

**CONSTRAINED HORIZONTAL ADJUSTMENT
FOR
WATER CONSERVATION AREA 2A
SITE S-7E**

FOR: MARK HUMMEL, PSM & HOWARD EHMKE
SURVEYING & ENGINEERING RESOURCES DIVISION
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

DATA COLLECTION DATE: AUGUST 2000
ADJUSTMENT DATE: APRIL 2005

ADJUSTMENT BY: SIM SMITH
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SURVEYING AND MAPPING

HORIZONTAL POSITION FOR S-7E

LATITUDE: 26-19-25.94251

LONGITUDE: 80 24 51.19954

DATUM:NAD 1983

Adjusted Vectors

PROCESS3

Vector Stage: Adjusted **Date:** 04/22/05
Horizontal Coordinate System: North American 1983-CONUS **Project file:** PROCESS3.spr
Height System: Ortho. Ht. (GEOID03)
Linear Units of Measure: Meters

	<u>Vector Identifier</u>		<u>Vector Length</u>	<u>Radial Resid.</u>		<u>Vector Components</u>		<u>Resid.</u>	<u>Tau Test</u>
1	0025-0005	7/27 16:02	7269.700	0.027	X	3786.721	-0.009		
					Y	3284.007	0.023		
					Z	5265.413	0.011		
2	0020-0005	7/27 16:30	6783.802	0.026	X	868.600	-0.008		
					Y	3135.186	0.021		
					Z	5952.823	0.012		
3	0025-0020	7/27 16:30	3001.685	0.002	X	2918.121	-0.001		
					Y	148.820	0.002		
					Z	-687.410	-0.001		
4	0005-0022	7/27 17:13	10684.753	0.054	X	-3211.997	-0.009		
					Y	-4999.093	0.051		
					Z	-8880.095	-0.015		
5	0025-0022	7/27 17:13	4041.999	0.026	X	574.725	-0.005		
					Y	-1715.087	-0.010		
					Z	-3614.682	-0.024		
6	0020-0022	7/27 17:13	4187.431	0.024	X	-2343.397	0.001		
					Y	-1863.907	-0.011		
					Z	-2927.272	-0.021		
7	0004-0025	7/27 16:00	12323.828	0.041	X	12181.659	-0.039		
					Y	1463.621	-0.011		
					Z	-1158.332	-0.001		
8	0004-0005	7/27 16:02	17158.008	0.068	X	15968.380	-0.067		
					Y	4747.628	-0.010		
					Z	4107.081	-0.009		
9	0004-0020	7/27 16:30	15297.388	0.052	X	15099.780	-0.052		
					Y	1612.442	-0.003		
					Z	-1845.743	0.002		
10	0004-0022	7/27 17:13	13622.416	0.060	X	12756.383	-0.051		
					Y	-251.466	-0.029		

						Z	-4773.014	-0.012
11	0025-0005	7/27 18:18	7269.700	0.060	X	3786.721	-0.020	
					Y	3284.007	-0.022	
					Z	5265.413	0.052	
12	0025-0022	7/27 18:17	4041.999	0.027	X	574.725	-0.011	
					Y	-1715.087	0.008	
					Z	-3614.682	-0.023	
13	0005-0022	7/27 18:18	10684.753	0.036	X	-3211.997	-0.003	
					Y	-4999.093	0.030	
					Z	-8880.095	-0.019	
14	0004-0025	7/27 18:17	12323.828	0.061	X	12181.659	-0.054	
					Y	1463.621	0.025	
					Z	-1158.332	-0.011	
15	0004-0005	7/27 18:18	17158.008	0.079	X	15968.380	-0.076	
					Y	4747.628	-0.001	
					Z	4107.081	0.021	
16	0004-0022	7/27 18:16	13622.416	0.090	X	12756.383	-0.079	
					Y	-251.466	0.044	
					Z	-4773.014	-0.005	
17	0025-0022	7/28 16:35	4041.999	0.014	X	574.725	-0.002	
					Y	-1715.087	0.014	
					Z	-3614.682	-0.003	
18	0025-0020	7/28 15:01	3001.685	0.008	X	2918.121	0.004	
					Y	148.820	-0.003	
					Z	-687.410	0.006	
19	0020-0022	7/28 16:35	4187.431	0.010	X	-2343.397	0.001	
					Y	-1863.907	0.010	
					Z	-2927.272	-0.002	

Adjustment Summary

PROCESS3

Project file: PROCESS3.spr

Date: 04/22/05

Adjustment Type:	Fully Constrained
Variance of Unit Weight:	2.7
Adjustment scale factor:	1.00
Vectors Failing Tau Test:	0
Site Pairs Failing Relative Accuracy QA Test:	0
Vector Total:	19
Site Total:	5
Horizontally Constrained Sites:	4
Vertically Constrained Sites:	0
Horizontal Coordinate System:	North American 1983-CONUS
Height System:	Ortho. Ht. (GEOID03)
Desired Horizontal Accuracy:	0.020m + 1ppm
Desired Vertical Accuracy:	0.040m + 2ppm
Confidence Level:	95% Err.

Network Relative Accuracy

PROCESS3

Desired Horizontal Accuracy: 0.020m + 1ppm **Date:** 04/22/05
Desired Vertical Accuracy: 0.040m + 2ppm **Project file:** PROCESS3.spr
Confidence Level: 95% Err.
Linear Units of Measure: Meters

	<u>Site Pair</u>		<u>Relative Error</u>	<u>Allow. Error</u>	<u>Horizontal Relative Acc</u>	<u>Vertical Relative Acc</u>	<u>Distance</u>	<u>Site Pair QA</u>		
1	0025	Lat	0.008	0.021	1:726968	1:250678	7269.700			
	0005	Lng	0.010	0.021						
		Elv	0.029	0.043						
2	0020	Lat	0.000	0.021	1:0	1:233923	6783.802			
	0005	Lng	0.000	0.021						
		Elv	0.029	0.042						
3	0025	Lat	0.008	0.020	1:300168	1:176569	3001.685			
	0020	Lng	0.010	0.020						
		Elv	0.017	0.040						
4	0005	Lat	0.000	0.023	1:0	1:344669	10684.753			
	0022	Lng	0.000	0.023						
		Elv	0.031	0.045						
5	0025	Lat	0.008	0.020	1:404197	1:212735	4041.999			
	0022	Lng	0.010	0.020						
		Elv	0.019	0.041						
6	0020	Lat	0.000	0.020	1:0	1:220390	4187.431			
	0022	Lng	0.000	0.020						
		Elv	0.019	0.041						
7	0004	Lat	0.008	0.023	1:1232386	1:308096	12323.828			
	0025	Lng	0.010	0.023						
		Elv	0.040	0.047						
8	0004	Lat	0.000	0.026	1:0	1:389956	17158.008			
	0005	Lng	0.000	0.026						
		Elv	0.044	0.053						
9	0004	Lat	0.000	0.025	1:0	1:373108	15297.388			
	0020	Lng	0.000	0.025						
		Elv	0.041	0.050						
10	0004	Lat	0.000	0.024	1:0	1:340561	13622.416			
	0022	Lng	0.000	0.024						
		Elv	0.040	0.048						

Processed Vectors

PROCESS3

Vector Stage: Processed
Horizontal Coordinate System: North American 1983-CONUS
Height System: Ortho. Ht. (GEOID03)
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Vector Identifier</u>	<u>Vector Length</u>	<u>95% Error</u>		<u>Vector Components</u>	<u>95% Error</u>	<u>Process QA</u>	<u>SVs</u>	<u>PDOP</u>	<u>Meas. Type</u>
1	0025-0005 7/27 16:02	7269.686	0.031	X	3786.731	0.016		7	1.4	L1/L2 GPS
				Y	3283.984	0.019				
				Z	5265.402	0.019				
2	0020-0005 7/27 16:30	6783.782	0.029	X	868.608	0.015		7	1.4	L1/L2 GPS
				Y	3135.165	0.018				
				Z	5952.812	0.018				
3	0025-0020 7/27 16:30	3001.686	0.014	X	2918.123	0.007		7	1.4	L1/L2 GPS
				Y	148.819	0.009				
				Z	-687.409	0.009				
4	0005-0022 7/27 17:13	10684.761	0.047	X	-3211.988	0.025		6	2.6	L1/L2 GPS
				Y	-4999.145	0.028				
				Z	-8880.079	0.028				
5	0025-0022 7/27 17:13	4041.974	0.023	X	574.730	0.011		7	1.9	L1/L2 GPS
				Y	-1715.077	0.014				
				Z	-3614.658	0.015				
6	0020-0022 7/27 17:13	4187.412	0.023	X	-2343.398	0.011		7	1.9	L1/L2 GPS
				Y	-1863.897	0.014				
				Z	-2927.250	0.015				
7	0004-0025 7/27 16:00	12323.868	0.049	X	12181.698	0.026		6	2.0	L1/L2 GPS
				Y	1463.632	0.029				
				Z	-1158.331	0.029				
8	0004-0005 7/27 16:02	17158.076	0.065	X	15968.447	0.036		4	3.0	L1/L2 GPS
				Y	4747.638	0.037				
				Z	4107.090	0.039				
9	0004-0020 7/27 16:30	15297.440	0.059	X	15099.832	0.032		6	2.0	L1/L2 GPS
				Y	1612.445	0.034				
				Z	-1845.744	0.035				
10	0004-0022 7/27 17:13	13622.459	0.063	X	12756.434	0.031		5	3.6	L1/L2 GPS
				Y	-251.437	0.037				
				Z	-4773.002	0.041				
11	0025-0005 7/27 18:18	7269.683	0.037	X	3786.742	0.020		9	1.4	L1/L2 GPS
				Y	3284.029	0.021				
				Z	5265.361	0.023				
12	0025-0022 7/27 18:17	4041.984	0.027	X	574.736	0.014		9	1.5	L1/L2 GPS
				Y	-1715.095	0.015				
				Z	-3614.659	0.017				
13	0005-0022 7/27 18:18	10684.750	0.043	X	-3211.994	0.023		8	1.6	L1/L2 GPS
				Y	-4999.124	0.025				
				Z	-8880.076	0.026				
14	0004-0025 7/27 18:17	12323.877	0.053	X	12181.713	0.030		8	1.6	L1/L2 GPS
				Y	1463.596	0.030				

					Z	-1158.322	0.032			
15	0004-0005	7/27 18:18	17158.074	0.066	X	15968.456	0.036	8	1.7	L1/L2 GPS
					Y	4747.629	0.038			
					Z	4107.060	0.039			
16	0004-0022	7/27 18:16	13622.489	0.059	X	12756.462	0.033	8	1.6	L1/L2 GPS
					Y	-251.510	0.034			
					Z	-4773.009	0.036			
17	0025-0022	7/28 16:35	4042.003	0.019	X	574.727	0.010	7	1.3	L1/L2 GPS
					Y	-1715.101	0.012			
					Z	-3614.679	0.012			
18	0025-0020	7/28 15:01	3001.682	0.014	X	2918.117	0.007	11	1.2	L1/L2 GPS
					Y	148.824	0.009			
					Z	-687.416	0.009			
19	0020-0022	7/28 16:35	4187.434	0.020	X	-2343.397	0.010	7	1.3	L1/L2 GPS
					Y	-1863.917	0.012			
					Z	-2927.269	0.012			

Site Positions

PROCESS3

Horizontal Coordinate System:	North American 1983-CONUS	Date:	04/22/05
Height System:	Ortho. Ht. (GEOID03)	Project file:	PROCESS3.spr
Desired Horizontal Accuracy:	0.020m + 1ppm		
Desired Vertical Accuracy:	0.040m + 2ppm		
Confidence Level:	95% Err.		
Linear Units of Measure:	Meters		

Site ID	Site Descriptor	Position	95% Error	Fix Status	Position Status
1 0025	WCA S7E	Lat. 26° 19' 25.94251" N Lon. 80° 24' 51.19954" W Elv. 3.987	0.008 0.010 0.029		Adjusted
2 0005	V 463	Lat. 26° 22' 36.83957" N Lon. 80° 22' 16.77788" W Elv. 6.002	0.000 0.000 0.000	Fixed Fixed	Adjusted
3 0020	WCA 2F4	Lat. 26° 19' 01.02445" N Lon. 80° 23' 06.56163" W Elv. 3.937	0.000 0.000 0.029	Fixed Fixed	Adjusted
4 0022	WCA 2U3	Lat. 26° 17' 14.92243" N Lon. 80° 24' 41.06716" W Elv. 3.898	0.000 0.000 0.031	Fixed Fixed	Adjusted
5 0004	FCE 2079	Lat. 26° 20' 07.92279" N Lon. 80° 32' 13.13756" W Elv. 4.718	0.000 0.000 0.044	Fixed Fixed	Adjusted

Site ID	Site Descriptor	Elevation Factor
1 0025	WCA S7E	1.00000332
2 0005	V 463	1.00000302
3 0020	WCA 2F4	1.00000333
4 0022	WCA 2U3	1.00000333
5 0004	FCE 2079	1.00000317

Control Site Positions

PROCESS3

Horizontal Coordinate System: North American 1983-CONUS **Date:** 04/22/05
Height System: Ortho. Ht. (GEOID03) **Project file:** PROCESS3.spr
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Site ID	Control Site Descriptor	Position	95% Error	Control Type	Fix Status
1 0005	V 463	Lat. 26° 22' 36.83957"	0.000	Hor.	Fixed
		Lon. 80° 22' 16.77788"	0.000		
		Elv. 6.002	0.000		
2 0020	WCA 2F4	Lat. 26° 19' 01.02445"	0.000	Hor.	Fixed
		Lon. 80° 23' 06.56163"	0.000		
		Elv. 3.940	0.000		
3 0022	WCA 2U3	Lat. 26° 17' 14.92243"	0.000	Hor.	Fixed
		Lon. 80° 24' 41.06716"	0.000		
		Elv. 3.920	0.000		
4 0004	FCE 2079	Lat. 26° 20' 07.92279"	0.000	Hor.	Fixed
		Lon. 80° 32' 13.13756"	0.000		
		Elv. 4.756	0.000		

Site ID	Control Site Descriptor	Elevation Factor
1 0005	V 463	1.00000302
2 0020	WCA 2F4	1.00000333
3 0022	WCA 2U3	1.00000333
4 0004	FCE 2079	1.00000317

Control Tie Analysis

PROCESS3

Coordinate System: North American 1983-CONUS **Date:** 04/22/05
Height System: Ortho. Ht. (GEOID03) **Project file:** PROCESS3.spr
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

<u>Site ID</u>	<u>Control Site Descriptor</u>	<u>Control Type</u>	<u>Misclosure</u>	<u>Relative Accuracy</u>	<u>Control QA</u>
1 0005	V 463	Hor.	Lat Lon Elv	Fixed Fixed	
2 0020	WCA 2F4	Hor.	Lat Lon Elv	Fixed Fixed	
3 0022	WCA 2U3	Hor.	Lat Lon Elv	Fixed Fixed	
4 0004	FCE 2079	Hor.	Lat Lon Elv	Fixed Fixed	

Coordinate System Definition Summary

PROCESS3

Linear Units of Measure: Meters

Date: 04/22/05

Project file: PROCESS3.spr

Ground System

System Name:

Origin:

Latitude	=	0° 00' 00.00000" S
Longitude	=	0° 00' 00.00000" W
Ground Northing	=	0.000m
Ground Easting	=	0.000m

Orientation:

Angle	=	- 0° 00' 00.00000"
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Local Grid System

Name:

Transformation Parameters:

E Translation	=	0.000m
N Translation	=	0.000m
Z Rotation	=	0.000000"
Scale Diff. (ppm)	=	0.000000
Centroid Easting	=	0.000m
Centroid Northing	=	0.000m

Note: Parameters define transformation from BASE GRID SYSTEM to LOCAL GRID SYSTEM

Geodetic Datum

Name: North American 1983-CONUS

Reference Ellipsoid: GRS80

a	=	6378137.000m
1/f	=	298.257222101

Transformation Parameters:

X Translation	=	0.000m
Y Translation	=	0.000m
Z Translation	=	0.000m
X Rotation	=	0.000000"
Y Rotation	=	0.000000"
Z Rotation	=	0.000000"
Scale Diff. (ppm)	=	0.000000

Note: Parameters define transformation from LOCAL SYSTEM to WGS84

Grid System

Name:

Projection Type:

Zone Name:

Zone Parameters:

Longitude of Central Meridian = 000°00'00.00000"W

Observation Information

PROCESS3

Time System: UTC
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Site ID</u>	<u>Antenna Slant</u>	<u>Antenna Radius</u>	<u>Antenna Offset</u>	<u>Start Time</u>	<u>End Time</u>	<u>File Name</u>
1	????	0.000	0.000	1.833	04:00:20 PM	04:40:00 PM	B0025A00.209
2	0025	0.000	0.000	1.833	04:40:00 PM	06:10:00 PM	B0025A00.209
3	????	0.000	0.000	1.833	06:10:00 PM	06:13:20 PM	B0025A00.209
4	????	0.000	0.000	2.113	04:02:20 PM	04:40:00 PM	B0005A00.209
5	0005	0.000	0.000	2.113	04:40:00 PM	06:10:00 PM	B0005A00.209
6	????	0.000	0.000	2.113	06:10:00 PM	06:16:00 PM	B0005A00.209
7	????	0.000	0.000	1.713	04:30:40 PM	04:40:00 PM	B0020A00.209
8	0020	0.000	0.000	1.713	04:40:00 PM	06:10:00 PM	B0020A00.209
9	????	0.000	0.000	1.713	06:10:00 PM	06:14:00 PM	B0020A00.209
10	????	0.000	0.000	1.668	05:13:40 PM	05:25:00 PM	B0022A00.209
11	0022	0.000	0.000	1.668	05:25:00 PM	06:10:00 PM	B0022A00.209
12	????	0.000	0.000	1.668	06:10:00 PM	06:14:00 PM	B0022A00.209
13	????	0.000	0.000	2.108	03:52:20 PM	04:40:00 PM	B0004A00.209
14	0004	0.000	0.000	2.108	04:40:00 PM	06:10:00 PM	B0004A00.209
15	????	0.000	0.000	2.108	06:10:00 PM	06:11:20 PM	B0004A00.209
16	????	0.000	0.000	1.795	06:17:40 PM	06:30:00 PM	B0025B00.209
17	0025	0.000	0.000	1.795	06:30:00 PM	07:55:00 PM	B0025B00.209
18	????	0.000	0.000	1.795	07:55:00 PM	07:55:20 PM	B0025B00.209
19	????	0.000	0.000	2.113	06:18:00 PM	06:30:00 PM	B0005B00.209
20	0005	0.000	0.000	2.113	06:30:00 PM	07:55:00 PM	B0005B00.209
21	????	0.000	0.000	2.113	07:55:00 PM	08:07:20 PM	B0005B00.209
22	????	0.000	0.000	1.688	06:16:20 PM	06:30:00 PM	B0022B00.209
23	0022	0.000	0.000	1.688	06:30:00 PM	07:55:00 PM	B0022B00.209

24	????	0.000	0.000	1.688	07:55:00 PM	08:15:00 PM	B0022B00.209
25	????	0.000	0.000	2.108	06:13:40 PM	06:30:00 PM	B0004B00.209
26	0004	0.000	0.000	2.108	06:30:00 PM	07:55:00 PM	B0004B00.209
27	????	0.000	0.000	2.108	07:55:00 PM	08:13:40 PM	B0004B00.209
28	????	0.000	0.000	1.722	02:48:40 PM	03:20:00 PM	B0025A00.210
29	0025	0.000	0.000	1.722	03:20:00 PM	05:40:00 PM	B0025A00.210
30	????	0.000	0.000	1.722	05:40:00 PM	05:42:40 PM	B0025A00.210
31	????	0.000	0.000	1.667	04:35:40 PM	04:40:00 PM	B0022A00.210
32	0022	0.000	0.000	1.667	04:40:00 PM	05:40:00 PM	B0022A00.210
33	????	0.000	0.000	1.667	05:40:00 PM	06:00:00 PM	B0022A00.210
34	????	0.000	0.000	1.682	03:01:20 PM	03:20:00 PM	B0020A00.210
35	0020	0.000	0.000	1.682	03:20:00 PM	05:40:00 PM	B0020A00.210
36	????	0.000	0.000	1.682	05:40:00 PM	05:51:40 PM	B0020A00.210

Project Files

PROCESS3

Time System: UTC

Date: 04/22/05
Project file: PROCESS3.spr

	<u>File Name</u>	<u>Start Date & Time</u>	<u>End Date & Time</u>	<u>Recording Intrvl (sec)</u>	<u>Epochs</u>	<u>File Size (bytes)</u>	<u>Type</u>
1	B0025A00.209	07/27/2000 04:00:20 PM	07/27/2000	20.0	402	288245	L1/L2 GPS
2	B0005A00.209	07/27/2000 04:02:20 PM	07/27/2000	20.0	404	286924	L1/L2 GPS
3	B0020A00.209	07/27/2000 04:30:40 PM	07/27/2000	20.0	312	213345	L1/L2 GPS
4	B0022A00.209	07/27/2000 05:13:40 PM	07/27/2000	20.0	183	117111	L1/L2 GPS
5	B0004A00.209	07/27/2000 03:52:20 PM	07/27/2000	20.0	420	262097	L1/L2 GPS
6	B0025B00.209	07/27/2000 06:17:40 PM	07/27/2000	20.0	295	221615	L1/L2 GPS
7	B0005B00.209	07/27/2000 06:18:00 PM	07/27/2000	20.0	329	247561	L1/L2 GPS
8	B0022B00.209	07/27/2000 06:16:20 PM	07/27/2000	20.0	359	270329	L1/L2 GPS
9	B0004B00.209	07/27/2000 06:13:40 PM	07/27/2000	20.0	363	255950	L1/L2 GPS
10	B0025A00.210	07/28/2000 02:48:40 PM	07/28/2000	20.0	523	422549	L1/L2 GPS
11	B0022A00.210	07/28/2000 04:35:40 PM	07/28/2000	20.0	254	175509	L1/L2 GPS
12	B0020A00.210	07/28/2000 03:01:20 PM	07/28/2000	20.0	512	407650	L1/L2 GPS

Project Summary

PROCESS3

Project file: PROCESS3.spr

Date: 04/22/05

Client Name:

Project Name: PROCESS3

Project Comments:

Desired Horizontal Accuracy: 0.020m + 1ppm

Desired Vertical Accuracy: 0.040m + 2ppm

Confidence Level: 95% Err.

Horizontal Coordinate System: North American 1983-CONUS

Height System: Ortho. Ht. (GEOID03)

Linear Units: Meters

Number of Sites: 5

Number of Vectors: 19

Survey Company Name:

Repeat Vector Analysis

PROCESS3

Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Repeat Vector</u>		<u>Vector Difference</u>	<u>Vector Length</u>	<u>Horizontal Relatv Acc</u>	<u>Vertical Relatv Acc</u>	<u>Repeat QA</u>
1	0025-0005	7/27 16:02 7/27 18:18	X: -0.011 Y: -0.045 Z: 0.041	7269.686	1:414324	1:129087	
2	0025-0020	7/27 16:30 7/28 15:01	X: 0.006 Y: -0.005 Z: 0.006	3001.686	1:641267	1:366042	
3	0005-0022	7/27 17:13 7/27 18:18	X: 0.006 Y: -0.021 Z: -0.003	10684.761	1:4881883	1:591323	
4	0025-0022	7/27 17:13 7/27 18:17	X: -0.006 Y: 0.018 Z: 0.001	4041.974	1:442287	1:241585	
5	0025-0022	7/27 17:13 7/28 16:35	X: 0.003 Y: 0.024 Z: 0.021	4041.974	1:139458	1:363552	
6	0020-0022	7/27 17:13 7/28 16:35	X: -0.001 Y: 0.021 Z: 0.019	4187.412	1:160796	1:425940	
7	0004-0025	7/27 16:00 7/27 18:17	X: -0.015 Y: 0.037 Z: -0.010	12323.868	1:1488812	1:317311	
8	0004-0005	7/27 16:02 7/27 18:18	X: -0.009 Y: 0.009 Z: 0.031	17158.076	1:535189	1:4251565	
9	0004-0022	7/27 17:13 7/27 18:16	X: -0.028 Y: 0.073 Z: 0.007	13622.459	1:338966	1:208940	
10	0025-0022	7/27 18:17 7/28 16:35	X: 0.009 Y: 0.005 Z: 0.020	4041.984	1:203682	1:720107	

**CONSTRAINED VERTICAL ADJUSTMENT
FOR
WATER CONSERVATION AREA 2A
SITE S-7E**

FOR: MARK HUMMEL, PSM & HOWARD EHMKE
SURVEYING & ENGINEERING RESOURCES DIVISION
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

DATA COLLECTION DATE: AUGUST 2000
ADJUSTMENT DATE: APRIL 2005

ADJUSTMENT BY: SIM SMITH
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SURVEYING AND MAPPING

**ELEVATION OF S-7E BENCHMARK (TOP OF ROD)= 4.002 (M)
DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988**

Adjusted Vectors

PROCESS3

Vector Stage: Adjusted **Date:** 04/22/05
Horizontal Coordinate System: North American 1983-CONUS **Project file:** PROCESS3.spr
Height System: Ortho. Ht. (GEOID03)
Linear Units of Measure: Meters

	<u>Vector Identifier</u>		<u>Vector Length</u>	<u>Radial Resid.</u>		<u>Vector Components</u>		<u>Resid.</u>	<u>Tau Test</u>
1	0025-0005	7/27 16:02	7269.692	0.026	X	3786.729	-0.002		
					Y	3284.009	0.026		
					Z	5265.396	-0.006		
2	0020-0005	7/27 16:30	6783.791	0.022	X	868.608	-0.000		
					Y	3135.187	0.022		
					Z	5952.810	-0.002		
3	0025-0020	7/27 16:30	3001.686	0.006	X	2918.121	-0.001		
					Y	148.822	0.004		
					Z	-687.414	-0.004		
4	0005-0022	7/27 17:13	10684.732	0.048	X	-3212.000	-0.012		
					Y	-4999.101	0.044		
					Z	-8880.064	0.015		
5	0025-0022	7/27 17:13	4041.990	0.018	X	574.729	-0.001		
					Y	-1715.092	-0.015		
					Z	-3614.668	-0.010		
6	0020-0022	7/27 17:13	4187.420	0.019	X	-2343.392	0.006		
					Y	-1863.915	-0.018		
					Z	-2927.255	-0.004		
7	0004-0025	7/27 16:00	12323.879	0.020	X	12181.711	0.013		
					Y	1463.623	-0.010		
					Z	-1158.319	0.012		
8	0004-0005	7/27 16:02	17158.064	0.016	X	15968.440	-0.007		
					Y	4747.632	-0.006		
					Z	4107.077	-0.014		
9	0004-0020	7/27 16:30	15297.439	0.012	X	15099.833	0.001		
					Y	1612.445	0.000		
					Z	-1845.733	0.012		
10	0004-0022	7/27 17:13	13622.460	0.036	X	12756.440	0.006		
					Y	-251.469	-0.032		
					Z	-4772.987	0.014		
11	0025-0005	7/27 18:18	7269.692	0.042	X	3786.729	-0.013		
					Y	3284.009	-0.020		
					Z	5265.396	0.035		

12	0025-0022	7/27 18:17	4041.990	0.012	X	574.729	-0.007
					Y	-1715.092	0.003
					Z	-3614.668	-0.009
13	0005-0022	7/27 18:18	10684.732	0.026	X	-3212.000	-0.006
					Y	-4999.101	0.022
					Z	-8880.064	0.012
14	0004-0025	7/27 18:17	12323.879	0.027	X	12181.711	-0.001
					Y	1463.623	0.027
					Z	-1158.319	0.002
15	0004-0005	7/27 18:18	17158.064	0.023	X	15968.440	-0.016
					Y	4747.632	0.003
					Z	4107.077	0.017
16	0004-0022	7/27 18:16	13622.460	0.050	X	12756.440	-0.022
					Y	-251.469	0.040
					Z	-4772.987	0.021
17	0025-0022	7/28 16:35	4041.990	0.014	X	574.729	0.002
					Y	-1715.092	0.009
					Z	-3614.668	0.011
18	0025-0020	7/28 15:01	3001.686	0.005	X	2918.121	0.004
					Y	148.822	-0.001
					Z	-687.414	0.002
19	0020-0022	7/28 16:35	4187.420	0.016	X	-2343.392	0.005
					Y	-1863.915	0.003
					Z	-2927.255	0.015

Adjustment Summary

PROCESS3

Project file: PROCESS3.spr

Date: 04/22/05

Adjustment Type:	Fully Constrained
Variance of Unit Weight:	1.9
Adjustment scale factor:	1.00
Vectors Failing Tau Test:	0
Site Pairs Failing Relative Accuracy QA Test:	0
Vector Total:	19
Site Total:	5
Horizontally Constrained Sites:	0
Vertically Constrained Sites:	4
Horizontal Coordinate System:	North American 1983-CONUS
Height System:	Ortho. Ht. (GEOID03)
Desired Horizontal Accuracy:	0.020m + 1ppm
Desired Vertical Accuracy:	0.040m + 2ppm
Confidence Level:	95% Err.

Network Relative Accuracy

PROCESS3

Desired Horizontal Accuracy: 0.020m + 1ppm **Date:** 04/22/05
Desired Vertical Accuracy: 0.040m + 2ppm **Project file:** PROCESS3.spr
Confidence Level: 95% Err.
Linear Units of Measure: Meters

	<u>Site Pair</u>		<u>Relative Error</u>	<u>Allow. Error</u>	<u>Horizontal Relative Acc</u>	<u>Vertical Relative Acc</u>	<u>Distance</u>	<u>Site Pair QA</u>
1	0025	Lat	0.012	0.021	1:484645	1:660880	7269.692	
	0005	Lng	0.015	0.021				
		Elv	0.011	0.043				
2	0020	Lat	0.012	0.021	1:423986	1:0	6783.791	
	0005	Lng	0.016	0.021				
		Elv	0.000	0.042				
3	0025	Lat	0.006	0.020	1:375210	1:272880	3001.686	
	0020	Lng	0.008	0.020				
		Elv	0.011	0.040				
4	0005	Lat	0.013	0.023	1:667797	1:0	10684.732	
	0022	Lng	0.016	0.023				
		Elv	0.000	0.045				
5	0025	Lat	0.007	0.020	1:449108	1:367452	4041.990	
	0022	Lng	0.009	0.020				
		Elv	0.011	0.041				
6	0020	Lat	0.007	0.020	1:418741	1:0	4187.420	
	0022	Lng	0.010	0.020				
		Elv	0.000	0.041				
7	0004	Lat	0.017	0.023	1:535820	1:1120351	12323.879	
	0025	Lng	0.023	0.023				
		Elv	0.011	0.047				
8	0004	Lat	0.019	0.026	1:686323	1:0	17158.064	
	0005	Lng	0.025	0.026				
		Elv	0.000	0.053				
9	0004	Lat	0.017	0.025	1:665106	1:0	15297.439	
	0020	Lng	0.023	0.025				
		Elv	0.000	0.050				
10	0004	Lat	0.017	0.024	1:592280	1:0	13622.460	
	0022	Lng	0.023	0.024				
		Elv	0.000	0.048				

Processed Vectors

PROCESS3

Vector Stage: Processed
Horizontal Coordinate System: North American 1983-CONUS
Height System: Ortho. Ht. (GEOID03)
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Vector Identifier</u>	<u>Vector Length</u>	<u>95% Error</u>		<u>Vector Components</u>	<u>95% Error</u>	<u>Process QA</u>	<u>SVs</u>	<u>PDOP</u>	<u>Meas. Type</u>
1	0025-0005 7/27 16:02	7269.686	0.031	X	3786.731	0.016		7	1.4	L1/L2 GPS
				Y	3283.984	0.019				
				Z	5265.402	0.019				
2	0020-0005 7/27 16:30	6783.782	0.029	X	868.608	0.015		7	1.4	L1/L2 GPS
				Y	3135.165	0.018				
				Z	5952.812	0.018				
3	0025-0020 7/27 16:30	3001.686	0.014	X	2918.123	0.007		7	1.4	L1/L2 GPS
				Y	148.819	0.009				
				Z	-687.409	0.009				
4	0005-0022 7/27 17:13	10684.761	0.047	X	-3211.988	0.025		6	2.6	L1/L2 GPS
				Y	-4999.145	0.028				
				Z	-8880.079	0.028				
5	0025-0022 7/27 17:13	4041.974	0.023	X	574.730	0.011		7	1.9	L1/L2 GPS
				Y	-1715.077	0.014				
				Z	-3614.658	0.015				
6	0020-0022 7/27 17:13	4187.412	0.023	X	-2343.398	0.011		7	1.9	L1/L2 GPS
				Y	-1863.897	0.014				
				Z	-2927.250	0.015				
7	0004-0025 7/27 16:00	12323.868	0.049	X	12181.698	0.026		6	2.0	L1/L2 GPS
				Y	1463.632	0.029				
				Z	-1158.331	0.029				
8	0004-0005 7/27 16:02	17158.076	0.065	X	15968.447	0.036		4	3.0	L1/L2 GPS
				Y	4747.638	0.037				
				Z	4107.090	0.039				
9	0004-0020 7/27 16:30	15297.440	0.059	X	15099.832	0.032		6	2.0	L1/L2 GPS
				Y	1612.445	0.034				
				Z	-1845.744	0.035				
10	0004-0022 7/27 17:13	13622.459	0.063	X	12756.434	0.031		5	3.6	L1/L2 GPS
				Y	-251.437	0.037				
				Z	-4773.002	0.041				
11	0025-0005 7/27 18:18	7269.683	0.037	X	3786.742	0.020		9	1.4	L1/L2 GPS
				Y	3284.029	0.021				
				Z	5265.361	0.023				
12	0025-0022 7/27 18:17	4041.984	0.027	X	574.736	0.014		9	1.5	L1/L2 GPS
				Y	-1715.095	0.015				
				Z	-3614.659	0.017				
13	0005-0022 7/27 18:18	10684.750	0.043	X	-3211.994	0.023		8	1.6	L1/L2 GPS
				Y	-4999.124	0.025				
				Z	-8880.076	0.026				
14	0004-0025 7/27 18:17	12323.877	0.053	X	12181.713	0.030		8	1.6	L1/L2 GPS
				Y	1463.596	0.030				

					Z	-1158.322	0.032			
15	0004-0005	7/27 18:18	17158.074	0.066	X	15968.456	0.036	8	1.7	L1/L2 GPS
					Y	4747.629	0.038			
					Z	4107.060	0.039			
16	0004-0022	7/27 18:16	13622.489	0.059	X	12756.462	0.033	8	1.6	L1/L2 GPS
					Y	-251.510	0.034			
					Z	-4773.009	0.036			
17	0025-0022	7/28 16:35	4042.003	0.019	X	574.727	0.010	7	1.3	L1/L2 GPS
					Y	-1715.101	0.012			
					Z	-3614.679	0.012			
18	0025-0020	7/28 15:01	3001.682	0.014	X	2918.117	0.007	11	1.2	L1/L2 GPS
					Y	148.824	0.009			
					Z	-687.416	0.009			
19	0020-0022	7/28 16:35	4187.434	0.020	X	-2343.397	0.010	7	1.3	L1/L2 GPS
					Y	-1863.917	0.012			
					Z	-2927.269	0.012			

Site Positions

PROCESS3

Horizontal Coordinate System:	North American 1983-CONUS	Date:	04/22/05
Height System:	Ortho. Ht. (GEOID03)	Project file:	PROCESS3.spr
Desired Horizontal Accuracy:	0.020m + 1ppm		
Desired Vertical Accuracy:	0.040m + 2ppm		
Confidence Level:	95% Err.		
Linear Units of Measure:	Meters		

Site ID	Site Descriptor	Position	95% Error	Fix Status	Position Status
1 0025	WCA S7E	Lat. 26° 19' 25.94348" N Lon. 80° 24' 51.19928" W Elv. 4.002	0.012 0.015 0.011		Adjusted
2 0005	V 463	Lat. 26° 22' 36.83957" N Lon. 80° 22' 16.77788" W Elv. 6.002	0.000 0.000 0.000	Fixed	Adjusted
3 0020	WCA 2F4	Lat. 26° 19' 01.02547" N Lon. 80° 23' 06.56165" W Elv. 3.940	0.012 0.016 0.000	Fixed	Adjusted
4 0022	WCA 2U3	Lat. 26° 17' 14.92410" N Lon. 80° 24' 41.06674" W Elv. 3.920	0.013 0.016 0.000	Fixed	Adjusted
5 0004	FCE 2079	Lat. 26° 20' 07.92317" N Lon. 80° 32' 13.13793" W Elv. 4.756	0.019 0.025 0.000	Fixed	Adjusted

Site ID	Site Descriptor	Elevation Factor
1 0025	WCA S7E	1.00000331
2 0005	V 463	1.00000302
3 0020	WCA 2F4	1.00000333
4 0022	WCA 2U3	1.00000332
5 0004	FCE 2079	1.00000317

Control Site Positions

PROCESS3

Horizontal Coordinate System: North American 1983-CONUS **Date:** 04/22/05
Height System: Ortho. Ht. (GEOID03) **Project file:** PROCESS3.spr
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Site ID	Control Site Descriptor	Position	95% Error	Control Type	Fix Status
1 0005	V 463	Lat. 26° 22' 36.83957"	0.000	Hor/Ver	Fixed
		Lon. 80° 22' 16.77788"	0.000		
		Elv. 6.002	0.000		
2 0020	WCA 2F4	Lat. 26° 19' 01.02445"	0.000	Hor/Ver	Fixed
		Lon. 80° 23' 06.56163"	0.000		
		Elv. 3.940	0.000		
3 0022	WCA 2U3	Lat. 26° 17' 14.92243"	0.000	Hor/Ver	Fixed
		Lon. 80° 24' 41.06716"	0.000		
		Elv. 3.920	0.000		
4 0004	FCE 2079	Lat. 26° 20' 07.92279"	0.000	Hor/Ver	Fixed
		Lon. 80° 32' 13.13756"	0.000		
		Elv. 4.756	0.000		

Site ID	Control Site Descriptor	Elevation Factor
1 0005	V 463	1.00000302
2 0020	WCA 2F4	1.00000333
3 0022	WCA 2U3	1.00000332
4 0004	FCE 2079	1.00000317

Control Tie Analysis

PROCESS3

Coordinate System: North American 1983-CONUS **Date:** 04/22/05
Height System: Ortho. Ht. (GEOID03) **Project file:** PROCESS3.spr
Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

<u>Site ID</u>	<u>Control Site Descriptor</u>	<u>Control Type</u>	<u>Misclosure</u>	<u>Relative Accuracy</u>	<u>Control QA</u>
1 0005	V 463	Hor/Ver	Lat -0.000 Lon 0.000 Elv Fixed		
2 0020	WCA 2F4	Hor/Ver	Lat -0.031 Lon 0.001 Elv Fixed		
3 0022	WCA 2U3	Hor/Ver	Lat -0.051 Lon -0.012 Elv Fixed		
4 0004	FCE 2079	Hor/Ver	Lat -0.012 Lon 0.010 Elv Fixed		

Coordinate System Definition Summary

PROCESS3

Linear Units of Measure: Meters

Date: 04/22/05

Project file: PROCESS3.spr

Ground System

System Name:

Origin:

Latitude	=	0° 00' 00.00000" S
Longitude	=	0° 00' 00.00000" W
Ground Northing	=	0.000m
Ground Easting	=	0.000m

Orientation:

Angle	=	- 0° 00' 00.00000"
-------	---	--------------------

Local Grid System

Name:

Transformation Parameters:

E Translation	=	0.000m
N Translation	=	0.000m
Z Rotation	=	0.000000"
Scale Diff. (ppm)	=	0.000000
Centroid Easting	=	0.000m
Centroid Northing	=	0.000m

Note: Parameters define transformation from BASE GRID SYSTEM to LOCAL GRID SYSTEM

Geodetic Datum

Name: North American 1983-CONUS

Reference Ellipsoid: GRS80

a	=	6378137.000m
1/f	=	298.257222101

Transformation Parameters:

X Translation	=	0.000m
Y Translation	=	0.000m
Z Translation	=	0.000m
X Rotation	=	0.000000"
Y Rotation	=	0.000000"
Z Rotation	=	0.000000"
Scale Diff. (ppm)	=	0.000000

Note: Parameters define transformation from LOCAL SYSTEM to WGS84

Grid System

Name:

Projection Type:

Zone Name:

Zone Parameters:

Longitude of Central Meridian = 000°00'00.00000"W

Observation Information

PROCESS3

Time System: UTC
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Site ID</u>	<u>Antenna Slant</u>	<u>Antenna Radius</u>	<u>Antenna Offset</u>	<u>Start Time</u>	<u>End Time</u>	<u>File Name</u>
1	????	0.000	0.000	1.833	04:00:20 PM	04:40:00 PM	B0025A00.209
2	0025	0.000	0.000	1.833	04:40:00 PM	06:10:00 PM	B0025A00.209
3	????	0.000	0.000	1.833	06:10:00 PM	06:13:20 PM	B0025A00.209
4	????	0.000	0.000	2.113	04:02:20 PM	04:40:00 PM	B0005A00.209
5	0005	0.000	0.000	2.113	04:40:00 PM	06:10:00 PM	B0005A00.209
6	????	0.000	0.000	2.113	06:10:00 PM	06:16:00 PM	B0005A00.209
7	????	0.000	0.000	1.713	04:30:40 PM	04:40:00 PM	B0020A00.209
8	0020	0.000	0.000	1.713	04:40:00 PM	06:10:00 PM	B0020A00.209
9	????	0.000	0.000	1.713	06:10:00 PM	06:14:00 PM	B0020A00.209
10	????	0.000	0.000	1.668	05:13:40 PM	05:25:00 PM	B0022A00.209
11	0022	0.000	0.000	1.668	05:25:00 PM	06:10:00 PM	B0022A00.209
12	????	0.000	0.000	1.668	06:10:00 PM	06:14:00 PM	B0022A00.209
13	????	0.000	0.000	2.108	03:52:20 PM	04:40:00 PM	B0004A00.209
14	0004	0.000	0.000	2.108	04:40:00 PM	06:10:00 PM	B0004A00.209
15	????	0.000	0.000	2.108	06:10:00 PM	06:11:20 PM	B0004A00.209
16	????	0.000	0.000	1.795	06:17:40 PM	06:30:00 PM	B0025B00.209
17	0025	0.000	0.000	1.795	06:30:00 PM	07:55:00 PM	B0025B00.209
18	????	0.000	0.000	1.795	07:55:00 PM	07:55:20 PM	B0025B00.209
19	????	0.000	0.000	2.113	06:18:00 PM	06:30:00 PM	B0005B00.209
20	0005	0.000	0.000	2.113	06:30:00 PM	07:55:00 PM	B0005B00.209
21	????	0.000	0.000	2.113	07:55:00 PM	08:07:20 PM	B0005B00.209
22	????	0.000	0.000	1.688	06:16:20 PM	06:30:00 PM	B0022B00.209
23	0022	0.000	0.000	1.688	06:30:00 PM	07:55:00 PM	B0022B00.209

24	????	0.000	0.000	1.688	07:55:00 PM	08:15:00 PM	B0022B00.209
25	????	0.000	0.000	2.108	06:13:40 PM	06:30:00 PM	B0004B00.209
26	0004	0.000	0.000	2.108	06:30:00 PM	07:55:00 PM	B0004B00.209
27	????	0.000	0.000	2.108	07:55:00 PM	08:13:40 PM	B0004B00.209
28	????	0.000	0.000	1.722	02:48:40 PM	03:20:00 PM	B0025A00.210
29	0025	0.000	0.000	1.722	03:20:00 PM	05:40:00 PM	B0025A00.210
30	????	0.000	0.000	1.722	05:40:00 PM	05:42:40 PM	B0025A00.210
31	????	0.000	0.000	1.667	04:35:40 PM	04:40:00 PM	B0022A00.210
32	0022	0.000	0.000	1.667	04:40:00 PM	05:40:00 PM	B0022A00.210
33	????	0.000	0.000	1.667	05:40:00 PM	06:00:00 PM	B0022A00.210
34	????	0.000	0.000	1.682	03:01:20 PM	03:20:00 PM	B0020A00.210
35	0020	0.000	0.000	1.682	03:20:00 PM	05:40:00 PM	B0020A00.210
36	????	0.000	0.000	1.682	05:40:00 PM	05:51:40 PM	B0020A00.210

Project Files

PROCESS3

Time System: UTC

Date: 04/22/05
Project file: PROCESS3.spr

	<u>File Name</u>	<u>Start Date & Time</u>	<u>End Date & Time</u>	<u>Recording Intrvl (sec)</u>	<u>Epochs</u>	<u>File Size (bytes)</u>	<u>Type</u>
1	B0025A00.209	07/27/2000 04:00:20 PM	07/27/2000	20.0	402	288245	L1/L2 GPS
2	B0005A00.209	07/27/2000 04:02:20 PM	07/27/2000	20.0	404	286924	L1/L2 GPS
3	B0020A00.209	07/27/2000 04:30:40 PM	07/27/2000	20.0	312	213345	L1/L2 GPS
4	B0022A00.209	07/27/2000 05:13:40 PM	07/27/2000	20.0	183	117111	L1/L2 GPS
5	B0004A00.209	07/27/2000 03:52:20 PM	07/27/2000	20.0	420	262097	L1/L2 GPS
6	B0025B00.209	07/27/2000 06:17:40 PM	07/27/2000	20.0	295	221615	L1/L2 GPS
7	B0005B00.209	07/27/2000 06:18:00 PM	07/27/2000	20.0	329	247561	L1/L2 GPS
8	B0022B00.209	07/27/2000 06:16:20 PM	07/27/2000	20.0	359	270329	L1/L2 GPS
9	B0004B00.209	07/27/2000 06:13:40 PM	07/27/2000	20.0	363	255950	L1/L2 GPS
10	B0025A00.210	07/28/2000 02:48:40 PM	07/28/2000	20.0	523	422549	L1/L2 GPS
11	B0022A00.210	07/28/2000 04:35:40 PM	07/28/2000	20.0	254	175509	L1/L2 GPS
12	B0020A00.210	07/28/2000 03:01:20 PM	07/28/2000	20.0	512	407650	L1/L2 GPS

Project Summary

PROCESS3

Project file: PROCESS3.spr

Date: 04/22/05

Client Name:

Project Name: PROCESS3

Project Comments:

Desired Horizontal Accuracy: 0.020m + 1ppm

Desired Vertical Accuracy: 0.040m + 2ppm

Confidence Level: 95% Err.

Horizontal Coordinate System: North American 1983-CONUS

Height System: Ortho. Ht. (GEOID03)

Linear Units: Meters

Number of Sites: 5

Number of Vectors: 19

Survey Company Name:

Repeat Vector Analysis

PROCESS3

Desired Horizontal Accuracy: 0.020m + 1ppm
Desired Vertical Accuracy: 0.040m + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Meters

Date: 04/22/05
Project file: PROCESS3.spr

	<u>Repeat Vector</u>		<u>Vector Difference</u>	<u>Vector Length</u>	<u>Horizontal Relatv Acc</u>	<u>Vertical Relatv Acc</u>	<u>Repeat QA</u>
1	0025-0005	7/27 16:02 7/27 18:18	X: -0.011 Y: -0.045 Z: 0.041	7269.686	1:414324	1:129087	
2	0025-0020	7/27 16:30 7/28 15:01	X: 0.006 Y: -0.005 Z: 0.006	3001.686	1:641267	1:366042	
3	0005-0022	7/27 17:13 7/27 18:18	X: 0.006 Y: -0.021 Z: -0.003	10684.761	1:4881883	1:591323	
4	0025-0022	7/27 17:13 7/27 18:17	X: -0.006 Y: 0.018 Z: 0.001	4041.974	1:442287	1:241585	
5	0025-0022	7/27 17:13 7/28 16:35	X: 0.003 Y: 0.024 Z: 0.021	4041.974	1:139458	1:363552	
6	0020-0022	7/27 17:13 7/28 16:35	X: -0.001 Y: 0.021 Z: 0.019	4187.412	1:160796	1:425940	
7	0004-0025	7/27 16:00 7/27 18:17	X: -0.015 Y: 0.037 Z: -0.010	12323.868	1:1488812	1:317311	
8	0004-0005	7/27 16:02 7/27 18:18	X: -0.009 Y: 0.009 Z: 0.031	17158.076	1:535189	1:4251565	
9	0004-0022	7/27 17:13 7/27 18:16	X: -0.028 Y: 0.073 Z: 0.007	13622.459	1:338966	1:208940	
10	0025-0022	7/27 18:17 7/28 16:35	X: 0.009 Y: 0.005 Z: 0.020	4041.984	1:203682	1:720107	

WCA-2A Site S-7E
Vertical Datum 1988

		Rod Length	Rock Elevation	NAVD 1988	1929 NGVD	
		Meters	Meters	Meters	Feet	
1.) Elevation of Ground Surface- Top of Peat (Averaged)		3.10645	3.11345		10.192'	
2.) Elevation of Benchmark Refusal Depth (Top of Benchmark- Rod Length)		4.002	3.995	5.4864	-1.4914	13.107'
3.) Elevation of the top of deck			4.0536	4.06060		13.299'
4.) Elevation of top of all 2 inch wells	S-1 (GW2)		5.01395	5.02095		16.450'
	S-2 (GW1)		5.00644	5.01344		16.425'
	N-1 (GW4)		5.01717	5.02417		16.460'
	N-2 (GW3)		5.00756	5.01456		16.429'
5.) Elevation at surface water well			4.98559	4.99259		16.357'
6.) Elevation of the staff gage board - there is a bolt in the vertical			4.19632	4.20332		13.767'

Horizontal Datum		1927 NAD	Longitude	1983 NAD	Longitude:
		feet	Latitude	feet	Latitude:
Northing	220627.297 meters	723841.390	080 24' 51.19909"	723841.548	080° 24' 51.19954"
Easting	258482.193 meters	848036.995	26 19' 25.94095"	848036.953	26° 19' 25.94251"

The benchmark is a stainless steel rod driven to refusal. The steel rod was driven to a depth of -4.893 feet, with the rod length of 18.00 feet.

The horizontal and vertical information was gathered by Department of Environmental Protection (DEP) under Contract C-10458 WO02 and converted, where necessary, by South Florida Water Management District. The vertical data was gathered using Global Position Survey (GPS) in North American Vertical Datum 1988 (NAVD 88) and was converted into National Geodetic Vertical Datum 1929 (NGVD 29) using Vertcon. The vertical datum shown here is in NGVD 29. The horizontal was gathered using GPS in latitude and longitude. The latitudes and longitudes were then converted to northing and easting (1927) using Corpcon. The contract was supervised by Mark Hummel, PSM, of the Surveying and Engineering Resources Division of South Florida Water Management District.

Subject: Re: WCA2 Groundwater sites

Date: Wed, 12 Jan 2000 16:15:20 -0500

From: "Steven Krupa" <skrupa@sfwmd.gov> **Internal**

Organization: South Florida Water Management District

To: Karl Snyder <ksnyder@sfwmd.gov>

Karl,

I received your Email. I am working on your request. We had money in the budget for all the equipment. Shelters money I am not sure about. Coordinates are below. We are calling the S7E site (It is east of then S-7 pump station).

Lat. 26 19 25.92359

Long. 080 24 51.19528

North 723839.64 feet

East 848037.35 feet

NAD 1983

Cookout anytime.

Thanks,
Steve K

WCA-2A Site S-7E

Vertical Datum 1988

	Meters	Rod Length Meters	Rock Elevation Meters	1929 NGVD Feet
1.) Elevation of Ground Surface- Top of Peat (Averaged)	3.10645			10.192'
2.) Elevation of Benchmark Refusal Depth (Top of Benchmark- Rod Length)	3.995	5.4864	-1.4914	13.107'
3.) Elevation of the top of deck	4.0536			13.299'
4.) Elevation of top of all 2 inch wells				
	S-1 (GW2)			16.450'
	S-2 (GW1)			16.425'
	N-1 (GW4)			16.460'
	N-2 (GW3)			16.429'
5.) Elevation at surface water well	4.98559			16.357
6.) Elevation of the staff gage board - there is a bolt in the vertical	4.19632			13.767'

Horizontal Datum

	1927 NAD feet	Longitude	Latitude
Northing 220627.297 meters	723841.390	080 24' 51.19909"	
Easting 258482.193 meters	848036.995	26 19' 25.94095"	

The benchmark is a stainless steel rod driven to refusal. The steel rod was driven to a depth of -4.893 feet, with the rod length of 18.00 feet.

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Water Conservation Area 2A Station S7E

