

---

# Surveyor's Report

---

## **Hydrology – Polk, Highlands and Okeechobee County Wells**

NMI Project No. 1078.025

Report Date: April 6<sup>th</sup>, 2007

Submittal: Final

Prepared for:

**South Florida Water Management  
District**



2560 RCA Boulevard, Suite 105 • Palm Beach Gardens, Florida 33410  
ph: 561.627.5200 • fax: 561.627.0983 • email: [info@nickmillerinc.com](mailto:info@nickmillerinc.com)  
[www.nickmillerinc.com](http://www.nickmillerinc.com)

---

# TABLE OF CONTENTS

Overview of The Project..... 2  
    Purpose..... 2  
    Location of Project..... 3  
    Items Delivered to The Client..... 3  
    Vertical Datum for The Project..... 4  
    Configuration of Level Runs ..... 4  
    Equipment Used..... 4  
Project Results ..... 5  
    LKBB2B ..... 5  
    LKBC2A..... 6  
    LKBA1A..... 6  
Surveyor’s Certification..... 7

## **OVERVIEW OF THE PROJECT**

### **PURPOSE**

The purpose of the Polk, Highlands and Okeechobee County Monitoring Wells Project is to establish a vertical control mark near the monitoring well. The project tests the application of Federal Geodetic Control Subcommittee (FGCS) Second-Order, Class II leveling procedures with Third-Order equipment. The goal of this hybrid pairing of procedures and equipment is to produce leveling measurements that will be acceptable to the National Geodetic Survey (NGS) and used in future vertical adjustments throughout the District.

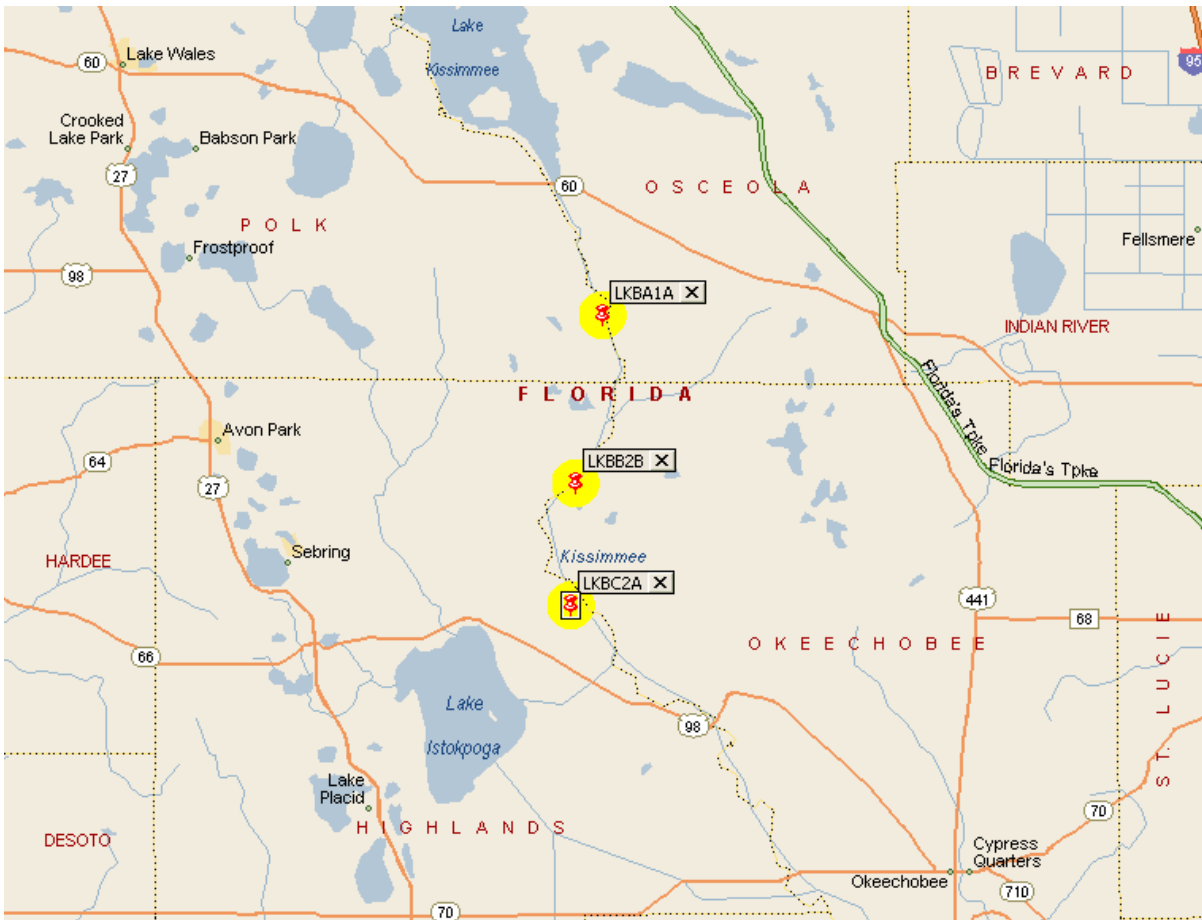
This project utilizes uncalibrated “off-the-shelf” fiberglass level rods. Such rods are not currently approved by NGS for precise leveling (Second-Order Class II and above) for three primary reasons:

1. The fiberglass material used to construct the rods is less dimensionally stable than rods constructed of Invar metal.
2. The fiberglass rods are not individually calibrated by the manufacturer to identify scale errors across the length of the rod.
3. The fiberglass rods are a three-section snap-together style that will, over time, wear at the connection points creating error in measurements on the top two sections.

While these limitations make the rods unsuitable for the extreme precision required in First-Order and Second-Order, Class I leveling, it is the hypothesis of this project that such rods can deliver Second-Order, Class II precisions. Fiberglass rods are commonly used by surveyors today. In contrast, Invar level rods are expensive and specialized equipment only used by surveyors working on the highest precision vertical control surveys. By demonstrating that fiberglass level rods such as those used in this project are suitable for Second-Order, Class II leveling the District will benefit from the increased number of consultants using these rods. As a result, more level lines run within the District should meet NGS’s requirements for inclusion in future vertical adjustments, further refining the elevation models used for water control.

**LOCATION OF PROJECT**

This project is located in Polk, Highlands and Okeechobee County. Following is a vicinity map.



**ITEMS DELIVERED TO THE CLIENT**

The following items are delivered to the client with this report. Neither the report nor the items listed below are complete without the other.

1. Paper and electronic copy of field notes
2. Paper and electronic copy of all computation sheets
3. CORPSMET file for well site
4. Paper and electronic copy of site photographs
5. Paper copy of South Florida Water Management District Benchmark Description
6. Paper and electronic copy of NGS Blue Book submittal

**VERTICAL DATUM FOR THE PROJECT**

The vertical datum for the project is the North American Vertical Datum of 1988. For correlation with older data sets, the elevations of the benchmarks are also shown in the National Geodetic Vertical Datum (NGVD) of 1929. The NGVD 29 elevations were derived using data provided by the South Florida Water Management District in a file named “NGVD29.ABS” when applicable, otherwise NGS superseded values were used. The linear unit for all elevations is the meter unless otherwise stated.

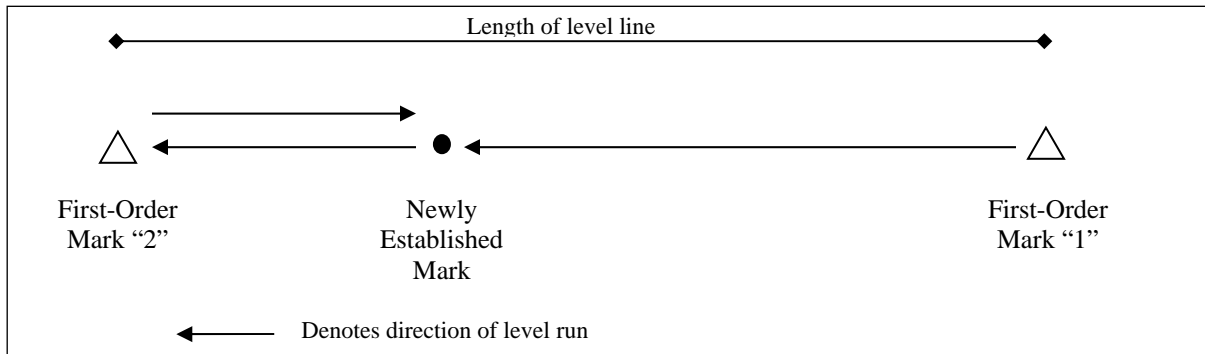
**Leveling Methods**

**CONFIGURATION OF LEVEL RUNS**

The leveling for the project was performed in accordance with the Federal Geodetic Control Subcommittee standard for Second-Order, Class II geodetic leveling. A brief description of the procedures used follows.

For each level line, two existing First or Second Order vertical marks were used. The run was started at one of the First or Second Order marks and continued through the newly established mark near the structure and closed on the second First or Second Order vertical mark. The run was then looped back from the second First or Second Order mark to the newly established mark (see Figure 1 below).

**Figure 1 Typical Level Run Pattern**




The FGCS maximum allowable misclosure for this type of run is eight millimeters multiplied by the length of the line in kilometers.

**EQUIPMENT USED**


All leveling during the project was performed with a Leica DNA03 digital level and Leica three-section, fiberglass bar-code level rods. Information and technical specification for the Leica DNA03 digital level are available at <http://www.leica-geosystems.com>.


**PROJECT RESULTS**

The following table lists the elevations established for the new mark, the level run misclosure, “to-reach” description for the mark and a photo of the mark. All elevations are in US Survey Feet.

<b>LKBB2B</b>		Elevation:	<b>51.11 ft</b>	(NAVD 88)	52.25 ft	(NGVD 29)
Bench Mark 1:	M 556		43.55 ft	(NAVD 88)	N/A ft	(NGVD 29)
Bench Mark 2:	N 556		43.27 ft	(NAVD 88)	N/A ft	(NGVD 29)
Monitoring Well:	LKBB2B		54.24 ft	(NAVD 88)	55.38 ft	(NGVD 29)
Concrete Pad:	LKBB2B		51.38 ft	(NAVD 88)	52.53 ft	(NGVD 29)
Ground Elevation:	LKBB2B		51.30 ft	(NAVD 88)	52.45 ft	(NGVD 29)
Length of Run:	1.86 km		To Reach LKBB2B:			
Max Allowable Misclosure:		11 mm	<p>FROM THE INTERSECTION OF US 98 AND MICCO BLUFF (NW 203<sup>RD</sup> AVE.). HEAD NORTH ON MICCO BLUFF FOR 0.1 MILE TO NW 160<sup>TH</sup> DRIVE. TAKE LEFT AND HEAD NORTHWESTERLY FOR 6.1 MILES TO Y-JUNCTION. MAKE RIGHT HEAD NORTHERLY FOR 2.7 MILES ALUMINUM GATE (PAVEMENT ENDS), CONTINUE NORTH FOR 150 FEET TO SECOND ALUMINUM GATE, CONTINUE NORTH FOR 0.6 MILE TO THIRD ALUMINUM GATE, CONTINUE NORTH FOR 0.6 MILE TO COW CROSSING GATE, CONTINUE NORTH FOR 3.4 MILES TO FOURTH ALUMINUM GATE, CONTINUE NORTH FOR 0.4 MILES TO Y-JUNCTION WITH SFWMD ALUMINUM GATE ON LEFT (NEED L KEY), CONTINUE NORTHERLY THEN EASTELY ON DIRT ROAD FOR 1.2 MILES TO GRASS ROAD (THROUGH COW FIELD) ON RIGHT, MAKE RIGHT AND HEAD EAST ON GRASS ROAD FOR 0.5 MILE TO WHERE ROAD MAKES A TEE, MAKE LEFT AND HEAD NORTH FOR +/- 250 FEET TO OLD WOOD FENCE ON RIGHT, MAKE RIGHT AND HEAD EASTERLY ON GRASS TRAIL FOR 1.6 MILES TO MARK ON RIGHT. MARK IS +/-350 FEET OFF GRASS TRAIL TO THE SOUTH BY MONITORING WELL LKBB2B. SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 8.4 FEET NORTH OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL, 32.0 FEET WEST OF PK NAIL AND DISK SET ON SOUTH SIDE OF 1 FOOT DIAMETER OAK TREE, 6.5 FEET NORTHEAST OF NORTHWEST YELLOW BALLARD POST. MAGNET SET 1 FOOT NORTH OF MONUMENT.</p>			
Actual Misclosure:		0 mm				
						

*Polk, Highlands and Okeechobee County Monitoring Wells*

<b>LKBC2A</b>		Elevation:	<b>44.21 ft</b>	(NAVD 88)	45.37 ft	(NGVD 29)
Bench Mark 1:	B 463		52.52 ft	(NAVD 88)	N/A ft	(NGVD 29)
Bench Mark 2:	C 463		48.99 ft	(NAVD 88)	N/A ft	(NGVD 29)
Monitoring Well:	LKBC2A		48.37 ft	(NAVD 88)	49.53 ft	(NGVD 29)
Concrete Pad:	LKBC2A		44.32 ft	(NAVD 88)	45.48 ft	(NGVD 29)
Ground Elevation:	LKBC2A		43.91 ft	(NAVD 88)	45.07 ft	(NGVD 29)
Length of Run:	0.81 km	To Reach LKBC2A:				
Max Allowable Misclosure:	7 mm	FROM THE INTERSECTION OF US 98 AND BLUFF HAMMOCK ROAD. HEAD EAST ON US 98 FOR 1.8 MILES TO HICKORY HAMMOCK EQUESTRAIN CENTER ENTRACNE DIRT ROAD (MACARTHUR ROAD). MAKE LEFT AND HEAD NORTHERLY THEN WESTERLY ON DIRT ROAD FOR 2.7 MILES TO SFWMD ALUMINUM GATE (POSTED WILDLIFE MANGEMENT AREA - NEED L KEY). MAKE LEFT AND HEAD NORTH FOR 0.3 MILE ON GRASS ROAD ALONG BARBED WIRE FENCE ON LEFT TO MARK ON RIGHT. SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 12.1 FEET SOUTH OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL LKBC2A, 32.0 FEET WEST OF PK NAIL AND DISK SET ON NORTH SIDE OF 2 FOOT DIAMETER OAK TREE, 14.8 FEET EAST OF CENTERLINE OF GRASS ROAD. MAGNET SET 1 FOOT NORTH OF MONUMENT.				
Actual Misclosure:	4 mm					
						

<b>LKBA1A</b>		Elevation:	<b>54.56 ft</b>	(NAVD 88)	55.75 ft	(NGVD 29)
Bench Mark 1:	J 461		51.40 ft	(NAVD 88)	N/A ft	(NGVD 29)
Bench Mark 2:	H 461		51.21 ft	(NAVD 88)	N/A ft	(NGVD 29)
Monitoring Well:	LKBA1A		58.59 ft	(NAVD 88)	59.78 ft	(NGVD 29)
Concrete Pad:	LKBA1A		55.31 ft	(NAVD 88)	56.50 ft	(NGVD 29)
Ground Elevation:	LKBA1A		54.90 ft	(NAVD 88)	56.09 ft	(NGVD 29)
Length of Run:	1.88 km	To Reach LKBA1A:				
Max Allowable Misclosure:	11 mm	TO REACH THE MARK FROM THE INTERSECTION OF STATE ROAD 27 UNDERPASS AND STATE ROAD 60 IN LAKE WALES, GO EAST-SOUTHEAST ON STATE ROAD 60 FOR 25.7 MILES TO THE JUNCTION OF RIVER RANCH BOULEVARD ON THE RIGHT, TURN RIGHT ON RIVER RANCH BOULEVARD AND GO SOUTH FOR 2.55 MILES TO THE GUARD HOUSE AT THE ENTRANCE TO RIVER RANCH, CONTINUE SOUTH ON RIVER RANCH BOULEVARD FOR 0.3 MILES TO THE JUNCTION OF KICCO ROAD (A DIRT ROAD) LEADING SOUTHEAST. MAKE RIGHT AND HEAD SOUTH ON KICCO GRADE ROAD (NEED SFWMD L KEY) FOR 7.2 MILES TO DIRT ROAD ON RIGHT. MAKE RIGHT AND HEAD WEST FOR 0.15 MILE TO FLORIDA TRAIL ON THE LEFT. MAKE LEFT AND HEAD NORTHERLY ON FLORIDA TRAIL TO MARK ON LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 10.7 FEET WEST OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL LKBA1A, 52.4 FEET SOUTH OF PK NAIL AND DISK SET ON EAST SIDE OF 2 FOOT DIAMETER OAK TREE, 8.3 FEET NORTHWEST OF SOUTHWEST YELLOW BALLARD POST. MAGNET SET 1 FOOT NORTH OF MONUMENT.				
Actual Misclosure:	4 mm					
						

The combination of Second-Order, Class II methods and Third-Order fiberglass level rods produced errors of closure within the FGCS standard for Second-Order, Class II geodetic leveling. The data gathered during this project has been submitted to Mr. Ronnie Taylor, NGS Advisor for the State of Florida for further analysis and recommendations.

**SURVEYOR'S CERTIFICATION**

In my professional opinion, this report of survey meets applicable portions of the Minimum Technical Standards set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 61-G17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

NICK MILLER, INC.  
DBPR Authorization No. 4318

February 27<sup>th</sup>, 2007  
Date of Survey

By:

Stephen M. Gordon, PSM  
Professional Surveyor and Mapper  
State of Florida  
Certificate No. 5974



# LKBA1A



**Nick Miller, Inc.**  
**Date of Photo: February 15, 2007**  
**View: Looking at the well facing east**

# LKBA1A



**Nick Miller, Inc.**  
**Date of Photo: February 15, 2007**  
**View: Close-up of the showing the contractor's markings**

**LKBA1A**



**Nick Miller, Inc.**  
**Date of Photo: February 15, 2007**  
**View: Looking at the benchmark facing east**

# LKBA1A



Nick Miller, Inc.  
Date of Photo: February 15, 2007  
View: A top view of the benchmark

1078.025

LKBBZB

SEWARD

MONITORING WELL

- SET POURED-IN-PLACE CONCRETE MONUMENT ON SEWARD BRASS DISK.
- SET MAGNET 1' NORTH OF MONUMENT.

STAMPED: LKBBZB

2007

TIES

- SET MONUMENT 84' NORTH OF MONITORING WELL  
1' DIA. GREY PVC PIPE
- SET MONUMENT 32.0' WEST OF PK NAIL & DISK  
SET SOUTH SIDE OF 10' DIA. OAK TREE.
- SET MONUMENT 6.5' NE OF NEW YELLOW BOLLARD POST.

COORDINATES:

MONITORING WELL

N. 27° 33' 10"

N. 1170158.646 ft

W. 81° 10' 37"

E. 598834.433 ft

MONUMENT

N. 27° 33' 10"

N. "

W. 81° 10' 37"

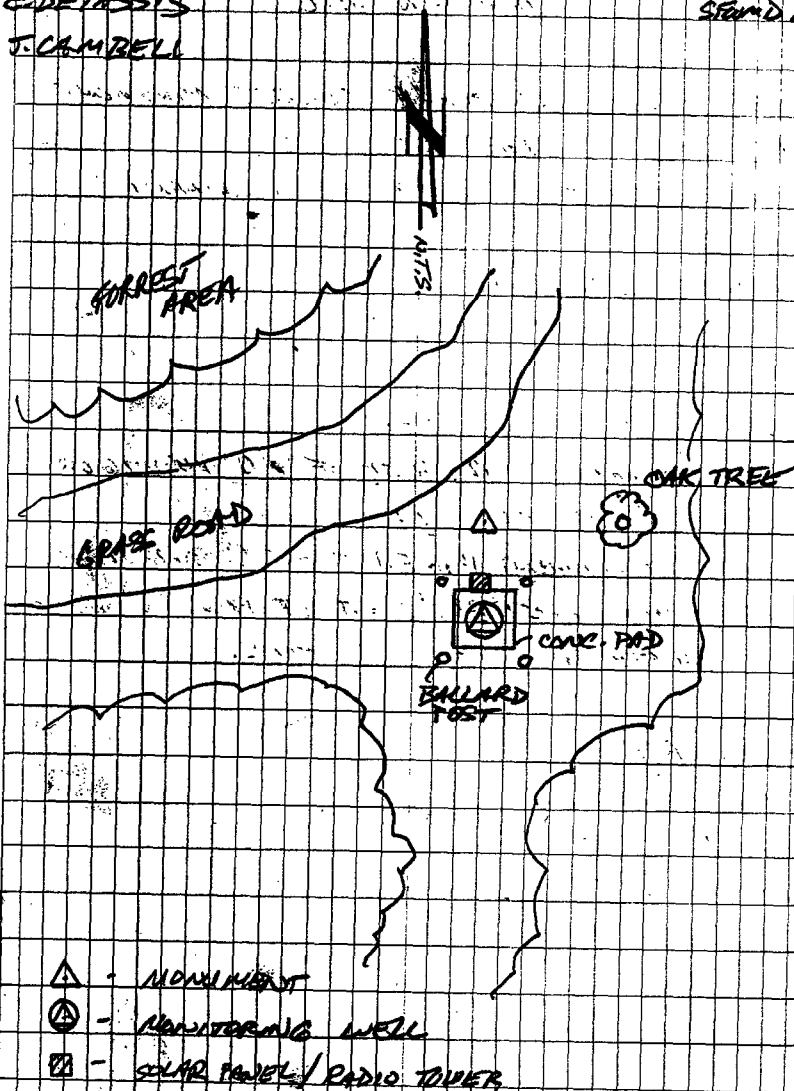
E. "

WED. FEB. 14, 2007

E. DETASSIS

J. CAMPBELL

SEWARD 19, 20



1070.025

LHBC2A

SFUMD

MONITORING WELL

- SET TOWERED-IN-PLACE CONCRETE MONUMENT  
W/ SFUMD BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED LHBC2A

2007

## TIPS.

- SET MONUMENT 12.1' SOUTH OF A Q MONITORING  
WELL 1' DIA. GREY PVC PIPE
- SET MONUMENT 14.8' EAST OF Q DIRT ROAD
- SET MONUMENT 33.7' WEST OF PENAIL & DISK  
ON NORTH SIDE OF (2" DIA.) OAK TREE.

## COORDINATES

MONITORING WELL

N. 27° 27' 13"

N. 1134110.833 ft

W. 81° 10' 57"

E. 596981.332 ft

MONUMENT

N. 27° 27' 13"

N.

W. 81° 10' 57"

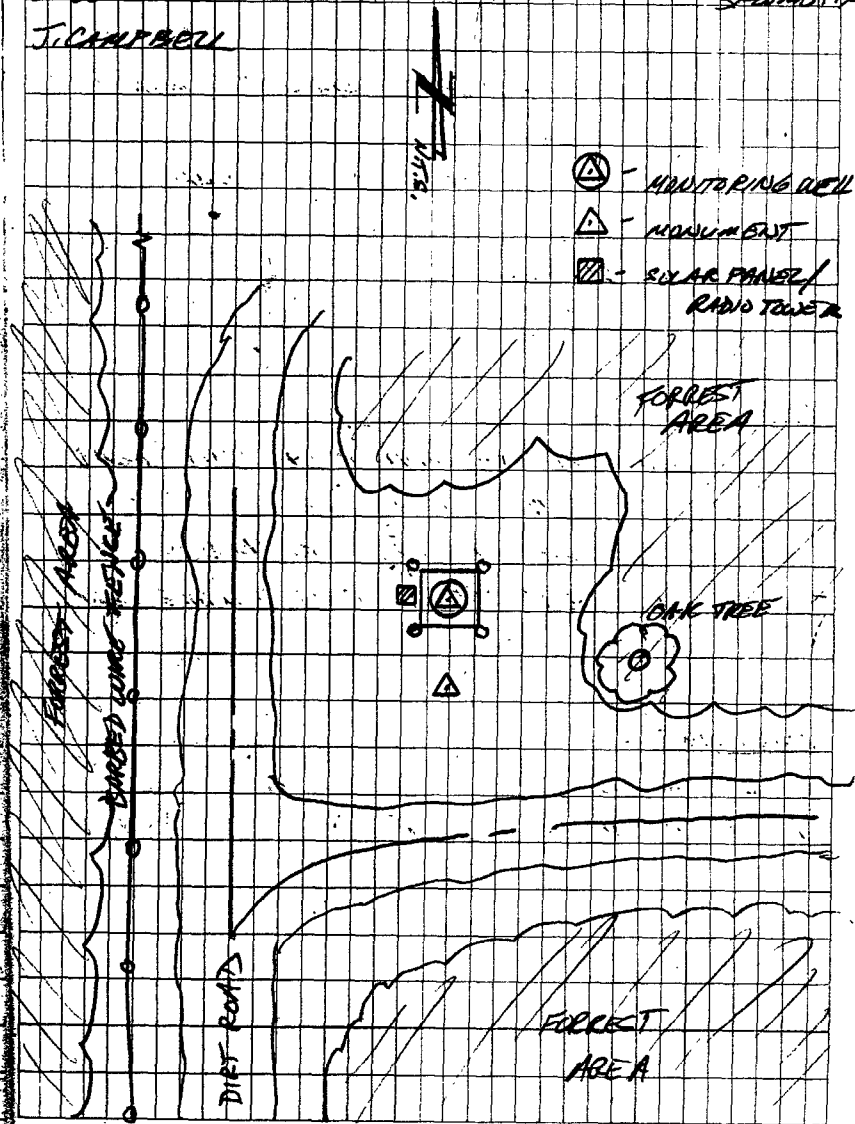
E.

WED. FEB. 14, 2007

E. DETASSIS

SFUMD 1921

J. CAMPBELL



1078.025

LKBC2A 2

SPUMD

BENCHMARK

WED. FEB. 14, 2007

19, 22

SPUMD 2

- SET TOURED-IN-PLACE CONCRETE MONUMENT  
W/ SPUMD BRASS DISK
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED LKBC2A 2

2007

TIES

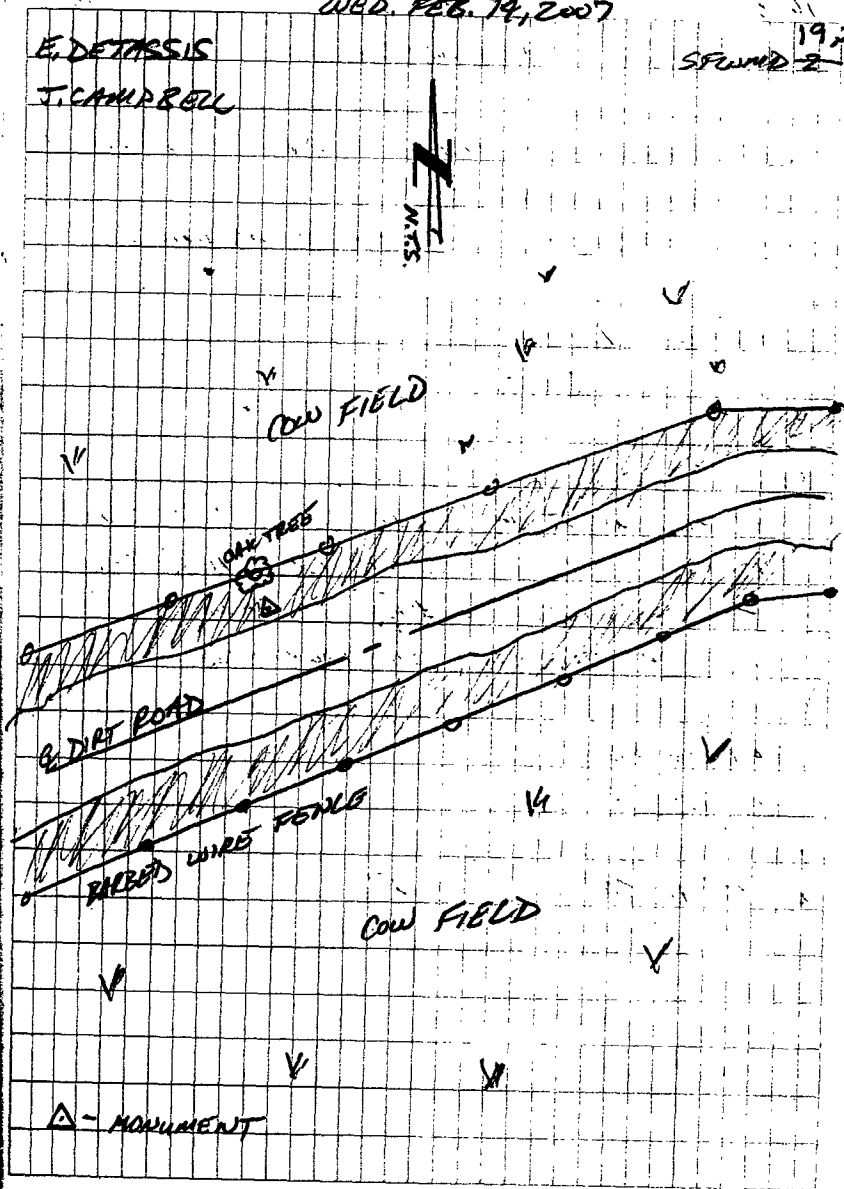
- SET MONUMENT 10.0' NW OF Q DIRT ROAD
- " " 26.4' SE OF PK NAIL & DISK  
ON WEST SIDE OF 2.0' OAK TREE.
- " " 36.0' NW OF BARBED WIRE FENCE

COORDINATESMONUMENTN.  $29^{\circ} 26' 35''$ 

N. 1130282.149 ±6

W.  $81^{\circ} 11' 59''$ 

E. 591389.932 ±6



1078.025

LKBAIA

SEWARD

MONITORING WELL

THUR. FEB. 15, 2007

SEWARD 19, 27

- SET Poured-IN-PLACE CONCRETE MONUMENT  
W/ BRASS DISK.
- SET MAGNET 1' NORTH OF MONUMENT

STAMPED LKBAIA  
2007

## TIES

- SET MONUMENT 10.7' WEST OF 1' DIA. GREY  
PVC PIPE FOR MONITORING WELL
- SET MONUMENT 52.4' SOUTH OF 2' DIA. EAST  
SIDE OF 2' DIA. OAK TREE.
- SET MONUMENT 8.3' NW OF SW BALLED POST.

## COORDINATES

## MONITORING WELL

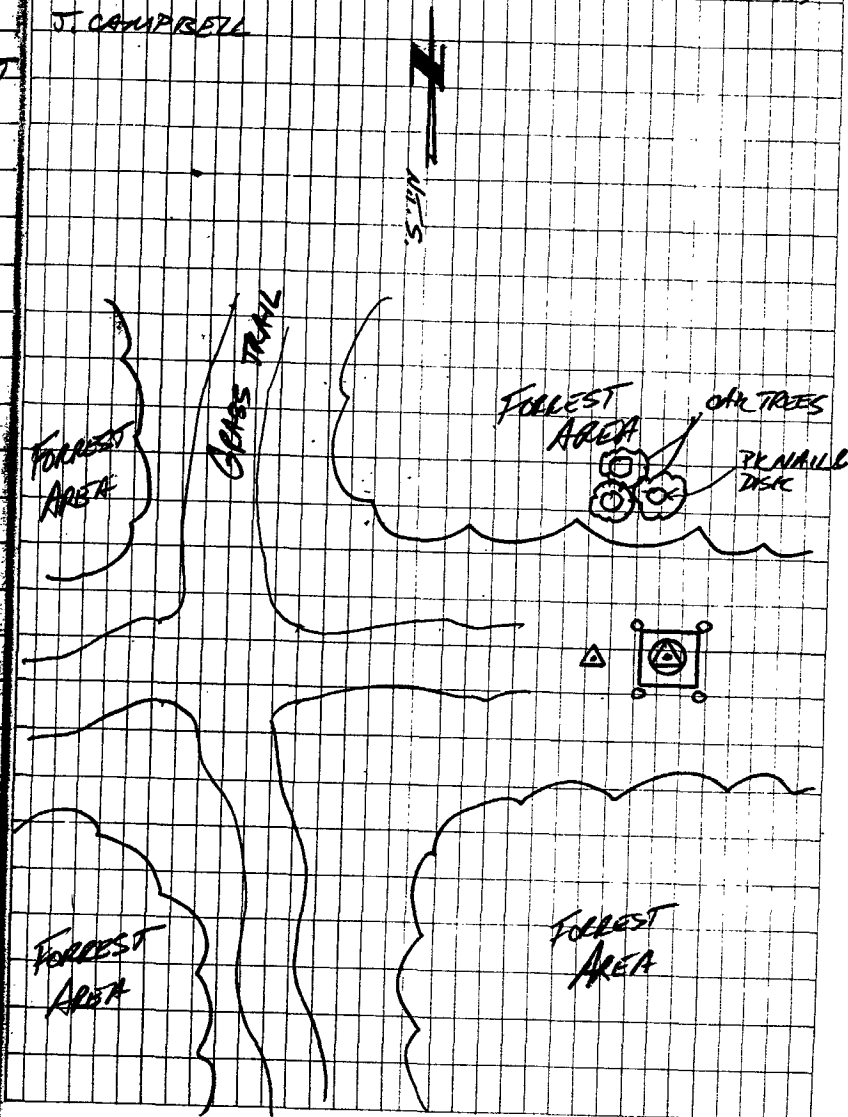
N. $27^{\circ} 41' 24''$	N. 1220033.709 ft
W. $81^{\circ} 09' 08''$	E. 106906.204 ft

## MONUMENT

N. $27^{\circ} 41' 24''$	N. "
W. $81^{\circ} 09' 08''$	E. "

E. DETASSER

J. CAMPBELL





1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

SFWM/D

G. RAGER III

SFWM/D 19, 28

C 463 → B 463

N. KHAN

	+	HI	-
1	1.7967 [69.69]		1.1883 [69.46]
2	1.4100 [69.37]		1.2448 [69.02]
3	1.4861 [68.31]		1.3034 [69.05]
4	1.4399 [68.31]		1.3385 [68.27]
5	1.3898 [69.39]		1.2572 [69.25]
6	1.4446 [60.27]		1.5620 [61.11]

ELEV. DESC.

14.932 M C 463 BM

D.H. NAIL SET ON NORTH SIDE OF US. 98

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

16.0050 M B 463 BM

TOTAL DIST: 0.81152 KM

4.0 MM ✓

1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

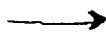
SEWMD

G. RAGER III

SEWMD-19,29

N. KHAN

B463



LKB C2A2

	<u>H.I.</u>	<u>ELEV.</u>	<u>DESC.</u>
1	1.9359 [63.66]	1.8690 [64.04]	16.009M B463 BM 60D. NAIL SET ON EAST SIDE OF DIRT RD
2	1.6168 [69.37]	1.4093 [69.38]	" " "
3	1.4392 [69.60]	1.4437 [68.95]	" " "
4	1.5030 [69.44]	1.4399 [69.22]	" " "
5	1.3603 [69.75]	1.4753 [69.87]	" " "
6	1.4001 [69.14]	1.2993 [69.43]	" " "
7	1.4927 [69.32]	1.3681 [69.55]	" " "

1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB, 20, 2007

SFWMD

G. RAGER III

SFWMD/9,30

N. KHAN

B463 → LKBC2A2 (CONT'D)

	+	H.I.	-	ELEV.	DESC.
8	1.5755 [69.81]		1.3764 [69.62]		'60 D. NAIL SET ON WEST SIDE OF DIRT RD.
9	1.4172 [68.73]		1.2675 [68.76]		" " " "
10	1.4001 [68.55]		1.3691 [68.93]		" " " "
11	1.4122 [69.54]		1.4957 [69.52]		" " " "
12	1.4390 [68.57]		1.6250 [68.14]		" " " "
13	1.4523 [69.57]		1.6317 [69.24]		" " " "
14	1.3545 [69.36]		1.4247 [69.70]		" " " "

1078 022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

SFWMO

G. RAGER III

SFWMO-19, 31

N. KHAN

B463 → LKBC2A2 (CONTD)

	<u>+</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
15	1.4142 [69.93]	1.4669 [69.74]		60.0 NAIL SET ON SOUTH EAST SIDE OF DIRT RD
				" "
16	1.3572 [69.53]	1.4476 [69.60]		" "
				" "
17	1.5140 [68.83]	1.4774 [69.22]		" "
				" "
18	1.4085 [69.12]	1.3615 [69.91]		" "
				" "
19	1.3642 [13.95]	1.4628 [12.24]		" "
				" "
20	1.4195 [10.11]	1.3569 [10.06]	16.2184M	LKBC2A2 BM

TOTAL DIST: 2.53102 KM



1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

SFWMD

G. RAGER III

SFWMD-F9,33

N. KHAN

LKBC2A2 → LKBC2A (CONT'D)

	<u>+</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
1	1.4470 [68.39]	1.7690 [68.40]		60 D. NAIL SET ON SOUTHEAST SIDE OF DIRT RD.
2	1.3922 [69.56]	1.6247 [69.35]		" " " "
10	1.4746 [69.70]	1.4831 [69.42]		" " " "
"	1.4627 [69.65]	1.5441 [69.44]		" " " "
12	1.4250 [63.27]	1.9827 [63.15]		" " " "
13	1.4457 [69.51]	1.6407 [69.75]		" " " "
14	1.6472 [68.82]	1.6014 [68.57]		" " " "

1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

SFVMD

G. RAGER III

SFVMD-1934

N. KHAN

LKBC2A2 → LKBC2A (CONT'D)

	<u>+</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
	1.8506			10" D. NAIL SET ON SOUTHEAST SIDE OF DIRT RD.
15	[69.62]	1.6462		"
		[69.48]		"
	1.6249			"
16	[68.22]	1.7686		"
		[68.02]		"
	1.2005			"
17	[67.49]	2.6047		"
		[69.24]		"
	1.8778			"
18	[5.49]	1.8200	13.4722 M	LKBC2A BM
		[5.93]		

TOTAL DIST: 2.31664 KM

1078.022

LEVEL RUN

J. CAMPBELL

TUE. FEB. 20, 2007

SEWMD

G. RAGER II

SEWMD-19,35

N. KHAN

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
5.29	105.29		100'	LKBCDA BM
		5.59	99.7'	GROUND
		5.18	100.11	CONC. PAD
		1.13	104.16	CONTRACTORS MARK
				CONTRACTORS MARK
1.330	105.49			
		5.425	100.065	CONC. PAD
		5.490	100'	LKBCDA BM





1078.022

LEVEL RUN

J. CAMPBELL WED. FEB. 21, 2007

SFWMD

G. RAGER III

SFWMD-19, 37

N. KHAN

LKBC2A → LKBC2A2 (CONT'D)

	+	H.I.	-	ELEV.	DESC.
8	1.6603 [69.35]		1.5858 [69.51]		60 D. NAIL SET ON WEST SIDE OF DIRT RD.
					" "
9	1.5473 [69.03]		1.3633 [68.26]		" "
					" "
10	1.7356 [69.67]		1.3926 [69.50]		" "
					" "
11	1.6457 [69.16]		1.3855 [69.26]		" "
					" "
12	1.5601 [69.63]		1.4390 [69.19]		" "
					" "
13	1.4913 [67.76]		1.4944 [69.25]		" "
					" "
14	1.3901 [69.91]		1.5122 [69.72]		" "

1078.02

LEVEL RUN

J. CAMPBELL WED. FEB. 21, 2007

SFWMO G. RAGER III

SFWMO-19,38

N. KHAN

LKBC2A → LKBC2A2 (CONT'D)

	<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
	1.4297				
15	[69.82]		1.5540		60D. NAIL SET ON WEST SIDE OF DIRT RD.
			[69.76]		" "
	1.4019				" "
16	[69.15]		1.4446		" "
			[68.90]		" "
	1.4815				" "
17	[66.55]		1.4805		" "
			[66.96]		" "
	1.4517				" "
18	[8.05]		1.4316	16.2203M	LKBC2A2 BM
			[7.19]		

TOTAL DIST: 2.33291 KM

1.9 MM ✓

1078.022

LEVEL RUN

J. CAMPBELL

WED. FEB. 21, 2007

SFWMD

G. RAGER III

SFWMD-19,39

M. KHAN

LKBC2A2 → B463

	<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
	1.4241		1.4260	16.2203M	B.M. LKBC2A2 (CONC. MON. WITH BRASS DISK)
	[67.69]		[67.43]		SET 60 D. ON WEST SIDE OF DIRT RD.
	1.7020		1.6772		" "
2	[69.78]		[69.26]		" "
	1.4246		1.4719		" "
3	[68.02]		[68.18]		" "
	1.5823		1.5295		" "
4	[69.05]		[68.29]		" "
	1.5110		1.4431		" "
5	[68.86]		[69.13]		" "
	1.6068		1.4173		" "
6	[68.20]		[69.06]		" "
	1.6154		1.2986		" "
7	[69.68]		[68.70]		" "

1078.022

LEVEL RUN

SFWMD

J. CAMPBELL

WED. FEB. 21, 2007

G. RAGER III

SFWMD-1940

N. KHAN

LKBC2A2 → B463 (CONT'D)

	+	H.I.	-	ELEV.	DESC.
	1.4745				SET 60D ON WEST SIDE OF DIRT RD.
8	[69.24]		1.5721		"
			[68.34]		"
	1.5543				"
9	[66.43]		1.4830		"
			[68.23]		"
	1.4186				"
10	[68.26]		1.5660		"
			[68.97]		"
	1.3172				"
11	[68.94]		1.4737		"
			[68.97]		"
	1.3309				"
12	[69.09]		1.5762		"
			[69.41]		"
	1.4841				"
13	[68.74]		1.4667		"
			[68.05]		"
	1.4766				"
14	[68.18]		1.4633		"
			[68.52]		"

1078.022

LEVEL RUN

J. CAMPBELL

WED. FEB. 21, 2007

SFWMD G. RAGER III

SFWMD-19, 41

N. KHAN

LKBC2A2 → B463 (CONT'D)

	+	H.I.	-	ELEV.	DESC.
	1.5138		1.5327		SET 60 D ON WEST SIDE OF DIRT RD.
15	[69.55]		[69.05]		" "
	1.4620		1.4497		" "
16	[67.85]		[68.29]		" "
	1.2997		1.4282		" "
17	[68.29]		[68.44]		" "
	1.4547		1.4292		" "
18	[68.62]		[66.70]		" "
	1.6125		1.5878		" "
19	[26.61]		[25.63]		" "
	1.4349		1.6231		" "
20	[9.27]		[10.04]	16.0001 m B.M.	B 463 (CONC. MON. WITH BRASS DISK)

TOTAL DIST: 2.53907 Km

✓ -8.9 mm

1078.022

LEVEL RUN

SFVMD

J. CAMPBELL

WED. FEB 21<sup>ST</sup> 2007

G. RAGER III

SFVMD-19,42

N556 → LKBBZ B

N. KHAN

	+	H.I.	-	ELEV.	DESC.
	1.3123			13.188M	B.M. N556 (CONC. MARK. WITH BRASS DISK)
1	[57.70]		0.9909		SET IRON ROD ON EDGE OF GRASS TRAIL.
			[57.21]		
	1.3129				" "
2	[56.28]		1.2961		" "
			[55.98]		" "
	1.5571				" "
3	[56.69]		0.5272		" "
			[56.47]		" "
	2.0418				" "
4	[68.20]		1.4959		" "
			[68.37]		" "
	1.8398				" "
5	[33.18]		1.4028		" "
			[33.26]		" "
	1.0941				" "
6	[42.32]		1.9240		" "
			[43.16]		" "
	2.0555				" "
7	[65.90]		1.4177		" "
			[65.73]		" "

1078.022

## LEVEL RUN

J. CAMPBELL

WED. FEB. 21, 2007

SFWMD

G. RAGER

SFWMD-19,43

N556 → LKBB2B (CONT.)

N. KHAN

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
1.6688				SET IRON ROD ON EDGE OF GRASS TRAIL
8 [34.98]		1.4392	15.5765	B.M. LKBB2B (CONC. MON. WITH BRASS DISK)
		[36.00]		

TOTAL DIST: 0.83145 KM

MONITORING WELL → LKBB2B (AND BACK)

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
4.765	104.765		100'	LKBB2B B.M.
		4.570	100.195'	GROUND
		4.490	100.275'	CONC. PAD
		1.635	103.130'	CONTRACTORS MARK
1.960	105.090		103.130'	CONTRACTORS MARK
		4.820	100.270'	CONC. PAD
		5.095	99.995'	LKBB2B B.M.

✓

✓



1078.

## LEVEL RUN

LKBB2B → M556

SFWMD

J. CAMPBELL MON. FEB. 26, 2007

G. RAGER III

SFWMD-19,44

N. KHAN

	<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
	0.9409			15.5765M	LKBB2B BM
1	67.73		2.3574		IRON ROD SET ONEASTSIDE OF DIRT RD.
			67.30		" " "
	1.1971				" " "
2	53.58		1.7241		" " "
			53.64		" " "
	1.0645				" " "
3	36.90		1.7512		" " "
			37.68		" " "
	1.6190				" " "
4	66.90		1.0064		" " "
			67.47		" " "
	1.5274				" " "
5	63.91		1.3686		" " "
			64.16		" " "
	1.4713				" " "
6	36.05		1.7966		" " "
			37.24		" " "
	2.6154				" " "
7	62.93		1.7456		" " "
			64.14		" " "

1078.

LEVEL RUN

J. CAMPBELL MON. FEB. 26, 2037

SFWMD G. RAGER III

SFWMD-1945

LKBB2B → M556 (CONT'D)

N. KHAN

	<u>+</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
8	1.3348 58.04	1.5480 55.67		IRON ROD SET ON SOUTH SIDE OF DIRT RD.
9	1.2555 68.51	1.3505 68.34		" " "
10	1.6324 69.99	1.8972 68.73		" " "
11	1.5483 46.07	1.7517 44.61		" " "
12	1.4964 17.67	1.7075 18.56	13.2747M	M556 BM

TOTAL DIST: 1.29583KM

0.3MM ✓

1078.

LEVEL RUN

VOID  
~~N556~~ LKBB2B → N556

SFWMD

J. CAMPBELL MON. FEB. 26, 2007

G. RAGER II

SFWMD-19,46

N. KHAN

	+	H. I.	-
1	1.5248 [42.33]		1.9543 [43.75]
2	1.6510 [57.64]		2.2389 [56.36]
3	1.1264 [32.54]		2.0381 [32.53]
4	1.3586 [69.61]		1.4486 [69.53]
5	1.3934 [66.44]		1.6981 [66.31]
6	1.6769 [10.85]		1.7423 [11.05]

ELEV.

DESC.

15.5765

LKBB2B BM

IRON ROD SET ON SOUTH SIDE OF DIRT RD.

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

N556 BM

13.1872M

TOTAL DIST: 0.55895 KM

0.8MM ✓





1078.

## LEVEL RUN

S461 → LKBAIA

	<u>I.</u>	<u>H. I.</u>	<u>-</u>
1	1.9917 [50.41]		1.2566 [49.88]
2	1.4015 [67.33]		1.6626 [66.89]
3	1.9136 [50.53]		1.2561 [50.17]
4	1.3776 [38.62]		1.5455 [39.48]

J. CAMPBELL

TUE. FEB. 27, 2007

SEWMD G. RAGER III

SEWMD-19,49

N. KHAN

<u>FLEV.</u>	<u>DESC.</u>
15.666m	B.M. S461 "CONC. MON WITH BRASS DISK." SET 60 D ON EDGE OF DIRT TRAIL.
"	" "
"	" "
"	" "
"	" "
"	" "
16.6297	B.M. LKBAIA "CONC. MON. WITH BRASS DISK."

TOTAL DIST: 0.41330 KM

1078.

LEVEL RUN

SFWMD

J. CAMPBELL TUE. FEB. 27, 2007

G. RAGER III

SFWMD-19,50

LKBAIA MONITORING WELL

N. KHAN

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>ELEV.</u>	<u>DESC.</u>
			100'	B.M. LKBAIA "CONC. MON. WITH BRASS DISK"
5.140'	105.14'	4.805'	100.335'	GROUND SHOT
		4.390'	100.750'	CONC. PAD
		1.110'	104.030'	CONTRACTORS MARK
0.890'	104.920'			CONTRACTORS MARK
		4.180'	100.740'	CONC. PAD
		4.925'	99.995'	B.M. LKBAIA "CONC. MON. WITH BRASS DISK."
			0.005 FT ✓	

1078.

## LEVEL RUN

LKBAIA → J461

	<u>H.I.</u>	<u>-</u>
+		
1	1.5676 [46.01]	1.3943 [46.31]
2	1.1006 [41.97]	1.7368 [44.45]
3	1.5171 [66.51]	1.2939 [65.00]
4	1.3559 [52.66]	2.0824 [50.21]

J. CAMPBELL TUE. FEB. 27, 2007  
 SFWMD G. RAGER III  
 N. KHAN

SFWMD-19,51

<u>ELEV.</u>	<u>DESC.</u>
16.6297	B.M. LKBAIA "CONC. MON. WITH BRASS DISK" SET 60 D ON EDGE OF DIRT TRAIL
"	" "
"	" "
"	" "
"	" "
"	" "
15.6635	B.M. J461 "CONC. MON. WITH BRASS DISK."

TOTAL DIST: 0.41313 KM  
 2.5MM ✓





**U . S   D E P A R T M E N T   O F   C O M M E R C E**

**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL GEODETIC SURVEY**

**Charles W. Challstrom**  
Director

**PROJECT REPORT**  
Second Order Class II Leveling and Mark Setting

March 2007

**Ronnie L. Taylor**  
National Geodetic Survey, NOAA  
National Ocean Service Advisor, Florida

**PROJECT TITLE**

**Polk, Highlands and Okeechobee County Monitoring Wells**

**LINE TITLE FOR L10785**

**ESTABLISH BENCH MARK NEAR MONITORING WELLS  
IN POLK, HIGHLANDS AND OKEECHOBEE COUNTIES, FLORIDA**

STARTING HEIGHT IS BASED ON NAVD 88 HEIGHTS.  
NOTE: COLLIMATION STORED IN ELECTRONIC INSTRUMENT.  
NOTE: LATITUDE AND LONGITUDE WAS OBTAINED FROM  
SUB-METER GPS OBSERVATIONS.

**JOB CODE AA**



# PROJECT REPORT

## I. INTRODUCTION

### A. Authority

Bench Mark Setting and Leveling along this level route was authorized by a contract between the South Florida Water Management District and Nick Miller Incorporated.

### B. Purpose

The purpose of this leveling project was to establish precise NAVD 88 heights near an existing Ground Water Monitoring Well for use by the South Florida Water Management District and the citizens of the State of Florida.

## II. PROJECT AREA

### A. Locality

This project is located in Polk, Highlands and Okeechobee Counties, Florida.

### B. Terrain

The terrain is flat to rolling.

### C. Specifications

FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems were followed.

### D. Monumentation

Monuments are set in concrete with a South Florida Water Management survey disk. A Magnetic device was either placed in or near the monuments. Please see descriptions for magnetic placements.



#### **E. Instrumentation**

One LEICA DNA03 Electronic Digital Level Instrument was used along with one set of LEICA Digital/Bar-Code Leveling Rods.

### **III. COMMENTS**

#### **A. Reconnaissance**

See the To-Reach Descriptions included, for a clear access to all L10785 Stations.

#### **B. Specifications**

There were no deviations from the FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems.

#### **C. Route**

The leveling route varied for each leveling part.

STARTING ELEVATION BASED ON NAVD 88 HEIGHTS PUBLISHED FROM THE NGS DATABASE. NOTE: COLLIMATION STORED IN ELECTRONIC INSTRUMENT. NOTE: LATITUDE AND LONGITUDE WAS DERIVED FROM NGS DATA SHEETS AND GPS SUB-METER OBSERVATIONS

This is a new second order, class 2 level run by Nick Miller, Inc.

#### **D. Problems**

No problems occurred during this project.



#### IV. Closures

Loop closures were computed and are included in the package for L10785.

##### **A. Status**

All records will be kept at Nick Miller, Inc. For information on these records please contact Stephen M. Gordon at (561)627-5200.

For question concerning the collection or processing of this data please call Ronnie L. Taylor or Randy Wegner at (850)245-2606.

##### **B. Attachments**

The following are included in this package:

Hardcopy of the ABS & BOK files and Quad Maps

Disk containing the following data files is attached to the front of the folder containing the ABS and BOK Files:

- DSC
- BLU
- HGZ
- ABS
- BOK
- LST RAW
- BACKUP.GSI
- BACKUP.RAW (RAW DATA UNTOUCHED)
- PHOTO'S
- LST



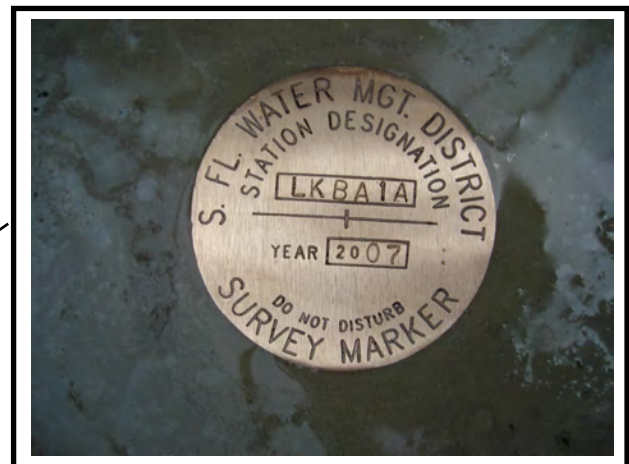
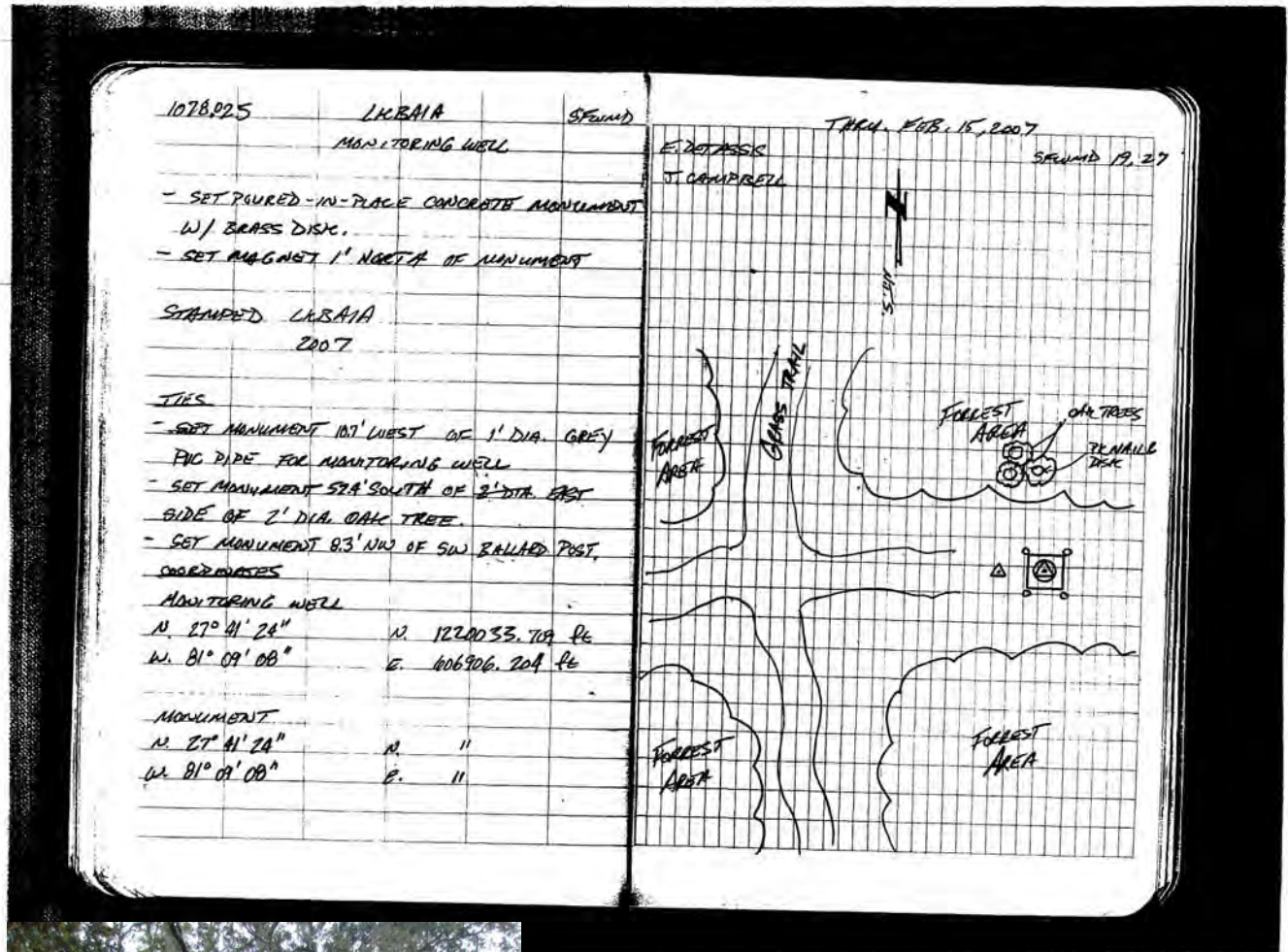
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY POLK	PROJECT Hydrology – Polk, Highlands and Okeechobee County Wells	DESIGNATION LKBA1A
SECTION 17	TOWNSHIP 32 SOUTH	RANGE 32 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT KISSIMMEE NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>2/27/2007</u>	FIELD BOOK _____ 19 _____ PAGE <u>27</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 606,906 ft	N 1,220,034 ft
LATITUDE: N 26.69000°	LONGITUDE: W 80.15222°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 54.56 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 55.75 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>TO REACH THE MARK FROM THE INTERSECTION OF STATE ROAD 27 UNDERPASS AND STATE ROAD 60 IN LAKE WALES, GO EAST-SOUTHEAST ON STATE ROAD 60 FOR 25.7 MILES TO THE JUNCTION OF RIVER RANCH BOULEVARD ON THE RIGHT, TURN RIGHT ON RIVER RANCH BOULEVARD AND GO SOUTH FOR 2.55 MILES TO THE GUARD HOUSE AT THE ENTRANCE TO RIVER RANCH, CONTINUE SOUTH ON RIVER RANCH BOULEVARD FOR 0.3 MILE TO THE JUNCTION OF KICCO ROAD (A DIRT ROAD) LEADING SOUTHEAST. MAKE RIGHT AND HEAD SOUTH ON KICCO GRADE ROAD (NEED SFWMD L KEY) FOR 7.2 MILES TO DIRT ROAD ON RIGHT. MAKE RIGHT AND HEAD WEST FOR 0.15 MILE TO FLORIDA TRAIL ON THE LEFT. MAKE LEFT AND HEAD NORTHERLY ON FLORIDA TRAIL TO MARK ON LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 10.7 FEET WEST OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL LKBA1A, 52.4 FEET SOUTH OF PK NAIL AND DISK SET ON EAST SIDE OF 2 FOOT DIAMETER OAK TREE, 8.3 FEET NORTHWEST OF SOUTHWEST YELLOW BALLARD POST. MAGNET SET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: J 461, H 461</p> <p>Notable Land marks:</p>		



SKETCH



-\*- FIELD ABSTRACT -\*-

070227-070227 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
 SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBA1A  
 LOCATED IN POLK COUNTY, FLORIDA

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0163 J 461						15.66600	
0163 J 461	2271215	F	0.41	0.96368 *	2.62	0.96499	1
0164 LKBA1A	2271330	B	0.41	-0.96630 *			1
	SL 1		0.41		2.62	16.63099	
0163 J 461	2271030	B	1.88	0.06113 *	0.00	-0.06113	1
0162 H 461							
			1.88		0.00	15.60487♀	

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause i.e. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 555 396 - 666

♀  
 LEVEL LINE SECTION RUNNING TREE

0163 (0164)  
 0162♀

FROM TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0163	274133	0810901	0.00	0.00
0163 0164	274124	0810908	0.41	0.34
0163 0162	274230	0810921	1.88	1.84♀

SECTION  
 FROM TO ERROR MESSAGES

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
AH8779 *****
AH8779 DESIGNATION - J 461
AH8779 PID - AH8779
AH8779 STATE/COUNTY- FL/POLK
AH8779 COUNTRY - US
AH8779 USGS QUAD - FORT KISSIMMEE NW (1972)
AH8779
AH8779 *CURRENT SURVEY CONTROL
AH8779
AH8779* NAD 83(1986) POSITION- 27 41 33. (N) 081 09 01. (W) SCALED
AH8779* NAVD 88 ORTHO HEIGHT - 15.666 (meters) 51.40 (feet) ADJUSTED
AH8779
AH8779 GEOID HEIGHT - -26.462 (meters) GEOID12B
AH8779 DYNAMIC HEIGHT - 15.643 (meters) 51.32 (feet) COMP
AH8779 MODELED GRAVITY - 979,164.5 (mgal) NAVD 88
AH8779
AH8779 VERT ORDER - SECOND CLASS I
AH8779
AH8779.The horizontal coordinates were scaled from a topographic map and have
AH8779.an estimated accuracy of +/- 6 seconds.
AH8779.
AH8779.The orthometric height was determined by differential leveling and
AH8779.adjusted by the NATIONAL GEODETIC SURVEY
AH8779.in July 1999.
AH8779
AH8779.Significant digits in the geoid height do not necessarily reflect accuracy.
AH8779.GEOID12B height accuracy estimate available here.
AH8779
AH8779.The dynamic height is computed by dividing the NAVD 88
AH8779.geopotential number by the normal gravity value computed on the
AH8779.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AH8779.degrees latitude (g = 980.6199 gals.).
AH8779
AH8779.The modeled gravity was interpolated from observed gravity values.
AH8779
AH8779; North East Units Estimated Accuracy
AH8779;SPC FL W - 372,420. 283,810. MT (+/- 180 meters Scaled)
AH8779
AH8779 SUPERSEDED SURVEY CONTROL
AH8779
AH8779.No superseded survey control is available for this station.
AH8779
AH8779_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML851631(NAD 83)
AH8779
AH8779_MARKER: DD = SURVEY DISK
AH8779_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AH8779_STAMPING: J 461 1997
AH8779_MARK LOGO: FLDEP
AH8779_MAGNETIC: N = NO MAGNETIC MATERIAL

```



AH8779\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 AH8779+STABILITY: SURFACE MOTION  
 AH8779\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AH8779+SATELLITE: SATELLITE OBSERVATIONS - 1997

AH8779

AH8779	HISTORY	- Date	Condition	Report By
AH8779	HISTORY	- 1997	MONUMENTED	FLDEP
AH8779	HISTORY	- 20050222	GOOD	INDIV

AH8779

AH8779 STATION DESCRIPTION

AH8779

AH8779'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8779'THE MARK IS ABOUT 35.0 MI (56.3 KM) SOUTHEAST OF LAKE WALES IN SECTION  
 AH8779'17, TOWNSHIP 32 SOUTH, RANGE 32 EAST. TO REACH THE MARK FROM THE  
 AH8779'INTERSECTION OF STATE ROAD 27 UNDERPASS AND STATE ROAD 60 IN LAKE  
 AH8779'WALES, GO EAST-SOUTHEAST ON STATE ROAD 60 FOR 25.7 MI (41.4 KM) TO THE  
 AH8779'JUNCTION OF RIVER RANCH BOULEVARD ON THE RIGHT, TURN RIGHT ON RIVER  
 AH8779'RANCH BOULEVARD AND GO SOUTHEAST FOR 2.55 MI (4.10 KM) TO THE GUARD  
 AH8779'HOUSE AT THE ENTRANCE TO RIVER RANCH, CONTINUE SOUTH ON RIVER RANCH  
 AH8779'BOULEVARD FOR 0.3 MI (0.5 KM) TO THE JUNCTION OF KICCO ROAD ON THE  
 AH8779'RIGHT, TURN RIGHT ON KICCO ROAD AND GO SOUTHEAST FOR 0.2 MI (0.3 KM)  
 AH8779'TO FOUR SETS OF DOUBLE UNLOCKED GATES, CONTINUE SOUTH ON KICCO ROAD  
 AH8779'FOR 0.5 MI (0.8 KM) TO ANOTHER UNLOCKED METAL GATE, CONTINUE SOUTHEAST  
 AH8779'ON KICCO ROAD FOR 0.05 MI (0.08 KM) TO A LOCKED METAL GATE, THE  
 AH8779'ENTRANCE TO PROPERTY OWNED BY THE SOUTH FLORIDA WATER MANAGEMENT  
 AH8779'DISTRICT, CONTINUE SOUTHEAST ON THE SHELL ROAD (KICCO ROAD) FOR 0.2 MI  
 AH8779'(0.3 KM) TO THE JUNCTION OF A ROAD ON THE LEFT, CONTINUE  
 AH8779'SOUTH-SOUTHEAST ON KICCO ROAD FOR 1.45 MI (2.33 KM) TO THE NORTH END  
 AH8779'OF A BRIDGE, CONTINUE SOUTHEAST ON THE SHELL ROAD (KICCO ROAD) FOR  
 AH8779'1.45 MI (2.33 KM) TO AN UNLOCKED GATES NUMBER 9, CONTINUE SOUTH ON  
 AH8779'SHELL ROAD (KICCO ROAD) FOR 0.05 MI (0.08 KM) TO AN UNLOCKED GATE  
 AH8779'NUMBER 9A, CONTINUE SOUTH-SOUTHEAST ON THE SHELL ROAD (KICCO ROAD) FOR  
 AH8779'0.2 MI (0.3 KM) TO AN UNLOCKED GATE, CONTINUE NORTHEAST ON THE SHELL  
 AH8779'ROAD (KICCO ROAD) FOR 1.95 MI (3.14 KM) TO ANOTHER UNLOCKED GATE,  
 AH8779'CONTINUE SOUTH ON THE SHELL ROAD (KICCO ROAD) FOR 1.15 MI (1.85 KM) TO  
 AH8779'THE JUNCTION OF A DIRT ROAD LEADING WEST AND THE MARK ON THE RIGHT,  
 AH8779'SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND  
 AH8779'LEVEL WITH THE SHELL ROAD (KICCO ROAD) . LOCATED 450.0 FT (137.2 M)  
 AH8779'WEST OF THE CANAL, 225.0 FT (68.6 M) WEST OF THE APPROXIMATE  
 AH8779'CENTERLINE OF THE SHELL ROAD (KICCO ROAD) , 90.0 FT (27.4 M) EAST OF  
 AH8779'THE EDGE OF THE SWAMP, 82.6 FT (25.2 M) NORTH OF THE APPROXIMATE  
 AH8779'CENTERLINE OF THE DIRT ROAD LEADING WEST AND 1.0 FT (0.3 M) EAST OF A  
 AH8779'CARSONITE WITNESS POST. NOTE FOR ACCESS AND KEY CONTACT SOUTH FLORIDA  
 AH8779'WATER MANAGEMENT DISTRICT AT 561-686-8800.

AH8779

AH8779 STATION RECOVERY (2005)

AH8779

AH8779'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005

AH8779'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
AH8778 *****
AH8778 DESIGNATION - H 461
AH8778 PID - AH8778
AH8778 STATE/COUNTY- FL/POLK
AH8778 COUNTRY - US
AH8778 USGS QUAD - FORT KISSIMMEE NW (1972)
AH8778
AH8778 *CURRENT SURVEY CONTROL
AH8778
AH8778* NAD 83(1986) POSITION- 27 42 30. (N) 081 09 21. (W) SCALED
AH8778* NAVD 88 ORTHO HEIGHT - 15.609 (meters) 51.21 (feet) ADJUSTED
AH8778
AH8778 GEOID HEIGHT - -26.513 (meters) GEOID12B
AH8778 DYNAMIC HEIGHT - 15.585 (meters) 51.13 (feet) COMP
AH8778 MODELED GRAVITY - 979,163.8 (mgal) NAVD 88
AH8778
AH8778 VERT ORDER - SECOND CLASS I
AH8778
AH8778.The horizontal coordinates were scaled from a topographic map and have
AH8778.an estimated accuracy of +/- 6 seconds.
AH8778.
AH8778.The orthometric height was determined by differential leveling and
AH8778.adjusted by the NATIONAL GEODETIC SURVEY
AH8778.in July 1999.
AH8778
AH8778.Significant digits in the geoid height do not necessarily reflect accuracy.
AH8778.GEOID12B height accuracy estimate available here.
AH8778
AH8778.The dynamic height is computed by dividing the NAVD 88
AH8778.geopotential number by the normal gravity value computed on the
AH8778.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AH8778.degrees latitude (g = 980.6199 gals.).
AH8778
AH8778.The modeled gravity was interpolated from observed gravity values.
AH8778
AH8778; North East Units Estimated Accuracy
AH8778;SPC FL W - 374,170. 283,250. MT (+/- 180 meters Scaled)
AH8778
AH8778 SUPERSEDED SURVEY CONTROL
AH8778
AH8778.No superseded survey control is available for this station.
AH8778
AH8778_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML846649(NAD 83)
AH8778
AH8778_MARKER: DD = SURVEY DISK
AH8778_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AH8778_STAMPING: H 461 1997
AH8778_MARK LOGO: FLDEP
AH8778_MAGNETIC: N = NO MAGNETIC MATERIAL

```

AH8778\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 AH8778+STABILITY: SURFACE MOTION  
 AH8778\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AH8778+SATELLITE: SATELLITE OBSERVATIONS - 1997

AH8778

AH8778	HISTORY	- Date	Condition	Report By
AH8778	HISTORY	- 1997	MONUMENTED	FLDEP

AH8778

AH8778 STATION DESCRIPTION

AH8778

AH8778'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8778'THE MARK IS ABOUT 34.0 MI (54.7 KM) SOUTHEAST OF LAKE WALES IN SECTION  
 AH8778'7, TOWNSHIP 32 SOUTH, RANGE 32 EAST. TO REACH THE MARK FROM THE  
 AH8778'INTERSECTION OF STATE ROAD 27 UNDERPASS AND STATE ROAD 60 IN LAKE  
 AH8778'WALES, GO EAST-SOUTHEAST ON STATE ROAD 60 FOR 25.7 MI (41.4 KM) TO THE  
 AH8778'JUNCTION OF RIVER RANCH BOULEVARD ON THE RIGHT, TURN RIGHT ON RIVER  
 AH8778'RANCH BOULEVARD AND GO SOUTHEAST FOR 2.55 MI (4.10 KM) TO THE GUARD  
 AH8778'HOUSE AT THE ENTRANCE TO RIVER RANCH, CONTINUE SOUTH ON RIVER RANCH  
 AH8778'BOULEVARD FOR 0.3 MI (0.5 KM) TO THE JUNCTION OF KICCO ROAD ON THE  
 AH8778'RIGHT, TURN RIGHT ON KICCO ROAD AND GO SOUTHEAST FOR 0.2 MI (0.3 KM)  
 AH8778'TO FOUR SETS OF DOUBLE UNLOCKED GATES, CONTINUE SOUTH ON KICCO ROAD  
 AH8778'FOR 0.5 MI (0.8 KM) TO ANOTHER UNLOCKED METAL GATE, CONTINUE SOUTHEAST  
 AH8778'ON KICCO ROAD FOR 0.05 MI (0.08 KM) TO A LOCKED METAL GATE, THE  
 AH8778'ENTRANCE TO PROPERTY OWNED BY THE SOUTH FLORIDA WATER MANAGEMENT  
 AH8778'DISTRICT, CONTINUE SOUTHEAST ON A SHELL ROAD (KICCO ROAD) FOR 0.2 MI  
 AH8778'(0.3 KM) TO THE JUNCTION OF A ROAD ON THE LEFT, CONTINUE  
 AH8778'SOUTH-SOUTHEAST ON THE SHELL ROAD (KICCO ROAD) FOR 1.45 MI (2.33 KM)  
 AH8778'TO THE NORTH END OF A BRIDGE, CONTINUE SOUTHEAST ON THE SHELL ROAD  
 AH8778'(KICCO ROAD) FOR 1.45 MI (2.33 KM) TO AN UNLOCKED GATE NUMBER 9,  
 AH8778'CONTINUE SOUTH ON THE SHELL ROAD (KICCO ROAD) FOR 0.05 MI (0.08 KM) TO  
 AH8778'AN UNLOCKED GATE NUMBER 9A, CONTINUE SOUTH-SOUTHEAST ON THE SHELL ROAD  
 AH8778'(KICCO ROAD) FOR 0.2 MI (0.3 KM) TO AN UNLOCKED GATE, CONTINUE  
 AH8778'NORTHEAST ON THE SHELL ROAD (KICCO ROAD) FOR 1.95 MI (3.14 KM) TO AN  
 AH8778'UNLOCKED GATE AND THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND  
 AH8778'CONCRETE MONUMENT FLUSH WITH THE GROUND AND LEVEL WITH THE SHELL ROAD  
 AH8778'(KICCO ROAD) . LOCATED 600.0 FT (182.9 M) WEST OF THE CANAL, 225.0 FT  
 AH8778'(68.6 M) WEST OF THE APPROXIMATE CENTERLINE OF KICCO ROAD, 225.0 FT  
 AH8778'(68.6 M) WEST OF THE CENTER OF THE GATE, 1.0 FT (0.3 M) NORTH OF  
 AH8778'BARBWIRE FENCE LINE, 1.0 FT (0.3 M) EAST OF 2-INCH PVC WITNESS POST  
 AH8778'AND 1.0 FT (0.3 M) NORTH OF A CARSONITE WITNESS POST. NOTE FOR ACCESS  
 AH8778'AND KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT  
 AH8778'561-686-8800.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# LKBB2B



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Looking at the well facing east**

# LKBB2B



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Close-up of the showing the contractor's markings**

**LKBB2B**



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Looking at the benchmark facing south**

# LKBB2B



Nick Miller, Inc.  
Date of Photo: February 14, 2007  
View: A top view of the benchmark



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

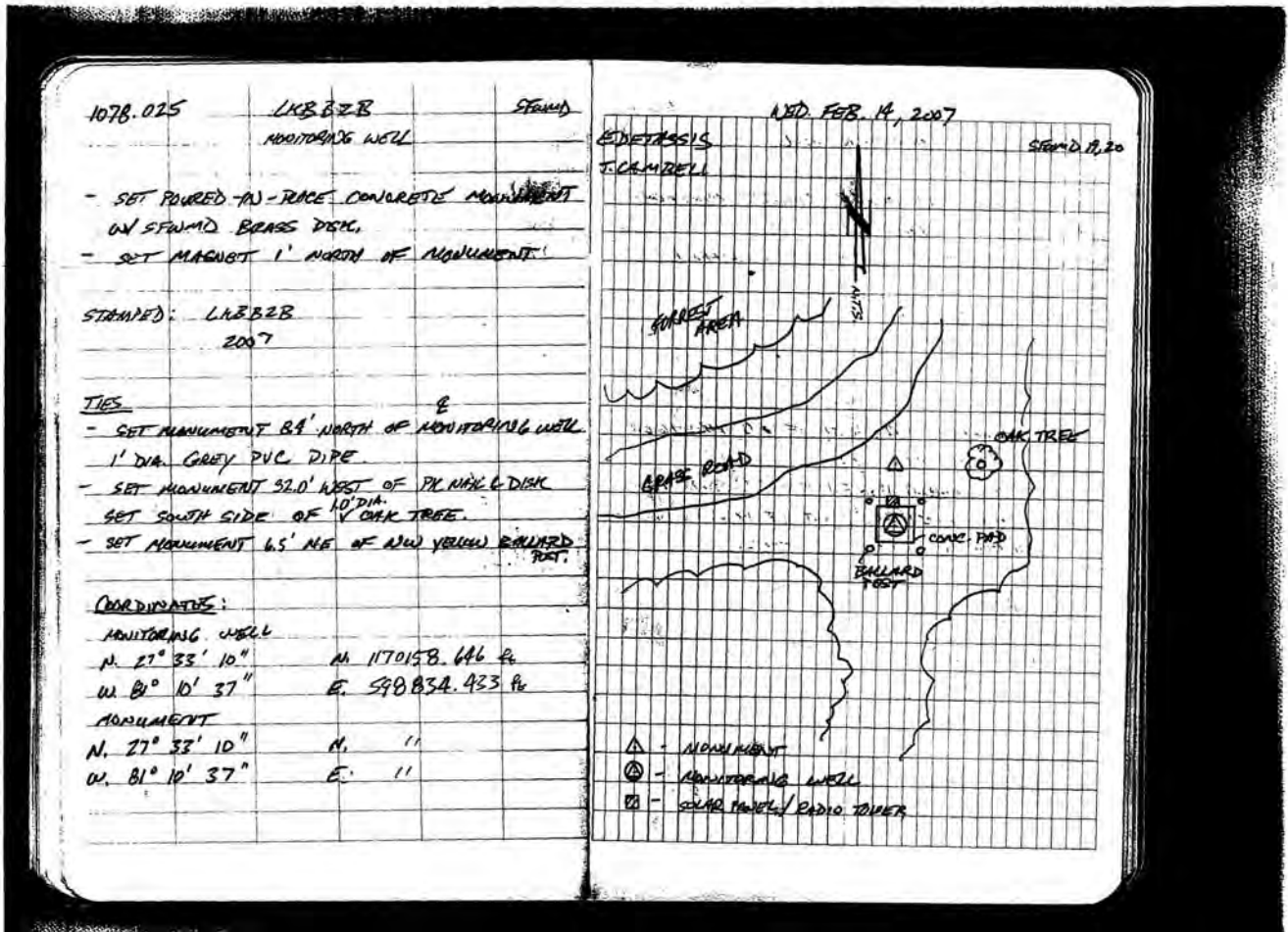
Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Polk, Highlands and Okeechobee County Wells	DESIGNATION LKBB2B
SECTION 1	TOWNSHIP 34 SOUTH	RANGE 31 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT KISSIMMEE	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>2/27/2007</u>	FIELD BOOK _____ 19 PAGE <u>20</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 598,834 ft	N 1,170,159 ft
LATITUDE: N 27.55278°	LONGITUDE: W 81.17694°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 51.11 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 52.25 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF US 98 AND MICCO BLUFF (NW 203<sup>RD</sup> AVE.). HEAD NORTH ON MICCO BLUFF FOR 0.1 MILE TO NW 160<sup>TH</sup> DRIVE. TAKE LEFT AND HEAD NORTHWESTERLY FOR 6.1 MILES TO Y-JUNCTION. MAKE RIGHT HEAD NORTHERLY FOR 2.7 MILES ALUMINMUM GATE (PAVEMENT ENDS), CONTINUE NORTH FOR 150 FEET TO SECOND ALUMINMUM GATE, CONTINUE NORTH FOR 0.6 MILE TO THIRD ALUMINMUM GATE, CONTINUE NORTH FOR 0.6 MILE TO COW CROSSING GATE, CONTINUE NORTH FOR 3.4 MILES TO FOURTH ALUMINMUM GATE, CONTINUE NORTH FOR 0.4 MILES TO Y-JUNCTION WITH SFWMD ALUMINMUM GATE ON LEFT (NEED L KEY), CONTINUE NORTHERLY THEN EASTELY ON DIRT ROAD FOR 1.2 MILES TO GRASS ROAD (THROUGH COW FIELD) ON RIGHT, MAKE RIGHT AND HEAD EAST ON GRASS ROAD FOR 0.5 MILE TO WHERE ROAD MAKES A TEE, MAKE LEFT AND HEAD NORTH FOR +/- 250 FEET TO OLD WOOD FENCE ON RIGHT, MAKE RIGHT AND HEAD EASTERLY ON GRASS TRAIL FOR 1.6 MILES TO MARK ON RIGHT. MARK IS +/-350 FEET OFF GRASS TRAIL TO THE SOUTH BY MONITORING WELL LKBB2B. SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 8.4 FEET NORTH OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL, 32.0 FEET WEST OF PK NAIL AND DISK SET ON SOUTH SIDE OF 1 FOOT DIAMETER OAK TREE, 6.5 FEET NORTHEAST OF NORTHWEST YELLOW BALLARD POST. MAGNET SET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: M 556, N 556</p> <p>Notable Land marks:</p>		





SKETCH



# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
DF8370 *****
DF8370 DESIGNATION - M 556
DF8370 PID - DF8370
DF8370 STATE/COUNTY- FL/OKEECHOBEE
DF8370 COUNTRY - US
DF8370 USGS QUAD - FORT KISSIMMEE (1972)
DF8370
DF8370 *CURRENT SURVEY CONTROL
DF8370
DF8370* NAD 83(1986) POSITION- 27 32 56. (N) 081 11 07. (W) SCALED
DF8370* NAVD 88 ORTHO HEIGHT - 13.275 (meters) 43.55 (feet) ADJUSTED
DF8370
DF8370 GEOID HEIGHT - -26.203 (meters) GEOID12B
DF8370 DYNAMIC HEIGHT - 13.255 (meters) 43.49 (feet) COMP
DF8370 MODELED GRAVITY - 979,142.0 (mgal) NAVD 88
DF8370
DF8370 VERT ORDER - SECOND CLASS I
DF8370
DF8370.The horizontal coordinates were scaled from a topographic map and have
DF8370.an estimated accuracy of +/- 6 seconds.
DF8370.
DF8370.The orthometric height was determined by differential leveling and
DF8370.adjusted by the NATIONAL GEODETIC SURVEY
DF8370.in May 2004.
DF8370
DF8370.Significant digits in the geoid height do not necessarily reflect accuracy.
DF8370.GEOID12B height accuracy estimate available here.
DF8370
DF8370.The dynamic height is computed by dividing the NAVD 88
DF8370.geopotential number by the normal gravity value computed on the
DF8370.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8370.degrees latitude (g = 980.6199 gals.).
DF8370
DF8370.The modeled gravity was interpolated from observed gravity values.
DF8370
DF8370;
DF8370;SPC FL E - North East Units Estimated Accuracy
DF8370; 356,240. 181,700. MT (+/- 180 meters Scaled)
DF8370
DF8370 SUPERSEDED SURVEY CONTROL
DF8370
DF8370.No superseded survey control is available for this station.
DF8370
DF8370_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML817472 (NAD 83)
DF8370
DF8370_MARKER: F = FLANGE-ENCASED ROD
DF8370_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
DF8370_STAMPING: M 556 2001
DF8370_MARK LOGO: NGS
DF8370_PROJECTION: FLUSH

```

DF8370\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
 DF8370\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 DF8370\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 DF8370+SATELLITE: SATELLITE OBSERVATIONS - 2001  
 DF8370\_ROD/PIPE-DEPTH: 15.2 meters

DF8370

DF8370	HISTORY	- Date	Condition	Report By
DF8370	HISTORY	- 2001	MONUMENTED	FLDEP

DF8370

DF8370 STATION DESCRIPTION

DF8370

DF8370'DESCRIBED BY FL DEPT OF ENV PRO 2001 (PBM)  
 DF8370'THE MARK IS ABOUT 35.3 MI NORTHWEST OF OKEECHOBEE, 17.5 MI NORTHWEST  
 DF8370'OF BASINGER, IN  
 DF8370'ESTIMATED SECTION 1, TOWNSHIP 34 SOUTH, RANGE 31 EAST.  
 DF8370'  
 DF8370'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT  
 DF8370'STREET) AND U.S.  
 DF8370'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON  
 DF8370'U.S. HIGHWAY 98  
 DF8370'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.  
 DF8370'HIGHWAY 98 NORTH ON  
 DF8370'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65  
 DF8370'MI TO THE  
 DF8370'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI  
 DF8370'TO THE JUNCTION  
 DF8370'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.  
 DF8370'HIGHWAY 98 FOR  
 DF8370'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)  
 DF8370'ON THE RIGHT,  
 DF8370'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION  
 DF8370'OF NORTHWEST  
 DF8370'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST  
 DF8370'203RD AVENUE  
 DF8370'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE  
 DF8370'JUNCTION OF NORTHWEST  
 DF8370'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST  
 DF8370'160TH DRIVE  
 DF8370'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15  
 DF8370'MI TO THE END OF  
 DF8370'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND  
 DF8370'THE BEGINNING OF  
 DF8370'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT  
 DF8370'ON NORTHWEST  
 DF8370'285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO AN EAST-WEST FENCELINE  
 DF8370'OPENING AND THE  
 DF8370'JUNCTION OF A DIRT ROAD ON THE LEFT LEADING WEST, PASSING THROUGH THE  
 DF8370'OPENING  
 DF8370'CONTINUE NORTHWEST ON THE DIRT ROAD (NORTHWEST 285TH DRIVE) FOR 0.7 MI  
 DF8370'TO AN  
 DF8370'EAST-WEST FENCELINE OPENING WITH ONE 25.0 FT CONCRETE POLE ON BOTH  
 DF8370'SIDES OF THE ROAD,  
 DF8370'CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.7 MI TO THE INTERSECTION OF  
 DF8370'AN EAST-WEST  
 DF8370'DIRT ROAD, CONTINUE NORTHWEST ON THE DIRT ROAD FOR 2.3 MI TO A METAL  
 DF8370'GATE, CONTINUE  
 DF8370'NORTHWEST ON THE DIRT ROAD FOR 1.25 MI TO A LOCKED GATE, CONTINUE  
 DF8370'NORTHWEST ON THE  
 DF8370'DIRT ROAD FOR 1.4 MI TO A BARBWIRE GATE AND THE JUNCTION OF A DIM ROAD  
 DF8370'ON THE LEFT, TURN

DF8370'LEFT ON THE DIM TRACK ROAD AND GO NORTHWESTERLY FOR 2.0 MI TO THE MARK  
DF8370'ON THE RIGHT, A  
DF8370'STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 50.0 FT WITH A NGS  
DF8370'LOGO CAP FLUSH  
DF8370'WITH THE GROUND AND LEVEL WITH THE LEVEL OF THE ROAD THE DATUM IS  
DF8370'RECESSED 0.4 FT  
DF8370'BELOW THE LEVEL OF THE NGS LOGO CAP.  
DF8370'  
DF8370'LOCATED 92.0 FT SOUTHEAST OF A 32-INCH OAK TREE, 76.0 FT EAST OF A  
DF8370'CLUSTER OF 9 18-INCH OAK  
DF8370'TREES, 64.0 FT SOUTH OF TWIN 10-INCH OAK TREE AND 1.0 FT WEST OF A  
DF8370'CARSONITE WITNESS POST.  
DF8370'  
DF8370'NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP.  
DF8370'  
DF8370'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE  
DF8370'MONUMENT.  
DF8370'  
DF8370'NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:01

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
DF8371 *****
DF8371 DESIGNATION - N 556
DF8371 PID - DF8371
DF8371 STATE/COUNTY- FL/OKEECHOBEE
DF8371 COUNTRY - US
DF8371 USGS QUAD - FORT KISSIMMEE (1972)
DF8371
DF8371 *CURRENT SURVEY CONTROL
DF8371
DF8371* NAD 83(1986) POSITION- 27 33 24. (N) 081 10 26. (W) SCALED
DF8371* NAVD 88 ORTHO HEIGHT - 13.188 (meters) 43.27 (feet) ADJUSTED
DF8371
DF8371 GEOID HEIGHT - -26.211 (meters) GEOID12B
DF8371 DYNAMIC HEIGHT - 13.168 (meters) 43.20 (feet) COMP
DF8371 MODELED GRAVITY - 979,144.7 (mgal) NAVD 88
DF8371
DF8371 VERT ORDER - SECOND CLASS I
DF8371
DF8371.The horizontal coordinates were scaled from a topographic map and have
DF8371.an estimated accuracy of +/- 6 seconds.
DF8371.
DF8371.The orthometric height was determined by differential leveling and
DF8371.adjusted by the NATIONAL GEODETIC SURVEY
DF8371.in May 2004.
DF8371
DF8371.Significant digits in the geoid height do not necessarily reflect accuracy.
DF8371.GEOID12B height accuracy estimate available here.
DF8371
DF8371.The dynamic height is computed by dividing the NAVD 88
DF8371.geopotential number by the normal gravity value computed on the
DF8371.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8371.degrees latitude (g = 980.6199 gals.).
DF8371
DF8371.The modeled gravity was interpolated from observed gravity values.
DF8371
DF8371; North East Units Estimated Accuracy
DF8371;SPC FL E - 357,100. 182,830. MT (+/- 180 meters Scaled)
DF8371
DF8371 SUPERSEDED SURVEY CONTROL
DF8371
DF8371.No superseded survey control is available for this station.
DF8371
DF8371_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML828481(NAD 83)
DF8371
DF8371_MARKER: DD = SURVEY DISK
DF8371_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8371_STAMPING: N 556 2001
DF8371_MARK LOGO: FLDEP
DF8371_PROJECTION: FLUSH

```

DF8371\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
 DF8371\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 DF8371+STABILITY: SURFACE MOTION  
 DF8371\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 DF8371+SATELLITE: SATELLITE OBSERVATIONS - 2001

DF8371

DF8371	HISTORY	- Date	Condition	Report By
DF8371	HISTORY	- 2001	MONUMENTED	FLDEP

DF8371

DF8371 STATION DESCRIPTION

DF8371

DF8371'DESCRIBED BY FL DEPT OF ENV PRO 2001 (PBM)  
 DF8371'THE MARK IS ABOUT 36.3 MI NORTHWEST OF OKEECHOBEE, 18.5 MI NORTHWEST  
 DF8371'OF BASINGER, IN  
 DF8371'SECTION 36, TOWNSHIP 33 SOUTH, RANGE 31 EAST.  
 DF8371'  
 DF8371'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT  
 DF8371'STREET) AND U.S.  
 DF8371'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON  
 DF8371'U.S. HIGHWAY 98  
 DF8371'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.  
 DF8371'HIGHWAY 98 NORTH ON  
 DF8371'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65  
 DF8371'MI TO THE  
 DF8371'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI  
 DF8371'TO THE JUNCTION  
 DF8371'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.  
 DF8371'HIGHWAY 98 FOR  
 DF8371'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)  
 DF8371'ON THE RIGHT,  
 DF8371'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION  
 DF8371'OF NORTHWEST  
 DF8371'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST  
 DF8371'203RD AVENUE  
 DF8371'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE  
 DF8371'JUNCTION OF NORTHWEST  
 DF8371'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST  
 DF8371'160TH DRIVE  
 DF8371'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 6.15  
 DF8371'MI TO THE END OF  
 DF8371'THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING NORTHWEST AND  
 DF8371'THE BEGINNING OF  
 DF8371'NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING NORTHWESTERLY), BEAR RIGHT  
 DF8371'ON NORTHWEST  
 DF8371'285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO AN EAST-WEST FENCELINE  
 DF8371'OPENING AND THE  
 DF8371'JUNCTION OF A DIRT ROAD ON THE LEFT LEADING WEST, PASSING THROUGH THE  
 DF8371'OPENING  
 DF8371'CONTINUE NORTHWEST ON THE DIRT ROAD (NORTHWEST 285TH DRIVE) FOR 0.7 MI  
 DF8371'TO AN  
 DF8371'EAST-WEST FENCELINE OPENING WITH ONE 25.0 FT CONCRETE POLE ON BOTH  
 DF8371'SIDES OF THE ROAD,  
 DF8371'CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.7 MI TO THE INTERSECTION OF  
 DF8371'AN EAST-WEST  
 DF8371'DIRT ROAD, CONTINUE NORTHWEST ON THE DIRT ROAD FOR 2.3 MI TO A METAL  
 DF8371'GATE, CONTINUE  
 DF8371'NORTHWEST ON THE DIRT ROAD FOR 1.25 MI TO A LOCKED GATE, CONTINUE  
 DF8371'NORTHEAST ON THE  
 DF8371'DIRT ROAD FOR 1.4 MI TO A BARBWIRE GATE AND THE JUNCTION OF A DIM ROAD  
 DF8371'ON THE LEFT, TURN

DF8371'LEFT ON THE DIM TRACK ROAD AND GO NORTHWESTERLY FOR 3.0 MI TO THE MARK  
DF8371'ON THE RIGHT,  
DF8371'SET IN THE TOP OF A ROUND CONCRETE MONUMENT RECESSED 0.4 FT BELOW THE  
DF8371'LEVEL OF THE  
DF8371'GROUND AND BELOW THE LEVEL OF THE ROAD.  
DF8371'  
DF8371'LOCATED 56.0 FT NORTH OF A 30-INCH OAK TREE, 14.7 FT SOUTHEAST OF A  
DF8371'SFWMD METAL WITNESS  
DF8371'POST AND 1.5 FT SOUTHEAST OF A CARSONITE WITNESS POST.  
DF8371'  
DF8371'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE  
DF8371'MONUMENT.  
DF8371'  
DF8371'NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

-\*- FIELD ABSTRACT -\*-

070221-070226 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
 SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBB2B  
 LOCATED IN POLK COUNTY, FLORIDA

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0160 N 556						13.18800	
0160 N 556 0161 LKBB2B	2261430	B	0.56	-2.38928 *	0.00	2.38928	1
			0.56		0.00	15.57728	
0161 LKBB2B 0159 M 556	2261245	F	1.30	-2.30194 *	0.00	-2.30194	1
			1.86		0.00	13.27534♀	

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause  
ie. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 555      396 - 666

♀  
LEVEL LINE SECTION RUNNING TREE

FROM TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0160	273324	0811026	0.00	0.00
0160 0161	273310	0811037	0.56	0.53
0161 0159♀	273256	0811107	1.30	0.93♀

SECTION FROM TO ERROR MESSAGES



# LKBC2A



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Looking at the well facing north**

# LKBC2A



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Close-up of the showing the contractor's markings**

# LKBC2A



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: Looking at the benchmark facing east**

# LKBC2A



**Nick Miller, Inc.**  
**Date of Photo: February 14, 2007**  
**View: A top view of the benchmark**



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

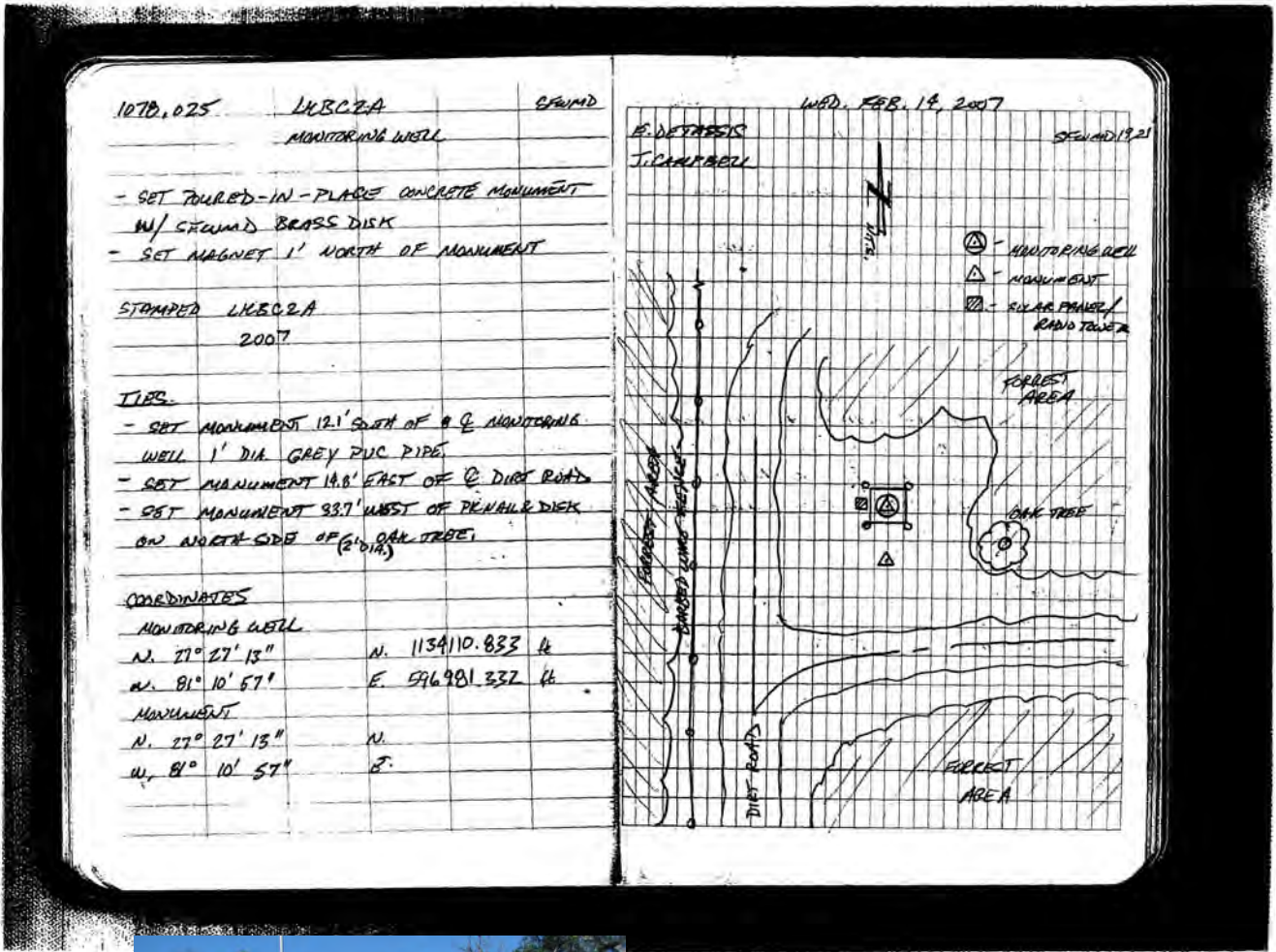
COUNTY HIGHLANDS	PROJECT Hydrology – Polk, Highlands and Okeechobee County Wells	DESIGNATION LKBC2A
SECTION 12	TOWNSHIP 35 SOUTH	RANGE 31 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER NW	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>2/27/2007</u>	FIELD BOOK _____ 19 _____ PAGE <u>21</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 596,981 ft	N 1,134,111 ft
LATITUDE: N 27.45361°	LONGITUDE: W 81.18250°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 44.21 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 45.37 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
<b>DESCRIPTION</b>		
<p>To Reach:</p> <p>FROM THE INTERSECTION OF US 98 AND BLUFF HAMMOCK ROAD. HEAD EAST ON US 98 FOR 1.8 MILES TO HICKORY HAMMOCK EQUESTRAIN CENTER ENTRACNE DIRT ROAD (MACARTHUR ROAD). MAKE LEFT AND HEAD NORTHERLY THEN WESTERLY ON DIRT ROAD FOR 2.7 MILES TO SFWMD ALUMINMUM GATE (POSTED WILDLIFE MANGEMENT AREA - NEED L KEY). MAKE LEFT AND HEAD NORTH FOR 0.3 MILE ON GRASS ROAD ALONG BARBED WIRE FENCE ON LEFT TO MARK ON RIGHT. SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED 12.1 FEET SOUTH OF CENTERLINE OF 1 FOOT DIAMETER GREY PVC PIPE FOR MONITORING WELL LKBC2A, 32.0 FEET WEST OF PK NAIL AND DISK SET ON NORTH SIDE OF 2 FOOT DIAMETER OAK TREE, 14.8 FEET EAST OF CENTERLINE OF GRASS ROAD. MAGNET SET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: B 463, C 463</p> <p>Notable Land marks:</p>		



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

## SKETCH



# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
AH8821 *****
AH8821 DESIGNATION - B 463
AH8821 PID - AH8821
AH8821 STATE/COUNTY- FL/HIGHLANDS
AH8821 COUNTRY - US
AH8821 USGS QUAD - BASINGER NW (1972)
AH8821
AH8821 *CURRENT SURVEY CONTROL
AH8821
AH8821* NAD 83(2011) POSITION- 27 25 30.98840(N) 081 12 51.30328(W) ADJUSTED
AH8821* NAD 83(2011) ELLIP HT- -10.005 (meters) (06/27/12) ADJUSTED
AH8821* NAD 83(2011) EPOCH - 2010.00
AH8821* NAVD 88 ORTHO HEIGHT - 16.009 (meters) 52.52 (feet) ADJUSTED
AH8821
AH8821 NAD 83(2011) X - 865,322.430 (meters) COMP
AH8821 NAD 83(2011) Y - -5,598,853.563 (meters) COMP
AH8821 NAD 83(2011) Z - 2,920,118.395 (meters) COMP
AH8821 LAPLACE CORR - -1.32 (seconds) DEFLEC12B
AH8821 GEOID HEIGHT - -26.021 (meters) GEOID12B
AH8821 DYNAMIC HEIGHT - 15.985 (meters) 52.44 (feet) COMP
AH8821 MODELED GRAVITY - 979,126.8 (mgal) NAVD 88
AH8821
AH8821 VERT ORDER - SECOND CLASS I
AH8821
AH8821 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH8821 Standards:
AH8821 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH8821 Horiz Ellip SD_N SD_E SD_h (unitless)
AH8821 -----
AH8821 NETWORK 0.94 1.49 0.39 0.38 0.76 0.01012680
AH8821 -----
AH8821 Click here for local accuracies and other accuracy information.
AH8821
AH8821
AH8821.The horizontal coordinates were established by GPS observations
AH8821.and adjusted by the National Geodetic Survey in June 2012.
AH8821
AH8821.NAD 83(2011) refers to NAD 83 coordinates where the reference
AH8821.frame has been affixed to the stable North American tectonic plate. See
AH8821.NA2011 for more information.
AH8821
AH8821.The horizontal coordinates are valid at the epoch date displayed above
AH8821.which is a decimal equivalence of Year/Month/Day.
AH8821
AH8821.The orthometric height was determined by differential leveling and
AH8821.adjusted by the NATIONAL GEODETIC SURVEY
AH8821.in July 1999.
AH8821
AH8821.Significant digits in the geoid height do not necessarily reflect accuracy.

```

AH8821.GEOID12B height accuracy estimate available [here](#).

AH8821

AH8821.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AH8821

AH8821.The Laplace correction was computed from DEFLEC12B derived deflections.

AH8821

AH8821.The ellipsoidal height was determined by GPS observations

AH8821.and is referenced to NAD 83.

AH8821

AH8821.The dynamic height is computed by dividing the NAVD 88

AH8821.geopotential number by the normal gravity value computed on the

AH8821.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8821.degrees latitude (g = 980.6199 gals.).

AH8821

AH8821.The modeled gravity was interpolated from observed gravity values.

AH8821

AH8821. The following values were computed from the NAD 83(2011) position.

AH8821

AH8821;		North	East	Units	Scale Factor	Converg.
AH8821;SPC FL E	-	342,542.868	178,816.348	MT	0.99994671	-0 05 55.3
AH8821;SPC FL E	-	1,123,826.06	586,666.64	sFT	0.99994671	-0 05 55.3
AH8821;UTM 17	-	3,033,557.975	478,823.575	MT	0.99960554	-0 05 55.3

AH8821

AH8821! - Elev Factor x Scale Factor = Combined Factor

AH8821!SPC FL E - 1.00000157 x 0.99994671 = 0.99994828

AH8821!UTM 17 - 1.00000157 x 0.99960554 = 0.99960711

AH8821

AH8821 SUPERSEDED SURVEY CONTROL

AH8821

AH8821 NAD 83(2007)- 27 25 30.98866(N) 081 12 51.30435(W) AD(2002.00) 0

AH8821 ELLIP H (02/10/07) -10.007 (m) GP(2002.00)

AH8821 NAD 83(1999)- 27 25 30.98854(N) 081 12 51.30429(W) AD( ) 1

AH8821 ELLIP H (05/31/01) -9.989 (m) GP( ) 4 1

AH8821 NAD 83(1990)- 27 25 30.98740(N) 081 12 51.30392(W) AD( ) 1

AH8821 ELLIP H (06/01/99) -10.016 (m) GP( ) 4 1

AH8821 NAVD 88 (06/01/99) 16.05 (m) 52.7 (f) LEVELING 3

AH8821

AH8821.Superseded values are not recommended for survey control.

AH8821

AH8821.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH8821.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8821

AH8821\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML7882333557(NAD 83)

AH8821

AH8821\_MARKER: DD = SURVEY DISK

AH8821\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH8821\_STAMPING: B 463 1997

AH8821\_MARK LOGO: FLDEP

AH8821\_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8821\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH8821+STABILITY: SURFACE MOTION

AH8821\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8821+SATELLITE: SATELLITE OBSERVATIONS - December 15, 2014

AH8821

AH8821	HISTORY	- Date	Condition	Report By
AH8821	HISTORY	- 1997	MONUMENTED	FLDEP
AH8821	HISTORY	- 20050119	GOOD	INDIV
AH8821	HISTORY	- 20050628	GOOD	MACTEC
AH8821	HISTORY	- 20091118	GOOD	PICKET
AH8821	HISTORY	- 20141215	GOOD	SFLWMD

AH8821 HISTORY - 1997 MONUMENTED FLDEP

AH8821 HISTORY - 20050119 GOOD INDIV

AH8821 HISTORY - 20050628 GOOD MACTEC

AH8821 HISTORY - 20091118 GOOD PICKET

AH8821 HISTORY - 20141215 GOOD SFLWMD



AH8821

AH8821

STATION DESCRIPTION

AH8821

AH8821'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8821'THE MARK IS ABOUT 30.2 MI (48.6 KM) NORTHWEST OF OKEECHOBEE, 4.8 MI

AH8821'(7.7 KM) WEST OF THE KISSIMMEE RIVER, 2.8 MI (4.5 KM) SOUTHEAST OF

AH8821'LORIDA IN SECTION 22, TOWNSHIP 35 SOUTH, RANGE 31 EAST. TO REACH THE

AH8821'MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98

AH8821'FOR 2.8 MI (4.5 KM) TO THE MARK ON THE LEFT, SET IN THE TOP OF A ROUND

AH8821'CONCRETE MONUMENT FLUSH WITH THE GROUND AND 0.5 FT (15.2 CM) BELOW THE

AH8821'LEVEL OF U.S. HIGHWAY 98. LOCATED 58.0 FT (17.7 M) SOUTHEAST OF THE

AH8821'APPROXIMATE CENTERLINE OF A DIRT ROAD LEADING NORTHEAST, 52.8 FT (16.1

AH8821'M) NORTHEAST OF THE CENTERLINE OF U.S. HIGHWAY 98, 1.5 FT (0.5 M)

AH8821'SOUTHWEST OF A BARBWIRE FENCE AND 1.4 FT (0.4 M) SOUTHWEST OF A

AH8821'CARSONITE WITNESS POST.

AH8821

AH8821

STATION RECOVERY (2005)

AH8821

AH8821'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005

AH8821'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

AH8821

AH8821

STATION RECOVERY (2005)

AH8821

AH8821'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CGB)

AH8821'RECOVERED AS DESCRIBED

AH8821

AH8821

STATION RECOVERY (2009)

AH8821

AH8821'RECOVERY NOTE BY PICKETT AND ASSOCIATES 2009 (JM)

AH8821'RECOVERED IN GOOD CONDITION.

AH8821

AH8821

STATION RECOVERY (2014)

AH8821

AH8821'RECOVERY NOTE BY S FL WATER MGMT DIST 2014

AH8821'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,  Retrieval Date = FEBRUARY 10, 2016
AH8822 *****
AH8822 DESIGNATION - C 463
AH8822 PID - AH8822
AH8822 STATE/COUNTY- FL/HIGHLANDS
AH8822 COUNTRY - US
AH8822 USGS QUAD - BASINGER NW (1972)
AH8822
AH8822 *CURRENT SURVEY CONTROL
AH8822
AH8822* NAD 83(2011) POSITION- 27 25 18.11147(N) 081 12 25.57326(W) ADJUSTED
AH8822* NAD 83(2011) ELLIP HT- -11.084 (meters) (06/27/12) ADJUSTED
AH8822* NAD 83(2011) EPOCH - 2010.00
AH8822* NAVD 88 ORTHO HEIGHT - 14.932 (meters) 48.99 (feet) ADJUSTED
AH8822
AH8822 NAD 83(2011) X - 866,048.597 (meters) COMP
AH8822 NAD 83(2011) Y - -5,598,925.034 (meters) COMP
AH8822 NAD 83(2011) Z - 2,919,766.079 (meters) COMP
AH8822 LAPLACE CORR - -1.36 (seconds) DEFLEC12B
AH8822 GEOID HEIGHT - -26.023 (meters) GEOID12B
AH8822 DYNAMIC HEIGHT - 14.909 (meters) 48.91 (feet) COMP
AH8822 MODELED GRAVITY - 979,126.6 (mgal) NAVD 88
AH8822
AH8822 VERT ORDER - SECOND CLASS I
AH8822
AH8822 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH8822 Standards:
AH8822 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH8822 Horiz Ellip SD_N SD_E SD_h (unitless)
AH8822 -----
AH8822 NETWORK 1.05 1.61 0.44 0.42 0.82 0.03149503
AH8822 -----
AH8822 Click here for local accuracies and other accuracy information.
AH8822
AH8822
AH8822.The horizontal coordinates were established by GPS observations
AH8822.and adjusted by the National Geodetic Survey in June 2012.
AH8822
AH8822.NAD 83(2011) refers to NAD 83 coordinates where the reference
AH8822.frame has been affixed to the stable North American tectonic plate. See
AH8822.NA2011 for more information.
AH8822
AH8822.The horizontal coordinates are valid at the epoch date displayed above
AH8822.which is a decimal equivalence of Year/Month/Day.
AH8822
AH8822.The orthometric height was determined by differential leveling and
AH8822.adjusted by the NATIONAL GEODETIC SURVEY
AH8822.in July 1999.
AH8822
AH8822.Significant digits in the geoid height do not necessarily reflect accuracy.

```

AH8822.GEOID12B height accuracy estimate available [here](#).

AH8822

AH8822.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AH8822

AH8822.The Laplace correction was computed from DEFLEC12B derived deflections.

AH8822

AH8822.The ellipsoidal height was determined by GPS observations

AH8822.and is referenced to NAD 83.

AH8822

AH8822.The dynamic height is computed by dividing the NAVD 88

AH8822.geopotential number by the normal gravity value computed on the

AH8822.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8822.degrees latitude (g = 980.6199 gals.).

AH8822

AH8822.The modeled gravity was interpolated from observed gravity values.

AH8822

AH8822. The following values were computed from the NAD 83(2011) position.

AH8822

AH8822;		North	East	Units	Scale Factor	Converg.
AH8822;SPC FL E	-	342,145.333	179,522.358	MT	0.99994635	-0 05 43.4
AH8822;SPC FL E	-	1,122,521.81	588,982.94	sFT	0.99994635	-0 05 43.4
AH8822;UTM 17	-	3,033,160.576	479,529.345	MT	0.99960517	-0 05 43.4

AH8822

AH8822! - Elev Factor x Scale Factor = Combined Factor

AH8822!SPC FL E - 1.00000174 x 0.99994635 = 0.99994809

AH8822!UTM 17 - 1.00000174 x 0.99960517 = 0.99960691

AH8822

AH8822 SUPERSEDED SURVEY CONTROL

AH8822

AH8822 NAD 83(2007)- 27 25 18.11177(N) 081 12 25.57436(W) AD(2002.00) 0

AH8822 NAD 83(1999)- 27 25 18.11160(N) 081 12 25.57424(W) AD( ) 1

AH8822 ELLIP H (05/31/01) -11.064 (m) GP( ) 4 1

AH8822 NAD 83(1990)- 27 25 18.11048(N) 081 12 25.57393(W) AD( ) 1

AH8822 ELLIP H (06/01/99) -11.087 (m) GP( ) 4 1

AH8822 NAVD 88 (06/01/99) 14.97 (m) 49.1 (f) LEVELING 3

AH8822

AH8822.Superseded values are not recommended for survey control.

AH8822

AH8822.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH8822.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8822

AH8822\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML7952933160(NAD 83)

AH8822

AH8822\_MARKER: F = FLANGE-ENCASED ROD

AH8822\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AH8822\_STAMPING: C 463 1997

AH8822\_MARK LOGO: NGS

AH8822\_PROJECTION: FLUSH

AH8822\_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8822\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AH8822\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8822+SATELLITE: SATELLITE OBSERVATIONS - May 27, 2010

AH8822\_ROD/PIPE-DEPTH: 19.0 meters

AH8822

AH8822	HISTORY	- Date	Condition	Report By
AH8822	HISTORY	- 1997	MONUMENTED	FLDEP
AH8822	HISTORY	- 20050119	GOOD	INDIV
AH8822	HISTORY	- 20080418	GOOD	INDIV
AH8822	HISTORY	- 20100527	GOOD	SESMC

AH8822

AH8822 STATION DESCRIPTION  
AH8822  
AH8822'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)  
AH8822'THE MARK IS ABOUT 29.7 MI (47.8 KM) NORTHWEST OF OKEECHOBEE, 4.3 MI  
AH8822'(6.9 KM) WEST OF THE KISSIMMEE RIVER, 3.3 MI (5.3 KM) SOUTHEAST OF  
AH8822'LORIDA IN SECTION 23, TOWNSHIP 35 SOUTH, RANGE 31 EAST. TO REACH THE  
AH8822'MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98  
AH8822'FOR 3.4 MI (5.5 KM) TO THE JUNCTION OF COUNTY ROAD 621 ON THE RIGHT  
AH8822'AND THE MARK ON THE LEFT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A  
AH8822'DEPTH OF 62.2 FT (19.0 M) WITH A LOGO CAP FLUSH WITH THE GROUND AND  
AH8822'LEVEL WITH U.S. HIGHWAY 98, THE DATUM POINT IS RECESSD 0.3 FT (9.1  
AH8822'CM) BELOW THE LEVEL OF THE LOGO CAP. LOCATED 54.0 FT (16.5 M)  
AH8822'NORTHEAST OF THE CENTERLINE OF U.S. HIGHWAY 98, 44.6 FT (13.6 M)  
AH8822'NORTHWEST OF A POWER POLE WITH 3 GUY WIRES ATTACHED, 1.2 FT (0.4 M)  
AH8822'SOUTHWEST OF A CARSONITE WITNESS POST AND BARBWIRE FENCE. NOTE ACCESS  
AH8822'TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.  
AH8822  
AH8822 STATION RECOVERY (2005)  
AH8822  
AH8822'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005  
AH8822'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.  
AH8822  
AH8822 STATION RECOVERY (2008)  
AH8822  
AH8822'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2008 (JCR)  
AH8822'RECOVERED AS DESCRIBED. RECOVERY NOTE BY SOUTHEASTERN SURVEYING AND  
AH8822'MAPPING CORP.  
AH8822'  
AH8822  
AH8822 STATION RECOVERY (2010)  
AH8822  
AH8822'RECOVERY NOTE BY SOUTHEASTERN SURVEY AND MAPPIN 2010 (JCR)  
AH8822'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

-\*- FIELD ABSTRACT -\*-

070220-070221 HGZ L10785 8.0 MM ORDER 2 CLASS 2 PAGE 1  
 SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC2A  
 LOCATED IN POLK COUNTY, FLORIDA

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0155 B 463						16.00900	
0155 B 463	2201150	F	2.53	0.20969 *	10.68	0.21503	1
0158 LKBC2A2	2211130	B	2.54	-0.22037 *			1
	SL 1		2.53		10.68	16.22403	
0158 LKBC2A2	2201400	F	2.32	-2.74662 *	-2.37	-2.74781	1
0157 LKBC2A	2210905	B	2.33	2.74899 *			1
	SL 1		4.85		8.31	13.47622	
0155 B 463	2201010	B	0.81	1.07321 *	0.00	-1.07321	1
0156 C 463							
			0.81		0.00	14.93579♀	

ELEVATION REJECTION AND ERROR CODES

- C - section elevation difference was rejected for cause ie. \*43\* record rejection code set to "F"
- R - section elevation difference was rejected by Halperin rejection algorithm
- @ - section elevation difference does not include refraction correction
- \* - section elevation difference does not include rod correction

♀

INSTRUMENT CODE	INSTRUMENT	RODS
1	243 - 331132	396 - 555 396 - 666

♀  
 LEVEL LINE SECTION RUNNING TREE

0155 (0158 0157)  
 0156♀

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0155	0155	272530	0811251	0.00	0.00
0155	0158	272635	0811159	2.53	2.46
0158	0157	272713	0811057	2.32	2.07
0155	0156	272518	0811225	0.81	0.80♀

SECTION FROM TO ERROR MESSAGES