

REPORT OF SURVEY

ACOE Survey 09-149

C&SF Water Control Structures South Topographic Survey Central and South Florida

Network EastMid

Prepared for:

U.S. Army Corps of Engineers
Jacksonville District

By:

Walter Volkmann and Rick Sawyer
Arc Surveying and Mapping Inc.
5202 San Juan Avenue
Jacksonville, Florida 32210

Richard J. Sawyer, PSM, CH
Florida Professional Surveyor & Mapper No. LS6131

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LICENSED SURVEYOR AND MAPPER

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1. General Approach and Strategy

As directed in the Scope of Work and subsequently agreed to in pre-field work discussions with Mr. Robert Swilley, PSM, Project Manager of the Jacksonville Geomatics Section of the USACOE, the overall task of determining the elevations of some 326 structures was divided into five different spatially delimited sub-projects called West, EastN1, EastN2, EastMid and EastS respectively, as shown in Figure 1 below: This report is specific to the sub-project EastMid only.

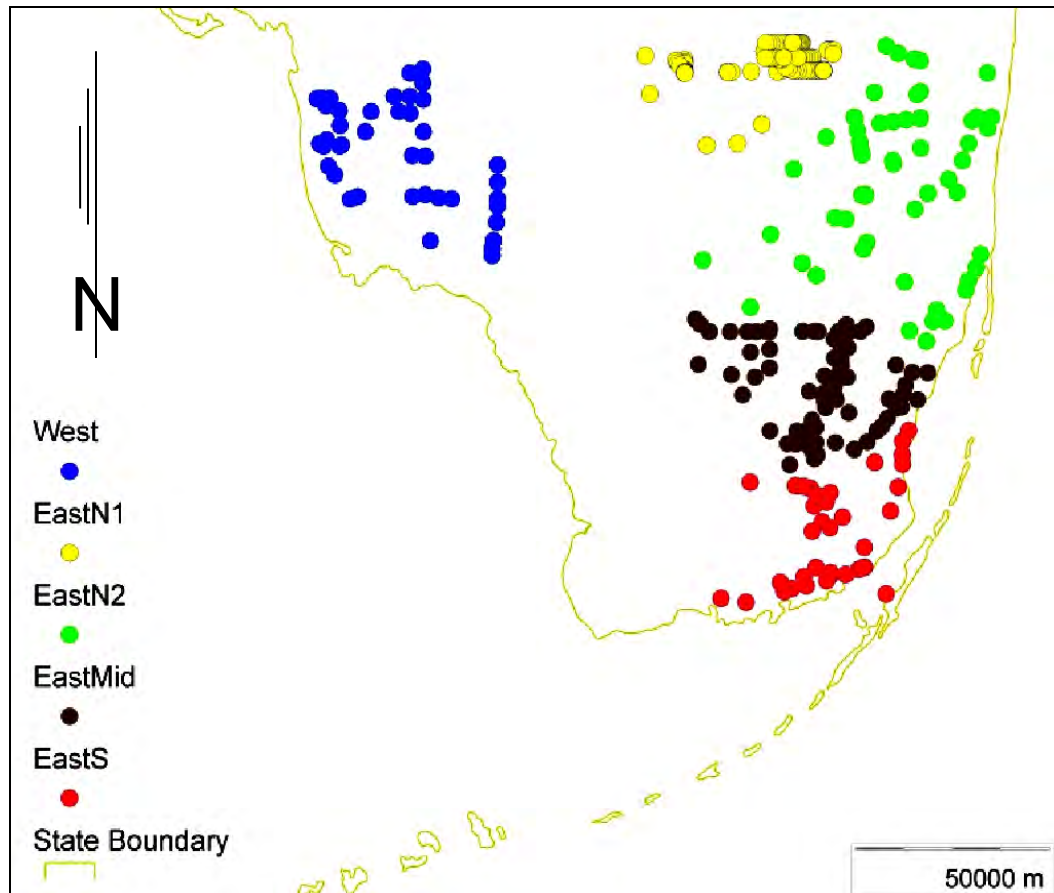


Figure 1: Segmentation of Project into Sub-Projects

The obvious efficiencies and specific mention of GPS technology in the scope have led to the choice of GPS as the primary 3D positioning technology for this survey. As the scope expressly excludes the application of any Real Time Kinematic GPS methods from being applied on this project, the method of static dual frequency GPS observations with post processed and least squares adjusted baseline network was opted for.

The structures to be surveyed by us were defined by means of general descriptions (such as “weir”, “spillway”, “culvert” or “staff gauge” coupled with very approximate coordinates. A detailed reconnaissance was thus necessary to find and positively identify the structures and to determine and demarcate a specific point on each structure as the primary survey point allocated to the specific structure. Each structure was inspected for the availability of existing monumentation such as disks or nails firmly embedded in a well defined and stable integral component of the structure. If such existing monumentation was found to be unsuitable for static GPS purposes - i.e if it was too close to obstructing obstacles or multi-

path rendering surfaces or if it could not be securely occupied with the use of a tripod for longer periods of time, then we demarcated a point in a more suitable position on the structure and adopted that as the primary survey point for the structure. In general, we demarcated such alternative points by an X-cut in the level concrete surface of a prominent part of the structure.

To achieve homogeneity of accuracy across the entire spatial domain of the network and to ensure harmony with nearest NGS-published geodetic control (i.e. control points for which data sheets can be downloaded from http://www.ngs.noaa.gov/cgi-bin/ds_pid.prl), a preliminary selection of suitable control was filtered to include only geodetic control points that are classified as being suitable for satellite surveying and that have a vertical coordinate accuracy of better than or equal to 2nd order. A second selection round of geodetic control points for controlling the GPS baseline network was made by including only points in the nearest proximity of the individual structures in the network. A further refinement of the control point selection was based on a field inspection during which selected points were verified for suitability with regard to static GPS surveying requirements. For example, control points that were found to be near structures like high chain-link fences or traffic signs that could cause multi-paths of the GPS signals or points that could not be occupied for long periods of time without human support, such as disks mounted in head walls of bridges on major high ways, were replaced by the nearest suitable alternative control points in the original control point selection.

After the comprehensive reconnaissance was concluded, we designed a robust network of baselines which provided for sufficient redundancy to ascertain internal network integrity as well as sufficient subsequent control point constraints to transform the network onto NAD83/NAVD88 in the state plane coordinate system.

The network contains 21 NGS control points for which the geodetic coordinates as well as the published elevations were of sufficient quality to be held as fixed constraints in a network adjustment. The published elevation of AC0517 was added as an additional constraint. AC1187 was eliminated as control point because of bad horizontal as well as vertical discrepancies.

Altogether 103 baselines provided for a well-connected geometric network with ample loops to provide redundancy for the purpose of determining internal network integrity. The above statistics yield a ratio of 2.4 structure points per control point and 1.9 baselines per unknown point. Figure 2 displays the final, adjusted network design.

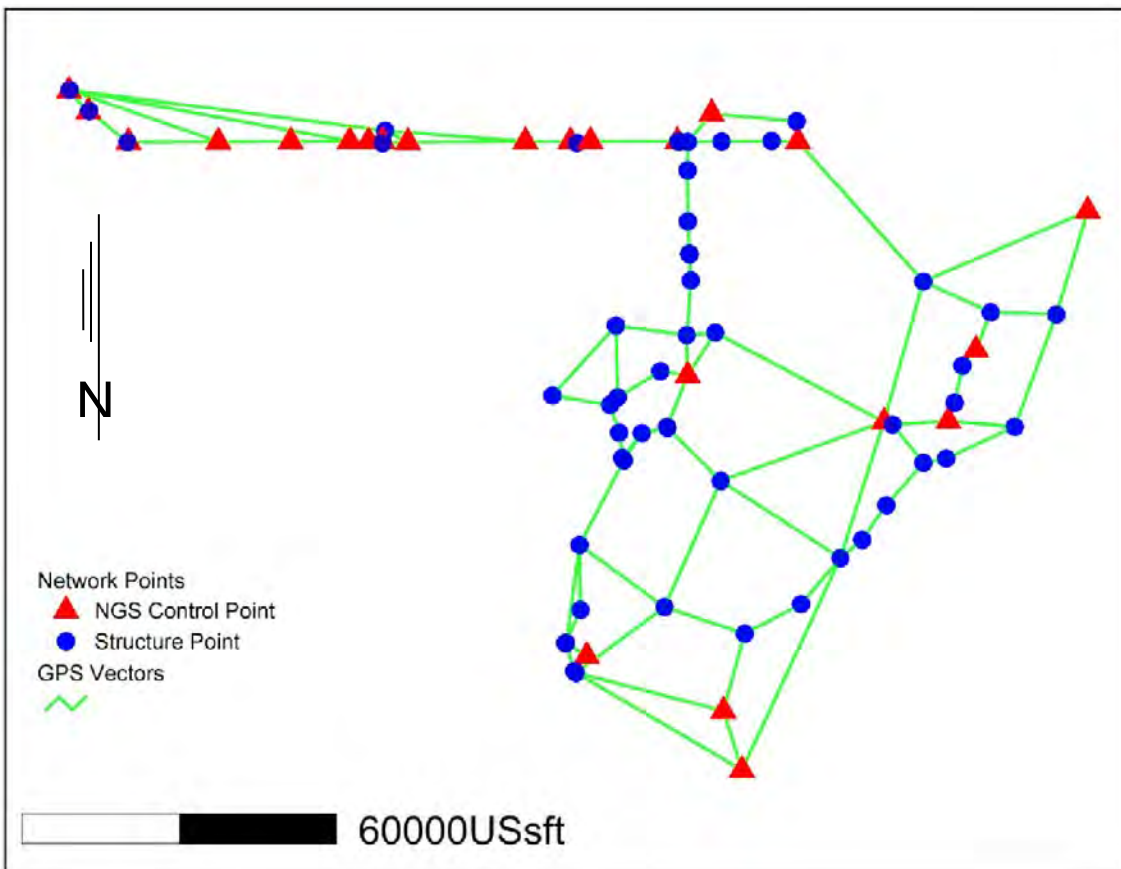


Figure 2: Final Layout of EastN2 Network

Access navigation is best achieved through the use of GPS navigators.

2. Observation Campaign

Six dual frequency receivers (five Trimble 4700 and One Trimble 4000ssi models) were used to perform static observations of sufficient duration to solve integer ambiguities for all the base lines contained in the network. All receivers were equipped with Trimble's microcentered L1/L2 antennas with ground planes and only 2.00m fixed height tripods or 2.00m "fixed height snap lock" rods were used to center the antennas. This regimen greatly reduced the risk of using incorrect antenna heights in the adjustment and obviated the need for multiple occupations at each point. In order to guard against gross horizontal centering errors, centering was checked both at the beginning as well as at the end of each observation session.

Sufficient observations for a fixed solution of the integer ambiguity were collected for each baseline. At each point in the network we observed at least once for at least 15 minutes at 5s epochs. This measure was introduced to enable isolation of network problems (in case of accidental centering errors, misidentification of points or other unexplained measuring problems) through the use of rapid OPUS provided by the NGS. The said 15 minute sessions could also be very useful for the purpose of an independent third party quality assessment of our work.

We generally performed the same routine of tasks for each occupation. In addition to carefully setting up the antenna and ensuring the correct recording settings on the receiver, we filled in relevant field sheets and took photographs to properly document the occupation. We generally took three photographs at each structure; a close-up view of the mark to display fine details such as stamping and center punch, a view of the instrument as it was centered over the mark and a general view of the major features of the overall structure showing the location of the instrument (and thus the primary survey mark) relative to the overall structure design. At control points we only took the first two of the three types of views described above. In this way we collected independent verifications of the field sheet entries.

For ease of cross referencing and in compliance with the scope, we used the following file naming conventions for digital photographs:

XXXXXX mm-dd-yy ?nnnn.jpg where

XXXXXX is a text string of variable length (with spaces tolerated) exactly replicating the name of the structure as supplied to us as part of our original brief,

mm-dd-yy is the date that the photograph was taken

? is an M for a close-up of the disk or centering mark
I for a photograph of the instrument set-up
S for a photograph showing the point in relation to the structure
L for a photograph showing the part of a feature to which a level was run.

nnn is the integer allocated by the camera on the sd-card file name.

All GPS observations were collected by Richard Sawyer, Andrew Sawyer, and Walter Volkmann. GPS observations were collected on March 12th, 14th, 15th, 18th, 19th and 20th, as well as on May 6th, 7th, 8th, 9th and 19th of 2010.

Leveling work at structures G70, G789, G3272, G3557, G3559, G3575, G3622, G3628, L31, Las Palmas G1, S24, S332B, S332D, S336, S343A and S343B was performed on April 7th and May 19th and 20th of 2010.

For these particular structures we provided an independent point in the direct vicinity of the structure from which we subsequently spirit-leveled the elevation of a defined, integral feature of that structure. The relevant structure sheets show the individual features to which we leveled in more detail. Occupation records OR0410 to OR0425 contain the original leveling observations and the elevation computations were done on the *Level/Cals* worksheet in MasterNEhe.xls workbook.

3. Base Line Computations and Network Adjustment

The horizontal network datum was set to be NAD83 and the Florida East state plane coordinate system with US survey feet as unit of linear measure was specified. To compute NAVD88 elevations from GPS determined ellipsoidal heights, Geoid09, as published by the NGS, was specified as default geoid in this adjustment. Horizontal centering errors were set to 0.005'. Antenna height accuracies were specified to be 0.002'.

The *Wave* module in Trimble’s Geomatics Office (TGO) suite was used to post-process baselines. Only baseline results with fixed integer ambiguity solutions were accepted for adjustment. In order to not contaminate the accuracy estimates with dependent observations, only non-trivial baselines were used in the network (i.e. we followed the “n-1”-rule). Loop closures were computed as the work progressed.

Once all the baselines had been processed and validated by loop closure analyses, a free network adjustment was performed using Trimble’s *Network* module. No significant outliers were detected in this initial adjustment. The resulting geodetic coordinates of the control points were compared to published values. The published horizontal as well as vertical coordinates of AC1187 did not agree well with the rest of the network. Hence the coordinates for this point were treated as unknowns and the point DL2579 was added to replace it as a constraint in the south of the network.

After validation of the control point coordinates they were held as fixed constraints and Geoid09 (published by the NGS) was added as a set of observations to determine orthometric heights on the NAVD88 datum. A fully constrained adjustment showed no outliers and hence no observations were discarded. A chi-square test was passed within four iterations of the constrained adjustment. The resulting coordinates and accuracy estimates are shown in Table 1 below.

NGS Control Points

Point	SPCS Florida East (usft)			NAVD88	Est. Accuracies @ 95% Conf. Level			
	N	E	EIht	Elev	dN	dE	dEIht	dElev
AC0477	519296.788	842749.006	-74.826	6.480	0.000	0.000	0.000	0.000
AC0509	519332.583	760808.477	-65.357	14.377	0.000	0.000	0.000	0.000
AC0511	519334.545	757169.749	-68.422	11.368	0.000	0.000	0.000	0.000
AC0517	519289.449	745956.608	-65.143	14.436	0.066	0.069	0.085	0.000
AC0523	519240.945	732114.381	-64.770	14.573	0.000	0.000	0.000	0.000
AC0528	519170.824	714955.971	-64.659	14.449	0.000	0.000	0.000	0.000
AC1187	410646.670	828544.753	-75.574	6.008	0.062	0.059	0.069	0.108
AC3931	474644.443	821718.925	-67.685	13.350	0.000	0.000	0.000	0.000
AC4650	506016.248	898079.872	-76.037	6.916	0.000	0.000	0.000	0.000
AC4661	421118.154	802458.315	-75.512	5.239	0.000	0.000	0.000	0.000
AC4724	465959.264	871453.008	-73.461	9.232	0.000	0.000	0.000	0.000
AC4726	479520.747	876761.167	-73.894	8.760	0.000	0.000	0.000	0.000
AC4738	519320.172	819724.920	-74.406	6.407	0.000	0.000	0.000	0.000
AC4755	519343.379	763458.911	-66.817	12.940	0.000	0.000	0.000	0.000
AJ7732	519180.975	768272.090	-70.886	9.049	0.000	0.000	0.000	0.000
AJ7736	519290.071	790733.895	-63.651	16.657	0.000	0.000	0.000	0.000
AJ7737	519271.287	799299.724	-72.467	8.009	0.000	0.000	0.000	0.000
AJ7738	519314.263	803127.722	-63.898	16.621	0.000	0.000	0.000	0.000
AJ7751	528933.047	703595.604	-70.567	8.720	0.000	0.000	0.000	0.000
AJ7752	524937.828	707324.373	-67.329	11.903	0.000	0.000	0.000	0.000
AJ7756	524589.834	826301.393	-71.069	9.856	0.000	0.000	0.000	0.000

DF7989	465790.412	859175.156	-45.866	36.419	0.000	0.000	0.000	0.000
DL2759	399383.380	832068.300	-54.393	27.166	0.000	0.000	0.000	0.000
Primary Structure Points								
	SPCS Florida East (usft)			NAVD88	Est. Accuracies @ 95% Conf. Level			
Point	N	E	EIHt	Elev	dN	dE	dEIHt	dElev
Angles Well	468979.908	806940.299	-74.816	5.817	0.079	0.082	0.052	0.102
G114	465258.912	860781.702	-76.946	5.390	0.059	0.059	0.052	0.102
G119	519268.051	828195.536	-73.709	7.270	0.062	0.059	0.075	0.115
G211	482328.973	821573.782	-74.606	6.339	0.052	0.052	0.033	0.092
G3272	484171.224	808029.411	-75.237	5.342	0.072	0.072	0.046	0.098
G3273	470820.693	795913.791	-73.925	6.386	0.092	0.095	0.089	0.121
G3557	492747.038	822329.180	-71.815	9.084	0.082	0.082	0.046	0.095
G3559	513808.794	821722.457	-73.696	7.140	0.085	0.082	0.052	0.098
G3575	497756.623	822035.687	-73.046	7.820	0.102	0.098	0.049	0.098
G3622A	423572.556	798524.652	-77.308	3.321	0.052	0.052	0.036	0.092
G3622B	423598.228	798376.693	-77.366	3.259	0.082	0.079	0.043	0.095
G3628	458446.300	809526.875	-74.757	6.032	0.072	0.072	0.049	0.098
G420	523151.936	842483.441	-73.012	8.278	0.056	0.056	0.062	0.105
G69	519024.315	800528.438	-71.902	8.551	0.059	0.056	0.033	0.092
G70	521357.328	763942.708	-65.587	14.303	0.043	0.043	0.039	0.092
G789 (AC4661)	421118.154	802458.315	-75.512	5.239	0.000	0.000	0.000	0.000
L31	497751.014	822120.651	-74.190	6.678	0.095	0.095	0.049	0.098
Las Palmas C1	475446.606	816554.518	-75.212	5.650	0.062	0.066	0.039	0.095
Las Palmas DC1	458899.317	809240.550	-75.150	5.627	0.092	0.095	0.089	0.125
Las Palmas G1	470496.102	808372.405	-75.544	5.121	0.072	0.072	0.046	0.095
Las Palmas G2	463730.582	808650.798	-75.207	5.513	0.085	0.085	0.062	0.105
S118	469413.865	872696.967	-74.314	8.357	0.072	0.072	0.102	0.131
S119	476479.087	874164.552	-74.201	8.402	0.069	0.075	0.095	0.128
S120	486679.773	879569.610	-69.178	13.440	0.052	0.056	0.052	0.102
S121	492548.572	866685.936	-67.384	14.739	0.046	0.046	0.052	0.098
S122	458787.832	871058.458	-77.838	4.953	0.075	0.072	0.056	0.102
S123	464819.206	884143.424	-74.662	8.490	0.062	0.059	0.059	0.105
S12A (AC0528)	519170.824	714955.971	-64.659	14.449	0.000	0.000	0.000	0.000
S12B (AC0523)	519240.945	732114.381	-64.770	14.573	0.000	0.000	0.000	0.000
S12C (AC0517)	519289.449	745956.608	-65.143	14.436	0.066	0.069	0.085	0.000
S12D (AC0509)	519332.583	760808.477	-65.357	14.377	0.000	0.000	0.000	0.000
S12E	519111.474	763519.085	-67.423	12.436	0.062	0.059	0.036	0.092
S14	519181.222	714740.830	-63.601	15.557	0.066	0.066	0.049	0.098
S148	449899.595	859619.561	-75.053	7.470	0.089	0.085	0.069	0.108
S149	457988.154	866710.100	-75.324	7.328	0.062	0.062	0.039	0.095
S165	439848.727	850863.590	-74.811	7.522	0.049	0.049	0.052	0.098
S166	431012.936	843336.588	-73.651	8.476	0.075	0.072	0.062	0.105
S167	425399.288	832608.094	-73.388	8.393	0.066	0.062	0.056	0.102

S173	464811.792	817763.431	-68.773	12.209	0.069	0.066	0.046	0.098
S174	418224.579	800059.432	-71.145	9.530	0.052	0.052	0.033	0.092
S176	417899.768	800380.969	-71.309	9.375	0.059	0.059	0.075	0.115
S194	454529.143	828051.650	-74.985	6.420	0.052	0.052	0.066	0.105
S195	443307.466	854997.862	-75.947	6.494	0.085	0.079	0.069	0.108
S196	430453.299	817296.788	-74.960	6.287	0.056	0.056	0.052	0.102
S22	486255.271	892082.585	-76.061	6.983	0.062	0.059	0.059	0.102
S24A	504024.510	821772.553	-75.347	5.493	0.098	0.095	0.052	0.098
S331	464646.853	817901.667	-70.233	10.754	0.072	0.066	0.049	0.098
S332B	442310.247	801082.868	-70.524	10.118	0.062	0.062	0.049	0.098
S332C	429947.639	801228.639	-71.111	9.600	0.085	0.085	0.066	0.108
S333 (AC4755)	519343.379	763458.911	-66.817	12.940	0.000	0.000	0.000	0.000
S334	519271.929	819957.988	-68.708	12.104	0.066	0.066	0.036	0.092
S335 (AJ7756)	524589.834	826301.393	-71.069	9.856	0.000	0.000	0.000	0.000
S336	519221.573	821769.654	-71.533	9.315	0.056	0.056	0.049	0.098
S338	482786.341	826984.091	-71.306	9.784	0.049	0.049	0.030	0.092
S343A	529089.552	703748.023	-62.322	16.909	0.052	0.052	0.046	0.098
S343B	525082.320	707484.591	-62.513	16.677	0.062	0.062	0.052	0.098
S346	518979.506	763466.187	-68.658	11.198	0.056	0.056	0.039	0.092
S347	505112.912	763978.282	-72.336	7.377	0.098	0.098	0.312	0.322
S355A (AJ7736)	519290.071	790733.895	-63.651	16.657	0.000	0.000	0.000	0.000
S355B (AJ7738)	519314.263	803127.722	-63.898	16.621	0.000	0.000	0.000	0.000
S356	519285.951	820075.162	-61.633	19.181	0.075	0.072	0.043	0.095
S357	463610.711	812938.370	-72.707	8.143	0.079	0.079	0.052	0.098
S380	519347.913	837685.963	-73.093	8.089	0.066	0.066	0.085	0.121

Table 1: List of Coordinates and 95% Confidence Level Accuracy Estimates

The estimated absolute accuracies, when compared to the accuracies obtained from a network held free from NGS published coordinates, indicate that the NGS published values add tension to the network. However, since harmony with nearest NGS-published control is desired, we have not eliminated more control than that mentioned above. There is ample redundancy in the constraints to eliminate the possibility of gross errors.

4. Description of Deliverables

The reader will note that Table 2 above contains hyperlinks. These were introduced to enhance the transparency of our survey records and to facilitate easy access to all the information components of the deliverables. In order for the hyperlinks to function, all the deliverables described below were stored in a specific directory structure which should be replicated by the reader on his/her computer. A description of the deliverables in their respective folders is given below as follows:

a. Structure Sheets

For each structure we have provided an MS Word file. These files are stored in the folder

C:\09-149 EastMid\StructureSheets\DOC

b. Occupation Records

A pdf version of each of the record sheets that we filled out in the field is located in the folder C:\09-149 EastMid\OccRecords

c. Digital Photographs

All the photographs that we took of structures and control points are in jpg format. They are in the folder

C:\09-149 EastMid\OccPhotos

d. Shape file

A shape file containing all the structures surveyed by us is located in C:\09-149 EastMid\Shapefile

Please note that the shape file is referenced to the Florida East (usft) State Plane Coordinate System.

e. Report and Tables (Saved in Folder **Main**)

This report (09-149EastMidREPORT.doc), a record of the control points that were occupied (Control Point Occupations.doc) as well as a multi-sheet structured MS Excel file linking points with operational details such as GPS observation files, field sheet records and photographs (MasterNEheEastMid.xls) are located in C:\09-149 EastMid>Main.

f. Trimble Geomatics Office Project

A replica of our TGO project, from which all the GPS related results of this project were derived is saved in C:\09-149 EastMid\STATIC EASTMID

CONTROL POINT RECORDS

Point ID AC0477 **DESIGNATION** A 237
DESCRIPTION Bench Mark Disk in Rock Outcrop



GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519296.788	842749.006	-74.826	6.480	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
22630736	OR0319.pdf	AC0477 03-14-10 M1308	AC0477 03-14-10 I1309

CONTROL POINT RECORDS

Point ID AC0509 **DESIGNATION** M 237
DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**



SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519332.583	760808.477	-65.357	14.377	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
22631260-2	OR0388.pdf	AC0509 05-06-10 M0005	AC0509 05-06-10 I0006

CONTROL POINT RECORDS

Point ID AC051 1 DESIGNATION N 237
 DESCRIPTION Bench Mark Disk in Concrete Monument



GEODETIC DATUM NAD83 (2007) COORDINATE SYSTEM FLORIDA EAST
 ELEVATION DATUM NAVD 88 GEOID USED Geoid 09
 UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519334.545	757169.749	-68.422	11.368	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
28270961-2	OR0389.pdf	AC0511 05-06-10 M0008	AC0511 05-06-10 I0009

CONTROL POINT RECORDS

Point ID AC051 7 **DESIGNATION** Q 237
DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09
UNITS USED US Survey Foot



SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519289.449	745956.608	-65.143	14.436	0.066	0.069	0.085	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
49251260-2	OR0390.pdf	AC0517 05-06-20 M0010	AC0517 05-06-20 I0011

CONTROL POINT RECORDS

Point ID AC0523 **DESIGNATION** T237
DESCRIPTION Bench Mark Disk in Concrete Retaining Wall



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519240.945	732114.381	-64.770	14.573	0.000	0.000	0.000	0.000

GPS Obs. Files		Occupation Records		Occupation Photos	
				Monument Photo	Setup Photo
0575 1260-2	OR0391.pdf	AC0523 05-06-10 M0013	AC0523 05-06-10 I0014		

CONTROL POINT RECORDS

Point ID AC0528 DESIGNATION V 237
 DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETIC DATUM NAD83 (2007) COORDINATE SYSTEM FLORIDA EAST
 ELEVATION DATUM NAVD 88 GEOID USED Geoid 09
 UNITS USED US Survey Foot



SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519170.824	714955.971	-64.659	14.449	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
22631260	OR0392.pdf	AC0528 05-06-10 M0016	AC0528 05-06-10 I0017

CONTROL POINT RECORDS

PointID AC1187 **DESIGNATION** HOMESTEAD RESET
DESCRIPTION Triang. Stn. Disk in Concrete Monument



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
410646.670	828544.753	-75.574	6.008	0.062	0.059	0.069	0.108

GPS Obs. Files		Occupation Records		Occupation Photos	
				Monument Photo	Setup Photo
22630788	OR0368.pdf	AC1187 03-19-10 M325	AC1187 03-19-10 I326		

CONTROL POINT RECORDS

Point ID AC3931 **DESIGNATION** KROME
DESCRIPTION Triang. Stn. Disk in Concrete Monument



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
474644.443	821718.925	-67.685	13.350	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
5750772	OR0340.pdf	AC3931 03-18-10 M1372	AC3931 03-18-10 I1373

CONTROL POINT RECORDS

Point ID AC4650 DESIGNATION DESCRIPTION
 FLGPS GABLES
 Stainless Steel Rod



GEODETIC DATUM NAD83 (2007) COORDINATE SYSTEM FLORIDA EAST
 ELEVATION DATUM NAVD 88 GEOID USED Geoid 09
 UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
506016.248	898079.872	-76.037	6.916	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

22630772

OR0343.pdf

AC4650 03-18-10 M1343

AC4650 03-18-10 I1344

CONTROL POINT RECORDS

Point ID AC4661 DESIGNATION HOMEPORT AZ MK
DESCRIPTION Stainless Steel Rod



GEODETIC DATUM NAD83 (2007) COORDINATE SYSTEM FLORIDA EAST
ELEVATION DATUM NAVD 88 GEOID USED Geoid 09
UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
421118.154	802458.315	-75.512	5.239	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

2263078A

OR0367.pdf

AC4661 03-19-10 M327

AC4661 03-19-10 I328

CONTROL POINT RECORDS

Point ID AC4724 DESIGNATION J 399
 DESCRIPTION Vertical Control Disk in Concrete Catch Basin

GEODETIC DATUM NAD83 (2007) COORDINATE SYSTEM FLORIDA EAST
 ELEVATION DATUM NAVD 88 GEOID USED Geoid 09
 UNITS USED US Survey Foot



SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
465959.264	871453.008	-73.461	9.232	0.000	0.000	0.000	0.000

GPS Obs. Files		Occupation Records		Occupation Photos	
				Monument Photo	Setup Photo
5750741	OR0333.pdf	AC4724 03-15-10 M1322	AC4724 03-15-10 I1323		

CONTROL POINT RECORDS

Point ID AC4726 **DESIGNATION** K 399
DESCRIPTION Vertical Control Disk in Concrete Catch Basin



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
479520.747	876761.167	-73.894	8.760	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
4925 1260-3	OR0398.pdf	AC4726 05-07-10 M0007	AC4726 05-07-10 I0008

CONTROL POINT RECORDS

Point ID AC4738 **DESIGNATION** J 407
DESCRIPTION Stainless Steel Rod



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519320.172	819724.920	-74.406	6.407	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
22630734	OR0318.pdf	AC4738 03-14-10 M1288	AC4738 03-14-10 I1295

CONTROL POINT RECORDS

Point ID AC4755 **DESIGNATION** A410X
DESCRIPTION Vertical Control Disk in Retaining Wall



GEODETIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09
UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519343.379	763458.911	-66.817	12.940	0.000	0.000	0.000	0.000

		Occupation Photos	
GPS Obs. Files	Occupation Records	Monument Photo	Setup Photo
5751260	OR0386.pdf	AC4755 05-06-10 M0001	AC4755 05-06-10I0002

CONTROL POINT RECORDS

Point ID AJ7732 **DESIGNATION** 8788 F4
DESCRIPTION Survey Disk in Concrete Monument



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519180.975	768272.090	-70.886	9.049	0.000	0.000	0.000	0.000

GPS Obs. Files		Occupation Records		Occupation Photos	
				Monument Photo	Setup Photo
28270961	OR0387.pdf	AJ7732 05-06-10 M0004	AJ7732 05-06-10 I0005		

CONTROL POINT RECORDS

Point ID AJ7736 **DESIGNATION** D 546
DESCRIPTION Survey Disk in Concrete Bridge Abutment



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519290.071	790733.895	-63.651	16.657	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

49250717

OR0324.pdf

AJ7736 03-12-10 M302

AJ7736 03-12-10 I303

CONTROL POINT RECORDS

Point ID AJ7737 **DESIGNATION** 8700 F33 RESET
DESCRIPTION Survey Disk in Concrete Monument



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519271.287	799299.724	-72.467	8.009	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

49250730

OR0310.pdf

AJ7737 03-14-10 M1277

AJ7737 03-14-10 I1278

CONTROL POINT RECORDS

Point ID AJ7738 **DESIGNATION** E 546
DESCRIPTION Survey Disk in Concrete Bridge Abutment



GEODETIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09
UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519314.263	803127.722	-63.898	16.621	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
49250732	OR0311.pdf	AJ7738 03-14-10 M1285	AJ7738 03-14-10 I1286

CONTROL POINT RECORDS

Point ID AJ7751 **DESIGNATION** Y 527
DESCRIPTION Metal Rod



GEODETIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**
UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
528933.047	703595.604	-70.567	8.720	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

22630710

OR0326.pdf

AJ7751 03-12-10 M286

AJ7751 03-12-10 I287

CONTROL POINT RECORDS

Point ID **AJ7752** **DESIGNATION** Z 527
DESCRIPTION Survey Disk in Concrete Bridge Guard Rail



GEODETTIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09
UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
524937.828	707324.373	-67.329	11.903	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
5750710	OR0305.pdf	AJ7752 03-12-10 M1256	AJ7752 03-12-10 I1257

CONTROL POINT RECORDS

Point ID AJ7756 **DESIGNATION** S335
DESCRIPTION Survey Disk in Concrete Bridge Abutment



GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
524589.834	826301.393	-71.069	9.856	0.000	0.000	0.000	0.000

GPS Obs. Files	Occupation Records	Occupation Photos	
		Monument Photo	Setup Photo
28270711-2	OR0321.pdf	AJ7756 03-14-10 M1299	AJ7756 03-14-10 I1300

CONTROL POINT RECORDS

Point ID DF7989 **DESIGNATION** RICHMOND CORS L1 PHASE
DESCRIPTION L1 Phase Center of GPS Antenna

GEODETTIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST

ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09

UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
465790.412	859175.156	-45.866	36.419	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

CONTROL POINT RECORDS

Point ID DL2759 **DESIGNATION** CARD SOUND 6 CORS L1 PHA
DESCRIPTION L1 Phase Center of GPS Antenna

GEODETIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST
ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09
UNITS USED US Survey Foot

SOURCE: [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
399383.380	832068.300	-54.393	27.166	0.000	0.000	0.000	0.000

GPS Obs. Files

Occupation Records

Occupation Photos

Monument Photo

Setup Photo

STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME

Angles Well

DESCRIPTION X-Cut in Concrete

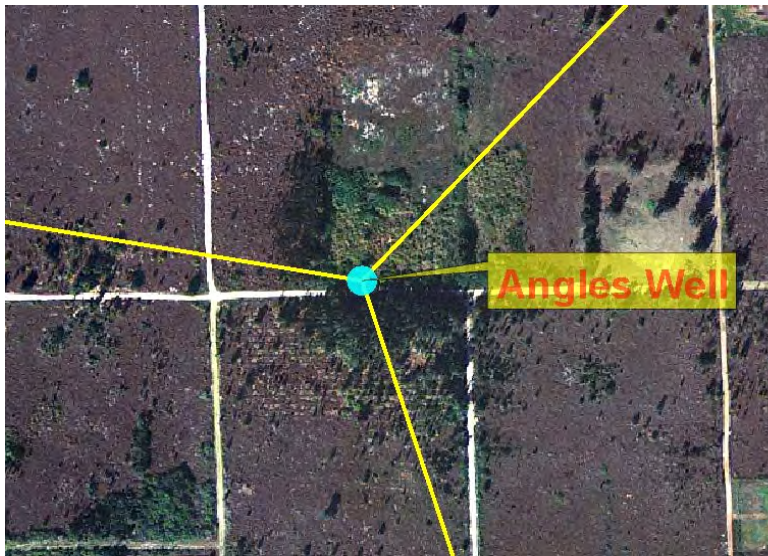
GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**

SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
468979.908	806940.299	-74.816	5.817	0.079	0.082	0.052	0.102



GPS Obs. Files

Occupation Records

Occupation Photos

STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G114**

DESCRIPTION X-Cut in Steel Beam

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

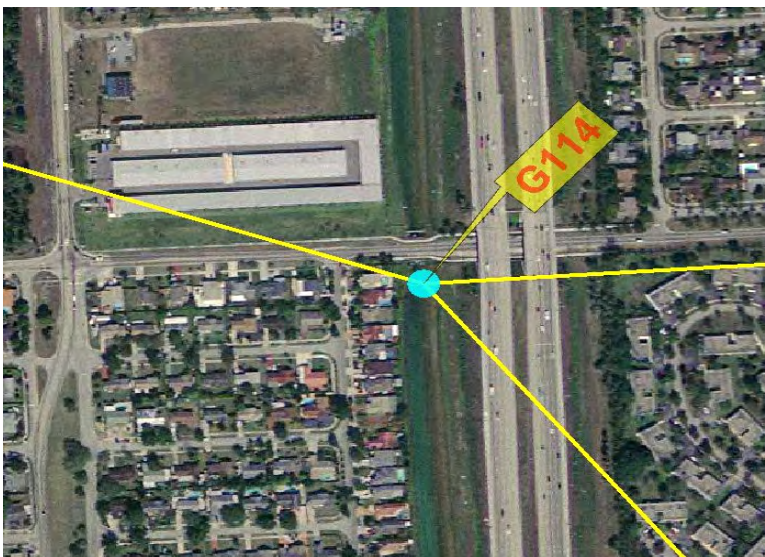
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
465258.912	860781.702	-76.946	5.390	0.059	0.059	0.052	0.102



GPS Obs. Files

22630785

Occupation Records

OR0370.pdf

Occupation Photos

G114 03-19-10 M312

G114 03-19-10 I313

G114 03-19-10 S314



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G119**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519268.051	828195.536	-73.709	7.270	0.062	0.059	0.075	0.115



GPS Obs. Files

Occupation Records

22630738

OR0320.pdf

Occupation Photos

G119 03-14-10 M1310

G119 03-14-10 I1311

G119 03-14-10 S1312



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G211**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
482328.973	821573.782	-74.606	6.339	0.052	0.052	0.033	0.092



GPS Obs. Files

Occupation Records

49250773

OR0351.pdf

49251260-4

OR0394.pdf

49251390

OR0408.pdf

Occupation Photos

G211 03-18-10 M1363

G211 03-18-10 I1364

G211 03-18-10 S1365

G211 05-07-10 M0005

G211 05-07-10 I0006

G211 05-07-10 S0007



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3272**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
484171.224	808029.411	-75.237	5.342	0.072	0.072	0.046	0.098



GPS Obs. Files

2263077A

Occupation Records

OR0347.pdf

Occupation Photos

G3272 03-18-10 M1377

G3272 03-18-10 I1378

G3272 03-18-10 S1379



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3273**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
470820.693	795913.791	-73.925	6.386	0.092	0.095	0.089	0.121



GPS Obs. Files

28270711-4

Occupation Records

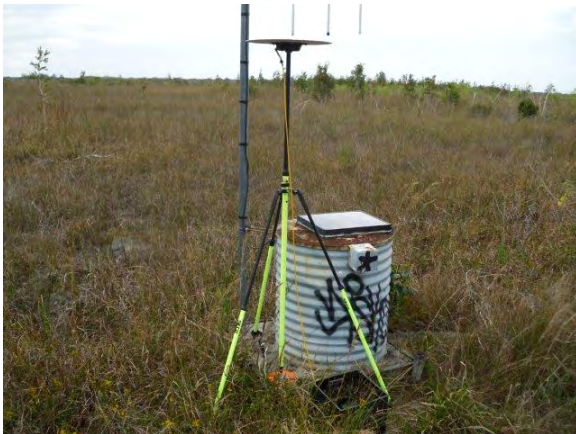
OR0337.pdf

Occupation Photos

G3273 03-18-10 M1383

G3273 03-18-10 I1384

G3273 03-18-10 S1385



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3557**

DESCRIPTION

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**



SOURCE : [Least Sqaures Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
492747.038	822329.180	-71.815	9.084	0.082	0.082	0.046	0.095



GPS Obs. Files

22631390

Occupation Records

OR0409.pdf

Occupation Photos

G3557 05-19-10 M

G3557 05-19-10 I



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3559**

DESCRIPTION 1/2" Rebar in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
513808.794	821722.457	-73.696	7.140	0.085	0.082	0.052	0.098



GPS Obs. Files

49250771

Occupation Records

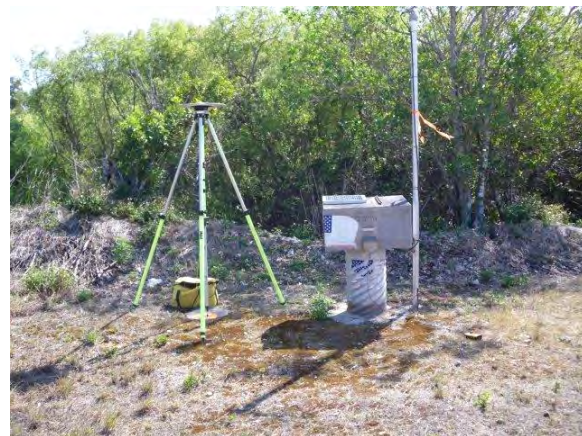
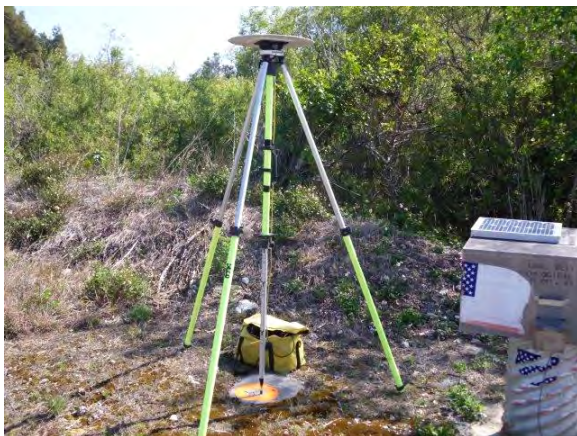
OR0349.pdf

Occupation Photos

G3559 03-18-10 M1348

G3559 03-18-10 I1349

G3559 03-18-10 S1350



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3575**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
497756.623	822035.687	-73.046	7.820	0.102	0.098	0.049	0.098



GPS Obs. Files

Occupation Records

49250772

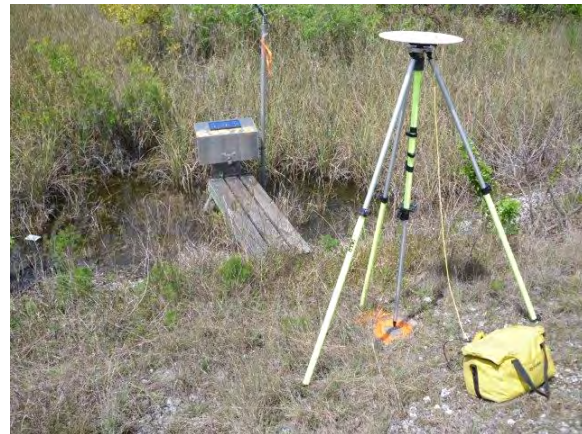
OR0350.pdf

Occupation Photos

G3575 03-18-10 M1354

G3575 03-18-10 I1355

G3575 03-18-10 S1356



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3622A**

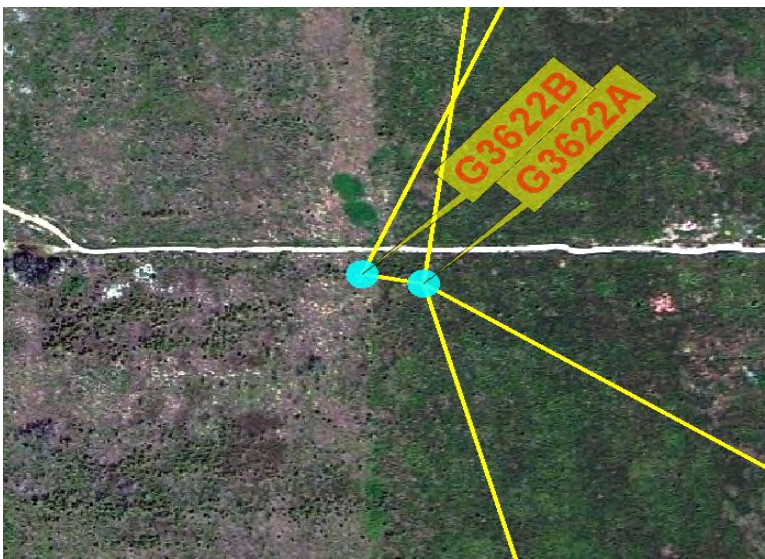
DESCRIPTION 1/2" Rebar
GEODETIC DATUM **NAD83 (2007)**
ELEVATION DATUM **NAVD 88**
UNITS USED **US Survey Foot**

COORDINATE SYSTEM **FLORIDA EAST**
GEOID USED **Geoid 09**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
423572.556	798524.652	-77.308	3.321	0.052	0.052	0.036	0.092



GPS Obs. Files

5750780

Occupation Records

OR0365.pdf

Occupation Photos

- G3622A 03-19-10 M332
- G3622A 03-19-10 I333
- G3622A 03-19-10 S334



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3622B**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

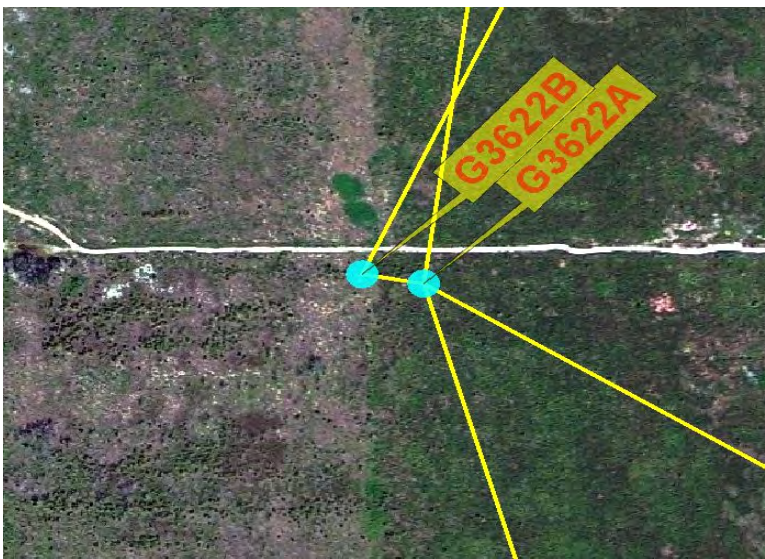
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
423598.228	798376.693	-77.366	3.259	0.082	0.079	0.043	0.095



GPS Obs. Files

2263078B

Occupation Records

OR0366.pdf

Occupation Photos

G3622b 03-19-10 M335

G3622B 03-19-10 I336

G3622b 03-19-10 S337



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G3628**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
458446.300	809526.875	-74.757	6.032	0.072	0.072	0.049	0.098



GPS Obs. Files

Occupation Records

49250790

OR0381.pdf

49251260-6

OR0401.pdf

Occupation Photos

G3628 03-20-10 M1421

G3628 03-20-10 I1422

G3628 03-20-10 S1423

G3628 05-08-10 M0007

G3628 05-08-10 I0008

G3628 05-08-10 S0009



STRUCTURE POINT SURVEY RECORD

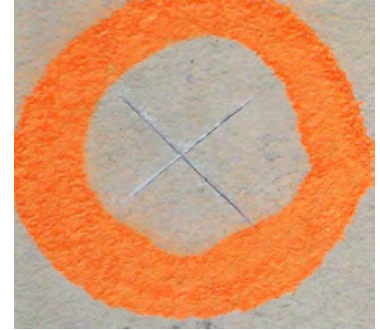
STRUCTURE NAME **G420**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
523151.936	842483.441	-73.012	8.278	0.056	0.056	0.062	0.105



GPS Obs. Files

49250736

Occupation Records

OR0313.pdf

Occupation Photos

G420 03-14-10 M1305

G420 03-14-10 I1306

G420 03-14-10 S1307



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G69**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

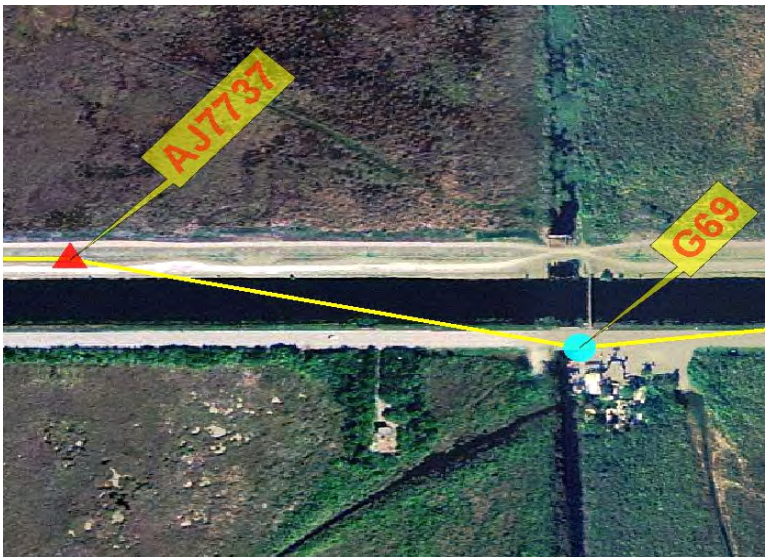
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519024.315	800528.438	-71.902	8.551	0.059	0.056	0.033	0.092



GPS Obs. Files

22630732

Occupation Records

OR0317.pdf

Occupation Photos

G69 03-14-10 M1282

G69 03-14-10 I1283

G69 03-14-10 S1284



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **G70**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
521357.328	763942.708	-65.587	14.303	0.043	0.043	0.039	0.092



GPS Obs. Files

Occupation Records

22630713

OR0304.pdf

49250715

OR0330.pdf

49251260

OR0385.pdf

Occupation Photos

G70 03-12-10 M296

G70 03-12-10 I297

G70 03-12-10 S298

G70 05-06-10 M0020

G70 05-06-10 I0021

G70 05-06-10 S0022



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME AC4661

DESCRIPTION Stainless Steel Rod

GEODETTIC DATUM NAD83 (2007) **COORDINATE SYSTEM** FLORIDA EAST

ELEVATION DATUM NAVD 88 **GEOID USED** Geoid 09

UNITS USED US Survey Foot



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
421118.154	802458.315	-75.512	5.239	0.000	0.000	0.000	0.000



GPS Obs. Files

2263078A

Occupation Records

OR0367.pdf

Occupation Photos

AC4661 03-19-10 M327

AC4661 03-19-10 I328



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **L31**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
497751.014	822120.651	-74.190	6.678	0.095	0.095	0.049	0.098



GPS Obs. Files

22630776
5751260-3
5751390

Occupation Records

OR0345.pdf
OR0395.pdf
OR0407.pdf

Occupation Photos

L31 03-18-10 M1357
L31 03-18-10 I1358
L31 03-18-10 S1359
L31 05-07-108 M0008
L31 05-07-108 I0009
L31 05-07-108 S0010



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **Las Palmas C1**

DESCRIPTION 4" Brass Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

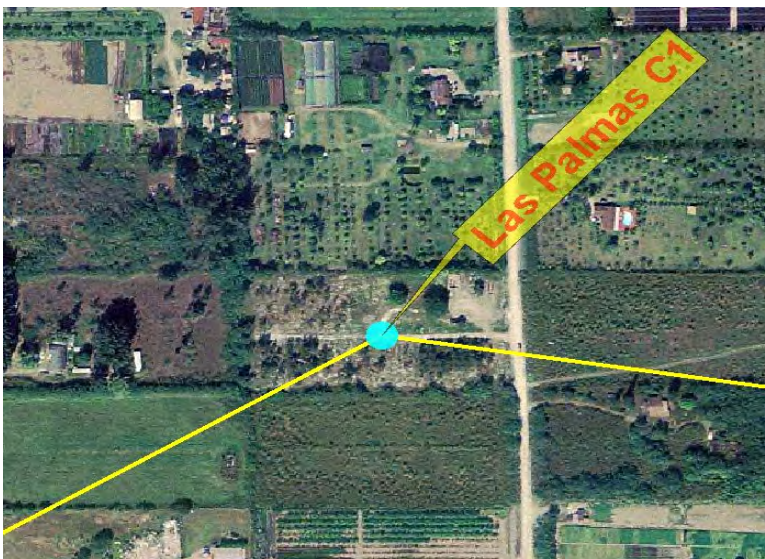
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Sqaures Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
475446.606	816554.518	-75.212	5.650	0.062	0.066	0.039	0.095



GPS Obs. Files

28270711-5

Occupation Records

OR0336.pdf

Occupation Photos

LASPALMASC1 03-18-10 M136

LASPALMASC1 03-18-10 I1370

LASPALMASC1 03-18-10 S1371



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **Las Palmas DC1**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
458899.317	809240.550	-75.150	5.627	0.092	0.095	0.089	0.125



GPS Obs. Files

Occupation Records

5751260-5

OR0400.pdf

Occupation Photos

Las Palmas DC1 05-08-10 M000

Las Palmas DC1 05-08-10 I0005

Las Palmas DC1 05-08-10 S000



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **Las Palmas G1**

DESCRIPTION **Stainless Steel Rod**

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

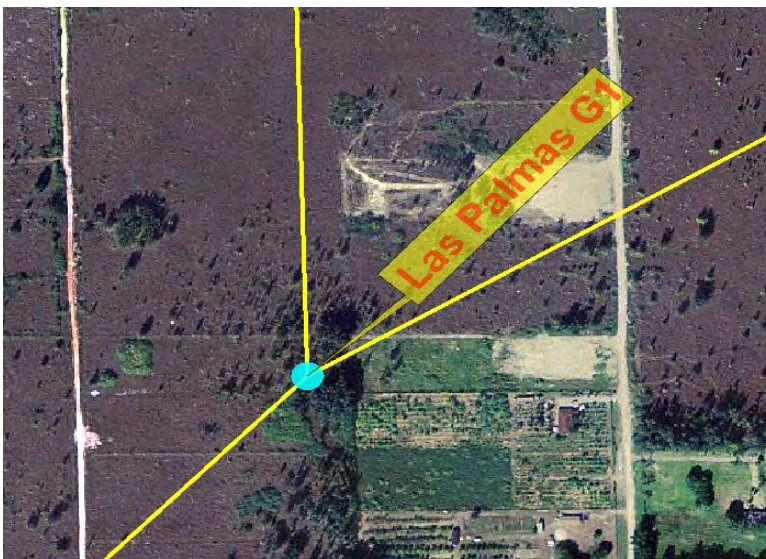
ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Sqaures Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
470496.102	808372.405	-75.544	5.121	0.072	0.072	0.046	0.095



GPS Obs. Files

Occupation Records

5750774

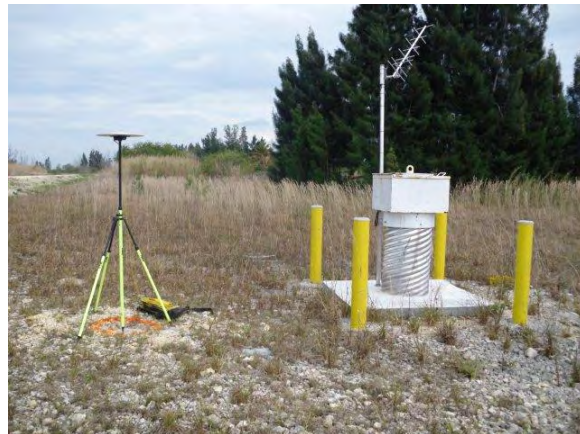
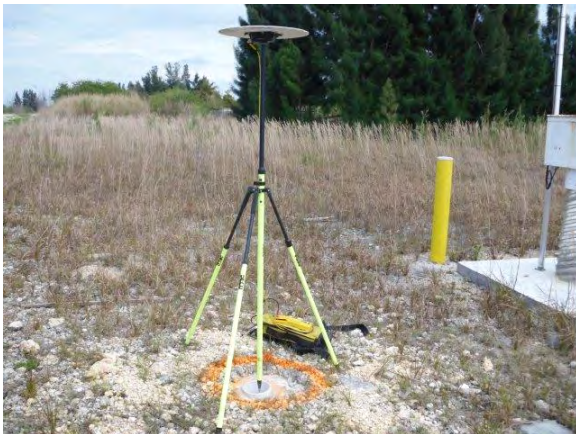
OR0341.pdf

Occupation Photos

LASPALMASG1 03-18-10 M137

LASPALMASG1 03-18-10 I1375

LASPALMASG1 03-18-10 S1376



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **Las Palmas G2**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
463730.582	808650.798	-75.207	5.513	0.085	0.085	0.062	0.105



GPS Obs. Files

28270711-3

58410790

Occupation Records

OR0338.pdf

OR0384.pdf

Occupation Photos

LASPALMASG2 03-18-10 M138

LASPALMASG2 03-18-10 I1387

LASPALMASG2 03-18-10 S1388

LASPALMASG2 03-20-10 M143

LASPALMASG2 03-20-12 I1431

LASPALMASG2 03-20-10 S1432



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S118**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

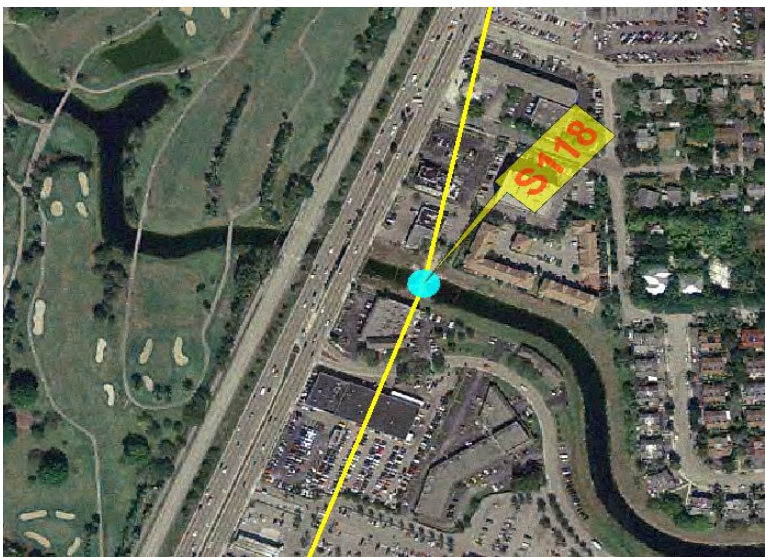
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
469413.865	872696.967	-74.314	8.357	0.072	0.072	0.102	0.131



GPS Obs. Files

Occupation Records

28270711-7

OR0332.pdf

28270961-4

OR0396.pdf

Occupation Photos

S118 03-15-10 M1319

S118 03-15-10 I1320

S118 03-15-10 S1321

S118 05-07-10 M0001

S118 05-07-10 I0002

S118 05-07-10 S0003



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S119**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

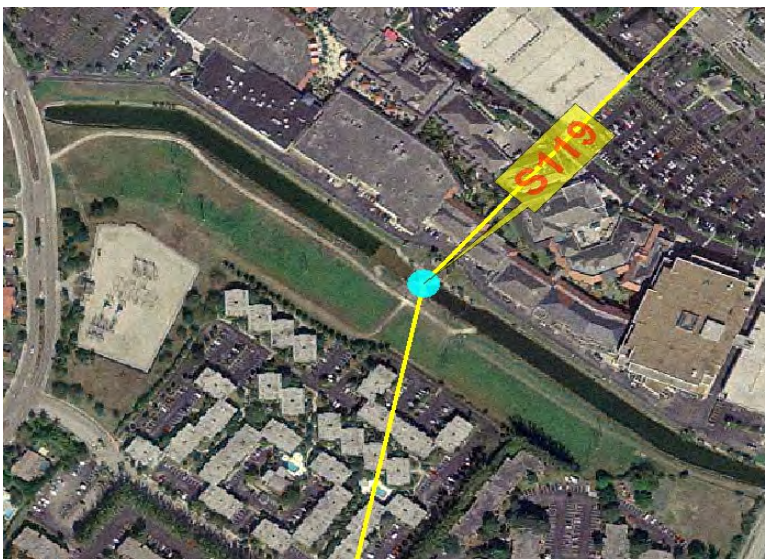
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
476479.087	874164.552	-74.201	8.402	0.069	0.075	0.095	0.128



GPS Obs. Files

05751260-4

Occupation Records

OR0397.pdf

Occupation Photos

S119 05-07-10 M0004

S119 05-07-10 I0005

S119 05-07-10 S0006



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S120**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

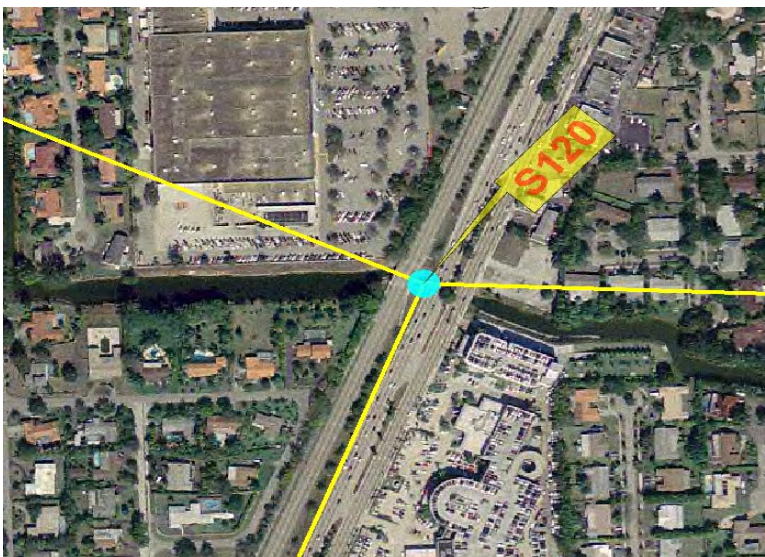
ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
486679.773	879569.610	-69.178	13.440	0.052	0.056	0.052	0.102



GPS Obs. Files

Occupation Records

22630771

OR0342.pdf

22630783

OR0371.pdf

Occupation Photos

S120 03-18-10 M1340

S120 03-18-10 I1341

S120 03-18-10 S1342

S120 03-19-10 M309

S120 03-19-10 I310

S120 03-19-10 S311



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S121**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

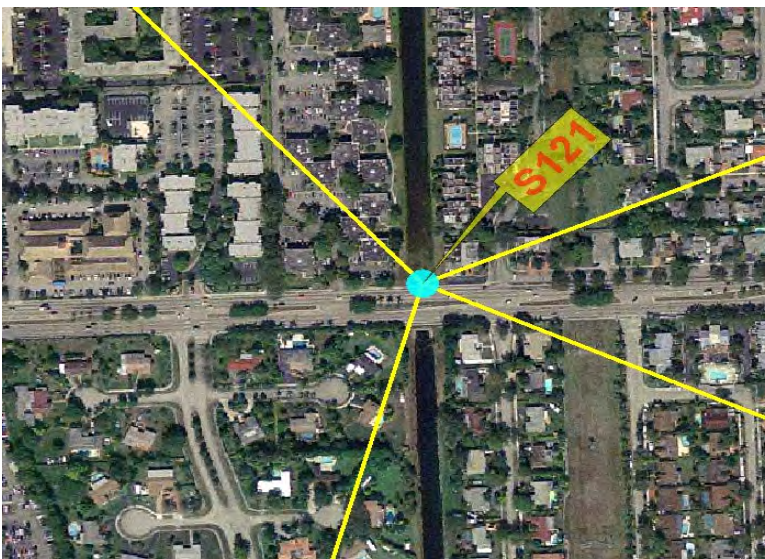
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
492548.572	866685.936	-67.384	14.739	0.046	0.046	0.052	0.098



GPS Obs. Files

Occupation Records

5750781

OR0356.pdf

Occupation Photos

S121 03-19-10 M1389

S121 03-19-10 I1390

S121 03-19-10 S1391



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S122**

DESCRIPTION 4" Brass Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

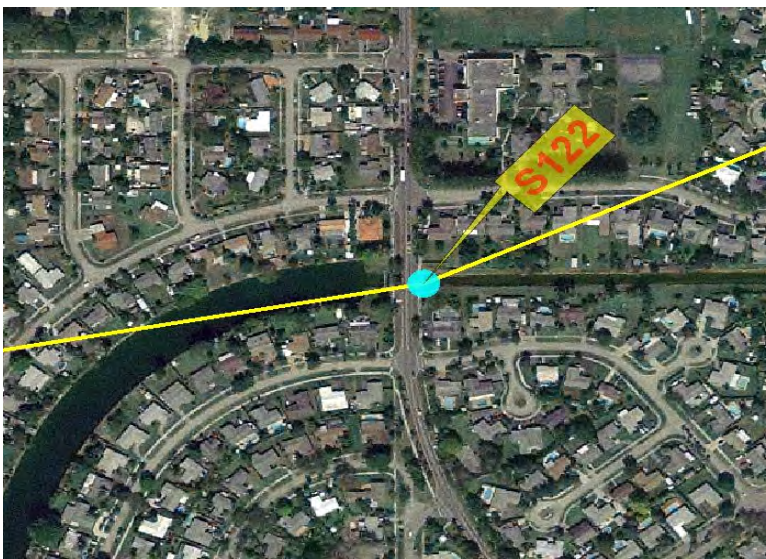
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
458787.832	871058.458	-77.838	4.953	0.075	0.072	0.056	0.102



GPS Obs. Files

Occupation Records

5751260-7

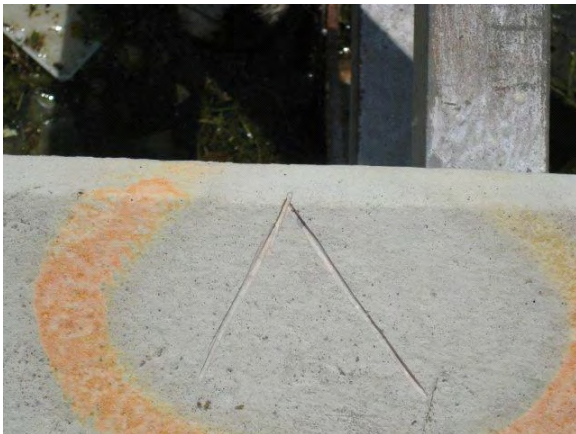
OR0405.pdf

Occupation Photos

S122 05-09-10 I0005

S122 05-09-10 M0004

S122 05-09-10 S0006



STRUCTURE POINT SURVEY RECORD

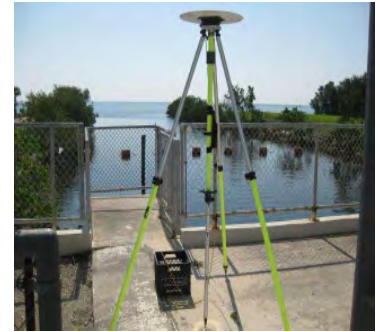
STRUCTURE NAME **S123**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
464819.206	884143.424	-74.662	8.490	0.062	0.059	0.059	0.105



GPS Obs. Files

Occupation Records

22630741

OR0334.pdf

28271290

OR0404.pdf

Occupation Photos

S123 03-15-10 M1316

S123 03-15-10 I1317

S123 03-15-10 S1318

S123 05-09-10 I0002

S123 05-09-10 M0001

S123 05-09-10 S0003



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S12A**

DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519170.824	714955.971	-64.659	14.449	0.000	0.000	0.000	0.000



GPS Obs. Files

Occupation Records

58410710

OR0302.pdf

22631260

OR0392.pdf

Occupation Photos

S12A 03-12-10 M126

S12A 03-12-10 I1262

S12A 03-12-10 S1263

S12A 05-06-10 M0016

S12A 05-06-10 I0017

S12A 05-06-10 S0018



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S12B**

DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519240.945	732114.381	-64.770	14.573	0.000	0.000	0.000	0.000



GPS Obs. Files

Occupation Records

49250713

OR0329.pdf

05751260-2

OR0391.pdf

Occupation Photos

S12B 03-12-10 M288

S12B 03-12-10 I289

S12B 03-12-10 S290

S12B 05-06-10 M0013

S12B 05-06-10 I0014

S12B 05-06-10 S0015



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S12C**

DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519289.449	745956.608	-65.143	14.436	0.066	0.069	0.085	0.000



GPS Obs. Files

Occupation Records

5750714

OR0307.pdf

49251260-2

OR0390.pdf

Occupation Photos

S12C 03-12-10 M1264

S12C 03-12-10 I1265

S12C 03-12-10 S1266

S12C 05-06-20 M0010

S12C 05-06-20 I0011

S12C 05-06-20 S0012



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S12D**

DESCRIPTION Bench Mark Disk in Concrete Retaining Wall

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

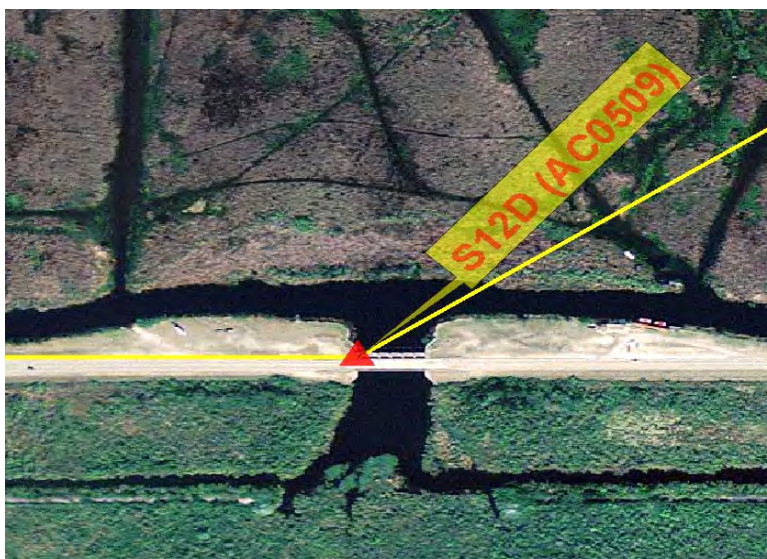
ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519332.583	760808.477	-65.357	14.377	0.000	0.000	0.000	0.000



GPS Obs. Files

Occupation Records

5750716

OR0308.pdf

22631260-2

OR0388.pdf

Occupation Photos

S12D 03-12-10 M1267

S12D 03-12-10 I1268

S12D 03-12-10 S1269

S12D 05-06-10 M0005

S12D 05-06-10 I0006

S12D 05-06-10 S0007



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S12E**

DESCRIPTION 2" Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519111.474	763519.085	-67.423	12.436	0.062	0.059	0.036	0.092



GPS Obs. Files

Occupation Records

5750718

OR0309.pdf

Occupation Photos

S12E 03-12-10 M1270

S12E 03-12-10 I1271

S12E 03-12-10 S1272



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S14**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519181.222	714740.830	-63.601	15.557	0.066	0.066	0.049	0.098



GPS Obs. Files

Occupation Records

5750712

OR0306.pdf

Occupation Photos

S14 03-12-10 M1258

S14 03-12-10 I1259

S14 03-12-10 S1260



STRUCTURE POINT SURVEY RECORD

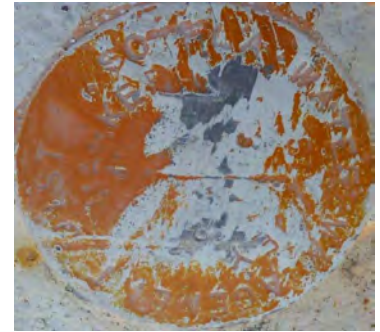
STRUCTURE NAME **S148**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
449899.595	859619.561	-75.053	7.470	0.089	0.085	0.069	0.108



GPS Obs. Files

5750787

Occupation Records

OR0359.pdf

Occupation Photos

S148 03-19-10 M1399

S148 03-19-10 I1400

S148 03-19-10 S1401



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S149**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

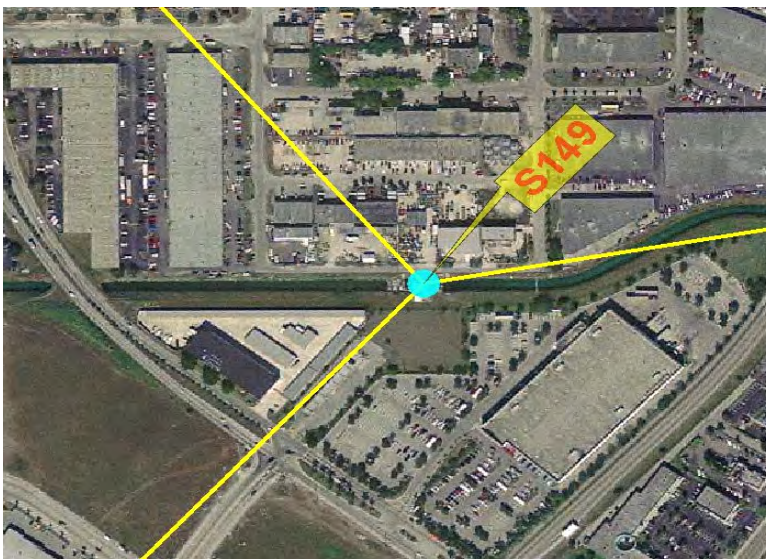
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
457988.154	866710.100	-75.324	7.328	0.062	0.062	0.039	0.095



GPS Obs. Files

Occupation Records

28270711-5

OR0355.pdf

49251260-7

OR0406.pdf

Occupation Photos

S149 03-19-10 M1396

S149 03-19-10 I1397

S149 03-19-10 S1398

S149 05-09-10 I0008

S149 05-09-10 M0007

S149 05-09-10 S0009



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S165**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

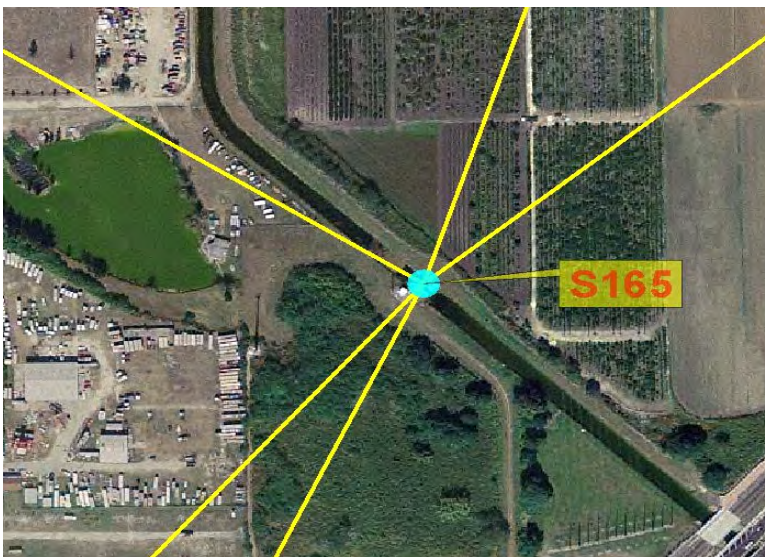
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
439848.727	850863.590	-74.811	7.522	0.049	0.049	0.052	0.098



GPS Obs. Files

22630786

Occupation Records

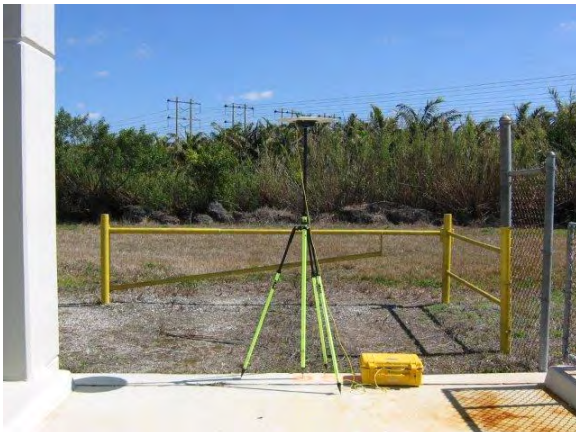
OR0369.pdf

Occupation Photos

S165 03-19-10 M315

S165 03-19-10 I316

S165 03-19-10 S317



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S166**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
431012.936	843336.588	-73.651	8.476	0.075	0.072	0.062	0.105



GPS Obs. Files

05750789

Occupation Records

OR0360.pdf

Occupation Photos

S166 03-19-10 M1408

S166 03-19-10 I1409

S166 03-19-10 S1410



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S167**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
425399.288	832608.094	-73.388	8.393	0.066	0.062	0.056	0.102



GPS Obs. Files

58410780

Occupation Records

OR0363.pdf

Occupation Photos

S167 03-19-10 M1405

S167 03-19-10 I1406

S167 03-19-10 S1407



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S173**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
464811.792	817763.431	-68.773	12.209	0.069	0.066	0.046	0.098



GPS Obs. Files

28270711

Occupation Records

OR0376.pdf

Occupation Photos

S173 03-20-10 M1433

S173 03-20-10 I1434

S173 03-20-10 S1435



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S174**

DESCRIPTION 4" Brass Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

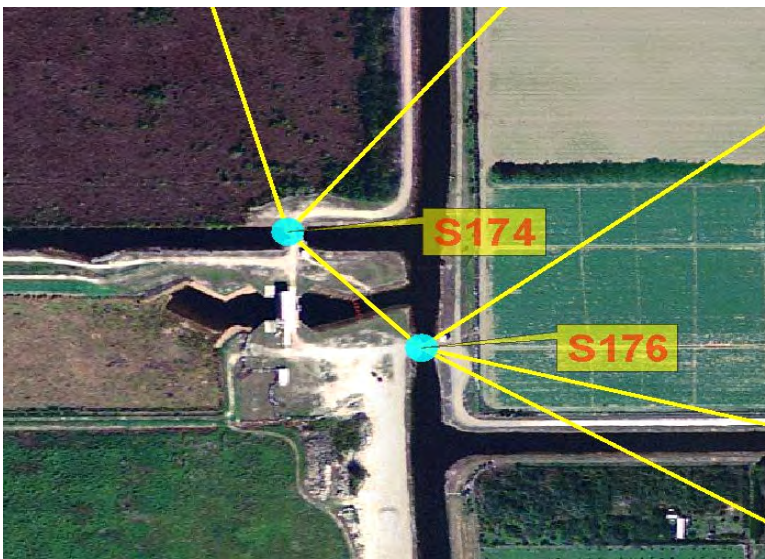
ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
418224.579	800059.432	-71.145	9.530	0.052	0.052	0.033	0.092



GPS Obs. Files

49250782

Occupation Records

OR0373.pdf

Occupation Photos

S174 03-19-10 M329

S174 03-19-10 I330

S174 03-19-10 S331



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S176**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
417899.768	800380.969	-71.309	9.375	0.059	0.059	0.075	0.115



GPS Obs. Files

0575078B

Occupation Records

OR0361.pdf

Occupation Photos

S176 03-19-10 M0699

S176 03-19-10 I0700

S176 03-19-10 S0701



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S194**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
454529.143	828051.650	-74.985	6.420	0.052	0.052	0.066	0.105



GPS Obs. Files

Occupation Records

49250781

OR0374.pdf

5750792

OR0378.pdf

Occupation Photos

S194 03-19-10 M322

S194 03-19-10 I323

S194 03-19-10 S324

S194 03-20-10 M1439

S194 03-20-10 I1440

S194 03-20-10 S1441



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S195**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
443307.466	854997.862	-75.947	6.494	0.085	0.079	0.069	0.108



GPS Obs. Files

49250780

Occupation Records

OR0375.pdf

Occupation Photos

S195 03-19-10 M319

S195 03-19-10 I320

S195 03-19-10 S321



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S196**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

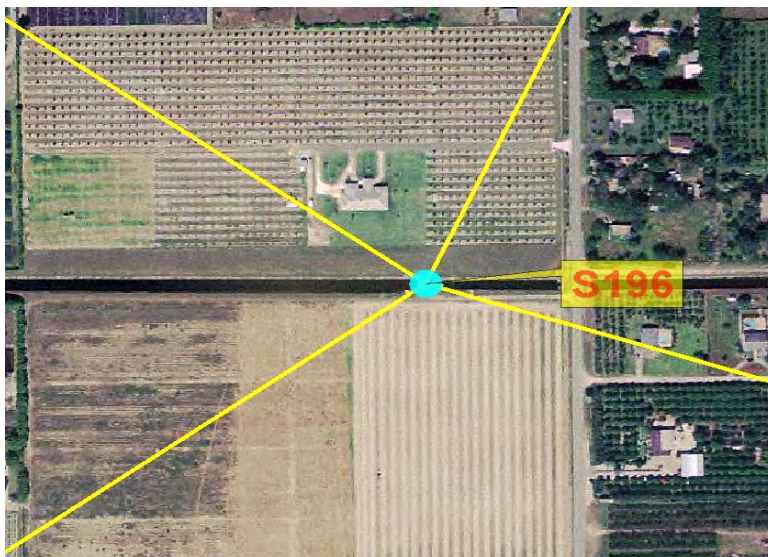
ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
430453.299	817296.788	-74.960	6.287	0.056	0.056	0.052	0.102



GPS Obs. Files

Occupation Records

28270711-4

OR0354.pdf

Occupation Photos

S196 03-19-10 M1402

S196 03-19-10 I1403

S196 03-19-10 S1404



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S22**

DESCRIPTION 4" Brass Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
486255.271	892082.585	-76.061	6.983	0.062	0.059	0.059	0.102



GPS Obs. Files

Occupation Records

49250742

OR0331.pdf

49250770

OR0348.pdf

Occupation Photos

S22 03-15-10 M1313

S22 03-15-10 I1314

S22 03-15-10 S1315

S22 03-18-10 M1337

S22 03-18-10 I1338

S22 03-18-10 S1339



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S24A**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
504024.510	821772.553	-75.347	5.493	0.098	0.095	0.052	0.098



GPS Obs. Files

5750770

Occupation Records

OR0339.pdf

Occupation Photos

S24A 03-18-10 M1351

S24A 03-18-10 I1352

S24A 03-18-10 S1353



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S331**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
464646.853	817901.667	-70.233	10.754	0.072	0.066	0.049	0.098



GPS Obs. Files

Occupation Records

49250791

OR0382.pdf

Occupation Photos

S331 03-20-10 M1436

S331 03-20-10 I1437

S331 03-20-10 S1438



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S332B**

DESCRIPTION 1/2" Rebar
GEODETTIC DATUM NAD83 (2007)
ELEVATION DATUM NAVD 88
UNITS USED US Survey Foot

COORDINATE SYSTEM FLORIDA EAST
GEOID USED Geoid 09



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
442310.247	801082.868	-70.524	10.118	0.062	0.062	0.049	0.098



GPS Obs. Files

58410781
 28270711-2
 49251260-5

Occupation Records

OR0362.pdf
 OR0377.pdf
 OR0402.pdf

Occupation Photos

S332B 03-19-10 M1412
 S332B 03-19-10 I1413
 S332B 03-19-10 S1414
 S332B 03-20-10 M1418
 S332B 03-20-10 I1419
 S332B 03-20-10 S1420



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S332C**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
429947.639	801228.639	-71.111	9.600	0.085	0.085	0.066	0.108



GPS Obs. Files

Occupation Records

28270711

OR0353.pdf

05751260-6

OR0403.pdf

Occupation Photos

S332C 03-19-10 M1415

S332C 03-19-10 I1416

S332C 03-19-10 S1417

S332C 05-08-10 M0002

S332C 05-08-10 I0003

S332C 05-08-10 S0004



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S333**

DESCRIPTION Vertical Control Disk in Retaining Wall

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**
 ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**
 UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519343.379	763458.911	-66.817	12.940	0.000	0.000	0.000	0.000



GPS Obs. Files

Occupation Records

22630711
5751260

OR0327.pdf
OR0386.pdf

Occupation Photos

S333 03-12-10 M293
S333 03-12-10 I294
S333 03-12-10 S295
S333 05-06-10 M0001
S333 05-06-10 I0002
S333 05-06-10 S0003



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S334**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519271.929	819957.988	-68.708	12.104	0.066	0.066	0.036	0.092



GPS Obs. Files

5750730

Occupation Records

OR0314.pdf

Occupation Photos

S334 03-14-10 M1289

S334 03-14-10 I1290

S334 03-14-10 S1291



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S335**

DESCRIPTION Survey Disk in Concrete Bridge Abutment

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
524589.834	826301.393	-71.069	9.856	0.000	0.000	0.000	0.000



GPS Obs. Files

Occupation Records

28270711-2

OR0321.pdf

Occupation Photos

S335 03-14-10 M1299

S335 03-14-10 I1300

S335 03-14-10 S1301



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S336**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519221.573	821769.654	-71.533	9.315	0.056	0.056	0.049	0.098



GPS Obs. Files

Occupation Records

58410730

OR0322.pdf

22630774

OR0344.pdf

Occupation Photos

S336 03-14-10 M1296

S336 03-14-10 I1297

S336 03-14-10 S1298

S336 03-18-10 M1345

S336 03-18-10 I1346

S336 03-18-10 S1347



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S338**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
482786.341	826984.091	-71.306	9.784	0.049	0.049	0.030	0.092



GPS Obs. Files

22630778

Occupation Records

OR0346.pdf

Occupation Photos

S338 03-18-10 M1366

S338 03-18-10 I1367

S338 03-18-10 S1368



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S343A**

DESCRIPTION Brass Rod
GEODETTIC DATUM **NAD83 (2007)**
ELEVATION DATUM **NAVD 88**
UNITS USED **US Survey Foot**

COORDINATE SYSTEM **FLORIDA EAST**
GEOID USED **Geoid 09**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
529089.552	703748.023	-62.322	16.909	0.052	0.052	0.046	0.098



GPS Obs. Files

28270710

Occupation Records

OR0303.pdf

Occupation Photos

- S343A 03-12-10 M1253
- S343A 03-12-10 I1254
- S343A 03-12-10 S1255



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S343B**

DESCRIPTION Brass Rod
GEODETTIC DATUM **NAD83 (2007)**
ELEVATION DATUM **NAVD 88**
UNITS USED **US Survey Foot**

COORDINATE SYSTEM **FLORIDA EAST**
GEOID USED **Geoid 09**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
525082.320	707484.591	-62.513	16.677	0.062	0.062	0.052	0.098



GPS Obs. Files

49250711

Occupation Records

OR0328.pdf

Occupation Photos

- S343B 03-12-10 M283
- S343B 03-12-10 I284
- S343B 03-12-10 S285



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S346**

DESCRIPTION Punch Mark on Angle Iron

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
518979.506	763466.187	-68.658	11.198	0.056	0.056	0.039	0.092



GPS Obs. Files

58410711

Occupation Records

OR0301.pdf

Occupation Photos

S346 03-12-10 M1273

S346 03-12-10 I1274

S346 03-12-10 S1275



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S347**

DESCRIPTION 2" Aluminum Disk in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
505112.912	763978.282	-72.336	7.377	0.098	0.098	0.312	0.322



GPS Obs. Files

42951550

Occupation Records

OR0427.pdf

Occupation Photos

S347 06-07-10 M1654

S347 06-07-10 I1655

S347 06-07-10 S1656



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S355A**

DESCRIPTION Survey Disk in Concrete Bridge Abutment

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519290.071	790733.895	-63.651	16.657	0.000	0.000	0.000	0.000



GPS Obs. Files

49250717

Occupation Records

OR0324.pdf

Occupation Photos

S355A 03-12-10 M302

S355A 03-12-10 I303

S355A 03-12-10 S304



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S355B**

DESCRIPTION Survey Disk in Concrete Bridge Abutment

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [NGS Datasheet](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519314.263	803127.722	-63.898	16.621	0.000	0.000	0.000	0.000



GPS Obs. Files

49250732

Occupation Records

OR0311.pdf

Occupation Photos

- S355B 03-14-10 M1285
- S355B 03-14-10 I1286
- S355B 03-14-10 S1287



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S356**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
519285.951	820075.162	-61.633	19.181	0.075	0.072	0.043	0.095



GPS Obs. Files

49250734

Occupation Records

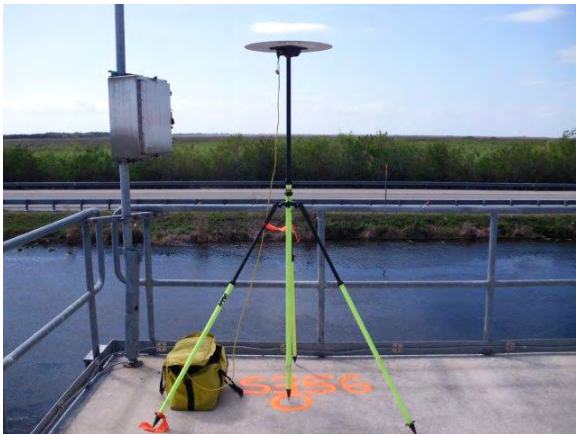
OR0312.pdf

Occupation Photos

S356 03-14-10 M1292

S356 03-14-10 I1293

S356 03-14-10 S1294



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S357**

DESCRIPTION X-Cut in Concrete

GEODETTIC DATUM **NAD83 (2007)** **COORDINATE SYSTEM** **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** **GEOID USED** **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	El. Ht	Elev.	N	E	El. Ht	Elev
463610.711	812938.370	-72.707	8.143	0.079	0.079	0.052	0.098



GPS Obs. Files

Occupation Records

22630790

OR0383.pdf

28270961-5

OR0399.pdf

Occupation Photos

S357 03-20-10 M1427

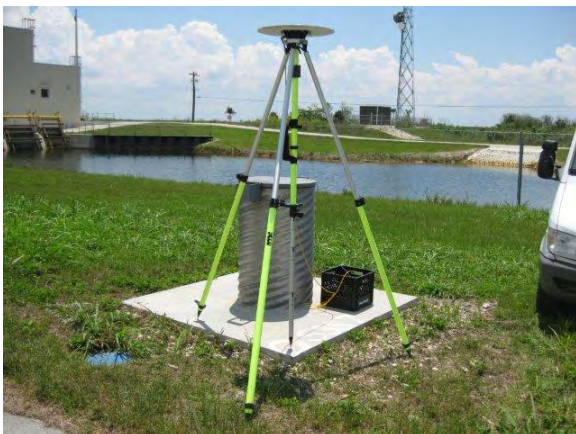
S357 03-20-10 I1428

S357 03-20-10 S1429

S357 05-08-10 M0001

S357 05-08-10 I0002

S357 05-08-10 S0003



STRUCTURE POINT SURVEY RECORD

STRUCTURE NAME **S380**

DESCRIPTION Punch Mark in Cross Member

GEODETTIC DATUM **NAD83 (2007)** COORDINATE SYSTEM **FLORIDA EAST**

ELEVATION DATUM **NAVD 88** GEOID USED **Geoid 09**

UNITS USED **US Survey Foot**



SOURCE : [Least Squares Network Adjustment Report](#)

COORDINATES				Estimated Errors at 95% Confidence Level			
N	E	EI. Ht	Elev.	N	E	EI. Ht	Elev
519347.913	837685.963	-73.093	8.089	0.066	0.066	0.085	0.121



GPS Obs. Files

5750732

Occupation Records

OR0315.pdf

Occupation Photos

S380 03-14-10 M1302

S380 03-14-10 I1303

S380 03-14-10 S1304

