
Surveyor's Report

Kissimmee River Wells

NMI Project No. 1078.007

Report Date: March 16th, 2006

Submittal: Final

Prepared for:

**SUTRON Corporation and South
Florida Water Management District**



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OVERVIEW OF THE PROJECT

PURPOSE

The purpose of the Kissimmee River Wells Project is to establish vertical control marks near each 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

The project is located in Highlands and Okeechobee Counties. Following is a map and legend.



1. LKBB3A
2. LKBB3B
3. LKBC1B
4. LKBD1A
5. LKBD3A
6. LKBD3C
7. LKBD5C
8. RIVAC 1
9. RIVAC 2

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 each 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.

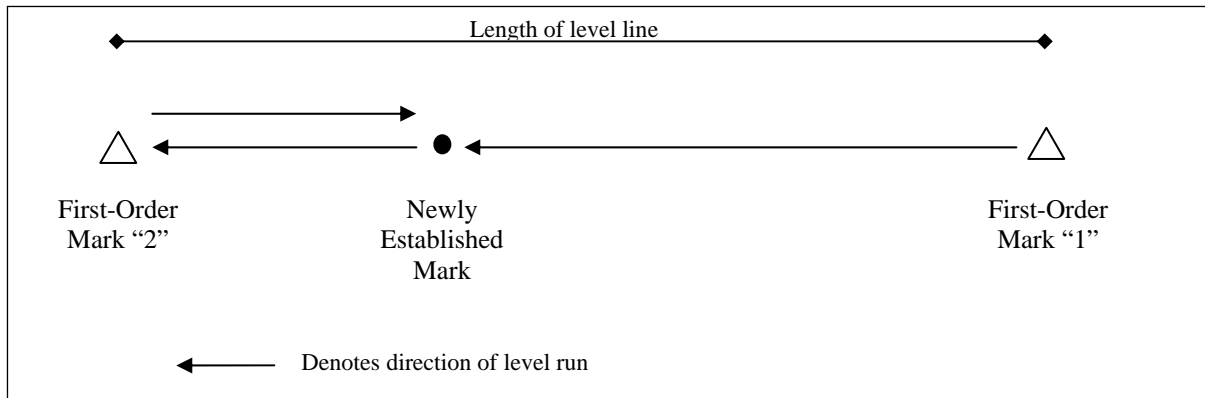
LEVELING METHODS

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 tables list the elevations established for each new mark, the level run misclosure, “to-reach” description for each mark and a photo of the mark. All elevations are in US Survey Feet.

LKBB3A		New benchmark was not set; Use benchmark S 461.			
Bench Mark 1:	S 461	46.39 ft	(NAVD 88)	47.55 ft	(NGVD 29)
Bench Mark 2:	R 461	53.44 ft	(NAVD 88)	54.60 ft	(NGVD 29)
Monitoring Well:	LKBB3A	50.53 ft	(NAVD88)	51.69 ft	(NGVD 29)
Brass Disk on Conc. Pad:	LKBB3A	47.14 ft	(NAVD88)	48.30 ft	(NGVD 29)
Ground Elevation:	LKBB3A	46.67 ft	(NAVD 88)	47.83 ft	(NGVD 29)
Length of Run:	2.20 km	To Reach S 461: TO REACH THE MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98 FOR 1.05 MILES TO THE JUNCTION OF BLUFF HAMMOCK ROAD ON THE LEFT AND THE SEABOARD COAST RAILROAD TRACKS, TURN LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR 4.15 MILES TO THE END OF THE PAVED ROAD AND A Y-JUNCTION, BEAR LEFT ON THE SAND ROAD AND GO NORTH FOR 0.7 MILES TO THE JUNCTION OF A DIRT ROAD ON THE LEFT (LEADING NORTH) , CONTINUE NORTHEAST ON THE SAND ROAD FOR 0.7 MILE TO THE JUNCTION OF A LEVEE ROAD ON THE LEFT, TURN LEFT ON THE LEVEE ROAD AND GO NORTH FOR 0.05 MILE TO A LOCKED GATE, CONTINUE NORTH ON THE LEVEE ROAD FOR 3.15 MILES TO A 90 DEGREE TURN EAST, TURN RIGHT AND GO EAST ON THE LEVEE ROAD FOR 0.55 MILE TO A 90 DEGREE TURN LEFT, TURN LEFT ON THE LEVEE ROAD AND GO NORTH FOR 128.0 FEET TO THE JUNCTION OF AN EAST-WEST LEVEE ROAD, TURN RIGHT ON THE LEVEE ROAD AND GO EAST FOR 0.15 MILE TO THE JUNCTION OF A DIM ROAD LEADING NORTH, TURN LEFT ON THE DIM ROAD AND GO NORTH FOR 73.0 FEET TO A LOCKED GATE, CONTINUE NORTH ON THE DIM ROAD FOR 78.0 FEET TO THE T-JUNCTION OF A TRAIL ROAD LEADING EAST-WEST, TURN RIGHT ON THE TRAIL ROAD AND GO EAST FOR 1.4 MILES TO AN OPEN GATE, CONTINUE EAST ON THE TRAIL ROAD FOR 2.75 MILES TO A T-JUNCTION OF BOSWELL TRAIL, TURN RIGHT ON BOSWELL TRAIL AND GO SOUTH FOR 125.0 FEET TO THE JUNCTION OF A ROAD LEADING TO A BOAT RAMP ON THE RIGHT, BEAR LEFT ON BOSWELL TRAIL AND GO NORTHEAST FOR 0.2 MILE TO THE JUNCTION OF A TRAIL ROAD ON THE LEFT, BARE RIGHT ON BOSWELL TRAIL AND GO NORTHEAST FOR 0.6 MILE TO THE MARK ON THE RIGHT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 63.5 FEET WITH A LOGO CAP FLUSH WITH THE GROUND AND LEVEL WITH BOSWELL TRAIL, THE DATUM POINT IS RECESSED 0.4 FT BELOW THE LEVEL OF THE LOGO CAP. LOCATED 210.0 FEET SOUTH OF A CATTLE GAP, 125.5 FEET EAST OF A 10.0 FEET DIAMETER OAK TREE, 112.2 FEET WEST OF A BARBWIRE FENCE, 59.2 FEET SOUTHEAST OF A 8.0 FEET DIAMETER OAK TREE, 42.5 FEET EAST OF THE APPROXIMATE CENTERLINE OF BOSWELL TRAIL AND 1.0 FOOT WEST OF A CARSONITE WITNESS POST. NOTE ACCESS TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP. FOR KEY, CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT.			
Max Allowable Misclosure:	12 mm				
Actual Misclosure:	4 mm				
					

LKBB3A



Nick Miller, Inc.

Date of Photo: February 28, 2006

View: Looking at the well LKBB3A facing west

LKBB3A



Nick Miller, Inc.

Date of Photo: February 28, 2006

View: Close-up of the well showing the contractor's markings

LKBB3A



Nick Miller, Inc.
Date of Photo: February 28, 2006
View: Top View of concrete pad brass disk (Elevation on brass disk)

LKBB3A



Nick Miller, Inc.
Date of Photo: February 28, 2006
View: Looking at the benchmark S461 facing east

LKBB3A



Nick Miller, Inc.
Date of Photo: February 28, 2006
View: Top views of the S461 benchmark

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 13, 2006

AH8790 *****

AH8790 DESIGNATION - S 461

AH8790 PID - AH8790

AH8790 STATE/COUNTY- FL/HIGHLANDS

AH8790 USGS QUAD - FORT KISSIMMEE (1972)

AH8790

AH8790 *CURRENT SURVEY CONTROL

AH8790 * NAD 83(1986)- 27 35 42. (N) 081 09 20. (W) SCALED

AH8790 * NAVD 88 - 14.141 (meters) 46.39 (feet) ADJUSTED

AH8790

AH8790 GEOID HEIGHT- -26.23 (meters) GEOID03

AH8790 DYNAMIC HT - 14.120 (meters) 46.33 (feet) COMP

AH8790 MODELED GRAV- 979,153.3 (mgal) NAVD 88

AH8790

AH8790 VERT ORDER - SECOND CLASS I

AH8790

AH8790.The horizontal coordinates were scaled from a topographic map and have an estimated accuracy of +/- 6 seconds.

AH8790

AH8790.The orthometric height was determined by differential leveling

AH8790.and adjusted by the National Geodetic Survey in July 1999..

AH8790

AH8790.The geoid height was determined by GEOID03.

AH8790

AH8790.The dynamic height is computed by dividing the NAVD 88

AH8790.geopotential number by the normal gravity value computed on the

AH8790.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8790.degrees latitude (g = 980.6199 gals.).

AH8790

AH8790.The modeled gravity was interpolated from observed gravity values.

AH8790

AH8790; North East Units Estimated Accuracy

AH8790;SPC FL E - 361,340. 184,640. MT (+/- 180 meters Scaled)

AH8790

AH8790 SUPERSEDED SURVEY CONTROL

AH8790

AH8790.No superseded survey control is available for this station.

AH8790

AH8790_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML846523(NAD 83)

AH8790_MARKER: F = FLANGE-ENCASED ROD

AH8790_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AH8790_STAMPING: S 461 1997

AH8790_MARK LOGO: NGS

AH8790_PROJECTION: FLUSH

AH8790_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8790_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AH8790_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

AH8790+SATELLITE: SATELLITE OBSERVATIONS - 1997

AH8790_ROD/PIPE-DEPTH: 19.4 meters

AH8790

AH8790 HISTORY - Date Condition Report By

AH8790 HISTORY - 1997 MONUMENTED FLDEP

AH8790

AH8790 STATION DESCRIPTION

AH8790

AH8790'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8790'THE MARK IS ABOUT 7.0 MI (11.3 KM) NORTHEAST OF LORIDA, 0.15 MI (0.24

AH8790'KM) WEST OF KISSIMMEE RIVER IN SECTION 19, TOWNSHIP 33 SOUTH, RANGE 32

AH8790'EAST. TO REACH THE MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST

AH8790'ON U.S. HIGHWAY 98 FOR 1.05 MI (1.69 KM) TO THE JUNCTION OF BLUFF

AH8790'HAMMOCK ROAD ON THE LEFT AND THE SEABOARD COAST RAILROAD TRACKS, TURN

AH8790'LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR 4.15 MI (6.68 KM) TO

AH8790'THE END OF THE PAVED ROAD AND A Y-JUNCTION, BEAR LEFT ON THE SAND ROAD

AH8790'AND GO NORTH FOR 0.7 MI (1.1 KM) TO THE JUNCTION OF A DIRT ROAD ON THE

AH8790'LEFT (LEADING NORTH) , CONTINUE NORTHEAST ON THE SAND ROAD FOR 0.7 MI

AH8790'(1.1 KM) TO THE JUNCTION OF A LEVEE ROAD ON THE LEFT, TURN LEFT ON THE

DATASHEETS

AH8790'LEVEE ROAD AND GO NORTH FOR 0.05 MI (0.08 KM) TO A LOCKED GATE,
AH8790'CONTINUE NORTH ON THE LEVEE ROAD FOR 3.15 MI (5.07 KM) TO A 90 DEGREE
AH8790'TURN EAST, TURN RIGHT AND GO EAST ON THE LEVEE ROAD FOR 0.55 MI (0.89
AH8790'KM) TO A 90 DEGREE TURN LEFT, TURN LEFT ON THE LEVEE ROAD AND GO NORTH
AH8790'FOR 128.0 FT (39.0 M) TO THE JUNCTION OF AN EAST-WEST LEVEE ROAD, TURN
AH8790'RIGHT ON THE LEVEE ROAD AND GO EAST FOR 0.15 MI (0.24 KM) TO THE
AH8790'JUNCTION OF A DIM ROAD LEADING NORTH, TURN LEFT ON THE DIM ROAD AND GO
AH8790'NORTH FOR 73.0 FT (22.3 M) TO A LOCKED GATE, CONTINUE NORTH ON THE DIM
AH8790'ROAD FOR 78.0 FT (23.8 M) TO THE T-JUNCTION OF A TRAIL ROAD LEADING
AH8790'EAST-WEST, TURN RIGHT ON THE TRAIL ROAD AND GO EAST FOR 1.4 MI (2.3
AH8790'KM) TO AN OPEN GATE, CONTINUE EAST ON THE TRAIL ROAD FOR 2.75 MI (4.43
AH8790'KM) TO A T-JUNCTION OF BOSWELL TRAIL, TURN RIGHT ON BOSWELL TRAIL AND
AH8790'GO SOUTH FOR 125.0 FT (38.1 M) TO THE JUNCTION OF A ROAD LEADING TO A
AH8790'BOAT RAMP ON THE RIGHT, BEAR LEFT ON BOSWELL TRAIL AND GO NORTHEAST
AH8790'FOR 0.2 MI (0.3 KM) TO THE JUNCTION OF A TRAIL ROAD ON THE LEFT, BEAR
AH8790'RIGHT ON BOSWELL TRAIL AND GO NORTHEAST FOR 0.6 MI (1.0 KM) TO THE
AH8790'MARK ON THE RIGHT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH
AH8790'OF 63.5 FT (19.4 M) WITH A LOGO CAP FLUSH WITH THE GROUND AND LEVEL
AH8790'WITH BOSWELL TRAIL, THE DATUM POINT IS RECESSED 0.4 FT (12.2 CM) BELOW
AH8790'THE LEVEL OF THE LOGO CAP. LOCATED 210.0 FT (64.0 M) SOUTH OF A CATTLE
AH8790'GAP, 125.5 FT (38.3 M) EAST OF A 10.0 FT (3.0 M) DIAMETER OAK TREE,
AH8790'112.2 FT (34.2 M) WEST OF A BARBWIRE FENCE, 59.2 FT (18.0 M) SOUTHEAST
AH8790'OF A 8.0 FT (2.4 M) DIAMETER OAK TREE, 42.5 FT (13.0 M) EAST OF THE
AH8790'APPROXIMATE CENTERLINE OF BOSWELL TRAIL AND 1.0 FT (0.3 M) WEST OF A
AH8790'CARSONITE WITNESS POST. NOTE ACCESS TO DATUM POINT IS HAD THROUGH A
AH8790'5-INCH LOGO CAP. FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT
AH8790'DISTRICT AT 561-686-8800.

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

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 13, 2006

AH8789 *****

AH8789 DESIGNATION - R 461

AH8789 PID - AH8789

AH8789 STATE/COUNTY- FL/HIGHLANDS

AH8789 USGS QUAD - FORT KISSIMMEE (1972)

AH8789

AH8789 *CURRENT SURVEY CONTROL

AH8789

AH8789* NAD 83(1986)- 27 36 21. (N) 081 09 16. (W) SCALED

AH8789* NAVD 88 - 16.288 (meters) 53.44 (feet) ADJUSTED

AH8789

AH8789 GEOID HEIGHT- -26.25 (meters) GEOID03

AH8789 DYNAMIC HT - 16.264 (meters) 53.36 (feet) COMP

AH8789 MODELED GRAV- 979,155.0 (mgal) NAVD 88

AH8789

AH8789 VERT ORDER - SECOND CLASS I

AH8789

AH8789.The horizontal coordinates were scaled from a topographic map and have

AH8789.an estimated accuracy of +/- 6 seconds.

AH8789

AH8789.The orthometric height was determined by differential leveling

AH8789.and adjusted by the National Geodetic Survey in July 1999..

AH8789

AH8789.The geoid height was determined by GEOID03.

AH8789

AH8789.The dynamic height is computed by dividing the NAVD 88

AH8789.geopotential number by the normal gravity value computed on the

AH8789.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8789.degrees latitude (g = 980.6199 gals.).

AH8789

AH8789.The modeled gravity was interpolated from observed gravity values.

AH8789

AH8789; North East Units Estimated Accuracy

AH8789;SPC FL E - 362,540. 184,760. MT (+/- 180 meters Scaled)

AH8789

AH8789 SUPERSEDED SURVEY CONTROL

AH8789

AH8789.No superseded survey control is available for this station.

AH8789

AH8789_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML847535(NAD 83)

AH8789_MARKER: DD = SURVEY DISK

AH8789_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH8789_STAMPING: R 461 1997

AH8789_MARK LOGO: FLDEP

AH8789_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8789_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH8789+STABILITY: SURFACE MOTION

AH8789_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8789+SATELLITE: SATELLITE OBSERVATIONS - 1997

AH8789

AH8789 HISTORY - Date Condition Report By

AH8789 HISTORY - 1997 MONUMENTED FLDEP

AH8789

AH8789 STATION DESCRIPTION

AH8789

AH8789'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8789'THE MARK IS ABOUT 7.0 MI (11.3 KM) NORTHEAST OF LORIDA, 0.4 MI (0.6

AH8789'KM) WEST OF KISSIMMEE RIVER IN SECTION 17, TOWNSHIP 33 SOUTH, RANGE 32

AH8789'EAST. TO REACH THE MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST

AH8789'ON U.S. HIGHWAY 98 FOR 1.05 MI (1.69 KM) TO THE JUNCTION OF BLUFF

AH8789'HAMMOCK ROAD ON THE LEFT AND THE SEABOARD COAST RAILROAD TRACKS, TURN

AH8789'LEFT ON BLUFF HAMMOCK ROAD AND GO NORTHEAST FOR 4.15 MI (6.68 KM) TO

AH8789'THE END OF THE PAVED ROAD AND A Y-JUNCTION, BEAR LEFT ON THE SAND ROAD

AH8789'AND GO NORTH FOR 0.7 MI (1.1 KM) TO THE JUNCTION OF A DIRT ROAD ON THE

AH8789'LEFT (LEADING NORTH) CONTINUE NORTHEAST ON THE SAND ROAD FOR 0.7 MI

AH8789'(1.1 KM) TO THE JUNCTION OF A LEVEE ROAD ON THE LEFT, TURN LEFT ON THE

AH8789'LEVEE ROAD AND GO NORTH FOR 0.05 MI (0.08 KM) TO A LOCKED GATE,

DATASHEETS

AH8789'CONTINUE NORTH ON THE LEVEE ROAD FOR 3.15 MI (5.07 KM) TO A 90 DEGREE
AH8789'TURN EAST, TURN RIGHT AND GO EAST ON THE LEVEE ROAD FOR 0.55 MI (0.89
AH8789'KM) TO A 90 DEGREE TURN LEFT, TURN LEFT ON THE LEVEE ROAD AND GO NORTH
AH8789'FOR 128.0 FT (39.0 M) TO THE T-JUNCTION OF AN EAST-WEST LEVEE ROAD,
AH8789'TURN RIGHT ON THE LEVEE ROAD AND GO EAST FOR 0.15 MI (0.24 KM) TO THE
AH8789'JUNCTION OF A DIM ROAD LEADING NORTH, TURN LEFT ON THE DIM ROAD AND GO
AH8789'NORTH FOR 73.0 FT (22.3 M) TO A LOCKED GATE, CONTINUE NORTH ON THE DIM
AH8789'ROAD FOR 78.0 FT (23.8 M) TO THE T-JUNCTION OF A TRAIL ROAD LEADING
AH8789'EAST-WEST, TURN RIGHT ON THE TRAIL ROAD AND GO EAST FOR 1.4 MI (2.3
AH8789'KM) TO AN OPEN GATE, CONTINUE EAST ON THE TRAIL ROAD FOR 2.75 MI (4.43
AH8789'KM) TO A T-JUNCTION OF BOSWELL TRAIL, TURN RIGHT ON BOSWELL TRAIL AND
AH8789'GO SOUTH FOR 125.0 FT (38.1 M) TO THE JUNCTION OF A ROAD LEADING TO A
AH8789'BOAT RAMP ON THE RIGHT, BEAR LEFT ON BOSWELL TRAIL AND GO NORTHEAST
AH8789'FOR 0.2 MI (0.3 KM) TO THE JUNCTION OF A TRAIL LEADING LEFT, BEAR
AH8789'RIGHT ON BOSWELL TRAIL AND GO NORTHERLY FOR 1.4 MI (2.3 KM) TO THE
AH8789'MARK ON THE LEFT, SET IN TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH
AH8789'THE GROUND LEVEL WITH THE BOSWELL TRAIL. LOCATED 52.2 FT (15.9 M)
AH8789'NORTH OF THE SOUTHEAST CORNER OF A BARBWIRE FENCE RUNNING SOUTHWEST
AH8789'AND NORTH, 26.3 FT (8.0 M) WEST OF THE APPROXIMATE CENTERLINE OF
AH8789'BOSWELL TRAIL, 1.0 FT (0.3 M) EAST OF A BARBWIRE FENCE AND 0.9 FT
AH8789'(27.4 CM) EAST OF A CARSONITE WITNESS POST. NOTE FOR ACCESS AND KEY
AH8789'CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT 561-686-8800.

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

-*- FIELD ABSTRACT -*-

060228-060228 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
 SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBB3A

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0357 R 461							16.28800	
0357 R 461		2281130	F	1.33	-2.15136	* 0.00	-2.15136	1
0358 S 461				1.33		0.00	14.13664 [♀]	

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 - 111	396 - 222


♀
 LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0357		273542	0810920	0.00	0.00
0358 [♀]		273621	0810916	1.33	1.21 [♀]

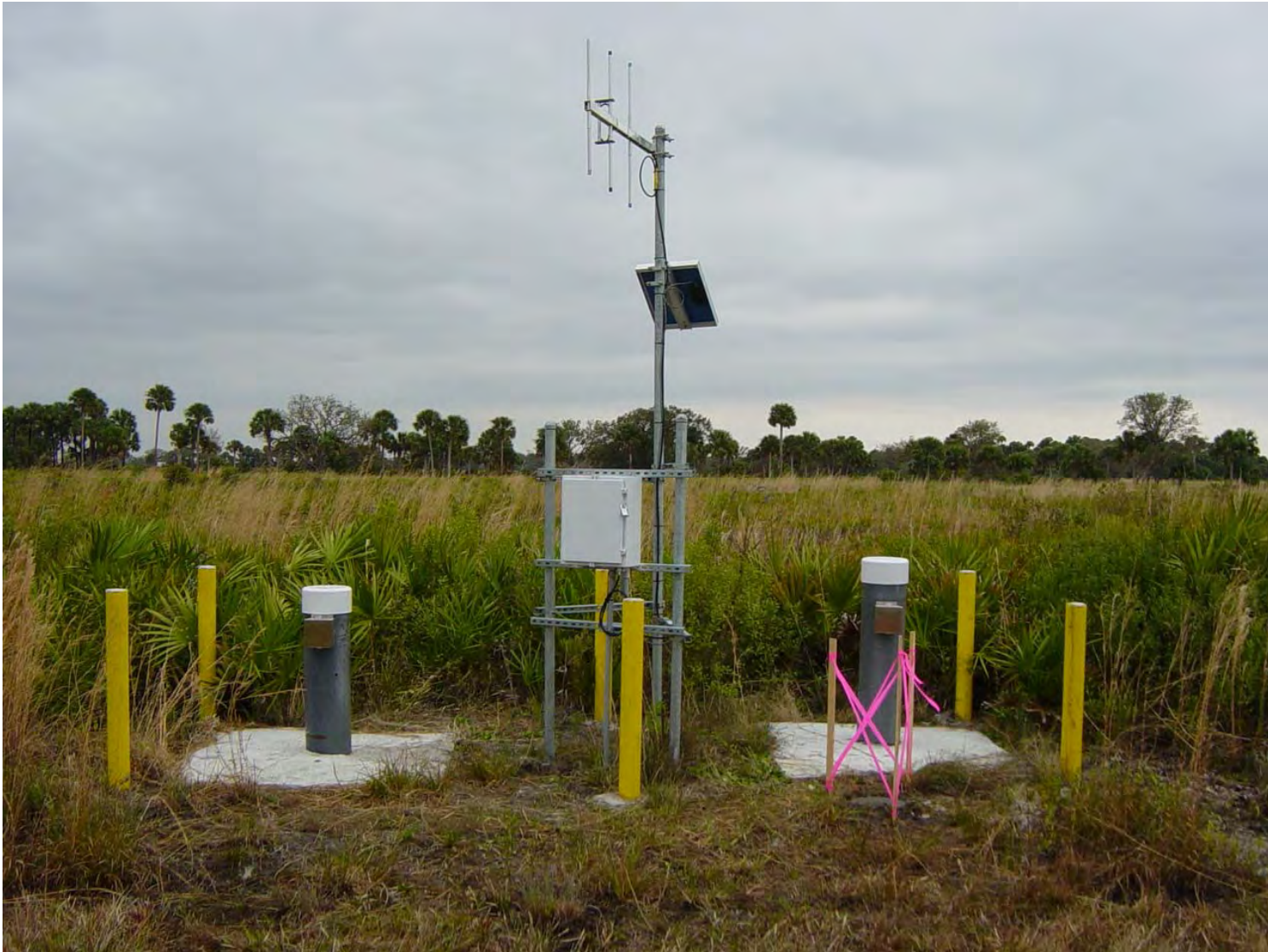
Windows Abstra Version 2.3 -- Jan 1, 2004 -- Fri Mar 03 13:47:45 2006

SECTION
 FROM TO ERROR MESSAGES
 0334 *** Bench mark description exists but mark not leveled to.

LKBB3B		Elevation:	50.79 ft	(NAVD 88)	51.98 ft	(NGVD 29)
Bench Mark 1:	U 556		44.99 ft	(NAVD 88)	46.18 ft	(NGVD 29)
Bench Mark 2:	V 556		49.75 ft	(NAVD 88)	50.94 ft	(NGVD 29)
Monitoring Well East:	LKBB3B		52.72 ft	(NAVD 88)	53.91 ft	(NGVD 29)
Brass Disk on Conc. Pad:	LKBB3B		50.12 ft	(NAVD 88)	51.31 ft	(NGVD 29)
Monitoring Well West:	LKBB3B		52.90 ft	(NAVD 88)	54.09 ft	(NGVD 29)
Brass Disk on Conc. Pad:	LKBB3B		50.10 ft	(NAVD 88)	51.29 ft	(NGVD 29)
Ground Elevation:	LKBB3B		49.82 ft	(NAVD 88)	51.01 ft	(NGVD 29)
Length of Run:	0.94 km	To Reach LKBB3B:				
Max Allowable Misclosure:		8 mm	FROM INTERSECTION US 98 HWY AND CR 700A (NW 176 TH AVE.) GO NORTH ON CR 700A FOR 5.5 MILES TO NW 240 TH STREET. GO WEST ON NW 240 TH STREET FOR 0.9 MILE TO NW 142 ND AVE. GO NORTH ON NW 142 AVE. FOR 5.0 MILES TO KISSIMEE PRAIRIE PRESERVE ENTRANCE. CONTINUE NORTH ON DIRT ROAD FOR 3.2 MILES TO DIRT ROAD. GO WEST ON DIRT ROAD FOR 6.5 MILES TO MARK ON LEFT NEAR MONITORING WELL LKBB3B. 3.7 FEET NORTHEAST OF NORTHWEST BALLARD POST, 3.6 FEET NORTH OF NORTH EDGE OF GREY PIPE OF WESTERN WELL, 10.0 FEET NORTHWEST OF NORTHWEST EDGE OF GREY PIPE OF EASTERN WELL. SET MAGNET 1 FOOT NORTH OF MONUMENT.			
Actual Misclosure:		6 mm				
						

LKBC1B		Elevation:	41.92 ft	(NAVD 88)	43.12 ft	(NGVD 29)
Bench Mark 1:	KR 1486		41.91 ft	(NAVD 88)	43.07 ft	(NGVD 29)
Bench Mark 2:	E 463		42.51 ft	(NAVD 88)	43.66 ft	(NGVD 29)
Monitoring Well:	LKBC1B		45.76 ft	(NAVD 88)	46.95 ft	(NGVD 29)
Concrete Pad:	LKBC1B		42.62 ft	(NAVD 88)	43.81 ft	(NGVD 29)
Ground Elevation:	LKBC1B		42.28 ft	(NAVD 88)	43.48 ft	(NGVD 29)
Length of Run:	2.27 km	To Reach LKBC1B:				
Max Allowable Misclosure:		12 mm	FROM INTERSECTION US 98 HWY & CR-721. GO WEST ON US 98 HWY FOR 8.1 MILES TO SANDHILL CRANE ROAD. GO NORTH THEN NORTHEASTERLY ON SANDHILL CRANE ROAD FOR 0.5 MILE TO MARK. 6.0 FEET SOUTHEAST OF SOUTHWEST BALLARD POST, 5.4 FEET SOUTHWEST OF SOUTHWEST BALLARD POST, 7.3 FEET SOUTHWEST OF SOUTHWEST EDGE OF GREY PIPE OF MONITORING WELL LKBC1B. SET MAGNET 1 FOOT NORTH OF MONUMENT.			
Actual Misclosure:		5 mm				
						

LKBB3B



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the well LKBB3B facing south

LKBB3B



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Close-up of the east well showing the contractor's markings

LKBB3B



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Close-up of the west well showing the contractor's markings

LKBB3B



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Top View of east well's brass disk on concrete pad (Elevation on brass disk)

LKBB3B



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Top View of west well's brass disk on concrete pad (Elevation on brass disk)

LKBB3B



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Looking at the benchmark facing south

LKBB3B



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: A top view of the benchmark

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 = OCTOBER 26, 2015
DK8248 *****
DK8248 DESIGNATION - LKBB3B
DK8248 PID - DK8248
DK8248 STATE/COUNTY- FL/OKEECHOBEE
DK8248 COUNTRY - US
DK8248 USGS QUAD - FORT KISSIMMEE (1972)
DK8248
DK8248 *CURRENT SURVEY CONTROL
DK8248
DK8248* NAD 83(1986) POSITION- 27 35 10. (N) 081 08 00. (W) SCALED
DK8248* NAVD 88 ORTHO HEIGHT - 15.483 (meters) 50.80 (feet) ADJUSTED
DK8248
DK8248 GEOID HEIGHT - -26.236 (meters) GEOID12B
DK8248 DYNAMIC HEIGHT - 15.460 (meters) 50.72 (feet) COMP
DK8248 MODELED GRAVITY - 979,155.5 (mgal) NAVD 88
DK8248
DK8248 VERT ORDER - SECOND CLASS I
DK8248
DK8248.The horizontal coordinates were scaled from a topographic map and have
DK8248.an estimated accuracy of +/- 6 seconds.
DK8248.
DK8248.The orthometric height was determined by differential leveling and
DK8248.adjusted by the NATIONAL GEODETIC SURVEY
DK8248.in May 2009.
DK8248
DK8248.No vertical observational check was made to the station.
DK8248
DK8248.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8248.GEOID12B height accuracy estimate available here.
DK8248
DK8248.The dynamic height is computed by dividing the NAVD 88
DK8248.geopotential number by the normal gravity value computed on the
DK8248.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8248.degrees latitude (g = 980.6199 gals.).
DK8248
DK8248.The modeled gravity was interpolated from observed gravity values.
DK8248
DK8248; North East Units Estimated Accuracy
DK8248;SPC FL E - 360,350. 186,840. MT (+/- 180 meters Scaled)
DK8248
DK8248 SUPERSEDED SURVEY CONTROL
DK8248
DK8248.No superseded survey control is available for this station.
DK8248
DK8248_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML868513(NAD 83)
DK8248
DK8248_MARKER: DD = SURVEY DISK
DK8248_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8248+WITH SETTING: INFORMATION.
DK8248_STAMPING: LKBB3B 2006
DK8248_MARK LOGO: SFLWMD
DK8248_PROJECTION: RECESSED 8 CENTIMETERS
DK8248_MAGNETIC: O = OTHER; SEE DESCRIPTION
DK8248_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8248_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

```

DK8248+SATELLITE: SATELLITE OBSERVATIONS - February 24, 2006

DK8248

DK8248 HISTORY - Date Condition Report By

DK8248 HISTORY - 20060224 MONUMENTED NICKMI

DK8248

DK8248

DK8248

STATION DESCRIPTION

DK8248'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8248'FROM INTERSECTION US 98 HWY AND CR 700A (NW 176TH AVE.) GO NORTH ON CR

DK8248'700A FOR 5.5 MILES TO NW 240TH STREET. GO WEST ON NW 240TH STREET FOR

DK8248'0.9 MILE TO NW 142ND AVE. GO NORTH ON NW 142 AVE. FOR 5.0 MILES TO

DK8248'KISSIMEE PRAIRE PRESERVE ENTRANCE. CONTINUE NORTH ON DIRT ROAD FOR

DK8248'3.2 MILES TO DIRT ROAD. GO WEST ON DIRT ROAD FOR 6.5 MILES TO MARK ON

DK8248'LEFT NEAR MONITORING WELL LKBB3B. 3.7 FT NORTHEAST OF NORTHWEST

DK8248'BALLARD POST, 3.6 FT NORTH OF NORTH EDGE OF GREY PIPE OF WESTERN

DK8248'WELL, 10.0 FT NORTHWEST OF NORTHWEST EDGE OF GREY PIPE OF EASTERN

DK8248'WELL. SET MONUMENT 1 FT NORTH OF MONUMENT. NOTE--ROD DEPTH UNKNOWN.

DK8248'NO NOTIFICATION FROM NICKMI AS FAR AS ROD DEPTH.

*** retrieval complete.

Elapsed Time = 00:00:01



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBB3B 2006
SECTION 21	TOWNSHIP 33 SOUTH	RANGE 32 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>02/24/2006</u>	FIELD BOOK _____ 10 _____ PAGE _____ 14	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 612,853 ft	N 1,182,177 ft
LATITUDE: N 27.58588°	LONGITUDE: W 81.13372°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 50.79 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 51.98 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION US 98 HWY AND CR 700A (NW 176TH AVE.) GO NORTH ON CR 700A FOR 5.5 MILES TO NW 240TH STREET. GO WEST ON NW 240TH STREET FOR 0.9 MILE TO NW 142ND AVE. GO NORTH ON NW 142 AVE. FOR 5.0 MILES TO KISSIMEE PRAIRIE PRESERVE ENTRANCE. CONTINUE NORTH ON DIRT ROAD FOR 3.2 MILES TO DIRT ROAD. GO WEST ON DIRT ROAD FOR 6.5 MILES TO MARK ON LEFT NEAR MONITORING WELL LKBB3B. 3.7 FEET NORTHEAST OF NORTHWEST BALLARD POST, 3.6 FEET NORTH OF NORTH EDGE OF GREY PIPE OF WESTERN WELL, 10.0 FEET NORTHWEST OF NORTHWEST EDGE OF GREY PIPE OF EASTERN WELL. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: U 556 & V 556</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK FOR MONITORING WELL LKBB3B SEWMD

- SET POURED IN-PLACE CONCRETE MONUMENT WITH ALUM. BRASS DISK
- SET MAGNET 1' NORTH OF CONR. MONUMENT

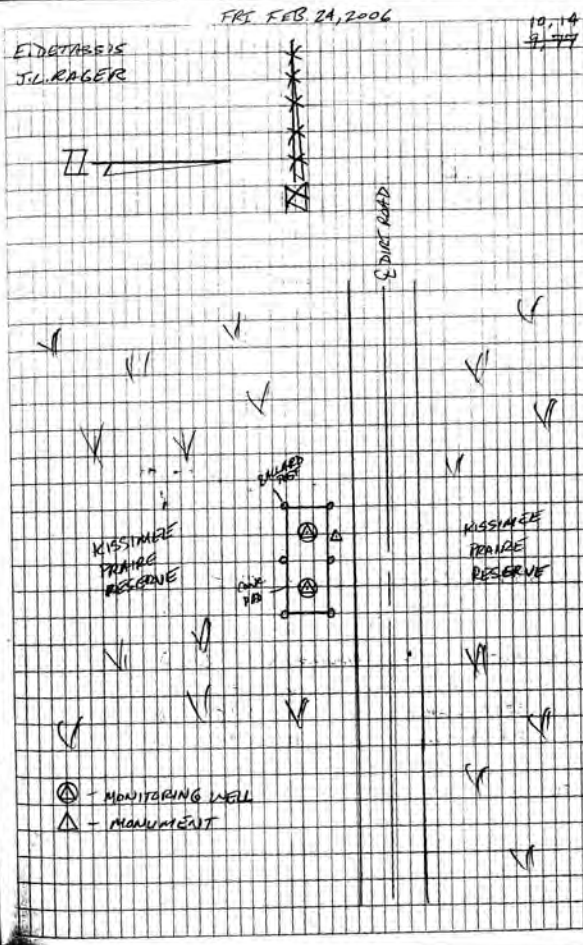
- SET CONR. MONUMENT 3.7' SE OF SW BALLAD POST
- " " " 3.6' SOUTH OF SOUTH EDGE OF GREY PIPE OF WESTERN WELL OF M.W. LKBB3B
- " " " 10.0' SW OF SOUTH EDGE OF GREY PIPE OF EASTERN WELL OF M.W. LKBB3B

STAMPING LKBB3B 2006

COORDINATES ON MONITORING WELL LKBB3B
 STATE PLANE 83 WGS 84
 N. 360327.356 m N. 27° 35' 09" 16
 E. 186800.017 m W. 081° 08' 01.31"

COORDINATES ON MONUMENT LKBB3B
 STATE PLANE 83 WGS 84
 N. 360328.122 m N. 27° 35' 09" 18
 E. 186797.815 m W. 081° 08' 01" 39

PKS
 2234 - TOP VIEW EAST WELL 2239 - FACING BM SOUTH
 2235 - " " " 2240 - TOP VIEW BM
 2236 - TOP VIEW WEST WELL
 2237 - " " "
 2238 - FACING MW FACING SOUTH



The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 13, 2006

DF8376 *****

DF8376 DESIGNATION - U 556

DF8376 PID - DF8376

DF8376 STATE/COUNTY- FL/OKEECHOBEE

DF8376 USGS QUAD - FORT KISSIMMEE (1972)

DF8376

DF8376 *CURRENT SURVEY CONTROL

DF8376 * NAD 83(1986)- 27 35 03. (N) 081 08 44. (W) SCALED

DF8376 * NAVD 88 - 13.714 (meters) 44.99 (feet) ADJUSTED

DF8376

DF8376 GEOID HEIGHT- -26.22 (meters) GEOID03

DF8376 DYNAMIC HT - 13.694 (meters) 44.93 (feet) COMP

DF8376 MODELED GRAV- 979,153.2 (mgal) NAVD 88

DF8376

DF8376 VERT ORDER - SECOND CLASS I

DF8376

DF8376.The horizontal coordinates were scaled from a topographic map and have

DF8376.an estimated accuracy of +/- 6 seconds.

DF8376

DF8376.The orthometric height was determined by differential leveling

DF8376.and adjusted by the National Geodetic Survey in May 2004..

DF8376

DF8376.The geoid height was determined by GEOID03.

DF8376

DF8376.The dynamic height is computed by dividing the NAVD 88

DF8376.geopotential number by the normal gravity value computed on the

DF8376.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8376.degrees latitude (g = 980.6199 gals.).

DF8376

DF8376.The modeled gravity was interpolated from observed gravity values.

DF8376

DF8376; North East Units Estimated Accuracy

DF8376;SPC FL E - 360,140. 185,630. MT (+/- 180 meters Scaled)

DF8376

DF8376 SUPERSEDED SURVEY CONTROL

DF8376

DF8376.No superseded survey control is available for this station.

DF8376

DF8376_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML856511(NAD 83)

DF8376_MARKER: DD = SURVEY DISK

DF8376_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DF8376_STAMPING: U 556 2001

DF8376_MARK LOGO: FLDEP

DF8376_PROJECTION: RECESSED 8 CENTIMETERS

DF8376_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DF8376_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DF8376+STABILITY: SURFACE MOTION

DF8376_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF8376+SATELLITE: SATELLITE OBSERVATIONS - April 13, 2005

DF8376

DF8376 HISTORY - Date Condition Report By

DF8376 HISTORY - 20011115 MONUMENTED FLDEP

DF8376 HISTORY - 20050413 GOOD FLDEP

DF8376

DF8376 STATION DESCRIPTION

DF8376

DF8376'DESCRIBED BY FL DEPT OF ENV PRO 2001 (PBM)

DF8376'THE MARK IS ABOUT 41.3 MI NORTHWEST OF OKEECHOBEE, 23.5 MI NORTHWEST

DF8376'OF BASINGER, IN

DF8376'SECTION 29, TOWNSHIP 33 SOUTH, RANGE 32 EAST.

DF8376'

DF8376'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8376'STREET) AND U.S.

DF8376'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8376'U.S. HIGHWAY 98

DF8376'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.

DATASHEETS

DF8376' HIGHWAY 98 NORTH ON
DF8376' THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
DF8376' MI TO THE
DF8376' RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
DF8376' TO THE JUNCTION
DF8376' OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
DF8376' HIGHWAY 98 FOR
DF8376' 1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
DF8376' ON THE RIGHT,
DF8376' CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION
DF8376' OF NORTHWEST
DF8376' 203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST
DF8376' 203RD AVENUE
DF8376' (MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE
DF8376' JUNCTION OF
DF8376' NORTHWEST 160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON
DF8376' NORTHWEST
DF8376' 160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO
DF8376' WEST-NORTHWESTERLY FOR 6.15 MI TO
DF8376' THE END OF THE PAVED ROAD AND THE JUNCTION OF A DIRT ROAD LEADING
DF8376' NORTHWEST AND THE
DF8376' BEGINNING OF NORTHWEST 285TH DRIVE (A DIRT ROAD LEADING
DF8376' NORTHWESTERLY), BEAR RIGHT ON
DF8376' NORTHWEST 285TH DRIVE AND GO NORTHWESTERLY FOR 2.8 MI TO AN EAST-WEST
DF8376' FENCELINE
DF8376' OPENING AND THE JUNCTION OF A DIRT ROAD ON THE LEFT LEADING WEST,
DF8376' PASSING THROUGH THE
DF8376' OPENING CONTINUE NORTHWEST ON THE DIRT ROAD (NORTHWEST 285TH DRIVE)
DF8376' FOR 0.7 MI TO AN
DF8376' EAST-WEST FENCELINE OPENING WITH ONE 25.0 FT CONCRETE POLE ON BOTH
DF8376' SIDES OF ROAD,
DF8376' CONTINUE NORTHWEST ON THE DIRT ROAD FOR 0.7 MI TO THE INTERSECTION OF
DF8376' AN EAST-WEST
DF8376' DIRT ROAD, CONTINUE NORTHWEST ON THE DIRT ROAD FOR 2.3 MI TO A METAL
DF8376' GATE, CONTINUE
DF8376' NORTHWEST ON THE DIRT ROAD FOR 1.25 MI TO A LOCKED GATE, CONTINUE
DF8376' NORTHEAST ON THE
DF8376' DIRT ROAD FOR 1.4 MI TO A BARBWIRE GATE AND THE JUNCTION OF A DIM ROAD
DF8376' ON THE LEFT, TURN
DF8376' LEFT ON THE DIM TRACK ROAD AND GO NORTHWESTERLY FOR 6.0 MI TO A
DF8376' Y-JUNCTION, BEAR LEFT
DF8376' AND GO NORTHWEST ON THE DIM TRACK ROAD FOR 2.0 MI TO A T-JUNCTION AND
DF8376' THE MARK ON THE
DF8376' LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT RECESSED 0.6 FT
DF8376' BELOW THE LEVEL OF
DF8376' THE GROUND AND BELOW THE LEVEL OF THE EAST-WEST ROAD. THE MARK CAN
DF8376' ALSO BE REACHED
DF8376' FROM THE JUNCTION OF STATE HIGHWAY 70 (PARK STREET) AND U.S. HIGHWAY
DF8376' 441 (PARROTT
DF8376' STREET) IN OKEECHOBEE, GO NORTH ON U.S. HIGHWAY 441 (PARROTT STREET)
DF8376' FOR 14.4 MI TO THE
DF8376' JUNCTION OF COUNTY ROAD 68 ON THE RIGHT, CONTINUE NORTH ON U.S.
DF8376' HIGHWAY 441 FOR 1.0 MI TO
DF8376' THE JUNCTION OF COUNTY ROAD 724 (NW 240TH STREET) ON THE LEFT, TURN
DF8376' LEFT ON COUNTY
DF8376' ROAD 724 (NW 240TH STREET) AND GO WEST FOR 12.2 MI TO THE JUNCTION OF
DF8376' COUNTY ROAD 700-A
DF8376' (NW 176TH AVENUE) ON THE LEFT, CONTINUE WEST ON COUNTY ROAD 724 (NW
DF8376' 240TH STREET) FOR
DF8376' 1.0 MI TO THE END OF THE PAVEMENT AND A 90 DEGREE TURN RIGHT (NORTH),
DF8376' CONTINUE NORTH ON
DF8376' THE SAND ROAD FOR 5.1 MI TO A CURVE RIGHT AND THE JUNCTION OF A SAND
DF8376' ROAD ON THE LEFT
DF8376' (ENTRANCE TO KISSIMMEE STATE PARK PRESERVE), BEAR LEFT AND GO NORTH ON
DF8376' THE SAND ROAD
DF8376' FOR 2.8 MI TO A 90 DEGREE TURN LEFT (WEST), CONTINUE WEST ON THE SAND
DF8376' ROAD FOR 1.65 MI TO
DF8376' THE JUNCTION OF A SAND ROAD ON THE LEFT, CONTINUE WEST ON SAND ROAD
DF8376' (ROAD NARROWS AT
DF8376' THIS POINT) FOR 6.15 MI TO THE MARK ON THE LEFT.
DF8376'
DF8376' LOCATED 45.0 FT SOUTH OF THE CENTERLINE OF THE SAND ROAD, 42.0 FT WEST
DF8376' OF A 32-INCH OAK
DF8376' TREE AND 1.5 FT WEST OF A CARSONITE WITNESS POST.
DF8376'
DF8376' NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
DF8376' MONUMENT.
DF8376'
DF8376' NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT.
DF8376'
DF8376'

DATASHEETS

DF8376 STATION RECOVERY (2005)

DF8376

DF8376 RECOVERY NOTE BY FL DEPT OF ENV PRO 2005 (JLM)

DF8376 RECOVERED AS DESCRIBED.

*** retrieval complete.

Elapsed Time = 00:00:00

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 13, 2006

DF8377 *****

DF8377 DESIGNATION - V 556

DF8377 PID - DF8377

DF8377 STATE/COUNTY- FL/OKEECHOBEE

DF8377 USGS QUAD - FORT KISSIMMEE (1972)

DF8377

DF8377 *CURRENT SURVEY CONTROL

DF8377

DF8377* NAD 83(1986)- 27 35 07. (N) 081 09 18. (W) SCALED

DF8377* NAVD 88 - 15.165 (meters) 49.75 (feet) ADJUSTED

DF8377

DF8377 GEOID HEIGHT- -26.22 (meters) GEOID03

DF8377 DYNAMIC HT - 15.142 (meters) 49.68 (feet) COMP

DF8377 MODELED GRAV- 979,151.9 (mgal) NAVD 88

DF8377

DF8377 VERT ORDER - SECOND CLASS I

DF8377

DF8377.The horizontal coordinates were scaled from a topographic map and have

DF8377.an estimated accuracy of +/- 6 seconds.

DF8377

DF8377.The orthometric height was determined by differential leveling

DF8377.and adjusted by the National Geodetic Survey in May 2004..

DF8377

DF8377.The geoid height was determined by GEOID03.

DF8377

DF8377.The dynamic height is computed by dividing the NAVD 88

DF8377.geopotential number by the normal gravity value computed on the

DF8377.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8377.degrees latitude (g = 980.6199 gals.).

DF8377

DF8377.The modeled gravity was interpolated from observed gravity values.

DF8377

DF8377; North East Units Estimated Accuracy

DF8377:SPC FL E - 360,260. 184,700. MT (+/- 180 meters Scaled)

DF8377

DF8377 SUPERSEDED SURVEY CONTROL

DF8377

DF8377.No superseded survey control is available for this station.

DF8377

DF8377_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML847512(NAD 83)

DF8377_MARKER: DD = SURVEY DISK

DF8377_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DF8377_STAMPING: V 556 2001

DF8377_MARK LOGO: FLDEP

DF8377_PROJECTION: FLUSH

DF8377_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DF8377_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DF8377+STABILITY: SURFACE MOTION

DF8377_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF8377+SATELLITE: SATELLITE OBSERVATIONS - April 13, 2005

DF8377

DF8377 HISTORY - Date Condition Report By

DF8377 HISTORY - 20011115 MONUMENTED FLDEP

DF8377 HISTORY - 20050413 GOOD FLDEP

DF8377

DF8377 STATION DESCRIPTION

DF8377

DF8377'DESCRIBED BY FL DEPT OF ENV PRO 2001 (PBM)

DF8377'THE MARK IS ABOUT 41.3 MI NORTHWEST OF OKEECHOBEE, 23.5 MI NORTHWEST

DF8377'OF BASINGER, IN

DF8377'SECTION 20, TOWNSHIP 33 SOUTH, RANGE 32 EAST.

DF8377'

DF8377'TO REACH THE MARK FROM THE JUNCTION OF STATE HIGHWAY 70 (PARK STREET)

DF8377'AND U.S. HIGHWAY

DF8377'441 (PARROTT STREET) IN OKEECHOBEE, GO NORTH ON U.S. HIGHWAY 441

DF8377'(PARROTT STREET) FOR

DF8377'14.4 MI TO THE JUNCTION OF COUNTY ROAD 68 ON THE RIGHT, CONTINUE NORTH

DF8377' ON U.S. HIGHWAY
 DF8377' 441 FOR 1.0 MI TO THE JUNCTION OF COUNTY ROAD 724 (NW 240TH STREET) ON
 DF8377' THE LEFT, TURN LEFT
 DF8377' ON COUNTY ROAD 724 (NW 240TH STREET) AND GO WEST FOR 12.2 MI TO THE
 DF8377' JUNCTION OF COUNTY
 DF8377' ROAD 700-A (NW 176TH AVENUE) ON THE LEFT, CONTINUE WEST ON COUNTY ROAD
 DF8377' 724 (NW 240TH
 DF8377' STREET) FOR 1.0 MI TO THE END OF THE PAVEMENT AND A 90 DEGREE TURN
 DF8377' RIGHT (NORTH),
 DF8377' CONTINUE NORTH ON THE SAND ROAD FOR 5.1 MI TO A CURVE RIGHT AND THE
 DF8377' JUNCTION OF A SAND
 DF8377' ROAD ON THE LEFT (ENTRANCE TO KISSIMMEE STATE PARK PRESERVE), BEAR
 DF8377' LEFT ON THE SAND
 DF8377' ROAD AND GO NORTH FOR 2.8 MI TO A 90 DEGREE TURN LEFT (WEST), CONTINUE
 DF8377' WEST ON THE SAND
 DF8377' ROAD FOR 1.65 MI TO THE JUNCTION OF A SAND ROAD ON THE LEFT, CONTINUE
 DF8377' WEST ON THE SAND
 DF8377' ROAD (ROAD NARROWS AT THIS POINT) FOR 6.65 MI TO THE KISSIMMEE RIVER
 DF8377' AND THE MARK ON THE
 DF8377' LEFT, SET IN TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND
 DF8377' AND ABOUT LEVEL
 DF8377' WITH THE ROAD.
 DF8377'
 DF8377' LOCATED 90.0 FT EAST OF THE EDGE OF THE RIVER BANK, 50.0 FT NORTH OF A
 DF8377' 24-INCH CABBAGE
 DF8377' PALM, 48.8 FT EAST OF A NO TRESPASSING SIGN, 36.0 FT SOUTH-SOUTHWEST
 DF8377' OF THE APPROXIMATE
 DF8377' CENTERLINE OF THE SAND ROAD AND 3.0 FT EAST OF A CARSONITE WITNESS
 DF8377' POST.
 DF8377'
 DF8377' NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
 DF8377' MONUMENT.
 DF8377'
 DF8377' NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT.
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377'
 DF8377' STATION RECOVERY (2005)
 DF8377'
 DF8377' RECOVERY NOTE BY FL DEPT OF ENV PRO 2005 (JLM)
 DF8377' RECOVERED AS DESCRIBED.

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

-*- FIELD ABSTRACT -*-

060301-060302 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
 SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBB3B

FROM TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0360 U 556						13.71400	
0360 U 556	3011100	F	1.26	1.76806 *	0.31	1.76822	1
0359 LKBB3B	3021050	B	1.27	-1.76838 *			2
	SL 1		1.26		0.31	15.48222	
0360 U 556	3021215	F	0.94	1.44536 *	0.00	1.44536	2
0361 V 556			0.94		0.00	15.15936♀	

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 - 111 396 - 222
2	243 - 332854	396 - 333 396 - 444

♀
 LEVEL LINE SECTION RUNNING TREE

0360 (0359)
 0361♀

FROM TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0360	273503	0810844	0.00	0.00
0360 0359	273509	0810801	1.26	1.19
0360 0361	273507	0810918	0.94	0.94♀

SECTION FROM TO ERROR MESSAGES

LKBC1B

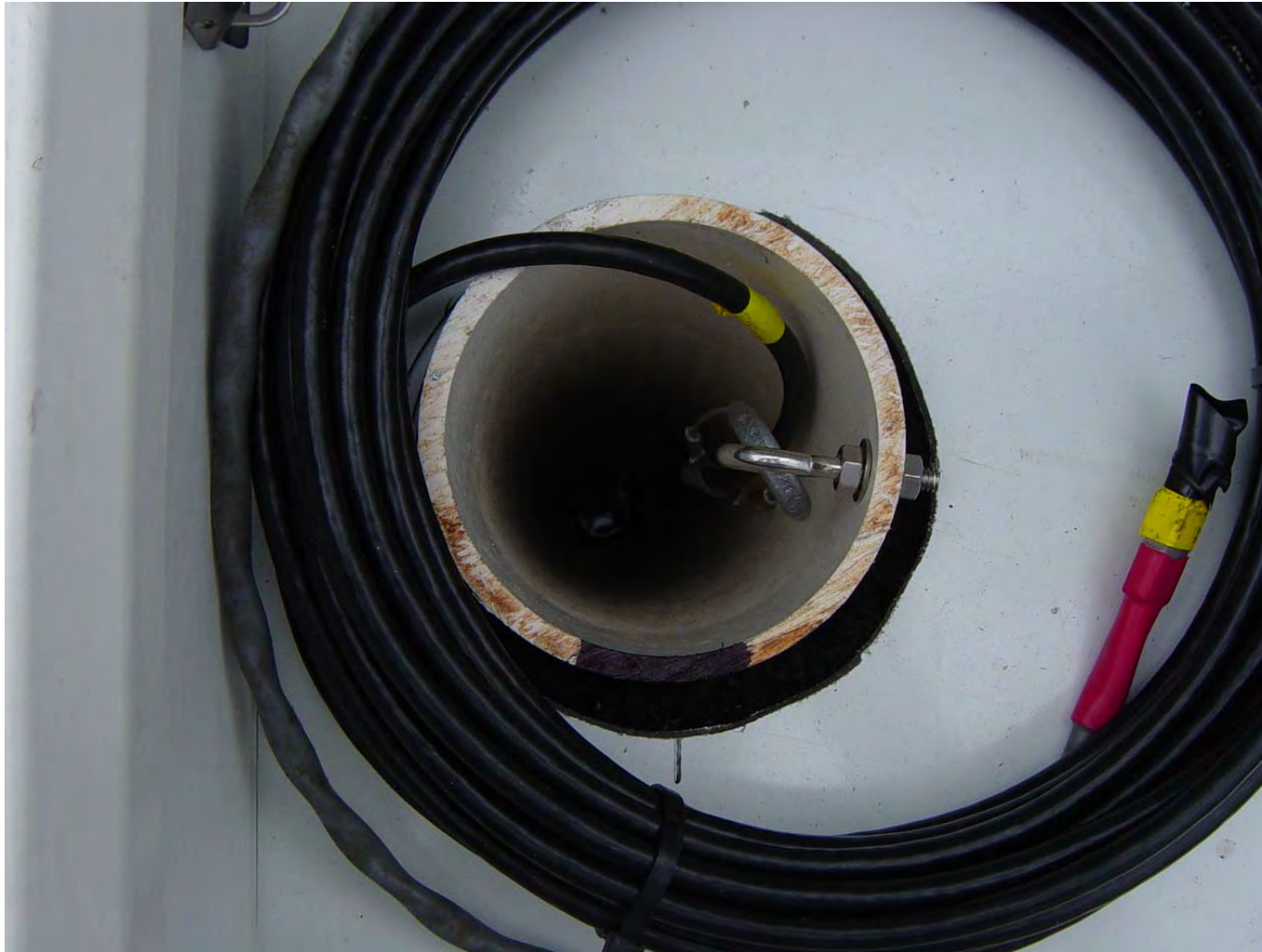


Nick Miller, Inc.

Date of Photo: February 25, 2006

View: Looking at the well LKBC1B facing east

LKBC1B



Nick Miller, Inc.
Date of Photo: February 25, 2006
View: Close-up of the well showing the contractor's markings

LKBC1B



Nick Miller, Inc.
Date of Photo: February 25, 2006
View: Top View of concrete pad (Elevation on mark 1' west of well)

LKBC1B



Nick Miller, Inc.
Date of Photo: February 25, 2006
View: Looking at the benchmark facing north

LKBC1B



Nick Miller, Inc.
Date of Photo: February 25, 2006
View: A top view of the benchmark

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 = OCTOBER 26, 2015
DK8246 *****
DK8246 DESIGNATION - LKBC1B
DK8246 PID - DK8246
DK8246 STATE/COUNTY- FL/HIGHLANDS
DK8246 COUNTRY - US
DK8246 USGS QUAD - BASINGER NW (1972)
DK8246
DK8246 *CURRENT SURVEY CONTROL
DK8246
DK8246* NAD 83(1986) POSITION- 27 24 33. (N) 081 10 07. (W) SCALED
DK8246* NAVD 88 ORTHO HEIGHT - 12.774 (meters) 41.91 (feet) ADJUSTED
DK8246
DK8246 GEOID HEIGHT - -26.055 (meters) GEOID12B
DK8246 DYNAMIC HEIGHT - 12.754 (meters) 41.84 (feet) COMP
DK8246 MODELED GRAVITY - 979,125.2 (mgal) NAVD 88
DK8246
DK8246 VERT ORDER - SECOND CLASS I
DK8246
DK8246.The horizontal coordinates were scaled from a topographic map and have
DK8246.an estimated accuracy of +/- 6 seconds.
DK8246.
DK8246.The orthometric height was determined by differential leveling and
DK8246.adjusted by the NATIONAL GEODETIC SURVEY
DK8246.in May 2009.
DK8246
DK8246.No vertical observational check was made to the station.
DK8246
DK8246.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8246.GEOID12B height accuracy estimate available here.
DK8246
DK8246.The dynamic height is computed by dividing the NAVD 88
DK8246.geopotential number by the normal gravity value computed on the
DK8246.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8246.degrees latitude (g = 980.6199 gals.).
DK8246
DK8246.The modeled gravity was interpolated from observed gravity values.
DK8246
DK8246;
DK8246;SPC FL E - North East Units Estimated Accuracy
DK8246; 340,750. 183,330. MT (+/- 180 meters Scaled)
DK8246
DK8246 SUPERSEDED SURVEY CONTROL
DK8246
DK8246.No superseded survey control is available for this station.
DK8246
DK8246_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML833317(NAD 83)
DK8246
DK8246_MARKER: DD = SURVEY DISK
DK8246_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8246+WITH SETTING: INFORMATION.
DK8246_STAMPING: LKBC1B 2006
DK8246_MARK LOGO: SFLWMD
DK8246_MAGNETIC: N = NO MAGNETIC MATERIAL
DK8246_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8246
DK8246 HISTORY - Date Condition Report By

```


DK8246 HISTORY - 20060225 MONUMENTED NICKMI

DK8246

DK8246 STATION DESCRIPTION

DK8246

DK8246'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8246'FROM INTERSECTION US 98 HWY AND CR-721. GO WEST ON US 98 HWY FOR 8.1

DK8246'MILES TO SANDHILL CRANE ROAD. GO NORTH THEN NORTHEASTERLY ON SANDHILL

DK8246'CRANE ROAD FOR 0.5 MILE TO MARK. 6.0 FT SOUTHEAST OF SOUTHWEST

DK8246'BALLARD POST, 5.4 FT SOUTHWEST OF SOUTHEAST BALLARD POST, 7.3 FT

DK8246'SOUTHWEST OF SOUTHWEST EDGE OF GREY PIPE OF MONITORING WELL LKBC1B.

DK8246'SET MAGNET 1 FT NORTH OF MONUMENT. NOTE--ROD DEPTH UNKNOWN. NO

DK8246'NOTIFICATION FROM NICKMI AS FAR AS ROD ROD DEPTH.

*** retrieval complete.

Elapsed Time = 00:00:01



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY HIGHLANDS	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBC1B 2006
SECTION 30	TOWNSHIP 35 SOUTH	RANGE 32 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>02/25/2006</u>	FIELD BOOK _____ 10 _____ PAGE _____ 16	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 601,336 ft	N 1,117,932 ft
LATITUDE: N 27.40912°	LONGITUDE: W 81.16900°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 41.92 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 43.12 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION US 98 HWY & CR-721. GO WEST ON US 98 HWY FOR 8.1 MILES TO SANDHILL CRANE ROAD. GO NORTH THEN NORTHEASTERLY ON SANDHILL CRANE ROAD FOR 0.5 MILE TO MARK. 6.0 FEET SOUTHEAST OF SOUTHWEST BALLARD POST, 5.4 FEET SOUTHWEST OF SOUTHEAST BALLARD POST, 7.3 FEET SOUTHWEST OF SOUTHWEST EDGE OF GREY PIPE OF MONITORING WELL LKBC1B. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: KR 1486 & E 463</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK
FOR MONITORING WELL
LKBC1B

- SET PAVED-IN-PLACE CONCRETE MONUMENT WITH ALUM. DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 60' SE OF SW BALLARD POST
- " " " 54' SW OF SE BALLARD POST
- " " " 7.3' SW OF SW EDGE OF GREY PIPE OF MONITORING WELL LKBC1B

STANDING LKBC1B
2006

COORDINATES ON MONITORING WELL LKBC1B
STATE PLANE 83 WGS 84
N. 340746.715m N. 27° 29' 32.85"
E. 183289.694m W. 081° 10' 08.34"

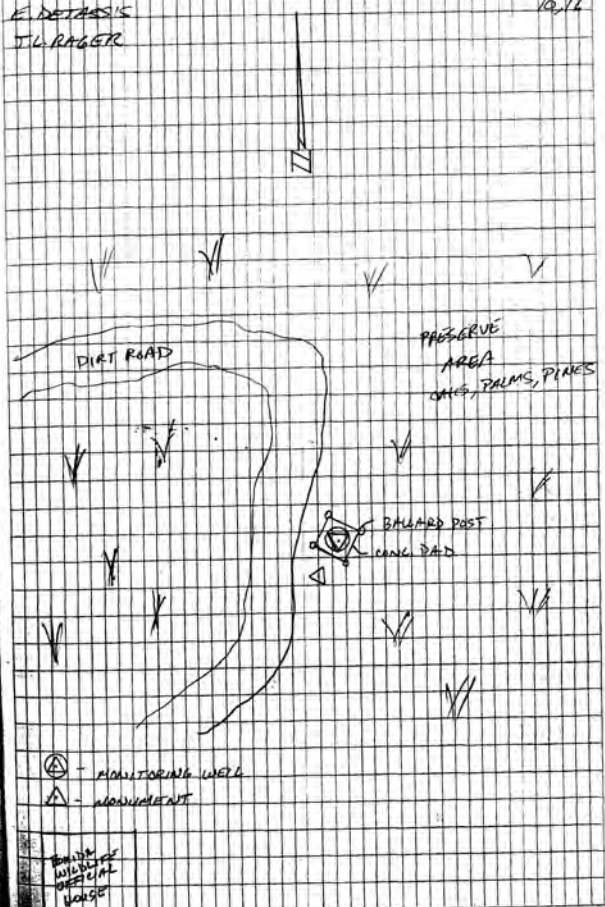
COORDINATES ON MONUMENT LKBC1B
STATE 83 PLANE 83 WGS 84
N. 340746.317m N. 27° 29' 32.89"
E. 183287.636m W. 081° 10' 08.41"

PICS
2297 - TOP VIEW RM
2298 - " " MW
2299 - RM FACING NE
2250 - MW FACING SE

SAT. FEB. 25, 2006

E. DETASSIS
J.L. RAGER

10, 11



The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 14, 2006

AH8827 *****

AH8827 DESIGNATION - KR 1486

AH8827 PID - AH8827

AH8827 STATE/COUNTY- FL/HIGHLANDS

AH8827 USGS QUAD - BASINGER NW (1972)

AH8827

AH8827 *CURRENT SURVEY CONTROL

AH8827

AH8827* NAD 83(1999)- 27 23 57.56631(N) 081 09 46.24641(W) ADJUSTED

AH8827* NAVD 88 - 12.775 (meters) 41.91 (feet) ADJUSTED

AH8827

AH8827 X - 870,548.211 (meters) COMP

AH8827 Y - -5,599,380.303 (meters) COMP

AH8827 Z - 2,917,564.210 (meters) COMP

AH8827 LAPLACE CORR- -1.84 (seconds) DEFLEC99

AH8827 ELLIP HEIGHT- -13.23 (meters) (05/31/01) GPS OBS

AH8827 GEOID HEIGHT- -26.03 (meters) GEOID03

AH8827 DYNAMIC HT - 12.755 (meters) 41.85 (feet) COMP

AH8827 MODELED GRAV- 979,123.7 (mgal) NAVD 88

AH8827

AH8827 HORZ ORDER - FIRST

AH8827 VERT ORDER - SECOND CLASS I

AH8827 ELLP ORDER - FOURTH CLASS I

AH8827

AH8827.The horizontal coordinates were established by GPS observations

AH8827.and adjusted by the National Geodetic Survey in May 2001..

AH8827

AH8827.The orthometric height was determined by differential leveling

AH8827.and adjusted by the National Geodetic Survey in July 1999..

AH8827.No vertical observational check was made to the station.

AH8827

AH8827.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AH8827

AH8827.The Laplace correction was computed from DEFLEC99 derived deflections.

AH8827

AH8827.The ellipsoidal height was determined by GPS observations

AH8827.and is referenced to NAD 83.

AH8827

AH8827.The geoid height was determined by GEOID03.

AH8827

AH8827.The dynamic height is computed by dividing the NAVD 88

AH8827.geopotential number by the normal gravity value computed on the

AH8827.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8827.degrees latitude (g = 980.6199 gals.).

AH8827

AH8827.The modeled gravity was interpolated from observed gravity values.

AH8827

AH8827; North East Units Scale Factor Converg.

AH8827;SPC FL E - 339,659.742 183,895.135 MT 0.99994438 -0 04 29.8

AH8827;SPC FL E - 1,114,367.00 603,329.29 sFT 0.99994438 -0 04 29.8

AH8827;UTM 17 - 3,030,675.833 483,900.630 MT 0.99960320 -0 04 29.8

AH8827

AH8827! - Elev Factor x Scale Factor = Combined Factor

AH8827!SPC FL E - 1.00000208 x 0.99994438 = 0.99994646

AH8827!UTM 17 - 1.00000208 x 0.99960320 = 0.99960528

AH8827

AH8827: Primary Azimuth Mark

AH8827:SPC FL E - KR 1487 300 49 02.8

AH8827:UTM 17 - KR 1487 300 49 02.8

AH8827

PID	Reference Object	Distance	Geod. Az dddmmss.s
AH8826	KR 1487	APPROX. 0.8 KM	3004433.0

AH8827

AH8827

SUPERSEDED SURVEY CONTROL

DATASHEETS

AH8827
 AH8827 NAD 83(1990)- 27 23 57.56535(N) 081 09 46.24611(W) AD() 1
 AH8827 ELLIP H (06/01/99) -13.24 (m) GP() 4 1
 AH8827 NAVD 88 (06/01/99) 12.82 (m) 42.1 (f) LEVELING 3
 AH8827
 AH8827.Superseded values are not recommended for survey control.
 AH8827.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AH8827.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8827
 AH8827_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML8390130676(NAD 83)

AH8827_MARKER: DD = SURVEY DISK

AH8827_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH8827_STAMPING: KR-1486 GPS 1993 JVD

AH8827_MARK LOGO: USE

AH8827_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8827_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH8827+STABILITY: SURFACE MOTION

AH8827_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8827+SATELLITE: SATELLITE OBSERVATIONS - August 06, 1997

AH8827
 AH8827 HISTORY - Date Condition Report By
 AH8827 HISTORY - 1993 MONUMENTED USE
 AH8827 HISTORY - 19970806 GOOD FLDEP

AH8827
 AH8827 STATION DESCRIPTION

AH8827'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)
 AH8827'THE MARK IS ABOUT 26.5 MI (42.6 KM) NORTHWEST OF OKEECHOBEE, 6.5 MI
 AH8827'(10.5 KM) SOUTHEAST OF LORIDA, 2.7 MI (4.3 KM) WEST OF THE KISSIMMEE
 AH8827'RIVER IN SECTION 30, TOWNSHIP 35 SOUTH, RANGE 32 EAST. TO REACH THE
 AH8827'MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98
 AH8827'FOR 3.4 MI (5.5 KM) TO THE JUNCTION OF COUNTY ROAD 621 ON THE RIGHT,
 AH8827'CONTINUE SOUTHEAST ON U.S. HIGHWAY 98 FOR 3.15 MI (5.07 KM) TO THE
 AH8827'NORTH END OF THE BRIDGE OVER THE ISTOKPOGA CANAL AND THE MARK ON THE
 AH8827'RIGHT, A STANDARD CORPS OF ENGINEERS BRASS DISK SET IN THE TOP OF A
 AH8827'ROUND CONCRETE MONUMENT, PROJECTING 0.2 FT (6.1 CM) ABOVE THE LEVEL OF
 AH8827'THE GROUND AND 0.3 FT (9.1 CM) BELOW THE LEVEL OF U.S. HIGHWAY 98.
 AH8827'LOCATED 91.8 FT (28.0 M) NORTHEAST OF THE NORTHEAST RAIL OF THE
 AH8827'RAILROAD TRACKS, 63.3 FT (19.3 M) NORTHWEST OF SURVEY MARK F C D 1
 AH8827'(FLSRD MARK) , 63.2 FT (19.3 M) NORTHWEST OF THE NORTHWEST END OF THE
 AH8827'BRIDGE OVER THE ISTOKPOGA CANAL, 22.0 FT (6.7 M) SOUTHWEST OF THE
 AH8827'CENTERLINE OF U.S. HIGHWAY 98 AND 1.6 FT (0.5 M) NORTHWEST OF A CORPS
 AH8827'OF ENGINEERS CARSONITE WITNESS POST.

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

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 14, 2006

AH8825 *****

AH8825 DESIGNATION - E 463

AH8825 PID - AH8825

AH8825 STATE/COUNTY- FL/HIGHLANDS

AH8825 USGS QUAD - BASINGER NW (1972)

AH8825

AH8825 *CURRENT SURVEY CONTROL

AH8825

AH8825 * NAD 83(1986)- 27 24 19. (N) 081 10 29. (W) SCALED

AH8825 * NAVD 88 - 12.956 (meters) 42.51 (feet) ADJUSTED

AH8825

AH8825 GEOID HEIGHT- -26.02 (meters) GEOID03

AH8825 DYNAMIC HT - 12.937 (meters) 42.44 (feet) COMP

AH8825 MODELED GRAV- 979,124.8 (mgal) NAVD 88

AH8825

AH8825 VERT ORDER - SECOND CLASS I

AH8825

AH8825.The horizontal coordinates were scaled from a topographic map and have

AH8825.an estimated accuracy of +/- 6 seconds.

AH8825

AH8825.The orthometric height was determined by differential leveling

AH8825.and adjusted by the National Geodetic Survey in July 1999..

AH8825

AH8825.The geoid height was determined by GEOID03.

AH8825

AH8825.The dynamic height is computed by dividing the NAVD 88

AH8825.geopotential number by the normal gravity value computed on the

AH8825.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8825.degrees latitude (g = 980.6199 gals.).

AH8825

AH8825.The modeled gravity was interpolated from observed gravity values.

AH8825

AH8825; North East Units Estimated Accuracy

AH8825;SPC FL E - 340,320. 182,720. MT (+/- 180 meters Scaled)

AH8825

AH8825 SUPERSEDED SURVEY CONTROL

AH8825

AH8825.No superseded survey control is available for this station.

AH8825

AH8825_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML827313(NAD 83)

AH8825_MARKER: DD = SURVEY DISK

AH8825_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH8825_STAMPING: E 463 1997

AH8825_MARK LOGO: FLDEP

AH8825_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8825_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH8825+STABILITY: SURFACE MOTION

AH8825_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8825+SATELLITE: SATELLITE OBSERVATIONS - 1997

AH8825

AH8825 HISTORY - Date Condition Report By

AH8825 HISTORY - 1997 MONUMENTED FLDEP

AH8825

AH8825 STATION DESCRIPTION

AH8825

AH8825'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8825'THE MARK IS ABOUT 27.5 MI (44.3 KM) NORTHWEST OF OKEECHOBEE, 5.6 MI

AH8825'(9.0 KM) SOUTHEAST OF FLORIDA, 3.1 MI (5.0 KM) WEST OF THE KISSIMMEE

AH8825'RIVER IN SECTION 25, TOWNSHIP 35 SOUTH, RANGE 31 EAST. TO REACH THE

AH8825'MARK FROM THE POST OFFICE IN FLORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98

AH8825'FOR 3.4 MI (5.5 KM) TO THE JUNCTION OF COUNTY ROAD 621 ON THE RIGHT,

AH8825'CONTINUE SOUTHEAST ON U.S. HIGHWAY 98 FOR 2.3 MI (3.7 KM) TO THE

AH8825'JUNCTION OF SANDHILL CRANE ROAD ON THE LEFT AND THE MARK ON THE LEFT,

AH8825'SET IN THE TOP OF A ROUND CONCRETE MONUMENT, RECESSED 0.2 FT (6.1 CM)

AH8825'BELOW THE LEVEL OF THE GROUND AND U.S. HIGHWAY 98. LOCATED 81.0 FT

AH8825'(24.7 M) NORTHWEST OF THE APPROXIMATE CENTERLINE OF SANDHILL CRANE

AH8825'ROAD (A DIRT ROAD LEADING NORTHEAST) , 50.0 FT (15.2 M) NORTHEAST OF

DATASHEETS

AH8825'THE CENTERLINE OF U.S. HIGHWAY 98, 3.9 FT (1.2 M) SOUTHEAST OF A
AH8825'RIGHT-OF-WAY MARKER AND 1.0 FT (0.3 M) SOUTHWEST OF A CARSONITE
AH8825'WITNESS POST AND BARBWARE FENCE.

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

-*- FIELD ABSTRACT -*-

060228-060228 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
 SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBC1B

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0354	KR 1486						12.77500	
0354	KR 1486	2280830	F	1.45	0.18566 *	0.00	0.18566	1
0355	E 463			1.45		0.00	12.96066	
0355	E 463	2281025	F	0.82	-0.18343 *	1.61	-0.18262	1
0353	LKBC1B	2281135	B	0.82	0.18181 *			1
		SL 1		2.27		1.61	12.77804♀	

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 - 332854	396 - 333 396 - 444

♀
 LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0354	0355	272357	0810946	0.00	0.00
0354	0355	272419	0811029	1.45	1.36
0355	0353	272432	0811008	0.82	0.70♀

SECTION
 FROM TO ERROR MESSAGES

LKBD1A		Elevation:	35.43 ft	(NAVD 88)	36.65 ft	(NGVD 29)
Bench Mark 1:	Q 553		38.19 ft	(NAVD 88)	39.41 ft	(NGVD 29)
Bench Mark 2:	KR 1744		41.03 ft	(NAVD 88)	42.25 ft	(NGVD 29)
Monitoring Well:	LKBD1A		40.01 ft	(NAVD 88)	41.23 ft	(NGVD 29)
Concrete Pad:	LKBD1A		36.05 ft	(NAVD 88)	37.27 ft	(NGVD 29)
Ground Elevation:	LKBD1A		35.64 ft	(NAVD 88)	36.86 ft	(NGVD 29)
Length of Run:	3.77 km		To Reach LKBD1A: FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR 1.2 MILE TO WHEELER ROAD. GO EAST ON WHEELER ROAD FOR 0.3 MILE TO MARK ON LEFT. MARK IS 5.8 FEET WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL LKBD1A, 52.4 FEET SOUTH OF SOUTH RAIL OF RAILROAD TRACKS, 22.2 FEET NORTH FROM CENTERLINE WHEELER ROAD. SET MAGNET 1 FOOT NORTH OF MONUMENT.			
Max Allowable Misclosure:	16 mm					
Actual Misclosure:	2 mm					
						

LKBD3A		Elevation:	33.52 ft	(NAVD 88)	34.71 ft	(NGVD 29)
Bench Mark 1:	Q 553		38.19 ft	(NAVD 88)	39.41 ft	(NGVD 29)
Bench Mark 2:	KR 1744		41.03 ft	(NAVD 88)	42.25 ft	(NGVD 29)
Monitoring Well:	LKBD3A		38.22 ft	(NAVD 88)	39.42 ft	(NGVD 29)
Concrete Pad:	LKBD3A		34.23 ft	(NAVD 88)	35.43 ft	(NGVD 29)
Ground Elevation:	LKBD3A		33.76 ft	(NAVD 88)	34.95 ft	(NGVD 29)
Length of Run:	3.77 km		To Reach LKBD3A: FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR +/- 400 FEET TO KISSIMMEE RIVER SHORES ROAD. GO EAST ON KISSIMMEE RIVER SHORES ROAD FOR 0.15 MILE TO STATE PARK ENTRANCE (LOCKED GATE). GO THROUGH GATE FOR 30 FEET TO DIRT ROAD. GO EAST ON DIRT ROAD FOR 0.3 MILE TO MARK AT END OF DIRT ROAD. MARK IS 7.3 FEET WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL LKBD3A, 5.7 FEET SOUTHWEST OF NORTHWEST BALLARD POST, 5.4 FEET NORTHWEST OF SOUTHWEST BALLARD POST. SET MAGNET 1 FOOT NORTH OF MONUMENT.			
Max Allowable Misclosure:	16 mm					
Actual Misclosure:	2 mm					
						

LKBD1A



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the well LKBD1A facing north

LKBD1A



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Close-up of the well showing the contractor's markings

LKBD1A



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Top View of south edge concrete pad (Elevation on mark)

LKBD1A



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the benchmark facing north

LKBD1A



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: A top view of the benchmark

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 = OCTOBER 26, 2015
DK8243 *****
DK8243 DESIGNATION - LKBD1A
DK8243 PID - DK8243
DK8243 STATE/COUNTY- FL/HIGHLANDS
DK8243 COUNTRY - US
DK8243 USGS QUAD - FORT BASINGER (1972)
DK8243
DK8243 *CURRENT SURVEY CONTROL
DK8243
DK8243* NAD 83(1986) POSITION- 27 20 32. (N) 081 02 57. (W) SCALED
DK8243* NAVD 88 ORTHO HEIGHT - 10.797 (meters) 35.42 (feet) ADJUSTED
DK8243
DK8243 GEOID HEIGHT - -26.197 (meters) GEOID12B
DK8243 DYNAMIC HEIGHT - 10.780 (meters) 35.37 (feet) COMP
DK8243 MODELED GRAVITY - 979,116.7 (mgal) NAVD 88
DK8243
DK8243 VERT ORDER - SECOND CLASS I
DK8243
DK8243.The horizontal coordinates were scaled from a topographic map and have
DK8243.an estimated accuracy of +/- 6 seconds.
DK8243.
DK8243.The orthometric height was determined by differential leveling and
DK8243.adjusted by the NATIONAL GEODETIC SURVEY
DK8243.in May 2009.
DK8243
DK8243.No vertical observational check was made to the station.
DK8243
DK8243.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8243.GEOID12B height accuracy estimate available here.
DK8243
DK8243.The dynamic height is computed by dividing the NAVD 88
DK8243.geopotential number by the normal gravity value computed on the
DK8243.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8243.degrees latitude (g = 980.6199 gals.).
DK8243
DK8243.The modeled gravity was interpolated from observed gravity values.
DK8243
DK8243;
DK8243;SPC FL E - North East Units Estimated Accuracy
DK8243; 333,320. 195,140. MT (+/- 180 meters Scaled)
DK8243
DK8243 SUPERSEDED SURVEY CONTROL
DK8243
DK8243.No superseded survey control is available for this station.
DK8243
DK8243_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML951243(NAD 83)
DK8243
DK8243_MARKER: DD = SURVEY DISK
DK8243_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8243+WITH SETTING: INFORMATION.
DK8243_STAMPING: LKBD1A 2006
DK8243_MARK LOGO: SFLWMD
DK8243_MAGNETIC: N = NO MAGNETIC MATERIAL
DK8243_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8243
DK8243 HISTORY - Date Condition Report By

```

DK8243 HISTORY - 20060224 MONUMENTED NICKMI

DK8243

DK8243 STATION DESCRIPTION

DK8243

DK8243'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8243'FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR 1.2

DK8243'MILE TO WHEELER ROAD. GO EAST ON WHEELER ROAD FOR 0.3 MILE TO MARK ON

DK8243'LEFT.

DK8243'

DK8243'MARK IS 5.8 FT WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL

DK8243'LKBD1A, 52.4 FT SOUTH OF SOUTH RAIL OF RAILROAD TRACKS, 22.2 FT NORTH

DK8243'FROM CENTERLINE WHEELER ROAD. SET MAGNET 1 FT NORTH OF

DK8243'MONUMENT.NOTE--ROD DEPTH UNKNOWN. NO NOTIFICATION FROM NICKMI AS FAR

DK8243'AS ROD DEPTH.

*** retrieval complete.

Elapsed Time = 00:00:02



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY HIGHLANDS	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBD1A 2006
SECTION 20	TOWNSHIP 36 SOUTH	RANGE 33 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/24/2006</u>	FIELD BOOK _____ 10 _____ PAGE _____ 15	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 640,058 ft	N 1,093,547 ft
LATITUDE: N 27.34214°	LONGITUDE: W 81.04962°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 35.43 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 36.65 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR 1.2 MILES TO WHEELER ROAD. GO EAST ON WHEELER ROAD FOR 0.3 MILE TO MARK ON LEFT. MARK IS 5.8 FEET WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL LKBD1A, 52.4 FEET SOUTH OF SOUTH RAIL OF RAILROAD TRACKS, 22.2 FEET NORTH FROM CENTERLINE WHEELER ROAD. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: Q 553 & KR 1744</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCH MARK FOR MONITORING WELL LKBDIA SFWMD

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH ALUM. DISK
- SET MAGNET 1' NORTH OF CON. MONUMENT

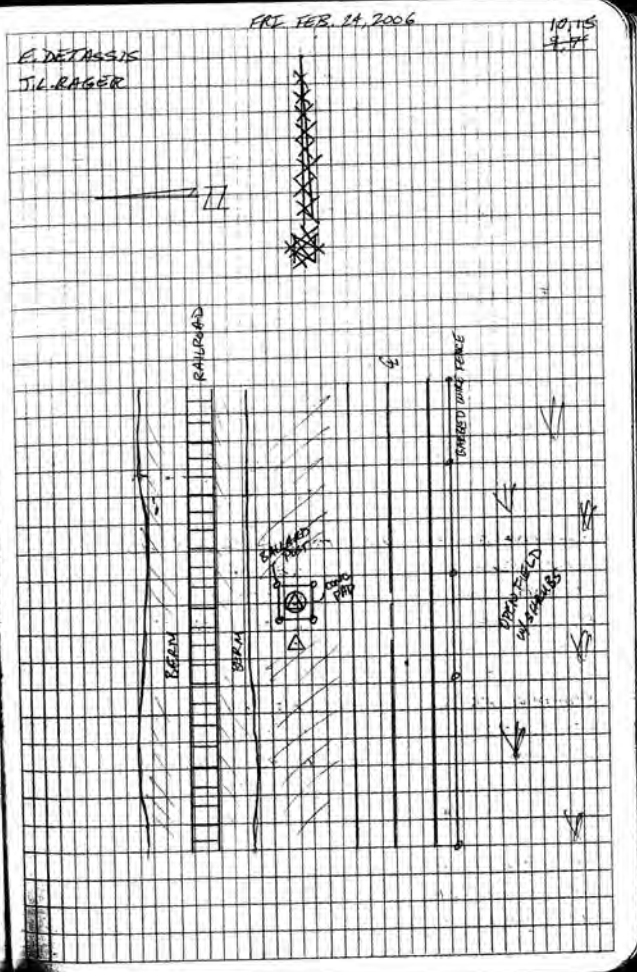
- SET CONC. MONUMENT 52.40' SOUTH OF SANTA RAIL OF TRACKS
- " " " 5.80' WEST OF WEST EDGE OF GREY PIPE OF M.W.
- " " " 22.20' NORTH FROM E DIRT ROAD 22.20' WEST OF ROAD

STAMPING LKBDIA 2006

COORDINATES ON MONITORING WELL LKBDIA
 STATE PLANE 83 WGS 84
 N. 333312.465 m N. 27° 20' 31.65"
 E. 195091.327 m W. 081° 02' 58.59"

COORDINATES ON MONUMENT LKBDIA
 STATE PLANE 83 WGS 84
 N. 333313.658 m N. 27° 20' 31.69"
 E. 195089.702 m W. 081° 02' 58.64"

- PICS
- 2241 - TOP VIEW OF M.W.
 - 2242 - M.W. FACING SOUTH NORTH
 - 2243 - B.M. FACING NORTH
 - 2244 - TOP VIEW B.M.



The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 14, 2006

DF8386 *****

DF8386 DESIGNATION - Q 553

DF8386 PID - DF8386

DF8386 STATE/COUNTY- FL/HIGHLANDS

DF8386 USGS QUAD - FORT BASINGER (1972)

DF8386

DF8386 *CURRENT SURVEY CONTROL

DF8386 * NAD 83(1986)- 27 20 08. (N) 081 03 13. (W) SCALED

DF8386 * NAVD 88 - 11.641 (meters) 38.19 (feet) ADJUSTED

DF8386

DF8386 GEOID HEIGHT- -26.17 (meters) GEOID03

DF8386 DYNAMIC HT - 11.623 (meters) 38.13 (feet) COMP

DF8386 MODELED GRAV- 979,115.3 (mgal) NAVD 88

DF8386

DF8386 VERT ORDER - SECOND CLASS I

DF8386

DF8386.The horizontal coordinates were scaled from a topographic map and have

DF8386.an estimated accuracy of +/- 6 seconds.

DF8386

DF8386.The orthometric height was determined by differential leveling

DF8386.and adjusted by the National Geodetic Survey in May 2004..

DF8386

DF8386.The geoid height was determined by GEOID03.

DF8386

DF8386.The dynamic height is computed by dividing the NAVD 88

DF8386.geopotential number by the normal gravity value computed on the

DF8386.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8386.degrees latitude (g = 980.6199 gals.).

DF8386

DF8386.The modeled gravity was interpolated from observed gravity values.

DF8386

DF8386; North East Units Estimated Accuracy

DF8386;SPC FL E - 332,590. 194,700. MT (+/- 180 meters Scaled)

DF8386

DF8386 SUPERSEDED SURVEY CONTROL

DF8386

DF8386.No superseded survey control is available for this station.

DF8386

DF8386_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML946236(NAD 83)

DF8386_MARKER: DD = SURVEY DISK

DF8386_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DF8386_STAMPING: Q 553 2001

DF8386_MARK LOGO: FLDEP

DF8386_PROJECTION: FLUSH

DF8386_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DF8386_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DF8386+STABILITY: SURFACE MOTION

DF8386_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF8386+SATELLITE: SATELLITE OBSERVATIONS - May 19, 2005

DF8386

DF8386 HISTORY - Date Condition Report By

DF8386 HISTORY - 20010908 MONUMENTED FLDEP

DF8386 HISTORY - 20050519 GOOD MACTEC

DF8386

DF8386 STATION DESCRIPTION

DF8386

DF8386'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8386'THE MARK IS ABOUT 18.5 MI NORTHWEST OF OKEECHOBEE, 15.5 MI SOUTHEAST

DF8386'OF LORIDA, IN

DF8386'SECTION 20, TOWNSHIP 36 SOUTH, RANGE 33 EAST.

DF8386'

DF8386'TO REACH THE MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S.

DF8386'HIGHWAY 98 FOR

DF8386'3.4 MI TO THE JUNCTION OF COUNTY ROAD 612 ON THE RIGHT, CONTINUE

DF8386'SOUTHEAST ON U.S.

DF8386'HIGHWAY 98 FOR 3.15 MI TO THE NORTH END OF THE BRIDGE OVER THE

DATASHEETS

DF8386' ISTOKPOGA CANAL,
DF8386' CONTINUE SOUTHEAST ON U.S. HIGHWAY 98 FOR 7.25 MI TO THE JUNCTION OF
DF8386' COUNTY ROAD 721 ON
DF8386' THE RIGHT, TURN RIGHT ON COUNTY ROAD 721 AND GO SOUTH FOR 1.8 MI TO
DF8386' THE MARK ON THE
DF8386' LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE
DF8386' GROUND AND ABOUT 1.5
DF8386' FT BELOW THE LEVEL OF COUNTY ROAD 721.
DF8386'
DF8386' LOCATED 50.4 FT EAST OF THE CENTERLINE OF COUNTY ROAD 721, 49.6 FT
DF8386' NORTH OF THE
DF8386' APPROXIMATE CENTERLINE OF A DIM TRACK ROAD LEADING EAST, 34.0 FT
DF8386' NORTHEAST OF THE
DF8386' NORTH END OF A CULVERT UNDER THE DIM TRACK ROAD AND 1.0 FT WEST OF A
DF8386' CARSONITE WITNESS
DF8386' POST IN A BARBED WIRE FENCE LINE.
DF8386'
DF8386' NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
DF8386' MONUMENT.

DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'
DF8386'

STATION RECOVERY (2005)

DF8386' RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)
DF8386' RECOVERED AS DESCRIBED

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

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 14, 2006

AH9317 *****

AH9317 DESIGNATION - KR 1744
 AH9317 PID - AH9317
 AH9317 STATE/COUNTY- FL/HIGHLANDS
 AH9317 USGS QUAD - FORT BASINGER (1972)

AH9317
 AH9317 *CURRENT SURVEY CONTROL

AH9317*	NAD 83(1999)-	27 20 51.26632(N)	081 03 14.82132(W)	ADJUSTED
AH9317*	NAVD 88	- 12.505 (meters)	41.03 (feet)	ADJUSTED

AH9317 X - 881,582.415 (meters) COMP
 AH9317 Y - -5,600,322.330 (meters) COMP
 AH9317 Z - 2,912,471.714 (meters) COMP
 AH9317 LAPLACE CORR- -2.25 (seconds) DEFLEC99
 AH9317 ELLIP HEIGHT- -13.68 (meters) (05/31/01) GPS OBS
 AH9317 GEOID HEIGHT- -26.18 (meters) GEOID03
 AH9317 DYNAMIC HT - 12.486 (meters) 40.96 (feet) COMP
 AH9317 MODELED GRAV- 979,117.2 (mgal) NAVD 88

AH9317 HORZ ORDER - FIRST
 AH9317 VERT ORDER - SECOND CLASS I
 AH9317 ELLP ORDER - FOURTH CLASS I

AH9317.The horizontal coordinates were established by GPS observations
 AH9317.and adjusted by the National Geodetic Survey in May 2001..
 AH9317
 AH9317.The orthometric height was determined by differential leveling
 AH9317.and adjusted by the National Geodetic Survey in May 2004..
 AH9317
 AH9317.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AH9317
 AH9317.The Laplace correction was computed from DEFLEC99 derived deflections.
 AH9317
 AH9317.The ellipsoidal height was determined by GPS observations
 AH9317.and is referenced to NAD 83.
 AH9317
 AH9317.The geoid height was determined by GEOID03.
 AH9317
 AH9317.The dynamic height is computed by dividing the NAVD 88
 AH9317.geopotential number by the normal gravity value computed on the
 AH9317.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AH9317.degrees latitude (g = 980.6199 gals.).
 AH9317
 AH9317.The modeled gravity was interpolated from observed gravity values.
 AH9317

	North	East	Units	Scale	Factor	Converg.
AH9317;SPC FL E	- 333,916.321	194,645.547	MT	0.99994153	-0 01 29.5	
AH9317;SPC FL E	- 1,095,523.80	638,599.60	sFT	0.99994153	-0 01 29.5	
AH9317;UTM 17	- 3,024,934.372	494,647.374	MT	0.99960035	-0 01 29.5	
AH9317!	- Elev Factor	x Scale Factor	=	Combined Factor		
AH9317!SPC FL E	- 1.00000215	x 0.99994153	=	0.99994368		
AH9317!UTM 17	- 1.00000215	x 0.99960035	=	0.99960250		

AH9317:
 AH9317:SPC FL E - Primary Azimuth Mark - KR 1746 Grid Az 000 43 26.5
 AH9317:UTM 17 - KR 1746 Grid Az 000 43 26.5

PID	Reference Object	Distance	Geod. Az
AH9317	AH9316 KR 1746	APPROX. 1.6 KM	0004157.0

AH9317
 AH9317 SUPERSEDED SURVEY CONTROL
 AH9317

DATASHEETS

AH9317 NAD 83(1990)- 27 20 51.26537(N) 081 03 14.82072(W) AD() 1
 AH9317 ELLIP H (06/01/99) -13.66 (m) GP() 4 1
 AH9317

AH9317 Superseded values are not recommended for survey control.
 AH9317 NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AH9317 [See file dsdata.txt](#) to determine how the superseded data were derived.

AH9317 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML9464724934(NAD 83)

AH9317 MARKER: DD = SURVEY DISK
 AH9317 SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AH9317 STAMPING: KR-1744 1997

AH9317 MARK LOGO: USE
 AH9317 PROJECTION: FLUSH
 AH9317 MAGNETIC: N = NO MAGNETIC MATERIAL
 AH9317 STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AH9317+STABILITY: SURFACE MOTION
 AH9317 SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AH9317+SATELLITE: SATELLITE OBSERVATIONS - May 08, 2003

AH9317	HISTORY	- Date	Condition	Report By
AH9317	HISTORY	- 1997	MONUMENTED	USE
AH9317	HISTORY	- 20011006	GOOD	FLDEP
AH9317	HISTORY	- 20030508	GOOD	BAH
AH9317	HISTORY	- 20050627	GOOD	MACTEC

AH9317 STATION DESCRIPTION

AH9317 DESCRIBED BY US ENGINEERS 1997
 AH9317 THE STATION IS ABOUT 15.1 MI (24.3 KM) NORTHWEST OF OKEECHOBEE, 14.2
 AH9317 MI (22.9 KM) SOUTHEAST OF LORIDA, 1.1 MI (1.8 KM) WEST OF THE
 AH9317 KISSIMMEE RIVER CANAL C-38, IN SECTION 18, TOWNSHIP 36 SOUTH, RANGE 33
 AH9317 EAST. TO REACH THE STATION FROM THE POST OFFICE IN LORIDA, GO
 AH9317 SOUTHEAST ON U.S.HIGHWAY 98 FOR 13.45 MI (21.65 KM) TO JUNCTION OF
 AH9317 COUNTY ROAD 721 AT FORT BASINGER, THEN TURN RIGHT AND PROCEED SOUTH ON
 AH9317 COUNTY ROAD 721 FOR 1.0 MI (1.6 KM) TO THE STATION ON THE RIGHT, SET
 AH9317 IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND. LOCATED
 AH9317 0.2 MI (0.3 KM) NORTH OF A RAILROAD CROSSING, 18.4 FT (5.6 M) WEST OF
 AH9317 THE CENTERLINE OF COUNTY ROAD 721, 32.7 FT (10.0 M) EAST OF A BARBWARE
 AH9317 R/W FENCE, 10.0 FT (3.0 M) SOUTHEAST OF A RAILROAD CROSSING SIGNPOST,
 AH9317 32.2 FEET (9.8 M) EAST OF A N.G.S.CARSONITE WITNESS POST.

AH9317 STATION RECOVERY (2001)

AH9317 RECOVERY NOTE BY FL DEPT OF ENV PRO 2001 (JLM)
 AH9317 THE MARK IS ABOUT 19.3 MI NORTHWEST OF OKEECHOBEE, 14.7 MI SOUTHEAST
 AH9317 OF LORIDA, IN
 AH9317 SECTION 18, TOWNSHIP 36 SOUTH, RANGE 33 EAST.
 AH9317
 AH9317 TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT
 AH9317 STREET) AND U.S.
 AH9317 HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON
 AH9317 U.S. HIGHWAY 98
 AH9317 (STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
 AH9317 HIGHWAY 98 NORTH ON
 AH9317 THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
 AH9317 MI TO THE
 AH9317 RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
 AH9317 TO THE JUNCTION
 AH9317 OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
 AH9317 HIGHWAY 98 FOR
 AH9317 1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
 AH9317 ON THE RIGHT,
 AH9317 CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 3.55 MI TO THE NORTHWEST
 AH9317 END OF BRIDGE
 AH9317 NUMBER 090016 OVER KISSIMMEE RIVER, CONTINUE SOUTHWESTERLY FOR 0.3 MI
 AH9317 TO THE JUNCTION
 AH9317 OF COUNTY ROAD 721 ON THE LEFT, TURN LEFT ON COUNTY ROAD 721 AND GO
 AH9317 SOUTH FOR 1.0 MI TO
 AH9317 THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT
 AH9317 FLUSH WITH THE
 AH9317 GROUND AND ABOUT LEVEL WITH U.S. HIGHWAY 98. THE MARK CAN ALSO BE
 AH9317 REACHED FROM THE
 AH9317 POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98 FOR 3.4 MI TO
 AH9317 THE JUNCTION OF
 AH9317 COUNTY ROAD 612 ON THE RIGHT, CONTINUE SOUTHEAST ON U.S. HIGHWAY 98
 AH9317 FOR 3.15 MI TO THE
 AH9317 NORTH END OF THE BRIDGE OVER THE ISTOKPOGA CANAL, CONTINUE SOUTHEAST
 AH9317 ON U.S. HIGHWAY
 AH9317 98 FOR 7.25 MI TO THE JUNCTION OF COUNTY ROAD 721 ON THE RIGHT, TURN
 AH9317 RIGHT ON COUNTY
 AH9317 ROAD 721 AND GO SOUTH FOR 1.0 MI TO THE MARK ON THE RIGHT, SET IN THE

DATASHEETS

AH9317'TOP OF A ROUND
AH9317' CONCRETE MONUMENT FLUSH WITH THE GROUND AND ABOUT LEVEL WITH U.S.
AH9317' HIGHWAY 98.
AH9317'
AH9317' LOCATED 32.7 FT EAST OF A BARBWIRE FENCELINE, 32.2 FT EAST OF A
AH9317' CARSONITE WITNESS POST AND
AH9317' 18.4 FT WEST OF THE CENTERLINE OF COUNTY ROAD 721.
AH9317'
AH9317'
AH9317'
AH9317' STATION RECOVERY (2003)
AH9317'
AH9317' RECOVERY NOTE BY BERRYMAN & HENIGAR 2003 (KAW)
AH9317' RECOVERED IN GOOD CONDITION.
AH9317'
AH9317' STATION RECOVERY (2005)
AH9317'
AH9317' RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)
AH9317' RECOVERED AS DESCRIBED

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

The NGS Data Sheet

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

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = OCTOBER 27, 2015
AH9316 *****
AH9316 DESIGNATION - KR 1746
AH9316 PID - AH9316
AH9316 STATE/COUNTY- FL/HIGHLANDS
AH9316 COUNTRY - US
AH9316 USGS QUAD - FORT BASINGER (1972)
AH9316
AH9316 *CURRENT SURVEY CONTROL
AH9316
AH9316 NAD 83(2011) POSITION- 27 21 43.69727(N) 081 03 14.10337(W) ADJUSTED
AH9316* NAD 83(2011) ELLIP HT- -13.802 (meters) (06/27/12) ADJUSTED
AH9316* NAD 83(2011) EPOCH - 2010.00
AH9316* NAVD 88 ORTHO HEIGHT - 12.286 (meters) 40.31 (feet) ADJUSTED
AH9316
AH9316 NAD 83(2011) X - 881,486.575 (meters) COMP
AH9316 NAD 83(2011) Y - -5,599,586.616 (meters) COMP
AH9316 NAD 83(2011) Z - 2,913,905.033 (meters) COMP
AH9316 LAPLACE CORR - -1.98 (seconds) DEFLEC12B
AH9316 GEOID HEIGHT - -26.200 (meters) GEOID12B
AH9316 DYNAMIC HEIGHT - 12.267 (meters) 40.25 (feet) COMP
AH9316 MODELED GRAVITY - 979,119.9 (mgal) NAVD 88
AH9316
AH9316 VERT ORDER - SECOND CLASS I
AH9316
AH9316 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH9316 Standards:
AH9316 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH9316 Horiz Ellip SD_N SD_E SD_h (unitless)
AH9316 -----
AH9316 NETWORK 1.27 1.76 0.54 0.50 0.90 0.11383358
AH9316 -----
AH9316 Click here for local accuracies and other accuracy information.
AH9316
AH9316 The horizontal coordinates were established by GPS observations
AH9316 and adjusted by the National Geodetic Survey in June 2012.
AH9316
AH9316 NAD 83(2011) refers to NAD 83 coordinates where the reference
AH9316 frame has been affixed to the stable North American tectonic plate. See
AH9316 NA2011 for more information.
AH9316
AH9316 The horizontal coordinates are valid at the epoch date displayed above
AH9316 which is a decimal equivalence of Year/Month/Day.
AH9316
AH9316 The orthometric height was determined by differential leveling and
AH9316 adjusted by the NATIONAL GEODETIC SURVEY
AH9316 in May 2009.
AH9316
AH9316 No vertical observational check was made to the station.
AH9316
AH9316 Significant digits in the geoid height do not necessarily reflect accuracy.
AH9316 GEOID12B height accuracy estimate available here.
AH9316
AH9316 The X, Y, and Z were computed from the position and the ellipsoidal ht.
AH9316

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AH9316.The Laplace correction was computed from DEFLEC12B derived deflections.

AH9316

AH9316.The ellipsoidal height was determined by GPS observations

AH9316.and is referenced to NAD 83.

AH9316

AH9316.The dynamic height is computed by dividing the NAVD 88

AH9316.geopotential number by the normal gravity value computed on the

AH9316.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH9316.degrees latitude (g = 980.6199 gals.).

AH9316

AH9316.The modeled gravity was interpolated from observed gravity values.

AH9316

AH9316. The following values were computed from the NAD 83(2011) position.

AH9316

AH9316;		North	East	Units	Scale Factor	Converg.
AH9316;SPC FL E	-	335,530.059	194,665.977	MT	0.99994153	-0 01 29.2
AH9316;SPC FL E	-	1,100,818.20	638,666.63	sFT	0.99994153	-0 01 29.2
AH9316;UTM 17	-	3,026,547.559	494,667.797	MT	0.99960035	-0 01 29.2

AH9316

AH9316! - Elev Factor x Scale Factor = Combined Factor

AH9316!SPC FL E - 1.00000217 x 0.99994153 = 0.99994370

AH9316!UTM 17 - 1.00000217 x 0.99960035 = 0.99960252

AH9316

AH9316: Primary Azimuth Mark Grid Az

AH9316:SPC FL E - KR 1744 180 43 26.7

AH9316:UTM 17 - KR 1744 180 43 26.7

AH9316

AH9316	PID	Reference Object	Distance	Geod. Az
AH9316				ddmmss.s
AH9316	AH9317	KR 1744	APPROX. 1.6 KM	1804157.5

AH9316

AH9316 SUPERSEDED SURVEY CONTROL

AH9316

AH9316 NAD 83(2007)- 27 21 43.69755(N) 081 03 14.10441(W) AD(2002.00) 0

AH9316 ELLIP H (02/10/07) -13.792 (m) GP(2002.00)

AH9316 NAD 83(1999)- 27 21 43.69713(N) 081 03 14.10469(W) AD() 1

AH9316 ELLIP H (05/31/01) -13.784 (m) GP() 4 1

AH9316 NAD 83(1990)- 27 21 43.69618(N) 081 03 14.10414(W) AD() 1

AH9316 ELLIP H (06/01/99) -13.765 (m) GP() 4 1

AH9316 NAVD 88 (05/18/04) 12.396 (m) 40.67 (f) SUPERSEDED 2 1

AH9316 NAVD 88 (06/01/99) 12.4 (m) GEOID96 model used GPS OBS

AH9316

AH9316.Superseded values are not recommended for survey control.

AH9316

AH9316.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH9316.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH9316

AH9316_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML9466726547(NAD 83)

AH9316

AH9316_MARKER: DD = SURVEY DISK

AH9316_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH9316_STAMPING: KR 1746 1997

AH9316_MARK LOGO: USE

AH9316_PROJECTION: FLUSH

AH9316_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

AH9316_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH9316+STABILITY: SURFACE MOTION

AH9316_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH9316+SATELLITE: SATELLITE OBSERVATIONS - March 01, 2006

AH9316

AH9316	HISTORY	- Date	Condition	Report By
AH9316	HISTORY	- 1997	MONUMENTED	USE
AH9316	HISTORY	- 20011006	GOOD	FLDEP
AH9316	HISTORY	- 20030508	GOOD	BAH

AH9316 HISTORY - 1997 MONUMENTED USE

AH9316 HISTORY - 20011006 GOOD FLDEP

AH9316 HISTORY - 20030508 GOOD BAH

DATASHEETS

AH9316 HISTORY - 20050627 GOOD MACTEC
 AH9316 HISTORY - 20060301 GOOD NICKMI
 AH9316 HISTORY - 20090318 GOOD MOREKL

AH9316

AH9316 STATION DESCRIPTION

AH9316

AH9316'DESCRIBED BY US ENGINEERS 1997

AH9316'THE STATION IS ABOUT 15.6 MI (25.1 KM) NORTHWEST OF OKEECHOBEE, 13.7
 AH9316'MI (22.0 KM) SOUTHEAST OF LORIDA, 0.15 MI (0.24 KM) SOUTHWEST OF THE
 AH9316'KISSIMMEE RIVER CANAL C-38, IN SECTION 08, TOWNSHIP 36 SOUTH, RANGE 33
 AH9316'EAST. TO REACH THE STATION FROM THE POST OFFICE IN LORIDA, GO
 AH9316'SOUTHEAST ON U.S.HIGHWAY 98 FOR 13.45 MI (21.65 KM) TO JUNCTION OF
 AH9316'COUNTY ROAD 721 AT FORT BASINGER AND THE STATION IN THE SOUTHEAST
 AH9316'QUADRANT OF THE INTERSECTION, SET IN THE TOP OF A ROUND CONCRETE
 AH9316'MONUMENT FLUSH WITH THE GROUND. LOCATED 74 FT (22.6 M) SOUTHEAST OF
 AH9316'THE APPROXIMATE CENTERLINE OF THE INTERSECTION, 18.4 FT (5.6 M) EAST
 AH9316'OF THE CENTERLINE OF COUNTY ROAD 721, 50.8 FT (15.5 M) SOUTHWEST OF A
 AH9316'R/W FENCE CORNER POST, 37.7 FT (11.5 M) SOUTHWEST OF A 4-INCH SQUARE
 AH9316'CONCRETE R/W MARKER POST, 44.0 FT (13.4 M) SOUTHEAST OF THE SOUTHEAST
 AH9316'END OF AN L-SHAPE CONCRETE CULVERT HEADWALL, NO WITNESS POST.
 AH9316'RECOVERABLE WITH MAGNETIC LOCATOR, MAGNETIC SOURCE ADJACENT TO STATION
 AH9316'IS UNKNOWN.

AH9316

AH9316 STATION RECOVERY (2001)

AH9316

AH9316'RECOVERY NOTE BY FL DEPT OF ENV PRO 2001 (JLM)

AH9316'THE MARK IS ABOUT 19.3 MI NORTHWEST OF OKEECHOBEE, 13.7 MI SOUTHEAST
 AH9316'OF LORIDA, IN
 AH9316'SECTION 5, TOWNSHIP 36 SOUTH, RANGE 33 EAST.
 AH9316'
 AH9316'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT
 AH9316'STREET) AND U.S.
 AH9316'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON
 AH9316'U.S. HIGHWAY 98
 AH9316'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
 AH9316'HIGHWAY 98 NORTH ON
 AH9316'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
 AH9316'MI TO THE
 AH9316'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
 AH9316'TO THE JUNCTION
 AH9316'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
 AH9316'HIGHWAY 98 FOR
 AH9316'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
 AH9316'ON THE RIGHT,
 AH9316'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 3.55 MI TO THE NORTHWEST
 AH9316'END OF BRIDGE
 AH9316'NUMBER 090016 OVER KISSIMMEE RIVER, CONTINUE SOUTHWESTERLY FOR 0.3 MI
 AH9316'TO THE JUNCTION
 AH9316'OF COUNTY ROAD 721 ON THE LEFT AND THE MARK ON THE LEFT, SET IN THE
 AH9316'TOP OF A ROUND
 AH9316'CONCRETE MONUMENT FLUSH WITH THE GROUND AND ABOUT LEVEL WITH U.S.
 AH9316'HIGHWAY 98. THE
 AH9316'MARK CAN ALSO BE REACHED FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST
 AH9316'ON U.S. HIGHWAY
 AH9316'98 FOR 3.4 MI TO THE JUNCTION OF COUNTY ROAD 612 ON THE RIGHT,
 AH9316'CONTINUE SOUTHEAST ON U.S.
 AH9316'HIGHWAY 98 FOR 3.15 MI TO THE NORTH END OF THE BRIDGE OVER THE
 AH9316'ISTOKPOGA CANAL,
 AH9316'CONTINUE SOUTHEAST ON U.S. HIGHWAY 98 FOR 7.25 MI TO THE JUNCTION OF
 AH9316'COUNTY ROAD 721 ON
 AH9316'THE RIGHT AND THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND
 AH9316'CONCRETE MONUMENT
 AH9316'FLUSH WITH THE GROUND AND ABOUT LEVEL WITH U.S. HIGHWAY 98.
 AH9316'
 AH9316'LOCATED 81.0 FT SOUTH OF THE CENTERLINE OF U.S. HIGHWAY 98, 74.0 FT
 AH9316'SOUTHEAST OF THE

AH9316'APPROXIMATE CENTERLINE OF THE INTERSECTION, 50.8 FOR SOUTHEAST OF A
AH9316'RIGHT-OF-WAY
AH9316'MARKER, 37.7 FT SOUTHWEST OF A RIGHT-OF-WAY MARKER, 32.7 FT WEST OF A
AH9316'CARSONITE WITNESS
AH9316'POST IN THE FENCE LINE AND 18.4 FT EAST OF THE CENTERLINE OF COUNTY
AH9316'ROAD 721.

AH9316'

AH9316'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
AH9316'MONUMENT.

AH9316'

AH9316'

AH9316

AH9316 STATION RECOVERY (2003)

AH9316

AH9316'RECOVERY NOTE BY BERRYMAN & HENIGAR 2003 (KAW)

AH9316'RECOVERED IN GOOD CONDITION.

AH9316

AH9316 STATION RECOVERY (2005)

AH9316

AH9316'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)

AH9316'RECOVERED AS DESCRIBED

AH9316

AH9316 STATION RECOVERY (2006)

AH9316

AH9316'RECOVERY NOTE BY NICK MILLER INCORPORATED 2006 (ECD)

AH9316'RECOVERED AS DESCRIBED. NOTE--ACCORDING TO NEW-MINUS-OLD THERE IS

AH9316'LARGE MOVEMENT ON THIS MARK.

AH9316

AH9316 STATION RECOVERY (2009)

AH9316

AH9316'RECOVERY NOTE BY MORGAN AND EKLUND INC 2009 (PCV)

AH9316'RECOVERED AS DESCRIBED

*** retrieval complete.

Elapsed Time = 00:00:02

-*- FIELD ABSTRACT -*-

060228-060301 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
ESTABLISH BENCH MARK NEAR MONITORING WELL LKBD1A

Table with columns: FROM TO, START, F/B, DIST TOTAL (KM), ELEV DIFF (MT), -(F+B) TOTAL (MM), MEAN DIFF FLD ELEV (MT), I C. Contains data for well sections 0363 Q 553, 0352 KR 1744, 0350 LKBD1A, 0351 KR 1746, 0362 LKBD3A.

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

Table with columns: INSTRUMENT CODE, INSTRUMENT, RODS. Row 1: 1, 243 - 332854, 396 - 333, 396 - 444

LEVEL LINE SECTION RUNNING TREE

Table with columns: FROM TO, N. LATITUDE, W. LONGITUDE, FIELD DISTANCE, VS. COMPUTED. Includes well section 0363 (0350) and 0362♀.

SECTION FROM TO ERROR MESSAGES

0351 0362 *** Computed distance exceeds field distance by more than 0.35 KM!

LKBD3A



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the well LKBD3A facing east

LKBD3A



Nick Miller, Inc.

Date of Photo: February 23, 2006

View: Close-up of the well showing the contractor's markings

LKBD3A



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Top View of west edge concrete pad (Elevation on mark)

LKBD3A



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the benchmark facing east

LKBD3A



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: A top view of the benchmark

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 = OCTOBER 27, 2015
DK8244 *****
DK8244 DESIGNATION - LKBD3A
DK8244 PID - DK8244
DK8244 STATE/COUNTY- FL/HIGHLANDS
DK8244 COUNTRY - US
DK8244 USGS QUAD - FORT BASINGER (1972)
DK8244
DK8244 *CURRENT SURVEY CONTROL
DK8244
DK8244 *-----
DK8244 * NAD 83(1986) POSITION- 27 21 35. (N) 081 02 57. (W) SCALED
DK8244 * NAVD 88 ORTHO HEIGHT - 10.215 (meters) 33.51 (feet) ADJUSTED
DK8244 *-----
DK8244 GEOID HEIGHT - -26.207 (meters) GEOID12B
DK8244 DYNAMIC HEIGHT - 10.199 (meters) 33.46 (feet) COMP
DK8244 MODELED GRAVITY - 979,119.8 (mgal) NAVD 88
DK8244
DK8244 VERT ORDER - SECOND CLASS I
DK8244
DK8244.The horizontal coordinates were scaled from a topographic map and have
DK8244.an estimated accuracy of +/- 6 seconds.
DK8244.
DK8244.The orthometric height was determined by differential leveling and
DK8244.adjusted by the NATIONAL GEODETIC SURVEY
DK8244.in May 2009.
DK8244
DK8244.No vertical observational check was made to the station.
DK8244
DK8244.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8244.GEOID12B height accuracy estimate available here.
DK8244
DK8244.The dynamic height is computed by dividing the NAVD 88
DK8244.geopotential number by the normal gravity value computed on the
DK8244.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8244.degrees latitude (g = 980.6199 gals.).
DK8244
DK8244.The modeled gravity was interpolated from observed gravity values.
DK8244
DK8244;
DK8244;SPC FL E - North East Units Estimated Accuracy
DK8244; 335,260. 195,140. MT (+/- 180 meters Scaled)
DK8244
DK8244 SUPERSEDED SURVEY CONTROL
DK8244
DK8244.No superseded survey control is available for this station.
DK8244
DK8244_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML951262(NAD 83)
DK8244
DK8244_MARKER: DD = SURVEY DISK
DK8244_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8244+WITH SETTING: INFORMATION.
DK8244_STAMPING: LKBD3A
DK8244_MARK LOGO: SFLWMD
DK8244_MAGNETIC: N = NO MAGNETIC MATERIAL
DK8244_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8244
DK8244 HISTORY - Date Condition Report By

```

DK8244 HISTORY - 20060224 MONUMENTED NICKMI

DK8244

DK8244 STATION DESCRIPTION

DK8244

DK8244'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8244'FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR +/-

DK8244'400 FT TO KISSIMEE RIVER SHORES ROAD. GO EAST ON KISSIMEE RIVER

DK8244'SHORES ROAD FOR 0.15 MILE TO STATE PARK ENTRANCE (LOCKED GATE). GO

DK8244'THROUGH GATE FOR 30 FT TO DIRT ROAD. GO EAST ON DIRT ROAD FOR 0.3

DK8244'MILE TO MARK AT END OF DIRT ROAD.

DK8244'

DK8244'7.3 FT WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL LKBD3A, 5.7

DK8244'FT SOUTHWEST OF NORTHWEST BALLARD POST, 5.4 FT NORTHWEST OF SOUTHWEST

DK8244'BALLARD POST. SET MAGNET 1' OF MONUMENT. NOTE--ROD DEPTH UNKNOWN. NO

DK8244'NOTIFICATION FROM NICKMI AS FAR AS ROD DEPTH.

*** retrieval complete.

Elapsed Time = 00:00:04



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY HIGHLANDS	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBD3A 2006
SECTION 08	TOWNSHIP 36 SOUTH	RANGE 33 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/23/2006</u>	FIELD BOOK _____ 09 _____ PAGE <u>74</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 641,367 ft	N 1,100,407 ft
LATITUDE: N 27.36101°	LONGITUDE: W 81.04560°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 33.52 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 34.71 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND CR-721. GO SOUTH ON CR-721 FOR +/- 400 FEET TO KISSIMMEE RIVER SHORES ROAD. GO EAST ON KISSIMMEE RIVER SHORES ROAD FOR 0.15 MILE TO STATE PARK ENTRANCE (LOCKED GATE). GO THROUGH GATE FOR 30 FEET TO DIRT ROAD. GO EAST ON DIRT ROAD FOR 0.3 MILE TO MARK AT END OF DIRT ROAD. MARK IS 7.3 FEET WEST OF WEST EDGE OF GREY PIPE OF MONITORING WELL LKBD3A, 5.7 FEET SOUTHWEST OF NORTHWEST BALLARD POST, 5.4 FEET NORTHWEST OF SOUTHWEST BALLARD POST. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: Q 553 & KR 1744</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK SPEND
FOR MONITORING WELL
LKBD3A

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONCR. MONUMENT

- SET CONCR. MONUMENT 5.7' WEST OF NW BALLARD POST
- " " 7.3' WEST OF WEST EDGE OF MONITORING WELL
- " " 5.4' NW OF SW BALLARD POST

STAMPING LKBD3A
2006

COORDINATES ON MONITORING WELL LKBD3A

STATE PLANE 83 WGS 84
N. 335404.695 m N. 27° 21' 39.63"
E. 195490.996 m W. 081° 02' 44.08"

COORDINATES ON MONUMENT LKBD3A

STATE PLANE 83 WGS 84
N. 335404.642 m N. 27° 21' 39.63"
E. 195489.121 m W. 081° 02' 44.15"

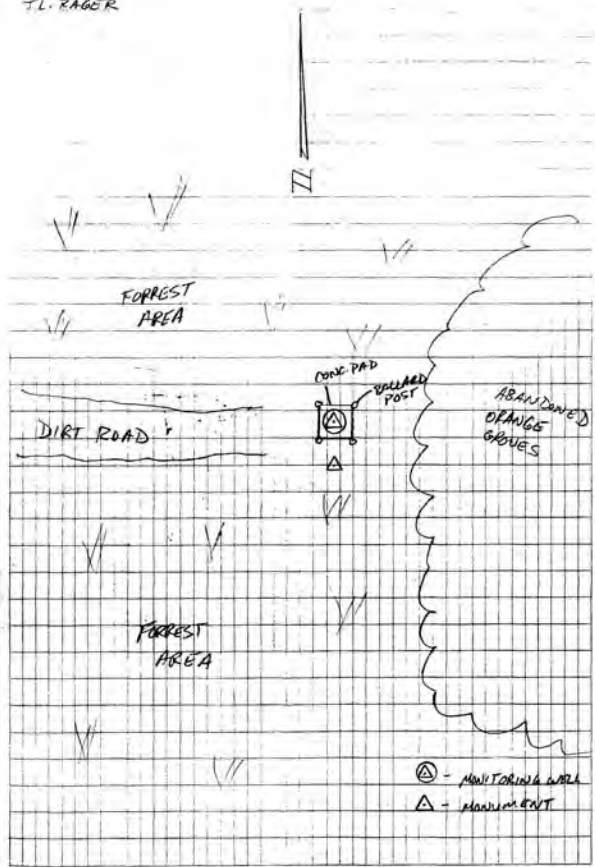
PICS


- 26 TOP VIEW OF M.W. - 2217
- 27 M.W. FACING EAST - 2218
- 28 TOP VIEW OF BM - 2219
- 29 BM FACING EAST - 2220


E. DETASSE
T.L. RAGER

THRU. FEB. 23, 2006

9,74



LKBD3C	Elevation:	31.70 ft	(NAVD88)	32.91 ft	(NGVD29)
Bench Mark 1:	U 554	41.08 ft	(NAVD88)	42.28 ft	(NGVD 29)
Bench Mark 2:	V 554	39.97 ft	(NAVD88)	41.17 ft	(NGVD 29)
Monitoring Well:	LKBD3C	36.32 ft	(NAVD88)	37.52 ft	(NGVD 29)
Concrete Pad:	LKBD3C	32.38 ft	(NAVD88)	33.59 ft	(NGVD 29)
Ground Elevation:	LKBD3C	31.89 ft	(NAVD88)	33.10 ft	(NGVD 29)
Length of Run:	1.67 km	To Reach LKBD3C:			
Max Allowable Misclosure:	10 mm	<p>FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO WEST ON US 98 HWY GO +/-375 FEET TO DIRT DRIVEWAY FOR RESIDENTIAL HOUSE # 20375. GO SOUTHERLY THEN WESTERLY ON DIRT DRIVEWAY FOR 0.15 MILE TO METAL GATE (NO LOCK ON GATE). GO THROUGH GATE HEAD WESTERLY THEN SOUTHEASTERLY FOR 0.2 MILE TO BARBED WIRE GATE (NO LOCK ON GATE). GO THROUGH BARBED WIRE GATE FOR +/-300 FEET SOUTHEASTERLY TO MONITORING WELL LKBD3C. MARK IS 6.3 FEET EAST FROM EAST EDGE OF GRAY MONITORING WELL PIPE, 5.0 FEET SOUTHEAST OF NORTHEAST BALLARD POST, 5.0 FEET NORTHEAST OF SOUTHEAST BALLARD POST. SET MAGNET 1 FOOT NORTH OF CONCRETE MONUMENT.</p>			
Actual Misclosure:	0 mm				
					

LKBD5C	Elevation:	40.44 ft	(NAVD 88)	41.64 ft	(NGVD 29)
Bench Mark 1:	B 555	48.63 ft	(NAVD 88)	49.83 ft	(NGVD 29)
Bench Mark 2:	KR PC 20	48.95 ft	(NAVD 88)	50.15 ft	(NGVD 29)
Monitoring Well:	LKBD5C	44.80 ft	(NAVD 88)	46.00 ft	(NGVD 29)
Concrete Pad:	LKBD5C	41.04 ft	(NAVD 88)	42.24 ft	(NGVD 29)
Ground Elevation:	LKBD5C	40.54 ft	(NAVD 88)	41.74 ft	(NGVD 29)
Length of Run:	3.30 km	To Reach LKBD5C:			
Max Allowable Misclosure:	15 mm	<p>FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO NORTH ON NW 203 AVE. FOR 0.2 MILE TO NW 160TH DRIVE. GO WEST ON NW 160TH DRIVE FOR 4.9 MILE TO PAVED ROAD WITH SFWMD LOCKED GATE. GO THROUGH LOCKED GATE DOWN PAVED ROAD FOR 1.0 MILE TO MARK ON LEFT. (THERE ARE THREE UNLOCKED GATES TO GO THROUGH BEFORE MARK) SET MONUMENT 7.2 FEET SOUTH OF BARBED WIRE FENCE, 6.45 FEET NORTH OF NORTH EDGE OF GRAY MONITORING WELL PIPE, 20.5 FEET EAST OF CENTERLINE OF PAVED ROAD. SET MAGNET 1 FOOT NORTH OF CONCRETE MONUMENT.</p>			
Actual Misclosure:	1 mm				
					

LKBD3C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the well LKBD3C facing north

LKBD3C



Nick Miller, Inc.

Date of Photo: February 23, 2006

View: Close-up of the well showing the contractor's markings

LKBD3C



Nick Miller, Inc.

Date of Photo: February 23, 2006

View: Top view of concrete pad (Elevation on mark 2.0' west of well)

LKBD3C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the benchmark facing north

LKBD3C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: A top view of the benchmark

The NGS Data Sheet

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

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,   Retrieval Date = OCTOBER 27, 2015
DK8245 *****
DK8245 DESIGNATION - LKBD3C
DK8245 PID - DK8245
DK8245 STATE/COUNTY- FL/OKEECHOBEE
DK8245 COUNTRY - US
DK8245 USGS QUAD - BASINGER (1972)
DK8245
DK8245 *CURRENT SURVEY CONTROL
DK8245
DK8245 *-----*
DK8245* NAD 83(1986) POSITION- 27 23 11. (N) 081 02 05. (W) SCALED
DK8245* NAVD 88 ORTHO HEIGHT - 9.663 (meters) 31.70 (feet) ADJUSTED
DK8245 *-----*
DK8245 GEOID HEIGHT - -26.237 (meters) GEOID12B
DK8245 DYNAMIC HEIGHT - 9.648 (meters) 31.65 (feet) COMP
DK8245 MODELED GRAVITY - 979,126.3 (mgal) NAVD 88
DK8245
DK8245 VERT ORDER - SECOND CLASS I
DK8245
DK8245.The horizontal coordinates were scaled from a topographic map and have
DK8245.an estimated accuracy of +/- 6 seconds.
DK8245.
DK8245.The orthometric height was determined by differential leveling and
DK8245.adjusted by the NATIONAL GEODETIC SURVEY
DK8245.in May 2009.
DK8245
DK8245.No vertical observational check was made to the station.
DK8245
DK8245.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8245.GEOID12B height accuracy estimate available here.
DK8245
DK8245.The dynamic height is computed by dividing the NAVD 88
DK8245.geopotential number by the normal gravity value computed on the
DK8245.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8245.degrees latitude (g = 980.6199 gals.).
DK8245
DK8245.The modeled gravity was interpolated from observed gravity values.
DK8245
DK8245;
DK8245;SPC FL E - North East Units Estimated Accuracy
DK8245; 338,220. 196,570. MT (+/- 180 meters Scaled)
DK8245
DK8245 SUPERSEDED SURVEY CONTROL
DK8245
DK8245.No superseded survey control is available for this station.
DK8245
DK8245_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML965292(NAD 83)
DK8245
DK8245_MARKER: DD = SURVEY DISK
DK8245_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8245+WITH SETTING: INFORMATION.
DK8245_STAMPING: LKBD3C
DK8245_MARK LOGO: SFLWMD
DK8245_MAGNETIC: N = NO MAGNETIC MATERIAL
DK8245_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8245
DK8245 HISTORY - Date Condition Report By

```

DK8245 HISTORY - 20060223 MONUMENTED NICKMI

DK8245

DK8245 STATION DESCRIPTION

DK8245

DK8245'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8245'FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO WEST ON US 98 HWY GO

DK8245'+/-375 FT TO DIRT DRIVEWAY FOR RESIDENTIAL HOUSE NUMBER 20375. GO

DK8245'SOUTHERLY THEN WESTERLY ON DIRT DRIVEWAY FOR 0.15 MILE TO METAL GATE

DK8245'(NO LOCK ON GATE). GO THROUGH GATE HEAD WESTERLY THEN SOUTHEASTERLY

DK8245'FOR 0.2 MILE TO BARBED WIRE GATE (NO LOCK ON GATE). GO THROUGH BARBED

DK8245'WIRE GATE FOR +/-300 FT SOUTHEASTERLY TO MONITORING WELL LKBD3C.

DK8245'

DK8245'6.3 FT EAST FROM EAST EDGE OF GRAY MONITORING WELL PIPE, 5.0 FT

DK8245'SOUTHEAST OF NORTHEAST BALLARD POST, 5.0 FT NORTHEAST OF SOUTHEAST

DK8245'BALLARD POST. SET MAGNET 1 FT NORTH OF CONCRETE MONUMENT. NOTE--ROD

DK8245'DEPTH UNKNOWN. NO NOTIFICATION FROM NICKMI AS FAR AS ROD DEPTH.

*** retrieval complete.

Elapsed Time = 00:00:04



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBD3C 2006
SECTION 33	TOWNSHIP 35 SOUTH	RANGE 33 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/23/2006</u>	FIELD BOOK _____ 09 _____ PAGE <u>72</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 644,784 ft	N 1,109,586 ft
LATITUDE: N 27.38626°	LONGITUDE: W 81.03508°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 31.70 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 32.91 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO WEST ON US 98 HWY GO +/- 375 FEET TO DIRT DRIVEWAY FOR RESIDENTIAL HOUSE #20375. GO SOUTHERLY THEN WESTERLY ON DIRT DRIVEWAY FOR 0.15 MILE TO METAL GATE (NO LOCK ON GATE). GO THROUGH GATE AND HEAD WESTERLY THEN SOUTHEASTERLY FOR 0.2 MILE TO BARBED WIRE GATE (NO LOCK ON GATE). GO THROUGH BARBED WIRE GATE FOR +/- 300 FEET SOUTHEASTERLY TO MONITORING WELL LKBD3C. MARK IS 6.3 FEET EAST FROM EAST EDGE OF GRAY MONITORING WELL PIPE, 5.0 FEET SOUTHEAST OF NORTHEAST BALLARD POST, 5.0 FEET NORTHEAST OF SOUTHEAST BALLARD POST. SET MAGNET 1 FOOT NORTH OF CONCRETE MONUMENT.</p> <p>Benchmarks Used: U 554 & V 554</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK SFLWD
FOR MONITORING WELL
LKBD3C

- SET REINFORCED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 6.3' EAST FROM EAST EDGE OF GRAY MONITORING WELL PIPE
- " " " 5.0' SE OF NE BALLARD POST
- " " " 5.0' NE OF SE BALLARD POST

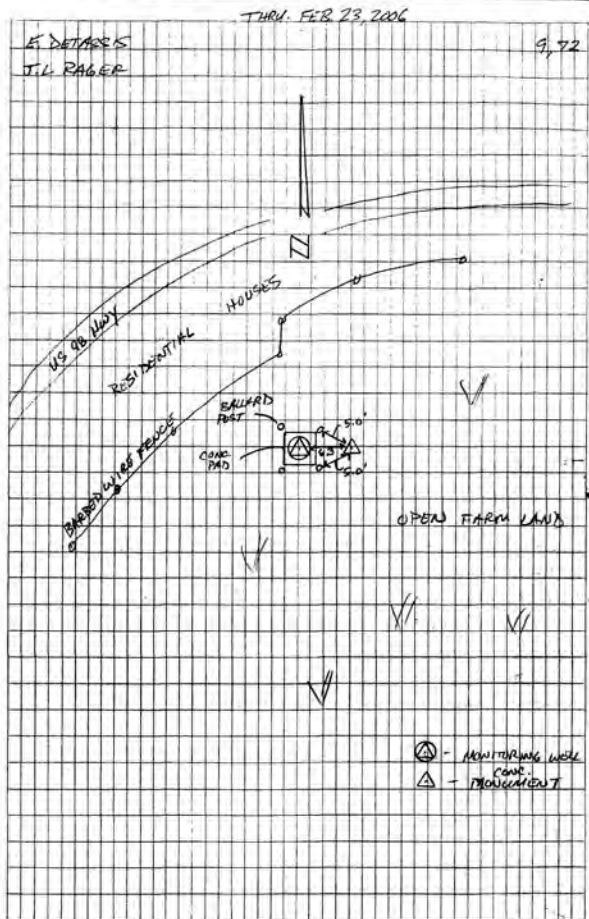
STAMPING LKBD3C
2006

COORDINATES ON MONITORING WELL LKBD3C
STATE PLANE 83 WGS 84
N. 338203.296 m N. 27°23'10.57"
E. 196527.964 m W. 081°02'06.37"

COORDINATES ON BENCHMARK MONUMENT LKBD3C
STATE PLANE 83 WGS 84
N. 338202.961 m N. 27°23'10.54"
E. 196530.948 m W. 081°02'06.28"

PICS

- 22 - TOP VIEW OF MW. - 2208
- 23 - N.W. FACING NORTHWEST - 2209
- 24 - TOP VIEW OF BM - 2216
- 25 - BM FACING NORTHWEST - 2215



The NGS Data Sheet

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

```

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37
1 National Geodetic Survey, Retrieval Date = JULY 14, 2006
DF8349 *****
DF8349 DESIGNATION - U 554
DF8349 PID - DF8349
DF8349 STATE/COUNTY- FL/OKEECHOBEE
DF8349 USGS QUAD - BASINGER (1972)
DF8349
DF8349 *CURRENT SURVEY CONTROL
DF8349
DF8349 * NAD 83(1986)- 27 23 20. (N) 081 01 29. (W) SCALED
DF8349 * NAVD 88 - 12.521 (meters) 41.08 (feet) ADJUSTED
DF8349
DF8349 GEOID HEIGHT- -26.25 (meters) GEOID03
DF8349 DYNAMIC HT - 12.502 (meters) 41.02 (feet) COMP
DF8349 MODELED GRAV- 979,127.6 (mgal) NAVD 88
DF8349
DF8349 VERT ORDER - SECOND CLASS I
DF8349
DF8349 .The horizontal coordinates were scaled from a topographic map and have
DF8349 .an estimated accuracy of +/- 6 seconds.
DF8349
DF8349 .The orthometric height was determined by differential leveling
DF8349 .and adjusted by the National Geodetic Survey in May 2004..
DF8349
DF8349 .The geoid height was determined by GEOID03.
DF8349
DF8349 .The dynamic height is computed by dividing the NAVD 88
DF8349 .geopotential number by the normal gravity value computed on the
DF8349 .Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8349 .degrees latitude (g = 980.6199 gals.).
DF8349
DF8349 .The modeled gravity was interpolated from observed gravity values.
DF8349
DF8349 ;
DF8349 ; North East Units Estimated Accuracy
DF8349 ; SPC FL E - 338,490. 197,560. MT (+/- 180 meters Scaled)
DF8349
DF8349 SUPERSEDED SURVEY CONTROL
DF8349
DF8349 .No superseded survey control is available for this station.
DF8349
DF8349 _U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML975295(NAD 83)
DF8349 _MARKER: DD = SURVEY DISK
DF8349 _SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DF8349 _STAMPING: U 554 2001
DF8349 _MARK LOGO: FLDEP
DF8349 _PROJECTION: FLUSH
DF8349 _MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
DF8349 _STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DF8349 +STABILITY: SURFACE MOTION
DF8349 _SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8349 +SATELLITE: SATELLITE OBSERVATIONS - October 04, 2001
DF8349
DF8349 HISTORY - Date Condition Report By
DF8349 HISTORY - 20011004 MONUMENTED FLDEP
DF8349
DF8349 STATION DESCRIPTION
DF8349
DF8349 'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)
DF8349 'THE MARK IS ABOUT 33.6 MI SOUTHEAST OF SEBRING, 15.8 MI NORTHWEST OF
DF8349 'OKEECHOBEE, ON U.S.
DF8349 'HIGHWAY 98, IN SECTION 34, TOWNSHIP 35 SOUTH, RANGE 33 EAST.
DF8349 '
DF8349 'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT
DF8349 'STREET) AND U.S.
DF8349 'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON
DF8349 'U.S. HIGHWAY 98
DF8349 '(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
DF8349 'HIGHWAY 98 NORTH ON

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DATASHEETS

DF8349' THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
DF8349' MI TO THE
DF8349' RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
DF8349' TO THE JUNCTION
DF8349' OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
DF8349' HIGHWAY 98 FOR
DF8349' 1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
DF8349' ON THE RIGHT,
DF8349' CONTINUE 1.0 MI TO THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND
DF8349' CONCRETE MONUMENT
DF8349' FLUSH WITH THE GROUND AND ABOUT 2.0 FT BELOW THE LEVEL OF U.S. HIGHWAY
DF8349' 98.
DF8349'
DF8349' LOCATED 85.5 FT WEST OF A POWER POLE, 59.6 FT NORTH OF THE CENTERLINE
DF8349' OF U.S. HIGHWAY 98,
DF8349' 19.3 FT EAST OF A BARBWIRE FENCE, 7.4 FT WEST OF A METAL DOT WITNESS
DF8349' POST, 1.5 FT SOUTH OF A
DF8349' BARBWIRE FENCE AND 1.3 FT SOUTH OF A CARSONITE WITNESS POST.
DF8349'
DF8349' NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
DF8349' MONUMENT.
DF8349'
DF8349'
DF8349'
DF8349'
DF8349'

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

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 14, 2006

DF8350 *****

DF8350 DESIGNATION - V 554

DF8350 PID - DF8350

DF8350 STATE/COUNTY- FL/OKEECHOBEE

DF8350 USGS QUAD - BASINGER (1972)

DF8350

DF8350 *CURRENT SURVEY CONTROL

DF8350 * NAD 83(1986)- 27 23 18. (N) 081 02 11. (W) SCALED

DF8350 * NAVD 88 - 12.182 (meters) 39.97 (feet) ADJUSTED

DF8350

DF8350 GEOID HEIGHT- -26.23 (meters) GEOID03

DF8350 DYNAMIC HT - 12.164 (meters) 39.91 (feet) COMP

DF8350 MODELED GRAV- 979,126.5 (mgal) NAVD 88

DF8350

DF8350 VERT ORDER - SECOND CLASS I

DF8350

DF8350.The horizontal coordinates were scaled from a topographic map and have

DF8350.an estimated accuracy of +/- 6 seconds.

DF8350

DF8350.The orthometric height was determined by differential leveling

DF8350.and adjusted by the National Geodetic Survey in May 2004..

DF8350

DF8350.The geoid height was determined by GEOID03.

DF8350

DF8350.The dynamic height is computed by dividing the NAVD 88

DF8350.geopotential number by the normal gravity value computed on the

DF8350.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8350.degrees latitude (g = 980.6199 gals.).

DF8350

DF8350.The modeled gravity was interpolated from observed gravity values.

DF8350

DF8350; North East Units Estimated Accuracy

DF8350;SPC FL E - 338,430. 196,400. MT (+/- 180 meters Scaled)

DF8350

DF8350 SUPERSEDED SURVEY CONTROL

DF8350

DF8350.No superseded survey control is available for this station.

DF8350

DF8350_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML964294(NAD 83)

DF8350_MARKER: DD = SURVEY DISK

DF8350_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

DF8350_STAMPING: V 554 2001

DF8350_MARK LOGO: NGS

DF8350_PROJECTION: FLUSH

DF8350_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DF8350_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

DF8350_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

DF8350+SATELLITE: SATELLITE OBSERVATIONS - October 04, 2001

DF8350_ROD/PIPE-DEPTH: 24.3 meters

DF8350

DF8350 HISTORY - Date Condition Report By

DF8350 HISTORY - 20011004 MONUMENTED FLDEP

DF8350 HISTORY - 20050721 GOOD MACTEC

DF8350

DF8350 STATION DESCRIPTION

DF8350

DF8350'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8350'THE MARK IS ABOUT 17.5 MI NORTHWEST OF OKEECHOBEE, 15.8 MI SOUTHEAST

DF8350'OF LORIDA, 2.0 MI

DF8350'NORTHEAST OF KISSIMMEE RIVER, ON U.S. HIGHWAY 98 AT THE JUNCTION OF

DF8350'NORTHWEST 203RD

DF8350'AVENUE, IN SECTION 33, TOWNSHIP 35 SOUTH, RANGE 33 EAST.

DF8350'

DF8350'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8350'STREET) AND U.S.

DF8350'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DATASHEETS

DF8350' U.S. HIGHWAY 98
DF8350' (STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
DF8350' HIGHWAY 98 NORTH ON
DF8350' THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
DF8350' MI TO THE
DF8350' RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
DF8350' TO THE JUNCTION
DF8350' OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
DF8350' HIGHWAY 98 FOR
DF8350' 1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
DF8350' ON THE RIGHT,
DF8350' CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION
DF8350' OF NORTHWEST
DF8350' 203RD AVENUE ON THE RIGHT AND THE MARK ON THE RIGHT, A STAINLESS STEEL
DF8350' ROD DRIVEN TO
DF8350' REFUSAL AT A DEPTH OF 79.6 FT WITH A NGS LOGO CAP FLUSH WITH THE
DF8350' GROUND AND 2.0 FT
DF8350' BELOW THE LEVEL OF U.S. HIGHWAY 98, THE DATUM POINT IS RECESSED 0.5 FT
DF8350' BELOW THE LEVEL OF
DF8350' THE LOGO CAP.
DF8350'
DF8350' LOCATED 56.5 FT NORTHWEST OF THE APPROXIMATE CENTERLINE OF U.S.
DF8350' HIGHWAY 98, 50.0 FT
DF8350' NORTHEAST OF THE CENTERLINE OF NW 203RD AVENUE, 8.7 FT NORTHEAST OF
DF8350' POWER POLE
DF8350' NUMBER 5349 (ABC 5311 1 CK T2) AND 1.3 FT SOUTHEAST OF A CARSONITE
DF8350' WITNESS POST.
DF8350'
DF8350' NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
DF8350' MONUMENT.
DF8350'
DF8350' NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP.
DF8350'
DF8350'
DF8350'
DF8350'
DF8350'
DF8350'
DF8350'
DF8350'
DF8350' STATION RECOVERY (2005)
DF8350'
DF8350' RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)
DF8350' RECOVERED AS DESCRIBED

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

-*- FIELD ABSTRACT -*-

060227-060227 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
 SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
 ESTABLISH BENCH MARK NEAR MONITORING WELL LKBD3C

FROM	TO	START	F/B	DIST TOTAL (KM)	ELEV DIFF (MT)	-(F+B) TOTAL (MM)	MEAN DIFF FLD ELEV (MT)	I C
0332 U 554							12.52100	
0332 U 554		2271000	F	1.13	-0.33866 *	0.00	-0.33866	1
0333 V 554				1.13		0.00	12.18234	
0333 V 554		2271145	F	0.53	-2.51972 *	0.93	-2.51925	1
0331 LKBD3C		2271305	B	0.57	2.51879 *			1
		SL 1		1.67		0.93	9.66309♀	

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 - 111 396 - 222

♀
 LEVEL LINE SECTION RUNNING TREE

FROM	TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0332	0333 (0331♀)	272320	0810129	0.00	0.00
0332	0333	272318	0810211	1.13	1.16
0333	0331	272310	0810206	0.53	0.28♀

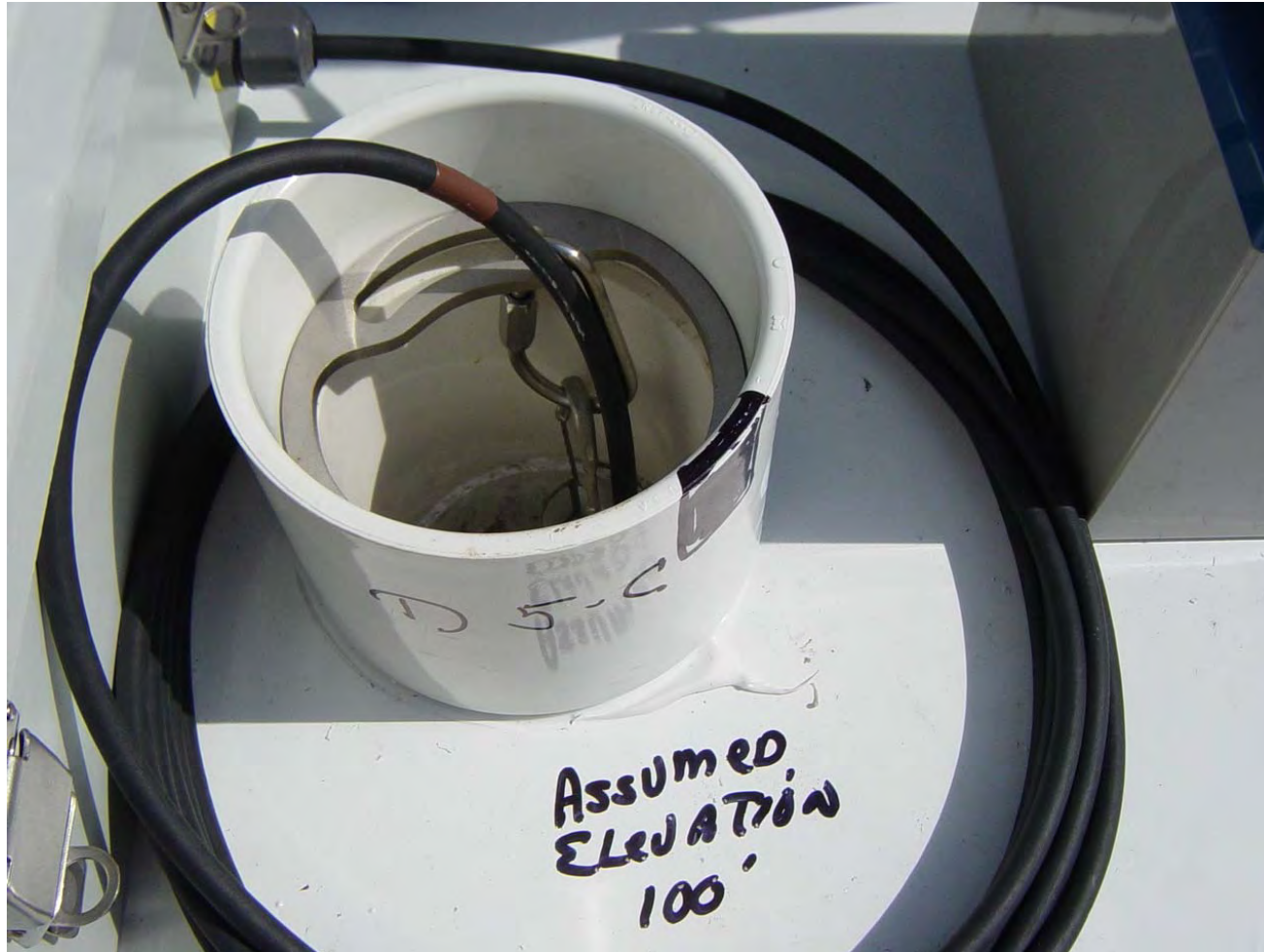
SECTION
 FROM TO ERROR MESSAGES

LKBD5C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the well LKBD5C facing east

LKBD5C



Nick Miller, Inc.

Date of Photo: February 23, 2006

View: Close-up of the well showing the contractor's markings

LKBD5C



Nick Miller, Inc.

Date of Photo: February 23, 2006

View: Top view of concrete pad (Elevation on mark 2.0' west of well)

LKBD5C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: Looking at the benchmark facing east

LKBD5C



Nick Miller, Inc.
Date of Photo: February 23, 2006
View: A top view of the benchmark

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 = OCTOBER 27, 2015
DK8247 *****
DK8247 DESIGNATION - LKBD5C
DK8247 PID - DK8247
DK8247 STATE/COUNTY- FL/OKEECHOBEE
DK8247 COUNTRY - US
DK8247 USGS QUAD - BASINGER (1972)
DK8247
DK8247 *CURRENT SURVEY CONTROL
DK8247
DK8247* NAD 83(1986) POSITION- 27 24 40. (N) 081 06 31. (W) SCALED
DK8247* NAVD 88 ORTHO HEIGHT - 12.326 (meters) 40.44 (feet) ADJUSTED
DK8247
DK8247 GEOID HEIGHT - -26.138 (meters) GEOID12B
DK8247 DYNAMIC HEIGHT - 12.307 (meters) 40.38 (feet) COMP
DK8247 MODELED GRAVITY - 979,126.1 (mgal) NAVD 88
DK8247
DK8247 VERT ORDER - SECOND CLASS I
DK8247
DK8247.The horizontal coordinates were scaled from a topographic map and have
DK8247.an estimated accuracy of +/- 6 seconds.
DK8247.
DK8247.The orthometric height was determined by differential leveling and
DK8247.adjusted by the NATIONAL GEODETIC SURVEY
DK8247.in May 2009.
DK8247
DK8247.No vertical observational check was made to the station.
DK8247
DK8247.Significant digits in the geoid height do not necessarily reflect accuracy.
DK8247.GEOID12B height accuracy estimate available here.
DK8247
DK8247.The dynamic height is computed by dividing the NAVD 88
DK8247.geopotential number by the normal gravity value computed on the
DK8247.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DK8247.degrees latitude (g = 980.6199 gals.).
DK8247
DK8247.The modeled gravity was interpolated from observed gravity values.
DK8247
DK8247;
DK8247;SPC FL E - North East Units Estimated Accuracy
DK8247; 340,960. 189,260. MT (+/- 180 meters Scaled)
DK8247
DK8247 SUPERSEDED SURVEY CONTROL
DK8247
DK8247.No superseded survey control is available for this station.
DK8247
DK8247_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML892319(NAD 83)
DK8247
DK8247_MARKER: DD = SURVEY DISK
DK8247_SETTING: 15 = METAL ROD DRIVEN INTO GROUND. SEE TEXT FOR ADDITIONAL
DK8247+WITH SETTING: INFORMATION.
DK8247_STAMPING: LKBD5C 2006
DK8247_MARK LOGO: SFLWMD
DK8247_MAGNETIC: O = OTHER; SEE DESCRIPTION
DK8247_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
DK8247_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DK8247+SATELLITE: SATELLITE OBSERVATIONS - November 20, 2012

```

DK8247				
DK8247	HISTORY	- Date	Condition	Report By
DK8247	HISTORY	- 20060223	MONUMENTED	NICKMI
DK8247	HISTORY	- 20121120	GOOD	INDIV

DK8247

DK8247

DK8247

STATION DESCRIPTION

DK8247'DESCRIBED BY NICK MILLER INCORPORATED 2006 (ECD)

DK8247'FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO NORTH ON NW 203 AVE.

DK8247'FOR 0.2 MILE TO NW 160TH DRIVE. GO WEST ON NW 160TH DRIVE FOR 4.9

DK8247'MILE TO PAVED ROAD WITH SFWMD LOCKED GATE. GO THROUGH LOCKED GATE

DK8247'DOWN PAVED ROAD FOR 1.0 MILE TO MARK ON LEFT. (THERE ARE THREE

DK8247'UNLOCKED GATES TO GO THROUGH BEFORE MARK).

DK8247'

DK8247'7.2 FT SOUTH OF BARBED WIRE FENCE, 6.45 FT NORTH OF NORTH EDGE OF

DK8247'GRAY MONITORING WELL PIPE, 20.5 FT EAST OF CENTERLINE OF PAVED ROAD.

DK8247'SET MAGNET 1 FT NORTH OF CONCRETE MONUMENT. NOTE--ROD DEPTH UNKNOWN.

DK8247'NO NOTIFICATION FROM NICKMI AS FAR AS ROD DEPTH.

DK8247

DK8247

STATION RECOVERY (2012)

DK8247

DK8247'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2012 (JH)

DK8247'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION LKBD5C 2006
SECTION 22	TOWNSHIP 35 SOUTH	RANGE 32 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/26/2006</u>	FIELD BOOK _____ 09 _____ PAGE <u>73</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 620,823 ft	N 1,118,575 ft
LATITUDE: N 27.41095°	LONGITUDE: W 81.10894°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 40.44 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 41.64 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND NW 203 AVE. GO NORTH ON NW 203 AVE. FOR 0.2 MILE TO NW 160TH DRIVE. GO WEST ON NW 160TH DRIVE FOR 4.9 MILES TO PAVED ROAD WITH SFWMD LOCKED GATE. GO THROUGH LOCKED GATE DOWN PAVED ROAD FOR 1.0 MILE TO MARK ON LEFT. (THERE ARE THREE UNLOCKED GATES TO GO THROUGH BEFORE MARK) SET MONUMENT 7.2 FEET SOUTH OF BARBED WIRE FENCE, 6.45 FEET NORTH OF NORTH EDGE OF GRAY MONITORING WELL PIPE, 20.5 FEET EAST OF CENTERLINE OF PAVED ROAD. SET MAGNET 1 FOOT NORTH OF CONCRETE MONUMENT.</p> <p>Benchmarks Used: B 555 & KRR PC 20</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK SEWARD
FOR MONITORING WELL
LKB DSC

- SET PAIRED- IN-PLACE CONCRETE MONUMENT
WITH BRASS DISK

- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 712 SOUTH OF BARBED WIRE FENCE
- " " " 645 NORTH OF NORTH EDGE OF NEW LKB DSC
- " " " 20.5 EAST OF PAVED ROAD

STANDING LKB DSC
2006

COORDINATES ON MONITORING WELL LKB DSC
STATE PLANE 83 WAS 84
N: 340940.997 m N: 27° 29' 39.38"
E: 189225.441 m W: 081° 06' 32.25"

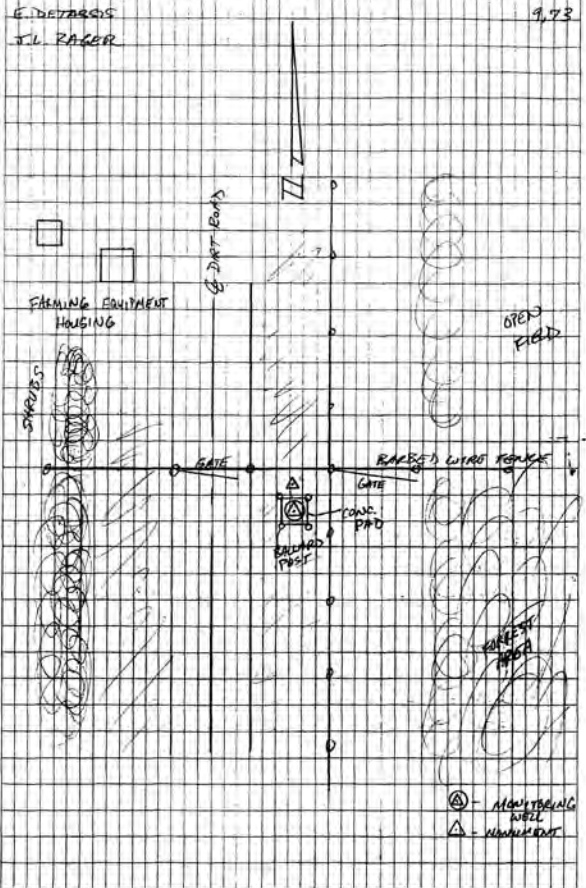
COORDINATES ON MONUMENT LKB DSC
STATE PLANE 83 WAS 84
N: 340942.735 m N: 27° 24' 39.42"
E: 189227.141 m W: 081° 06' 52.19"

PICS

- 29 - TOP VIEW M.W. - 2210
- 30 - M.W. FACING EAST - 2211
- 31 - B.M. FACING WEST - 2212
- 32 - B.M. TOP VIEW - 2213

THUR. FEB. 23, 2006

E. DETASSIS 9,73
J.L. RAGER



The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 18, 2006

DF8357 *****

DF8357 DESIGNATION - B 555

DF8357 PID - DF8357

DF8357 STATE/COUNTY- FL/OKEECHOBEE

DF8357 USGS QUAD - BASINGER (1972)

DF8357

DF8357 *CURRENT SURVEY CONTROL

DF8357

DF8357* NAD 83(1986)- 27 25 44. (N) 081 06 57. (W) SCALED

DF8357* NAVD 88 - 14.822 (meters) 48.63 (feet) ADJUSTED

DF8357

DF8357 GEOID HEIGHT- -26.13 (meters) GEOID03

DF8357 DYNAMIC HT - 14.800 (meters) 48.56 (feet) COMP

DF8357 MODELED GRAV- 979,129.7 (mgal) NAVD 88

DF8357

DF8357 VERT ORDER - SECOND CLASS I

DF8357

DF8357.The horizontal coordinates were scaled from a topographic map and have

DF8357.an estimated accuracy of +/- 6 seconds.

DF8357

DF8357.The orthometric height was determined by differential leveling

DF8357.and adjusted by the National Geodetic Survey in May 2004..

DF8357

DF8357.The geoid height was determined by GEOID03.

DF8357

DF8357.The dynamic height is computed by dividing the NAVD 88

DF8357.geopotential number by the normal gravity value computed on the

DF8357.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8357.degrees latitude (g = 980.6199 gals.).

DF8357

DF8357.The modeled gravity was interpolated from observed gravity values.

DF8357

DF8357; North East Units Estimated Accuracy

DF8357;SPC FL E - 342,930. 188,550. MT (+/- 180 meters Scaled)

DF8357

DF8357 SUPERSEDED SURVEY CONTROL

DF8357

DF8357.No superseded survey control is available for this station.

DF8357

DF8357_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML885339(NAD 83)

DF8357_MARKER: DD = SURVEY DISK

DF8357_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DF8357_STAMPING: B 555 2001

DF8357_MARK LOGO: FLDEP

DF8357_PROJECTION: FLUSH

DF8357_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

DF8357_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DF8357+STABILITY: SURFACE MOTION

DF8357_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF8357+SATELLITE: SATELLITE OBSERVATIONS - October 05, 2001

DF8357

DF8357 HISTORY - Date Condition Report By

DF8357 HISTORY - 20011005 MONUMENTED FLDEP

DF8357 HISTORY - 20050608 GOOD MACTEC

DF8357

DF8357 STATION DESCRIPTION

DF8357

DF8357'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8357'THE MARK IS ABOUT 23.7 MI NORTHWEST OF OKEECHOBEE, 6.0 MI NORTHWEST OF

DF8357'BASINGER, ON

DF8357'NORTHWEST 160TH DRIVE, IN SECTION 15, TOWNSHIP 35 SOUTH, RANGE 32

DF8357'EAST.

DF8357'

DF8357'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8357'STREET) AND U.S.

DF8357'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8357'U.S. HIGHWAY 98

DATASHEETS

DF8357'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
DF8357'HIGHWAY 98 NORTH ON
DF8357'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
DF8357'MI TO THE
DF8357'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
DF8357'TO THE JUNCTION
DF8357'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
DF8357'HIGHWAY 98 FOR
DF8357'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
DF8357'ON THE RIGHT,
DF8357'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION
DF8357'OF NORTHWEST
DF8357'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST
DF8357'203RD AVENUE
DF8357'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE
DF8357'JUNCTION OF NORTHWEST
DF8357'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST
DF8357'160TH DRIVE
DF8357'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 5.85
DF8357'MI TO THE MARK
DF8357'ON THE LEFT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT FLUSH WITH
DF8357'THE GROUND AND
DF8357'ABOUT 0.5 FT ABOVE THE LEVEL OF NORTHWEST 160TH DRIVE.
DF8357'
DF8357'LOCATED 33.0 FT SOUTH OF THE APPROXIMATE CENTERLINE OF THE ROAD, 18.6
DF8357'FT WEST OF THE
DF8357'CENTER OF A GATE, 10.0 FT WEST OF A BARBWIRE FENCE LEADING SOUTH, 1.1
DF8357'FT NORTH OF A
DF8357'BARBWIRE FENCE AND 1.0 FT NORTH OF A CARSONITE WITNESS POST.
DF8357'
DF8357'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE
DF8357'MONUMENT.
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
DF8357'
STATION RECOVERY (2005)
DF8357'
DF8357'
DF8357'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CBG)
DF8357'RECOVERED AS DESCRIBED

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

The NGS Data Sheet

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

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37

1 National Geodetic Survey, Retrieval Date = JULY 18, 2006

DF8356 *****

DF8356 DESIGNATION - KRR PC 20

DF8356 PID - DF8356

DF8356 STATE/COUNTY- FL/OKEECHOBEE

DF8356 USGS QUAD - BASINGER (1972)

DF8356

DF8356 *CURRENT SURVEY CONTROL

DF8356

DF8356* NAD 83(1986)- 27 25 29. (N) 081 06 03. (W) SCALED

DF8356* NAVD 88 - 14.919 (meters) 48.95 (feet) ADJUSTED

DF8356

DF8356 GEOID HEIGHT- -26.14 (meters) GEOID03

DF8356 DYNAMIC HT - 14.896 (meters) 48.87 (feet) COMP

DF8356 MODELED GRAV- 979,129.6 (mgal) NAVD 88

DF8356

DF8356 VERT ORDER - SECOND CLASS I

DF8356

DF8356.The horizontal coordinates were scaled from a topographic map and have

DF8356.an estimated accuracy of +/- 6 seconds.

DF8356

DF8356.The orthometric height was determined by differential leveling

DF8356.and adjusted by the National Geodetic Survey in May 2004..

DF8356

DF8356.The geoid height was determined by GEOID03.

DF8356

DF8356.The dynamic height is computed by dividing the NAVD 88

DF8356.geopotential number by the normal gravity value computed on the

DF8356.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

DF8356.degrees latitude (g = 980.6199 gals.).

DF8356

DF8356.The modeled gravity was interpolated from observed gravity values.

DF8356

DF8356; North East Units Estimated Accuracy

DF8356;SPC FL E - 342,470. 190,030. MT (+/- 180 meters Scaled)

DF8356

DF8356 SUPERSEDED SURVEY CONTROL

DF8356

DF8356.No superseded survey control is available for this station.

DF8356

DF8356_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML900334(NAD 83)

DF8356_MARKER: DD = SURVEY DISK

DF8356_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

DF8356_STAMPING: KRR PC-20 1997 JAX DIST

DF8356_MARK LOGO: USE

DF8356_PROJECTION: FLUSH

DF8356_MAGNETIC: N = NO MAGNETIC MATERIAL

DF8356_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

DF8356+STABILITY: SURFACE MOTION

DF8356_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DF8356+SATELLITE: SATELLITE OBSERVATIONS - October 05, 2001

DF8356

DF8356 HISTORY - Date Condition Report By

DF8356 HISTORY - 1997 MONUMENTED USE

DF8356 HISTORY - 20011005 GOOD FLDEP

DF8356

DF8356 STATION DESCRIPTION

DF8356

DF8356'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)

DF8356'THE MARK IS ABOUT 22.7 MI NORTHWEST OF OKEECHOBEE, 5.0 MI NORTHWEST OF

DF8356'BASINGER, ON

DF8356'NORTHWEST 160TH DRIVE, IN SECTION 14, TOWNSHIP 35 SOUTH, RANGE 32

DF8356'EAST.

DF8356'

DF8356'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 441 (PARROTT

DF8356'STREET) AND U.S.

DF8356'HIGHWAY 98 (STATE HIGHWAY 70, PARK STREET) IN OKEECHOBEE, GO WEST ON

DF8356'U.S. HIGHWAY 98

DATASHEETS

DF8356'(STATE HIGHWAY 70, PARK STREET) FOR 1.15 MI TO THE JUNCTION OF U.S.
DF8356'HIGHWAY 98 NORTH ON
DF8356'THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTHWESTERLY FOR 0.65
DF8356'MI TO THE
DF8356'RAILROAD TRACKS, CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 11.9 MI
DF8356'TO THE JUNCTION
DF8356'OF COUNTY ROAD 68 EAST ON THE RIGHT, CONTINUE NORTHWESTERLY ON U.S.
DF8356'HIGHWAY 98 FOR
DF8356'1.85 MI TO THE JUNCTION OF NORTHWEST 176TH AVENUE (COUNTY ROAD 700-A)
DF8356'ON THE RIGHT,
DF8356'CONTINUE NORTHWESTERLY ON U.S. HIGHWAY 98 FOR 1.7 MI TO THE JUNCTION
DF8356'OF NORTHWEST
DF8356'203RD AVENUE (MICCO BLUFF ROAD) ON THE RIGHT, TURN RIGHT ON NORTHWEST
DF8356'203RD AVENUE
DF8356'(MICCO BLUFF ROAD) AND GO NORTH-NORTHWESTERLY FOR 0.2 MI TO THE
DF8356'JUNCTION OF NORTHWEST
DF8356'160TH DRIVE (MICCO BLUFF ROAD, COUNTY ROAD 68), TURN LEFT ON NORTHWEST
DF8356'160TH DRIVE
DF8356'(MICCO BLUFF ROAD, COUNTY ROAD 68) AND GO WEST-NORTHWESTERLY FOR 4.9
DF8356'MI TO THE
DF8356'JUNCTION OF A DIRT ROAD ON THE LEFT LEADING SOUTH-SOUTHWEST AND THE
DF8356'MARK ON THE
DF8356'RIGHT, SET IN THE TOP OF A ROUND CONCRETE MONUMENT ENCASED IN A
DF8356'10-INCH PVC PIPE
DF8356'RECESSED 0.2 FT BELOW THE LEVEL OF THE GROUND AND BELOW THE LEVEL OF
DF8356'NORTHWEST 160TH
DF8356'DRIVE.
DF8356'
DF8356'LOCATED 69.0 FT NORTH OF AND ACROSS NORTHWEST 160TH DRIVE FROM POWER
DF8356'POLE NUMBER
DF8356'052S054 (ABC 5365,5366 CKT 2) WITH A TRANSFORMER NUMBER 934E50
DF8356'ATTACHED, 32.2 FT
DF8356'NORTH-NORTHEAST OF THE APPROXIMATE CENTERLINE OF NW 160TH DR, 20.8 FT
DF8356'WEST-NORTHWEST
DF8356'OF CABLE BOX NUMBER 116, 12.4 FT WEST OF THE APPROXIMATE CENTERLINE OF
DF8356'A FIELD ENTRANCE
DF8356'AND A METAL GATE, 5.0 FT SOUTHWEST OF A 4-INCH WOODEN POST WITH A
DF8356'U.S.E. SIGN ATTACHED,
DF8356'3.4 FT SOUTH-SOUTHWEST OF A BARBWIRE FENCE AND 3.0 FT SOUTH-SOUTHWEST
DF8356'OF A CARSONITE
DF8356'WITNESS POST.
DF8356'
DF8356'

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

-*- FIELD ABSTRACT -*-

060227-060227 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
ESTABLISH BENCH MARK NEAR MONITORING WELL LKBD5C

Table with columns: FROM TO, START, F/B, DIST TOTAL (KM), ELEV DIFF (MT), -(F+B) TOTAL (MM), MEAN DIFF FLD ELEV (MT), I C. Contains data for sections 0336 B 555, 0335 KRR PC 20, and 0334 LKBD5C.


- 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


Table with columns: INSTRUMENT CODE, INSTRUMENT, RODS. Shows instrument 1 with codes 243-332854 and 396-333, and rods 396-444.

LEVEL LINE SECTION RUNNING TREE

Table with columns: FROM TO, N. LATITUDE, W. LONGITUDE, FIELD DISTANCE VS. COMPUTED. Shows data for sections 0336, 0335, and 0334.

SECTION FROM TO ERROR MESSAGES

RIVAC 1		Elevation:	28.37 ft	(NAVD 88)	29.61 ft	(NGVD 29)
Bench Mark 1:	KR 1357		33.34 ft	(NAVD 88)	34.58 ft	(NGVD 29)
Bench Mark 2:	LKBD1B		32.33 ft	(NAVD 88)	33.57 ft	(NGVD 29)
Monitoring Well East:	RIVAC 1		31.78 ft	(NAVD 88)	33.02 ft	(NGVD 29)
Brass Disk on Conc. Pad:	RIVAC 1		28.93 ft	(NAVD 88)	30.17 ft	(NGVD 29)
Monitoring Well West:	RIVAC 1		31.71 ft	(NAVD 88)	32.95 ft	(NGVD 29)
Brass Disk on Conc. Pad:	RIVAC 1		28.81 ft	(NAVD 88)	30.05 ft	(NGVD 29)
Ground Elevation:	RIVAC 1		28.66 ft	(NAVD 88)	29.90 ft	(NGVD 29)
Length of Run:	4.72 km	To Reach RIVAC 1:				
Max Allowable Misclosure:	17 mm	FROM INTERSECTION OF US 98 HWY AND 144 TH TRAIL. GO SOUTH ON 144 TH TRAIL FOR 4.8 MILES TO NW 83 RD TRAIL. GO WEST ON NW 83 RD TRAIL FOR 0.2 MILE TO NW 80 TH DRIVE. GO NORTH ON NW 80 TH DRIVE FOR 1.2 MILES CURVING INTO A DEAD END. MARK WILL BE ON LEFT. 7.0 FEET NORTHWEST OF SOUTHWEST BALLARD POST, 10.0 FEET SOUTHWEST OF SOUTHWEST EDGE OF GREY PIPE OF NORTHERN WELL OF MONITORING WELL RIVAC 1, 44.4 FEET EAST OF CENTERLINE OF NW 80 TH DRIVE. SET MAGNET 1 FOOT NORTH OF MONUMENT.				
Actual Misclosure:	8 mm					
						

RIVAC 2		Elevation:	32.84 ft	(NAVD 88)	34.08 ft	(NGVD 29)
Bench Mark 1:	KR 1357		33.34 ft	(NAVD 88)	34.58 ft	(NGVD 29)
Bench Mark 2:	LKBD1B		32.33 ft	(NAVD 88)	33.57 ft	(NGVD 29)
Monitoring Well East:	RIVAC 2		36.08 ft	(NAVD 88)	37.31 ft	(NGVD 29)
Brass Disk on Conc. Pad:	RIVAC 2		33.38 ft	(NAVD 88)	34.61 ft	(NGVD 29)
Monitoring Well West:	RIVAC 2		36.03 ft	(NAVD 88)	37.26 ft	(NGVD 29)
Brass Disk on Conc. Pad:	RIVAC 2		33.39 ft	(NAVD 88)	34.62 ft	(NGVD 29)
Ground Elevation:	RIVAC 2		33.14 ft	(NAVD 88)	34.37 ft	(NGVD 29)
Length of Run:	4.72 km	To Reach RIVAC 2:				
Max Allowable Misclosure:	17 mm	FROM INTERSECTION OF US 98 HWY AND 144 TH TRAIL. GO SOUTH ON 144 TH TRAIL FOR 4.8 MILES TO NW 83 RD TRAIL. GO WEST ON NW 83 RD TRAIL FOR 0.2 MILE TO NW 80 TH DRIVE. GO SOUTH ON NW 80 TH DRIVE FOR +/- 125 FEET TO MARK ON LEFT. 56.6 FEET WEST OF CENTERLINE NW 80 TH DRIVE, 6.0 FEET SOUTH OF SOUTH EDGE OF GREY PIPE OF EASTERN WELL OF MONITORING WELL RIVAC 2, 4.5 FEET SOUTHWEST OF SOUTHEAST BALLARD POST. SET MAGNET 1 FOOT NORTH OF MONUMENT.				
Actual Misclosure:	8 mm					
						

RIVAC 1



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the well RIVAC 1 facing east

RIVAC 1



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Close-up of the north well showing the contractor's markings

RIVAC 1



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Close-up of the south well showing the contractor's markings

RIVAC 1



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Top View of north well's brass disk on concrete pad (Elevation on brass disk)

RIVAC 1



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Top View of south well's brass disk on concrete pad (Elevation on brass disk)

RIVAC 1



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the benchmark facing east

RIVAC 1



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: A top view of the benchmark

LK BD1B



Nick Miller, Inc.
Date of Photo: January 20, 2005
View: A top view of the benchmark



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION RIVAC 1 2006
SECTION 21	TOWNSHIP 36 SOUTH	RANGE 33 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/24/2006</u>	FIELD BOOK _____ 09 PAGE _____ 76	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 646,465 ft	N 1,089,445 ft
LATITUDE: N 27.33086°	LONGITUDE: W 81.02988°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 28.37 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 29.61 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND 144TH TRAIL. GO SOUTH ON 144TH TRAIL FOR 4.8 MILES TO NW 83RD TRAIL. GO WEST ON NW 83RD TRAIL FOR 0.2 MILE TO NW 80TH DRIVE. GO NORTH ON NW 80TH DRIVE FOR 1.2 MILES CURVING INTO A DEAD END. MARK WILL BE ON LEFT. 7.0 FEET NORTHWEST OF SOUTHWEST BALLARD POST, 10.0 FEET SOUTHWEST OF SOUTHWEST EDGE OF GREY PIPE OF NORTHERN WELL OF MONITORING WELL RIVAC 1, 44.4 FEET EAST OF CENTERLINE OF NW 80TH DRIVE. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: KR 1357 & LKBD1B</p> <p>Notable Land marks:</p>		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK FOR MONITORING WELL RIVAC 1

- SET PAURED-IN-PLACE CONCRETE MONUMENT WITH ~~BRASS DISK~~ ALUM. DISK
- SET MAGNET 1' NORTH OF CONCR. MONUMENT

- SET CONCR. MONUMENT 7.0' NW OF SW BALLARD POST
- " " " 10.0' SW OF SW EDGE OF GREY PIPE OF APPROXIMATE ROLL OF ALUM. RIVAC 1
- " " " 44.4' EAST OF E-NW CORNER DRIVE

STAMPING RIVAC 1
2006

COORDINATES ON MONITORING WELL RIVAC 1

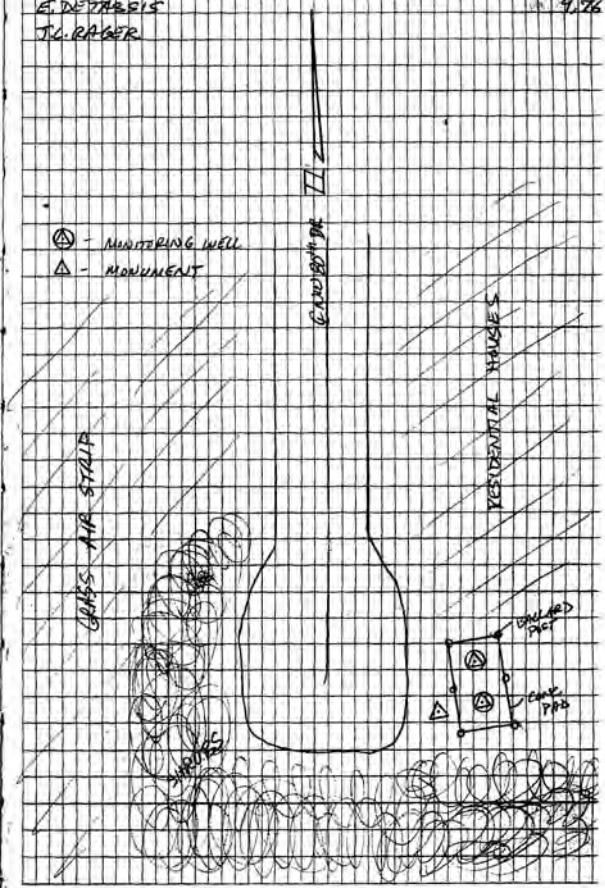
STATE PLANE 83 NGS 84
 N. 332065.71 m N. 27° 19' 51.16"
 E. 197041.89 m W. 081° 01' 47.61"

COORDINATES ON MONUMENT RIVAC 2

STATE PLANE 83 NGS 84
 N. 332063.36 m N. 27° 19' 51.09"
 E. 197042.80 m W. 081° 01' 47.58"

TICS
 2228 - TOP VIEW NORTH WELL 2228 - FACING S.M. EAST
 2229 - " " " 2229 - TOP VIEW RM
 2230 - TOP VIEW SOUTH WELL
 2251 - " " "
 2232 - FACING M.W. EAST

FRI. FEB. 24, 2006
 E. DETARIS
 J.L. RASER



The NGS Data Sheet

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

```

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.37
1 National Geodetic Survey, Retrieval Date = JULY 18, 2006
DF8391 *****
DF8391 DESIGNATION - KR 1357
DF8391 PID - DF8391
DF8391 STATE/COUNTY- FL/OKEECHOBEE
DF8391 USGS QUAD - FORT BASINGER (1972)
DF8391
DF8391 *CURRENT SURVEY CONTROL
DF8391
DF8391* NAD 83(1986)- 27 18 54. (N) 081 01 18. (W) SCALED
DF8391* NAVD 88 - 10.162 (meters) 33.34 (feet) ADJUSTED
DF8391
DF8391 GEOID HEIGHT- -26.23 (meters) GEOID03
DF8391 DYNAMIC HT - 10.146 (meters) 33.29 (feet) COMP
DF8391 MODELED GRAV- 979,112.7 (mgal) NAVD 88
DF8391
DF8391 VERT ORDER - SECOND CLASS I
DF8391
DF8391.The horizontal coordinates were scaled from a topographic map and have
DF8391.an estimated accuracy of +/- 6 seconds.
DF8391
DF8391.The orthometric height was determined by differential leveling
DF8391.and adjusted by the National Geodetic Survey in May 2004..
DF8391
DF8391.The geoid height was determined by GEOID03.
DF8391
DF8391.The dynamic height is computed by dividing the NAVD 88
DF8391.geopotential number by the normal gravity value computed on the
DF8391.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DF8391.degrees latitude (g = 980.6199 gals.).
DF8391
DF8391.The modeled gravity was interpolated from observed gravity values.
DF8391
DF8391; North East Units Estimated Accuracy
DF8391;SPC FL E - 330,310. 197,860. MT (+/- 180 meters Scaled)
DF8391
DF8391 SUPERSEDED SURVEY CONTROL
DF8391
DF8391.No superseded survey control is available for this station.
DF8391
DF8391_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML978213(NAD 83)
DF8391_MARKER: DD = SURVEY DISK
DF8391_SETTING: 36 = SET IN A MASSIVE STRUCTURE
DF8391_SP_SET: STRUCTURE WALL
DF8391_STAMPING: KR 1357 1979
DF8391_MARK LOGO: USE
DF8391_MAGNETIC: N = NO MAGNETIC MATERIAL
DF8391_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DF8391_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DF8391+SATELLITE: SATELLITE OBSERVATIONS - September 08, 2001
DF8391
DF8391 HISTORY - Date Condition Report By
DF8391 HISTORY - 1979 MONUMENTED USE
DF8391 HISTORY - 20010908 GOOD FLDEP
DF8391
DF8391 STATION DESCRIPTION
DF8391
DF8391'DESCRIBED BY FL DEPT OF ENV PRO 2001 (JLM)
DF8391'THE MARK IS ABOUT 19.0 MI SOUTHEAST OF LORIDA, 16.0 MI NORTHWEST OF
DF8391'OKEECHOBEE, 0.8 MI
DF8391'WEST OF THE KISSIMMEE RIVER, IN SECTION 27, TOWNSHIP 36 SOUTH, RANGE
DF8391'33 EAST.
DF8391'
DF8391'TO REACH THE MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S.
DF8391'HIGHWAY 98 FOR
DF8391'3.4 MI TO THE JUNCTION OF COUNTY ROAD 612 ON THE RIGHT, CONTINUE
DF8391'SOUTHEAST ON U.S.
DF8391'HIGHWAY 98 FOR 3.15 MI TO THE NORTH END OF THE BRIDGE OVER THE

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DATASHEETS

DF8391' ISTOKPOGA CANAL,
DF8391' CONTINUE SOUTHEAST ON U.S. HIGHWAY 98 FOR 7.25 MI TO THE JUNCTION OF
DF8391' COUNTY ROAD 721 ON
DF8391' THE RIGHT, TURN RIGHT ON COUNTY ROAD 721 AND GO SOUTH FOR 4.4 MI TO
DF8391' THE JUNCTION OF A
DF8391' BOAT RAMP ROAD ON THE LEFT, TURN LEFT ON THE BOAT RAMP ROAD AND GO
DF8391' EAST FOR 1.2 MI TO
DF8391' THE JUNCTION OF UNDERHILL ROAD ON THE LEFT, TURN LEFT ON UNDERHILL
DF8391' ROAD AND GO NORTH
DF8391' FOR 0.7 MI TO THE JUNCTION OF AN ACCESS ROAD TO STRUCTURE 65D, TURN
DF8391' RIGHT ON THE ACCESS
DF8391' ROAD TO STRUCTURE 65D AND GO EAST FOR 0.85 MI TO STRUCTURE 65D AND A
DF8391' LOCKED GATE,
DF8391' CONTINUE EAST ON THE ACCESS ROAD FOR 0.1 MI TO THE DEAD END OF THE
DF8391' ROAD AND AN FENCE
DF8391' ENCLOSING TO STRUCTURE 65D CONTROL DAM, BY FOOT WALK THROUGH THE
DF8391' STRUCTURE ABOUT
DF8391' 100.0 FT TO THE MARK, SET FLUSH IN THE EAST STRUCTURE WALL LEVEL WITH
DF8391' THE GROUND AND
DF8391' ABOUT LEVEL WITH ACCESS ROAD. THE MARK CAN ALSO BE REACHED FROM THE
DF8391' JUNCTION OF U.S.
DF8391' HIGHWAY 441 (PARROTT STREET) AND STATE ROAD 70 (PARK STREET) IN
DF8391' OKEECHOBEE, GO WEST ON
DF8391' STATE ROAD 70 (U.S. HIGHWAY 98, PARK STREET) FOR 1.15 MI TO THE
DF8391' JUNCTION OF U.S. HIGHWAY 98
DF8391' NORTH ON THE RIGHT, TURN RIGHT ON U.S. HIGHWAY 98 AND GO NORTH FOR
DF8391' 12.4 MI TO THE
DF8391' JUNCTION OF NORTHWEST 114TH TRAIL ON THE LEFT, TURN LEFT ON NORTHWEST
DF8391' 114TH TRAIL AND
DF8391' GO WEST FOR 4.85 MI TO THE END OF THE PAVEMENT, CONTINUE WEST ON THE
DF8391' SAND ROAD FOR 0.45
DF8391' MI TO THE DEAD END AND STRUCTURE 65D AND THE MARK.
DF8391'
DF8391' LOCATED 84.5 FT SOUTH OF THE SOUTHWEST CORNER OF THE STRUCTURE
DF8391' BUILDING (S 65D), 43.0 FT
DF8391' SOUTH OF A LIGHT POLE, 29.2 FT SOUTHWEST OF A FLAG POLE, 22.7 FT NORTH
DF8391' OF THE NORTHWEST
DF8391' CORNER OF THE STRUCTURE BUILDING (S 65D), 15.4 FT NORTH OF A LIGHT
DF8391' POLE, 15.0 FT WEST OF A
DF8391' 6-FOOT TALL CHAINLINK FENCE AND 2.3 FT WEST OF A 3-FOOT TALL CHAINLINK
DF8391' FENCE.
DF8391'
DF8391'

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



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY	OKEECHOBEE	PROJECT	Hydrology – UEC Floridian Wells	DESIGNATION	LKBD1B 2005
SECTION	15	TOWNSHIP	36 SOUTH	RANGE	33 EAST
GEOGRAPHIC INDEX OF QUAD					
Established by <u>Nick Miller Inc.</u> Recovered by			NAME OF QUADRANGLE FORT BASINGER		
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>1/20/2005</u>			FIELD BOOK <u>1</u> PAGE <u>60</u>		
HORIZONTAL DATUM: 1927 <input checked="" type="radio"/> 1983 Other _____ (circle one) ZONE <input checked="" type="radio"/> E or W					
VERTICAL DATUM: MSL 1929 <input checked="" type="radio"/> 1988 Other _____ (circle one)					
CONTROL ACCURACY: HORIZONTAL 1 2 3 <input checked="" type="radio"/> SUB-METER (circle one) VERTICAL 1 2 <input checked="" type="radio"/> 3					
STATE PLANE COORDINATES	E 649135ft	N 1090140ft	EL. 32.34 ft		
LATITUDE N 27.33278°			LONGITUDE W 81.02166°		
DESCRIPTION					
<p>To Reach: TO REACH MARK FROM THE JUNCTION OF US HIGHWAY 98 AND STATE ROAD 70 IN OKEECHOBEE, GO NORTH ON US HIGHWAY 98 FOR 11.8 MI (18.99 KM) TO 144th TRAIL, TURN LEFT ON 144th TRAIL AND GO SOUTHWESTERLY FOR 3.8 MI (6.12 KM) TO MARK ON THE RIGHT, SET IN TOP OF A ROUND CONCRETE MONUMENT 0.2 FT (6.1 CM) BELOW LEVEL OF THE GROUND. LOCATED 11 FT (3.35 M) NORTH OF LKBD1B MONITORING WELL, 11 FT WEST NORTHWEST OF SOLAR PANEL, 47.2 FT (14.39 M) SOUTHWEST OF WOODEN FENCE CORNER POST.</p>					
Notable Land marks:					



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1075 SEWMD

REC'D BENCHMARKS & SETTING
CONC. MONUMENTS

SET CONC. MONUMENT AT THE SITE OF MONITORING
WELL (1KB.D1B) REF. FB. 3-48
REF: PG. 33

LOCATION OF SET MONUMENT

- SET MONUMENT 11' NORTH OF MONITORING WELL (1KB.D1B)
- SET MONUMENT 11' WEST OF SOLAR PANEL
- SET MONUMENT 47.2' SW OF WOODEN FENCE CORNER

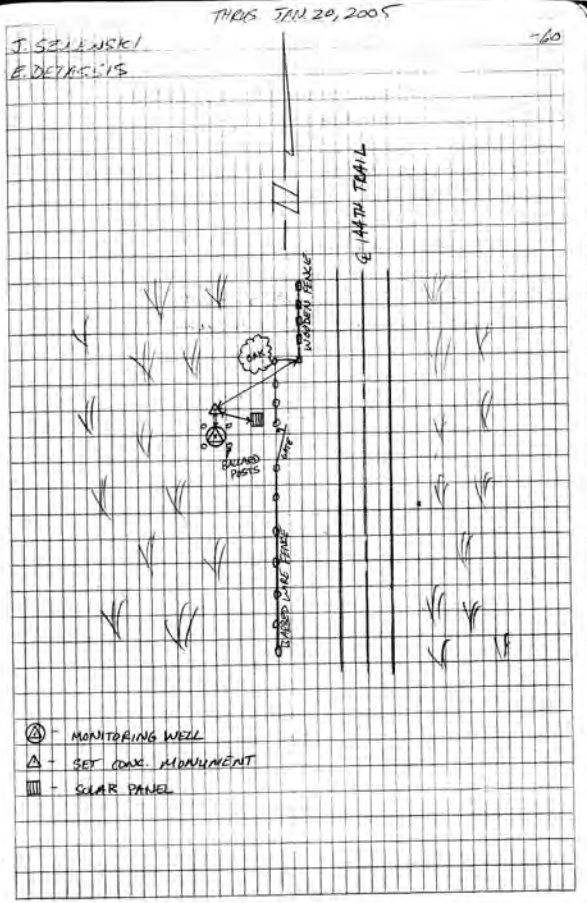
SET MAGNET 1' NORTH OF SET MONUMENT

COORDINATES ON SET MONUMENT
US STATE PLANE 83

METERS	US SURVEY FEET
N. 332275.455	N. 1090140.234
E. 192856.664	E. 649135.192

WBS 1884

METERS	US SURVEY FEET
W. N. 27° 19' 57" .996	N. 27° 19' 57" .995
W. 081° 01' 17" .959	W. 081° 01' 17" .962



-*- FIELD ABSTRACT -*-

060301-060301 HGZ L26807 8.0 MM ORDER 2 CLASS 2 PAGE 1
 SUTRON CORPORATION AND SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 HIGHLANDS AND OKEECHOBEE COUNTY MONITORING WELLS
 ESTABLISH BENCH MARK NEAR MONITORING WELL RIVAC1

FROM TO	START	F/B	DI ST TOTAL (KM)	ELEV DI FF (MT)	-(F+B) TOTAL (MM)	MEAN DI FF FLD ELEV (MT)	I C
0345 LKBD1B						9.85500	
0345 LKBD1B	3010900	F	2.01	0.31515 *	0.00	0.31515	1
0346 KR 1357			2.01		0.00	10.17015	
0346 KR 1357	3011115	F	1.09	-0.15876 *	-0.54	-0.15903	1
0340 RIVAC 2	3011630	B	1.08	0.15930 *			1
	SL 1		3.08		-0.54	10.01112	
0340 RIVAC 2	3011300	F	1.64	-1.36465 *	0.46	-1.36442	1
0343 RIVAC 1	3011500	B	1.67	1.36419 *			1
	SL 1		4.72		-0.08	8.64670♀	

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 - 111 396 - 222

LEVEL LINE SECTION RUNNING TREE

0345
 0346 (0340
 0343♀

FROM TO	N. LATITUDE	W. LONGITUDE	FIELD DISTANCE	VS. COMPUTED
0345	271958	0810118	0.00	0.00
0345 0346	271854	0810118	2.01	1.97
0346 0340	271910	0810130	1.08	0.59
0340 0343	271951	0810147	1.64	1.35♀

SECTION FROM TO ERROR MESSAGES

RIVAC 2



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Looking at the well RIVAC 2 facing north

RIVAC 2



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: Close-up of the east well showing the contractor's markings

RIVAC 2



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Close-up of the west well showing the contractor's markings

RIVAC 2



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Top View of east well's brass disk on concrete pad (Elevation on brass disk)

RIVAC 2



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Top View of west well's brass disk on concrete pad (Elevation on brass disk)

RIVAC 2



Nick Miller, Inc.

Date of Photo: February 24, 2006

View: Looking at the benchmark facing north

RIVAC 2



Nick Miller, Inc.
Date of Photo: February 24, 2006
View: A top view of the benchmark



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OKEECHOBEE	PROJECT Hydrology – Kissimmee River Wells	DESIGNATION RIVAC 2 2006
SECTION 22	TOWNSHIP 36 SOUTH	RANGE 33 EAST
GEOGRAPHIC INDEX OF QUAD		
Established by <u>Nick Miller Inc.</u> Recovered by	NAME OF QUADRANGLE FORT BASINGER	
SURVEYOR <u>Stephen M. Gordon</u> DATE <u>02/24/2006</u>	FIELD BOOK _____ 09 PAGE <u>75</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
STATE PLANE COORDINATES	E 648,033 ft	N 1,085,321 ft
LATITUDE: N 27.31952°	LONGITUDE: W 81.02505°	
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)	EL. 32.84 ft	
VERTICAL DATUM: MSL <u>1929</u> 1988 Other _____ (circle one)	EL. 34.08 ft	
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>SUB-METER</u> (circle one) VERTICAL 1 2 <u>3</u>		
DESCRIPTION		
<p>To Reach:</p> <p>FROM INTERSECTION OF US 98 HWY AND 144TH TRAIL. GO SOUTH ON 144TH TRAIL FOR 4.8 MILES TO NW 83RD TRAIL. GO WEST ON NW 83RD TRAIL FOR 0.2 MILE TO NW 80TH DRIVE. GO SOUTH ON NW 80TH DRIVE FOR +/- 125 FEET TO MARK ON LEFT. 56.6 FEET WEST OF CENTERLINE NW 80TH DRIVE, 6.0 FEET SOUTH OF SOUTH EDGE OF GREY PIPE OF EASTERN WELL OF MONITORING WELL RIVAC 2, 4.5 FEET SOUTHWEST OF SOUTHEAST BALLARD POST. SET MAGNET 1 FOOT NORTH OF MONUMENT.</p> <p>Benchmarks Used: KR 1357 & LKBD1B</p>		
Notable Land marks:		



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

SKETCH

1078.007 SET BENCHMARK FOR MONITORING WELL RIVAC 2 SFWMD

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONR. MONUMENT
- SET CONR. MONUMENT 56.6' WEST OF @ NEW 87th DRIVE
- " " " 6.0' SOUTH OF SOUTH EDGE OF GREY PIPE OF EXISTING M.W. RIVAC
- " " " 4.5' SW OF SET BALLARD POST

STAMPING RIVAC 2

COORDINATES ON MONITORING WELL RIVAC 2

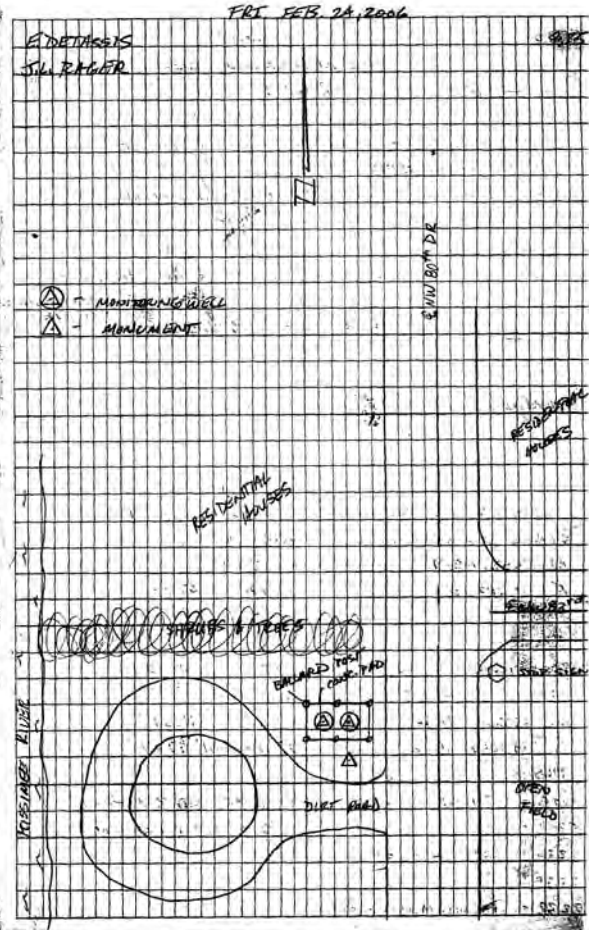
STATE PLANE 83 WGS 84
 N. 330867.854 m N. 27° 19' 10.30"
 E. 197517.766 m W. 081° 01' 30.28"

COORDINATES ON MONUMENT RIVAC 2

STATE PLANE 83 WGS 84
 N. 330866.572 m N. 27° 19' 10.26"
 E. 197520.998 m W. 081° 01' 30.17"

PICS

- 2221 - TOP VIEW WEST M.W. 2221 - FACING BM NORTH
- 2222 - " " " 2222 - TOP VIEW BM
- 2223 - TOP VIEW EAST M.W.
- 2224 - " " "
- 2225 - FACING M.W. NORTH



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 the SUTRON Corporation and is not assignable.

NICK MILLER, INC.
DBPR Authorization No. 4318

March 02, 2006

Date of Survey

By: _____

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

1078.007

RYTON BENCHMARKS
FOR MONITORING WELL
LEVELING

SFWMD

* REF: NGS DATASHEETS FOR LOCATION AND DESCRIPTION

- FND KR 1744 IN GOOD CONDITION } USE FOR M.W.
- FND Q553 " " " } LKBDIA
- T 75 NOT FND
- V 75 " "
- W 75 " "
- FND M553 IN GOOD CONDITION (FILL OUT NGS
REF. DATA SHEET)
- FND KRR DC 2 " " " " "
- FND X528 " " " "

- BAD COORDINATES COULD NOT LOCATE
ANY SFWMD MONITORING WELLS

MON. FEB. 20, 2006

E. DETASSE
J. L. PAGER

9, 69

107B.007

REGION BENCHMARK AND
MONITORING WELLS FOR
LEVELING

STWMD

* REF: NGS DATASHEETS FOR ^{BM} LOCATION AND DESCRIPTION

- FND MONITORING WELL LKBD1A → (SEE PAGE 69 FOR CONTROL)

- FND " " LKBD3C

- FND BM V554 IN GOOD CONDITION

- FND BM U554 " " "

- FND BM Z554 " " "

- FND BM KRR 20 PC " "

- FND MONITORING WELL LKBD5C

- FND BM KRR PC 21 IN GOOD CONDITION (?)

- FND BM B555 IN GOOD CONDITION

- FND MONITORING WELL LKBD3A

- FND BM KR 1746 IN GOOD CONDITION

- FND BM M.W. LKBC1B

- FND BM E463 IN GOOD CONDITION

- FND BM KR1486 " " "

- FND BM FCD1 " " "

- FND RIVAC 1 MONITORING WELL

- FND RIVAC 2 " "

- FND BM KR 1357 IN GOOD CONDITION

- FND BM KR 1626 GPS " "

TUES. FEB. 21, 2006

EIDATASSIS

J.L. RAGER

9.70

1078.007

RECON BENCHMARKS
AND MONITORING WELLS

SFWMP

- END MONITORING WELL LKBB3B
- FND KR 1604 IN GOOD CONDITION
- U556 BM IN GOOD CONDITION
- V556 BM " " "

HAD ACCESS PROBLEMS TO MONITORING
WELL LKBB3B. TRUCK #6 GOT STUCK ON
DIRT ROAD.

WED. FEB. 22, 2006

E. DETASSIS
J.L. RAGER

9, 71

107B.007

SET BENCHMARK
FOR MONITORING WELL

SFOUND

LKBD3C

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK.
- SET MAGNET 1' NORTH OF CONC. MONUMENT
- SET CONC. MONUMENT 6.3' EAST FROM EAST EDGE OF GRAY MONITORING WELL PIPE
- " " " 5.0' SE OF NE BALLARD POST
- " " " 5.0' NE OF SE BALLARD POST

STAMPING LKBD3C
2006

COORDINATES ON MONITORING WELL LKBD3C

STATE PLANE 83	WGS 84
N. 338203.296 m	N. 27°23'10.57"
E. 196527.964 m	W. 081°02'06.37"

COORDINATES ON BENCHMARK MONUMENT LKBD3C

STATE PLANE 83	WGS 84
N. 338202.961 m	N. 27°23'10.54"
E. 196530.548 m	W. 081°02'06.28"

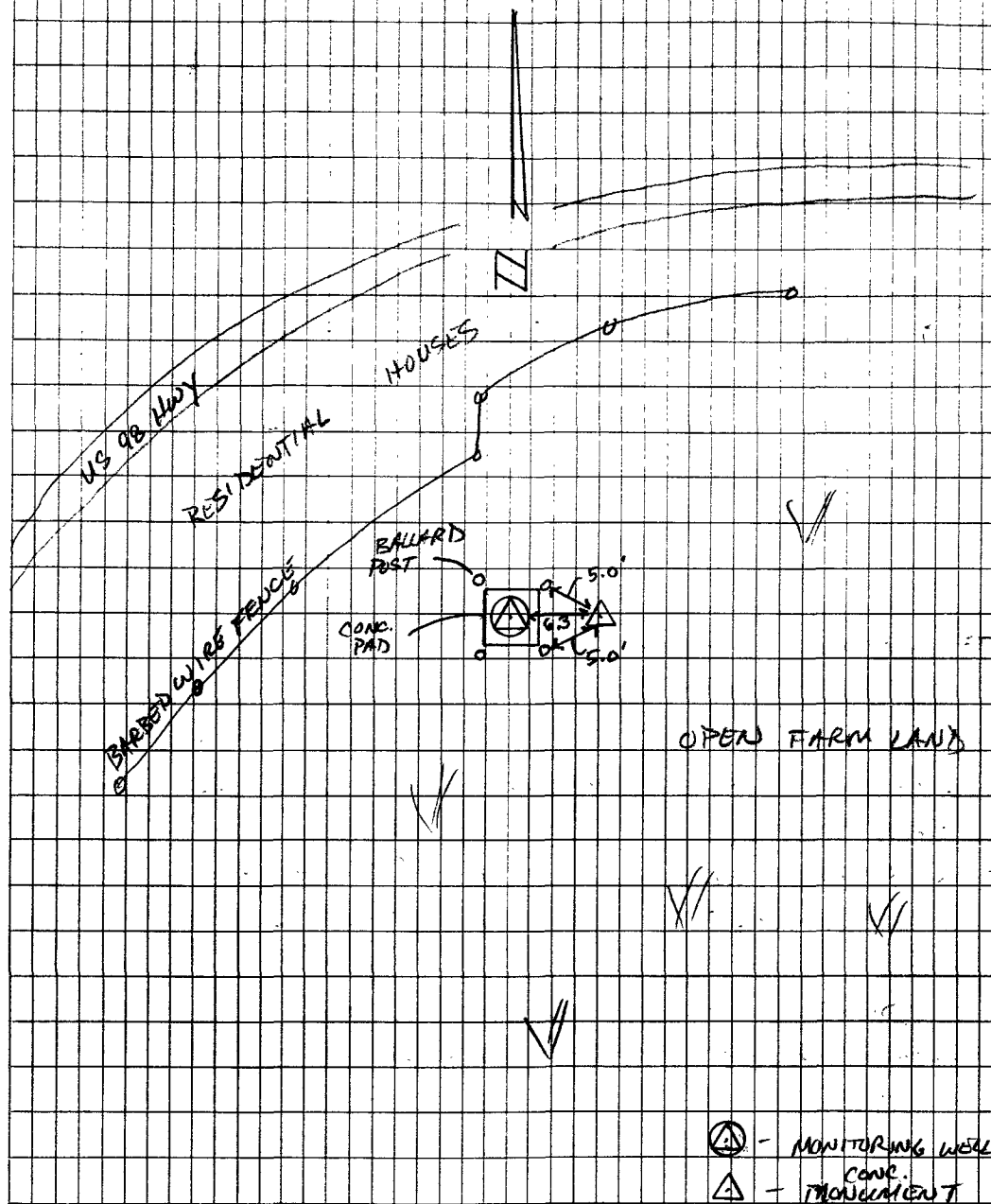
PICS

- 22 - TOP VIEW OF MW. - 2208
- 23 - N.W. FACING NORTHWEST - 2209
- 24 - TOP VIEW OF BM - 2216
- 28 - BM FACING NORTHWEST - 2215

THRU. FEB. 23, 2006

E. DETARIS
J.L. RAGER

9, 72



1078.007

SET BENCHMARK

SFWMD

FOR MONITORING WELL

LKBD5C

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT.

- SET CONC. MONUMENT 7.2 SOUTH OF BARBED WIRE FENCE
- " " " 6.45 NORTH OF NORTH EDGE OF M.W. LKBD5C
- " " " 20.5 EAST OF ♀ PAVED ROAD

STANDING LKBD5C
2006

COORDINATES ON MONITORING WELL LKBD5C

STATE PLANE 83

WGS 84

N. 340940.997 m

N. 27° 24' 39.38"

E. 189225.441 m

W. 081° 06' 32.25"

COORDINATES ON MONUMENT LKBD5C

STATE PLANE 83

WGS 84

N. 340942.235 m

N. 27° 24' 39.42"

E. 189227.144 m

W. 081° 06' 32.19"

PICS

24 - TOP VIEW M.W. - 2210

25 - M.W. FACING EAST - 2211

26 - B.M. FACING EAST - 9212

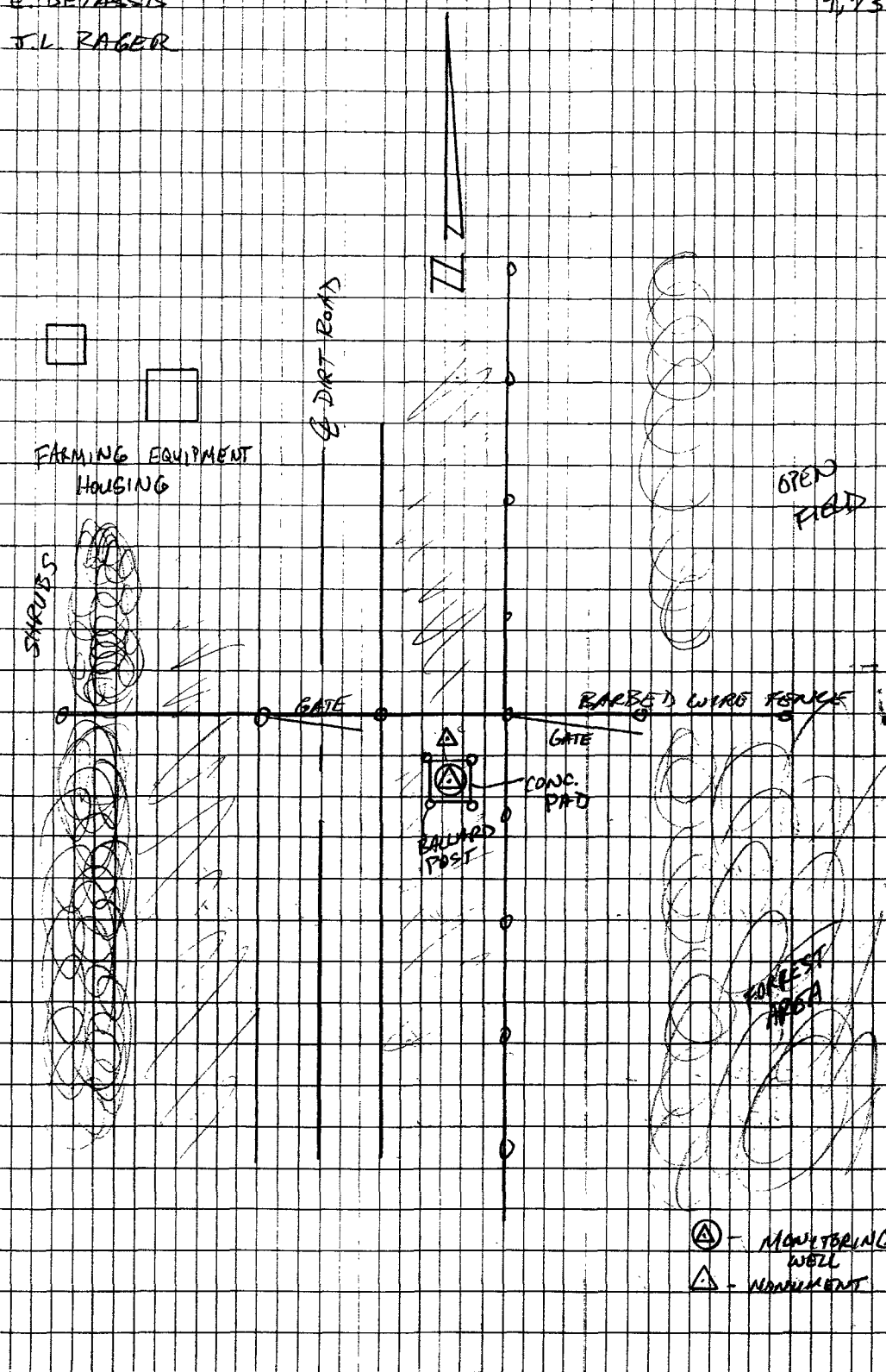
27 - B.M. TOP VIEW - 2213

THRU. FEB 23, 2006

E. DETASSIS

9,73

J.L. RAGER



107B.007

SET BENCHMARK
FOR MONITORING WELL
LKBD3A

SOUND

E. DETASSIS

J.L. RAGER

THRU. FEB. 23, 2006

9,74

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 5.7' ^{SOUTH} WEST OF NW BALLARD POST GREY PIPE
- " " " 7.3' WEST OF WEST EDGE OF MONITORING WELL LKBD3A
- " " " 5.4' NW OF SW BALLARD POST

STAMPING LKBD3A
2006

COORDINATES ON MONITORING WELL LKBD3A

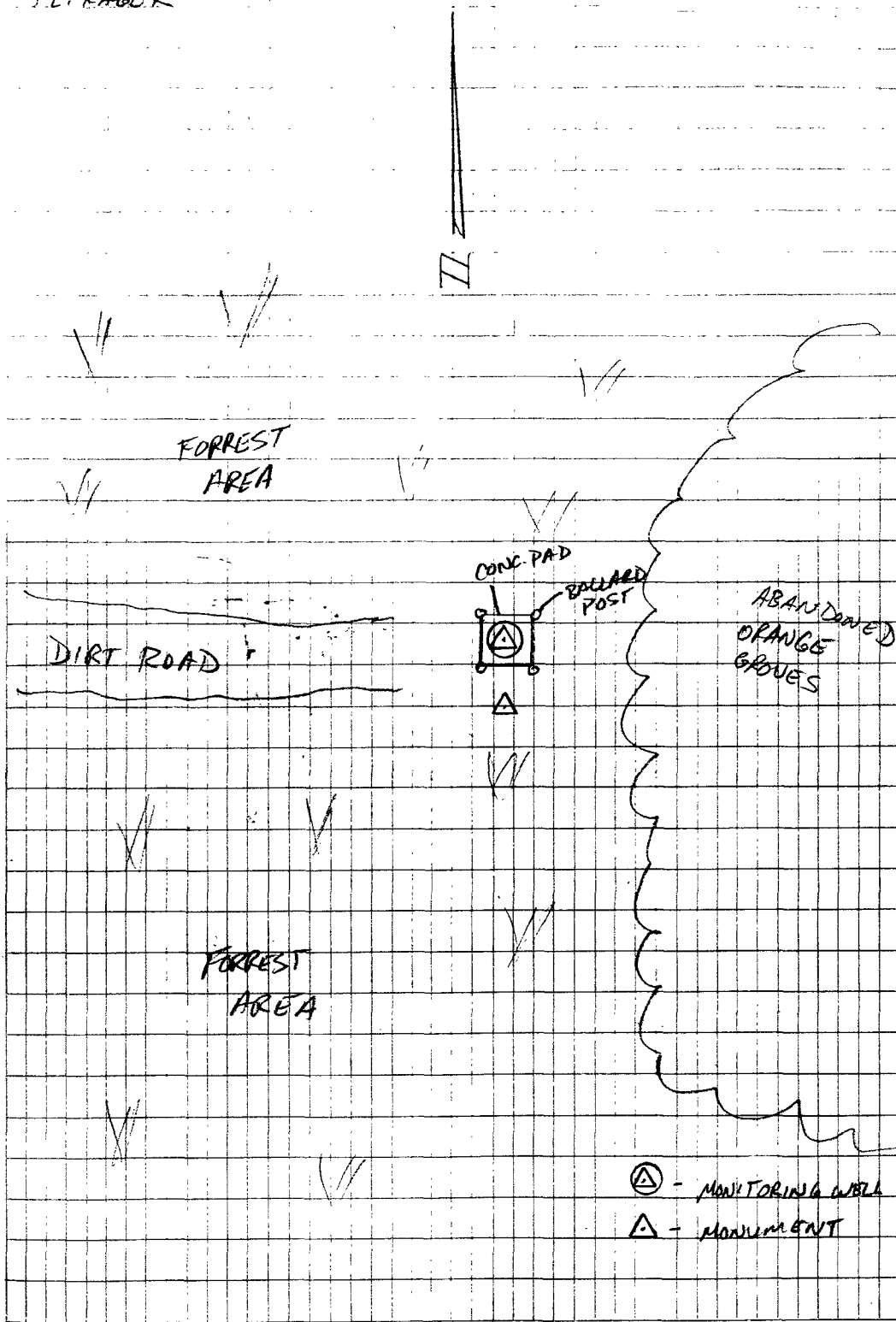
STATE PLANE 83	WGS 84
N. 335404.695 m	N. 27° 21' 39.63"
E. 195490.996 m	W. 081° 02' 44.08"

COORDINATES ON MONUMENT LKBD3A

STATE PLANE 83	WGS 84
N. 335404.642 m	N. 27° 21' 39.63"
E. 195489.121 m	W. 081° 02' 44.15"

PICS

- 26 TOP VIEW OF M.W. - 2217
- 27 M.W. FACING ~~WEST~~ ^{EAST} - 2218
- 28 TOP VIEW OF BM - 2219
- 33 BM FACING EAST - 2220



1078.007

SET BENCHMARK
FOR MONITORING WELL
RIVAC 2

SFUND

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH BRASS DISK
- SET MAGNET 1' NORTH OF CONE. MONUMENT

- SET CONE. MONUMENT 56.6' WEST OF E NW 87th DRIVE
- " " " 6.0' SOUTH OF SOUTH EDGE OF GUY PIPE OF EASTERN M.W. RIVAC
- " " " 4.5' SW OF SE BALLARD POST

STANDING RIVAC 2

COORDINATES ON MONITORING WELL RIVAC 2

STATE PLANE 83

UNGS 84

N. 330807.854 m

N. 27° 19' 10.30"

E. 197517.966 m

W. 081° 01' 30.28"

COORDINATES ON MONUMENT RIVAC 2

STATE PLANE 83

UNGS 84

N. 330806.572 m

N. 27° 19' 10.26"

E. 197520.948 m

W. 081° 01' 30.17"

PICS

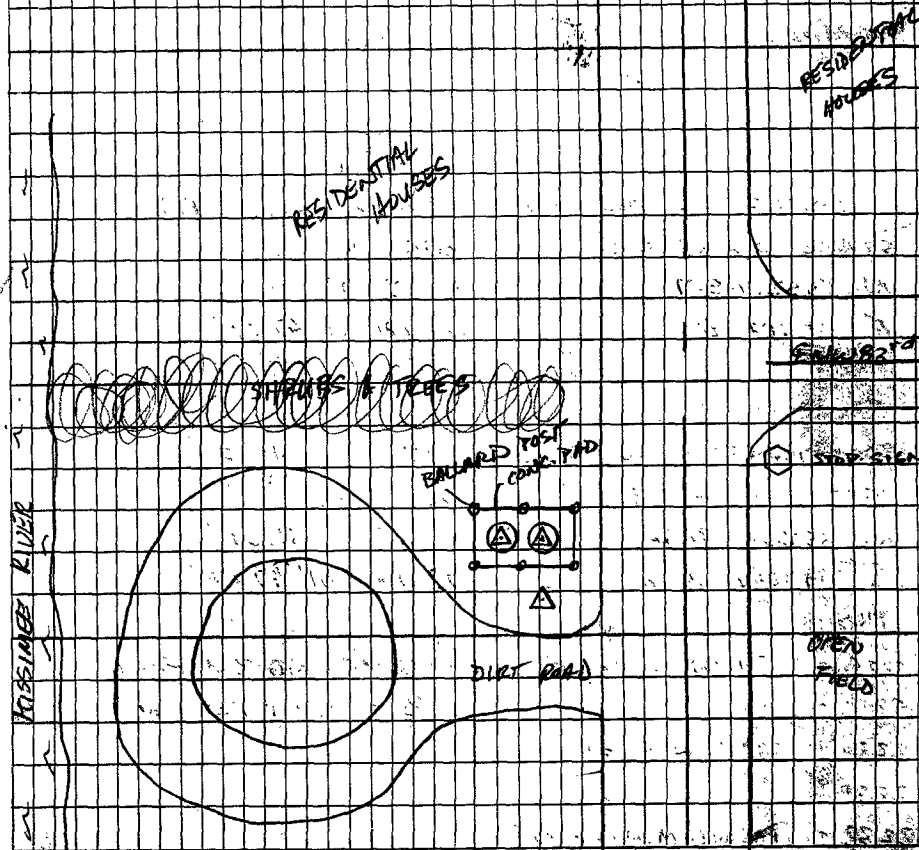
- 2221 - TOP VIEW WEST M.W.
- 2222 - " " "
- 2223 - TOP VIEW EAST M.W.
- 2224 - " " "
- 2225 - FACING M.W. NORTH
- 2226 - FACING RM NORTH
- 2227 - TOP VIEW RM

FRI FEB. 24, 2006

E. DETASSEIS

JULY RAGER

⊙ - MONITORING WELL
△ - MONUMENT



1078.007

SET BENCHMARK
FOR MONITORING WELL
RIVAC 1

SPUMD

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH ~~BRASS DISK~~ ALUM. DISK
- SET MAGNET 1' NORTH OF CONCR. MONUMENT

- SET CONCR. MONUMENT 7.0' NW OF SW BALLARD POST
- " " " 10.0' SW OF SW EDGE OF GREY PIPE ONE-NORTHERN LEVEL OF ALUM. RIVAC 1
- " " " 44.4' EAST OF $\frac{1}{2}$ NW 80th DRIVE

STAMPING RIVAC 1
2006

COORDINATES ON MONITORING WELL RIVAC 1

STATE PLANE 83

WGS 84

N. 332065.71 m

N. 27° 19' 51.16"

E. 197041.89 m

W. 091° 01' 47.61"

COORDINATES ON MONUMENT RIVAC 2

STATE PLANE 83

WGS 84

N. 332063.36 m

N. 27° 19' 51.09"

E. 197042.80 m

W. 091° 01' 47.58"

PICS

2228 - TOP VIEW NORTH WELL

2233 - FACING B.M. EAST

2229 - " " "

2246 - TOP VIEW BM

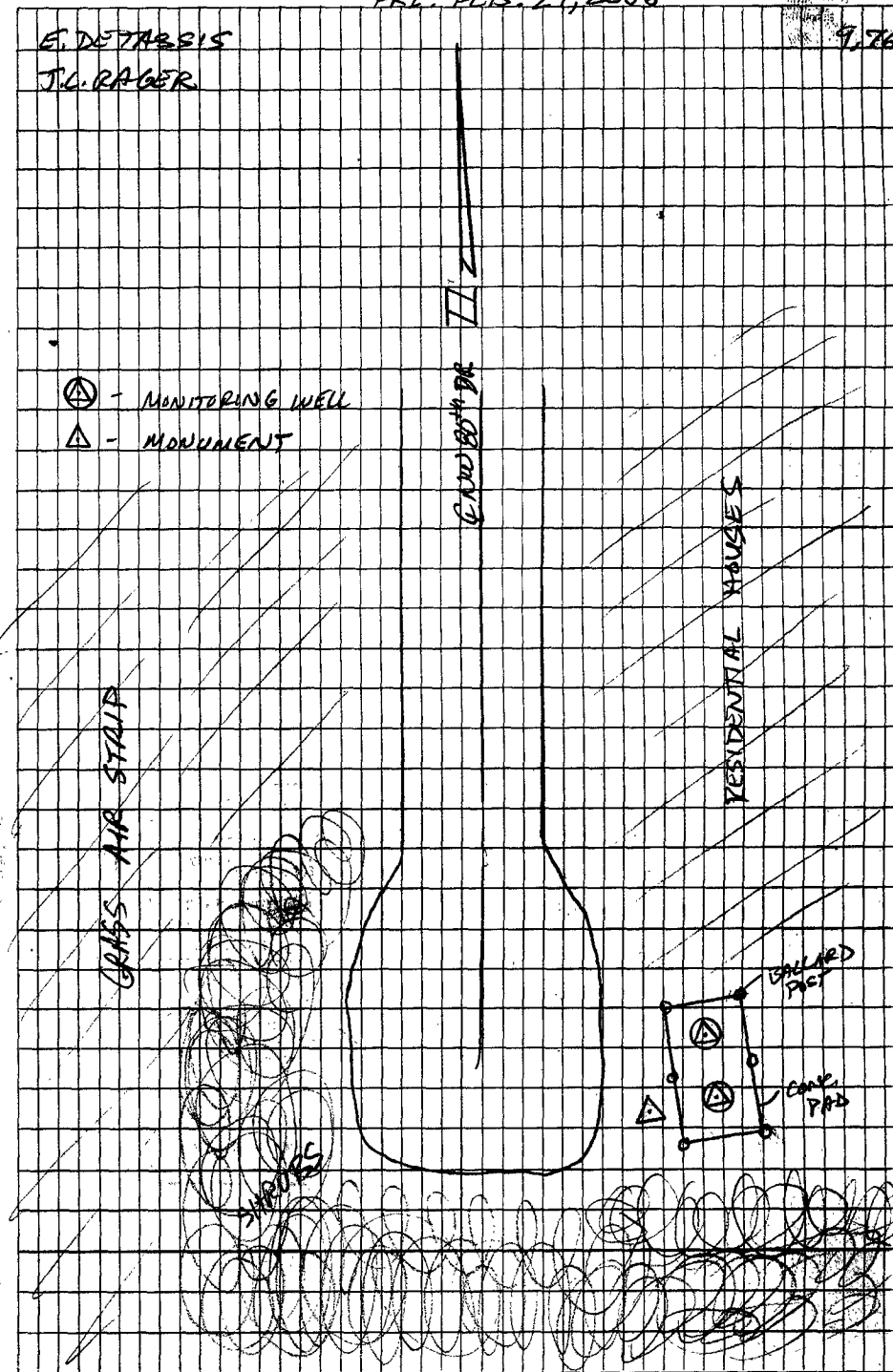
2230 - TOP VIEW SOUTH WELL

2231 - " " "

2232 - FACING M.W. EAST

FRI. FEB. 24, 2006

9.76

E. DETARIS
J.L. RAGER

1078.007

SET BENCHMARK

SFWMD

FOR MONITORING WELL

LKBB3B

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH ^{ALUM.} BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 3.7' SE OF SW BALLARD POST
- " " " 3.6' SOUTH OF SOUTH EDGE OF GREY PIPE OF WESTERN WELL OF M.W. LKBB3B
- " " " 10.0' SW OF ^{NW} SOUTHWEST CORNER OF GREY PIPE OF EASTERN WELL OF M.W. LKBB3B

STAMPING LKBB3B
2006

COORDINATES ON MONITORING WELL LKBB3B

STATE PLANE 83

WGS 84

N. 360327.356 m

N. 27° 35' 09." 16

E. 186800.017 m

W. 081° 08' 01." 31

COORDINATES ON MONUMENT LKBB3B

STATE PLANE 83

WGS 84

N. 360328.122 m

N. 27° 35' 09." 18

E. 186797.915 m

W. 081° 08' 01." 39

PKS

2234 - TOP VIEW EAST WELL

2239 - FACING BM SOUTH

2235 - " " "

2240 - TOP VIEW BM

2236 - TOP VIEW WEST WELL

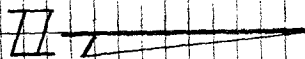
2237 - " " "

2238 - FACING MW FACING SOUTH

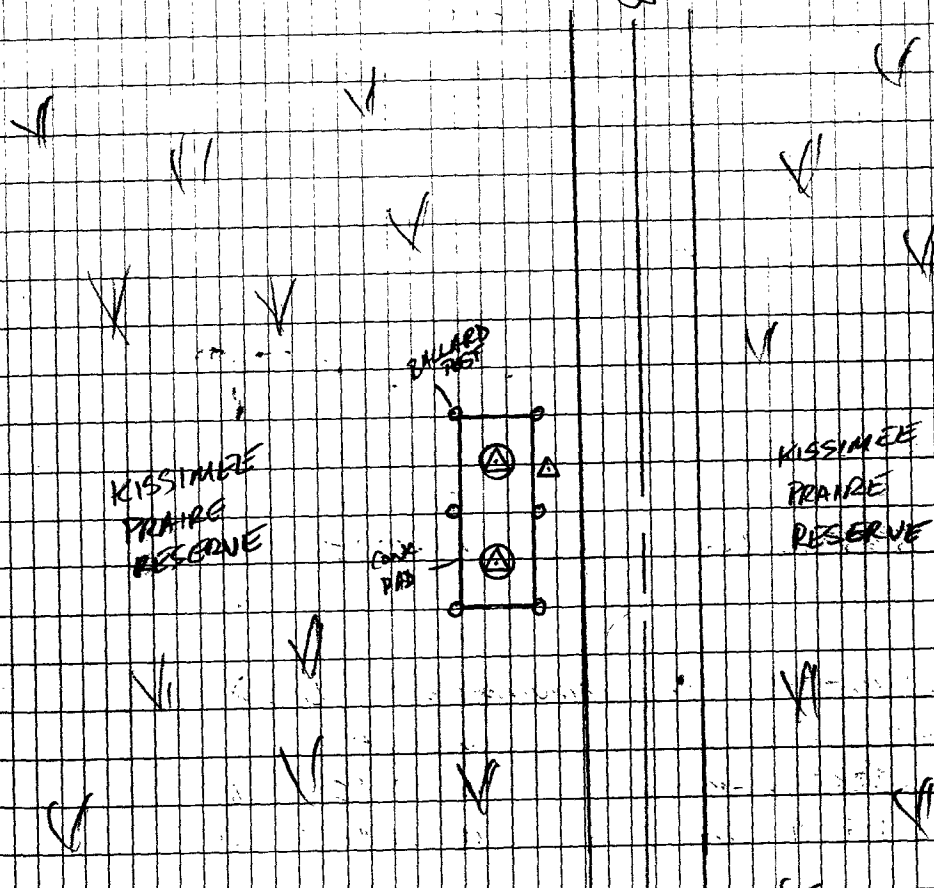
FRI FEB. 24, 2006

10,14
9,77

E. DETABEIS
J. L. RAGER



SEDUCT ROAD



- ⊙ - MONITORING WELL
- △ - MONUMENT

1078.007

SET BEACH MARK
FOR MONITORING WELL
LKBDIA

SFWMD

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH ALUM. BRASS DISK
- SET MAGNET 1' NORTH OF CONC. MONUMENT

- SET CONC. MONUMENT 52.40' SOUTH OF SOUTH RAIL OF TRAILS RAILROAD
- " " " 5.80' WEST OF WEST EDGE OF GREY PIPE OF M.W. LKBDIA
- " " " 22.20' FROM ^{NORTH} Q DIRT ROAD WHEELER ROAD

STAMPING LKBDIA
2006

COORDINATES ON MONITORING WELL LKBDIA
 STATE PLANE 83 WGS 84
 N. 333312.465 m N. 27° 20' 31.65"
 E. 195091.327 m W. 081° 02' 58.59"

COORDINATES ON MONUMENT LKBDIA
 STATE PLANE 83 WGS 84
 N. 333313.658 m N. 27° 20' 31.69"
 E. 195089.902 m W. 081° 02' 58.64"

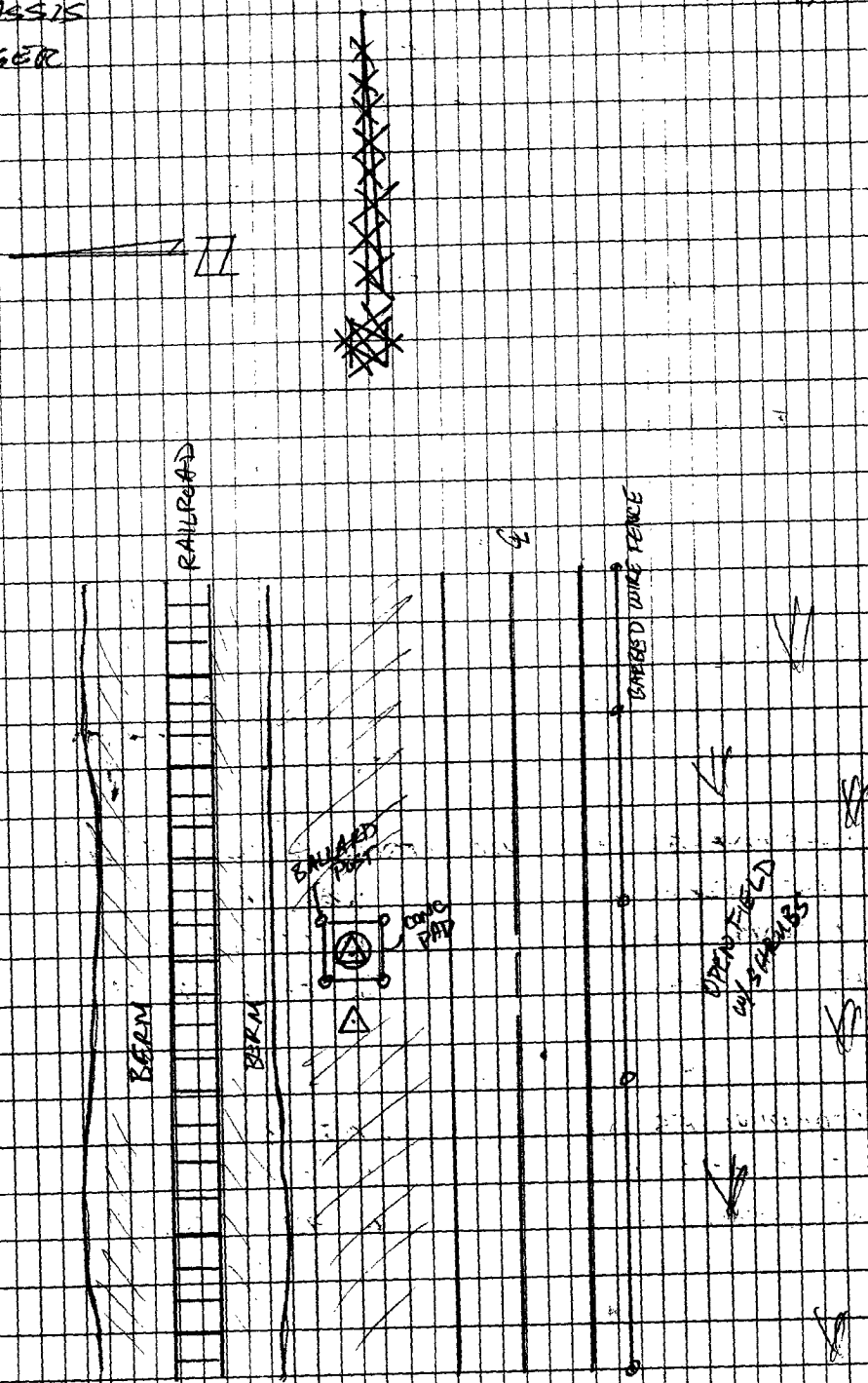
PICS

- 2241 - TOP VIEW OF M.W.
- 2242 - M.W. FACING SOUTH NORTH
- 2243 - B.M. FACING NORTH
- 2244 - TOP VIEW B.M.

FRI FEB. 24, 2006

10, 15
9, 77

E. DETASSIS
J.L. RAGER



1078.007

SET BENCHMARK
FOR MONITORING WELL
LKBC1B

SOUND

- SET POURED-IN-PLACE CONCRETE MONUMENT WITH ALUM. DISK.
- SET MAGNET 1' NORTH OF CONC. MONUMENT
- SET CONC. MONUMENT 6.0' SE OF SW BALLARD POST.
- " " " 5.4' SW OF SE BALLARD POST
- " " " 7.3' SW OF SW EDGE OF GREY PIPE OF MONITORING WELL LKBC1B

STAMPING LKBC1B
2006

COORDINATES ON MONITORING WELL LKBC1B

STATE PLANE 83

WGS 84

N. 340746.715m

N. 27° 24' 32.85"

E. 183289.694m

W. 081° 10' 08.34"

COORDINATES ON MONUMENT LKBC1B

STATE PLANE 83

WGS 84

N. 340746.319m

N. 27° 24' 32.84"

E. 183287.636m

W. 081° 10' 08.41"

PICS

2247 - TOP VIEW BM

2248 - " " MW

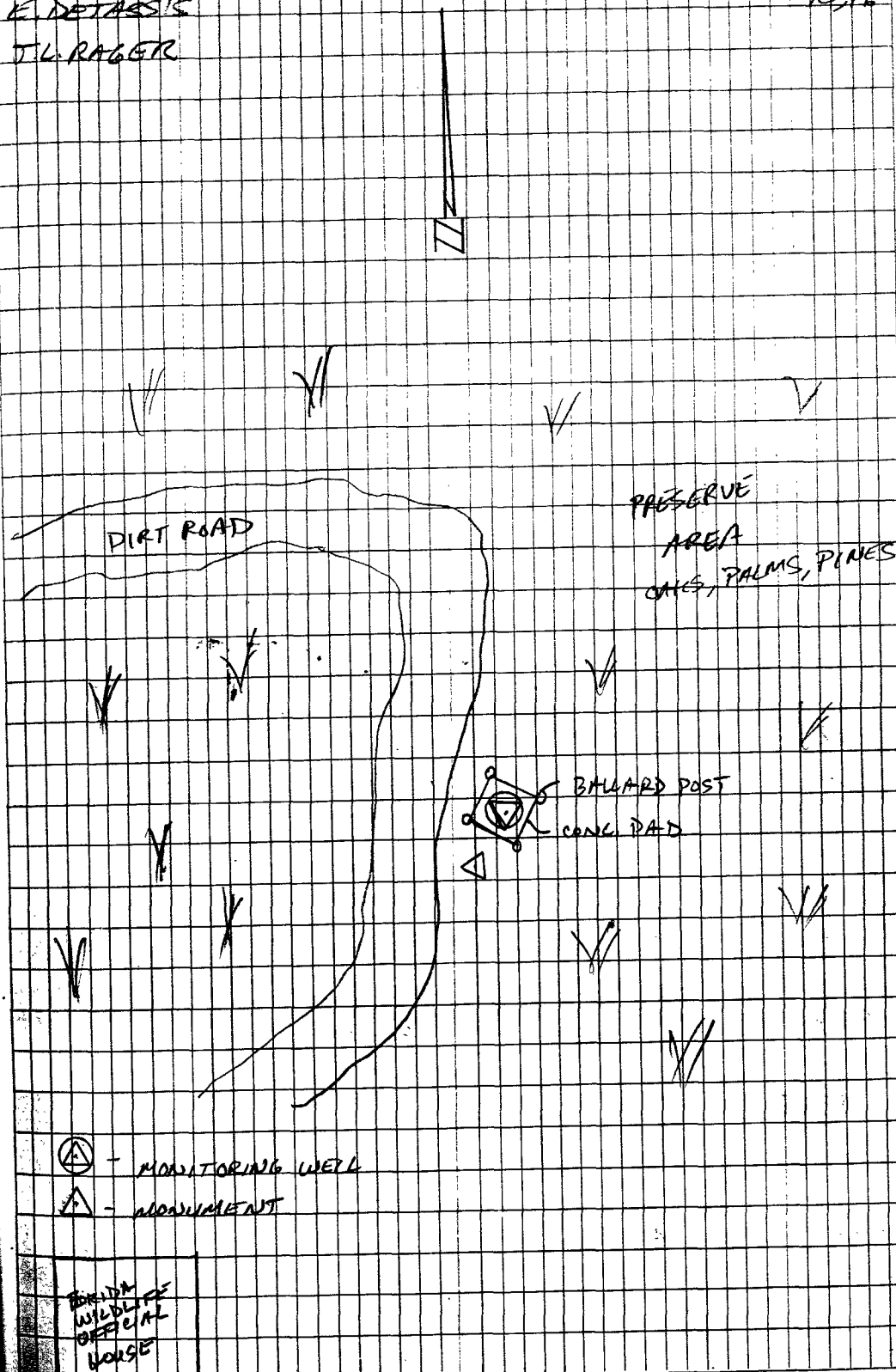
2249 - BM FACING NE

2250 - MW FACING SE

SAT. FEB. 25, 2006

10/16

E. DETASSIS
J.L. RAGGER



1078.007

LEVEL RUN FOR
LKBDPC MONITORING
WELL

SECOND

U554 → V554

	+	H.T.	-	EL.
	1.9540	A.T. 14.475		12.521 m
1	[67.5]		1.2485 [69.0]	13.2265
	1.4470	14.6735		
2	[67.1]		1.1264 [66.0]	13.5471
	1.2952	14.8423		
3	[68.6]		1.3459 [69.7]	13.4964
	1.3408	14.8372		
4	[67.0]		1.2540 [68.3]	13.5832
	1.2755	14.8587		
5	[66.6]		1.3654 [65.8]	13.4933
	1.4391	14.9324		
6	[68.6]		1.1625 [63.8]	13.7699
	1.2756	15.0455		
7	[66.3]		1.5280 [66.9]	13.5175
	0.9247	14.4422		
8	[66.1]		1.2023 [66.8]	13.2399
	0.7979	14.0378		
9	[18.4]		1.8428 [17.4]	12.195

MON. FEB. 27, 2006

EDITHA 15
B. RAGERTH
N. KARAN

10, 17

DESC

BM U554

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

"

"

"

"

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"

IRON ROD SET ± 25' NORTH E.P. US 98
↑
OF

1078.007 LEVEL RUN SFWMD
 CONT'D VSS4 → VSS4

	+	H.I.	-	EL.
	1.7474	13.9424		12.1822m
10	[11.8]		1.7602	12.1822m
			[12.4]	(12.182m)

LEVEL RUN
 VSS4 - LKBD3C

	+	H.I.	-	EL.
	2.2170	14.399		12.182m
11	[62.0]		1.8981	12.5009
	0.5154	13.0163	[61.6]	
12	[549.5]		1.7354	11.2809
			[49.5]	
	1.5682	12.8491		11.2809
13	[38.5]		2.0824	10.7667
			[39.2]	
	1.4310	12.1977		10.18
14	[53.0]		2.0177	10.18
			[51.8]	
	1.5041	11.6841		9.6788
15	[53.4]		2.0053	9.6788
			[51.9]	
	1.4506	11.1294		9.6630
16	[10.4]		1.4665	9.6630
			[12.8]	

MON. FEB. 27, 2006

10, 13

E. DETASSEK
 SGT. G. RAHARIE
 N. KHAN

DESC.

VSS4 SET I.R./C I 25' NORTH OF NORTH E.P. US 98
 BM VSS4

TOTAL DIST: 113 MM

TOLERANCE: 8.5 MM

DIFF: +0.0002 M (0.2 MM) ✓

DESC.

BM VSS4

DOUBLE HEADED NAIL ON NORTH EP OF US 98 HWY

" " " " " "

SET GOD NAIL ON WEST SIDE OF DIRT ROAD

" " " " " "

SET GOD NAIL ON SOUTH SIDE OF DIRT ROAD

" " " " " "

IRON ROD SET UP ON EAST SIDE OF DIRT HIGHWAY

" " " " " "

SET IRON ROD IN OPEN FIELD NEAR MONITORING WELL
 LKBD3C

" " " " " "

BM LKBD3C

TOTAL DIST: 533.60

1078.007

SFUND

LEVEL TO MONITORING WELL
LKBD3C

+	H.I.	-	EL.
4.97	20.97		16.00 (ASSUMED)
		4.78	16.19
		4.29	16.68
		0.36	20.61
0.64	21.25		
		4.58	16.67
		5.26	15.99

LEVEL RUN
LKBD3C → V554

+	H.I.	-	EL.
16532 [270]	11.3162		9.6630
		1.2076 [29.4]	16.1086
16787 18 [54.1]	11.7875		
		1.3387 [48]	10.4488
2.037A 19 [62.0]	12.4862		
		1.1922 [59.2]	11.294
1.6530 20 [66.1]	12.947		
		1.0536 [68.5]	11.8934
2.4400 21 [51.1]	14.3334		
		1.2019 [54.1]	13.1315

MON FEB 27, 2006

10, 19

E. DETASSIS

G. RAGER III

N. KHAJ

DESC.

BM LKBD3C

GROUND SHOT ± 1.5 FT SOUTH OF CONC. PAD

CONC. PAD SHOT ± 2.0 FT WEST OF MIN. ~~LKBD3C~~
LKBD3C

TOP OF WELL LKBD3C

" " "

CONC. PAD SHOT ± 2.0 FT WEST OF MIN.

BM LKBD3C

DESC.

BM LKBD3C

SET I.R. BY BARBED FENCE

" " " "

SET I.R. ON SOUTH SIDE OF DIRT ROAD

" " " "

SET I.R. ON EAST SIDE OF DIRT ROAD

" " " "

D.H. NAIL SET ON SOUTH EP. OF US 98

" " " "

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

1078.007

SPUMD

CONT'D LEVEL RUN
LKB23C → V554

+	H.I.	-	EL.
1.2982	14.4297		
22 249		2.2496	12.1812
		[27.5]	

LEVEL TO MONITORING
WELL LKB25C

+	H.I.	-	EL.
6.23	22.23		16.00 (ASSUMED)
		6.13	16.10
		5.63	16.60
		1.86	20.37
1.54	21.91		16.61
		5.30	16.01
		5.90	

MON, FEB. 27, 2006

10, 20

E. D. RETRANIS
NIP GRABER III
N. K. HAD

DESC.

D.M. NAIL SET ON NORTH EP OF US 98
BM V554

TOTAL DIST: 1.10 KM

TOLERANCE: 8.4 mm

DIFF: -0.8 mm ✓

DESC.

BM LKB25C

GROUND SHOT ± 2 FT NORTH OF CONC. PAD OF MON. LKB25C

CONC. PAD SHOT ± 2 FT WEST OF MON. LKB25C

TOP OF WELL LKB25C

" " "

CONC. PAD SHOT ± 2 FT WEST OF MON. LKB25C

BM LKB25C

1078.007

SFUND

LEVEL RUN FOR
MONITORING WELL
14BB3A
R461 → S461

+	H.I.	-	EL
1.6655	17.9535		16.288m
[68.5]		1.5597	16.3988
		[65.5]	
1.6033	18.0021		
[66.9]		1.1397	16.8624
		[68.3]	
1.5343	18.3967		
[63.2]		1.4061	16.9906
		[64.8]	
1.5204	18.511		
[68.5]		1.3939	17.1171
		[68.6]	
1.3350	18.4521		
[68.4]		1.4938	16.9583
		[68.4]	
1.4377	18.3960		
[64.9]		1.6020	16.794
		[64.7]	
1.3176	18.1116		
[64.6]		1.5671	16.5445
		[65.0]	
1.2130	17.7575		
[66.8]		1.7805	15.977
		[66.0]	
1.1892	17.1662		
[68.6]		2.1878	14.9784
		[68.6]	

TUES. FEB. 28, 2006

10, 21

E. DETASSIS
G. RAGER III
N. KHAN

DESC.
R461 BM

1078.007

LEVEL RUN QNT'D

SEWARD

B R461 → S461

MONITORING WELL LKBB3A

+	H.I.	-	EL.
1.1565	16.1349		14.1374m
<u>62.3</u>		1.9977	(14.141m)
		<u>65.2</u>	

LEVEL TO MONITORING WELL
LKBB3A

+	H.I.	-	EL.
6.69	22.69		16.00 (ASSUMED)
		1.88	20.81
2.12	22.93		16.00
		6.93	

+	H.I.	-	EL.
5.04	21.04		16.00
		4.76	16.28
		4.29	16.75
		0.90	20.14
1.15	21.29	1.15	16.75
		4.54	16.00
		5.29	

THES. FEB. 28, 2006

10, 22

E. DETAGSIS

G. RAGER III

N. KHAN

DESC.

BM S461

DESC.

BM S461

SET I.R. WEST OF GREY PIPE FOR MONITORING WELL LKBB3A

"

"

"

"

BM S461

DESC.

SET I.R. 27.35' WEST OF GREY PIPE FOR M.W. LKBB3A

GROUND SHOT ON WEST SIDE M.W. LKBB3A

BRASS DISK DRILLED IN CONC. PAD (0.80' WEST OF WELL)

TOP OF WELL LKBB3A

"

"

"

BRASS DISK DRILLED IN CONC. PAD (0.80' WEST OF WELL)

SET I.R. 27.35' WEST OF GREY PIPE FOR M.W. LKBB3A

1078.007

REC'D FOR
BENCHMARKS AND
MONITORING WELL LKRB3A

SFUMD

- FND R 461 IN GOOD CONDITION
- FND S 461 " " "

NO NEED TO SET MONUMENT NEAR MONITORING
WELL, NGS BENCHMARK S 461 ± 500 FT NORTH
OF MONITORING WELL. 2 SETUPS FROM WELL TO BENCHMARK.

* REF: NGS DATA SHEET FOR LOCATION, DESCRIPTION, AND COORDINATES
FOR BENCHMARK S 461.

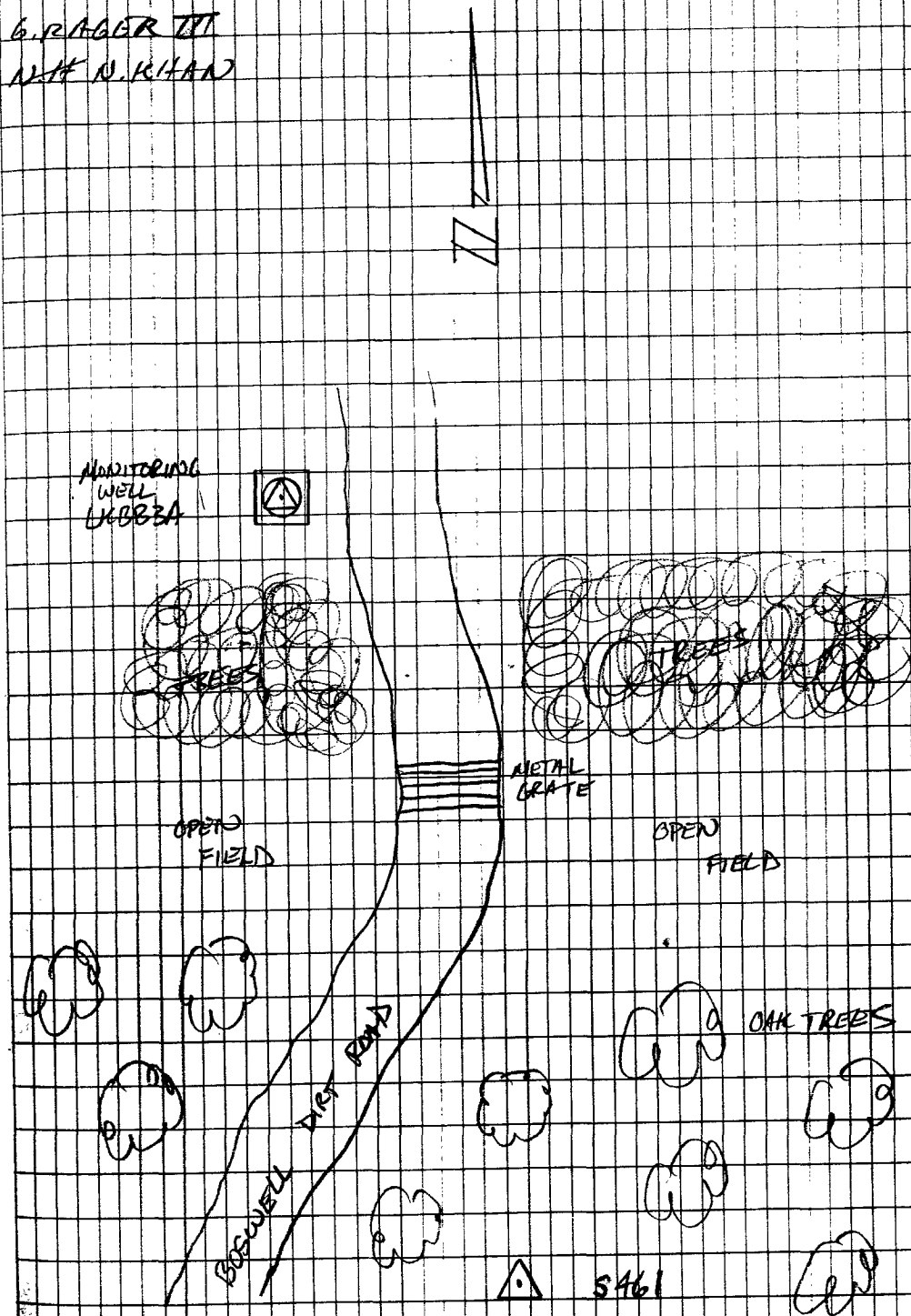
COORDINATES ON MONITORING WELL LKRB3A

STATE PLANE 83	WGS 84
N. $27^{\circ} 35' 46.5''$	N. $27^{\circ} 35' 46.5''$
E. 08	W. $081^{\circ} 09' 23.8''$

TUES. FEB. 28, 2006

10, 23

E. DETASSIS
G. RAGER III
W. N. KIHAN



1078.007

SOUND

LEVEL TO MONITORING
WELL LKBC1B

<u>T</u>	<u>H.I.</u>	<u>I</u>	<u>EL.</u>
5.35	21.35		16.00 (ASSUMED)
		4.99	16.36
		4.65	16.70
		1.515	19.835
21.19	21.025		
		4.325	16.70
		5.02	16.005

TUES, FEB, 28, 2006

10,24

E. DETASSIS
G. RABER III
M. KHAN

DESC.

LKBC1B BM
 GROUND SHOT ± 2.0 SOUTH OF CONC. PAD
 CONC. PAD SHOT 1.0' WEST OF M.W. LKBC1B
 TOP OF WELL LKBC1B
 " " "
 CONC. PAD SHOT 1.0' WEST OF M.W. LKBC1B
 LKBC1B BM

1078.007

LEVEL RUN FOR
MONITORING WELL RIVAC 1
KR 1357 → RIVAC 2

	+	H.T.	-	EL
	1.4076	11.5696		10.162m
17	[63.0]		1.3932	10.1764
			[59.8]	
	1.3710	11.5474		
18	[66.2]		1.5695	9.9779
			[63.1]	
	1.4556	11.4335		
19	[65.9]		1.4813	9.9522
			[69.0]	
	1.5422	11.4944		
20	[65.8]		1.5619	9.9325
			[69.1]	
	1.6026	11.5351		
21	[69.9]		1.4708	10.0643
			[68.8]	
	0.6359	10.7002		
22	[46.2]		1.6782	9.022
			[45.0]	
	1.6550	10.677		
23	[65.3]		0.7472	9.9298
			[65.6]	
	1.9098	11.8396		
24	[69.7]		1.7739	10.0657
			[69.8]	
	1.6729	11.7386		
25	[15.6]		1.7715	9.9671
			[15.7]	
26	[VTTIF]	CODE 22	KR353	H.7022
			[15.7]	

WED. FEB. MARCH 1, 2006

E. DETASSIS
GRABER III
N. KHAN

10, 27

DESC.

BM KR 1357

SET DOUBLE HEADED NAIL ON WEST EP OF 144th TRAIL.

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

SET DOUBLE HEADED NAIL ON SOUTH EP NOW 83TR.

" " " "

" " " "

" " " "

" " " "

" " " "

SET GOD NAIL IN GRAVEL LOT

1078.007

LEVEL RUN
RIVAC 2 → KR1357

SFMMD

	+	H.I.	-	BL
	1.8554	11.5585		10.0031 M
56 [19]			1.2099 [19]	10.6486
	1.2474	11.896		
57 [65]			1.7796 [65]	10.1164
	0.7183	10.8347		
58 [67]			1.7350 [68]	9.0997
	1.6673	10.767		
59 [61]			0.6623 [58]	10.1049
	1.2231			
60 [67]			1.4841 [66]	
	1.4342	11.5389		
61 [67]			1.4867 [66]	10.0522
	1.4800	11.5322		
62 [68]			1.5825 [68]	9.9497
	1.4590	11.4087		
63 [68]			1.3647 [69]	10.044
	1.5480	11.592		
64 [69]			1.4473 [69]	10.1447

WED. MARCH 1, 2006

E. DETASSIS

10,32

G. RAGER III

M. KHAN

DESC

BM RIVAC 2

SET DOUBLE HEADED ON EAST EP OF NW 80 DR

" " " "

SET DOUBLE HEADED ON SOUTH EP OF NW 83 TR

" " " "

" " " "

" " " "

SET 60D ON WEST SIDE OF 144th TRAIL

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

LEVEL RUN

1078.007

SFwmd

RIVAC 2 → KR 1357

+	H.I.	-	FL
1.5029 [35]	11.6476	1.5406 [38]	10.107
1.5225 [17]	11.6295	1.4671 [15]	10.1624 m

E. DETASSIS

WED. MAR. 1, 2006

G. RAGER III

10.33

N. KHAN

DESC

D.H. NAIL SET IN CODE, PARKING LOT

KR 1357 (10.162)

TOTAL DIST: 1.071 KM
TOLERANCE: 8.28 mm
DIFF: 0.4 mm

1078.007

LEVEL TO MONITORING
WELL RIVAC 2

(SFUMED)

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>EL.</u>
5.09	21.09		16.00 (ASSUMED)
		4.80	16.29
		4.56	16.53
		1.86	19.23
		4.55	16.54
		1.91	19.18
1.66	20.84		
		4.30	16.54
		1.61	19.23
		4.31	16.53
		4.84	16.00

LEVEL TO MONITORING WELL RIVAC 1

<u>+</u>	<u>H.I.</u>	<u>-</u>	<u>EL.</u>
5.875	21.875		16.00 (ASSUMED)
		5.58	16.295
		5.315	16.56
		2.46	19.215
		5.43	16.445
		2.53	19.345
2.75	22.095		
		5.65	16.445
		2.68	19.415
		5.54	16.555
		6.095	16.00

THRU. MARCH 2, 2006

10,34

E. DETASSIS
G. RAGER III
N. KHANDESC

BM RIVAC 2
GROUND SIGHT
CONC. PAD DISK ^{EAST} WEST WELL
TOP OF EAST WELL
CONC. PAD DISK WEST WELL
TOP OF WEST WELL
" " "
CONC. PAD ~~SIGHT~~ DISK WEST WELL
TOP OF EAST WELL
CONC. PAD DISK EAST WELL
BM RIVAC 2

DESC

BM RIVAC 1
GROUND SIGHT
CONC. PAD DISK EAST WELL
TOP OF WEST OF EAST WELL
CONC. PAD DISK WEST WELL
TOP OF WEST WELL
" " "
CONC. PAD DISK WEST WELL
TOP OF EAST WELL
CONC. PAD DISK EAST WELL
BM RIVAC 1

1078.007

LEVEL TO MONITORING
WELL LKBD3A (SFUMI)

+	H.I.	-	EL.
5.27	21.27		16.00 (ASSUMED)
		5.03	16.24
		4.55	16.72
		0.565	20.705
0.805	21.51		
		4.80	16.71
		5.51	16.00

LEVEL TO MONITORING WELL LKBD1A

+	H.I.	-	EL.
5.67	21.67		16.00 (ASSUMED)
		5.46	16.21
		5.05	16.62
		1.09	20.58
1.295	21.875		
		5.25	16.625
		5.87	16.005

THRU, MARCH 2, 2006

10, 35

EDRASSIS
G. RAGER III
N. KHAN

DESC.

BM LKBD3A
GROUND SHOT
CONC. PAD WEST EDGE
TOP OF WELL
" " "
CONC. PAD WEST EDGE
BM LKBD3A

DESC.

BM LKBD1A
GROUNDS GROUND SHOT
CONC. PAD SOUTH EDGE
TOP OF WELL
" "
CONC. PAD SOUTH EDGE
BM LKBD1A

1078.007

SPUMD

LEVEL RUN CONT'D

11556 → 11883B

	+	H.I.	-	FL
	1.4928	13.6213		15.4815m
10	422	16.9757	1.4942	15.4815m
			48.5	

THRU MARCH 2, 2006

10,37

F. DETASSIS

G. RAGER III

M. KHAN

DESC

WOOD NAIL SET ON SOUTH SIDE OF GRASS TRAIL
11883B B.M.

1078.007

LEVEL RUN FOR MONITORING
WELL LKBB313
U556 → V556

SOUND

+	H.I.	-	EL.
1.3450	15.059		13.714 m
[68.77]		1.7083	13.3507
		[68.69]	
1.0622	14.412		
[69.23]		1.5021	12.9108
		69.33	
1.5658	14.4766		
[69.77]		1.5178	12.9588
		69.75	
1.3241	14.2829		
[69.88]		1.6936	12.5893
		69.62	
2.4705	15.0598		
[67.99]		1.1786	13.8812
		68.20	
1.9086	15.7898		
[69.07]		1.0650	14.7248
		68.84	
1.7762			
1.8312	16.501		
[53.22]		1.0209	15.9801
51.05		52.15	
1.0884	16.5685		
[4.17]		1.4095	
		3.93	15.1589 m
			(15.165 m)

THRU. MARCH 2, 2006

10,38

J. CAMPBELL A
G. RAGER III
J. L. RAGER

DESC.

BM U556

I.R. SETON SIDE OF DIRT RD.

" " "

" " "

" " "

" " "

" " "

" " "

V556

TOTAL DIST. 0.94044 KM

TOL. 7.7 mm

DIFF. 6.1 mm ✓

BENCH RUN

1078.007

B555 → KRRPC20 CONT.

+	HI	-	ELEV.
1.3439 68.67	16.4113	1.3408 68.34	15.0705
1.3477 68.23	16.4182	1.3354 68.43	15.0828
1.4654 13.86	16.5482	1.6298 14.06	14.9184 m

J. SZULCWSKI

2-27-06

J. L. PAGER

11, 2

J. CAMPBELL

DESC.

SET 60 D. NAIL ON S. SIDE OF

'' '' '' ''

KRRPC20

14.919

DIFF: 0.6 mm

TOTAL DIST. 1.54268 KM

TOLERANCE: 9.94 mm

BENCH RUN

1078.007

SFWMD

KRRPC20 → LKBD 5C CONT.

	+	HI	-	ELEV.
10	1.3556 67.86	16.3284	2.1080 67.33	14.2204
11	0.7772 68.78	14.9976	1.7031 68.57	13.2945
12	1.1622 69.00	14.4567	1.5976 69.48	12.8591
13	1.3039 44.72	14.163	1.4033 44.01	12.7597
14	1.2425 7.92	14.0622	1.6729 10.13	12.3293 m
15				
16				

J. SZULEWSKI

2-27-06

T.L. RAGER

11, 4

J. CAMPBELL

DESC.

600. NAIL SET ON EAST SIDE OF DIRT RD.

" " " "

" " " "

" " " "

LKBD 5C

TOTAL DIST. 1.75306 KM

TOLERANCE: 10.59 mm

BENCH RUN

1078.007

SFWMD

LKBDSC → KRRPC 20

+	HI	-	FLEV
1.9572			12,3293 M
67.67	14.2865	1.3457	
		67.36	12.9408
1.7622			
69.32	14.703	1.1686	
		69.38	13.5344
1.8732			
67.59	15.4076	0.6621	
		67.89	14.7455
1.6816			
69.10	16.4271	1.4897	
		68.51	14.9374
1.5884			
68.59	16.5258	1.4472	
		68.84	15.0786
1.5035			
68.31	16.5821	1.4462	
		68.53	15.1359
1.5024			
67.66	16.6383	1.4661	
		67.85	15.1722
1.5666			
67.91	16.7388	1.5421	
		68.32	15.1967
1.5987			
68.22	16.7954	1.5116	
		68.16	15.2838

J. SZULCOWSKI

2-27-06

J. L. RAGER

11, 9

J. CAMPBELL

DESC

LKBDSC MON.

60 D NAVIG SET ON EAST SIDE OF PAVED ACCESS RD.

"

"

"

"

"

"

"

"

"

"

"

"

"

"

1078.007

SFWMD

LKB25C → KRR PC 20 (CONT.)

<u>+</u>	<u>HI</u>	<u>-</u>	<u>ELEV</u>
----------	-----------	----------	-------------

1.5177			
68.06	16.8015	1.4604	
		68.37	15.3411

1.5425			
69.02	16.8836	1.5640	
		68.87	15.3196

1.4093			
67.84	16.7289	1.6214	
		67.57	15.1075

1.4397			
45.21	16.5474	1.4261	
		42.03	15.1213

1.3494			
14.11	16.4707	1.5467	
		12.93	14.924 m

J.L. RAGER

11, 6

J. SZULEWSKI

DESC

GOD NAIL SET ON EAST SIDE OF PAVED ACCESS RD.

"

"

"

"

KRR PC 20 (14.919)

TOTAL DIST: 125324m

Tolerance: 10.59mm

DEF: 510mm

BENCH RUN

SOUND

1078.007

KR 1486 → E463

+	HI	-	ELEV.
1.5357			
69.50	14.9996	1.5546	
		69.24	13.445
1.3612			
21.29	15.0062	1.4934	
		22.11	13.5128
1.4414			
21.48	14.9542	1.9937	
		22.44	12.9605 m

J. SZULKOWSKI

2-28-06

J. L. RAGER
J. CAMPBELL

11, 8

DESC.

SET BH. NAIL ON NORTH SIDE OF S.R. 98

"

"

"

"

BM E463 (12.956)

TOTAL DIST: 145355 Km

TOLERANCE: 9.65 mm

DIFF: 4.6 mm

BENCH RUN

1078.007

SOUND

E463 → LKBC1B

+	H1	-	ELEV.
1.8133			12.956 m
59.46	14.7693	1.6188	
		60.74	13.1505
1.5418			
67.86	14.6923	1.4852	
		66.92	13.2071
1.5005			
69.25	14.7076	1.3943	
		68.68	13.3133
1.3493			
66.16	14.6626	1.2945	
		66.68	13.3681
1.3848			
67.13	14.7529	1.4259	
		67.50	13.3270
1.3163			
69.85	14.6433	1.6589	
		69.13	12.9844
1.4308			
8.31	14.4152	1.5121	
		5.39	12.9031
1.5874			
5.38	14.4905	1.7179	
		5.37	12.7726 m

J. SZUREWSKI

2-28-06

J.L. RAKER

119

J. CAMPBELL

DESC.

E463

SET 60 D NAIL ON EAST SIDE OF SANDHILL CRANE DRIVE

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"

"

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"

TOTAL DIST: 0.82381 Km

TOLERANCE: 7.26mm

"

"

LKBC1B MON.

BENCH RUN

1078.007

SEWMS

LKBC1B → E463

+	HI	-	ELEV
1.8564			12.7726 M
69.59	14.6290	1.4754	
		69.33	13.1536
1.6396			
69.66	14.7932	1.4046	
		69.85	13.3886
1.3643			
69.11	14.7529	1.4383	
		69.04	13.3146
1.4211			
69.89	14.7357	1.5303	
		69.38	13.2054
1.5439			
69.70	14.7493	1.5534	
		69.71	13.1959
1.5624			
58.48	14.7583	1.8058	
		61.50	12.9545 12.9525 M

J. SZULEWSKI

2-28-06

J.L. RAGER

1110

J. CAMPBELL

DESC.

LKBC1B MON.

SET 600 NAIL ON EAST SIDE OF SANDHILL CRANE (D)

" "

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" "

E463 (2956)

TOTAL DIST: 0.8525 km
 TOLERANCE: 7.22mm
 DIFF: 3.5mm

BENCH RUN

1078.007

SFWMD

KR1744 → KR1746

+	H.I.	-	ELEV.
1.4421 68.97	14.6281	1.5543 69.58	13.0738
1.2172 47.45	14.291	2.0035 50.45	12.2875 M

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J. SZULEWSKI

2-28-06

J. CAMPBELL

14/12

J.L. RAGER

DESC.

DH. NAIL SET ON EAST SIDE OF S.R. 721

-KR1746

TOTAL DIST. 1.61401 KM

TOLERANCE: 10.16 mm

BENCH RUN

1078.007

STANDARD

KR 1744 → 2553

+	H1	-	ELEV.
15774	14.0824		12.505 m
69.64		1.4978	
		69.41	12.5846
1.4571			
69.28	14.0417	1.0954	12.9463
		68.92	
1.6122	14.5585		
68.34		1.8400	12.7185
		68.04	
0.9646	13.6831		
69.25		1.5492	12.1339
		69.09	
1.4556	13.5895		
69.08		1.5286	12.0609
		69.11	
1.3952	13.4561		
66.65		1.5381	11.918
		68.21	
1.4239	13.3419		
68.57		1.3978	11.9441
		68.60	
1.4964	13.4405		
69.64		1.3775	12.063
		69.43	
1.5914	13.6514		
69.30		1.4787	12.1757
		69.59	
1.4051	13.5808		
30.32		1.9420	
		27.82	11.6388 m

J. SULLIVAN

3-1-06

J. L. RAKER

11, 13

J. CAMPBELL

DESC.

KR 1744

D.H. NAIL SET ON WEST SIDE OF C.R. 721

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553 (11.641)

TOTAL DIST. 1.29828 Km

DIFF: 2.7 mm

BENCH RUN

SFWMD

1078.007

KR 1744 → LKBD 1A

T	H1	-	ELEV.
1.6533	14.1583	1.5750	12.505 M
68.86		68.97	12.5833
1.5161		1.1773	
68.87	14.0994	68.17	12.9221
1.6381		2.8501	
68.85	14.5602	68.84	11.7101
1.3144		1.5908	
69.11	13.0245	68.63	11.4337
1.4023		1.6160	
69.27	12.836	69.76	11.22
1.6318		1.7767	
69.63	12.8518	69.30	11.0751
1.5626		1.5911	
15.77	12.6377	71.83	11.0466
1.5320		1.7838	
16.83	12.5786	17.32	10.7948 M

J. SZULEWSKI

03-01-06

J.L. RAGER
J. CAMPBELL

11, 14

DESC.

KR 1744

D.H. NAIL SET ON WEST SIDE OF C.R. 721

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600 NAIL SET ON SOUTH SIDE OF WHEELER RD.

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LKBD 1A MON.

TOTAL DIST: 0.89503 Km

TOLERANCE:

BENCH RUN

1078.007

SEWARD

LKBD1A → KR 1044

+	H1	-	FIELD
1.8082			10.7948 M
68.75	12.603	1.3712	
		68.45	11.2318
1.5059			
69.36	12.7377	1.4234	
		69.16	11.3143
1.6857			
69.81	13.0000	1.4810	
		69.55	11.519
2.4264			
69.30	13.9454	0.9072	
		69.48	13.0382
1.1786			
69.66	14.2168	1.6552	
		69.44	12.5616
1.5259			
68.70	14.0875	1.4956	
		69.81	12.5919
1.5423			
12.52	14.1342	1.5268	
		14.95	12.6074
1.4179			
14.90	14.0253	1.5238	
		14.97	12.5015 M

J. SZULEWSKI

3-1-06

11, 15

JIL RAGER

J. CAMPBELL

DEEG

LKBD1A

60 D NAIL SET ON NORTH SIDE OF WHEELER RD.

"

"

"

"

D.H. NAIL SET ON EAST SIDE OF C.R. 721

"

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D.H. NAIL SET ON WEST SIDE OF C.R. 721

1744 (12.505)

TOTAL DIST: 0.8888116m

TOLERANCE: 7.54 mm

DIP: 3.5 mm

BENCH RUN

1078.007

KR1746 → KR1744 (CONT.)

SEWARD

+	HI	-	ELEV.
1.4027	14.1824	1.4728	12.7096
<u>69.79</u>		<u>69.66</u>	
15509	14.2605	1.6432	12.6173 M
<u>47.68</u>		<u>43.99</u>	

J. SZULCWSKI

3-1-06

J.L. RAGER

11, 17

J. CAMPBELL

DESC.

D.M. NAIL SET ON WEST SIDE OF C.R. 72

KR 1744

TOTAL DIST: 1.61355 Km

TOLERANCE: 10.16 mm

BENCH RUN

STANDARD

1078.007

KR 1746 → LKBD3A

+	H.I.	-	ELEV.
1.8855			12.2875 m
68.10	14.173	1.7268	
		68.16	12.4462
1.2188			
69.58	13.665	1.6630	
		68.18	12.002
1.6363			
68.19	13.6383	1.7634	
		68.32	11.8249
0.8605			
60.03	12.7354	2.0690	
		59.71	10.6664
1.2907			
51.78	11.9571	1.5388	
		50.38	10.4183
1.5283			
40.14	11.9466	1.6052	
		39.25	10.3414
1.7866			
69.53	12.128	1.7517	
		69.63	10.3763
1.4337	11.8		
3.71	11.81	1.5938	
		3.71	10.2162 m
[]		[]	
[]		[]	

S. SZULCOWSKI

3-1-06

J. L. PAGER

11, 18

J. CAMPBELL

DESC.

KR 1746

IRON ROD SET IN OPEN FIELD

#

IRON ROD SET IN OPEN FIELD

IRON ROD SET ON NORTH SIDE OF DIRT TRAIL

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LKBD3A - MEAN.

TOTAL DIST: 0.85842 Km

BENCH RUN

1078.007

SEWARD

LKBDZA → KR 1746

+	H.I.	-	ELEV.
1.7999			10.2162 m
<u>66.36</u>	12.0161	1.6141	
		<u>66.05</u>	10.402
1.5355			
<u>54.20</u>	11.9375	1.4825	
		<u>52.54</u>	10.455
1.5960			
<u>59.97</u>	12.051	0.9889	
		<u>59.27</u>	11.0621
2.0719			
<u>58.42</u>	13.134	1.2611	
		<u>57.98</u>	11.8729
1.8389			
<u>68.12</u>	13.7118	1.6793	
		<u>67.73</u>	12.0325
1.6580			
<u>69.22</u>	13.6905	1.3019	
		<u>69.15</u>	12.3886
1.8805			
<u>42.92</u>	14.2691	1.6115	
		<u>42.76</u>	12.6576
1.5612			
<u>7.31</u>	14.2188	1.9317	12.2871 m
		<u>12.58</u>	12.2868

J. SZURUSKI

3-1-06

J. L. RAGER

11, 19

J. CAMPBELL

DESC.

LKBDZA MON.

IRON ROD SET ON NORTH SIDE OF DIRT TRAIL

IRON ROD SET ON NORTH SIDE OF DIRT TRAIL

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"

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IRON ROD SET IN OPEN FIELD

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"

"

KR 1746 (12.2875)

TOTAL DIST. 0.85460 Km

TOLERANCE: 7.395 mm

DIFF: 0.4 mm

BENCH RUN

SFUMB

1078.007

LKBB3B → USS6

+	H.L.	-	ELEV.
1.2706	16.7521	1.2670	15.4815 m
68.91		69.41	15.4857
1.2792	16.7643	1.3563	15.408
69.48		68.89	
1.3580	16.766	1.4555	15.3105
68.84		69.45	
1.4452	16.7557	1.6989	15.0568
69.77		69.89	
1.6406	16.6974	1.4970	15.2004
68.92		69.90	
1.4529	16.6533	1.6148	15.0385
69.83		69.78	
1.4180	16.4565	1.5251	14.9314
69.53		69.34	
1.3062	16.2376	1.7853	14.4523
69.54		69.87	
1.2952	15.7475	1.7254	14.0221
69.52		69.52	
1.3511	15.3732	1.6597	13.7135 m
7.90		7.63	

J. SZULCOWSKI

3-2-06

J.L. RAGER

11,20

J. CAMPBELL

DESS

LKBB3B MON.

TOTAL DIST: 1.26395 km

TOLERANCE: 9 mm

DIFF: 0.5 mm

1078007

ELEVATE TWO MON-ARNG WELLS
@LKBB3B

+	H ₁	-	ELEV.
4.99	20.99		16.00 (ASSUMED)
		4.92	16.07
		4.64	16.35
		1.84	19.15
		4.62	16.37
		2.02	18.97
2.47	21.44		
		5.07	16.37
		2.29	19.15
		5.09	16.35
		5.43	16.01

E. DETASSIS
N. KHAN

11, 21

LKBB 3B CONC. MON.
GROUND SIAOT
CONC. PAD BRASS DISK WEST WELL
TOP OF WEST WELL
CONC. PAD BRASS DISK
TOP OF WELL EAST WELL
" " "
CONC. PAD BRASS DISK EAST WELL
TOP OF WELL WEST WELL
CONC. PAD BRASS DISK WEST WELL
LKBB 3B CONC. MON.



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

February 2006 to March 2006

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

PROJECT TITLE

Kissimmee River Wells

LINE TITLE FOR L26803

**ESTABLISH BENCH MARKS NEAR WELLS IN HIGHLANDS AND OKEECHOBEE
COUNTIES**

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 SUTRON Corporation and Nick Miller Incorporated.

B. Purpose

The purpose of this leveling project was to establish precise NAVD 88 heights near existing Ground Water Monitoring Wells 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 Highlands County and Okeechobee County, 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

Two LEICA DNA03 Electronic Digital Level Instruments were used along with two sets of LEICA Digital/Bar-Code Leveling Rods.

III. COMMENTS

A. **Reconnaissance**

See the To-Reach Descriptions included, for a clear access to all L26803 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

These are all new second order, class 2 level runs by Nick Miller, Inc.

D. **Problems**

A different elevation was found for monument KR 1746 (AH9316) than what is published. The published elevation is 12.396 meters (NAVD 88). A level route was ran from Q 553 to KR 1744 and then from KR 1744 to KR 1746. The elevation difference between Q 553 and KR 1744 agreed with the published data. The results from the leveling data show the elevation of KR 1746 to be 12.288 meters (NAVD 88), which is 108 mm below the published elevation.



IV. Closures

Loop closures were computed and are included in the package for L26803.

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