6	1		SP	gray fine sand						
5-4-4	10	2		SP-SM	dark gray fine sand with silt						
3-3-5	10	3		SP-SM	brown fine sand with silt						
4					SP	pale grayish brown fine sand					
5-5-5	12	4									
4-4-5	11	5									
2-2-3	6	6		SP-SM	brownish gray fine sand with silt						
2-2-3	6	6									
3-3-3	7	7									
12						end of boring					
14											

BORING LOCATION: see Figure 1 DATE DRILLED: 4/13/12 START: FINISH: GROUND SURFACE ELEVATION: WATER TABLE DEPTH: 4.3 TIME: DATE: 4/13/12	CLIENT: Manatee County Public Works PROJECT: Country Meadows Reclaimed Waterline LOCATION: Bradenton, Manatee County, Florida DRILL CREW: DP/MO LOGGED BY: DP
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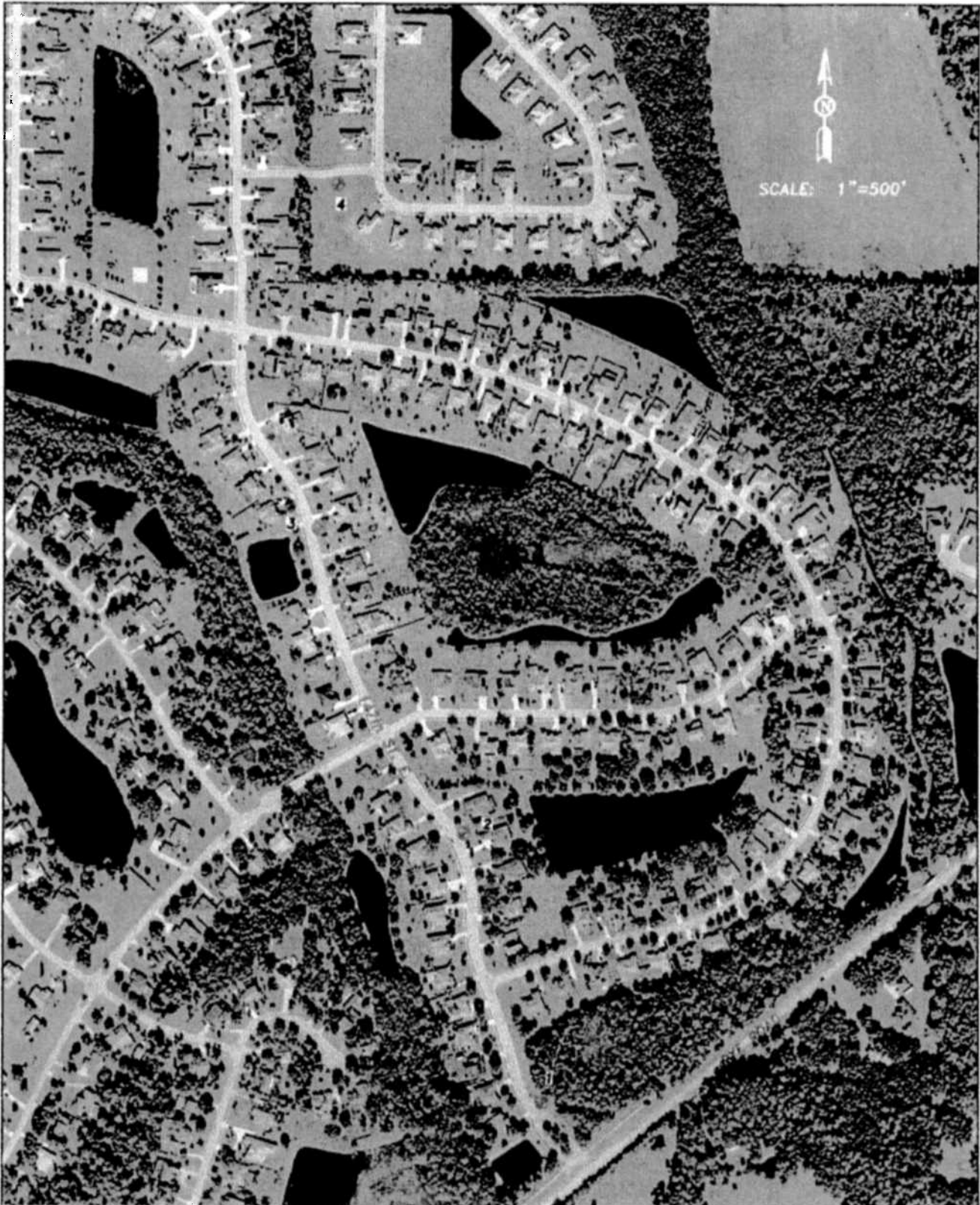
DRILL MAKE & MODEL: CME-45 BIT: 2-3/8" tricone DRILLING RODS: AW
 DRILLING METHOD: rotary with SPT (auto-hammer) WEATHER CONDITIONS: _____

DEPTH (feet)	BLOW COUNTS PER 6-INCHES	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX
0			1		SP-SM	dark brownish gray fine sand with silt					
	2-3-4	9	2		SP	dark brown fine sand with concrete fragments					
			3		SP-SM	dark gray fine sand with silt					
2	4-5-6	14	4		SP	gray fine sand					
			5		SP-SM	dark brown fine sand with silt					
			6		SP	brown to dark brown fine sand					
4	5-5-6	14	7								
	4-5-4	11	8		SP	grayish brown fine sand					
6	4-5-5	12	9		SP-SM	gray fine sand with silt (trace phosphate)					
8	3-3-3	7	10		SP	gray fine sand					
10	2-2-2	5	11								
	3-3-3	7									
12						end of boring					
14											

BORING LOCATION: see Figure 1 DATE DRILLED: 4/13/12 START: FINISH: GROUND SURFACE ELEVATION: WATER TABLE DEPTH: 4.3 TIME: DATE: 4/13/12	CLIENT: Manatee County Public Works PROJECT: Country Meadows Reclaimed Waterline LOCATION: Bradenton, Manatee County, Florida DRILL CREW: DP/MO LOGGED BY: DP
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DRILL MAKE & MODEL: CME-45 **BIT:** 2-3/8" tricone **DRILLING RODS:** AW
DRILLING METHOD: rotary with SPT (auto-hammer) **WEATHER CONDITIONS:**

DEPTH (feet)	BLOW COUNTS PER 6-INCHES	SPT N-VALUE	SAMPLE NO.	GRAPHIC LOG	USCS	SOIL DESCRIPTION	WATER CONTENT (%)	FINES CONTENT (%)	ORGANIC CONTENT (%)	LIQUID LIMIT	PLASTICITY INDEX
0	3-4-4	10	1		SP-SM	dark brownish gray fine sand with silt					
2	5-6-5	14	2		SP-SM	dark gray fine sand with silt					
4	4-4-5	11	3		SP-SM	dark brown fine sand with silt					
6	3-3-4	9									
6	4-6-6	15	4		SP	pale brown fine sand					
8	5-5-5	12									
10	3-3-4	9	5								
12	3-3-4	9									
12						end of boring					
14											



⊕ TEST BORING LOCATIONS

Ardaman & Associates, Inc.
Geotechnical, Environmental and
Materials Consultants

Test Locations
Country Meadows Reclaimed Waterline
Manatee County, Florida

DRAWN BY: KGS	DESIGNED BY:	DATE: 4/17/12
FILE NO. 12-7067	APPROVED BY: <i>[Signature]</i>	FIGURE: 1