WATERGRASS CDD I

SUMMARY REPORT: ASPHALT SEEPAGE INVESTIGATION

May 14, 2017

Prepared for:

WATERGRASS CDD I
C/O MERITUS DISTRICTS
2005 PAN AM CIRCLE, SUITE 120
TAMPA, FLORIDA 33607

Prepared by:

17900 Hunting Bow Circle Suite 101
Lutz, Florida 33558
(813) 909-8099

20160003-000

I. Project Background

The purpose of this report is to present a summary of special services provided to Watergrass CDD to assist with the diagnosis of an asphalt seepage issue within the community. The scope of services included monitor well installation, survey, data collection and analysis, and in drain camera scope investigation.

II. Monitor Well Installation

a. Methodology

i. Johnson Engineering sub-consultant, Ardaman and Associates, installed three (3) temporary water level monitoring wells on 11/11/16. The wells were fixed in the grass areas adjacent to the roadway (Cottage Glen Lane), and nearby the asphalt seepage issue area. The wells were constructed using 2" Schedule 40 PVC with well screens slotted 0.010-inch PVC. Each well was constructed at 10 feet below land surface.

b. Data

i. The well completion report for all three (3) wells are provided in Appendix A.

III. Survey

a. Methodology

i. On 11/16/16, Johnson Engineering performed horizontal and vertical survey for the top of well casing and existing ground at the three (3) well sites. The horizontal data was collected with RTK GPS (feet), and projected on the Florida State Plan Coordinate System, West Zone, NAD83 (2011). The vertical data was established with a closed level loop (feet), referenced to the North American Vertical Datum of 1988 (NAVD88). A bench mark at each well site was established.

b. Data

i. The table below summarizes the survey data collected at each well. The well exhibits and latitude and longitude for all three (3) wells are provided in Appendix B.

Well #	Top of Well Casing (NAV88)	Natural Ground (NAVD88)	Latitude	Longitude
1	103.61’	101.87’	N28°15’48.47”	W82°17’00.19”
2	102.69’	100.34’	N28°15’48.06”	W82°17’01.11”
3	98.98’	98.63’	N28°15’47.10”	W82°17’02.23”

IV. Water Level Data Collection

a. Methodology

i. Johnson Engineering installed, and programed three (3) In-Situ Level Troll 500 data loggers with associated desiccant packs, rugged twist-lock cables, and 2” well docks. Dataloggers were programmed to collect water level data every 5-15 minutes. Data was downloaded once, on 11/22/16, at the end of a seven (7) day monitoring period.

b. Data

i. The piezometer detail figures for all three (3) wells are provided in Appendix C.

V. Water Level Data Analysis

a. Methodology

i. Johnson Engineering plotted water level data against ground elevation and time.

b. Data

i. A water level graph displaying the data for all three (3) wells is provided in Appendix D. A groundwater flow map is also included in Appendix D.

c. Findings

i. The flow gradient between wells 2 and 3 was steeper than between wells 1 and 2. This could be an indication of poor soil percolation and/or some other impediment.

1. Well #1: Located northeast and up gradient of the seepage area. Water level was about one (1) foot below ground elevation over the monitoring period.

2. Well #2: Located at the seepage area. Water level hovered around ground elevation across monitoring period. Flow appears to be impeded in this location.

3. Well #3: Located southwest and down gradient of the seepage area. Water level was about 2.5 feet below ground elevation over the monitoring period.

VI. Underdrain Camera Scope Investigation

a. Methodology

i. On 12/1/16, Cardno Geospatial & Utilities Engineering submerged a push-rod submersible camera on the northeast side of Cottage Glen Lane in the area exhibiting asphalt seepage issues to diagnose any blockage or collapsed pipe issues.

ii. On 3/23/17, All South Underground LLC conducted an underdrain camera scope along either side of Cottage Glen Lane to further identify blockages or collapsed pipe issues.

b. Data

i. The field report and coordinating photos for Cardno Geospatial & Utilities Engineering work is provided in Appendix E.

ii. The inspection report for All South Underground, LLC work is provided in Appendix E.

c. Findings

i. On 12/1/16 Cardno Geospatial & Utilities performed an in-drain camera scope. Efforts were focused on the northeast side of Cottage Glen Lane. The underdrain appeared unobstructed to about 100 feet (north from the access point). Due to a potential separation in the underdrain, the camera could not proceed beyond approximately 105 feet from the point of entry.

ii. Coupled with cleanout installation efforts from Spearem Enterprises, LLC, All South Underground, LLC performed an additional under drain camera scope on 3/23/17. For this investigation both sides of Cottage Glen Lane were inspected with a lateral mini camera. As noted in the previous investigation, the northeast side of Cottage Glen Lane was unobstructed to about 100 feet (north from the access point) and the camera could not proceed beyond approximately 105 feet from the point of entry. No separation or blockage issues were noted on the southeast side of Cottage Glen Lane. However, the underdrain did contain water and debris.

VII. Construction

Based on the findings from the underdrain camera scope investigation, Spearem Enterprises, LLC was contracted to performed underdrain cleanout services with a flexible auger (aka snake/roto-rooter) on both sides of Cottage Glen Lane. Debris and roots were cleared from both sides in addition to the obstruction on the northeast side. Photos taking during cleanout installation and underdrain cleanout are included in Appendix F.

VIII. Conclusions

Recently cleared underdrains should result in improved overall drainage along Cottage Glen Lane. If the seepage issue was due to blockages in the underdrain conduit Johnson Engineering anticipates a resolution to the seepage issue in this area.

Johnson Engineering recommends that the general seepage issues along Cottage Glen Lane be monitored by residents and staff observations during the rainy season of 2017. Should seepage issues continue to arise Johnson Engineering recommends soil borings be performed across a transect of Garden Alcove Loop and Cottage Glen Lane to identify changes in soil that could cause impediment in groundwater flow.

APPENDIX A

MONITOR WELL INSTALLATION

Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

November 11, 2016
Project No. 16-9712

Johnson Engineering, Inc.
2122 Johnson Street
Fort Myers, Fl 33901

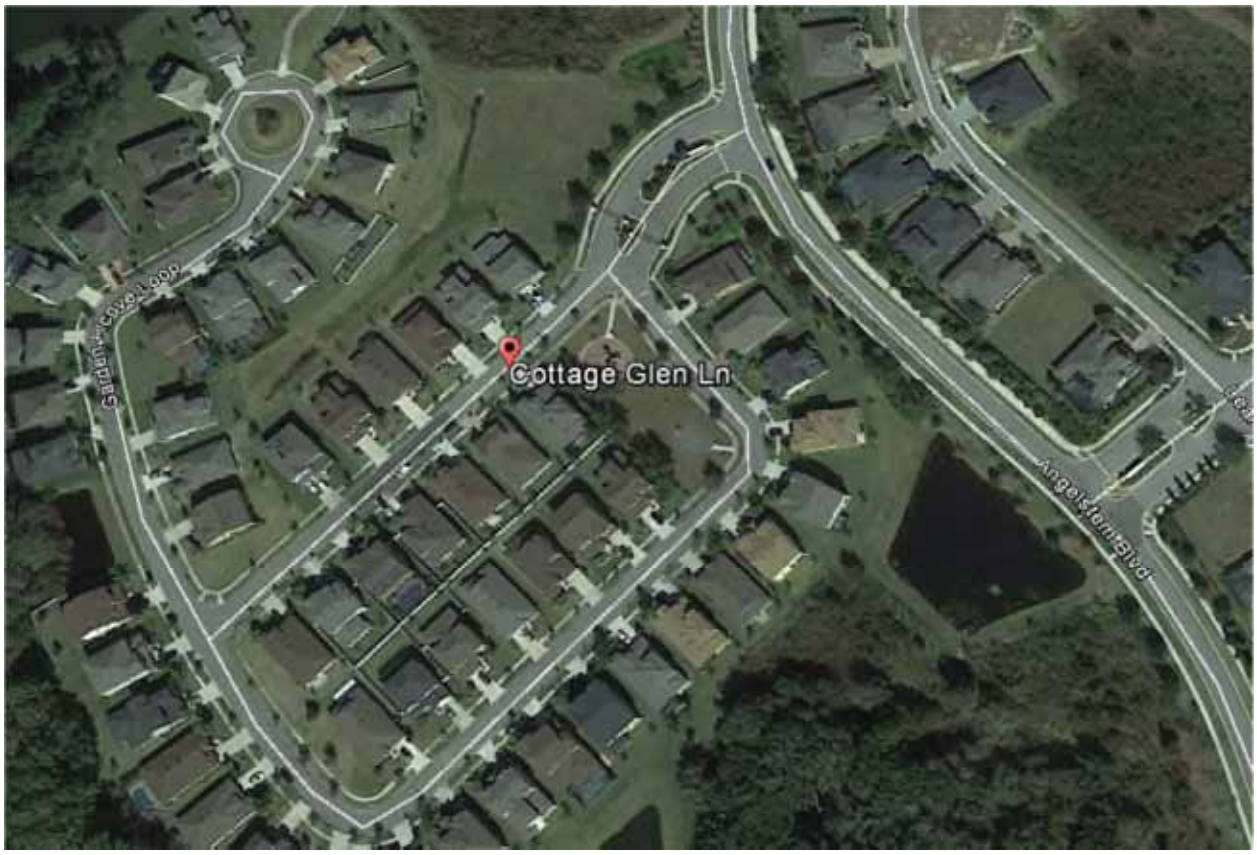
Attention: Annastacia "Staci" E. Thomas
Environmental Scientist

Subject: **Temporary Monitoring Wells - Completion Report**
Cottage Glen Lane, Southwest of Angelstem Boulevard
Wesley Chapel, Florida

Dear Ms. Thomas:

As requested, **Ardaman & Associates, Inc.** (**Ardaman**) installed temporary Groundwater Monitoring Wells at the referenced project. Installation details are provided below.

Wells were installed at the three locations directed on correspondence from your firm. Wells were installed November 11, 2016, and are scheduled for removal within 10 working days. The location of the wells is presented on the figures provided below:



A diagram illustrating the construction of each well is included with this correspondence.

Should you have any questions in regard to this report, please do not hesitate to contact this office.

Very truly yours,

ARDAMAN & ASSOCIATES, INC.

Martin E. Millburg, P.E.
Senior Project Engineer

G:\Projects\2016\16-9712 Johnson Engineering Wiregrass Monitoring Wells\01 - AAI _ Well Completion Report.docx

Attachments: Well Construction Diagram

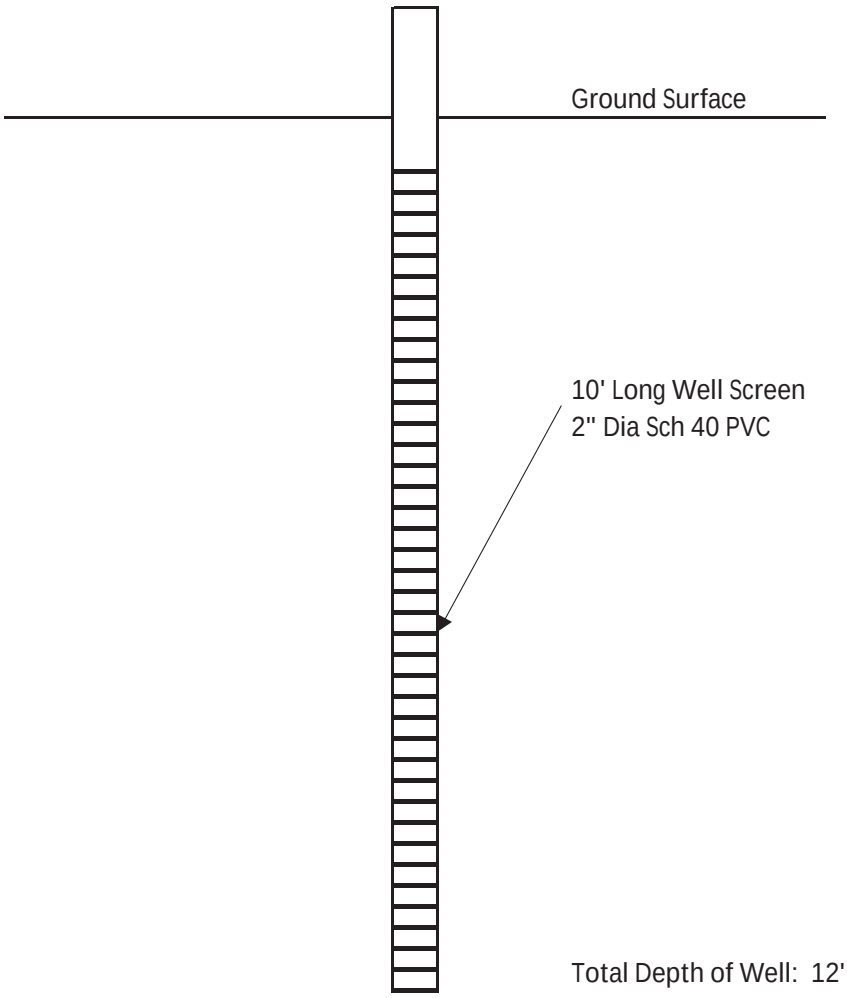
Project: Temporary Well Installation

Date: 11/11/2016

Client: Johnson Engineering

Ardaman Project No. 16-9712

TEMPORARY WELL - COMPLETION DIAGRAM



APPENDIX B

SURVEY

TOP OF WELL CASING
ELEV. = 103.61' (NAVD88)

NATURAL GROUND
ELEV. = 101.87' (NAVD88)

N

0 5 10 20

(INTENDED DISPLAY SCALE: 1"=20')

NOTES:

1. DATE OF LAST FIELDWORK: NOVEMBER 16, 2016.
2. SUBSTANTIAL VISIBLE IMPROVEMENTS OTHER THAN THOSE SHOWN, NOT LOCATED.
3. THIS SURVEY DOES NOT MAKE ANY REPRESENTATION AS TO ZONING OR DEVELOPMENT RESTRICTIONS ON THE SUBJECT PARCEL.
4. ELEVATIONS SHOWN HEREON ARE IN FEET AND IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND BASED ON A LEVEL RUN FROM NATIONAL GEODETIC SURVEY BENCHMARK S679 (PID DK4852) HAVING A PUBLISHED ELEVATION OF 102.65 FEET (NAVD88).
5. NO ENVIRONMENTAL ASSESSMENT OR AUDIT WAS PERFORMED ON THE SURVEYED PARCEL BY THIS FIRM.
6. THIS SURVEY WAS PERFORMED FOR THE PURPOSE OF LOCATING THE MONITORING WELL AND DOES NOT MAKE ANY REPRESENTATION AS TO THE DELINEATION OF ANY JURISDICTIONAL LINES EXCEPT AS SHOWN OR NOTED.
7. THE FOUNDATIONS BENEATH THE SURFACE WERE NOT LOCATED UNLESS OTHERWISE NOTED.
8. ELEV = ELEVATION

FIELD BOOK 2662, PAGE(S) 28–30

O:\2016\20160003-001\Surveying\Exhibits\20160003-001 Well Exhibit.dwg (WELL 1) MLB Nov 17, 2016 - 10:27am

JOHNSON ENGINEERING

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902–1550
PHONE: (239) 334–0046
FAX: (239) 334–3661
E.B. #642 & L.B. #642

WELL #1 EXHIBIT

SECTION 35, TOWNSHIP 25 SOUTH, RANGE 20 EAST
PASCO COUNTY, FLORIDA

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11–17–16	20160003–001	35–25–20	1"=20'	1 OF 1

TOP OF WELL CASING
ELEV. = 102.69' (NAVD88)

NATURAL GROUND
ELEV. = 100.34' (NAVD88)

N

0 5 10 20

(INTENDED DISPLAY SCALE: 1"=20')

NOTES:

1. DATE OF LAST FIELDWORK: NOVEMBER 16, 2016.
2. SUBSTANTIAL VISIBLE IMPROVEMENTS OTHER THAN THOSE SHOWN, NOT LOCATED.
3. THIS SURVEY DOES NOT MAKE ANY REPRESENTATION AS TO ZONING OR DEVELOPMENT RESTRICTIONS ON THE SUBJECT PARCEL.
4. ELEVATIONS SHOWN HEREON ARE IN FEET AND IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND BASED ON A LEVEL RUN FROM NATIONAL GEODETIC SURVEY BENCHMARK S679 (PID DK4852) HAVING A PUBLISHED ELEVATION OF 102.65 FEET (NAVD88).
5. NO ENVIRONMENTAL ASSESSMENT OR AUDIT WAS PERFORMED ON THE SURVEYED PARCEL BY THIS FIRM.
6. THIS SURVEY WAS PERFORMED FOR THE PURPOSE OF LOCATING THE MONITORING WELL AND DOES NOT MAKE ANY REPRESENTATION AS TO THE DELINEATION OF ANY JURISDICTIONAL LINES EXCEPT AS SHOWN OR NOTED.
7. THE FOUNDATIONS BENEATH THE SURFACE WERE NOT LOCATED UNLESS OTHERWISE NOTED.
8. ELEV = ELEVATION

FIELD BOOK 2662, PAGE(S) 28–30

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PHONE: (239) 334–0046
FAX: (239) 334–3661
E.B. #642 & L.B. #642

WELL #2 EXHIBIT

SECTION 35, TOWNSHIP 25 SOUTH, RANGE 20 EAST
PASCO COUNTY, FLORIDA

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11–17–16	20160003–001	35–25–20	1"=20'	1 OF 1

N

0 5 10 20

(INTENDED DISPLAY SCALE: 1"=20')

NOTES:

1. DATE OF LAST FIELDWORK: NOVEMBER 16, 2016.
2. SUBSTANTIAL VISIBLE IMPROVEMENTS OTHER THAN THOSE SHOWN, NOT LOCATED.
3. THIS SURVEY DOES NOT MAKE ANY REPRESENTATION AS TO ZONING OR DEVELOPMENT RESTRICTIONS ON THE SUBJECT PARCEL.
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5. NO ENVIRONMENTAL ASSESSMENT OR AUDIT WAS PERFORMED ON THE SURVEYED PARCEL BY THIS FIRM.
6. THIS SURVEY WAS PERFORMED FOR THE PURPOSE OF LOCATING THE MONITORING WELL AND DOES NOT MAKE ANY REPRESENTATION AS TO THE DELINEATION OF ANY JURISDICTIONAL LINES EXCEPT AS SHOWN OR NOTED.
7. THE FOUNDATIONS BENEATH THE SURFACE WERE NOT LOCATED UNLESS OTHERWISE NOTED.
8. ELEV = ELEVATION

FIELD BOOK 2662, PAGE(S) 28–30

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2122 JOHNSON STREET
P.O. BOX 1550
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WELL #3 EXHIBIT

SECTION 35, TOWNSHIP 25 SOUTH, RANGE 20 EAST
PASCO COUNTY, FLORIDA

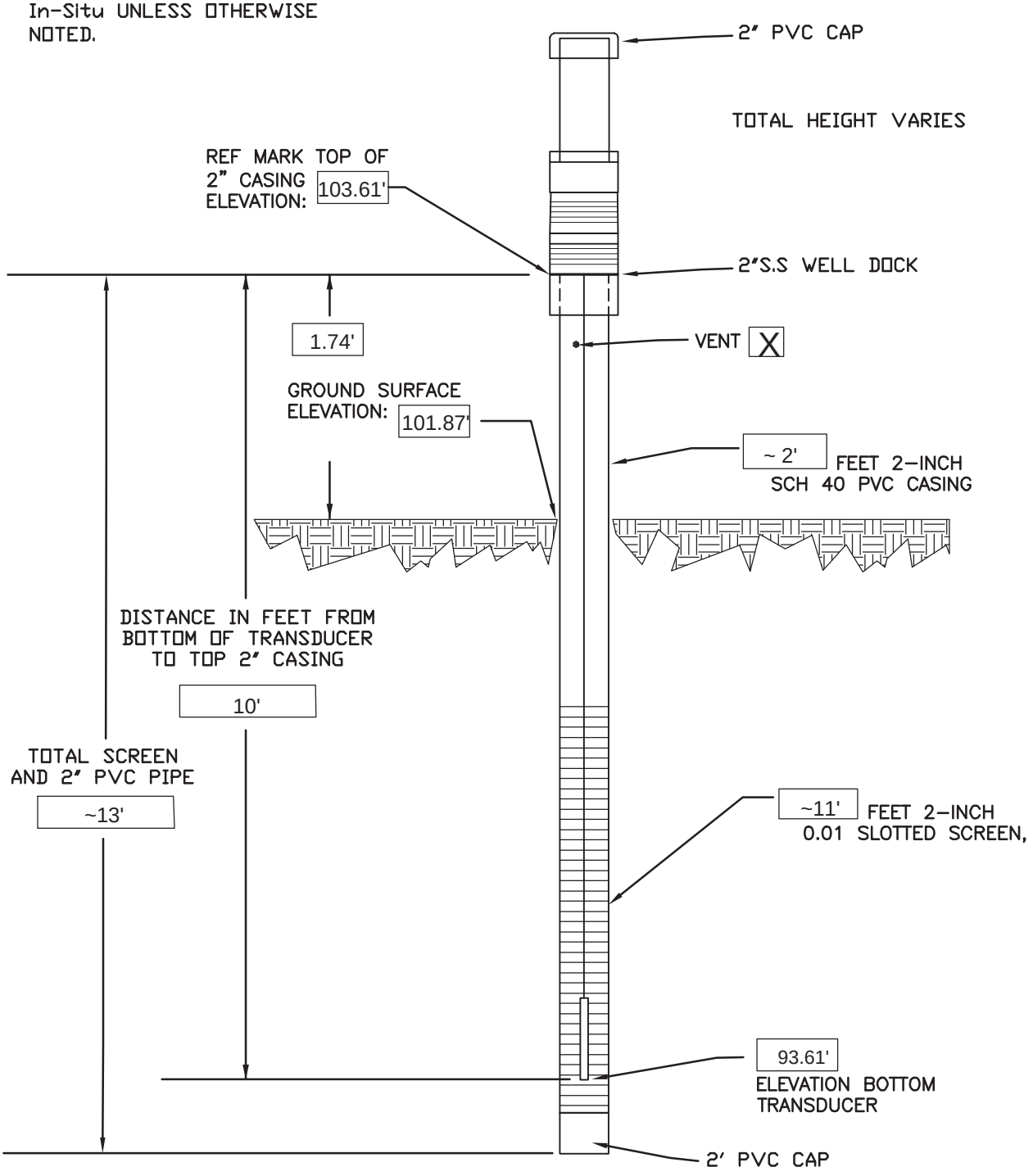
DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11–17–16	20160003–001	35–25–20	1"=20'	1 OF 1

APPENDIX C

WATER LEVEL DATA COLLECTION

JE	WG-1	DATALOGGER SERIAL NUMBER:	176631
DATE INSTALLED:	11-15-2016	READINGS PER DAY:	96
INSTALLED BY:	BOB	COORDINATES:	28 15 48.48 / 82 17 00.19

ALL ELEV. SHOWN ARE NAVD 88
GAGE MANUFACTURE IS
In-Situ UNLESS OTHERWISE
NOTED.



N:\20055693-203\Wells\In-Situ Piezometer Details.dwg (Piezometer_Detail_w_boxes) jwm Dec 28, 2010 - 8:33am

JOHNSON ENGINEERING

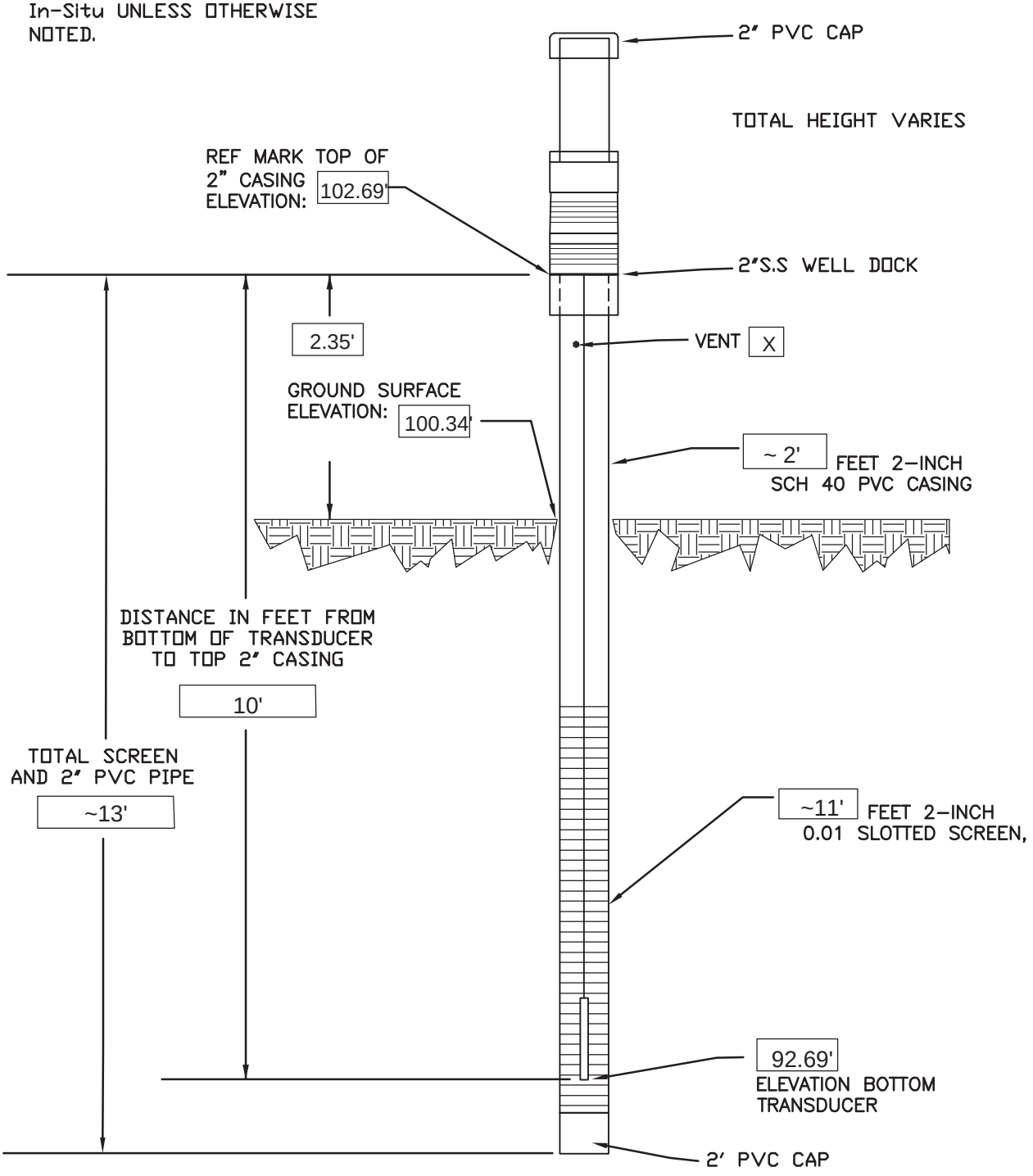
2158 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE (239) 334-0046
FAX (239) 334-3661
E.B. #642 & L.B. #642

Watergrass Well #1
Piezometer Detail

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11-15-2016	20160003-001	35-25-20	N.T.S	1 Of 1

JE	WG-2	DATALOGGER SERIAL NUMBER:	176599
DATE INSTALLED:	11-15-2016	READINGS PER DAY:	96
INSTALLED BY:	BOB	COORDINATES:	28 16 48.07 / 82 17 01.11

ALL ELEV. SHOWN ARE NAVD 88
GAGE MANUFACTURE IS
In-Situ UNLESS OTHERWISE
NOTED.



N:\20055693-203\Wells\In-Situ Piezometer Details.dwg (Piezometer_Detail_w_boxes) jwm Dec 28, 2010 - 8:33am

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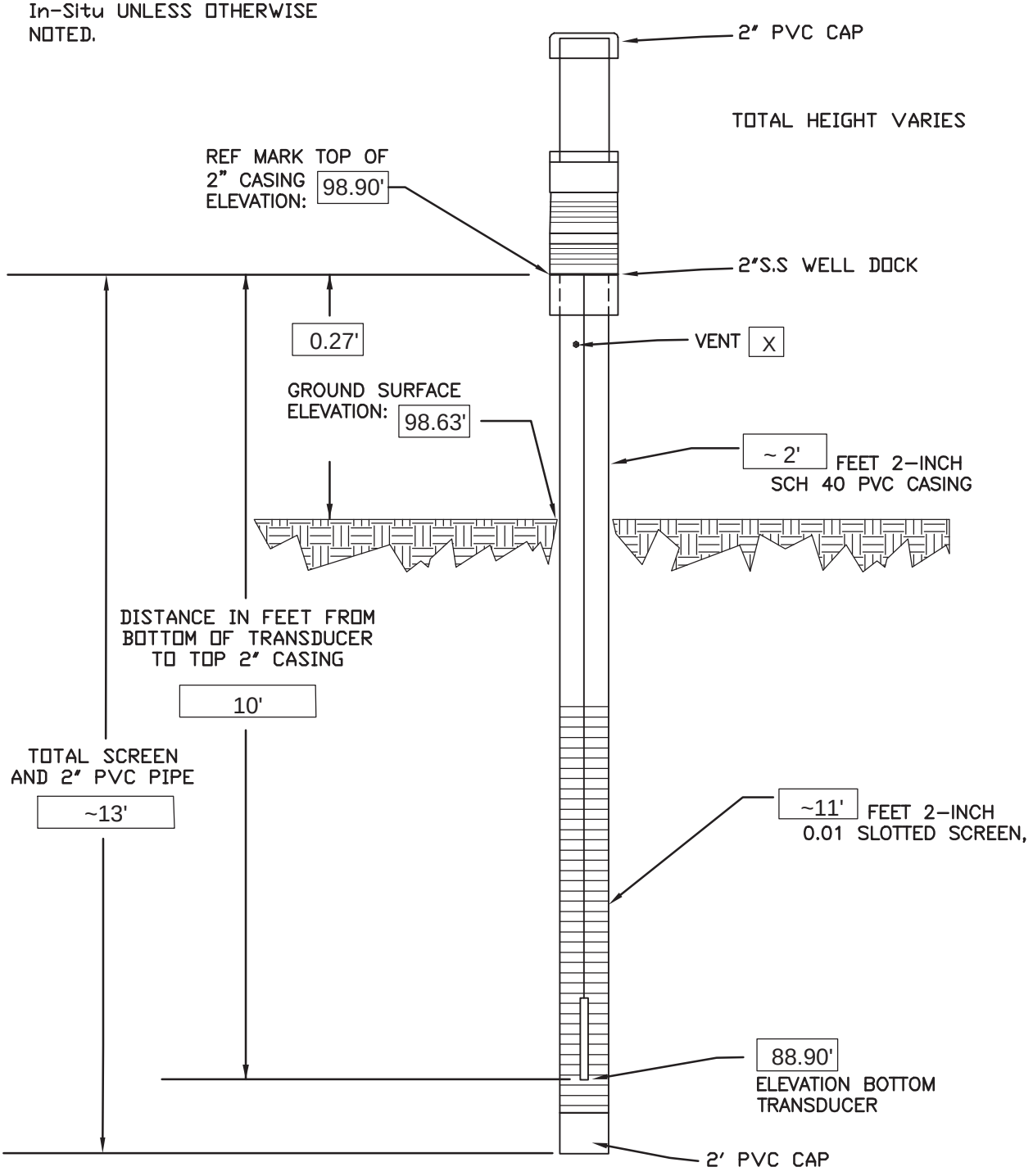
PHONE (239) 334-0046
FAX (239) 334-3661
E.B. #642 & L.B. #642

Watergrass Well #2
Piezometer Detail

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11-15-2016	2016-0003-001	35-25-20	N.T.S	1 Of 1

JE	WG-3	DATALOGGER SERIAL NUMBER:	176615
DATE INSTALLED:	11-15-2016	READINGS PER DAY:	96
INSTALLED BY:	BOB	COORDINATES:	28 15 47.11 / 82 17 02.23

ALL ELEV. SHOWN ARE NAVD 88
GAGE MANUFACTURE IS
In-Situ UNLESS OTHERWISE
NOTED.



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PHONE (239) 334-0046
FAX (239) 334-3661
E.B. #642 & L.B. #642

Watergrass Well #3
Piezometer Detail

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
11-15-2016	20160003-001	35-25-20	N.T.S	1 Of 1

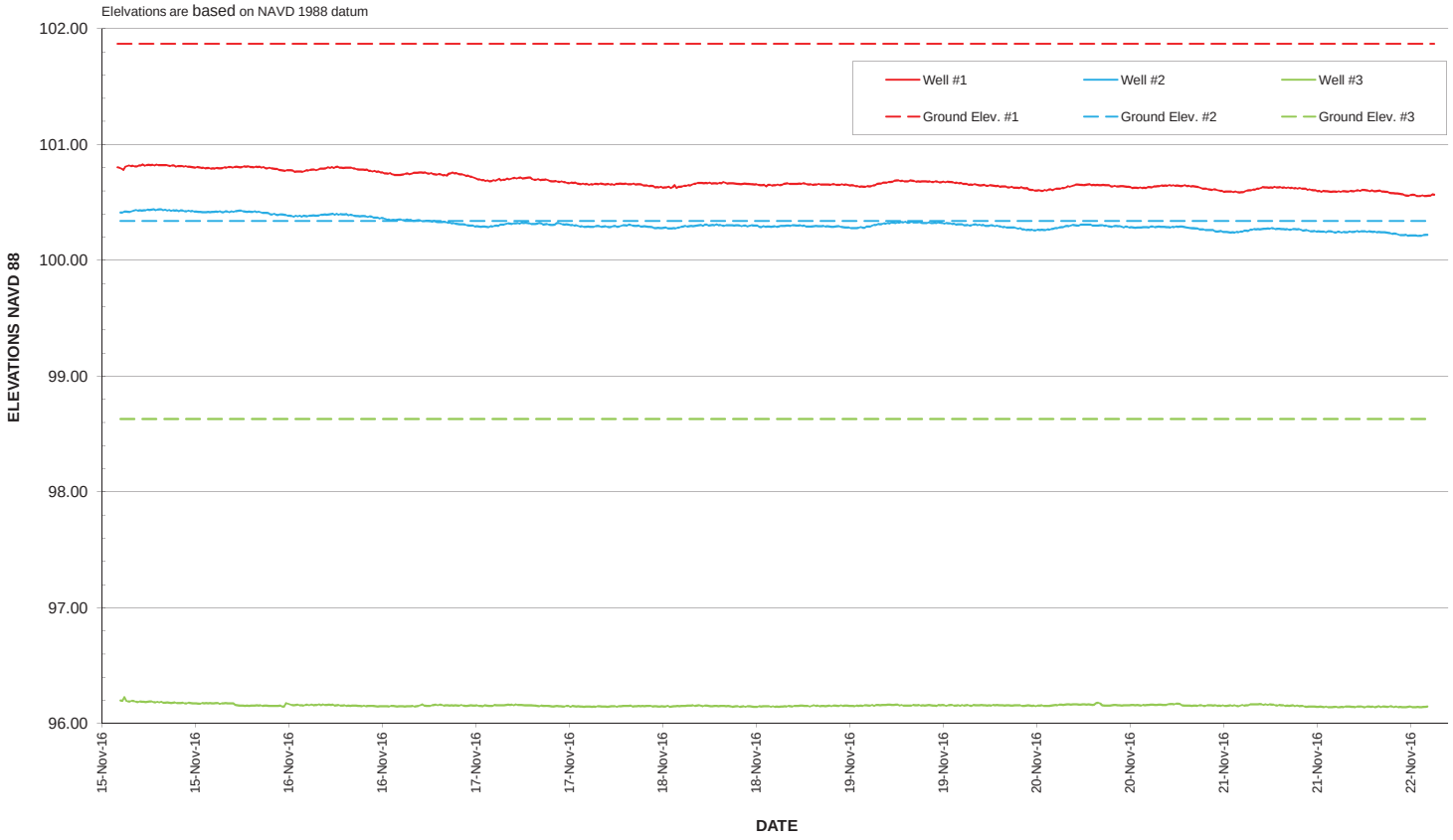
APPENDIX D

WATER LEVEL DATA ANALYSIS

Watergrass CDD - Groundwater Flow Map

WATERGRASS CDD 2016

JOHNSON ENGINEERING



APPENDIX E

UNDERDRAIN CAMERA SCOPE INVESTIGATION

December 14, 2016

Annastacia “Staci” Thomas
Environmental Scientist
Johnson Engineering, Inc.
2122 Johnson Street
Ft. Myers, FL 33901

Cardno

4803 George Road
President's Plaza, Suite 350
Tampa, FL 33634
USA

Phone: +1 727 431 1580
Fax: +1 813 886 1234

www.cardno.com

RE: Field Observation Report of Drain Piping

Project: Watergrass CDD Monitoring Well Project

Dear Ms. Thomas,

On December 1st, 2016, Cardno investigated the underdrain piping along the western side of Cottage Glen Lane as requested through the use of a push-rod submersible camera. The underdrain was accessed at the northwest curb inlet at Garden Alcove Loop and Cottage Glen Lane. The underdrain was clear for over 100’ going north from the access point. Unfortunately, due to a potential separation in the underdrain, the camera could not proceed beyond approximately 105’+/-.

Although it was not part of Cardno’s scope, in an effort to provide as much information as possible, Cardno provided an alignment painted on the ground surface of the underdrain and took several photos. Please see attached.

We appreciate the opportunity to provide our services for Johnson Engineering, Inc. Please call me directly at 727.431.1519 if you have any questions or comments.

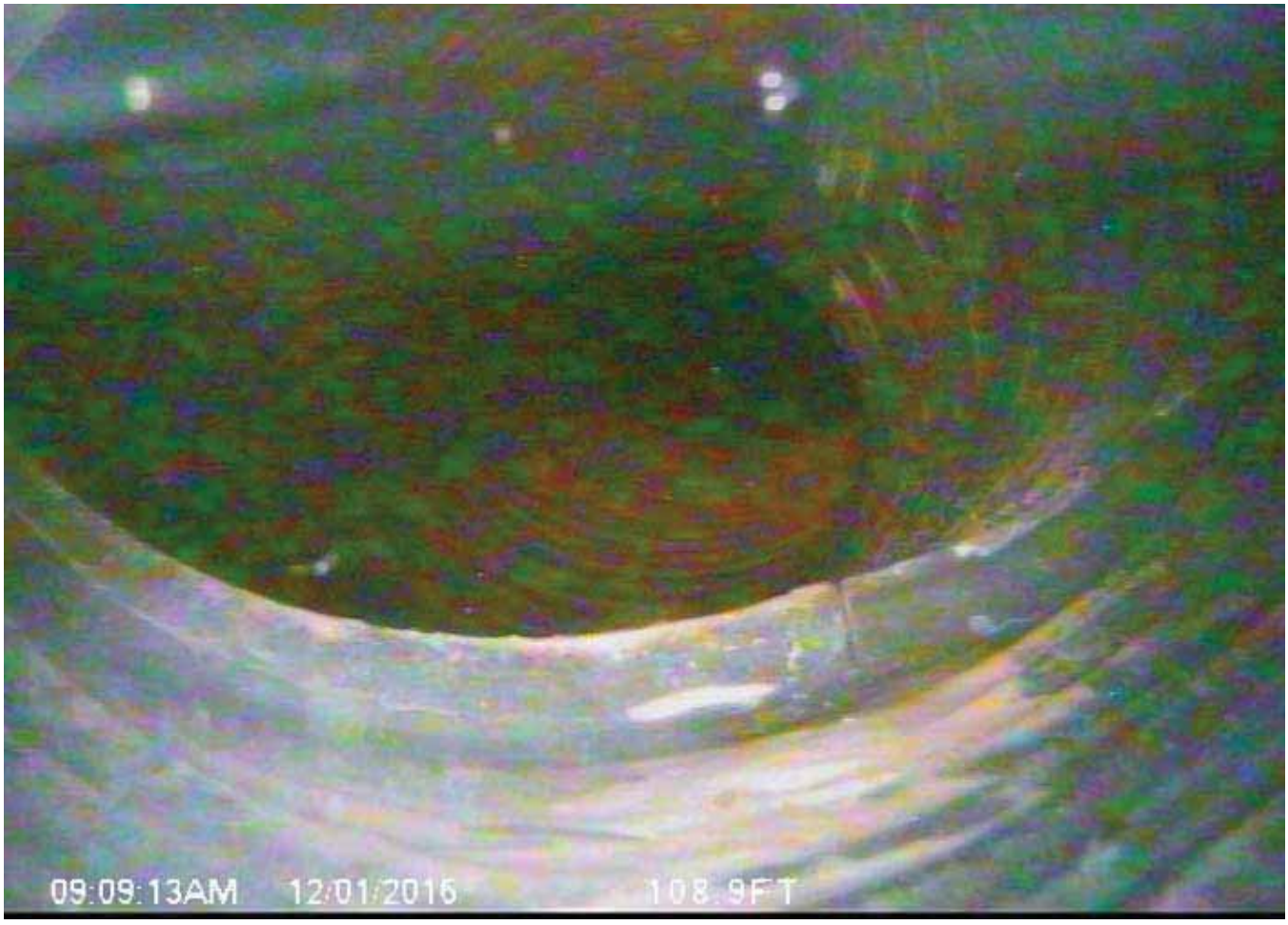
Regards,

Cardno

Aaron Hopkins
Project Manager, Utility Engineering & Surveying
Government and Infrastructure Division

Cc: Mike Albanese, Cardno


PM 2:23 DEC/ 1/2016


09:09:13AM 12/01/2016 108.9FT


STOP
PM 2:22 DEC/ 1/2016

ALL SOUTH UNDERGROUND LLC

All South Underground, LLC.
Oldsmar
Oldsmar
Tel: 813-925-3112

Email:

Inspection Report / Inspection: 1

Section # :	Inspection Date :	Operator :			
1	**3/23/2017**	**Eric**			

Customer :	**Wiregrass CDD Inc.**	Tape # :		From MH :	**MH-3**
Location:	**Cottage Glen Ln**	DVD # :	**1**	To MH :	**To Location B**
		Truck # :	**Truck #14**	Section length :	**105.20 ft**

Reason of inspection :	**Final Inspection**	Pipe Size :	**6 inch**
Section type :	**Storm Sewer**	Pipe Material :	**Plastic**

Remarks :

1:275	Position	Code	Observation	Photo
MH-3	0.00	ibd	inspection begins at downstream manhole	
	105.20	ia	inspection abandoned, Can't push farther	

ALL SOUTH UNDERGROUND LLC

All South Underground, LLC.
Oldsmar
Oldsmar
Tel: 813-925-3112

Email:

Inspection Report / Inspection: 1

Section # :	Inspection Date :	Operator :			
2	**3/23/2017**	**Eric**			

Customer :	**Wiregrass CDD Inc.**	Tape # :		From MH :	**MH-4**
Location:	**Cottage Glen Ln**	DVD # :	**1**	To MH :	**To Location A**
		Truck # :	**Truck #14**	Section length :	**136.00 ft**

Reason of inspection :	**Final Inspection**	Pipe Size :	**6 inch**
Section type :	**Storm Sewer**	Pipe Material :	**Plastic**

Remarks :

1:350	Position	Code	Observation	Photo
MH-4	0.00	ibd	inspection begins at downstream manhole	
	136.00	ia	inspection abandoned, Can't push farther	

ALL SOUTH UNDERGROUND LLC

All South Underground, LLC.
Oldsmar
Oldsmar
Tel: 813-925-3112
Email

Inspection Report / Inspection: 1

Section # :	Inspection Date :	Operator :			
3	**3/23/2017**	**Eric**			

Customer :	**Wiregrass CDD Inc.**	Tape # :		From MH :	**Location A**
Location:	**Cottage Glen Ln**	DVD # :	1	To MH :	**To MH-4**
		Truck # :	**Truck #14**	Section length :	**146.70 ft**

Reason of inspection :	**Final Inspection**	Pipe Size :	**6 inch**
Section type :	**Storm Sewer**	Pipe Material :	**Plastic**

Remarks :

1:375	Position	Code	Observation	Photo
Location A	0.00	ibu	inspection begins at upstream manhole	
	146.70	ia	inspection abandoned, Can't push farther	

ALL SOUTH UNDERGROUND LLC

All South Underground, LLC.
Oldsmar
Oldsmar
Tel: 813-925-3112

Email:

Inspection Report / Inspection: 1

Section # :	Inspection Date :	Operator :			
4	3/23/2017	Eric			

Customer :	Wiregrass CDD Inc.	Tape # :		From MH :	Location A
Location:	Cottage Glen Ln	DVD # :	1	To MH :	To Existing
		Truck # :	Truck #14	Section length :	120.20 ft

Reason of inspection :	Final Inspection	Pipe Size :	6 inch
Section type :	Storm Sewer	Pipe Material :	Plastic

Remarks :

1:300	Position	Code	Observation	Photo
Location A	0.00	ibd	inspection begins at downstream manhole	
	120.20	ia	inspection abandoned, Can't push farther	

ALL SOUTH UNDERGROUND LLC

All South Underground, LLC.
Oldsmar
Oldsmar
Tel: 813-925-3112

Email:

Inspection Report / Inspection: 1

Section # :	Inspection Date :	Operator :			
5	**3/23/2017**	**Eric**			

Customer :	**Wiregrass CDD Inc.**	Tape # :		From MH :	**Location C**
Location:	**Cottage Glen Ln**	DVD # :	1	To MH :	**To Location B**
		Truck # :	**Truck #14**	Section length :	**131.60 ft**

Reason of inspection :	**Final Inspection**	Pipe Size :	**6 inch**
Section type :	**Storm Sewer**	Pipe Material :	**Plastic**

Remarks :

1:325	Position	Code	Observation	Photo
Location C	0.00	ibu	inspection begins at upstream manhole	
	131.60	ia	inspection abandoned, Can't push farther	

Service Ticket - TV

All South Underground LLC

ASU Job #: WIRE170302

Lead Operator: Eric/Demetrius **Truck #:** 14

Customer: Wiregrass CDD Inc.

EST/PO/Contract#: ASU201789

Project Name: Cottage Glen Ln	**Date:** 3 / 23 / 2017	**Day** M T W (Th) F Sat Sun
FDOT Contract #: (if applicable)	Financial Project #: (if applicable)	
Location: 32213 Cottage Glen Ln (Address - Nearest Road or Cross Streets)	City: Wesley Chapel	County: Hillsborough
Customer Rep: Phil Chang	Tel: 813-751-2552	Email:

Sanitary - CCTV **Stage** Final Inspection | Preliminary Inspection ☐ Depth Gauge – Size: _____

Ovality Test None | 5% Mandrel | 7.5% Mandrel | Other _____

Notes:

Storm - CCTV **Stage** Final Inspection | Preliminary Inspection ☐ Joint Measurement

Ovality Test None | Laser Profiling | Other _____

Notes:

Mini Camera (Lateral Cam) | Hand-Held **Stage** Pre-Construction | Preliminary Inspection (Final Inspection)

Notes:

# of Laterals: _____

Time-Tracking

Start Time	Stop Time	Travel	San. CCTV	Storm CCTV	Mini Cam	Cust. Stndby	ASU Stndby	Time-Tracking Notes
7:00AM	8:15AM	X						
8:15AM	10:15AM				X			
10:15AM	11:10AM	X						

Other Notes: DISK 1 Section 1-5

Could not access cleanout location B

Received By (CUSTOMER REPRESENTATIVE)

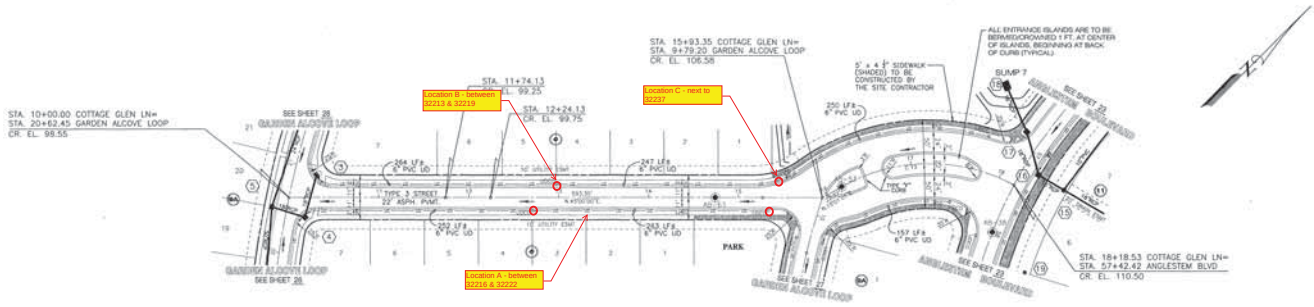
The above work was performed in accordance with the specifications provided by the customer and completed in a professional manner.

Received ____ **Copy(s) of:** Report & DVD | DVD | Report Only

Print Name: _____ **Sign Name:** _____ **Date:** _____

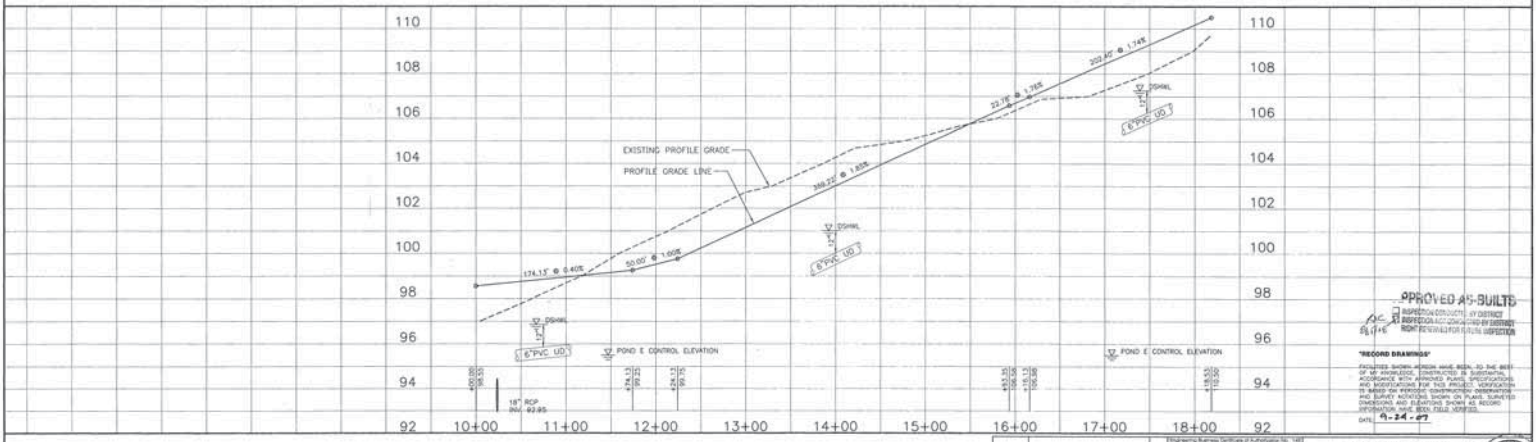
APPENDIX F

CONSTRUCTION



COTTAGE GLEN LANE

SCALE: 1" = 2' VERTICAL
1" = 50' HORIZONTAL



APPROVED AS-BUILTS
INSPECTION CONDUCTED BY DISTRICT
INSPECTOR AND/OR AGENCY
RIGHT RESERVED FOR FUTURE INSPECTION

"RECORD DRAWINGS"
FACILITIES SHOWN HEREON HAVE BEEN, TO THE BEST OF MY KNOWLEDGE, CONSTRUCTED IN SUBSTANTIAL ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS AND MODIFICATIONS FOR THIS PROJECT. VERIFICATION OF ELEVATIONS, DIMENSIONS, LOCATIONS, CONDITIONS AND SURVEY NOTATIONS SHOWN ON PLANS, SURVEYED DIMENSIONS AND ELEVATIONS SHOWN AS RECORD INFORMATION HAVE BEEN FIELD VERIFIED.
DATE: 9-24-07

DATE	DESCRIPTION	BY
10-17-06	ST. NAMES	
10-04-06	STREET NAMES	
07-26-06	SIDEWALK INTERSECTIONS	
06-02-06	STR. 13-15	
03-24-06	LAYOUT REVISIONS	
09-22-05	STREET NAME	
08-30-05	STREET NAMES	
08-08-05	BLOCK 94 (F.K.A. 7), E.O.R.	

Engineering Business Certificate of Authorization No. 1487
HEIDT & ASSOCIATES, Inc.
Tampa - Fort Myers - Sarasota-Manatee
Tampa Office
3212 Swann Avenue
Tampa, Florida 33609
Phone: 813-253-5311
Pinellas: 727-442-8026
Fax: 727-442-2401
Fort: 813-253-3476
B. Patrick Gasaway P.E. No. 38537
FLORIDA PROFESSIONAL ENGINEER

ROADWAY PLAN AND PROFILE

WaterGrass
Parcels B1 - B4

CKB Development, LLC

Elevations based on National Geodetic Vertical Datum 1929 (NGVD 29)
Conversion from NGVD 29 to NAVD 88 = -0.83 Feet

JOB NO.	COM-C1-009
DESIGN	LUCAS
Drawn	MEITZE
PREPARED FOR	CKB Development, LLC
DATE	03-28-05
FILE	DP05

SHEET 26 OF 74 SHEETS

RECEIVED
DEC 17 2007
SWFWMD


LOCATION A
3/1/2017


LOCATION B


LOCATION C