Surveyor's Project Report

South Florida Water Management District

C-111 Spreader Canal Western Project

FROG POND WELL SITES

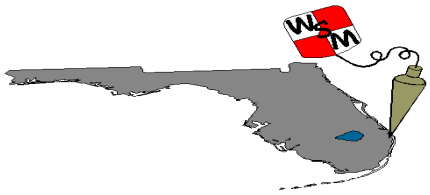
District Work Order Number: **4600000943-WO 16**

Prepared For:

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

prepared by:

Thomas E. Whidden
Professional Surveyor and Mapper
Florida License Number LS-6225



WHIDDEN SURVEYING & MAPPING, INC.
9100 Belvedere Road, Suite 105
West Palm Beach, FL 33411
Certificate of Authorization Number LB7232

publication date: October 24, 2011

SCADA Pictures are not part of this survey report (01-dec-15) HJE

Table of Contents

OVERVIEW OF THE PROJECT

PURPOSE

The C-111 Spreader Canal Western project is one element of the Comprehensive Everglades Restoration Plan (CERP) authorized by the United States Congress as part of the 2000 Water Resources Development Act. This project is designed to restore the quantity, timing, and distribution of water delivered to Florida Bay via Taylor Slough and the area south of the C-111 canal known as the Southern Glades and Model Lands. This involves the use of structures (detention areas, canals, canal plugs, levees, gates and pump stations) and operational procedures to reduce seepage losses from Taylor Slough, the Southern Glades, and Model Lands.

A key component of the project is to ensure that impacts to Cape Sable Seaside Sparrow (CSSS) Designated Critical Habitat Units 2 and 3 (also referred to as subpopulations C and D, respectively) do not exceed that recognized in the United States Fish and Wildlife Service (USFWS's) Incidental Take Statement. That need was documented in the USFWS's Biological Opinion and Incidental Take Statement (ITS), both of which were issued on August 25, 2009, and required the SFWMD to conduct additional monitoring and reporting to meet the requirements of the Endangered Species Act. One of the Term and Conditions (#3) of the ITS requires that SFWMD conduct additional surveys to more accurately document existing topography in subpopulations C & D, and that the SFWMD provide a methodology to accomplish the foregoing within 6 month of issuance of the Incidental Take Statement. "The methodology was submitted to the USFWS on February 25, 2010. This scope of work defines the work outlined in the methodology."

The South Florida Water Management is requesting a Vertical Control Survey to set 1 benchmark at 4 monitoring sites and obtain the well reference mark set by SFWMD.

The project is located in the Frog Pond and within the C-111 Spreader Canal Western project, Miami- Dade County Florida.

The Vertical Control Survey shall be in strict accordance with the Minimum Technical Standards (MTS) set forth in Chapter 5J of the Florida Administrative Code (FAC) and with the specifications outlined in this Work Order. The consultant shall prepare a set Benchmark Description Sheets, as outlined in this work order depicting the survey results and set one bench mark at 4 monitoring sites.

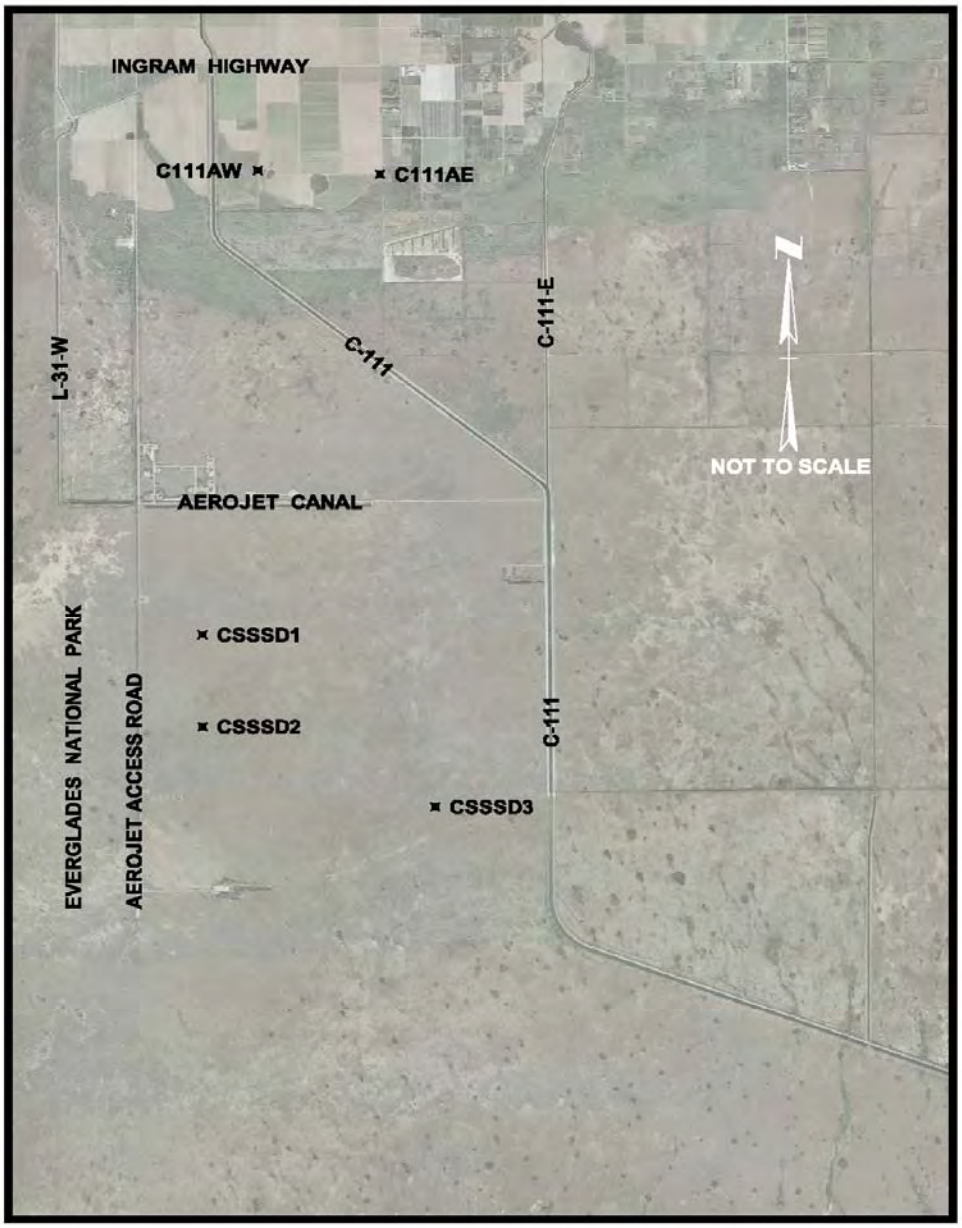
All services shall be performed under the direction of a Professional Surveyor and Mapper (PSM) registered in the State of Florida in accordance with Chapter 472 of the Florida Statutes and 5J FAC.

A benchmark was established at each well and well elevations of the well reference marks were obtained. Third Order differential leveling procedures were utilized to level between known NGS marks and to establish vertical values on the newly set benchmarks.

LOCATION OF PROJECT

The project is located in Miami-Dade County. Below is a map depicting the location of the project well sites Located within the Everglades just East of the Eastern Boundary of

Everglades National Park.



ITEMS DELIVERED TO THE DISTRICT

The following items are delivered to the District 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 computation sheets
3. Paper and electronic copy of site photographs
4. Paper and electronic copy of District Benchmark Description Sheets

VERTICAL DATUM FOR THE PROJECT

The vertical datum for the project is the North American Vertical Datum of 1988, and is based upon measurements to vertical control marks published by the NGS.

For correlation with older data sets, the elevations of the benchmarks derived for this project are also shown in the National Geodetic Vertical Datum (NGVD) of 1929. The file named "NGVD29.txt" provided by the SFWMD containing NGVD29 elevations for National Geodetic Survey (NGS) marks did not contain any benchmarks within the project area. Therefore the NGVD 1929 orthometric heights (elevations) established for this survey are based upon a calculated difference or shift between NAVD 1988 and NGVD 1929 that was derived by SFWMD and published on various benchmarks surrounding this project. An average differential of 1.59 was used to establish the NGVD 29 elevations.

EQUIPMENT USED

Trimble DiNi 22 Digital Level

GPS METHODS

INTRODUCTION

The benchmarks listed below are located on roads and levees surrounding this project. Due to the large distances between existing NGS control and the new vertical control marks, and/or in some cases the fact that differential leveling was impractical due to flooded/high-water conditions, District staff and the Surveyor decided it was appropriate to perform a GPS survey for establishing the orthometric heights (elevations) on benchmarks at these sites:

BENCHMARK
DAWAL 3
EG2
S504
U504

The GPS network design and session length conformed to guidelines set forth by Ronnie Taylor (NOAA, National Geodetic Survey, National Ocean Service Advisor) and a

triangulation plan was submitted to Dave Newcomer at the DEP and approved prior to commencement. The GPS observations for the project were conducted over a two-day period, beginning Monday, January 31, 2011 and ending Tuesday, February 1, 2011. Four receivers were operated simultaneously.

The following instrumentation was used for the GPS observations:

(2) Trimble 5800 receiver
(2) Trimble 5700 receivers
(1) Trimble 4700 receiver

GPS equipment and operators were shuttled throughout the marsh via airboat and Marsh Master while NGS control stations were occupied in the upland areas surrounding the project.

DATA PROCESSING

Data Acquisition

Data was downloaded from receivers using Trimble Geomatics Office software, version 1.60 (TGO), and transferred to our server through a Virtual Private Network.

Data Quality

Quality of the data was checked using the Timeline feature in the TGO software. Areas of the data that showed cycle slips were disabled.

Ephemeris

The Rapid ephemeris from IGS was used for processing the baselines.

Baseline Processing

Baselines were processed using TGO. For each session, only non-trivial baselines were selected that produced fixed integer solutions with the lowest possible RMS values. Criteria for baseline selection also included ensuring that all unknown (newly set) marks had vectors from different sessions and multiple control stations.

Adjustment

The adjustment software GeoLab, version 2001.9.20.0 was used for the GPS network adjustment. NGS control stations FLGPS55 and B463, and SFWMD control station PT5 were used to constrain the adjustment. These three stations have published coordinates that are relative to the North American Datum of 1983, adjustment of 1999 (NAD88/99), and elevations relative to the North American Vertical Datum of 1988 (NAVD88). Initially a minimally-constrained (free) adjustment was run that held the coordinates for station DAWAL 3 in three dimension to flush out any baseline issues. Adjusted vectors were analyzed for buckling by reviewing their residuals and standard deviations. No apparent blunders were present in the adjustment. A constrained (fixed) adjustment was run that constrained the network observations to the horizontal coordinate values for stations DAWAL 3 and EG2, and the published heights for all three control stations. Again no apparent blunders were present in the adjustment, and all statistics were found to be acceptable.

A copy of the final fixed adjustment can be found in Appendix B of this report.

PROJECT RESULTS

Once benchmarks were established at each well site, differential level observations were made to determine the elevation of the well reference mark (set by SFWMD) and the top of the bolt set in the staff gauge board (set by others). Appendix A contains a section for each well site. Within each of these sections there is 1) a benchmark description sheet, 2) well site photographs, 3) level run adjustment computations, and 4) field notes.

The benchmark description sheet describes the well site benchmark that was found or set, lists the newly established coordinates and elevations of the benchmark, and how to reach the benchmark. The field notes contain the elevations of the well reference marks. The chart below shows the elevations required to calibrate the recorders and set the gauges.

C111AW	Benchmark Elevation	Well Reference Mark Elevation	Top of Bolt on Gauge Board Elevation
NAVD88	2.08	6.10	N/A
NGVD29	3.67	7.69	N/A

C111AE	Benchmark Elevation	Well Reference Mark Elevation	Top of Bolt on Gauge Board Elevation
NAVD88	2.44	6.36	N/A
NGVD29	4.03	7.95	N/A

CSSSD1	Benchmark Elevation	Well Reference Mark Elevation	Top of Bolt on Gauge Board Elevation
NAVD88	1.86	7.75	5.09
NGVD29	3.45	9.34	6.68

CSSSD2	Benchmark Elevation	Well Reference Mark Elevation	Top of Bolt on Gauge Board Elevation
NAVD88	2.57	8.67	5.22
NGVD29	4.16	10.26	6.81

CSSSD3	Benchmark Elevation	Well Reference Mark Elevation	Top of Bolt on Gauge Board Elevation
NAVD88	1.89	7.80	4.63
NGVD29	3.48	9.39	6.22

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 5J-17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable. This report is not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.

Whidden Surveying & Mapping, Inc.
Authorization Number LB-7232

02/22/2011
Date of Survey

By: _____

Thomas E. Whidden
Professional Surveyor and Mapper
State of Florida
License Number LS-6225

APPENDIX A

- Benchmark Description Sheets
- Site Photographs
- Field Notes

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY Miami-Dade	**PROJECT** C111-Spreader Canal Western Project	**DESIGNATION** C111AE
SECTION 09	**TOWNSHIP** 58 S	**RANGE** 38 E

GEOGRAPHIC INDEX OF QUAD

Established by Whidden Surveying & Mapping, Inc. _____ **Recovered by**	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION SE
SURVEYOR C. LINDSTEDT **DATE** 2/20/11	**FIELD BOOK** W93 **PAGES** 63

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: MSL (**1929**) (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: HORIZONTAL 1 2 (3) +/-3M (circle one) **VERTICAL 1 2 (3)**

STATE PLANE COORDINATES	**X 807496.82**	**Y 385188.94**	**EL. 3.96 FEET (29)** **EL 2.44 FEET (88)**

LATITUDE N 25º23'33.286" **LONGITUDE W 80º32'29.741"**

DESCRIPTION

To Reach:

THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI (12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 3.3 MI TO A DIRT ROAD ON THE LEFT AND GO 0.75 MI THROUGH A FARM FIELD TO A RECORDER BOX AND MARK. THE BENCHMARK IS A STAINLESS STEEL ROD DIRVEN TO REFUSAL (9.7 FEET) SET INSIDE A 4" PVC SLEEVE WITH A BRASS TAG.


POWERSONIC
MODEL PS-12400 NB


C111AE W
ELEV.6.36 NAVD 88
DATE 2011
BY LB7232
OFFSET + 1.59


READ THIS FIRST!
NAME
GREEN
C 111 AE W
ELEV. 6.36 NAVD 88
DATE 2011
BY CB7232
OFFSET + 1.59
C 111 AE GW
ELEV. 7.88
DATE 9/7/11
BY JS
NAVD NGVD 29


01/31/2011 08:09

C-111 SPREADER CANAL / WESTERN PROJECT

C111AE

SECTION 9, TOWNSHIP 58 SOUTH, RANGE 38 EAST

STA	~~BS~~	HI	FS	ELEV	
C111AE				2.44	(NAVD 88)
	4.95	7.39			
			0.42	2.97	☒
	4.62	7.59			
			1.23	6.36	TOP OF PVC WELL
	1.05	7.41			
C111AE			4.98	2.43	

2/20/11 TW BC2

W-93/63

STAINLESS STEEL ROD DRIVEN TO REFUSAL

"☒" ON CONC. BASE AT WELL

REF: FIELD BOOK "MISC 4, PG 14"

C111AE

N. 385188.94
E. 807496.82
LAT. 25°23'33.286"
LON. 80°32'29.741"
ELEV. = 2.44 (NAVD88)
ELEV. = 4.03 (NGVD29)

Weighting Strategies

GPS Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Geoid Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Back to top

Adjusted Coordinates

Adjustment performed in WGS-84

Number of Points	: 9
Number of Constrained Points	: 4
Elevation Only	: 2
Horizontal and Elevation Only	: 2

Adjusted Grid Coordinates

Errors are reported using 1.96σ.

Point Name	Northing	N error	Easting	E error	Elevation	e error	Fix
DAWAL 3	362586.911sft	0.000sft	812929.201sft	0.000sft	4.053sft	0.000sft	N E e
C111AE	385188.937sft	0.033sft	807496.823sft	0.032sft	2.442sft	1.301sft	
C111AW	385383.375sft	0.032sft	803493.588sft	0.031sft	2.075sft	1.226sft	
EG2	389199.471sft	0.000sft	801997.492sft	0.000sft	9.110sft	0.000sft	N E e
S504	367974.378sft	0.039sft	799555.066sft	0.039sft	2.080sft	0.000sft	e
U 504	359185.892sft	0.040sft	799604.370sft	0.041sft	2.500sft	0.000sft	e
CSSSD1	368454.212sft	0.030sft	801692.374sft	0.030sft	1.855sft	1.061sft	
CSSSD3	362224.557sft	0.036sft	809282.284sft	0.036sft	1.894sft	1.174sft	
CSSSD2	365127.329sft	0.033sft	801513.637sft	0.033sft	2.569sft	1.083sft	

Adjusted Geodetic Coordinates

Errors are reported using 1.96σ.

Point Name	Latitude	N error	Longitude	E error	Height	h error	Fix

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY Miami-Dade	**PROJECT** C111-Spreader Canal Western Project	**DESIGNATION** C111AW
SECTION 08	**TOWNSHIP** 58 S	**RANGE** 38 E

GEOGRAPHIC INDEX OF QUAD

Established by Whidden Surveying & Mapping, Inc. _____ **Recovered by**	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION SE
SURVEYOR C. LINDSTEDT **DATE** 2/20/11	**FIELD BOOK** W93 **PAGES** 62

HORIZONTAL DATUM: **1927** (**1983**) **Other**_____ (circle one) ZONE (**E**) or **W**

VERTICAL DATUM: MSL (**1929**) (**1988**) **Other** _____ (circle one)

CONTROL ACCURACY: HORIZONTAL 1 2 (3) +/-3M (circle one) **VERTICAL 1 2 (3)**

STATE PLANE COORDINATES	**X 803493.59**	**Y 385383.38**	**EL. 3.60 FEET (29)** **EL 2.08 FEET (88)**

LATITUDE N 25º23'35.346" **LONGITUDE W 80º33'13.388"**

DESCRIPTION

To Reach:

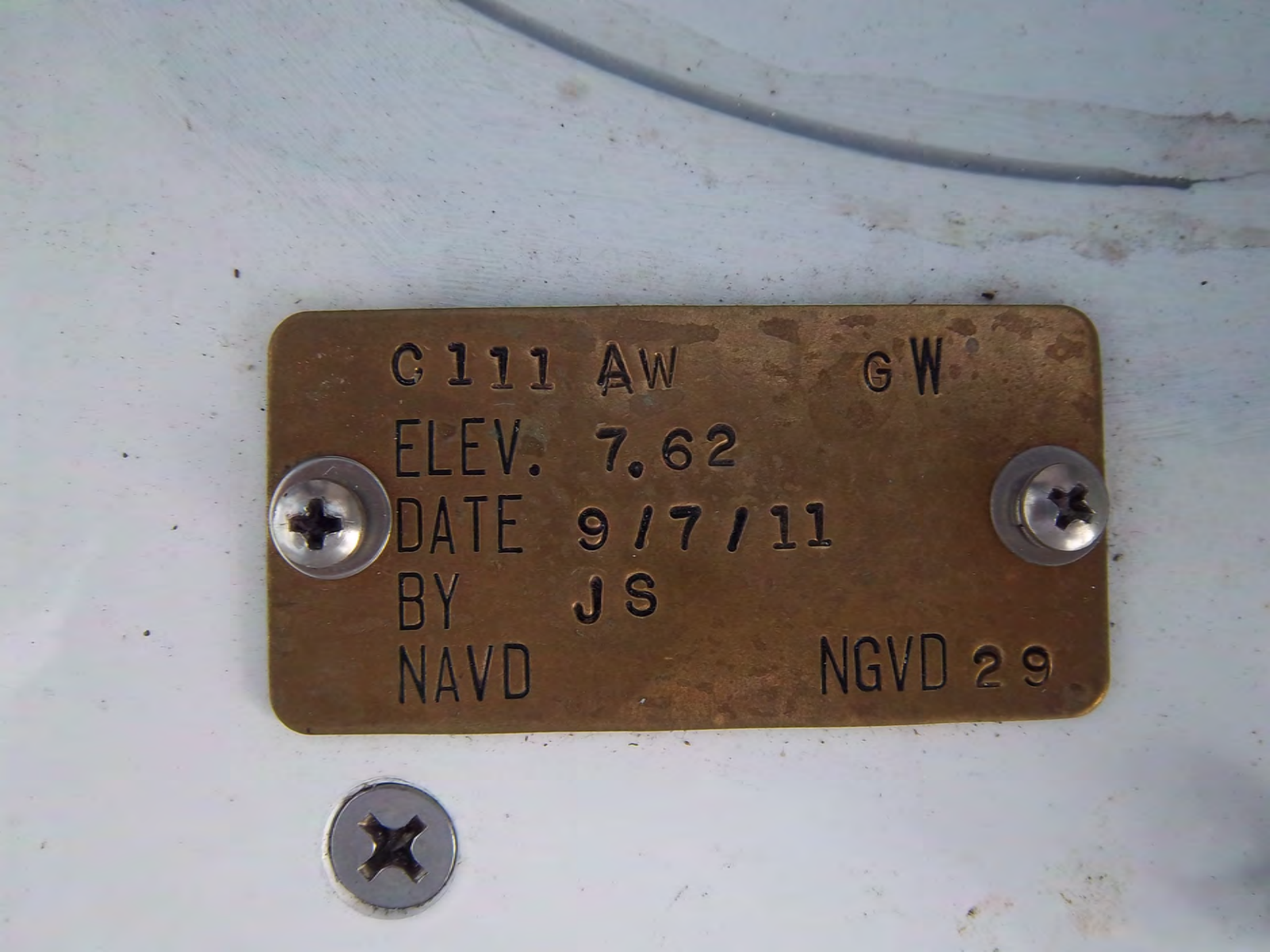
THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI (12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.0 MI TO A DIRT ROAD ON THE LEFT AND GO 0.7 MI THROUGH A FARM FIELD TO A RECORDER BOX AND MARK. THE BENCHMARK IS A STAINLESS STEEL ROD DIRVEN TO REFUSAL (10.2FEET) SET INSIDE A 4" PVC SLEEVE WITH A BRASS TAG.


ELEV.
DATE 2011
BY
NAVD


C111AW W
ELEV.6.10 NAVD 88
DATE 2011
BY
OFFSET + 1.59
C 111 AW GW
ELEV. 7.62
DATE 9/7/11
BY JS
NAVD NGVD 29


C111AW
W
ELEV.6.10 NAVD 88
DATE 2011
BY LB 7232
OFFSET + 1.59


C111AW W
ELEV. 6.10 NAVD 88
DATE 2011
BY LB 7232
OFFSET + 1.59
C 111 AW GW
ELEV. 7.62
DATE 9/7/11
BY JS
NAVD NGVD 29


C 111 AW GW
ELEV. 7.62
DATE 9/7/11
BY JS
NAVD NGVD 29

C-111 SPREADER CANAL / WESTERN Project

SECTION 8, TOWNSHIP 58 SOUTH, RANGE 38 EAST

STA	BS	HI	FS	ELEV	DESC
C111AW				2.08 (NAVD 88)	
	5.27	7.35			
			1.60	2.75	⊠
	4.73	7.48			
			1.38	6.10	Top of PVC well
	1.21	7.31			
C111AW			5.24	2.07	Stainless steele rod inside PVC sleeve

2/20/11 TW BC2

W-93/62

STAINLESS STEEL ROD DRIVEN TO REFUSAL

"⊠" ON CONC. BASE OF WELL

REF: FIELD BOOK MISC 4, PAGE 14

C111AW

N. 885383.38
E. 803493.59
LAT. 25°23'35.346"
LON. 80°33'13.388"
ELEV: 2.08 (NAVD88)
ELEV = 3.67 (NGVD 29)

Weighting Strategies

GPS Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Geoid Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Back to top

Adjusted Coordinates

Adjustment performed in WGS-84

Number of Points	: 9
Number of Constrained Points	: 4
Elevation Only	: 2
Horizontal and Elevation Only	: 2

Adjusted Grid Coordinates

Errors are reported using 1.96σ.

Point Name	Northing	N error	Easting	E error	Elevation	e error	Fix
DAWAL 3	362586.911sft	0.000sft	812929.201sft	0.000sft	4.053sft	0.000sft	N E e
C111AE	385188.937sft	0.033sft	807496.823sft	0.032sft	2.442sft	1.301sft	
C111AW	385383.375sft	0.032sft	803493.588sft	0.031sft	2.075sft	1.226sft	
EG2	389199.471sft	0.000sft	801997.492sft	0.000sft	9.110sft	0.000sft	N E e
S504	367974.378sft	0.039sft	799555.066sft	0.039sft	2.080sft	0.000sft	e
U 504	359185.892sft	0.040sft	799604.370sft	0.041sft	2.500sft	0.000sft	e
CSSSD1	368454.212sft	0.030sft	801692.374sft	0.030sft	1.855sft	1.061sft	
CSSSD3	362224.557sft	0.036sft	809282.284sft	0.036sft	1.894sft	1.174sft	
CSSSD2	365127.329sft	0.033sft	801513.637sft	0.033sft	2.569sft	1.083sft	

Adjusted Geodetic Coordinates

Errors are reported using 1.96σ.

Point Name	Latitude	N error	Longitude	E error	Height	h error	Fix

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

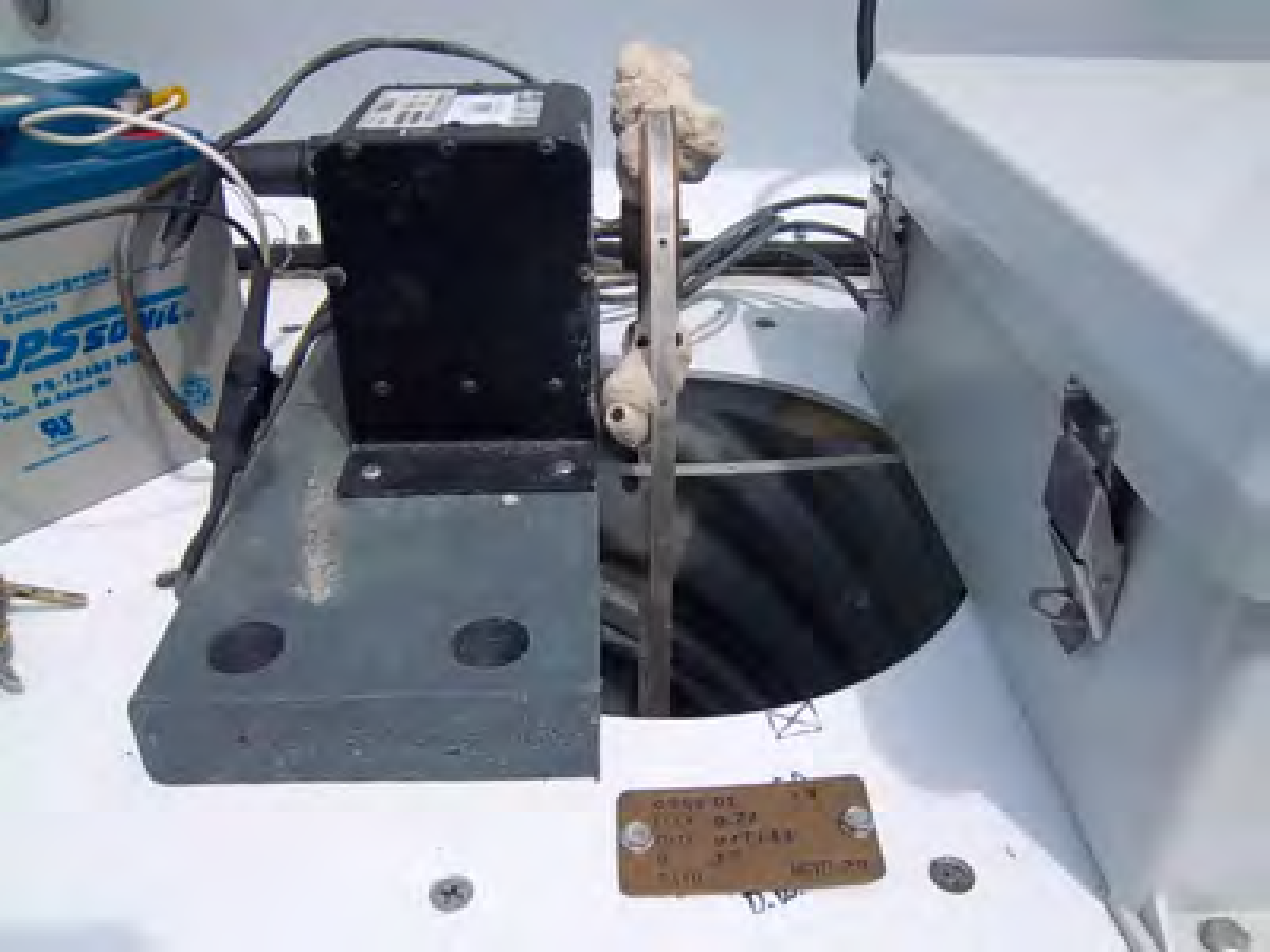
Rev. 4/01

COUNTY Miami-Dade	**PROJECT** C111-Spreader Canal Western Project	**DESIGNATION** CSSSD1
SECTION 30	**TOWNSHIP** 58 S	**RANGE** 38 E
GEOGRAPHIC INDEX OF QUAD		
Established by Whidden Surveying & Mapping, Inc. _____ **Recovered by**	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION SE	
SURVEYOR C. LINDSTEDT **DATE** 2/20/11	**FIELD BOOK** W93 **PAGES** 64	
HORIZONTAL DATUM: 1927 (1983) **Other**_____ (circle one) ZONE (E) or W		
VERTICAL DATUM: MSL (1929) (1988) **Other** _____ (circle one)		
CONTROL ACCURACY: HORIZONTAL 1 2 (3) +/-3M (circle one) **VERTICAL** 1 2 (3)		
STATE PLANE COORDINATES	**X 801692.37**	**Y 368454.21**	**EL. 1.86 FEET (88)** **EL 3.38 FEET (29)**
LATITUDE N 25º20'47.713"		**LONGITUDE** W 80º33'33.639"
DESCRIPTION		
To Reach:		

THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI (12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.5 MI (7.2 KM) TO A PAVED ROAD ON THE LEFT (SOUTHWEST 232ND AVENUE) , TURN LEFT ON THE PAVED ROAD AND GO SOUTH FOR 1.55 TO A LOCKED GATE, CONTINUE SOUTH ON THE PAVED ROAD FOR 1.35 MI (2.17 KM) TO A LOCKED GATE, CONTINUE SOUTH ON THE PAVED ROAD FOR 0.9 MI TO A LAUNCH POINT TO THE EAST, GO EAST BY AIRBOAT 0.4 MILES EAST TO A RECORDER BOX AND PLATFORM, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 10 FEET ON THE SOUTH FACE OF THE PLATFORM. THE MARK IS SET INSIDE A 4” PVC SLEEVE APPROXIMATELY 1’ ABOVE THE GROUND LEVEL AND 6” ABOVE THE WATER LEVEL.


CSSSD1 W
ELEV.
DATE 2011
BY LS 7238
NAVD NGVD


CSSSD 1
W
ELEV. 7.75 NAVD 88
DATE 2011
BY LB 7232
OFFSET +
03/24/2011 12:39



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY Miami-Dade	**PROJECT** C111-Spreader Canal Western Project	**DESIGNATION** CSSSD2
SECTION 31	**TOWNSHIP** 58 S	**RANGE** 38 E
GEOGRAPHIC INDEX OF QUAD		
Established by Whidden Surveying & Mapping, Inc. _____ **Recovered by**	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION SE	
SURVEYOR C. LINDSTEDT **DATE** 2/20/11	**FIELD BOOK** W93 **PAGES** 65	
HORIZONTAL DATUM: 1927 (1983) **Other**_____ (circle one) ZONE (E) or W		
VERTICAL DATUM: MSL (1929) (1988) **Other** _____ (circle one)		
CONTROL ACCURACY: HORIZONTAL 1 2 (3) +/-3M (circle one) **VERTICAL** 1 2 (3)		
STATE PLANE COORDINATES	**X** 801513.64	**Y** 365127.33
		EL. 2.57 FEET (88) EL 4.09 FEET (29)
LATITUDE N 25º20' 14.765"	**LONGITUDE** W 80º33'35.706"	
DESCRIPTION		
To Reach:		

THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI (12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.5 MI (7.2 KM) TO A PAVED ROAD ON THE LEFT (SOUTHWEST 232ND AVENUE) , TURN LEFT ON THE PAVED ROAD AND GO SOUTH FOR 1.55 TO A LOCKED GATE, CONTINUE SOUTH ON THE PAVED ROAD FOR 1.35 MI (2.17 KM) TO A LOCKED GATE, CONTINUE SOUTH ON THE PAVED ROAD FOR 1.45 MI TO A LAUNCH POINT TO THE EAST, GO EAST BY AIRBOAT 0.4 MILES EAST TO A RECORDER BOX AND PLATFORM, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 10 FEET ON THE SOUTH FACE OF THE PLATFORM. THE MARK IS SET INSIDE A 4” PVC SLEEVE APPROXIMATELY 1’ ABOVE THE GROUND LEVEL AND 6” ABOUVE THE WATER LEVEL.


C9SSD2
W
ELEV
DATE 2011
BY LB 7232
NAVD NGVD

CSSSD2 W
ELEV.8.67 NAVD 88
DATE 2011
BY LB7232
OFFSET + 1.59

CSSS D2 STGW
ELEV. 10.19
DATE 9/7/11
BY JS
NAVD NGVD 29

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY Miami-Dade	**PROJECT** C111-Spreader Canal Western Project	**DESIGNATION** CSSSD3
SECTION 04	**TOWNSHIP** 59 S	**RANGE** 38 E
GEOGRAPHIC INDEX OF QUAD		
Established by Whidden Surveying & Mapping, Inc. _____ **Recovered by**	**NAME OF QUADRANGLE** ROYAL PALM RANGER STATION SE	
SURVEYOR C. LINDSTEDT **DATE** 2/20/11	**FIELD BOOK** W93 **PAGES** 66	
HORIZONTAL DATUM: 1927 (1983) **Other**_____ (circle one) ZONE (E) or W		
VERTICAL DATUM: MSL (1929) (1988) **Other** _____ (circle one)		
CONTROL ACCURACY: HORIZONTAL 1 2 (3) +/-3M (circle one) **VERTICAL** 1 2 (3)		
STATE PLANE COORDINATES	**X** 809282.28	**Y** 362224.56
		EL. 1.89 FEET (88) EL 3.41 FEET (29)
LATITUDE N 25º19' 45.752"	**LONGITUDE** W 80º32'11.139"	
DESCRIPTION		
To Reach:		

THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI (12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.0 MI (7.2 KM) TO TO THE C111 CANAL, TURN LEFT ON THE WEST LEVEE ROAD AND GO SOUTHERLY FOR 6.0 MILES TO STRUCTURE S-186 AND THE LAUNCH POINT TO THE RIGHT, TAKE AIRBOAT 0.4 MI ON AN AZMUTH OF 263.5° TO THE RECORDER BOX AND PLATFORM. A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 10 FEET ON THE SOUTH FACE OF THE PLATFORM. THE MARK IS SET INSIDE A 4” PVC SLEEVE APPROXIMATELY 1’ ABOVE THE GROUND LEVEL AND 6” ABOUVE THE WATER LEVEL.


ELEV.
DATE 2011
BY LB 7232
NAVD


D.W.
CSSSD3 W
ELEV. 7.80' NAVD 88
DATE 2011
BY LB 7232
OFFSET + 1.59


CSSSD 3 W
ELEV. 7.80 NAVD 88
DATE 2011
BY LB 7252
OFFSET + 1.59

ASSUMED
REF ELEV
200' 11/5/11
D.W.

C-111 SPREADER CANAL / WESTERN Project

SECTION 8, TOWNSHIP 58 SOUTH, RANGE 38 EAST

STA	BS	HI	FS	ELEV	DESC
C111AW				2.08 (NAVD 88)	
	5.27	7.35			
			1.60	2.75	⊠
	4.73	7.48			
			1.38	6.10	Top of PVC well
	1.21	7.31			
C111AW			5.24	2.07	Stainless steele rod inside PVC sleeve

2/20/11 TW BC2

W-93/62

STAINLESS STEEL ROD DRIVEN TO REFUSAL

"⊠" ON CONC. BASE OF WELL

REF: FIELD BOOK MISC 4, PAGE 14

C111AW

N. 885383.38
E. 803493.59
LAT. 25°23'35.346"
LON. 80°33'13.388"
ELEV: 2.08 (NAVD88)
ELEV = 3.67 (NGVD 29)

C-111 SPREADER CANAL / WESTERN PROJECT

C111AE

SECTION 9, TOWNSHIP 58 SOUTH, RANGE 38 EAST

STA	~~BS~~	HI	FS	ELEV	
C111AE				2.44	(NAVD 88)
	4.95	7.39			
			0.42	2.97	☒
	4.62	7.59			
			1.23	6.36	TOP OF PVC WELL
	1.05	7.41			
C111AE			4.98	2.43	

2/20/11 TW BC2

W-93/63

STAINLESS STEEL ROD DRIVEN TO REFUSAL

"☒" ON CONC. BASE AT WELL

REF: FIELD BOOK "MISC 4, PG 14"

C111AE

N. 385188.94
E. 807496.82
LAT. 25°23'33.286"
LON. 80°32'29.741"
ELEV. = 2.44 (NAVD88)
ELEV. = 4.03 (NGVD29)

C-111 SPREADER CANAL / WESTERN PROJECT
SECTION 30, TOWNSHIP 58 SOUTH, RANGE 38 EAST
CSSSD1

STA	BS	HI	FS	ELEV	
				1.86 (NAVD88)	
	7.19	9.05			
			1.30	7.75	☒ TOP OF WELL
	1.18	8.93			
SS			5.05	3.88	TOP OF PLATFORM
CSSSD1			7.07	1.86	

2/20/11 TW BC2

W-93/64

STAINLESS STEEL ROD DRIVEN TO REFUSAL

REF: FIELD BOOK MISC 4, PG. 14

CSSSD1

N. 368454.21
E. 801692.37
LAT 25°20'47.713
LON 80°33'33.639
ELEV = 1.86 (NAVD88)
ELEV = 3.45 (NGVD29)

C-111 SPREADER CANAL / WESTERN PROJECT

SECTION 31, TOWNSHIP 58 SOUTH, RANGE 38 EAST

CSSSD2

STA	BS	HI	FS	ELEV	
CSSSD2				2.57 (NAVD 88)	
	7.24				
			1.14		⊠ @ TOP OF WELL
	0.95				
SS			5.04		TOP OF PLATFORM
CSSSD2			7.05		SS ROD

2-20-11 TW

B, C2

WI-93/65

STAINLESS STEEL ROD DRIVEN TO REFUSAL

REF: FIELD BOOK "MISC 4, PAGE 14

CSSSD2

N. 805127.83
E. 801513.64
LAT. 25° 20' 14.765
LON. 80° 33' 35.706
ELEV. 2.57 (NAVD 88)
ELEV. 4.16 (NGVD 29)

C-111 SPREADER CANAL / WESTERN PROJECT

SECTION 4, TOWNSHIP 59 SOUTH, RANGE 38 E

CSSSD3

STA	BS	HI	FS	ELEV	
CSSSD3				1.89 (NAVD88)	
	7.20	9.09			
			1.29	7.80	☒ TOP OF WELL
	1.17	8.97			
SS			5.16	3.81	TOP OF PLATFORM
CSSSD3			7.08	1.89	

2-20-11 TW B,CZ

W-93/66

STAINLESS STEEL ROD DRIVEN TO REFUSAL

REF FIELD BOOK MISC 4, PAGE 14

CSSSD3

N 362224.56
E. 809282.28
LAT. 25°19'46.752
LON. 80°32'11.139"
ELEV. 1.89 (NAVD88)
ELEV. 3.48 (NGVD29)

MISC 4/14

C. LINDSTEDT
N. COX

C-111 SPREADER CANAL WESTERN PROJECT

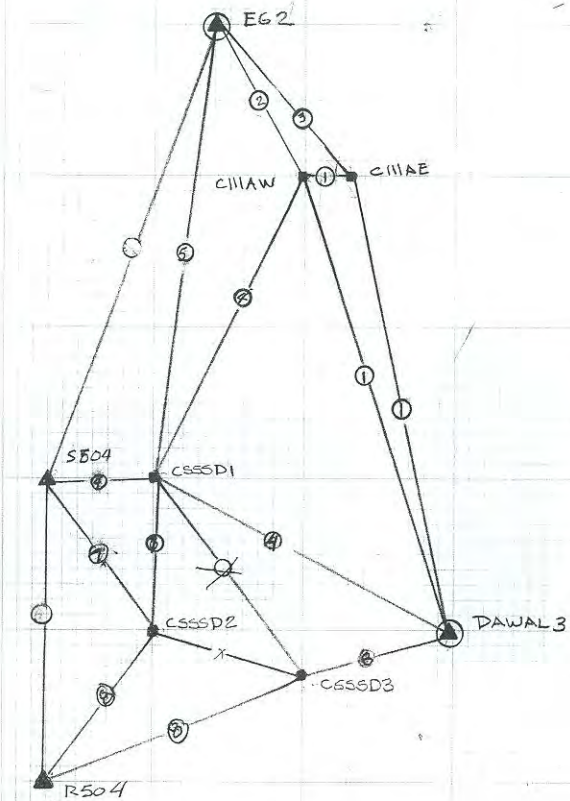
C-111 STATIC NETWORK

JAN. 31, 2011
FEB 1, 2011

ID	ANT. Ht	START	SESSIONS	STOP	REC.
C111AW	2.0M	10:55	1(2)	12:37	5700/Z
C111AE	2.0M	11:00	1	12:00	SPS
DAWAL 3	2.0M		1(2)(3)		5700/Z6
EG 2	2.0M	12:07	2	12:22	SPS
C111AE	2.0M	12:45	3	[illegible]	5700
EG2	2.0M	12:53	3	1:08	SPS
C111AW	2.0M		4	3:15	5700
(T) CSSSD1	2.0M	2:45	4		5800
EG 2	1.8M	3:24	5		5700
S504	2.0M	2:?		3:?	SPS
(T) CSSSD2	2.0M	3:30			SPS
(T) CSSSD3	2.0M	4:45			5800
S504	2.0M	4:09			5700
US04	2.0	4:35			5700

NETWORK MAP

① = SESSION #



N

NTS

APPENDIX B

- GPS Network Adjustment Report
- NGS Data Sheets

Network Adjustment Report

Project : TGO NETWORK

User name	User	**Date & Time**	6:29:44 AM 2/4/2011
Coordinate System	US State Plane 1983	**Zone**	Florida East 0901
Project Datum	NAD 1983 (Conus)		
Vertical Datum		**Geoid Model**	geoide 09
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

Adjustment Style Settings - 95% Confidence Limits

Residual Tolerances

To End Iterations : 0.000033sft
Final Convergence Cutoff : 0.016404sft

Covariance Display

Horizontal
Propagated Linear Error [E] : U.S.
Constant Term [C] : 0.00000000sft
Scale on Linear Error [S] : 1.96

Three-Dimensional
Propagated Linear Error [E] : U.S.
Constant Term [C] : 0.00000000sft
Scale on Linear Error [S] : 1.96
Elevation Errors were used in the calculations.

Adjustment Controls

Compute Correlations for Geoid : False
Horizontal and Vertical adjustment performed

Set-up Errors

GPS
Error in Height of Antenna : 0.010sft
Centering Error : 0.010sft

Back to top

Statistical Summary

Successful Adjustment in 1 iteration(s)

Network Reference Factor : 1.84
Chi Square Test (α=95%) : FAIL
Degrees of Freedom : 36.00

GPS Observation Statistics

Reference Factor : 1.84
Redundancy Number (r) : 36.00

Individual GPS Observation Statistics

Observation ID	Reference Factor	Redundancy Number
B1	2.11	2.02
B5	1.80	1.74
B6	2.80	1.84
B7	2.56	1.37
B8	0.61	1.45
B9	1.83	2.17
B10	1.79	2.19
B11	2.38	2.19
B14	1.49	1.80
B15	1.62	1.61
B16	0.47	1.99
B17	0.63	1.50
B18	1.12	2.03
B19	3.20	1.71
B20	1.07	1.29
B25	1.56	1.88
B27	1.95	1.84
B28	1.95	1.59
B29	1.89	1.89
B30	0.93	1.89

Geoid Model Statistics

Reference Factor : 1.00
Redundancy Number (r) : 0.00

Weighting Strategies

GPS Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Geoid Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Back to top

Adjusted Coordinates

Adjustment performed in WGS-84

Number of Points : 9
Number of Constrained Points : 1
Horizontal and Elevation Only : 1

Adjusted Grid Coordinates

Errors are reported using 1.96σ.

Point Name	Northing	N error	Easting	E error	Elevation	e error	Fix
DAWAL 3	362586.911sft	0.000sft	812929.201sft	0.000sft	4.053sft	0.000sft	N E e
C111AE	385188.804sft	0.031sft	807496.887sft	0.030sft	2.438sft	1.342sft	
C111AW	385383.246sft	0.027sft	803493.678sft	0.027sft	2.054sft	1.342sft	
EG2	389199.320sft	0.039sft	801997.596sft	0.038sft	9.085sft	1.342sft	
S504	367974.362sft	0.039sft	799555.156sft	0.039sft	2.026sft	1.342sft	
U 504	359185.931sft	0.037sft	799604.448sft	0.037sft	2.456sft	1.342sft	
CSSSD1	368454.190sft	0.031sft	801692.451sft	0.031sft	1.816sft	1.342sft	
CSSSD3	362224.564sft	0.036sft	809282.306sft	0.037sft	1.885sft	1.342sft	
CSSSD2	365127.329sft	0.031sft	801513.712sft	0.031sft	2.527sft	1.342sft	

Adjusted Geodetic Coordinates

Errors are reported using 1.96σ.

Point Name	Latitude	N error	Longitude	E error	Height	h error	Fix
DAWAL 3	25°	0.000sft	80°	0.000sft	-	0.948sft	Lat

	19'49.21435"N		31'31.37714"W		76.044sft		Long e
C111AE	25° 23'33.28421"N	0.031sft	80° 32'29.74055"W	0.030sft	-78.032sft	0.949sft	
C111AW	25° 23'35.34449"N	0.027sft	80° 33'13.38749"W	0.027sft	-78.303sft	0.949sft	
EG2	25° 24'13.19365"N	0.039sft	80° 33'29.56437"W	0.038sft	-71.306sft	0.950sft	
S504	25° 20'43.02944"N	0.039sft	80° 33'56.95276"W	0.039sft	-77.839sft	0.950sft	
U 504	25° 19'15.97367"N	0.037sft	80° 33'56.72613"W	0.037sft	-77.212sft	0.950sft	
CSSSD1	25° 20'47.71319"N	0.031sft	80° 33'33.63789"W	0.031sft	-78.117sft	0.949sft	
CSSSD3	25° 19'45.75165"N	0.036sft	80° 32'11.13887"W	0.037sft	-78.104sft	0.950sft	
CSSSD2	25° 20'14.76471"N	0.031sft	80° 33'35.70549"W	0.031sft	-77.325sft	0.949sft	

Coordinate Deltas

Point Name	ΔNorthing	ΔEasting	ΔElevation	ΔHeight	ΔGeoid Separation
DAWAL 3	0.000sft	0.000sft	0.000sft	0.008sft	-0.008sft
C111AE	-0.133sft	0.064sft	-0.004sft	-0.004sft	0.000sft
C111AW	-0.129sft	0.089sft	-0.021sft	-0.021sft	0.000sft
EG2	-0.151sft	0.104sft	-0.025sft	-0.026sft	0.002sft
S504	-0.015sft	0.090sft	-0.054sft	-0.049sft	-0.004sft
U 504	0.039sft	0.078sft	-0.044sft	-0.054sft	0.010sft
CSSSD1	-0.021sft	0.078sft	-0.039sft	-0.039sft	0.000sft
CSSSD3	0.007sft	0.022sft	-0.009sft	-0.009sft	0.000sft
CSSSD2	0.000sft	0.074sft	-0.042sft	-0.042sft	0.000sft

Back to top

Control Coordinate Comparisons

Values shown are control coord minus adjusted coord.

Point Name	ΔNorthing	ΔEasting	ΔElevation	ΔHeight
DAWAL 3	N/A	N/A	N/A	-0.028sft

EG2	0.151sft	-0.104sft	0.025sft	N/A
S504	N/A	N/A	0.054sft	N/A
U 504	N/A	N/A	0.044sft	N/A

Back to top

Adjusted Observations

Adjustment performed in WGS-84

GPS Observations

Number of Observations : 20
Number of Outliers : 0

Observation Adjustment (Critical Tau = 3.17). Any outliers are in red.

Obs. ID	From Pt.	To Pt.		Observation	A-posteriori Error (1.96σ)	Residual	Stand. Residual
B19	CSSSD1	EG2	Az.	1°01'53.6088"	0°00'00.3741"	0° 00'00.6106"	2.96
			ΔHt.	6.811sft	0.052sft	-0.023sft	-0.68
			Dist.	20748.089sft	0.039sft	0.012sft	0.54
B6	C111AW	EG2	Az.	338° 47'01.9810"	0°00'01.7995"	-0° 00'01.2344"	-1.13
			ΔHt.	6.997sft	0.048sft	0.083sft	2.26
			Dist.	4099.004sft	0.036sft	-0.002sft	-0.09
B28	U 504	CSSSD2	Az.	18°00'01.9847"	0°00'01.2156"	0° 00'00.0389"	0.06
			ΔHt.	-0.113sft	0.051sft	0.047sft	1.73
			Dist.	6240.850sft	0.036sft	0.013sft	0.65
B9	DAWAL 3	C111AW	Az.	337° 43'06.1347"	0°00'00.2263"	0° 00'00.0557"	0.29
			ΔHt.	-2.259sft	0.033sft	-0.044sft	-1.67
			Dist.	24672.683sft	0.027sft	-0.009sft	-0.40
B11	DAWAL 3	C111AW	Az.	337° 43'06.1347"	0°00'00.2263"	-0° 00'00.2912"	-1.49
			ΔHt.	-2.259sft	0.033sft	0.044sft	1.66

			Dist.	24672.683sft	0.027sft	0.009sft	0.41
B7	C111AE	EG2	**Az.**	306° 17'56.7230"	0°00'01.1389"	-0° 00'00.7118"	-1.24
			ΔHt.	6.727sft	0.045sft	-0.027sft	-1.50
			Dist.	6806.581sft	0.038sft	0.027sft	1.44
B29	CSSSD1	CSSSD2	**Az.**	183° 15'50.2000"	0°00'02.1238"	0° 00'01.9875"	1.46
			ΔHt.	0.791sft	0.049sft	0.007sft	0.20
			Dist.	3331.775sft	0.035sft	-0.026sft	-1.07
B27	S504	CSSSD2	**Az.**	145° 39'38.3256"	0°00'02.2834"	0° 00'01.3947"	1.10
			ΔHt.	0.514sft	0.056sft	0.010sft	0.21
			Dist.	3455.774sft	0.039sft	0.034sft	1.41
B1	DAWAL 3	C111AE	**Az.**	346° 41'19.3981"	0°00'00.2685"	-0° 00'00.2728"	-1.37
			ΔHt.	-1.988sft	0.038sft	-0.029sft	-0.99
			Dist.	23246.285sft	0.031sft	0.021sft	0.98
B15	CSSSD1	S504	**Az.**	257° 32'07.4081"	0°00'03.4150"	-0° 00'02.4279"	-1.28
			ΔHt.	0.277sft	0.047sft	0.010sft	0.41
			Dist.	2190.571sft	0.036sft	0.016sft	0.79
B25	DAWAL 3	CSSSD2	**Az.**	282° 44'57.5294"	0°00'00.5480"	0° 00'00.0322"	0.08
			ΔHt.	-1.281sft	0.043sft	-0.032sft	-1.25
			Dist.	11695.129sft	0.031sft	-0.019sft	-0.87
B5	C111AW	C111AE	**Az.**	92°58'19.6732"	0°00'01.6579"	0° 00'00.2182"	0.21
			ΔHt.	0.270sft	0.037sft	-0.024sft	-1.22
			Dist.	4008.062sft	0.032sft	-0.024sft	-1.18
B14	DAWAL 3	U 504	**Az.**	255° 53'04.8738"	0°00'00.5485"	-0° 00'00.0484"	-0.15
			ΔHt.	-1.168sft	0.051sft	0.042sft	1.11
			Dist.	13752.388sft	0.037sft	-0.017sft	-0.81
B10	DAWAL 3	C111AE	**Az.**	346° 41'19.3981"	0°00'00.2685"	0° 00'00.2133"	1.02
			ΔHt.	-1.988sft	0.038sft	0.036sft	1.05
			Dist.	23246.285sft	0.031sft	-0.016sft	-0.61

B30	CSSSD3	CSSSD2	**Az.**	290° 41'12.3126"	0°00'00.9197"	0° 00'00.1584"	0.29
			ΔHt.	0.779sft	0.053sft	-0.030sft	-0.69
			Dist.	8293.472sft	0.037sft	-0.007sft	-0.31
B18	C111AW	CSSSD1	**Az.**	186° 15'52.3961"	0°00'00.3722"	-0° 00'00.1526"	-0.56
			ΔHt.	0.186sft	0.040sft	-0.021sft	-0.69
			Dist.	17025.193sft	0.031sft	-0.015sft	-0.67
B20	CSSSD3	U 504	**Az.**	252° 46'01.8119"	0°00'00.7651"	0° 00'00.2306"	0.62
			ΔHt.	0.892sft	0.047sft	0.011sft	0.65
			Dist.	10144.020sft	0.038sft	0.008sft	0.44
B17	DAWAL 3	CSSSD3	**Az.**	264° 31'44.0292"	0°00'02.0470"	0° 00'00.6256"	0.57
			ΔHt.	-2.060sft	0.049sft	0.001sft	0.03
			Dist.	3664.967sft	0.037sft	0.002sft	0.10
B8	C111AW	S504	**Az.**	192° 56'20.4062"	0°00'00.4188"	-0° 00'00.0950"	-0.43
			ΔHt.	0.463sft	0.045sft	0.002sft	0.13
			Dist.	17849.460sft	0.036sft	0.006sft	0.33
B16	DAWAL 3	CSSSD1	**Az.**	297° 46'28.1078"	0°00'00.5089"	-0° 00'00.0076"	-0.02
			ΔHt.	-2.073sft	0.040sft	0.007sft	0.26
			Dist.	12676.750sft	0.031sft	-0.008sft	-0.34

Geoid Observations

Number of Observations : 9
Number of Outliers : 0

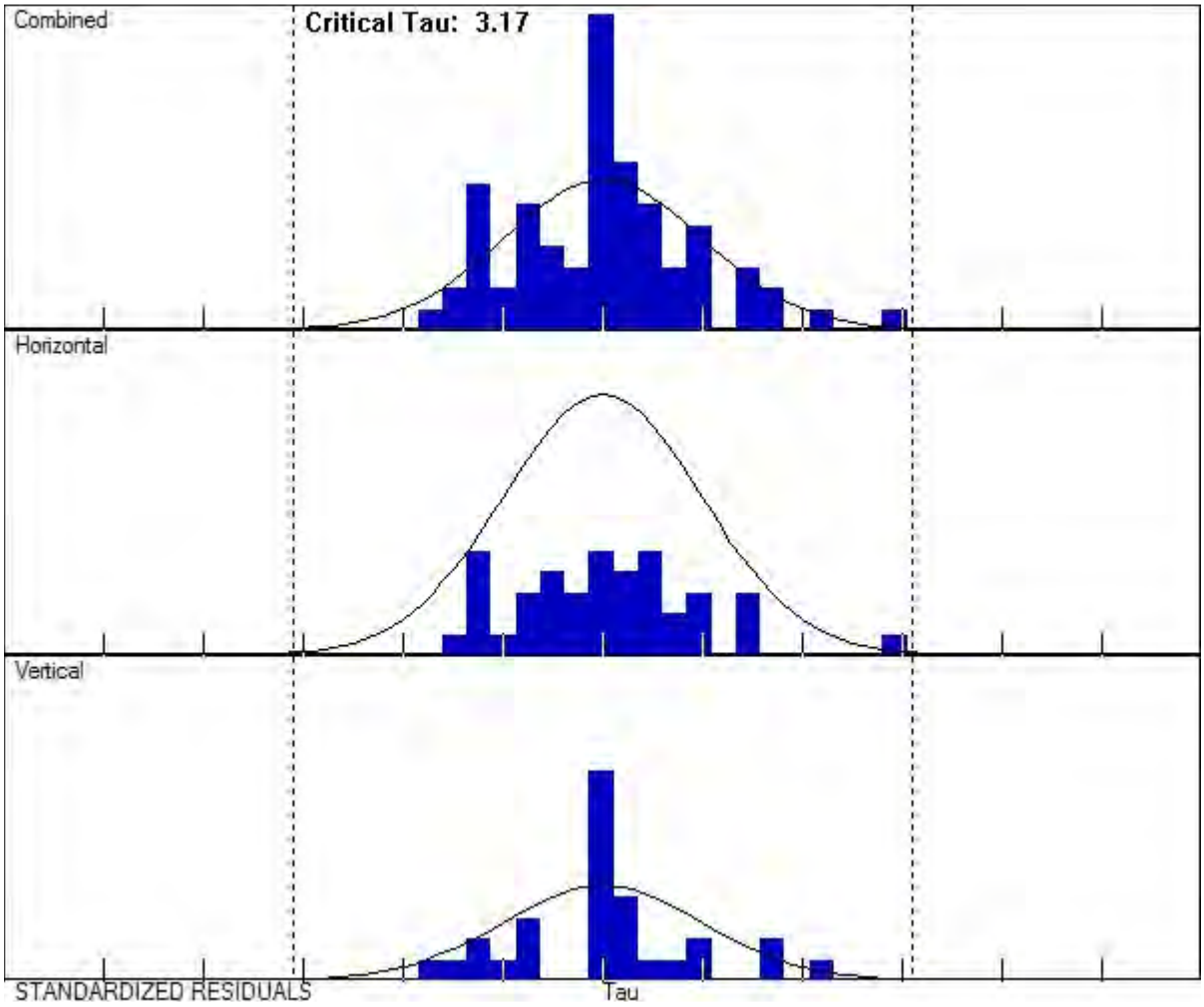
Observation Adjustment (Critical Tau = 3.17). Any outliers are in red.

Observation ID	Point Name	Separation	A-posteriori Error (1.96σ)	Residual	Standardized Residual
G55	DAWAL 3	-80.097sft	0.948sft	0.000sft	0.00
G56	C111AE	-80.470sft	0.948sft	0.000sft	0.00
G57	C111AW	-80.357sft	0.948sft	0.000sft	0.00
G58	EG2	-80.391sft	0.948sft	0.000sft	0.00

G59	S504	-79.866sft	0.948sft	0.000sft	0.00
G60	U 504	-79.669sft	0.948sft	0.000sft	0.00
G61	CSSSD1	-79.932sft	0.948sft	0.000sft	0.00
G62	CSSSD3	-79.989sft	0.948sft	0.000sft	0.00
G63	CSSSD2	-79.852sft	0.948sft	0.000sft	0.00

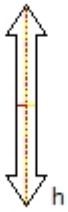
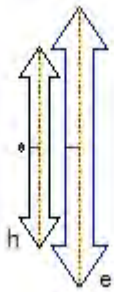
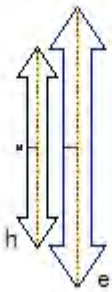
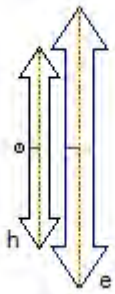
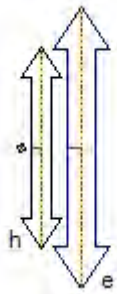
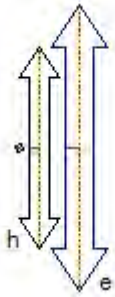
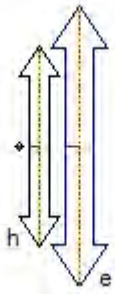
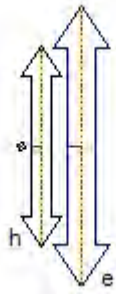
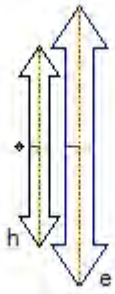
Back to top

Histograms of Standardized Residuals



Back to top

Point Error Ellipses

DAWAL 3	C111AE	C111AW
 0°	 -69°	 77°
Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ		
EG2	**S504**	**U 504**
 -82°	 -73°	 -7°
Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ		
CSSSD1	**CSSSD3**	**CSSSD2**
 79°	 -9°	 -64°
Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ		

Back to top

Covariant Terms

Adjustment performed in WGS-84

From Point	To Point		Components	A-posteriori Error (1.96σ)	Horiz. Precision (Ratio)	3D Precision (Ratio)
DAWAL 3	C111AE	**Az.**	346° 41'19.3981"	0°00'00.2685"	1:749512	1:749512

		ΔHt.	-1.988sft	0.038sft		
		ΔElev.	-1.616sft	1.342sft		
		Dist.	23246.285sft	0.031sft		
DAWAL 3	C111AW	**Az.**	337° 43'06.1347"	0°00'00.2263"	1:911171	1:911171
		ΔHt.	-2.259sft	0.033sft		
		ΔElev.	-1.999sft	1.342sft		
		Dist.	24672.683sft	0.027sft		
DAWAL 3	U 504	**Az.**	255° 53'04.8738"	0°00'00.5485"	1:374027	1:374027
		ΔHt.	-1.168sft	0.051sft		
		ΔElev.	-1.597sft	1.342sft		
		Dist.	13752.388sft	0.037sft		
DAWAL 3	CSSSD1	**Az.**	297° 46'28.1078"	0°00'00.5089"	1:409971	1:409971
		ΔHt.	-2.073sft	0.040sft		
		ΔElev.	-2.238sft	1.342sft		
		Dist.	12676.750sft	0.031sft		
DAWAL 3	CSSSD3	**Az.**	264° 31'44.0292"	0°00'02.0470"	1:100098	1:100098
		ΔHt.	-2.060sft	0.049sft		
		ΔElev.	-2.169sft	1.342sft		
		Dist.	3664.967sft	0.037sft		
DAWAL 3	CSSSD2	**Az.**	282° 44'57.5294"	0°00'00.5480"	1:377092	1:377092
		ΔHt.	-1.281sft	0.043sft		
		ΔElev.	-1.527sft	1.342sft		
		Dist.	11695.129sft	0.031sft		
C111AE	C111AW	**Az.**	272° 58'38.3900"	0°00'01.6579"	1:125433	1:125433
		ΔHt.	-0.270sft	0.037sft		
		ΔElev.	-0.384sft	1.897sft		
		Dist.	4008.062sft	0.032sft		
C111AE	EG2	**Az.**	306° 17'56.7230"	0°00'01.1389"	1:181120	1:181120
		ΔHt.	6.727sft	0.045sft		

		ΔElev.	6.648sft	1.898sft		
		Dist.	6806.581sft	0.038sft		
C111AW	EG2	**Az.**	338° 47'01.9810"	0°00'01.7995"	1:113136	1:113136
		ΔHt.	6.997sft	0.048sft		
		ΔElev.	7.031sft	1.898sft		
		Dist.	4099.004sft	0.036sft		
C111AW	S504	**Az.**	192° 56'20.4062"	0°00'00.4188"	1:489091	1:489091
		ΔHt.	0.463sft	0.045sft		
		ΔElev.	-0.028sft	1.898sft		
		Dist.	17849.460sft	0.036sft		
C111AW	CSSSD1	**Az.**	186° 15'52.3961"	0°00'00.3722"	1:545892	1:545892
		ΔHt.	0.186sft	0.040sft		
		ΔElev.	-0.238sft	1.897sft		
		Dist.	17025.193sft	0.031sft		
EG2	CSSSD1	**Az.**	181° 01'55.3545"	0°00'00.3742"	1:533164	1:533164
		ΔHt.	-6.811sft	0.052sft		
		ΔElev.	-7.270sft	1.898sft		
		Dist.	20748.089sft	0.039sft		
S504	CSSSD1	**Az.**	77°31'57.4274"	0°00'03.4149"	1:60689	1:60689
		ΔHt.	-0.277sft	0.047sft		
		ΔElev.	-0.210sft	1.898sft		
		Dist.	2190.571sft	0.036sft		
S504	CSSSD2	**Az.**	145° 39'38.3256"	0°00'02.2834"	1:87843	1:87843
		ΔHt.	0.514sft	0.056sft		
		ΔElev.	0.500sft	1.898sft		
		Dist.	3455.774sft	0.039sft		
U 504	CSSSD3	**Az.**	72°45'16.6463"	0°00'00.7650"	1:268036	1:268036
		ΔHt.	-0.892sft	0.047sft		
		ΔElev.	-0.572sft	1.898sft		
		Dist.	10144.020sft	0.038sft		

U 504	CSSSD2	**Az.**	18°00'01.9847"	0°00'01.2156"	1:171105	1:171105
		ΔHt.	-0.113sft	0.051sft		
		ΔElev.	0.070sft	1.898sft		
		Dist.	6240.850sft	0.036sft		
CSSSD1	CSSSD2	**Az.**	183° 15'50.2000"	0°00'02.1239"	1:94683	1:94683
		ΔHt.	0.791sft	0.049sft		
		ΔElev.	0.711sft	1.898sft		
		Dist.	3331.775sft	0.035sft		
CSSSD3	CSSSD2	**Az.**	290° 41'12.3126"	0°00'00.9197"	1:222185	1:222185
		ΔHt.	0.779sft	0.053sft		
		ΔElev.	0.642sft	1.898sft		
		Dist.	8293.472sft	0.037sft		

Back to top

Network Adjustment Report

Project : TGO NETWORK

User name	User	**Date & Time**	6:26:32 AM 2/4/2011
Coordinate System	US State Plane 1983	**Zone**	Florida East 0901
Project Datum	NAD 1983 (Conus)		
Vertical Datum		**Geoid Model**	geoide 09
Coordinate Units	US survey feet		
Distance Units	US survey feet		
Height Units	US survey feet		

Adjustment Style Settings - 95% Confidence Limits

Residual Tolerances

To End Iterations : 0.000033sft
Final Convergence Cutoff : 0.016404sft

Covariance Display

Horizontal
Propagated Linear Error [E] : U.S.
Constant Term [C] : 0.00000000sft
Scale on Linear Error [S] : 1.96

Three-Dimensional
Propagated Linear Error [E] : U.S.
Constant Term [C] : 0.00000000sft
Scale on Linear Error [S] : 1.96
Elevation Errors were used in the calculations.

Adjustment Controls

Compute Correlations for Geoid : False
Horizontal and Vertical adjustment performed

Set-up Errors

GPS
Error in Height of Antenna : 0.010sft
Centering Error : 0.010sft

Back to top

Statistical Summary

Successful Adjustment in 2 iteration(s)

Network Reference Factor : 1.82
Chi Square Test (α=95%) : FAIL
Degrees of Freedom : 37.00

GPS Observation Statistics

Reference Factor : 1.84
Redundancy Number (r) : 36.00

Individual GPS Observation Statistics

Observation ID	Reference Factor	Redundancy Number
B1	2.11	2.02
B5	1.80	1.74
B6	2.80	1.84
B7	2.56	1.37
B8	0.61	1.45
B9	1.84	2.17
B10	1.79	2.19
B11	2.37	2.19
B14	1.49	1.80
B15	1.62	1.61
B16	0.47	1.99
B17	0.63	1.50
B18	1.13	2.03
B19	3.20	1.71
B20	1.06	1.29
B25	1.55	1.88
B27	1.95	1.84
B28	1.94	1.59
B29	1.89	1.89
B30	0.93	1.89

Geoid Model Statistics

Reference Factor : 0.05
Redundancy Number (r) : 1.00

Weighting Strategies

GPS Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Geoid Observations
Default Scalar Applied to All Observations
Scalar : 1.00

Back to top

Adjusted Coordinates

Adjustment performed in WGS-84

Number of Points	: 9
Number of Constrained Points	: 4
Elevation Only	: 2
Horizontal and Elevation Only	: 2

Adjusted Grid Coordinates

Errors are reported using 1.96σ.

Point Name	Northing	N error	Easting	E error	Elevation	e error	Fix
DAWAL 3	362586.911sft	0.000sft	812929.201sft	0.000sft	4.053sft	0.000sft	N E e
C111AE	385188.937sft	0.033sft	807496.823sft	0.032sft	2.442sft	1.301sft	
C111AW	385383.375sft	0.032sft	803493.588sft	0.031sft	2.075sft	1.226sft	
EG2	389199.471sft	0.000sft	801997.492sft	0.000sft	9.110sft	0.000sft	N E e
S504	367974.378sft	0.039sft	799555.066sft	0.039sft	2.080sft	0.000sft	e
U 504	359185.892sft	0.040sft	799604.370sft	0.041sft	2.500sft	0.000sft	e
CSSSD1	368454.212sft	0.030sft	801692.374sft	0.030sft	1.855sft	1.061sft	
CSSSD3	362224.557sft	0.036sft	809282.284sft	0.036sft	1.894sft	1.174sft	
CSSSD2	365127.329sft	0.033sft	801513.637sft	0.033sft	2.569sft	1.083sft	

Adjusted Geodetic Coordinates

Errors are reported using 1.96σ.

Point Name	Latitude	N error	Longitude	E error	Height	h error	Fix

DAWAL 3	25° 19'49.21435"N	0.000sft	80° 31'31.37714"W	0.000sft	-76.052sft	0.934sft	Lat Long e
C111AE	25° 23'33.28553"N	0.033sft	80° 32'29.74125"W	0.032sft	-78.028sft	0.904sft	
C111AW	25° 23'35.34577"N	0.032sft	80° 33'13.38846"W	0.031sft	-78.281sft	0.792sft	
EG2	25° 24'13.19515"N	0.000sft	80° 33'29.56550"W	0.000sft	-71.279sft	0.910sft	Lat Long e
S504	25° 20'43.02959"N	0.039sft	80° 33'56.95375"W	0.039sft	-77.790sft	0.593sft	e
U 504	25° 19'15.97328"N	0.040sft	80° 33'56.72698"W	0.041sft	-77.158sft	0.758sft	e
CSSSD1	25° 20'47.71341"N	0.030sft	80° 33'33.63873"W	0.030sft	-78.077sft	0.501sft	
CSSSD3	25° 19'45.75158"N	0.036sft	80° 32'11.13911"W	0.036sft	-78.095sft	0.710sft	
CSSSD2	25° 20'14.76472"N	0.033sft	80° 33'35.70630"W	0.033sft	-77.283sft	0.546sft	

Coordinate Deltas

Point Name	ΔNorthing	ΔEasting	ΔElevation	ΔHeight	ΔGeoid Separation
DAWAL 3	0.000sft	0.000sft	0.000sft	-0.008sft	0.008sft
C111AE	0.133sft	-0.064sft	0.004sft	0.004sft	0.000sft
C111AW	0.129sft	-0.089sft	0.021sft	0.021sft	0.000sft
EG2	0.000sft	0.000sft	0.000sft	0.026sft	-0.026sft
S504	0.015sft	-0.090sft	0.000sft	0.049sft	-0.049sft
U 504	-0.039sft	-0.078sft	0.000sft	0.054sft	-0.054sft
CSSSD1	0.021sft	-0.078sft	0.039sft	0.039sft	0.000sft
CSSSD3	-0.007sft	-0.022sft	0.009sft	0.009sft	0.000sft
CSSSD2	0.000sft	-0.074sft	0.042sft	0.042sft	0.000sft

Back to top

Control Coordinate Comparisons

Values shown are control coord minus adjusted coord.

Point Name	ΔNorthing	ΔEasting	ΔElevation	ΔHeight

DAWAL 3	N/A	N/A	N/A	-0.020sft
EG2	N/A	N/A	N/A	N/A
S504	N/A	N/A	N/A	N/A
U 504	N/A	N/A	N/A	N/A

Back to top

Adjusted Observations

Adjustment performed in WGS-84

GPS Observations

GPS Transformation Group: <GPS Default>

Deflection in Longitude	: -0°00'00.9144"	**(1.96σ)**	: 0°00'17.8033"
Deflection in Latitude	: 0°00'00.1165"	**(1.96σ)**	: 0°00'08.4185"
Azimuth Rotation	: 0°00'00.2788"	**(1.96σ)**	: 0°00'00.2719"
Network Scale	: 0.99999379	**(1.96σ)**	: 0.00000134

Number of Observations : 20
Number of Outliers : 0

Observation Adjustment (Critical Tau = 3.18). Any outliers are in red.

Obs. ID	From Pt.	To Pt.		Observation	A-posteriori Error (1.96σ)	Residual	Stand. Residual
B19	CSSSD1	EG2	**Az.**	1°01'53.6088"	0°00'00.3689"	0° 00'00.6103"	3.00
			ΔHt.	6.811sft	0.051sft	-0.023sft	-0.69
			Dist.	20748.090sft	0.038sft	0.012sft	0.54
B6	C111AW	EG2	**Az.**	338° 47'01.9824"	0°00'01.7747"	-0° 00'01.2334"	-1.15
			ΔHt.	6.997sft	0.047sft	0.083sft	2.30
			Dist.	4099.004sft	0.036sft	-0.002sft	-0.09
B28	U 504	CSSSD2	**Az.**	18°00'01.9846"	0°00'01.1988"	0° 00'00.0384"	0.06
			ΔHt.	-0.113sft	0.051sft	0.047sft	1.74
			Dist.	6240.850sft	0.036sft	0.013sft	0.65
	DAWAL			337°		0°	

B9	3	C111AW	**Az.**	43'06.1347"	0°00'00.2232"	00'00.0557"	0.30
			ΔHt.	-2.259sft	0.032sft	-0.044sft	-1.70
			Dist.	24672.683sft	0.027sft	-0.009sft	-0.40
B11	DAWAL 3	C111AW	**Az.**	337° 43'06.1347"	0°00'00.2232"	-0° 00'00.2912"	-1.52
			ΔHt.	-2.259sft	0.032sft	0.044sft	1.67
			Dist.	24672.683sft	0.027sft	0.009sft	0.41
B7	C111AE	EG2	**Az.**	306° 17'56.7237"	0°00'01.1232"	-0° 00'00.7114"	-1.26
			ΔHt.	6.727sft	0.045sft	-0.027sft	-1.52
			Dist.	6806.581sft	0.037sft	0.027sft	1.46
B29	CSSSD1	CSSSD2	**Az.**	183° 15'50.1994"	0°00'02.0946"	0° 00'01.9866"	1.48
			ΔHt.	0.791sft	0.048sft	0.007sft	0.20
			Dist.	3331.775sft	0.035sft	-0.026sft	-1.08
B27	S504	CSSSD2	**Az.**	145° 39'38.3265"	0°00'02.2521"	0° 00'01.3951"	1.12
			ΔHt.	0.513sft	0.055sft	0.009sft	0.20
			Dist.	3455.774sft	0.039sft	0.034sft	1.43
B1	DAWAL 3	C111AE	**Az.**	346° 41'19.3982"	0°00'00.2648"	-0° 00'00.2727"	-1.39
			ΔHt.	-1.988sft	0.037sft	-0.029sft	-1.00
			Dist.	23246.285sft	0.031sft	0.021sft	0.99
B15	CSSSD1	S504	**Az.**	257° 32'07.4097"	0°00'03.3680"	-0° 00'02.4266"	-1.30
			ΔHt.	0.277sft	0.046sft	0.010sft	0.41
			Dist.	2190.571sft	0.036sft	0.016sft	0.80
B25	DAWAL 3	CSSSD2	**Az.**	282° 44'57.5293"	0°00'00.5405"	0° 00'00.0321"	0.09
			ΔHt.	-1.281sft	0.042sft	-0.032sft	-1.25
			Dist.	11695.129sft	0.031sft	-0.019sft	-0.88
B5	C111AW	C111AE	**Az.**	92°58'19.6732"	0°00'01.6351"	0° 00'00.2178"	0.21
			ΔHt.	0.270sft	0.037sft	-0.024sft	-1.24
			Dist.	4008.062sft	0.032sft	-0.024sft	-1.19
B14	DAWAL 3	U 504	**Az.**	255° 53'04.8738"	0°00'00.5410"	-0° 00'00.0484"	-0.15

			ΔHt.	-1.168sft	0.050sft	0.042sft	1.13
			Dist.	13752.388sft	0.036sft	-0.017sft	-0.82
B10	DAWAL 3	C111AE	**Az.**	346° 41'19.3982"	0°00'00.2648"	0° 00'00.2134"	1.03
			ΔHt.	-1.988sft	0.037sft	0.036sft	1.06
			Dist.	23246.285sft	0.031sft	-0.016sft	-0.62
B18	C111AW	CSSSD1	**Az.**	186° 15'52.3966"	0°00'00.3672"	-0° 00'00.1525"	-0.57
			ΔHt.	0.186sft	0.039sft	-0.021sft	-0.71
			Dist.	17025.193sft	0.031sft	-0.015sft	-0.68
B30	CSSSD3	CSSSD2	**Az.**	290° 41'12.3126"	0°00'00.9071"	0° 00'00.1583"	0.29
			ΔHt.	0.779sft	0.052sft	-0.030sft	-0.70
			Dist.	8293.472sft	0.037sft	-0.007sft	-0.31
B20	CSSSD3	U 504	**Az.**	252° 46'01.8119"	0°00'00.7545"	0° 00'00.2305"	0.63
			ΔHt.	0.891sft	0.047sft	0.011sft	0.65
			Dist.	10144.020sft	0.037sft	0.008sft	0.45
B17	DAWAL 3	CSSSD3	**Az.**	264° 31'44.0288"	0°00'02.0188"	0° 00'00.6252"	0.58
			ΔHt.	-2.060sft	0.048sft	0.000sft	0.02
			Dist.	3664.967sft	0.036sft	0.002sft	0.10
B8	C111AW	S504	**Az.**	192° 56'20.4067"	0°00'00.4130"	-0° 00'00.0948"	-0.44
			ΔHt.	0.463sft	0.045sft	0.002sft	0.13
			Dist.	17849.460sft	0.036sft	0.006sft	0.33
B16	DAWAL 3	CSSSD1	**Az.**	297° 46'28.1079"	0°00'00.5019"	-0° 00'00.0074"	-0.02
			ΔHt.	-2.073sft	0.040sft	0.007sft	0.26
			Dist.	12676.750sft	0.030sft	-0.008sft	-0.35

Geoid Observations

Number of Observations : 9
Number of Outliers : 0

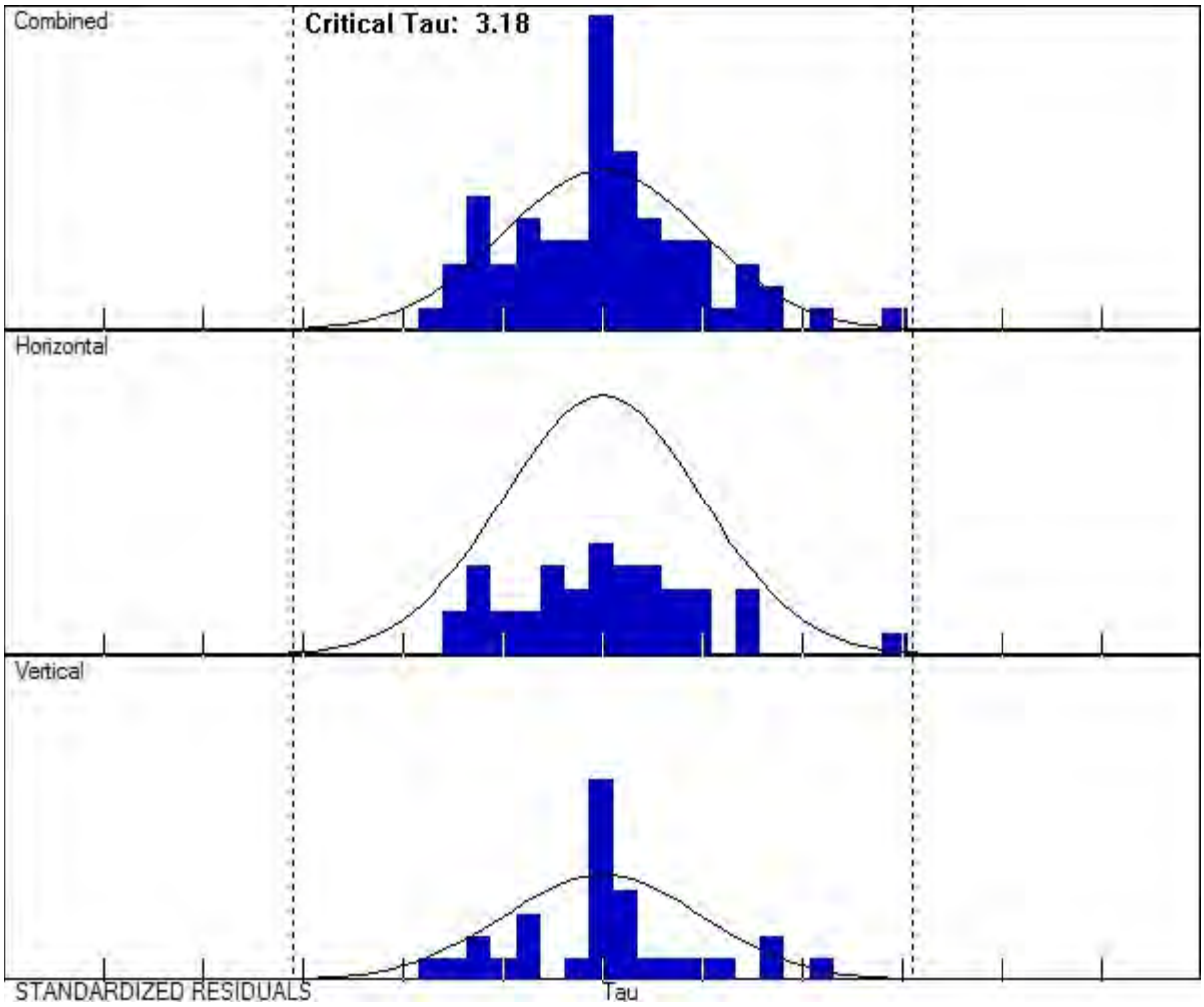
Observation Adjustment (Critical Tau = 3.18). Any outliers are in red.

			A-posteriori Error		Standardized

Observation ID	Point Name	Separation	(1.96σ)	Residual	Residual
G55	DAWAL 3	-80.105sft	0.934sft	-0.008sft	-0.32
G60	U 504	-79.658sft	0.758sft	0.010sft	0.04
G58	EG2	-80.389sft	0.910sft	0.002sft	0.02
G59	S504	-79.870sft	0.593sft	-0.004sft	-0.01
G56	C111AE	-80.470sft	0.935sft	0.000sft	0.00
G57	C111AW	-80.357sft	0.935sft	0.000sft	0.00
G61	CSSSD1	-79.932sft	0.935sft	0.000sft	0.00
G62	CSSSD3	-79.989sft	0.935sft	0.000sft	0.00
G63	CSSSD2	-79.852sft	0.935sft	0.000sft	0.00

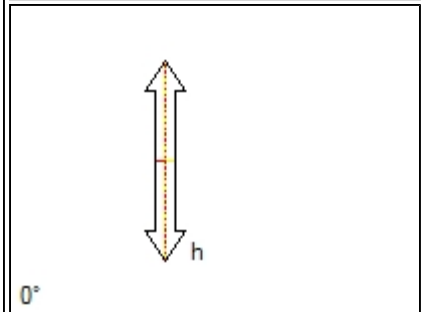
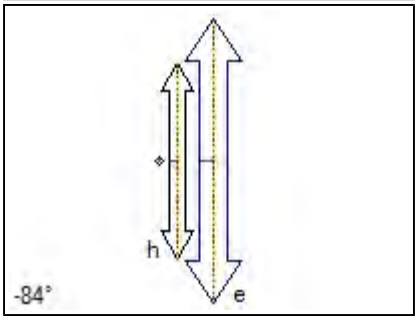
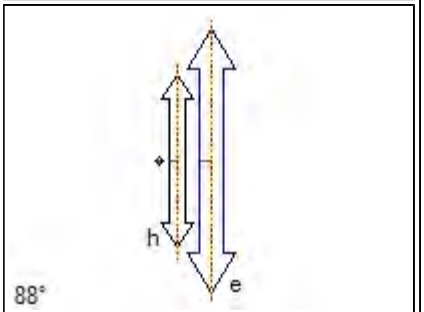
Back to top

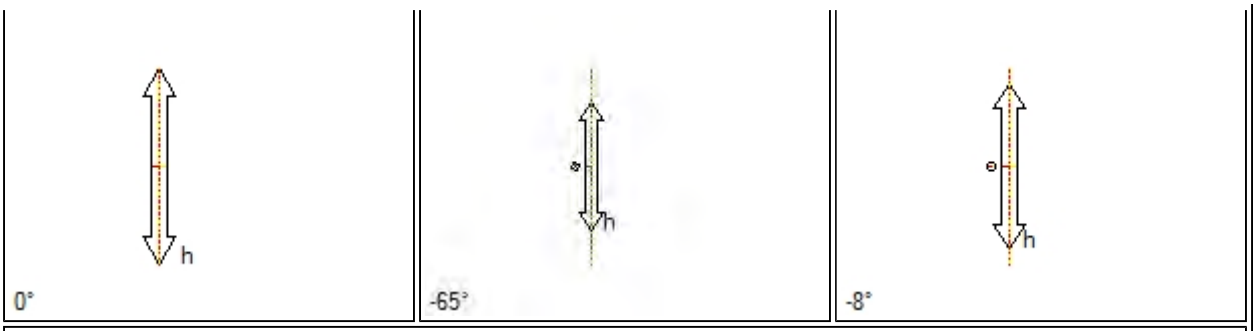
Histograms of Standardized Residuals



Back to top

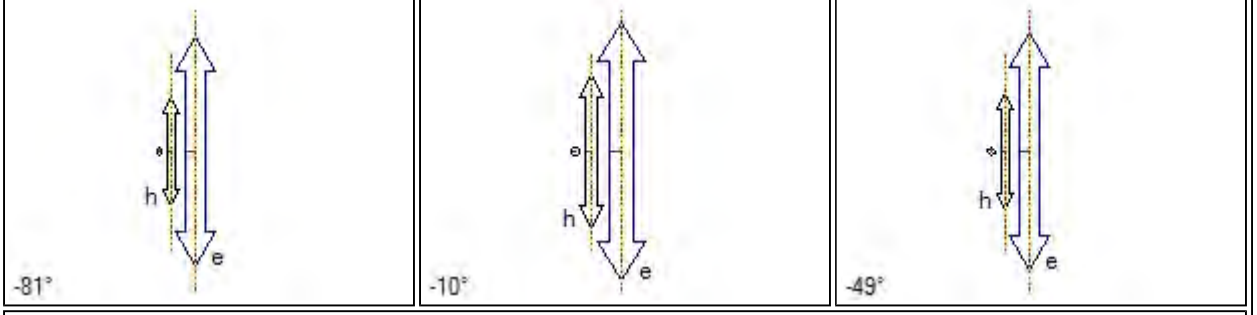
Point Error Ellipses

DAWAL 3	C111AE	C111AW
		
Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ		
EG2	**S504**	**U 504**



Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ

CSSSD1	CSSSD3	CSSSD2



Tick Size: 0.0100sft Horizontal Bivariate Scalar: 2.45σ Vertical Univariate Scalar: 1.96σ

Back to top

Covariant Terms

Adjustment performed in WGS-84

From Point	To Point		Components	A-posteriori Error (1.96σ)	Horiz. Precision (Ratio)	3D Precision (Ratio)
DAWAL 3	C111AE	**Az.**	346° 41'19.1199"	0°00'00.2872"	1:704844	1:704844
		ΔHt.	-1.977sft	0.954sft		
		ΔElev.	-1.612sft	1.301sft		
		Dist.	23246.429sft	0.033sft		
DAWAL 3	C111AW	**Az.**	337° 43'05.8565"	0°00'00.2635"	1:775019	1:775019
		ΔHt.	-2.230sft	1.115sft		
		ΔElev.	-1.978sft	1.226sft		
		Dist.	24672.836sft	0.032sft		
			255°			

DAWAL 3	U 504	**Az.**	53'04.5950"	0°00'00.6028"	1:339305	1:339305
		ΔHt.	-1.107sft	1.184sft		
		ΔElev.	-1.553sft	0.000sft		
		Dist.	13752.474sft	0.041sft		
DAWAL 3	CSSSD1	**Az.**	297° 46'27.8293"	0°00'00.4877"	1:424593	1:424593
		ΔHt.	-2.026sft	0.954sft		
		ΔElev.	-2.198sft	1.061sft		
		Dist.	12676.829sft	0.030sft		
DAWAL 3	CSSSD3	**Az.**	264° 31'43.7501"	0°00'02.0313"	1:100831	1:100831
		ΔHt.	-2.043sft	0.321sft		
		ΔElev.	-2.160sft	1.174sft		
		Dist.	3664.990sft	0.036sft		
DAWAL 3	CSSSD2	**Az.**	282° 44'57.2506"	0°00'00.5790"	1:354558	1:354558
		ΔHt.	-1.231sft	0.971sft		
		ΔElev.	-1.485sft	1.083sft		
		Dist.	11695.202sft	0.033sft		
C111AE	C111AW	**Az.**	272° 58'38.1113"	0°00'01.6614"	1:125021	1:125021
		ΔHt.	-0.253sft	0.346sft		
		ΔElev.	-0.366sft	1.787sft		
		Dist.	4008.087sft	0.032sft		
C111AE	EG2	**Az.**	306° 17'56.4450"	0°00'00.9908"	1:208465	1:208465
		ΔHt.	6.749sft	0.474sft		
		ΔElev.	6.668sft	1.301sft		
		Dist.	6806.624sft	0.033sft		
C111AW	EG2	**Az.**	338° 47'01.7037"	0°00'01.5853"	1:128730	1:128730
		ΔHt.	7.002sft	0.187sft		
		ΔElev.	7.035sft	1.226sft		
		Dist.	4099.029sft	0.032sft		
C111AW	S504	**Az.**	192° 56'20.1276"	0°00'00.4867"	1:420515	1:420515

		ΔHt.	0.492sft	0.845sft		
		ΔElev.	0.005sft	1.226sft		
		Dist.	17849.571sft	0.042sft		
C111AW	CSSSD1	**Az.**	186° 15'52.1175"	0°00'00.4637"	1:440692	1:440692
		ΔHt.	0.204sft	0.738sft		
		ΔElev.	-0.220sft	1.621sft		
		Dist.	17025.298sft	0.039sft		
EG2	CSSSD1	**Az.**	181° 01'55.0760"	0°00'00.2955"	1:689035	1:689035
		ΔHt.	-6.798sft	0.853sft		
		ΔElev.	-7.255sft	1.061sft		
		Dist.	20748.218sft	0.030sft		
S504	CSSSD1	**Az.**	77°31'57.1502"	0°00'03.3829"	1:61286	1:61286
		ΔHt.	-0.287sft	0.194sft		
		ΔElev.	-0.225sft	1.061sft		
		Dist.	2190.584sft	0.036sft		
S504	CSSSD2	**Az.**	145° 39'38.0476"	0°00'02.2353"	1:89829	1:89829
		ΔHt.	0.507sft	0.194sft		
		ΔElev.	0.489sft	1.083sft		
		Dist.	3455.795sft	0.038sft		
U 504	CSSSD3	**Az.**	72°45'16.3672"	0°00'00.8019"	1:255315	1:255315
		ΔHt.	-0.936sft	0.868sft		
		ΔElev.	-0.606sft	1.174sft		
		Dist.	10144.083sft	0.040sft		
U 504	CSSSD2	**Az.**	18°00'01.7059"	0°00'01.2133"	1:171031	1:171031
		ΔHt.	-0.125sft	0.321sft		
		ΔElev.	0.069sft	1.083sft		
		Dist.	6240.889sft	0.036sft		
CSSSD1	CSSSD2	**Az.**	183° 15'49.9206"	0°00'02.0586"	1:97646	1:97646
		ΔHt.	0.794sft	0.147sft		
		ΔElev.	0.714sft	1.516sft		
		Dist.	3331.795sft	0.034sft		

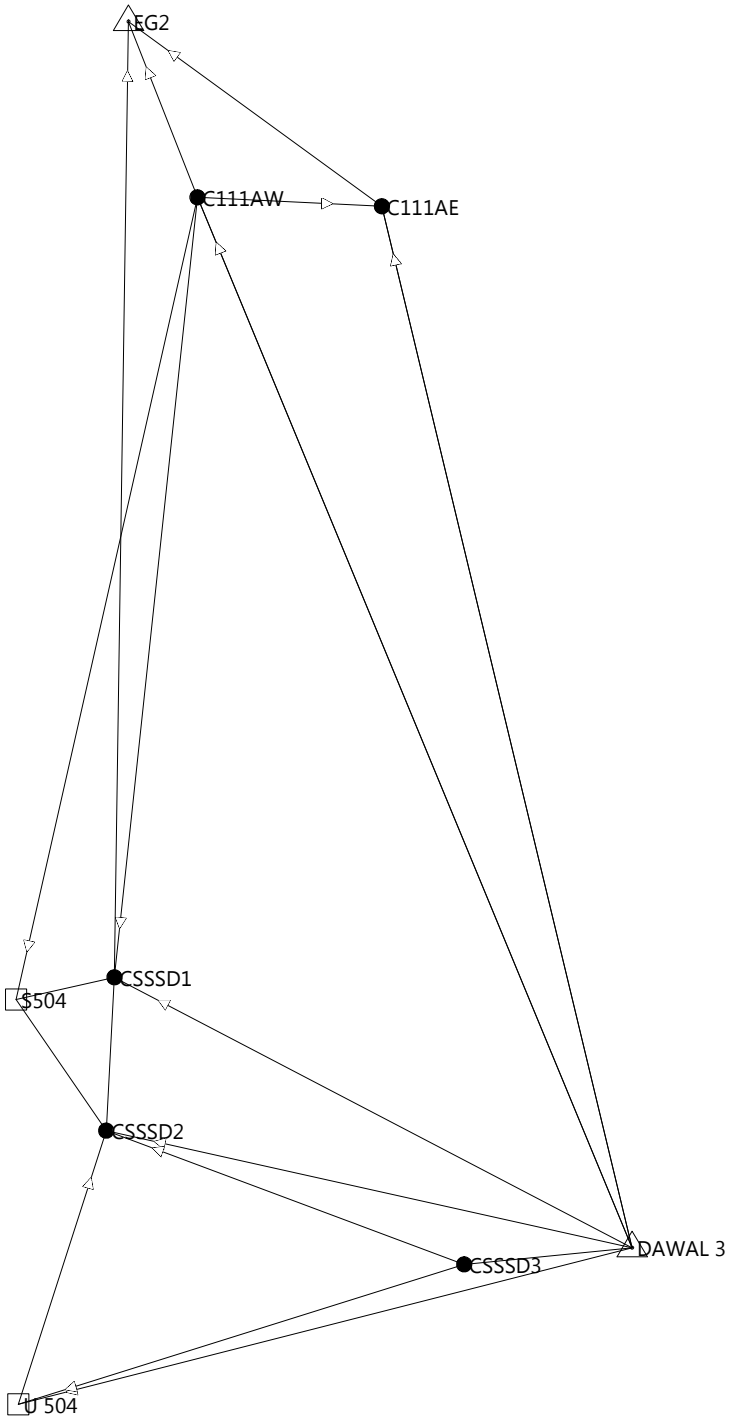
CSSSD3	CSSSD2	**Az.**	290° 41'12.0339"	0°00'00.9325"	1:218738	1:218738
		ΔHt.	0.812sft	0.660sft		
		ΔElev.	0.675sft	1.597sft		
		Dist.	8293.524sft	0.038sft		

Back to top

Field surveyor:

Computer operator:

Reference:



Scale 1" to 4167 ft

0 7500 sft

US survey feet

0°00'00"

Plot Scale: 1" to 4167 ft
Printed on 2/4/2011, at 6:17:37 AM

Printed from Trimble Geomatics Office

Site: Not selected, System: US State
Zone: Florida East 0901, Datum: NA

Project: TGO NETWORK
USFeet Template

DATASHEETS

The NGS Data SheetSee file dsdata.txt for more information about the datasheet.DATABASE = ,PROGRAM = datasheet, VERSION = 7.85
1 National Geodetic Survey, Retrieval Date = FEBRUARY 22, 2011
AC4350 ***
AC4350 DESIGNATION - DAWAL 3
AC4350 PID - AC4350
AC4350 STATE/COUNTY- FL/MIAMI-DADE
AC4350 USGS QUAD - ROYAL PALM RANGER STATION SE (1967)
AC4350
AC4350 *CURRENT SURVEY CONTROL
AC4350 _____
AC4350* NAD 83(1990)- 25 19 49.21434(N) 080 31 31.37710(W) ADJUSTED
AC4350* NAVD 88 - 1.235 (meters) 4.05 (feet) ADJUSTED
AC4350 _____
AC4350 LAPLACE CORR- -2.73 (seconds) DEFLEC09
AC4350 GEOID HEIGHT- -24.41 (meters) GEOID09
AC4350 DYNAMIC HT - 1.233 (meters) 4.05 (feet) COMP
AC4350 MODELED GRAV- 978,982.0 (mgal) NAVD 88
AC4350
AC4350 HORZ ORDER - FIRST
AC4350 VERT ORDER - FIRST CLASS II
AC4350
AC4350.The horizontal coordinates were established by classical geodetic methods
AC4350.and adjusted by the National Geodetic Survey in May 1991.
AC4350
AC4350.The orthometric height was determined by differential leveling and
AC4350.adjusted in September 2009.
AC4350
AC4350.Photographs are available for this station.
AC4350
AC4350.The Laplace correction was computed from DEFLEC09 derived deflections.
AC4350
AC4350.The geoid height was determined by GEOID09.
AC4350
AC4350.The dynamic height is computed by dividing the NAVD 88
AC4350.geopotential number by the normal gravity value computed on the
AC4350.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AC4350.degrees latitude (g = 980.6199 gals.).
AC4350
AC4350.The modeled gravity was interpolated from observed gravity values.
AC4350
AC4350; North East Units Scale Factor Converg.
AC4350;SPC FL E - 110,516.711 247,781.317 MT 0.99996936 +0 12 11.0
AC4350;SPC FL E - 362,586.91 812,929.20 sFT 0.99996936 +0 12 11.0
AC4350;UTM 17 - 2,801,610.985 547,765.014 MT 0.99962817 +0 12 11.0
AC4350
AC4350! - Elev Factor x Scale Factor = Combined Factor
AC4350!SPC FL E - 1.00000364 x 0.99996936 = 0.99997300
AC4350!UTM 17 - 1.00000364 x 0.99962817 = 0.99963181
AC4350
AC4350: Primary Azimuth Mark Grid Az
AC4350:SPC FL E - DAWAL 3 AZ MK 001 32 55.1
AC4350:UTM 17 - DAWAL 3 AZ MK 001 32 55.1
AC4350

AC4350|---|
AC4350| PID Reference Object Distance Geod. Az |
AC4350| dddmmss.s |
AC4350| CW7357 DAWAL 3 AZ MK 0014506.1 |
AC4350| CW7359 DAWAL 3 RM 4 18.675 METERS 08713 |
AC4350| AC4305 FLORIDA CITY ATT S ECC LT APPROX.12.2 KM 0922023.3 |
AC4350| AC4351 DAWAL 2 74.454 METERS 28416 |
AC4350| CW7358 DAWAL 3 RM 3 18.631 METERS 35749 |
AC4350|---|
AC4350
AC4350 SUPERSEDED SURVEY CONTROL
AC4350
AC4350 NAD 83(1986)- 25 19 49.21236(N) 080 31 31.37377(W) AD( ) 1
AC4350 NAD 27 - 25 19 47.79269(N) 080 31 32.16332(W) AD( ) 1
AC4350 NGVD 29 (07/19/86) 1.8 (m) 6. (f) VERT ANG
AC4350
AC4350.Superseded values are not recommended for survey control.
AC4350.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AC4350.See file dsdata.txt to determine how the superseded data were derived.
AC4350
AC4350_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ4776501610(NAD 83)
AC4350_MARKER: DS = TRIANGULATION STATION DISK
AC4350_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AC4350_SP_SET: TOP OF SQUARE CONCRETE MONUMENT
AC4350_STAMPING: DAWAL 3 1972
AC4350_MARK LOGO: NGS
AC4350_PROJECTION: FLUSH
AC4350_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AC4350_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AC4350+STABILITY: SURFACE MOTION
AC4350_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AC4350+SATELLITE: SATELLITE OBSERVATIONS - March 07, 2004
AC4350
AC4350 HISTORY - Date Condition Report By
AC4350 HISTORY - 1972 MONUMENTED NGS
AC4350 HISTORY - 20040307 GOOD FLDEP
AC4350
AC4350 STATION DESCRIPTION
AC4350
AC4350'DESCRIBED BY NATIONAL GEODETIC SURVEY 1972 (HLM)
AC4350'THE STATION IS LOCATED 9-1/2 MILES SOUTHWEST OF FLORIDA CITY, 4-1/2
AC4350'MILES WEST OF U.S. HIGHWAY 1, ON THE EAST BOUNDARY OF EVERGLADES
AC4350'NATIONAL PARK AND ON FLORIDA FLOOD CONTROL PROPERTY.
AC4350'
AC4350'TO REACH THE STATION FROM THE POST OFFICE IN FLORIDA CITY, GO
AC4350'WEST, SOUTH AND WEST ON STATE HIGHWAY 27 FOR 4.95 MILES TO A
AC4350'BRIDGE AT A FLOOD GATE AND A LOCKED GATE ON THE LEFT.
AC4350'(CONSERVATION AREA 5 KEY NEEDED). TURN LEFT AND GO SOUTHERLY ALONG
AC4350'THE EAST SIDE OF A CANAL ON A GRAVELED ROAD FOR 0.75 MILE TO
AC4350'A LOCKED GATE. (CONSERVATION AREA 4 KEY NEEDED). CONTINUE
AC4350'SOUTHERLY ON THE GRAVELED ROAD FOR 3.55 MILES TO THE AZIMUTH MARK
AC4350'ON THE RIGHT. CONTINUE SOUTH ON THE GRAVELED ROAD FOR
AC4350'1.1 MILES TO A FLOOD GATE ON THE RIGHT. TURN RIGHT AND CROSS
AC4350'FLOOD GATE TO THE WEST SIDE OF THE CANAL AND THE STATION MARK
AC4350'AS DESCRIBED.
AC4350'
AC4350'STATION MARK, STAMPED DAWAL 3 1972 IS A STANDARD DISK SET IN
AC4350'A ROUND CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND. IT IS

AC4350'145 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF THE FLOOD GATE,
AC4350'135.5 FEET SOUTH OF A POWER POLE, 72 FEET WEST OF THE WEST EDGE
AC4350'OF THE CANAL AND 4.5 FEET EAST OF A METAL WITNESS POST.
AC4350'
AC4350'REFERENCE MARK 3, STAMPED DAWAL 3 NO 3 1972 IS A STANDARD DISK
AC4350'SET IN A ROUND CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND. IT
AC4350'IS 112 FEET SOUTHWEST OF THE SOUTHWEST CORNER OF THE FLOOD GATE,
AC4350'85 FEET WEST OF THE WEST EDGE OF THE CANAL, 79 FEET SOUTHWEST OF
AC4350'THE SOUTHWEST CORNER OF A SMALL BRICK BUILDING AND 75 FEET SOUTH
AC4350'OF THE POWER POLE.
AC4350'
AC4350'REFERENCE MARK 4, STAMPED DAWAL 3 NO 4 1972 IS A STANDARD DISK
AC4350'SET IN A ROUND CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND. IT
AC4350'IS 106 FEET SOUTH OF THE SOUTHWEST CORNER OF THE FLOOD GATE, 66
AC4350'FEET EAST OF THE WITNESS POST SET AT THE STATION MARK AND 10 FEET
AC4350'WEST OF THE WEST EDGE OF THE CANAL.
AC4350'
AC4350'AZIMUTH MARK, STAMPED DC BM J 515 IS A DADE COUNTY BENCH MARK
AC4350'BRONZE 2 INCH PLUG SET IN A 12 INCH SQUARE CONCRETE MONUMENT THAT
AC4350'IS FLUSH WITH THE GROUND. IT IS 15 FEET WEST OF THE CENTER OF THE
AC4350'GRAVELED ROAD, 10 FEET EAST OF THE EAST EDGE OF THE CANAL AND
AC4350'1.5 FEET WEST OF A METAL WITNESS POST.
AC4350'
AC4350'DAWAL 2, STAMPED DAWAL 2 1964 IS A STANDARD DISK SET IN A 4
AC4350'INCH CONCRETE FILLED PIPE SET IN AN IRREGULAR MASS OF CONCRETE
AC4350'AND PROJECTS 18 INCHES. IT IS 345 FEET WEST OF THE SOUTHWEST
AC4350'CORNER OF THE FLOOD GATE, 240 FEET WEST OF THE METAL WITNESS POST
AC4350'AT DAWAL 3, 4 FEET SOUTHEAST OF A METAL WITNESS POST AND 4
AC4350'FEET NORTHWEST OF A METAL WITNESS POST.
AC4350'
AC4350'HEIGHT OF LIGHT ABOVE STATION MARK 22.4 METERS.
AC4350
AC4350 STATION RECOVERY (2004)
AC4350
AC4350'RECOVERY NOTE BY FL DEPT OF ENV PRO 2004 (JLM)
AC4350'THE MARK IS ABOUT 10.0 MI (16.1 KM) SOUTH OF HOMESTEAD, 9.0 MI (14.5
AC4350'KM) SOUTH OF FLORIDA CITY, IN SECTION 4, TOWNSHIP 59 SOUTH, RANGE 38
AC4350'EAST.
AC4350'
AC4350'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH DIXIE
AC4350'HIGHWAY) AND PALM DRIVE (STATE HIGHWAY 9336, SOUTHWEST 344TH STREET)
AC4350'IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE HIGHWAY 9336, SOUTHWEST
AC4350'344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF SOUTHWEST 192TH
AC4350'AVENUE (TOWER ROAD, STATE HIGHWAY 9336), TURN LEFT ON SOUTHWEST 192TH
AC4350'AVENUE (TOWER ROAD, STATE HIGHWAY 9336) AND GO SOUTH FOR 2.1 MI (3.4
AC4350'KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE HIGHWAY 9336,
AC4350'INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH STREET
AC4350'(STATE HIGHWAY 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 3.95 MI (6.4
AC4350'KM) TO THE WEST END OF BRIDGE NUMBER 870057 SPANNING CANAL C-111 AND A
AC4350'LEVEE ROAD ON THE LEFT, TURN LEFT ON THE LEVEE ROAD ON THE WEST SIDE
AC4350'OF CANAL C-111 AND GO SOUTH FOR 6.05 MI (9.7 KM) TO THE WEST END OF
AC4350'WATER STRUCTURE NUMBER S-18 AND THE MARK ON THE RIGHT, SET IN THE TOP
AC4350'OF A ROUND CONCRETE MONUMENT FLUSH WITH THE GROUND AND LEVEL WITH THE
AC4350'STRUCTURE ROAD.
AC4350'
AC4350'LOCATED 140.0 FT (42.7 M) SOUTHWEST OF THE SOUTHWEST CORNER OF THE
AC4350'STRUCTURE, 135.0 FT (41.1 M) SOUTH OF A POWER POLE NUMBER 85122315107
AC4350'WITH 2 GUY WIRES ATTACHED, 72.0 FT (21.9 M) WEST OF THE WEST EDGE OF

AC4350'THE CANAL, 61.0 FT (18.6 M) SOUTH OF BENCH MARK DAWAL 3 REFERENCE MARK
AC4350'3 1972, 16.5 FT (5.0 M) WEST-NORTHWEST OF A 20-INCH (51 CM) PALM TREE
AC4350'AND 7.7 FT (2.3 M) WEST-NORTHWEST OF A 15-INCH (38 CM) PALM TREE.
AC4350'
AC4350'NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT 2195
AC4350'NORTHEAST EIGHTH STREET HOMESTEAD, FL PHONE 305-242-5955.

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

DATASHEETS

The NGS Data SheetSee file dsdata.txt for more information about the datasheet.DATABASE = ,PROGRAM = datasheet, VERSION = 7.85
1 National Geodetic Survey, Retrieval Date = FEBRUARY 22, 2011
AB2362 **********
AB2362 DESIGNATION - EG 2
AB2362 PID - AB2362
AB2362 STATE/COUNTY- FL/MIAMI-DADE
AB2362 USGS QUAD - ROYAL PALM RANGER STATION (1979)
AB2362
AB2362 *CURRENT SURVEY CONTROL
AB2362 _____
AB2362* NAD 83(2007)- 25 24 13.19515(N) 080 33 29.56550(W) ADJUSTED
AB2362* NAVD 88 - 2.777 (meters) 9.11 (feet) ADJUSTED
AB2362 _____
AB2362 EPOCH DATE - 2002.00
AB2362 X - 945,714.475 (meters) COMP
AB2362 Y - -5,686,854.831 (meters) COMP
AB2362 Z - 2,719,525.050 (meters) COMP
AB2362 LAPLACE CORR- -2.84 (seconds) DEFLEC09
AB2362 ELLIP HEIGHT- -21.723 (meters) (02/10/07) ADJUSTED
AB2362 GEOID HEIGHT- -24.50 (meters) GEOID09
AB2362 DYNAMIC HT - 2.773 (meters) 9.10 (feet) COMP
AB2362
AB2362 ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
AB2362 Type PID Designation North East Ellip
AB2362 ----------
AB2362 NETWORK AB2362 EG 2 2.69 2.69 4.84
AB2362 ----------
AB2362 MODELED GRAV- 978,980.6 (mgal) NAVD 88
AB2362
AB2362 VERT ORDER - FIRST CLASS II
AB2362
AB2362.The horizontal coordinates were established by GPS observations
AB2362.and adjusted by the National Geodetic Survey in February 2007.
AB2362
AB2362.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
AB2362.See National Readjustment for more information.
AB2362.The horizontal coordinates are valid at the epoch date displayed above.
AB2362.The epoch date for horizontal control is a decimal equivalence
AB2362.of Year/Month/Day.
AB2362
AB2362.The orthometric height was determined by differential leveling and
AB2362.adjusted in April 1996.
AB2362
AB2362.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AB2362
AB2362.The Laplace correction was computed from DEFLEC09 derived deflections.
AB2362
AB2362.The ellipsoidal height was determined by GPS observations
AB2362.and is referenced to NAD 83.
AB2362
AB2362.The geoid height was determined by GEOID09.
AB2362
AB2362.The dynamic height is computed by dividing the NAVD 88

AB2362.geopotential number by the normal gravity value computed on the
AB2362.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AB2362.degrees latitude (g = 980.6199 gals.).
AB2362
AB2362.The modeled gravity was interpolated from observed gravity values.
AB2362
AB2362; North East Units Scale Factor Converg.
AB2362;SPC FL E - 118,628.236 244,449.324 MT 0.99996557 +0 11 22.3
AB2362;SPC FL E - 389,199.47 801,997.49 sFT 0.99996557 +0 11 22.3
AB2362;UTM 17 - 2,809,719.742 544,434.158 MT 0.99962438 +0 11 22.3
AB2362
AB2362! - Elev Factor x Scale Factor = Combined Factor
AB2362!SPC FL E - 1.00000341 x 0.99996557 = 0.99996898
AB2362!UTM 17 - 1.00000341 x 0.99962438 = 0.99962779
AB2362
AB2362 SUPERSEDED SURVEY CONTROL
AB2362
AB2362 NAD 83(1999)- 25 24 13.19519(N) 080 33 29.56555(W) AD( ) 1
AB2362 ELLIP H (12/12/02) -21.711 (m) GP( ) 4 1
AB2362 NAVD 88 (12/12/02) 2.78 (m) 9.1 (f) LEVELING 3
AB2362
AB2362.Superseded values are not recommended for survey control.
AB2362.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AB2362.See file dsdata.txt to determine how the superseded data were derived.
AB2362
AB2362_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ4443409719(NAD 83)
AB2362_MARKER: DD = SURVEY DISK
AB2362_SETTING: 36 = SET IN A MASSIVE STRUCTURE
AB2362_SP_SET: BRIDGE CURB
AB2362_STAMPING: EG 2
AB2362_MARK LOGO: FLDT
AB2362_MAGNETIC: N = NO MAGNETIC MATERIAL
AB2362_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AB2362_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AB2362+SATELLITE: SATELLITE OBSERVATIONS - December 09, 2009
AB2362
AB2362 HISTORY - Date Condition Report By
AB2362 HISTORY - UNK MONUMENTED FLDT
AB2362 HISTORY - 19940916 GOOD FLDEP
AB2362 HISTORY - 20020523 GOOD MAPTEC
AB2362 HISTORY - 20030930 GOOD WEIDEN
AB2362 HISTORY - 20081002 GOOD GCT
AB2362 HISTORY - 20091209 GOOD DCPWD
AB2362
AB2362 STATION DESCRIPTION
AB2362
AB2362'DESCRIBED BY FL DEPT OF ENV PRO 1994 (LGB)
AB2362'THE MARK IS ABOUT 5.7 MI (9.2 KM) SOUTHWEST OF FLORIDA CITY IN SECTION
AB2362'6, TOWNSHIP 58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE
AB2362'INTERSECTION OF U.S. HIGHWAY 1 AND PALM DRIVE (SW. 3 STREET) IN
AB2362'FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 27, SW. 3 STREET) FOR
AB2362'1.7 MI (2.7 KM) TO THE INTERSECTION OF TOWER ROAD (SW. 192 AVENUE) ,
AB2362'TURN LEFT ON TOWER ROAD (STATE ROAD 27, SW 192 AVENUE) AND GO SOUTH
AB2362'FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF SW. 376 STREET (STATE ROAD 27)
AB2362'ON THE RIGHT, TURN RIGHT ON SW. 376 STREET (STATE ROAD 27) AND GO WEST
AB2362'FOR 4.05 MI (6.52 KM) TO A BRIDGE WITH A WATER CONTROL GATE AND THE
AB2362'MARK ON THE RIGHT, SET FLUSH IN THE NORTHEAST CORNER OF THE BRIDGE
AB2362'CURB AND 1.2 FT (0.4 M) ABOVE THE LEVEL OF SW. 376 STREET (STATE ROAD

AB2362'27) . LOCATED 103.2 FT (31.5 M) EAST OF THE WEST END OF THE CONCRETE
AB2362'BRIDGE GAURDRAIL, 23.2 FT (7.1 M) NORTH OF THE APPROXIMATE CENTERLINE
AB2362'OF SW. 376 STREET (STATE ROAD 27) AND 4.5 FT (1.4 M) WEST OF THE EAST
AB2362'END OF THE CONCRETE BRIDGE GAURDRAIL.
AB2362
AB2362 STATION RECOVERY (2002)
AB2362
AB2362'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
AB2362'RECOVERED AS DESCRIBED.
AB2362'
AB2362
AB2362 STATION RECOVERY (2003)
AB2362
AB2362'RECOVERY NOTE BY WEIDENER SURVEYING AND MAPPING 2003 (MM)
AB2362'RECOVERED AS DESCRIBED
AB2362
AB2362 STATION RECOVERY (2008)
AB2362
AB2362'RECOVERY NOTE BY GUSTIN, COTHERN, AND TUCKER, I 2008
AB2362'RECOVERED IN GOOD CONDITION.
AB2362
AB2362 STATION RECOVERY (2009)
AB2362
AB2362'RECOVERY NOTE BY DADE COUNTY PUBLIC WORKS DEPARTMENT 2009 (MJW)
AB2362'RECOVERED IN GOOD CONDITION.

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

DATASHEETS

The NGS Data SheetSee file dsdata.txt for more information about the datasheet.DATABASE = ,PROGRAM = datasheet, VERSION = 7.85
1 National Geodetic Survey, Retrieval Date = FEBRUARY 22, 2011
AJ8401 **********
AJ8401 DESIGNATION - N 504
AJ8401 PID - AJ8401
AJ8401 STATE/COUNTY- FL/MIAMI-DADE
AJ8401 USGS QUAD - ROYAL PALM RANGER STATION (1979)
AJ8401
AJ8401 *CURRENT SURVEY CONTROL
AJ8401 _____
AJ8401* NAD 83(1986)- 25 24 43. (N) 080 34 26. (W) SCALED
AJ8401* NAVD 88 - 2.100 (meters) 6.89 (feet) ADJUSTED
AJ8401 _____
AJ8401 GEOID HEIGHT- -24.48 (meters) GEOID09
AJ8401 DYNAMIC HT - 2.096 (meters) 6.88 (feet) COMP
AJ8401 MODELED GRAV- 978,981.3 (mgal) NAVD 88
AJ8401
AJ8401 VERT ORDER - FIRST CLASS II
AJ8401
AJ8401.The horizontal coordinates were scaled from a topographic map and have
AJ8401.an estimated accuracy of +/- 6 seconds.
AJ8401
AJ8401.The orthometric height was determined by differential leveling and
AJ8401.adjusted in June 2002.
AJ8401
AJ8401.The geoid height was determined by GEOID09.
AJ8401
AJ8401.The dynamic height is computed by dividing the NAVD 88
AJ8401.geopotential number by the normal gravity value computed on the
AJ8401.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ8401.degrees latitude (g = 980.6199 gals.).
AJ8401
AJ8401.The modeled gravity was interpolated from observed gravity values.
AJ8401
AJ8401; North East Units Estimated Accuracy
AJ8401;SPC FL E - 119,540. 242,870. MT (+/- 180 meters Scaled)
AJ8401
AJ8401 SUPERSEDED SURVEY CONTROL
AJ8401
AJ8401.No superseded survey control is available for this station.
AJ8401
AJ8401_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ428106(NAD 83)
AJ8401_MARKER: F = FLANGE-ENCASED ROD
AJ8401_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
AJ8401_STAMPING: N 504 2000
AJ8401_MARK LOGO: NGS
AJ8401_PROJECTION: FLUSH
AJ8401_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AJ8401_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AJ8401_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ8401+SATELLITE: SATELLITE OBSERVATIONS - 2000
AJ8401_ROD/PIPE-DEPTH: 7.0 meters
AJ8401

AJ8401 HISTORY - Date Condition Report By
AJ8401 HISTORY - 2000 MONUMENTED FLDEP
AJ8401
AJ8401 STATION DESCRIPTION
AJ8401
AJ8401'DESCRIBED BY FL DEPT OF ENV PRO 2000 (JLM)
AJ8401'THE MARK IS ABOUT 7.0 MI (11.3 KM) WEST OF FLORIDA CITY 6.9 MI (11.1
AJ8401'KM) WEST OF HOMESTEAD, IN SECTION 6, TOWNSHIP 58 SOUTH, RANGE 38 EAST.
AJ8401'TO REACH THE MARK FROM THE INTERSECTION OF U.S. HIGHWAY 1 (SOUTH
AJ8401'DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336, SOUTHWEST 344TH
AJ8401'STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE ROAD 9336,
AJ8401'SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION OF
AJ8401'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON
AJ8401'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR
AJ8401'2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD
AJ8401'9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH
AJ8401'STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.95 MI
AJ8401'(7.97 KM) TO THE EAST END OF BRIDGE NUMBER 870081 1969 SPANNING CANAL
AJ8401'31, TURN RIGHT ON THE LEVEE ROAD ON THE EAST SIDE OF CANAL 31 AND GO
AJ8401'NORTH FOR 1.0 MI (1.6 KM) TO THE MARK ON THE LEFT, A STAINLESS STEEL
AJ8401'ROD DRIVEN TO REFUSAL AT A DEPTH OF 22.9 FT (7.0 M) WITH A NGS LOGO
AJ8401'CAP FLUSH WITH THE GROUND AND LEVEL WITH THE LEVEE ROAD, THE DATUM
AJ8401'POINT IS RECESSED 0.7 FT (21.3 CM) BELOW THE LEVEL OF THE NGS LOGO
AJ8401'CAP. LOCATED 63.0 FT (19.2 M) WEST OF THE APPROXIMATE CENTERLINE OF
AJ8401'THE UPPER LEVEE ROAD, 22.4 FT (6.8 M) WEST OF THE APPROXIMATE
AJ8401'CENTERLINE OF THE LOWER LEVEE ROAD, 3.0 FT (0.9 M) EAST OF THE TOP OF
AJ8401'THE BANK OF THE CANAL AND 1.8 FT (0.5 M) EAST OF A CARSONITE WITNESS
AJ8401'POST. NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO
AJ8401'CAP. NOTE A BAR MAGNET WAS INBEDDED IN THE NORTH SIDE OF THE MONUMENT.
AJ8401'NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT DISTRICT AT 2195
AJ8401'NORTHEAST 8TH STREET HOMESTEAD, FL 33033, PHONE 305-242-5955.

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

DATASHEETS

The NGS Data SheetSee file dsdata.txt for more information about the datasheet.DATABASE = ,PROGRAM = datasheet, VERSION = 7.85
1 National Geodetic Survey, Retrieval Date = FEBRUARY 22, 2011
AJ8408 **********
AJ8408 DESIGNATION - S 504
AJ8408 PID - AJ8408
AJ8408 STATE/COUNTY- FL/MIAMI-DADE
AJ8408 USGS QUAD - ROYAL PALM RANGER STATION SE (1967)
AJ8408
AJ8408 *CURRENT SURVEY CONTROL
AJ8408 _____
AJ8408* NAD 83(1986)- 25 20 40. (N) 080 33 57. (W) SCALED
AJ8408* NAVD 88 - 0.634 (meters) 2.08 (feet) ADJUSTED
AJ8408 _____
AJ8408 GEOID HEIGHT- -24.34 (meters) GEOID09
AJ8408 DYNAMIC HT - 0.633 (meters) 2.08 (feet) COMP
AJ8408 MODELED GRAV- 978,980.6 (mgal) NAVD 88
AJ8408
AJ8408 VERT ORDER - FIRST CLASS II
AJ8408
AJ8408.The horizontal coordinates were scaled from a topographic map and have
AJ8408.an estimated accuracy of +/- 6 seconds.
AJ8408
AJ8408.The orthometric height was determined by differential leveling and
AJ8408.adjusted in June 2002.
AJ8408.No vertical observational check was made to the station.
AJ8408
AJ8408.The geoid height was determined by GEOID09.
AJ8408
AJ8408.The dynamic height is computed by dividing the NAVD 88
AJ8408.geopotential number by the normal gravity value computed on the
AJ8408.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ8408.degrees latitude (g = 980.6199 gals.).
AJ8408
AJ8408.The modeled gravity was interpolated from observed gravity values.
AJ8408
AJ8408; North East Units Estimated Accuracy
AJ8408;SPC FL E - 112,070. 243,700. MT (+/- 180 meters Scaled)
AJ8408
AJ8408 SUPERSEDED SURVEY CONTROL
AJ8408
AJ8408.No superseded survey control is available for this station.
AJ8408
AJ8408_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ436031(NAD 83)
AJ8408_MARKER: F = FLANGE-ENCASED ROD
AJ8408_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)
AJ8408_STAMPING: S 504 2000
AJ8408_MARK LOGO: NGS
AJ8408_PROJECTION: FLUSH
AJ8408_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
AJ8408_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AJ8408_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ8408+SATELLITE: SATELLITE OBSERVATIONS - 2000
AJ8408_ROD/PIPE-DEPTH: 5.7 meters

AJ8408
AJ8408 HISTORY - Date Condition Report By
AJ8408 HISTORY - 2000 MONUMENTED FLDEP
AJ8408
AJ8408 STATION DESCRIPTION
AJ8408
AJ8408'DESCRIBED BY FL DEPT OF ENV PRO 2000 (JLM)
AJ8408'THE MARK IS ABOUT 9.0 MI (14.5 KM) SOUTHWEST OF HOMESTEAD, 8.0 MI
AJ8408'(12.9 KM) SOUTHWEST OF FLORIDA CITY, IN ESTIMATED SECTION 31, TOWNSHIP
AJ8408'58 SOUTH, RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF
AJ8408'U.S. HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336,
AJ8408'SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE
AJ8408'ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION
AJ8408'OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON
AJ8408'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR
AJ8408'2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD
AJ8408'9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH
AJ8408'STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.5 MI (7.2
AJ8408'KM) TO A PAVED ROAD ON THE LEFT (SOUTHWEST 232ND AVENUE) , TURN LEFT
AJ8408'ON THE PAVED ROAD AND GO SOUTH FOR 1.55 TO A LOCKED GATE, CONTINUE
AJ8408'SOUTH ON THE PAVED ROAD FOR 1.35 MI (2.17 KM) TO A LOCKED GATE,
AJ8408'CONTINUE SOUTH ON THE PAVED ROAD FOR 1.0 MI (1.6 KM) TO THE MARK ON
AJ8408'THE RIGHT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A DEPTH OF 18.7
AJ8408'FT (5.7 M) WITH A NGS LOGO CAP FLUSH WITH THE GROUND AND 0.3 FT (9.1
AJ8408'CM) BELOW THE LEVEL OF THE PAVED ROAD, THE DATUM POINT IS RECESSED 0.4
AJ8408'FT (12.2 CM) BELOW THE LEVEL OF THE NGS LOGO CAP. LOCATED 33.9 FT
AJ8408'(10.3 M) SOUTH OF A POWER POLE, 26.9 FT (8.2 M) WEST OF THE
AJ8408'APPROXIMATE CENTERLINE OF THE PAVE ROAD, 14.7 FT (4.5 M) WEST OF THE
AJ8408'WEST EDGE OF THE PAVEMENT AND 4.5 FT (1.4 M) EAST OF A CARSONITE
AJ8408'WITNESS POST. NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH
AJ8408'NGS LOGO CAP. NOTE A BAR MAGNET WAS INBEDDED IN THE MONUMENT ON THE
AJ8408'NORTH SIDE. NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT
AJ8408'DISTRICT AT 2195 NORTHEAST 8TH STREET HOMESTEAD, FL 33033, PHONE
AJ8408'305-242-5955.

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

DATASHEETS

The NGS Data SheetSee file dsdata.txt for more information about the datasheet.DATABASE = ,PROGRAM = datasheet, VERSION = 7.85
1 National Geodetic Survey, Retrieval Date = FEBRUARY 22, 2011
AJ8410 **********
AJ8410 DESIGNATION - U 504
AJ8410 PID - AJ8410
AJ8410 STATE/COUNTY- FL/MIAMI-DADE
AJ8410 USGS QUAD - ROYAL PALM RANGER STATION SE (1967)
AJ8410
AJ8410 *CURRENT SURVEY CONTROL
AJ8410 _____
AJ8410* NAD 83(1986)- 25 19 15. (N) 080 33 57. (W) SCALED
AJ8410* NAVD 88 - 0.761 (meters) 2.50 (feet) ADJUSTED
AJ8410 _____
AJ8410 GEOID HEIGHT- -24.28 (meters) GEOID09
AJ8410 DYNAMIC HT - 0.760 (meters) 2.49 (feet) COMP
AJ8410 MODELED GRAV- 978,981.2 (mgal) NAVD 88
AJ8410
AJ8410 VERT ORDER - FIRST CLASS II
AJ8410
AJ8410.The horizontal coordinates were scaled from a topographic map and have
AJ8410.an estimated accuracy of +/- 6 seconds.
AJ8410
AJ8410.The orthometric height was determined by differential leveling and
AJ8410.adjusted in June 2002.
AJ8410.No vertical observational check was made to the station.
AJ8410
AJ8410.The geoid height was determined by GEOID09.
AJ8410
AJ8410.The dynamic height is computed by dividing the NAVD 88
AJ8410.geopotential number by the normal gravity value computed on the
AJ8410.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AJ8410.degrees latitude (g = 980.6199 gals.).
AJ8410
AJ8410.The modeled gravity was interpolated from observed gravity values.
AJ8410
AJ8410; North East Units Estimated Accuracy
AJ8410;SPC FL E - 109,450. 243,710. MT (+/- 180 meters Scaled)
AJ8410
AJ8410 SUPERSEDED SURVEY CONTROL
AJ8410
AJ8410.No superseded survey control is available for this station.
AJ8410
AJ8410_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ436005(NAD 83)
AJ8410_MARKER: DD = SURVEY DISK
AJ8410_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AJ8410_STAMPING: U 504 2000
AJ8410_MARK LOGO: FLDEP
AJ8410_MAGNETIC: B = BAR MAGNET IMBEDDED IN MONUMENT
AJ8410_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AJ8410+STABILITY: SURFACE MOTION
AJ8410_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AJ8410+SATELLITE: SATELLITE OBSERVATIONS - October 03, 2007
AJ8410

AJ8410 HISTORY - Date Condition Report By
AJ8410 HISTORY - 2000 MONUMENTED FLDEP
AJ8410 HISTORY - 20030930 GOOD WEIDEN
AJ8410 HISTORY - 20071003 GOOD DEGROV
AJ8410
AJ8410 STATION DESCRIPTION
AJ8410
AJ8410'DESCRIBED BY FL DEPT OF ENV PRO 2000 (JLM)
AJ8410'THE MARK IS ABOUT 10.7 MI (17.2 KM) SOUTHWEST OF HOMESTEAD, 9.7 MI
AJ8410'(15.6 KM) SOUTHWEST OF FLORIDA CITY, IN SECTION 6, TOWNSHIP 59 SOUTH,
AJ8410'RANGE 38 EAST. TO REACH THE MARK FROM THE INTERSECTION OF U.S.
AJ8410'HIGHWAY 1 (SOUTH DIXIE HIGHWAY) AND PALM DRIVE (STATE ROAD 9336,
AJ8410'SOUTHWEST 344TH STREET) IN FLORIDA CITY, GO WEST ON PALM DRIVE (STATE
AJ8410'ROAD 9336, SOUTHWEST 344TH STREET) FOR 1.7 MI (2.7 KM) TO THE JUNCTION
AJ8410'OF SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) TURN LEFT ON
AJ8410'SOUTHWEST 192TH AVENUE (TOWER ROAD, STATE ROAD 9336) AND GO SOUTH FOR
AJ8410'2.1 MI (3.4 KM) TO THE JUNCTION OF SOUTHWEST 376TH STREET (STATE ROAD
AJ8410'9336, INGRAHAM HIGHWAY) ON THE RIGHT, TURN RIGHT ON SOUTHWEST 376TH
AJ8410'STREET (STATE ROAD 9336, INGRAHAM HIGHWAY) AND GO WEST FOR 4.5 MI (7.2
AJ8410'KM) TO A PAVED ROAD ON THE LEFT (SOUTHWEST 232ND AVENUE) , TURN LEFT
AJ8410'ON THE PAVED ROAD AND GO SOUTH FOR 1.55 TO A LOCKED GATE, CONTINUE
AJ8410'SOUTH ON THE PAVED ROAD FOR 1.35 MI (2.17 KM) TO A LOCKED GATE,
AJ8410'CONTINUE SOUTH ON THE PAVED ROAD FOR 2.6 MI (4.2 KM) TO A 90 DEGREE
AJ8410'TURN EAST AND THE MARK ON THE RIGHT, SET IN THE TOP OF A ROUND
AJ8410'CONCRETE MONUMENT FLUSH WITH THE GROUND AND 0.5 FT (15.2 CM) BELOW THE
AJ8410'LEVEL OF THE PAVED ROAD. LOCATED 31.0 FT (9.4 M) WEST OF THE
AJ8410'APPROXIMATE CENTERLINE OF THE PAVED ROAD, 25.0 FT (7.6 M) NORTH OF
AJ8410'POWER POLE WITH A STREET LIGHT AND ONE GUY WIRE ATTACHED, 19.0 FT (5.8
AJ8410'M) WEST OF THE WEST EDGE OF THE PAVEMENT AND 2.7 FT (0.8 M) EAST OF A
AJ8410'CARSONITE WITNESS POST. NOTE A BAR MAGNET WAS INBEDDED IN THE MONUMENT
AJ8410'ON THE NORTH SIDE. NOTE FOR KEY CONTACT SOUTH FLORIDA WATER MANAGEMENT
AJ8410'DISTRICT AT 2195 NORTHEAST 8TH STREET HOMESTEAD, FL 33033, PHONE
AJ8410'305-242-5955.
AJ8410
AJ8410 STATION RECOVERY (2003)
AJ8410
AJ8410'RECOVERY NOTE BY WEIDENER SURVEYING AND MAPPING 2003 (MM)
AJ8410'RECOVERED AS DESCRIBED
AJ8410
AJ8410 STATION RECOVERY (2007)
AJ8410
AJ8410'RECOVERY NOTE BY DEGROVE SURVEYORS INCORPORATED 2007
AJ8410'RECOVERED AS DESCRIBED

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