



PROFESSIONAL SURVEYORS & MAPPERS
I N C O R P O R A T E D

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SURVEYOR'S REPORT

Specific Purpose Survey of the United States
Geological Survey Well **OSF-28**
in
Osceola County, Florida

Prepared for:

South Florida Water Management District

3301 Gun Club Road
West Palm Beach, Florida 33406

Prepared by:

Peter Andersen, PSM, Vice President
Florida Professional Surveyor and Mapper
License Number 5199
State of Florida

GCY, Inc. LB 4108
PO Box 1469/1505 SW Martin Highway
Palm City, Florida 33491/33490
772-286-8083

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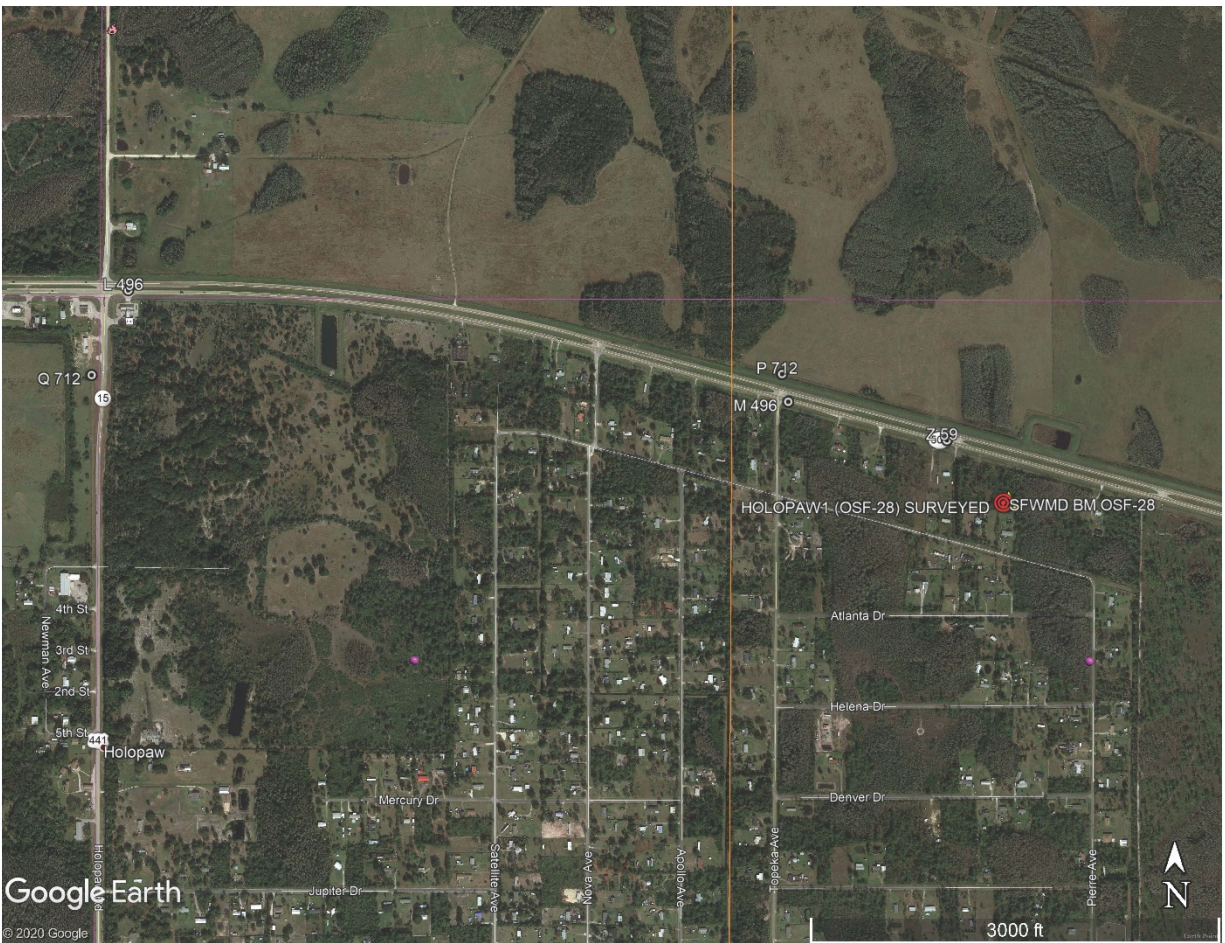
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PURPOSE

The Purpose of this survey is to set an Elevation Referenced Mark (Benchmark) using the guidelines for a National Geodetic Survey (NGS), Class "C" concrete monument and to establish a North American Vertical Datum of 1988 (NAVD 88) on said Benchmark and on an additional Reference Point with a Brass Plate, both at United States Geological Survey Well "OSF-28".

LOCATION OF PROJECT

The United States Geological Survey Well "OSF-28" is located in the Section 18, Township 27 South, Range 33 East, Osceola County, Florida.



General Location (Not to Scale)



PROJECT VERTICAL DATUM

The project vertical datum is the North American Vertical Datum (NAVD) of 1988.

To convert the NAVD 88 elevation to the National Geodetic Vertical Datum (NGVD) of 1929 at **Station OSF-28 add 1.171**. These values are based on Corpscon 6.0.1, a U.S. Army Corps of Engineers, Engineering Research and Development Center Windows based program to convert coordinates and elevations between datums using the updated vertcon05.txt and the vertcone.05 files supplied by the U.S Army Corps of Engineers. South Atlantic Division, Jacksonville, Florida.

PROJECT HORIZONTAL DATUM

The project horizontal datum is the State Plane Coordinate System, Florida East Zone, North American Datum 83, adjustment of 2011.

LEVELING METHODS

The leveling for this project was performed in accordance with standard survey practice using conventional third order methods, techniques and equipment.

The allowable error on this project meets or exceeds closures as required by SFWMD (.02 v miles).

Leveling was run from National Geodetic Survey (NGS) monument "P 712" (NGSPID DO9822) to the site benchmarks and closing on National Geodetic Survey (NGS) monument "N 712" (NGSPID DO9821). Leveling was done using a Leica DNA 10 digital level S/N 331745

GPS METHODS

Latitude and longitude for the New Benchmark "OSF-28" were established by observing a 6+ hour Static Session on July 16, 2020 using a Trimble 5700 dual frequency receiver S/N 0220381397. The data from this session was sent to the NGS "OPUS" site for post processing on July 21, 2020 and a report was received from the "OPUS" site the same day. The data was also sent to "OPUS Shared" and accepted on August 17, 2020, (NGSPID BBGX01).



Surveyors' Notes:

1. All measurements herein are in United States Survey feet and decimal thereof, unless otherwise specified.
2. Underground utilities were not located as part of this survey.
3. This survey report or copies thereof are not valid without the original signature and seal of a Florida licensed Surveyor and Mapper.
4. Additions or deletions to this survey report by other than the signing party (or parties) is prohibited without written consent of the signing party (or parties).
5. To convert from NAVD 88 to NGVD 29 add 1.171 feet. This value is based on Corpscon 6.0.1 a U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL.
6. Date of last field work: July 16, 2020, GCY Job No. 20-1017-02-01.
7. SFWMD Data records (on file at the District's headquarters):
 - A. Electronic Data files:
Miscellaneous picture files
Digital level run
File names: XXXXXX.DAT
 - B. Conventional reporting
Field Book: 1869 pages 21-25

SURVEYOR'S CERTIFICATION

In my professional opinion this Specific Purpose Survey meets applicable portions of the Standards of Practice set forth by the Florida Board of Professional Surveyors and Mappers in Chapter 5J-17, Florida Administrative Code. This report is prepared for the sole and specific use of the South Florida Water Management District and is not assignable.

July 16, 2020

Last date of Survey



Peter Andersen, PSM, Vice President
Florida Professional Surveyor and Mapper
License Number 5199
State of Florida
GCY, Inc. LB No 4108

NOTE:

This is an electronically signed and sealed document pursuant to Chapter 5J-17.062, Florida Administrative Code. The printed survey map or report or copies thereof are not valid without the original signature and seal of a Florida licensed surveyor or mapper.



U.S.G.S. Station Name: OSF-28	U.S.G.S. Station Number: 280826081031801	Agency: GCY, INC.	Date of Field Work: 7/16/2020
Party Chief: LAPOLLA	Field Book: GCY 1869	Page(s): 21-24	Report Prepared by: ANDERSEN

SITE SPECIFIC DATA

Site Benchmark: OSC-28	Benchmark Elevation(s) (NAVD88): 67.695	Corpscon 6.0.1 Conversion Factor (NAVD88 to NGVD29) + 1.171	
Well Reference Elevation (NAVD88): 71.982	DTW: 30.22 Date: 07/15/2020 Time:14:18	Ground Elevation (NAVD88): 68.6	Pad Elevation (NAVD88): N/A

GEOGRAPHIC DATA

Section 18	Township 27 S	Range 33 E
Well Latitude: 28° 08' 26.658" N	Well Longitude: 81° 03' 20.423" W	Location Source: RTK GPS
State Plane Coordinates:	Northing (Y) = 1383875.29	Easting (X) = 638224.89

Notes: **NAVD88** – North American Vertical Datum of 1988; **NGVD29**- National Geodetic Vertical Datum of 1929; **Corpscon 6.0.1** - A U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL.

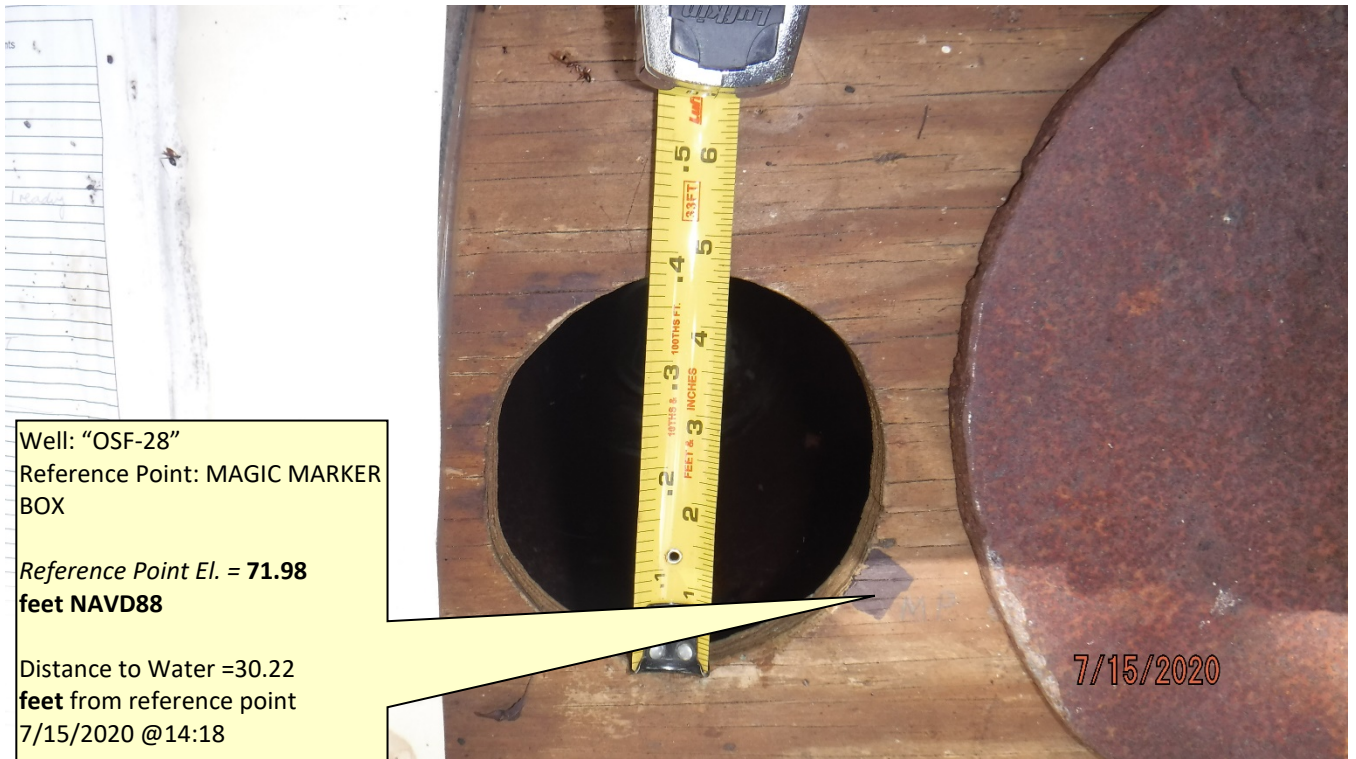
PICTURES

Aerial of Overall Well Site



Not to scale (GoogleEarth product)

Well Site and Well Head



Well: "OSF-28"
Reference Point: MAGIC MARKER
BOX

Reference Point El. = **71.98**
feet NAVD88

Distance to Water = **30.22**
feet from reference point
7/15/2020 @14:18

New Aluminum Tag



USGS RMs



OSF-28 RM-1
½" IRON ROD AT WELL HEAD
NAVD88 EL = 68.542



OSF-28 RM-2
LAG BOLT IN PINE TREE
NAVD88 EL = 70.657



Site Benchmark

Site Benchmark Overall Photo



Site BM: OSF-28



Latitude: 28° 8' 26.84634" N
Longitude: 81° 3' 19.97964" W
NAVD88 EL = 67.695'



Source Benchmarks



P 712 (NGSPID DO9822)



N 712 (NGSPID DO9821)

The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 29, 2020

D09822 *****

D09822 DESIGNATION - P 712

D09822 PID - D09822

D09822 STATE/COUNTY- FL/OSCEOLA

D09822 COUNTRY - US

D09822 USGS QUAD - HOLOPAW (2018)

D09822

D09822 *CURRENT SURVEY CONTROL

D09822

D09822* NAD 83(1986) POSITION- 28 08 36.0 (N) 081 03 38.5 (W) HD_HELD2

D09822* [NAVD 88](#) ORTHO HEIGHT - 20.941 (meters) 68.70 (feet) ADJUSTED

D09822

D09822 GEOID HEIGHT - -28.013 (meters) GEOID18

D09822 DYNAMIC HEIGHT - 20.909 (meters) 68.60 (feet) COMP

D09822 MODELED GRAVITY - 979,156.2 (mgal) NAVD 88

D09822

D09822 VERT ORDER - FIRST CLASS II

D09822

D09822.The horizontal coordinates were established by autonomous hand held GPS

D09822.observations and have an estimated accuracy of +/- 10 meters.

D09822.

D09822.The orthometric height was determined by differential leveling and

D09822.adjusted by the NATIONAL GEODETIC SURVEY

D09822.in January 2014.

D09822

D09822.Significant digits in the geoid height do not necessarily reflect accuracy.

D09822.GEOID18 height accuracy estimate available [here](#).

D09822

D09822.Click [photographs](#) - Photos may exist for this station.

D09822

D09822.The dynamic height is computed by dividing the NAVD 88

D09822.geopotential number by the normal gravity value computed on the

D09822.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

D09822.degrees latitude (g = 980.6199 gals.).

D09822

D09822.The modeled gravity was interpolated from observed gravity values.

D09822

D09822; North East Units Estimated Accuracy

D09822;SPC FL E - 422,094. 194,038. MT (+/- 10 meters HH2 GPS)

D09822

D09822_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM9404013081(NAD 83)

D09822

D09822 SUPERSEDED SURVEY CONTROL

D09822

D09822.No superseded survey control is available for this station.

D09822

D09822_MARKER: DD = SURVEY DISK

D09822_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

D09822_STAMPING: P 712 2008

D09822_MARK LOGO: FLDEP

D09822_PROJECTION: RECESSED 5 CENTIMETERS

D09822_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

D09822_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

D09822+STABILITY: SURFACE MOTION

D09822_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

D09822+SATELLITE: SATELLITE OBSERVATIONS - April 01, 2008

D09822

D09822 HISTORY - Date Condition Report By

D09822 HISTORY - 20080401 MONUMENTED FLDEP

D09822

STATION DESCRIPTION

D09822

D09822'DESCRIBED BY FL DEPT OF ENV PRO 2008

D09822'THE MARK IS ABOUT 13.2 MI (21.2 KM) EAST-SOUTHEAST OF ASHTON, 10.6 MI

D09822'(17.1 KM) WEST-NORTHWEST OF DEER PARK, 1.1 MI (1.8 KM) EAST-NORTHEAST

D09822'OF HOLOPAW, IN SECTION 18, TOWNSHIP 27 SOUTH, RANGE 33 EAST.

D09822'

D09822'TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 192 (EAST BRONSON

D09822'HIGHWAY) AND HOLOPAW ROAD (U.S. HIGHWAY 441 SOUTH. TURN AROUND BAY

D09822'ROAD NORTH) IN HOLOPAW, GO EAST ON U.S. HIGHWAY 192 (EAST BRONSON

D09822'HIGHWAY) FOR 0.95 MI (1.5 KM) TO THE JUNCTION OF TOPEKA ROAD ON THE

D09822'RIGHT AND THE MARK ON THE LEFT, SET IN THE TOP OF A ROUND CONCRETE

D09822'MONUMENT RECESSED 0.2 FT (6 CM) BELOW THE LEVEL OF THE GROUND AND

D09822'ABOUT 2.0 FT (0.6 M) BELOW THE LEVEL OF U.S. HIGHWAY 192 WESTBOUND

D09822'LANES.

D09822'

D09822'LOCATED 107.0 FT (32.6 M) NORTH OF THE CENTERLINE OF U.S. HIGHWAY 192

D09822'WESTBOUND LANES, 15.0 FT (4.6 M) EAST OF THE APPROXIMATE EXTENDED

D09822'CENTERLINE OF TOPEKA ROAD, 2.0 FT (0.6 M) SOUTH OF A BARBWIRE FENCE

D09822'AND 1.8 FT (0.5 M) SOUTH OF A CARSONITE WITNESS POST.

D09822'

D09822'NOTE A MAGNET WAS IMBEDDED IN THE GROUND ON THE SOUTH SIDE OF THE

D09822'MONUMENT.

*** retrieval complete.

Elapsed Time = 00:00:02

/

"N 712" Benchmark Datasheet (1 OF 2)

The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.9

Starting Datasheet Retrieval...

1 National Geodetic Survey, Retrieval Date = AUGUST 29, 2020

D09821 *****

D09821 DESIGNATION - N 712

D09821 PID - D09821

D09821 STATE/COUNTY- FL/OSCEOLA

D09821 COUNTRY - US

D09821 USGS QUAD - HOLOPAW (2018)

D09821

D09821 *CURRENT SURVEY CONTROL

D09821

D09821* NAD 83(1986) POSITION- 28 08 21.0 (N) 081 02 34.0 (W) HD_HELD2

D09821* [NAVD 88](#) ORTHO HEIGHT - 21.057 (meters) 69.08 (feet) ADJUSTED

D09821

D09821 GEOID HEIGHT - -28.023 (meters) GEOID18

D09821 DYNAMIC HEIGHT - 21.026 (meters) 68.98 (feet) COMP

D09821 MODELED GRAVITY - 979,156.3 (mgal) NAVD 88

D09821

D09821 VERT ORDER - FIRST CLASS II

D09821

D09821.The horizontal coordinates were established by autonomous hand held GPS

D09821.observations and have an estimated accuracy of +/- 10 meters.

D09821.

D09821.The orthometric height was determined by differential leveling and

D09821.adjusted by the NATIONAL GEODETIC SURVEY

D09821.in January 2014.

D09821

D09821.Significant digits in the geoid height do not necessarily reflect accuracy.

D09821.GEOID18 height accuracy estimate available [here](#).

D09821

D09821.Click [photographs](#) - Photos may exist for this station.

D09821

D09821.The dynamic height is computed by dividing the NAVD 88

D09821.geopotential number by the normal gravity value computed on the

D09821.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

D09821.degrees latitude (g = 980.6199 gals.).

D09821

D09821.The modeled gravity was interpolated from observed gravity values.

D09821

D09821; North East Units Estimated Accuracy

D09821;SPC FL E - 421,631. 195,798. MT (+/- 10 meters HH2 GPS)

D09821

D09821_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMM9579912619(NAD 83)

D09821

D09821 SUPERSEDED SURVEY CONTROL

D09821

D09821.No superseded survey control is available for this station.

D09821

D09821_MARKER: F = FLANGE-ENCASED ROD

D09821_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

D09821_STAMPING: N 712 2008

D09821_MARK LOGO: NGS

D09821_PROJECTION: RECESSED 3 CENTIMETERS

D09821_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

D09821_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

D09821_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

D09821+SATELLITE: SATELLITE OBSERVATIONS - April 01, 2008

"N 712" Benchmark Datasheet (2 OF 2)

D09821 ROD/PIPE-DEPTH: 12.5 meters

D09821

D09821 HISTORY - Date Condition Report By

D09821 HISTORY - 20080401 MONUMENTED FLDEP

D09821

D09821

STATION DESCRIPTION

D09821

D09821 DESCRIBED BY FL DEPT OF ENV PRO 2008

D09821 THE MARK IS ABOUT 14.3 MI (23.0 KM) EAST-SOUTHEAST OF ASHTON, 9.4 MI

D09821 (15.1 KM) WEST-NORTHWEST OF DEER PARK, 2.1 MI (3.4 KM) EAST OF

D09821 HOLOPAW, IN SECTION 17, TOWNSHIP 27 SOUTH, RANGE 33 EAST.

D09821

D09821 TO REACH THE MARK FROM THE JUNCTION OF U.S. HIGHWAY 192 (EAST BRONSON

D09821 HIGHWAY) AND HOLOPAW ROAD (U.S. HIGHWAY 441 SOUTH. TURN AROUND BAY

D09821 ROAD NORTH) IN HOLOPAW, GO EAST ON U.S. HIGHWAY 192 (EAST BRONSON

D09821 HIGHWAY) FOR 2.1 MI (3.4 KM) TO THE JUNCTION OF A DIRT ROAD ON THE

D09821 LEFT AND THE MARK ON THE LEFT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL

D09821 AT A DEPTH OF 41.0 FT (12.5 M) WITH A NATIONAL GEODETIC SURVEY LOGO

D09821 CAP RECESSED 0.1 FT (0.0 M) BELOW THE LEVEL OF THE GROUND AND ABOUT

D09821 LEVEL WITH U.S. HIGHWAY 192 WESTBOUND LANES, THE DATUM POINT IS

D09821 RECESSED 0.2 FT (6 CM) BELOW THE NATIONAL GEODETIC SURVEY LOGO CAP.

D09821

D09821 LOCATED 107.3 FT (32.7 M) NORTH OF THE CENTERLINE OF U.S. HIGHWAY 192

D09821 WESTBOUND LANES, 33.5 FT (10.2 M) NORTH OF THE NORTHWEST CORNER OF A

D09821 6.0 FT (1.8 M) TALL CHAIN LINK FENCE, 10.6 FT (3.2 M) EAST OF THE

D09821 CENTER OF A STEEL GATE, 2.2 FT (0.7 M) SOUTH OF THE SOUTH END OF A

D09821 BARBWIRE FENCE, 1.2 FT (0.4 M) WEST OF THE 6.0 FT (1.8 M) TALL CHAIN

D09821 LINK FENCE AND 1.1 FT (0.3 M) WEST OF A CARSONITE WITNESS POST.

D09821

D09821 NOTE A MAGNET WAS PLACED IN THE NATIONAL GEODETIC SURVEY LOGO CAP.

D09821

D09821 NOTE ACCESS TO THE DATUM POINT IS HAD THROUGH A 5-INCH (13 CM)

D09821 NATIONAL GEODETIC SURVEY LOGO CAP.

*** retrieval complete.

Elapsed Time = 00:00:01

/

Field Notes (1 of 5)

192 (OSCEOLA COUNTY)

SEWARD-USGS / PAH WELLS
(SOUTHERN US TL UTILITIES)

BENCH RUN TO NEW BM OSF-28 (NAD83)

PEG TEST:

COLL ERR OLD =	7.7"	COLL ERR NEW =	6.7"
DIFF =	-1.0"	RETICLE =	4.250
STA NO'S	TOTAL DIST	ELEV	ADJ
P 712	Ø	68.703	

BM OSF-28	2020.67'	67.095'
8	2064.19'	68.342'
9	2129.07'	70.651'

20-1017-02-01 1869 21

MOON SUNNY 7.15.20 WED

LEICA DIST 10 M. LaPolla PC

JOB: PAH WELLS B. COVINGTON

LINE 1 OSF 28

DESC

NGS BM 7712 PFD = D09312

NAVD 88 = 68.703'

NEW BM OSF-28 BM 1869-21A:

SET 1 1/2" (I.P.) I.P. W/ ALUMIN. DISC. SFWARD

OSF-28 LBR 108 2020" I.P. 73 3' LONG W/ COAK

COLLAR + GROUTED DISC. SFW P 44.40' TOWELL

1/2" I.R. @ WELL HEAD (RM 1)

LAG BOLT IN PINE TREE (RM 2)

N712 69.084

SS 83811
 SELMA - USGS / PH4 WELLS
 WELL DATA @ WELL OSF-28
 (Nov 88)

WELL DIAMETER: 4" IRON PIPE
 PICTURE = 101-1750 + 101-1751

D.T.W. = 30.22' TIME: 14:18
 DATE: 07/15/2020

MEASURING POINT: 71.982'

TOP OF WATER: 41.762'

WELL HEAD CASING: ALUM. BOX w/ PLYWOOD BR
 4" IRON IS INSIDE A 10" IRON PIPE.

Gps: 10010 015 PT
 19.90' SW 73° TO
 WELL OSF-28

015: +1.171'

10-1017-02-01

1869 23

105° P. SUNNY

7.15.20 WGD

M. LaBillo PC

D. Gorman N

PICTURES:

WELL OSF-28:

101-1752 THRU 101-1755

NEW BWM OSF-28:

101-1760 THRU 101-1762

Rm1

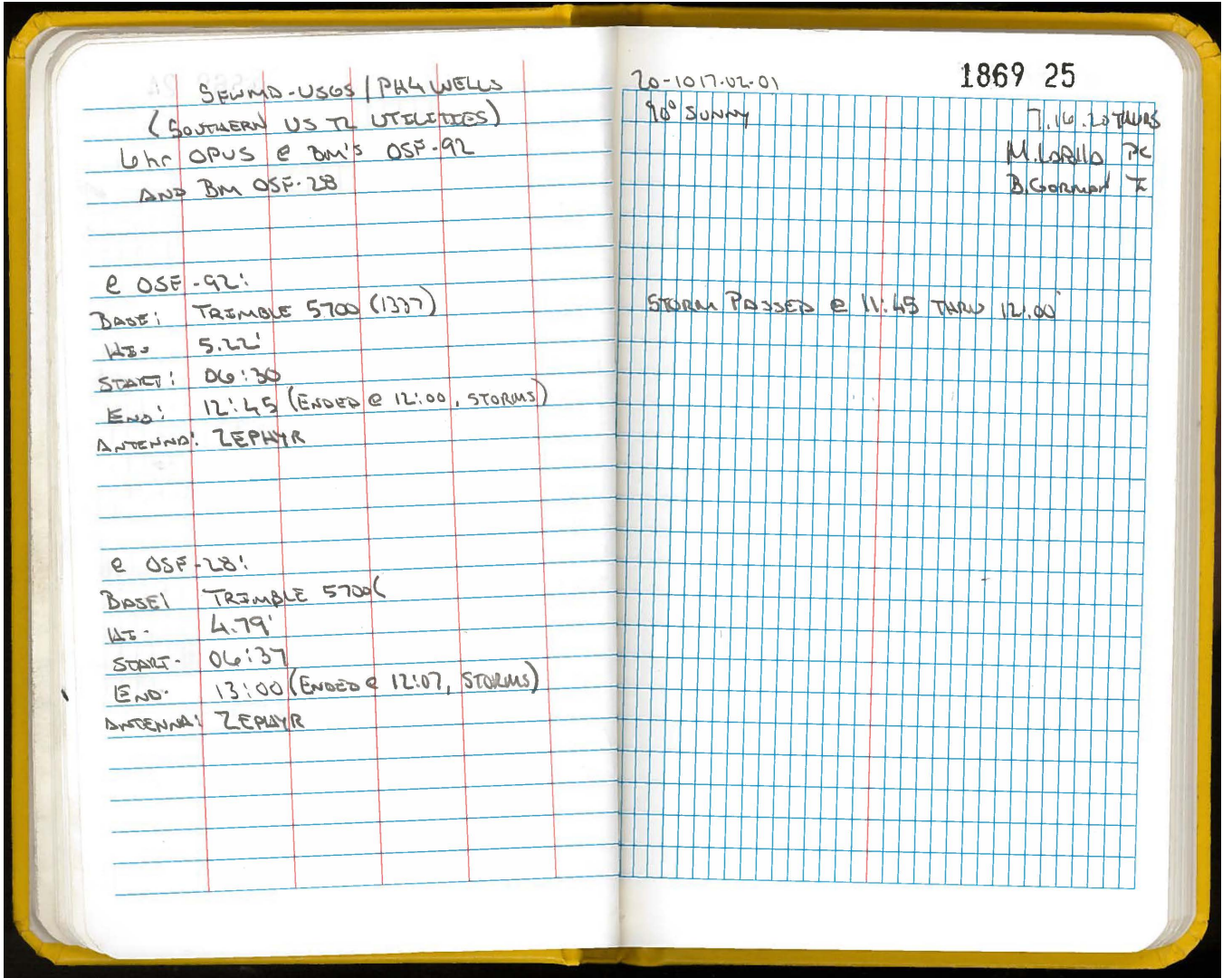
101-1756 THRU 101-1757

Rm2

101-1758 THRU 101-1759

Field Notes (4 of 5)

SFWD - USGS		P44 WELLS		192 (OSCEOLA COUNTY)	
(SOUTHERN US TEL UTILITIES)				20-107-02-01 1869 24	
"M.P." + NG BENCH RUN @ WELL OSF-28				104° M. SUNNY 7:15. LOWED	
(NAVD88)				M. Lopez PC	
				B. Gormed 2	
STA	+	HT	-	EL	DIS
NEW BM OSF-28	5.709			67.695'	
	5.688				
	5.607				
	(5.688)	73.383'			
S.S. 1			4.79'	68.593'	
			1.54		
			1.401		
			1.262		
M.P.			(1.401)	71.982'	
	1.773				
	1.635				
	1.478				
	(1.635)	73.617'	5.211		
			5.078		
			4.942		
1			(5.077)	68.540'	
DESC					
NEW BM OSF-28 Bm 1869-21A					
NAVD88 EL = 67.695'					
NG @ WELL OSF-28					
MEASURING POINT @ WELL OSF-28					
EAST SIDE OF OPENING ON TOP OF PLYWOOD					
BASE.					
✓ TO RM 1 LISTED = 68.542'					
FIELD = 68.54					
ERR = 1.002					
* END RUN *					



SEWARD-USGS / PH4 WELLS
 (SOUTHERN US TEL UTILITIES)
 6 hr OPUS @ BM'S OSF-92
 AND BM OSF-28

e OSF-92:
 BASE: TREMBLE 5700 (1337)
 HT: 5.22'
 START: 06:30
 END: 12:45 (ENDED @ 12:00, STORMS)
 ANTENNA: ZEPHYR

e OSF-28:
 BASE: TREMBLE 5700
 HT: 4.79'
 START: 06:37
 END: 13:00 (ENDED @ 12:07, STORMS)
 ANTENNA: ZEPHYR

20-1017-02-01
 90° SUNNY

1869 25

J. V. L. THURS
 M. LaRillo PC
 B. Gorman K

STORM PASSED @ 11:45 THRU 12:00



South Florida Water Management District Benchmark Datasheet

Designation: OSC-28	Project Name: USGS PHASE 4 WELLS	Type: V	State Plane Zone: FL East
Stamping: OSC-28 LB4108 2020	Field Book Name: GCY 1869	Field Book Page: 21-25	
Established By: GCY INC	Recovered By: _____	Recovery Date: _____	
Surveyor: ANDERSEN	Established Date: 07/16/20	Status: New	

GEOGRAPHIC POSITION INFORMATION

Section: 18	Township: 27 SOUTH	Range: 33 EAST
County: OSCEOLA	Quadrangle: HOLOPAW	Quad Index: _____
NAD83 Adj. Year: 2011	Vertical Datum: NAVD1988	Horizontal Datum: NAD1983
NAVD88 Elevation (feet): 67.695	NGVD29 Elevation (feet): 68.866	2022 Elevation: _____
NAVD88 Class: 3rd	NGVD29 Class: 3rd	Other Elevation: _____
NAVD88 Order: _____	NGVD29 Order: _____	Other Elevation Type: _____
		NGS Source BM(s): N 712; P 712
		NGS PID(s): DO9821; DO9822
		NGS NAVD88 Elev (ft): 69.084; 68.703
		NGS NAVD88 Elev (m): 21.057; 20.941
		NGS 2022 Elev (ft): _____

CORPSCON 6.0.1 CONVERSION FACTOR (NAVD88 TO NGVD29): (A U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville FL)

Vertical Datum Offset: + 1.171	Actual NGS Elevation or ngvd29.txt file: _____	OPUS Ortho Height: 67.579
Northing (Y) (feet): 1383894.273	Easting (X) (feet): 638264.626	Source of Latitude & Longitude: OPUS SOLUTION
Latitude: 28	8	26.84634
DD°	MM'	SS"
Longitude (Decimal Degrees): 28.14079065		Longitude (Decimal Degrees): 80.9444501
		DD°
		MM'
		SS"

RECOVERY DATA

How to Reach: FROM THE INTERSECTION OF US 441 AND US 192 IN HOLOPAW, GO SE'LY ON US 192 FOR 1.24 MILES TO A DITCH CROSSING ON THE RIGHT SIDE. FOLLOW DIRT PATH SE'LY AND S'LY 430' +/- TO MARK AT END OF PATH. MARK IS 43' +/- NE'LY OF A USGS MONITORING WELL, 293' +/- SOUTH OF SOUTH EDGE OF PAVEMENT OF US 192, AND 93' +/- NORTH OF A FENCE LINE.

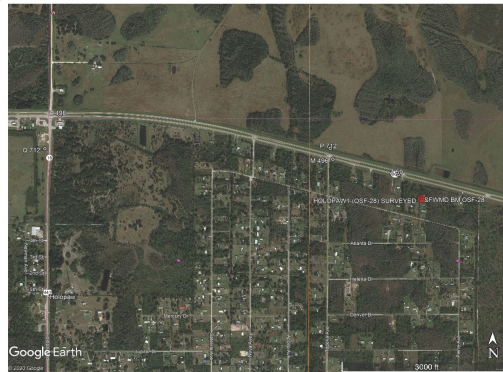
Description/Notes:

Notable Landmarks:

Other Source Benchmarks:

PICTURES

Aerial View of Overall Site



PICTURES

Site Sketch



From: opus
To: Pete Andersen
Subject: OPUS solution : 00181980.t01 OP1595356957646
Date: Tuesday, July 21, 2020 2:43:25 PM

FILE: 00181980.t01 OP1595356957646

NGS OPUS SOLUTION REPORT
=====

All computed coordinate accuracies are listed as peak-to-peak values.
For additional information: <https://www.ngs.noaa.gov/OPUS/about.jsp#accuracy>

USER: petea@gcyinc.com DATE: July 21, 2020
RINEX FILE: 0018198k.20o TIME: 18:43:09 UTC

SOFTWARE: page5 1801.18 master73.pl 160321 START: 2020/07/16 10:37:00
EPHEMERIS: igr21144.eph [rapid] STOP: 2020/07/16 16:07:00
NAV FILE: brdc1980.20n OBS USED: 10474 / 12171 : 86%
ANT NAME: TRM39105.00 NONE # FIXED AMB: 87 / 97 : 90%
ARP HEIGHT: 1.460 OVERALL RMS: 0.020(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.5398)

X: 875081.189(m) 0.006(m) 875080.346(m) 0.006(m)
Y: -5559927.947(m) 0.016(m) -5559926.384(m) 0.016(m)
Z: 2990268.958(m) 0.008(m) 2990268.800(m) 0.008(m)

LAT: 28 8 26.84634 0.002(m) 28 8 26.86747 0.002(m)
E LON: 278 56 40.02036 0.008(m) 278 56 39.99876 0.008(m)
W LON: 81 3 19.97964 0.008(m) 81 3 20.00124 0.008(m)
EL HGT: -7.416(m) 0.017(m) -8.968(m) 0.017(m)
ORTHO HGT: 20.598(m) 0.055(m) [NAVD88 (Computed using GEOID18)]

UTM COORDINATES STATE PLANE COORDINATES

 UTM (Zone 17) SPC (0901 FL E)
Northing (Y) [meters] 3112799.879 421811.818
Easting (X) [meters] 494545.308 194543.447
Convergence [degrees] -0.02620000 -0.02620000
Point Scale 0.99960037 0.99994154
Combined Factor 0.99960153 0.99994270

US NATIONAL GRID DESIGNATOR: 17RMM9454512799(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DQ7965	FLWE WEDGEFIELD FL CORS ARP	N282626.477	W0810533.176	33433.4
DG9757	DLND DELAND CORS ARP	N290322.897	W0811547.480	103483.1
DH3757	WACH WAUCHULA CORS ARP	N273051.042	W0815256.615	107037.1

NEAREST NGS PUBLISHED CONTROL POINT

AK2022 Z 59 N280800031. W0810300025. 192.9

BASE STATION INFORMATION

STATION NAME: flwe a 1 (Wedgefield FL; Wedgefield, Florida USA)

MONUMENT: NO DOMES NUMBER

XYZ 869051.4451 -5544931.6701 3019536.5503 MON @ 2010.0000 (M)
 XYZ -0.0120 -0.0006 0.0021 VEL (M/YR)
 NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
 NEU 0.0014 -0.0002 0.0880 ARP TO L1 PHASE CENTER (M)
 NEU 0.0006 0.0002 0.0812 ARP TO L2 PHASE CENTER (M)
 XYZ -0.1265 -0.0063 0.0221 VEL TIMES 10.5397 YRS
 XYZ 0.0000 0.0000 0.0000 MON TO ARP
 XYZ 0.0116 -0.0759 0.0432 ARP TO L1 PHASE CENTER
 XYZ 869051.3303 -5544931.7523 3019536.6156 L1 PHS CEN @ 2020.5398
 XYZ 0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
 XYZ 869051.3303 -5544931.7523 3019536.6156 NEW L1 PHS CEN @ 2020.5398
 XYZ 869051.3186 -5544931.6764 3019536.5724 NEW ARP @ 2020.5398
 XYZ 869051.3186 -5544931.6764 3019536.5724 NEW MON @ 2020.5398
 LLH 28 26 26.49884 278 54 26.80198 -4.9993 NEW L1 PHS CEN @ 2020.5398
 LLH 28 26 26.49879 278 54 26.80199 -5.0873 NEW ARP @ 2020.5398
 LLH 28 26 26.49879 278 54 26.80199 -5.0873 NEW MON @ 2020.5398

STATION NAME: dlnd a 3 (DELAND; Deland, Florida, U.S.A.)

MONUMENT: NO DOMES NUMBER

XYZ 847548.9489 -5515060.4257 3079363.2140 MON @ 2010.0000 (M)
 XYZ -0.0120 0.0012 0.0015 VEL (M/YR)
 NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
 NEU 0.0001 -0.0008 0.1242 ARP TO L1 PHASE CENTER (M)
 NEU -0.0000 -0.0008 0.1337 ARP TO L2 PHASE CENTER (M)
 XYZ -0.1269 0.0126 0.0161 VEL TIMES 10.5397 YRS
 XYZ 0.0000 0.0000 0.0000 MON TO ARP
 XYZ 0.0157 -0.1074 0.0605 ARP TO L1 PHASE CENTER
 XYZ 847548.8378 -5515060.5205 3079363.2906 L1 PHS CEN @ 2020.5398
 XYZ -0.0000 -0.0000 -0.0000 + XYZ ADJUSTMENTS
 XYZ 847548.8378 -5515060.5205 3079363.2906 NEW L1 PHS CEN @ 2020.5398
 XYZ 847548.8220 -5515060.4131 3079363.2301 NEW ARP @ 2020.5398
 XYZ 847548.8220 -5515060.4131 3079363.2301 NEW MON @ 2020.5398
 LLH 29 3 22.91915 278 44 12.49712 -1.1441 NEW L1 PHS CEN @ 2020.5398
 LLH 29 3 22.91915 278 44 12.49714 -1.2684 NEW ARP @ 2020.5398
 LLH 29 3 22.91915 278 44 12.49714 -1.2684 NEW MON @ 2020.5398

STATION NAME: wach a 2 (Wauchula; Wauchula, Florida, U.S.A.)

MONUMENT: NO DOMES NUMBER

XYZ 799335.4500 -5604081.2975 2928868.5949 MON @ 2010.0000 (M)
 XYZ -0.0116 0.0017 0.0012 VEL (M/YR)
 NEU 0.0000 0.0000 0.0000 MON TO ARP (M)
 NEU 0.0001 -0.0008 0.1242 ARP TO L1 PHASE CENTER (M)
 NEU -0.0000 -0.0008 0.1337 ARP TO L2 PHASE CENTER (M)
 XYZ -0.1226 0.0178 0.0122 VEL TIMES 10.5397 YRS
 XYZ 0.0000 0.0000 0.0000 MON TO ARP
 XYZ 0.0148 -0.1091 0.0575 ARP TO L1 PHASE CENTER
 XYZ 799335.3423 -5604081.3888 2928868.6647 L1 PHS CEN @ 2020.5398
 XYZ 0.0000 0.0000 0.0000 + XYZ ADJUSTMENTS
 XYZ 799335.3423 -5604081.3888 2928868.6647 NEW L1 PHS CEN @ 2020.5398

XYZ 799335.3275 -5604081.2797 2928868.6071 NEW ARP @ 2020.5398
XYZ 799335.3275 -5604081.2797 2928868.6071 NEW MON @ 2020.5398
LLH 27 30 51.06302 278 7 3.36199 9.2829 NEW L1 PHS CEN @ 2020.5398
LLH 27 30 51.06302 278 7 3.36202 9.1587 NEW ARP @ 2020.5398
LLH 27 30 51.06302 278 7 3.36202 9.1587 NEW MON @ 2020.5398

REMOTE STATION INFORMATION

STATION NAME: 0018 1

MONUMENT: NO DOMES NUMBER

XYZ 875080.3447 -5559926.9895 2990269.0793 MON @ 2020.5395 (M)
NEU 0.0003 -0.0005 1.4600 MON TO ARP (M)
NEU -0.0003 0.0005 0.0559 ARP TO L1 PHASE CENTER (M)
NEU -0.0006 0.0016 0.0526 ARP TO L2 PHASE CENTER (M)
XYZ 0.1997 -1.2717 0.6889 MON TO ARP
XYZ 0.0082 -0.0487 0.0261 ARP TO L1 PHASE CENTER
XYZ 875080.5525 -5559928.3100 2990269.7943 L1 PHS CEN @ 2020.5398

BASELINE NAME: flwe 0018

XYZ 0.0027 0.6069 -0.2812 + XYZ ADJUSTMENTS
XYZ 875080.5552 -5559927.7031 2990269.5130 NEW L1 PHS CEN @ 2020.5398
XYZ 875080.5471 -5559927.6544 2990269.4869 NEW ARP @ 2020.5398
XYZ 875080.3474 -5559926.3826 2990268.7981 NEW MON @ 2020.5398
LLH 28 8 26.86744 278 56 39.99880 -7.4536 NEW L1 PHS CEN @ 2020.5398
LLH 28 8 26.86745 278 56 39.99879 -7.5095 NEW ARP @ 2020.5398
LLH 28 8 26.86744 278 56 39.99880 -8.9695 NEW MON @ 2020.5398

BASELINE NAME: dlnd 0018

XYZ 0.0029 0.6130 -0.2816 + XYZ ADJUSTMENTS
XYZ 875080.5554 -5559927.6970 2990269.5127 NEW L1 PHS CEN @ 2020.5398
XYZ 875080.5472 -5559927.6482 2990269.4866 NEW ARP @ 2020.5398
XYZ 875080.3476 -5559926.3765 2990268.7977 NEW MON @ 2020.5398
LLH 28 8 26.86752 278 56 39.99885 -7.4591 NEW L1 PHS CEN @ 2020.5398
LLH 28 8 26.86753 278 56 39.99883 -7.5149 NEW ARP @ 2020.5398
LLH 28 8 26.86752 278 56 39.99885 -8.9750 NEW MON @ 2020.5398

BASELINE NAME: wach 0018

XYZ -0.0030 0.5973 -0.2738 + XYZ ADJUSTMENTS
XYZ 875080.5495 -5559927.7127 2990269.5204 NEW L1 PHS CEN @ 2020.5398
XYZ 875080.5414 -5559927.6640 2990269.4943 NEW ARP @ 2020.5398
XYZ 875080.3417 -5559926.3922 2990268.8055 NEW MON @ 2020.5398
LLH 28 8 26.86752 278 56 39.99854 -7.4425 NEW L1 PHS CEN @ 2020.5398
LLH 28 8 26.86753 278 56 39.99853 -7.4984 NEW ARP @ 2020.5398
LLH 28 8 26.86752 278 56 39.99854 -8.9584 NEW MON @ 2020.5398

G-FILES

Axx2020 716 20 716

B2020 7161036 20 71616 6 1 page5 v1801.18IGS 132 1 2 27NGS 2020 721IFDDPX
IITRF2014_2113 IGS 20200705
C00090004 -60290287 9 149947062 49 292677744 27 X1980A0018X1980AFLWE
D 1 2 -7508378 1 3 6423469 2 3 -8903422

Axx2020 716 20 716

B2020 7161036 20 71616 6 1 page5 v1801.18IGS 132 1 2 27NGS 2020 721IFDDPX
IITRF2014_2113 IGS 20200705
C00090002 -275315255 8 448659634 40 890944324 25 X1980A0018X1980ADLND

D 1 2 -6666943 1 3 5411715 2 3 -8952577

Axx2020 716 20 716

B2020 7161036 20 71616 6 1 page5 v1801.18IGS 132 1 2 27NGS 2020 721IFDDPX

IITRF2014_2113 IGS 20200705

C00090001 -757450142 10 -441548875 47 -614001983 25 X1980A0018X1980AWACH

D 1 2 -3907620 1 3 6071108 2 3 -9041302

POST-FIT RMS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 04 06 07 08 09
 flwe-0018| 0.021 0.021 0.025 0.032 0.018 0.024 0.017 0.025 0.019
 11 13 16 17 19 21 22 24 27
 flwe-0018| 0.018 0.022 0.024 ... 0.021 ... 0.022
 28 30
 flwe-0018| 0.026 0.019

OVERALL 01 02 03 04 06 07 08 09
 dlnd-0018| 0.020 0.021 0.024 0.028 0.015 0.024 0.015 0.027 0.018
 11 13 16 17 19 21 22 24 27
 dlnd-0018| 0.017 0.036 ... 0.024 0.020 ... 0.010 0.028 0.022
 28 30
 dlnd-0018| 0.026 0.018

OVERALL 01 02 03 04 06 07 08 09
 wach-0018| 0.019 0.023 0.023 ... 0.019 0.018 0.014 0.020 0.016
 11 13 16 17 19 22 24 27 28
 wach-0018| 0.022 0.020 ... 0.018 0.018 0.005 0.026 0.023 0.019
 30
 wach-0018| 0.016

OBS BY SATELLITE VS. BASELINE

OVERALL 01 02 03 04 06 07 08 09
 flwe-0018| 3425 487 36 41 88 280 484 27 187
 11 13 16 17 19 21 22 24 27
 flwe-0018| 400 417 269 ... 2 ... 91
 28 30
 flwe-0018| 66 550

OVERALL 01 02 03 04 06 07 08 09
 dlnd-0018| 3549 492 45 42 78 281 467 47 188
 11 13 16 17 19 21 22 24 27
 dlnd-0018| 367 24 ... 423 287 ... 2 51 107
 28 30
 dlnd-0018| 96 552

OVERALL 01 02 03 04 06 07 08 09
 wach-0018| 3500 502 31 ... 95 270 466 257 190
 11 13 16 17 19 22 24 27 28
 wach-0018| 46 26 ... 405 280 2 28 89 230
 30
 wach-0018| 583

ITRF position of 0018 as determined by individual baselines

	X	Y	Z
flwe	875080.347	-5559926.383	2990268.798
dlnd	875080.348	-5559926.377	2990268.798

wach 875080.342 -5559926.392 2990268.805

Residuals of position determined by individual baselines from the final position

	X	Y	Z	East	North	Up	
flwe	0.002	0.001	-0.002	0.002	-0.002	-0.002	-0.002
dlnd	0.002	0.007	-0.003	0.003	0.001	-0.007	
wach	-0.004	-0.008	0.005	-0.005	0.001	0.009	

Covariance Matrix for the xyz OPUS Position (meters^2).

0.0000005867	-0.0000001717	0.0000000974
-0.0000001717	0.0000144733	-0.0000007270
0.0000000974	-0.0000007270	0.0000045200

Covariance Matrix for the enu OPUS Position (meters^2).

0.0000008696	0.0000009091	-0.0000017471
0.0000009091	0.0000060411	-0.0000035963
-0.0000017471	-0.0000035963	0.0000126693

Horizontal network accuracy = 0.00495 meters.

Vertical network accuracy = 0.00698 meters.

Derivation of NAD 83 vector components

Position of reference station ARP in NAD_83(2011)(EPOCH:2010.0000).

	Xa(m)	Ya(m)	Za(m)		
FLWE	869052.16310	-5544933.23543	3019536.72788	2010.00	
DLND	847549.66841	-5515061.98181	3079363.38792	2010.00	
WACH	799336.16445	-5604082.87126	2928868.78053	2010.00	

Position of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Xr(m)	Yr(m)	Zr(m)		
FLWE	869052.16310	-5544933.23543	3019536.72788	2010.00	
DLND	847549.66841	-5515061.98181	3079363.38792	2010.00	
WACH	799336.16445	-5604082.87126	2928868.78053	2010.00	

Velocity of reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Vx (m/yr)	Vy (m/yr)	Vz (m/yr)
FLWE	0.00120	0.00039	-0.00096
DLND	0.00141	0.00220	-0.00149
WACH	0.00128	0.00265	-0.00157

Vectors from unknown station monument to reference station monument in NAD_83(2011)(EPOCH:2010.0000).

	Xr-X= DX(m)	Yr-Y= DY(m)	Zr-Z= DZ(m)		
FLWE	-6029.02590	14994.71157	29267.76988	2010.00	
DLND	-27531.52059	44865.96519	89094.42992	2010.00	
WACH	-75745.02455	-44154.92426	-61400.17747	2010.00	

STATE PLANE COORDINATES - U.S. Survey Foot

SPC (0901 FL E)

Northing (Y) [feet]	1383894.273
Easting (X) [feet]	638264.626
Convergence [degrees]	-0.02620000
Point Scale	0.99994154
Combined Factor	0.99994270

***** New Reference Frame Preview *****

We are replacing the nation's NAD 83 and NAVD 88 datums, to improve access and accuracy of the National Spatial Reference System. More at <https://geodesy.noaa.gov/datums/newdatums/>

Below are approximate coordinates for this solution in the new frames:

APPROX ORTHO HGT: 20.633 (m) [PROTOTYPE (Computed using xGeoid19B,GRS80,ITRF2014)]

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

410257+?......1

110258+0000P712 83..51+00068703
110259+0000P712 32...1+00058970 331.21+00009165 390...+00000005 391.21+00000000
110260+00000001 32...1+00062588 332.21+00004252 390...+00000005 391.21+00000000
110261+00000001 573..1-00003618 574..1+00121559 83..21+00073616
110262+00000001 32...1+00192148 331.21+00005410 390...+00000005 391.21+00000001
110263+00000002 32...1+00189685 332.21+00005342 390...+00000005 391.21+00000000
110264+00000002 573..1-00001155 574..1+00503392 83..21+00073685
110265+00000002 32...1+00269286 331.21+00003763 390...+00000005 391.21+00000001
110266+00000003 32...1+00270252 332.21+00004103 390...+00000005 391.21+00000002
110267+00000003 573..1-00002121 574..1+01042930 83..21+00073345
110268+00000003 32...1+00264453 331.21+00005272 390...+00000005 391.21+00000001
110269+00000004 32...1+00262915 332.21+00006162 390...+00000005 391.21+00000001
110270+00000004 573..1-00000583 574..1+01570298 83..21+00072455
110271+00000004 32...1+00075117 331.21+00002430 390...+00000005 391.21+00000000
110272+00000005 32...1+00078826 332.21+00006175 390...+00000005 391.21+00000000
110273+00000005 573..1-00004291 574..1+01724240 83..21+00068710
110274+00000005 32...1+00068187 331.21+00004619 390...+00000005 391.21+00000000
110275+00000006 32...1+00066838 332.21+00004568 390...+00000005 391.21+00000000
110276+00000006 573..1-00002943 574..1+01859265 83..21+00068761
110277+00000006 32...1+00054914 331.21+00004507 390...+00000005 391.21+00000000
110278+00000007 32...1+00055937 332.21+00005068 390...+00000005 391.21+00000000
110279+00000007 573..1-00003966 574..1+01970116 83..21+00068200
110280+00000007 32...1+00025191 331.21+00004621 390...+00000005 391.21+00000000
110281+BM OSF 2 32...1+00025359 332.21+00005126 390...+00000005 391.21+00000000
110282+BM OSF 2 573..1-00004134 574..1+02020667 83..21+00067695
110283+BM OSF 2 32...1+00023298 331.21+00005857 390...+00000005 391.21+00000000
110284+00000008 32...1+00020222 332.21+00005011 390...+00000005 391.21+00000000
110285+00000008 573..1-00001058 574..1+02064186 83..21+00068542
110286+00000008 32...1+00031357 331.21+00004702 390...+00000005 391.21+00000000
110287+00000009 32...1+00033531 332.21+00002586 390...+00000005 391.21+00000000
110288+00000009 573..1-00003232 574..1+02129074 83..21+00070657
110289+00000009 32...1+00033653 331.21+00002215 390...+00000005 391.21+00000000
110290+00000010 32...1+00034455 332.21+00004683 390...+00000005 391.21+00000000
110291+00000010 573..1-00004034 574..1+02197182 83..21+00068189
110292+00000010 32...1+00051668 331.21+00004803 390...+00000005 391.21+00000000
110293+00000011 32...1+00050931 332.21+00004383 390...+00000005 391.21+00000000
110294+00000011 573..1-00003297 574..1+02299780 83..21+00068608
110295+00000011 32...1+00070919 331.21+00004828 390...+00000005 391.21+00000000
110296+00000012 32...1+00070365 332.21+00004657 390...+00000005 391.21+00000000
110297+00000012 573..1-00002743 574..1+02441064 83..21+00068780
110298+00000012 32...1+00182962 331.21+00007741 390...+00000005 391.21+00000001
110299+00000013 32...1+00180454 332.21+00003983 390...+00000005 391.21+00000000
110300+00000013 573..1-00000235 574..1+02804480 83..21+00072538
110301+00000013 32...1+00255820 331.21+00004335 390...+00000005 391.21+00000002
110302+00000014 32...1+00256212 332.21+00004250 390...+00000005 391.21+00000001
110303+00000014 573..1-00000627 574..1+03316512 83..21+00072624
110304+00000014 32...1+00260633 331.21+00004491 390...+00000005 391.21+00000000
110305+00000015 32...1+00256809 332.21+00003659 390...+00000005 391.21+00000002
110306+00000015 573..1+00003198 574..1+03833954 83..21+00073455
110307+00000015 32...1+00258766 331.21+00003287 390...+00000005 391.21+00000002
110308+00000016 32...1+00263867 332.21+00004838 390...+00000005 391.21+00000002
110309+00000016 573..1-00001903 574..1+04356586 83..21+00071903
110310+00000016 32...1+00265354 331.21+00004768 390...+00000005 391.21+00000002
110311+00000017 32...1+00261958 332.21+00004848 390...+00000005 391.21+00000001
110312+00000017 573..1+00001492 574..1+04883899 83..21+00071823

110313+00000017 32...1+00263472 331.21+00004283 390...+00000005 391.21+00000002
110314+00000018 32...1+00260149 332.21+00004901 390...+00000005 391.21+00000001
110315+00000018 573..1+00004815 574..1+05407519 83..21+00071205
110316+00000018 32...1+00263490 331.21+00004908 390...+00000005 391.21+00000001
110317+00000019 32...1+00270853 332.21+00004774 390...+00000005 391.21+00000001
110318+00000019 573..1-00002547 574..1+05941862 83..21+00071340
110319+00000019 32...1+00257431 331.21+00004032 390...+00000005 391.21+00000002
110320+00000020 32...1+00252303 332.21+00004279 390...+00000005 391.21+00000001
110321+00000020 573..1+00002581 574..1+06451595 83..21+00071093
110322+00000020 32...1+00184546 331.21+00004042 390...+00000005 391.21+00000001
110323+000N 712 32...1+00191450 332.21+00006072 390...+00000005 391.21+00000001
110324+000N 712 573..1-00004323 574..1+06827591 83..21+00069063

Office

Project

29 August 2020

INPUT

State Plane, fhpgn - Florida HPGN
0901 - Florida East, U.S. Feet
Vertical - NAVD88, U.S. Feet

OUTPUT

Geographic, fhpgn - Florida HPGN
Vertical - NGVD29 (Custom), U.S. Feet

OSC-28

1/1

Northing/Y: 1383875.29

Easting/X: 638224.89

Elevation/Z: 0

Convergence: -0 01 34.52751

Scale Factor: 0.999941545

Combined Factor: 0.999945937

Latitude: 28 08 26.65819

Longitude: 81 03 20.42341

Elevation/Z: 1.171

Remark:

Shared Solution

PID: BBGX01

Designation: OSF 28 LB 4108

Stamping: OSF-28 LB 4108 2020

Stability: May hold, commonly subject to ground movement

Setting: Set into or on top of metal pipe driven into ground

Description: FROM THE INTERSECTION OF US 441 AND US 192 IN HOLOPAW, GO SE'LY ON US 192 FOR 1.24 MILES TO A DITCH CROSSING ON THE RIGHT SIDE. FOLLOW DIRT PATH SE'LY AND S'LY 430' +/- TO MARK AT END OF PATH. MARK IS 43' +/- NE'LY OF A USGS MONITORING WELL, 293' +/- SOUTH OF SOUTH EDGE OF PAVEMENT OF US 192, AND 93' +/- NORTH OF A FENCE LINE.

Observed: 2020-07-16T10:37:00Z

Source: OPUS - page5 1801.18



Close-up View

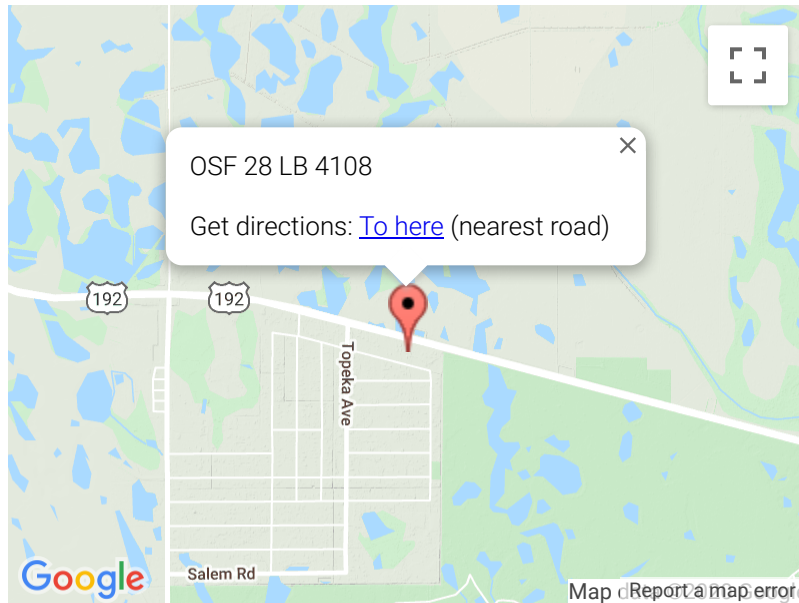
REF_FRAME: NAD_83(2011)	EPOCH: 2010.0000	SOURCE: NAVD88 (Computed using GEOID18)	UNITS: m	SET PROFILE	DETAILS
LAT: 28° 8' 26.84634" ± 0.002 m LON: -81° 3' 19.97964" ± 0.008 m ELL HT: -7.416 ± 0.017 m X: 875081.189 ± 0.006 m Y: -5559927.947 ± 0.016 m Z: 2990268.958 ± 0.008 m ORTHO HT: 20.598 ± 0.055 m		UTM 17 SPC 901(FL E) NORTHING: 3112799.879m 421811.818m EASTING: 494545.308m 194543.447m CONVERGENCE: -0.02620000° -0.02620000° POINT SCALE: 0.99960037 0.99994154 COMBINED FACTOR: 0.99960153 0.99994270			

CONTRIBUTED BY

[petea](#)
[GCY Incorporated](#)



Horizon View



The numerical values for this position solution have satisfied the quality control criteria of the National Geodetic Survey. The contributor has verified that the information submitted is accurate and complete.