PROFESSIONAL SURVEYORS & MAPPERS
INCORPORATED

Post Office Box 1469 ♦ Palm City, FL 34991
Martin: 772.286.8083 ♦ Fax: 772.283.6174
Statewide: 800.386.1066 www.gcyinc.com

SURVEYOR'S REPORT

Specific Purpose Survey of the United States
Geological Survey Well **M 1004**
in
Martin 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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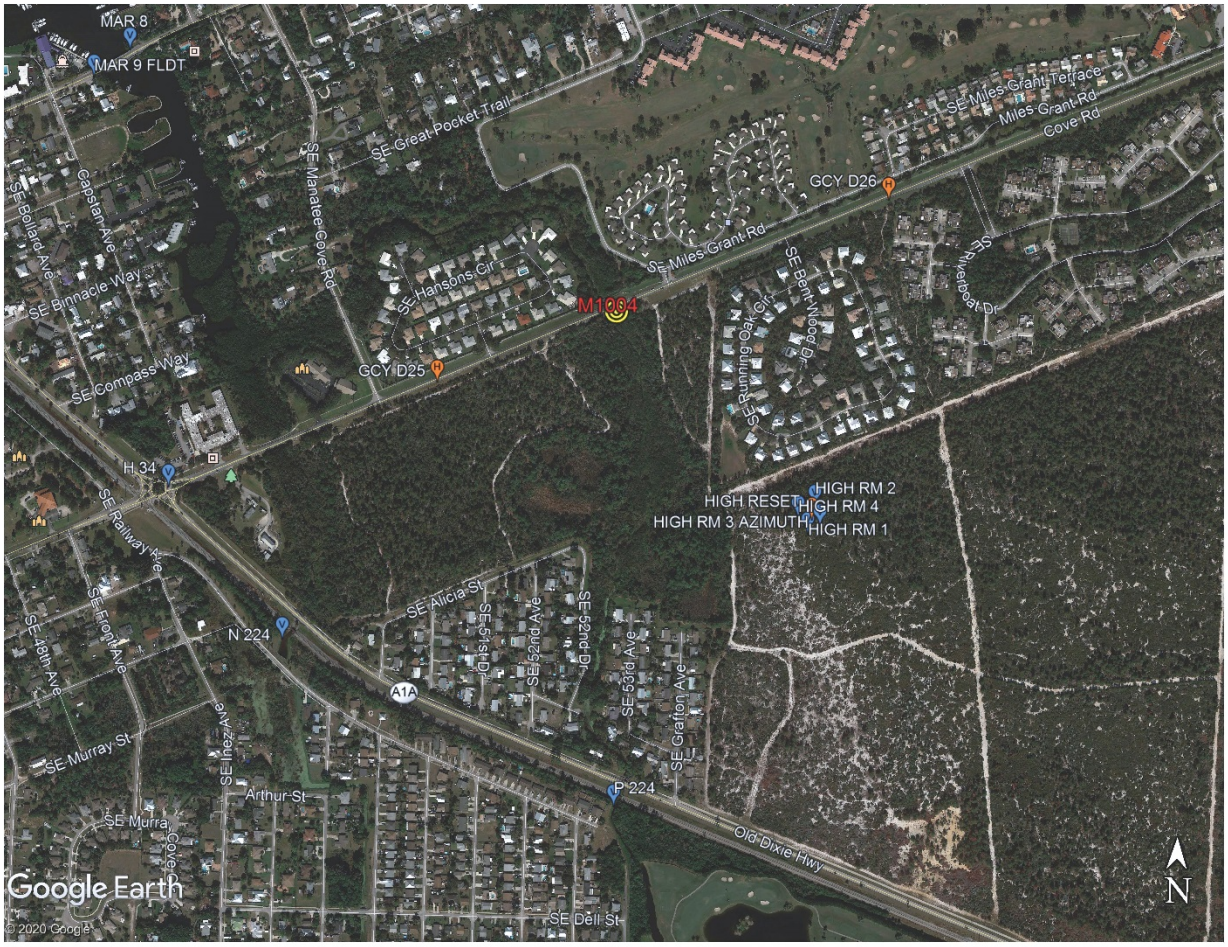
PURPOSE

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 **"M 1004"**.

LOCATION OF PROJECT

The United States Geological Survey Well **"M 1004"** is located in the Section 30, Township 38 South, Range 42 East, Martin 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 M-1004 add 1.463.** 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 √ miles) per executed SOW for 4600003703 WO08.
Leveling was run from National Geodetic Survey (NGS) monument "P 224" (NGSPID AF3101) to the site benchmarks and closing on NGS monument "GCY D25" (NGSPID AJ5278). The elevation for this monument was provided by Martin County Survey Department. Leveling was done using a Leica DNA 10 digital level S/N 331745

GPS METHODS

Latitude and longitude for the New Benchmark "M 1004" were established by observing a 4.5 hour Static Session on January 28, 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 April 7, 2020 and a report was received from the "OPUS" site the same day.

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 1.46 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: January 28, 2020, GCY job No. 18-1020-07.
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: 1862 pages 1-4

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.

Peter Andersen, PSM

Digitally signed by Peter Andersen, PSM
Date: 2020.06.16 10:16:35 -04'00'

Last date of Survey
March 28, 2020

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.

PROFESSIONAL SURVEYORS & MAPPERS
INCORPORATED

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/19

U.S.G.S. Station Name: **M 1004**	U.S.G.S. Station Number: 270835080105801	Agency: **GCY, INC.**	Date of Field Work: **1/28/2020**
Party Chief: LAPOLLA	Field Book: **GCY 1862**	Page(s): **1-4**	Report Prepared by: ANDERSEN

SITE SPECIFIC DATA			
Site Benchmark: **M 1004**	Benchmark Elevation(s) *(NAVD88)*: **7.94**	Corpscon 6.0.1 Conversion Factor (*NAVD88 to NGVD29*) **+ 1.463**	
Well Reference Elevation (*NAVD88*): 9.32	DTW: **10.20** (01/ 28/ 2020 at 1:45 PM)	Ground Elevation *(NAVD88)*: **6.5**	Pad Elevation (*NAVD88*): **N/A**

GEOGRAPHIC DATA		
Section **30**	Township **38 S**	Range **42 E**
Well Latitude: **27° 08’ 35.8045" N**	Well Longitude: **80° 10’ 58.1667" W**	Location Source: **RTK GPS**
State Plane Coordinates:	Northing (Y) = 1022119.49	Easting (X) = 921922.39

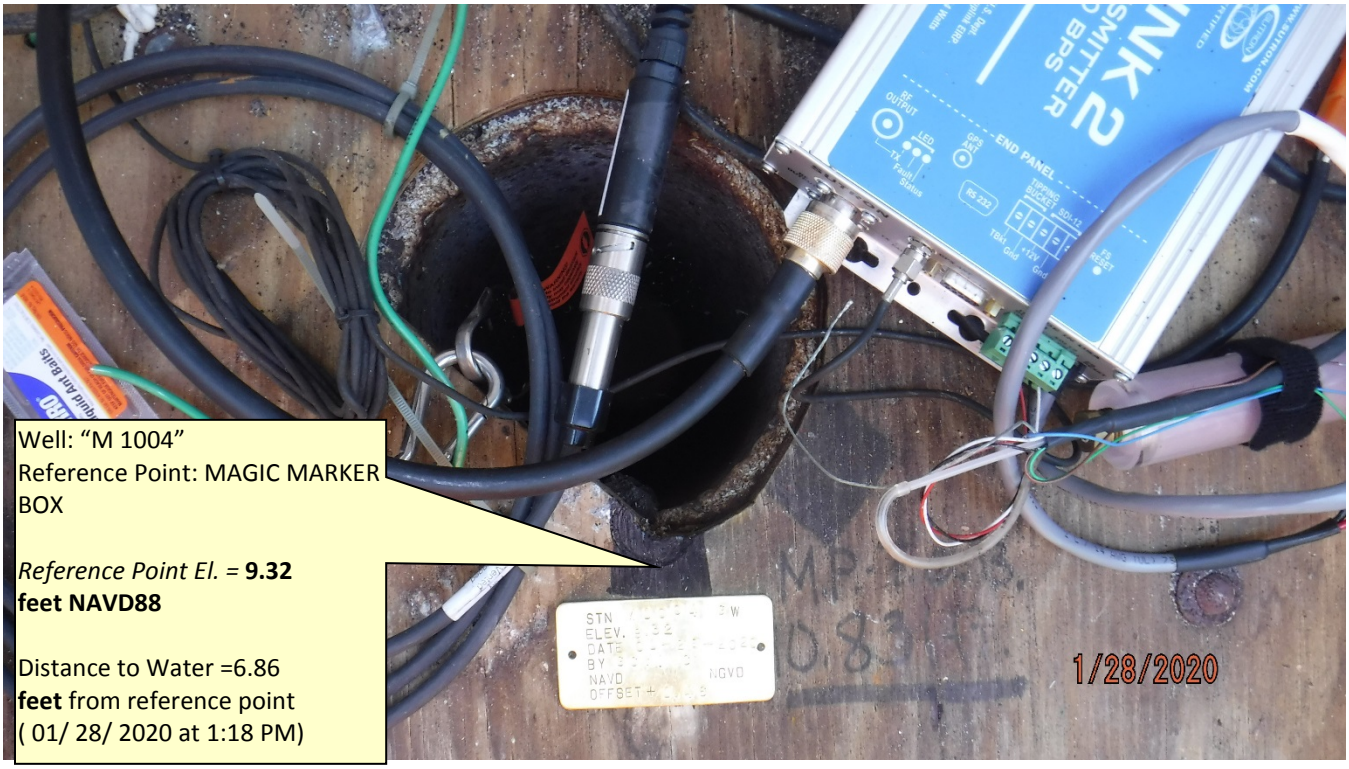
Notes: **NAVD88** – North American Vertical Datum of 1988; **NGVD29**- National Geodetic Vertical Datum of 1929; **Corpscon 6.0.1** - A U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates 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: "M 1004"
Reference Point: MAGIC MARKER BOX

Reference Point El. = **9.32 feet NAVD88**

Distance to Water =6.86 **feet** from reference point
(01/ 28/ 2020 at 1:18 PM)

Rev. 1/19

New Aluminum Tag

USGS RMs - NONE

Site Benchmark

Site Benchmark Overall Photo

Site BM:

Latitude: **27° 08’ 36.59536**” N
Longitude: **80° 10’ 57.49770**” W
NAVD88 EL = 7.94

Source Benchmarks

NO PHOTOS AVAILABLE

"P 224" Benchmark Datasheet (1 OF 3)

4/20/2020 DATASHEETS

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.7
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = APRIL 20, 2020
 AF3101 ***********************************************************************
 AF3101  DESIGNATION -  P 224
 AF3101  PID         -  AF3101
 AF3101  STATE/COUNTY-  FL/MARTIN
 AF3101  COUNTRY     -  US
 AF3101  USGS QUAD   -  SAINT LUCIE INLET (2018)
 AF3101
 AF3101                         *CURRENT SURVEY CONTROL
 AF3101  ______________________________________________________________________
 AF3101* NAD 83(1986) POSITION- 27 08 10.2    (N) 080 10 57.5    (W)   HD_HELD2
 AF3101* NAVD 88 ORTHO HEIGHT -     3.850 (meters)       12.63  (feet) ADJUSTED
 AF3101  ______________________________________________________________________
 AF3101  GEOID HEIGHT    -        -27.628 (meters)                     GEOID18
 AF3101  DYNAMIC HEIGHT  -          3.844 (meters)       12.61  (feet) COMP
 AF3101  MODELED GRAVITY -    979,106.6   (mgal)                       NAVD 88
 AF3101
 AF3101  VERT ORDER      -  FIRST     CLASS II
 AF3101
 AF3101.The horizontal coordinates were established by autonomous hand held GPS
 AF3101.observations and have an estimated accuracy of +/- 10 meters.
 AF3101.
 AF3101.The orthometric height was determined by differential leveling and
 AF3101.adjusted by the NATIONAL GEODETIC SURVEY
 AF3101.in April 2019.
 AF3101
 AF3101.Significant digits in the geoid height do not necessarily reflect accuracy.
 AF3101.GEOID18 height accuracy estimate available here.
 AF3101
 AF3101.Click photographs - Photos may exist for this station.
 AF3101
 AF3101.The dynamic height is computed by dividing the NAVD 88
 AF3101.geopotential number by the normal gravity value computed on the
 AF3101.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AF3101.degrees latitude (g = 980.6199 gals.).
 AF3101
 AF3101.The modeled gravity was interpolated from observed gravity values.
 AF3101
 AF3101;                   North         East     Units  Estimated Accuracy
 AF3101;SPC FL E     -   310,755.      281,026.      MT  (+/- 10 meters HH2 GPS)
 AF3101
 AF3101_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNL8099801780(NAD 83)
 AF3101
 AF3101                           SUPERSEDED SURVEY CONTROL
 AF3101
 AF3101  NAVD 88 (05/20/94)    3.854  (m)           12.64   (f) SUPERSEDED  1 1
 AF3101  NAVD 88 (06/15/91)    3.856  (m)           12.65   (f) SUPERSEDED  1 1
 AF3101  NGVD 29 (??/??/92)    4.301  (m)           14.11   (f) SUPERSEDED  1 1
 AF3101  NGVD 29 (09/01/92)    4.301  (m)           14.11   (f) ADJUSTED    1 1
 AF3101
 AF3101.Superseded values are not recommended for survey control.
 AF3101
 AF3101.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AF3101.See file dsdata.pdf to determine how the superseded data were derived.
```

"P 224" Benchmark Datasheet (2 OF 3)


```
AF3101
AF3101_MARKER: DD = SURVEY DISK
AF3101_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE
AF3101_SP_SET: HEADWALL
AF3101_STAMPING: P 224
AF3101_MARK LOGO: FLSRD
AF3101_MAGNETIC: N = NO MAGNETIC MATERIAL
AF3101_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AF3101+STABILITY: SURFACE MOTION
AF3101_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR
AF3101+SATELLITE: SATELLITE OBSERVATIONS - June 20, 2007
AF3101
AF3101  HISTORY     - Date     Condition        Report By
AF3101  HISTORY     - UNK      MONUMENTED       FLHD
AF3101  HISTORY     - 1965     GOOD             CGS
AF3101  HISTORY     - 1972     GOOD             NGS
AF3101  HISTORY     - 1987     GOOD             USPSQD
AF3101  HISTORY     - 1989     GOOD             USPSQD
AF3101  HISTORY     - 1990     GOOD             USPSQD
AF3101  HISTORY     - 19910125 GOOD             NGS
AF3101  HISTORY     - 20040228 GOOD             USPSQD
AF3101  HISTORY     - 20070620 GOOD             FLDEP
AF3101
AF3101                          STATION DESCRIPTION
AF3101
AF3101'DESCRIBED BY COAST AND GEODETIC SURVEY 1965
AF3101'6.2 MI SE FROM STUART.
AF3101'ABOUT 6.25 MILES SOUTHEAST ALONG THE FLORIDA EAST COAST RAILWAY
AF3101'FROM THE STATION AT STUART, SET ON TOP OF THE SOUTHEAST END OF
AF3101'THE NORTHEAST CONCRETE HEAD WALL OF A 24-FOOT BOX TYPE CULVERT
AF3101'UNDER STATE HIGHWAY A 1 A, 85 FEET NORTHEAST OF THE NORTHEAST
AF3101'RAIL, 17 FEET NORTHEAST OF THE CENTER LINE OF THE HIGHWAY,
AF3101'3 FEET BELOW THE LEVEL OF THE TRACK, 0.3 MILE NORTHWEST OF
AF3101'MILEPOST 268, AND ABOUT 1/2 FOOT ABOVE THE LEVEL OF THE HIGHWAY.
AF3101'IN SECTION 30, R 42 E, T 38 S.
AF3101
AF3101                          STATION RECOVERY (1972)
AF3101
AF3101'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1972
AF3101'RECOVERED IN GOOD CONDITION.
AF3101
AF3101                          STATION RECOVERY (1987)
AF3101
AF3101'RECOVERY NOTE BY US POWER SQUADRON 1987 (FGH)
AF3101'RECOVERED IN GOOD CONDITION.
AF3101
AF3101                          STATION RECOVERY (1989)
AF3101
AF3101'RECOVERY NOTE BY US POWER SQUADRON 1989 (DHF)
AF3101'RECOVERED IN GOOD CONDITION.
AF3101
AF3101                          STATION RECOVERY (1990)
AF3101
AF3101'RECOVERY NOTE BY US POWER SQUADRON 1990 (DHF)
AF3101'RECOVERED IN GOOD CONDITION.
AF3101
AF3101                          STATION RECOVERY (1991)
AF3101
AF3101'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991
AF3101'2.0 KM (1.2 MI) SOUTHEASTERLY ALONG STATE HIGHWAY A1A (DIXIE HIGHWAY)
AF3101'FROM THE POST OFFICE IN PORT SALERNO, IN TOP OF AND 4.7 M (15.4 FT)
AF3101'NORTHWEST OF THE SOUTHEAST END OF THE NORTHEAST CONCRETE HEADWALL OF
AF3101'A DOUBLE BOX CULVERT UNDER THE HIGHWAY, AND 4.6 M (15.1 FT) NORTHEAST
AF3101'OF AND LEVEL WITH THE HIGHWAY CENTERLINE.
AF3101
```

"P 224" Benchmark Datasheet (3 OF 3)


```
   AF3101                          STATION RECOVERY (2004)
   AF3101
   AF3101'RECOVERY NOTE BY US POWER SQUADRON 2004 (DRK)
   AF3101'RECOVERED IN GOOD CONDITION.
   AF3101
   AF3101                          STATION RECOVERY (2007)
   AF3101
   AF3101'RECOVERY NOTE BY FL DEPT OF ENV PRO 2007 (BPJ)
   AF3101'RECOVERED AS DESCRIBED.

   *** retrieval complete.
   Elapsed Time = 00:00:02
```

"MC BM GCY D25" Benchmark Datasheet (1 OF 3)

Martin County Benchmark Database **BM Details**

Benchmark Details Print

Benchmark Name	GCY D25
Elevation	8.12'
Datum	NAVD88
Bm Material	ALUMINUM DISK
Set Found	10/19/11
Northing	1021712'
Easting	920989'
Begin Bench	H 517
Close Bench	N 224
Firm	CIVILSURV
Neighborhood Name	COUNTRY CLUB COVE
Benchmark Location	ALUMINUM DISK IN CONCRETE STAMPED GCY D25 LB 4108 MCBM 2001 LOCATED APPROXIMATELY 350 FEET WEST OF THE INTERSECTION OF SE HANSONS CIRCLE AND SE COVE ROAD ON THE SOUTH SIDE OF THE ROAD

Benchmark Map

Disclaimer

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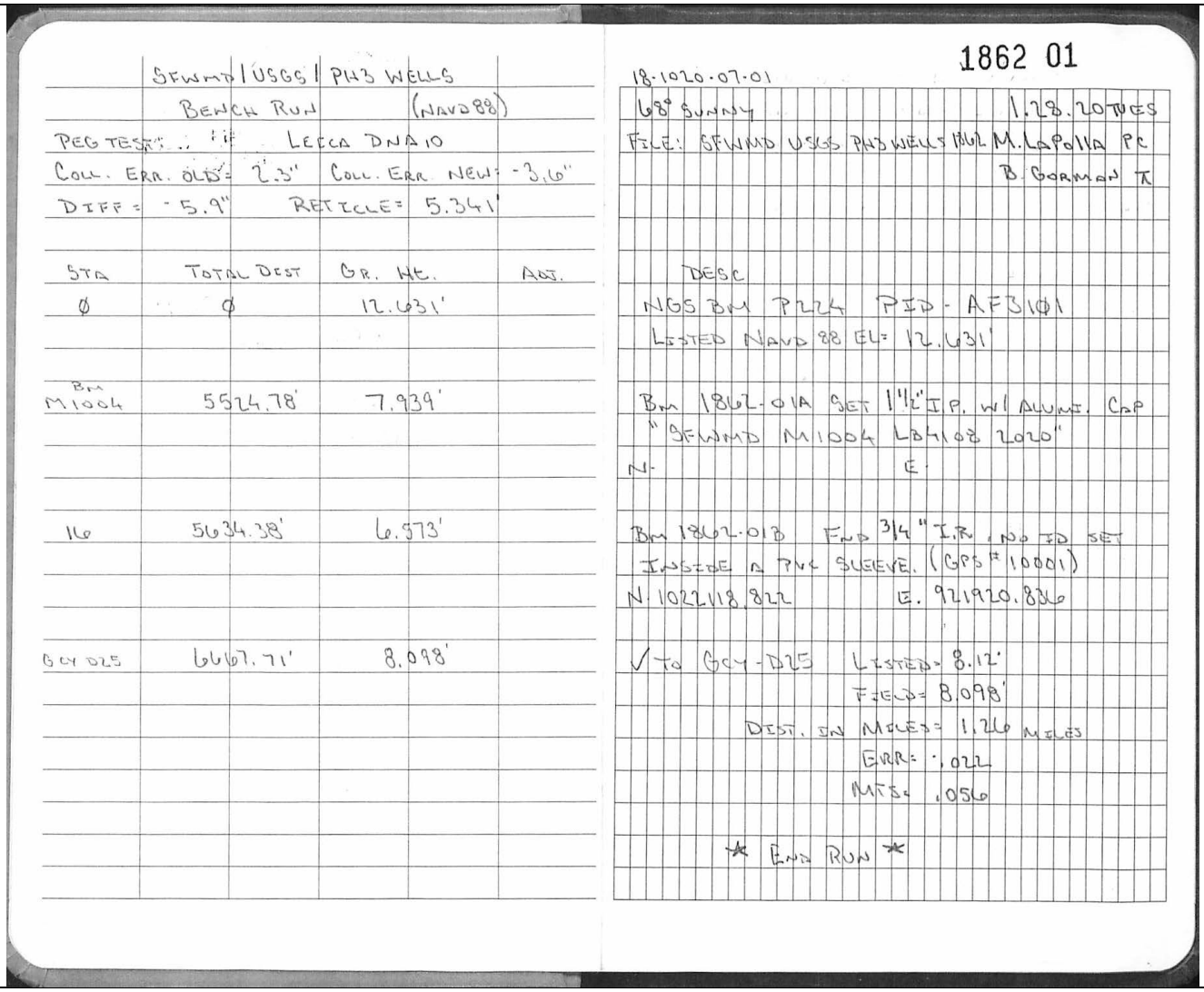
Field Notes (1 of 4)



SFWMD / USGS / PH3 WELLS
BENCH RUN (NAVD88)
PEG TEST: LEICA DNA10
COLL. ERR. OLD = 2.5" COLL. ERR NEW = -3.6"
DIFF = -5.9" RETICLE = 5.341'

STA	TOTAL DIST	GR. HT.	ADJ.
∅	∅	12.631'	
BM M1004	5524.78'	7.939'	
16	5634.38'	6.573'	
GCM DZ5	6667.71'	8.098'	

1862 01

18-1020-07-01
68° SUNNY 1.28.20 TUES
FILE: SFWMD USGS PH3 WELLS BGL M. LaPolla PC
B. GORMAN TR

DESC
NGS BM PZ24 PID - AF3101
LISTED NAVD 88 EL = 12.631'

BM 1862-01A SET 1½" I.P. W/ ALUM. CAP
"SFWMD M1004 LB4108 2020"
N- E-

BM 1862-01B FND 3/4" I.R. NO ID SET
INSIDE A PVC SLEEVE. (GPS # 10001)
N. 1022118.822 E. 921920.836

✓ TO GCM-DZ5 LISTED = 8.12'
FIELD = 8.098'
DIST. IN MILES = 1.246 MILES
ERR = .022
MTS = .056

* END RUN *

Field Notes (2 of 4)

SFWMD · USGS / P43 WELLS
BENCH RUN TO MON. WELL
M. 004 (NAVD 88)

18-1020-07-01 — 1862 02

73° SUNNY — 1.28.20 TUES
M. LaBila PC
B. GORMAN T

STA	+	HI	-	EL	ADJ	DESC
⌀	4.065			6.573'		BM 1862-01 LISTED= 6.573'
	4.04					
	4.013					
	(4.039)	10.612'	1.315			
			1.292			
			1.269			
1			(1.292)	9.320'		BLACK MAGIC MARKER BOX SOUTH EDGE OF WELL HOLE ON TOP OF PLYWOOD BASE. "MEASURING POINT"
	3.03					
	2.753					
	2.477					
	(2.753)	12.073'				
S.S.#1			5.55	6.523'		NG SHOT @ EAST SIDE OF WELL
			4.419			
			4.134			
			3.853			
2			(4.135)	7.938'		✓ TO BM 1862-01A LISTED= 7.939'
						ERR= +.001

* END RUN *

Field Notes (3 of 4)

SFWMD - USGS / PHB WELLS
4.5 HOUR OPUS SESSION
ON BM M1004 (1862-01A)

BASE: TRIMBLE 5700
HI: 4.89'
START: 11:43
END: 16:13
ANTENNA: ZEPHYR

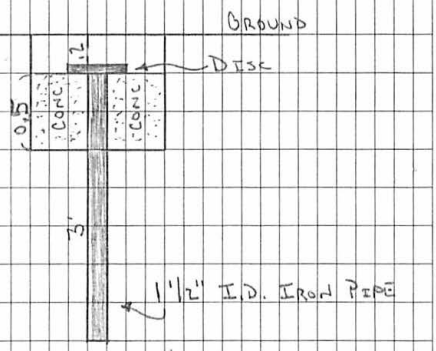
1862 03

18-1020-07-01

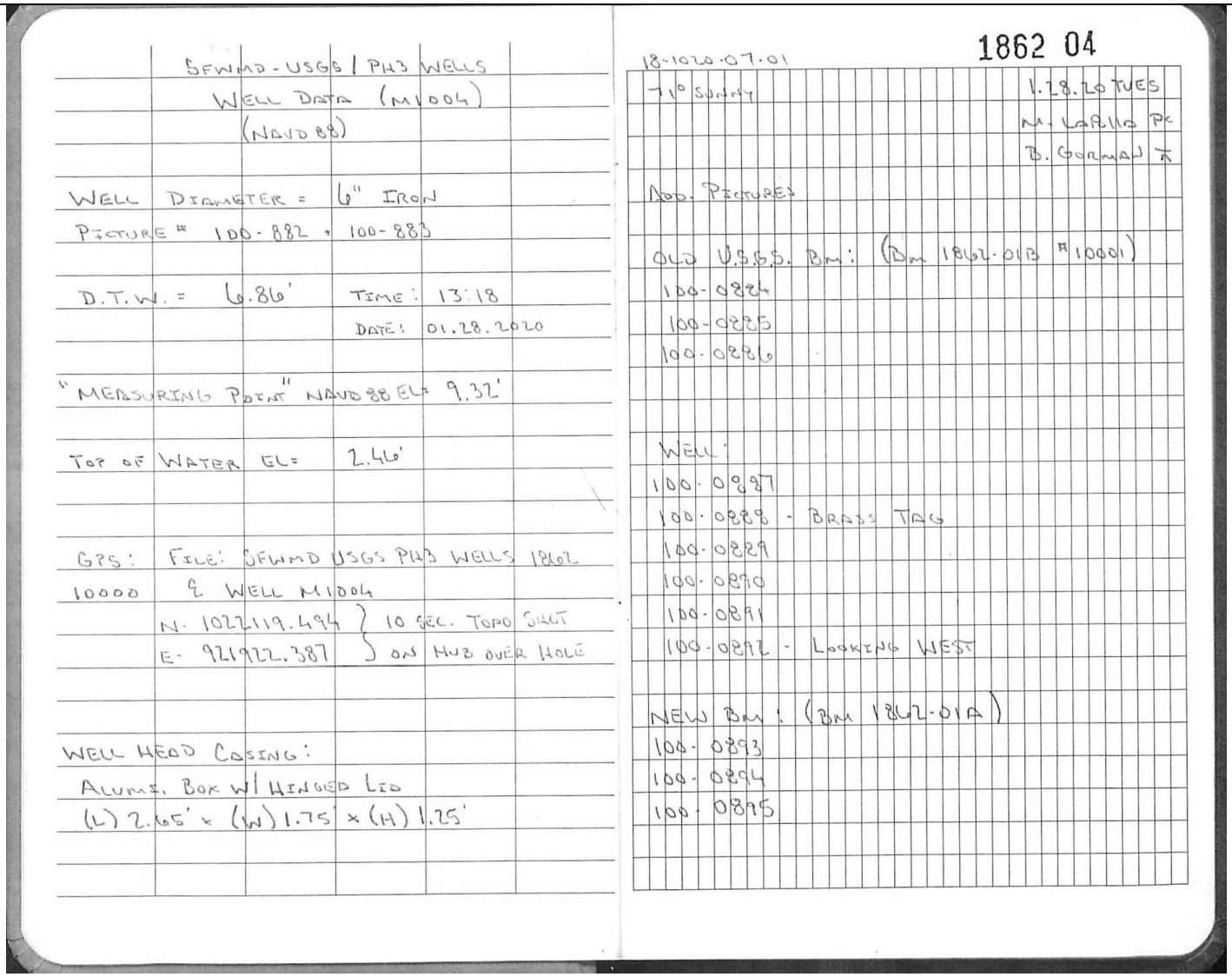
75° SUNNY

1.28.20 TUES
M. LaPOLLA PC
B. GORMAN T

BM 1862-01A
"M1004"



Field Notes (4 of 4)



SFWMD - USGS / PHS WELLS
WELL DATA (M1004)
(NAVD 88)

WELL DIAMETER = 6" IRON
PICTURE # 100-882 + 100-883

D.T.W. = 6.86' TIME: 13:18
DATE: 01.28.2020

"MEASURING POINT" NAVD 88 EL= 9.32'

TOP OF WATER EL= 2.46'

GPS: FILE: SFWMD USGS PHS WELLS 1862
10000 & WELL M1004
N. 1022119.494 } 10 SEC. TOPO SHOT
E. 921922.387 } ON NUB OVER HOLE

WELL HEAD CASING:
ALUM. BOX W/ HINGED LID
(L) 2.65' x (W) 1.75' x (H) 1.25'

18-1020-07.01 1862 04
71° SUNNY 1.28.20 TUES
M. LABELLE PC
B. GORMAN K

NOD. PICTURES

OLD U.S.G.S. BM: (BM 1862-01B # 10001)
100-0884
100-0885
100-0886

WELL:
100-0887
100-0888 - BRASS TAG
100-0889
100-0890
100-0891
100-0892 - LOOKING WEST

NEW BM: (BM 1862-01A)
100-0893
100-0894
100-0895

South Florida Water Management District Benchmark Datasheet

Designation:	M 1004	Project Name:	USGS PH-3 WELLS	Type:	V	State Plane Zone:	FL East
Stamping:	M1004 LB4108 2020	Field Book Name:	GCY 1862	Field Book Page:	1, 2, 3, 4		
Established By:	GCY, INC.	Recovered By:	N/A	Recovery Date:	N/A		
Surveyor:	ANDERSEN	Established Date:	01/28/20	Status:	Excellent		

GEOGRAPHIC POSITION INFORMATION

Section:	30	Township:	38 SOUTH	Range:	42 EAST		
County:	MARTIN	Quadrangle:	ST LUCIE INLET (2018)	Quad Index:	1602	NGS Source BM(s):	P 224
NAD83 Adj. Year:	2011	Vertical Datum:	NAVD1988	Horizontal Datum:	NAD1983	NGS PID(s):	
NAVD88 Elevation (feet):	7.939	NGVD29 Elevation (feet):	9.402	2022 Elevation:		NGS NAVD88 Elev (ft):	
NAVD88 Class:	3RD	NGVD29 Class:	3RD	Other Elevation:		NGS NAVD88 Elev (m):	
NAVD88 Order:		NGVD29 Order:		Other Elevation Type:		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: +	1.463	Actual NGS Elevation or ngvd29.txt file:		OPUS Ortho Height:	7.835		
Northing (Y) (feet):	1022199.744	Easting (X) (feet):	921982.306	Source of Latitude & Longitude:	OPUS SOLUTION		
Latitude:	27	8	36.59536	Longitude:	80	10	57.4977
	DD°	MM'	SS"		DD°	MM'	SS"
Latitude (Decimal Degrees):	27.14349871			Longitude (Decimal Degrees):	-80.18263825		

RECOVERY DATA

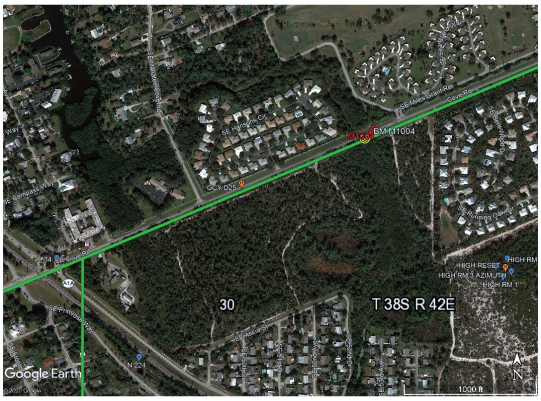
How to Reach:	FROM THE INTERSECTION OF SE COVE ROAD AND SR A1A, GO NORTHEASTERLY ON SE COVE ROAD A DISTANCE OF 0.50 MILES TO THE STATION ON THE LEFT. MARK IS A 1 1/2" IRON PIPE WITH A STANDARD SFWMD DISK GROUTED IN THE TOP AND A CONCRETE COLLAR AROUND THE PIPE. MARK IS ABOUT 4 FEET NORTHERLY OF THE NORTH EDGE OF PAVEMENT OF SE COVE ROAD AND ABOUT 32 FEET EASTERLY OF THE EAST END OF A METAL GAURD RAIL.
Description/Notes:	

Notable Landmarks:

Other Source Benchmarks:

PICTURES

Aerial View of Overall Site



PICTURES

Site Sketch

From: opus
To: Pete Andersen
Subject: OPUS solution : 13970280.T01 OP1586285179466
Date: Tuesday, April 07, 2020 2:50:07 PM

FILE: 13970280.T01 OP1586285179466

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: April 07, 2020
RINEX FILE: 1397028q.20o TIME: 18:49:49 UTC

SOFTWARE: page5 1801.18 master71.pl 160321 START: 2020/01/28 16:44:00
EPHEMERIS: igs20902.eph [precise] STOP: 2020/01/28 21:13:00
NAV FILE: brdc0280.20n OBS USED: 12141 / 12484 : 97%
ANT NAME: TRM39105.00 NONE # FIXED AMB: 51 / 52 : 98%
ARP HEIGHT: 1.491 OVERALL RMS: 0.012(m)

REF FRAME: NAD_83(2011)(EPOCH:2010.0000) ITRF2014 (EPOCH:2020.0759)

X:	968422.434(m)	0.004(m)	968421.603(m)	0.004(m)
Y:	-5596456.609(m)	0.005(m)	-5596455.028(m)	0.005(m)
Z:	2892362.294(m)	0.009(m)	2892362.133(m)	0.009(m)

LAT:	27 8 36.59536	0.007(m)	27 8 36.61588	0.007(m)
E LON:	279 49 2.50230	0.004(m)	279 49 2.48236	0.004(m)
W LON:	80 10 57.49770	0.004(m)	80 10 57.51764	0.004(m)
EL HGT:	-25.253(m)	0.006(m)	-26.838(m)	0.006(m)
ORTHO HGT:	2.388(m)	0.026(m)	[NAVD88 (Computed using GEOID18)]	

	UTM COORDINATES (UTM (Zone 17))	STATE PLANE COORDINATES (SPC (0901 FL E))
Northing (Y) [meters]	3002592.782	311567.105
Easting (X) [meters]	580993.125	281020.769
Convergence [degrees]	0.37291667	0.37291667
Point Scale	0.99968098	1.00002218
Combined Factor	0.99968495	1.00002615

US NATIONAL GRID DESIGNATOR: 17RNL8099302592(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DF7050	MTNT MIAMI TNT CORS ARP	N255156.760	W0805425.186	158913.4
DH3834	LAUD LAUDERDALE CORS ARP	N261146.341	W0801023.014	104961.3
DE9138	OKCB OKEECHOBEE CORS ARP	N271557.715	W0805119.181	68014.8

NEAREST NGS PUBLISHED CONTROL POINT

AJ5278	GCY D25	N270831.826	W0801108.531	337.4

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.

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*110001+00000000000000A1 32...1+0000000000049841 331.21+0000000000004921
390...+0000000000000005 391.21+0000000000000000
*110002+00000000000000B1 32...1+0000000000100203 332.21+0000000000004149
390...+0000000000000005 391.21+0000000000000000
*110003+00000000000000B2 32...1+0000000000050607 336.21+0000000000004569
390...+0000000000000005 391.21+0000000000000000
*110004+00000000000000A2 32...1+0000000000099477 335.21+0000000000005338
390...+0000000000000005 391.21+0000000000000000
*410005+00000000?.....1
*110006+000000000000P224 83..51+0000000000012631
*110007+000000000000P224 32...1+0000000000087285 331.21+0000000000004317
390...+0000000000000005 391.21+0000000000000000
*110008+0000000000000001 32...1+0000000000090644 332.21+0000000000004997
390...+0000000000000005 391.21+0000000000000000
*110009+0000000000000001 573..1-0000000000003359 574..1+0000000000177930
83..21+0000000000011951
*110010+0000000000000001 32...1+0000000000279843 331.21+0000000000004013
390...+0000000000000005 391.21+0000000000000001
*110011+0000000000000002 32...1+0000000000290712 332.21+0000000000002714
390...+0000000000000005 391.21+0000000000000001
*110012+0000000000000002 573..1-0000000000014229 574..1+0000000000748485
83..21+0000000000013251
*110013+0000000000000002 32...1+0000000000258087 331.21+0000000000004382
390...+0000000000000005 391.21+0000000000000001
*110014+0000000000000003 32...1+0000000000257856 332.21+0000000000007709
390...+0000000000000005 391.21+0000000000000001
*110015+0000000000000003 573..1-0000000000013998 574..1+0000000001264428
83..21+0000000000009924
*110016+0000000000000003 32...1+0000000000179796 331.21+0000000000003379
390...+0000000000000005 391.21+0000000000000000
*110017+0000000000000004 32...1+0000000000166705 332.21+0000000000005668
390...+0000000000000005 391.21+0000000000000000
*110018+0000000000000004 573..1-0000000000000907 574..1+0000000001610929
83..21+0000000000007635
*110019+0000000000000004 32...1+0000000000201301 331.21+0000000000004174
390...+0000000000000005 391.21+0000000000000001
*110020+0000000000000005 32...1+0000000000200939 332.21+0000000000003580
390...+0000000000000005 391.21+0000000000000000
*110021+0000000000000005 573..1-0000000000000544 574..1+0000000002013169
83..21+0000000000008229
*110022+0000000000000005 32...1+0000000000261425 331.21+0000000000004199
390...+0000000000000005 391.21+0000000000000001
*110023+0000000000000006 32...1+0000000000261479 332.21+0000000000005164
390...+0000000000000005 391.21+0000000000000002
*110024+0000000000000006 573..1-0000000000000598 574..1+0000000002536073
83..21+0000000000007264
*110025+0000000000000006 32...1+0000000000124296 331.21+0000000000003330
390...+0000000000000005 391.21+0000000000000000
*110026+0000000000000007 32...1+0000000000125327 332.21+0000000000002754
390...+0000000000000005 391.21+0000000000000000
*110027+0000000000000007 573..1-0000000000001629 574..1+0000000002785696
83..21+0000000000007840
*110028+0000000000000007 32...1+0000000000114070 331.21+0000000000004992
390...+0000000000000005 391.21+0000000000000000
*110029+0000000000000008 32...1+0000000000119218 332.21+0000000000005959
390...+0000000000000005 391.21+0000000000000000

*110030+0000000000000008 573..1-0000000000006777 574..1+0000000003018984
83..21+0000000000006872
*110031+0000000000000008 32...1+0000000000186578 331.21+0000000000004829
390...+0000000000000005 391.21+0000000000000000
*110032+0000000000000009 32...1+0000000000182910 332.21+0000000000005777
390...+0000000000000005 391.21+0000000000000001
*110033+0000000000000009 573..1-0000000000003109 574..1+0000000003388473
83..21+0000000000005924
*110034+0000000000000009 32...1+0000000000155038 331.21+0000000000004458
390...+0000000000000005 391.21+0000000000000001
*110035+0000000000000010 32...1+0000000000163190 332.21+0000000000002968
390...+0000000000000005 391.21+0000000000000001
*110036+0000000000000010 573..1-0000000000011261 574..1+0000000003706701
83..21+0000000000007415
*110037+0000000000000010 32...1+0000000000236040 331.21+0000000000006435
390...+0000000000000005 391.21+0000000000000001
*110038+0000000000000011 32...1+0000000000259050 332.21+0000000000004732
390...+0000000000000005 391.21+0000000000000001
*110039+0000000000000011 573..1-0000000000034270 574..1+0000000004201790
83..21+0000000000009118
*110040+0000000000000011 32...1+0000000000187320 331.21+0000000000003787
390...+0000000000000005 391.21+0000000000000001
*110041+0000000000000012 32...1+0000000000179253 332.21+0000000000003307
390...+0000000000000005 391.21+0000000000000001
*110042+0000000000000012 573..1-0000000000026203 574..1+0000000004568363
83..21+0000000000009598
*110043+0000000000000012 32...1+0000000000193437 331.21+0000000000002920
390...+0000000000000005 391.21+0000000000000001
*110044+0000000000000013 32...1+0000000000189047 332.21+0000000000003509
390...+0000000000000005 391.21+0000000000000000
*110045+0000000000000013 573..1-0000000000021813 574..1+0000000004950847
83..21+0000000000009009
*110046+0000000000000013 32...1+0000000000154250 331.21+0000000000002849
390...+0000000000000005 391.21+0000000000000001
*110047+0000000000000014 32...1+0000000000152013 332.21+0000000000004696
390...+0000000000000005 391.21+0000000000000000
*110048+0000000000000014 573..1-0000000000019577 574..1+0000000005257110
83..21+0000000000007162
*110049+0000000000000014 32...1+0000000000081663 331.21+0000000000005007
390...+0000000000000005 391.21+0000000000000000
*110050+0000000000000015 32...1+0000000000072821 332.21+0000000000003969
390...+0000000000000005 391.21+0000000000000000
*110051+0000000000000015 573..1-0000000000010734 574..1+0000000005411594
83..21+0000000000008200
*110052+0000000000000015 32...1+0000000000052117 331.21+0000000000004165
390...+0000000000000005 391.21+0000000000000000
*110053+000000BM 1862 01 32...1+0000000000061071 332.21+0000000000004426
390...+0000000000000005 391.21+0000000000000000
*110054+000000BM 1862 01 573..1-0000000000019689 574..1+0000000005524781
83..21+0000000000007939
*110055+000000BM 1862 01 32...1+0000000000049582 331.21+0000000000005319
390...+0000000000000005 391.21+0000000000000000
*110056+0000000000000016 32...1+0000000000060012 332.21+0000000000006685
390...+0000000000000005 391.21+0000000000000000
*110057+0000000000000016 573..1-0000000000030119 574..1+0000000005634375
83..21+0000000000006573
*110058+0000000000000016 32...1+0000000000090016 331.21+0000000000005532

390...+0000000000000005 391.21+0000000000000000
*110059+0000000000000017 32...1+0000000000081060 332.21+0000000000004169
390...+0000000000000005 391.21+0000000000000000
*110060+0000000000000017 573..1-0000000000021163 574..1+0000000005805452
83..21+0000000000007935
*110061+0000000000000017 32...1+0000000000221672 331.21+0000000000004823
390...+0000000000000005 391.21+0000000000000001
*110062+0000000000000018 32...1+0000000000209152 332.21+0000000000004116
390...+0000000000000005 391.21+0000000000000001
*110063+0000000000000018 573..1-0000000000008643 574..1+0000000006236276
83..21+0000000000008642
*110064+0000000000000018 32...1+0000000000156788 331.21+0000000000004155
390...+0000000000000005 391.21+0000000000000000
*110065+0000000000000019 32...1+0000000000150948 332.21+0000000000003841
390...+0000000000000005 391.21+0000000000000000
*110066+0000000000000019 573..1-0000000000002802 574..1+0000000006544012
83..21+0000000000008956
*110067+0000000000000019 32...1+0000000000060523 331.21+0000000000004087
390...+0000000000000005 391.21+0000000000000000
*110068+000000000GCY D25 32...1+0000000000063179 332.21+0000000000004946
390...+0000000000000005 391.21+0000000000000000
*110069+000000000GCY D25 573..1-0000000000005458 574..1+0000000006667714
83..21+0000000000008098

Palm City

6 May 2020

INPUT	OUTPUT
Geographic, flhpgn - Florida HPGN Vertical - NAVD88, U.S. Feet	Geographic, flhpgn - Florida HPGN Vertical - NGVD29 (Custom), U.S. Feet

M 1004

1/1

Latitude:	27 08 36.59536	**Latitude:**	27 08 36.59536
Longitude:	80 10 57.49770	**Longitude:**	80 10 57.49770
Elevation/Z:	0	**Elevation/Z:**	1.463

Remark: