



SURVEYOR'S REPORT

**Specific Purpose Survey of the
United States Geological Survey
Recorder Well G-2899
in
Broward County, Florida**

Prepared for:

South Florida Water Management District

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Prepared by:

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State of Florida

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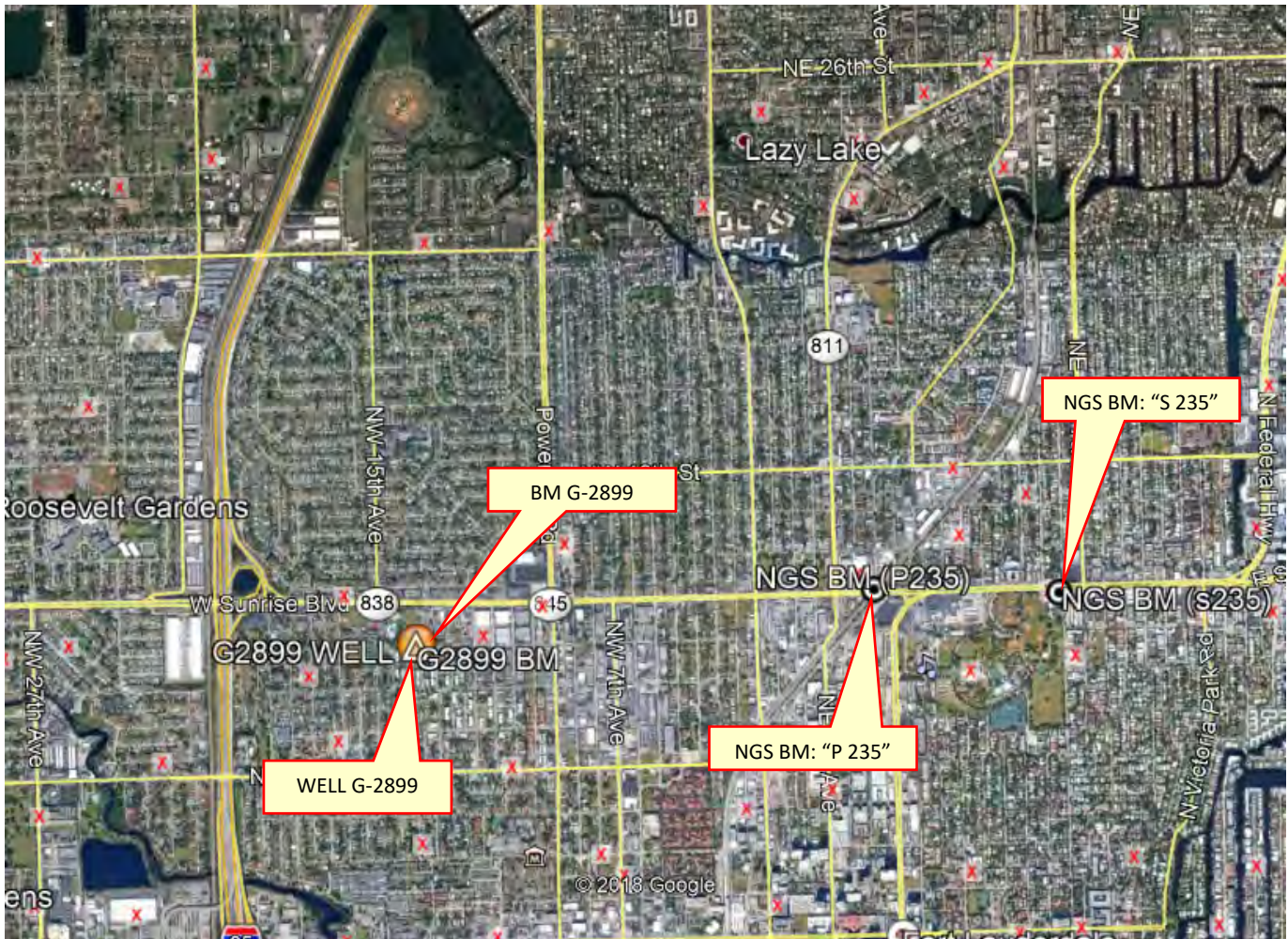
Field Date: September 24, 2019
Report Date: December 2, 2019, 2019
PO NO: 9500008146

PURPOSE

The objective of this work order is to supply NAVD 88 elevations on the site benchmark, ground elevation at the site, well monitoring point and any USGS benchmarks at the site. In addition, horizontal positions of each well and benchmark need to be provided in the North American Datum of 1983.

LOCATION OF PROJECT

The United States Geological Survey's Recorder Well **G-2899** is located in Section 4, Township 50 South, Range 42 East, Broward County, Florida.



General Location (Intended Display scale is "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 of 1929 at station **G-2899 (G2899 2019)**, add 1.58'. These values are based on Corpscon 6.0.1 a US. 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 US. Army Corps of Engineers South Atlantic Division, Jacksonville FL.

PROJECT HORIZONTAL DATUM

All horizontal data shall be collected in and based on the North American Datum of 1983, 2011 adjustment (NAD 83/11). Horizontal coordinate control shall be established from existing National Geodetic Survey (NGS) 2nd Order control or higher in the area by using GPS, RTK GPS, network RTK GPS, or OPUS derived solutions.

LEVELING METHODS (Site Benchmark)

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

The allowable error (.02 √miles) on this project meets or exceeds third order closures as required by SFWMD for this project per executed SOW for 4600003706-WO03 and discussions with SFWMD.

A level loop was run from the NGS Benchmark "S 235" (AD2568), through the NGS Benchmark "P 235" (AD2569), through the site benchmark, and closed on NGS BM "P 235" (AD2569). The measurements were collected using a Digital Level and were hand written in Whidden Surveying & Mapping, Inc. Field Book W 203 Page 74-81, dated October 18, 2019, reduced and adjusted electronically. Additional data was manually recorded in the field book.

GPS METHODS (horizontal position of site benchmark)

Latitude and Longitude for Benchmark G-2899 (G2899 2019) were established by observing a 3-minute session of GPS data on October 18, 2019 using a Trimble R-8-S and The Florida Permanent Reference Network (FPRN). The FPRN network consists of nearly 100 Continuously Operating Reference Stations (CORS) located throughout Florida.

EQUIPMENT USED

- Trimble GPS unit R8-3 Serial #: 5213485282
- Trimble GPS unit R6-4 Serial #: 5307425789
- Dini Digital Level Serial #: 735642

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LEVELING METHODS (Site: ground elevation-well monitoring point- USGS benchmarks)

A level loop was run from the previously established Site Benchmark G-2899 (G2899 2019), through the ground shot north of the well enclosure (ground elevation), through the well monitoring point, and back to the Site Benchmark. The measurements were collected using an Automatic Level and were hand written in Dewberry Engineering, Inc. Field Book S.F.W.M.D. #1, Pages 37-40, dated September 24, 2019. Additional data was manually recorded.

GPS METHODS (horizontal position of Well G-2896 monitoring point & USGS Benchmarks)

Latitude and Longitude for Well G-2899 monitoring point (North edge of top of 2" PVC head) were established by observing a 3-minute session of GPS data on September 24, 2019 using a Spectra SP-80 and The Florida Permanent Reference Network (FPRN). The FPRN network consists of nearly 100 Continuously Operating Reference Stations (CORS) located throughout Florida.


EQUIPMENT USED


- Spectra SP-80 Rover Serial #: 1165
- Topcon AT-G2 Serial #: 1439

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VERTICAL CONTROL POINT

The Vertical Control point utilized and set as part of this survey is the:

NGS Benchmark "P 235" (AD2569)						
26° 08' 13.90" (N)	80° 08' 18.76" (W)	Published	6.01 ft.	(NAVD88)	1.83 m	Published
		<p>LOCATED AT THE INTERSECTION OF EAST SUNRISE BOULEVARD AND THE FLORIDA EAST COAST RAILROAD, 38.1 FT NORTH OF THE CENTER OF THE WESTBOUND LANES OF THE BOULEVARD, 29.5 FT NORTHWEST OF THE NEAR RAIL, 24.6 FT SOUTHEAST OF AND LEVEL WITH THE CENTERLINE OF NORTHEAST 5TH TERRACE, 3.0 FT WEST OF THE WEST CORNER OF A BATTERY WELL, 1.0 FT SOUTH OF A WITNESS POST, AND THE MONUMENT IS 0.3 FT BELOW THE GROUND SURFACE. NGS BENCHMARK DISK, SET IN GRASS AREA OFF OF SIDEWALK</p> <p>STAMPING: U.S. COAST AND GEODETIC SURVEY BENCHMARK P 235 1965</p>				

NGS Benchmark "S 235" (AD2568)						
26° 08' 13.44" (N)	80° 07' 47.16" (W)	Published	4.28 ft.	(NAVD88)	1.30 m	Published
		<p>LOCATED AT THE INTERSECTION OF EAST SUNRISE BOULEVARD AND NE 14TH AVE, IN THE NE CORNER OF A STORM FRAIN BASIN, 63 FT NE OF THE NE CORNER OF THE FORT LAUDERDALE PUBLIC LIBRARY, 29.2 FT WEST OF AND LEVEL WITH THE AVENUE CENTERLINE, 27.9 FT SOUTH OF THE CENTER OF A FIRE HYDRANT, AND 1 FT NW OF A WITNESS POST.</p> <p>NGS BENCHMARK DISK, SET IN CONCRETE CORNER OF DRAIN BASIN</p> <p>STAMPING: U.S. COAST AND GEODETIC SURVEY BENCHMARK S 235 1965</p>				

SURVEYOR'S REPORT

BM: G-2899 (Existing on site benchmark set by Dewberry Engineering, Inc.)					
26° 08' 04.91" (N)	80° 09' 37.06" (W)	3.32 ft.	(NAVD88)	1.01 m	Level run
NAD_83(2011)		4.90 ft.	(NGVD29)	1.49 m	Converted
			1.58 ft. (conversion factor)		Corpscon 6.0.1
		STATION IS A S.F.W.M.D. BM STAMPED "G2899 2019" SET IN CONCRETE IN A DIRT AREA NEXT TO A FENCE LINE LOCATED: NORTH OF NW 9 TH STREET ADJACENT TO A FENCE LINE			

Whidden Field Notes (Field Book W203, Page 74)

NGS BM "S 235"
Elev. 4.28' (NAVD88)

Sta	HI	ELEV
5.535		4.28
5.57	9.67	
TP 1		5.588 4.132
5.696	9.628	
TP 2		5.578 4.055
5.379	9.232	
TP 3		4.952 4.481
5.666	10.107	
TP 4		5.673 4.476
6.018	10.492	
TP 5		5.146 4.78 5.328
5.849	11.198	
TP 6		5.019 6.179

Station	HI	ELEV
5.535		4.28
5.57	9.67	
TP 1		5.588 4.132
5.696	9.628	
TP 2		5.578 4.055
5.379	9.232	
TP 3		4.952 4.481
5.666	10.107	
TP 4		5.673 4.476
6.018	10.492	
TP 5		5.146 4.78 5.328
5.849	11.198	
TP 6		5.019 6.179

SURVEYOR'S REPORT

Whidden Field Notes Pages 75 & 76

G 2899 CONT

STA	+	HI	-	ELEV.
				6.179
TP 7	5.943	12.122	5.889	6.232
TP 8	5.281	11.513	5.592	5.915
TP 9	5.780	11.095	5.659	6.036
TP 10	5.912	11.950	5.982	6.017
TP 11	6.099	12.117	6.816	5.801
TP 12	6.298	12.039	6.172	5.806
TP 13	6.232	12.098	6.959	6.139

10/12/19 B.C.
B.M.

W 203/15

P.235 BRASS DISK IN CONC.

G 2899 CONT

STA	+	HI	-	ELEV.
				6.139
TP 14	6.240	12.379	5.825	6.553
TP 15	6.202	12.255	6.463	6.292
TP 16	5.595	11.867	6.427	5.441
TP 17	5.946	11.326	6.286	4.901
TP 18	5.840	10.760	6.284	4.276
TP 19	5.957	10.233	5.903	4.530
TP 20	6.019	10.350	5.755	4.594

10/12/19 B.C.
B.M.

W 203/16

SURVEYOR'S REPORT

Whidden Field Notes Pages 80 & 81

62899 CONT

Sta	+	H	-	ELEV
				4.212
	6.024	10.534		
TP 35			6.024	4.312
	5.110	9.123		
TP 36			4.304	5.058
	8.862	9.920		
TP 37			5.079	4.322
	5.150	9.991		
TP 38			4.173	5.819
	5.397	11.216		
TP 39			5.345	5.871
	6.095	11.966		
TP 40			5.642	6.325
	5.384	11.169		
TP 41			5.412	6.897

10 | 10/19 | B.C.
B.M.

W 203/80

62899 CONT

Sta	+	H	-	ELEV
				6.297
	5.654	11.951		
TP 42			5.591	6.300
	5.642	12.002		
TP 43			5.303	6.459
	4.635	11.374		
TP 44			6.016	5.319
	5.793	11.112		
TP 45			5.162	5.951
	5.160	11.110		
P 235			5.167	6.004

NGS BM "P 235"
Elev. 6.01' (NAVD88)

10/12/19 B.C.
B.M.

W 203/81

PROJECT RESULTS

Overall Site



Looking South (Oblique not to scale)


SURVEYOR'S REPORT

Tabular Form

Reference and Ground Elevations: NAVD88			
Well	Ground Elevation	Reference Elevation	Comments
G-2899	3.53 ft.	3.40 ft.	North edge of PVC opening
Offset to NGVD29: +1.58' (See Project Vertical Datum Notes in Page: 4)			
Well diameter		Casing material	DTW
2" PVC		Metal	-3.25 ft. (9/24/19 at 2:20 PM)

Source & Site Benchmark	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon)
NGS "P 235" (AD2569)	6.01 ft. (Published)	7.61 ft.	
NGS "S 235" (AD2568)	4.28 ft. (Published)	5.88 ft.	
BM G2899 (SFWMD)	3.32 ft. (Measured)		4.90 ft. (Converted)

Well Photos and Diagrams (Continued)

 <p style="color: red; font-weight: bold;">Reference Point El. 3.40 (NAVD88)</p>	<p><u>PT#</u> <u>DESCRIPTION</u></p> <p>12030 N. EDGE OF TOP OF PVC WELL HEAD</p> <p>12031 N. EDGE OF TOP OF WELL CASING</p> <hr/> <p>WATER LEVEL READING WAS TAKEN @ 2:20 pm = 3.25' FROM TOP OF PVC WELL HEAD</p> <p>SIZE OF PVC WELL HEAD = 2.0" I.D. METAL CASING (ENCLOSURE) = 7.0" I.D.</p> <p>I.D. = INSIDE DIAMETER</p> <p>* THIS WELL SITE WAS LOCATED APPROX. 70' NORTH OF NEW 9TH ST. (FRONT OF ROAD). THE SITE IS SET IN A 2' x 2' CONCRETE SLAB. THERE WAS NO CAP ON METAL CASING OR WELL HEAD ENCLOSURE.</p>
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SURVEYOR'S REPORT

Well Photos and Diagrams (Continued)



Overhead View (Oblique Not to scale)



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 1.58 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: September 24, 2019, PO NO: 9500008146
7. SFWMD Data records (on file at the District's headquarters):
8. A. Electronic Data files:
 - Miscellaneous picture files
- B. Conventional reporting
 - Whidden Field Book: W203 page 74-81
 - Dewberry Field Book: SFWMD #1 pages 37-40

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Abbreviations:

- Elev.** - Elevation
- DTW** - Distance to the water table inside the well
- BroCo.** - Broward County
- NAVD88** - North American Vertical Datum of 1988
- NGVD29** - National Geodetic Vertical Datum of 1929
- NGS** - National Geodetic Survey
- PSM** - Professional Surveyor & Mapper
- PID** - Permanent Identifiers
- SFWMD** - South Florida Water Management District
- USGS** - United States Geological Survey
- MP** - Monitoring Point
- GS** - Ground Shot
- BM** - Benchmark
- RM** - Reference Monument

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.

Last date of Survey
Sept. 24, 2019

William D. Donley

William Donley, PSM
Florida Professional Surveyor and Mapper
License Number 5381
State of Florida
Dewberry Engineering, Inc. LB No 8011
131 West Kaley Street, Orlando, FL. 32806
Tel (321) 354-9826





South Florida Water Management District Benchmark Datasheet

Designation: G-2899	Project Name: USGS Ph 2, BROWARD	Type: V	State Plane Zone: FL East
Stamping: G2899 2019	Field Book Name: W203	Field Book Page: 74	
Established By: DEWBERRY / WHIDDEN	Recovered By: N/A	Recovery Date: N/A	
Surveyor: WILLIAM D. DONLEY	Established Date: 10/18/19	Status: New	

GEOGRAPHIC POSITION INFORMATION

Section: 4	Township: 50 SOUTH	Range: 42 EAST
County: BROWARD	Quadrangle: FORT LAUDERDALE NORTH	Quad Index: 1802
NAD83 Adj. Year: 2011	Vertical Datum: NAVD1988	Horizontal Datum: NAD1983
NGVD88 Elevation (feet): 3.32	NGVD29 Elevation (feet): 4.9	2022 Elevation: N/A
NGVD88 Class: N/A	NGVD29 Class: N/A	Other Elevation: N/A
NGVD88 Order: 3	NGVD29 Order: 3	Other Elevation Type: N/A
		NGS Source BM(s): P 235
		NGS PID(s): AD2569
		NGS NAVD88 Elev (ft): 6.01
		NGS NAVD88 Elev (m): 1.833
		NGS 2022 Elev (ft): N/A

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: + 1.58	Actual NGS Elevation or ngvd29.txt file: N/A	OPUS Ortho Height: N/A
Northing (Y) (feet): 655536.7	Easting (X) (feet): 931658.5	Source of Latitude & Longitude: AVERAGED FPRN & TRIMBLE VRSNOW RTK
Latitude: 26	8	9
DD°	MM'	SS"
Longitude (Decimal Degrees): 26.134697	Longitude (Decimal Degrees): -80.160294	

RECOVERY DATA

How to Reach: **1. FROM FL-838/W SUNRISE BLVD, HEAD SOUTH ON NW 13TH AVE FOR 0.1 MI**
2. TURN RIGHT ONTO NW 9TH ST, CONTINUE 465 FEET TO THE MARK ON THE RIGHT

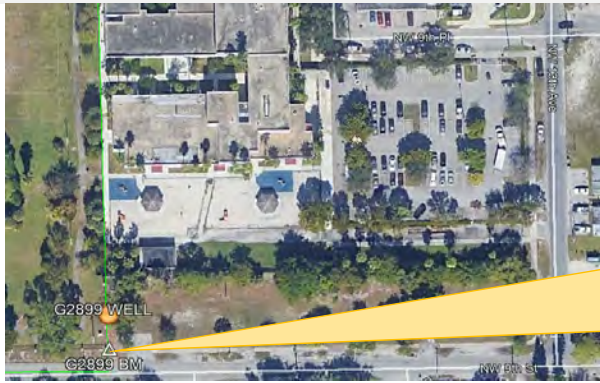
Description/Notes: **2" ALUMINUM SFWMD DISK SET IN A POURED IN PLACE CONCRETE MONUMENT**

Notable Landmarks: **CARTER PARK POOL**

Other Source Benchmarks: **NGS "S 235" (AD2568)**

PICTURES

Aerial View of Overall Site

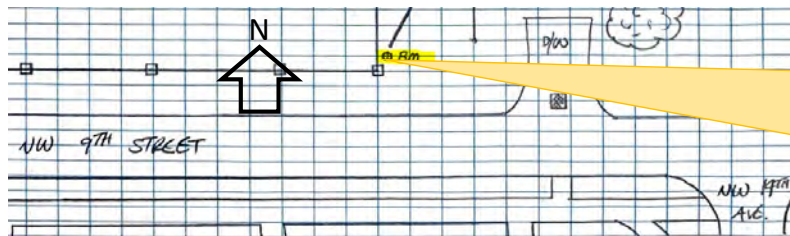


NOT TO SCALE. AERIAL FROM GOOGLE EARTH.



PICTURES

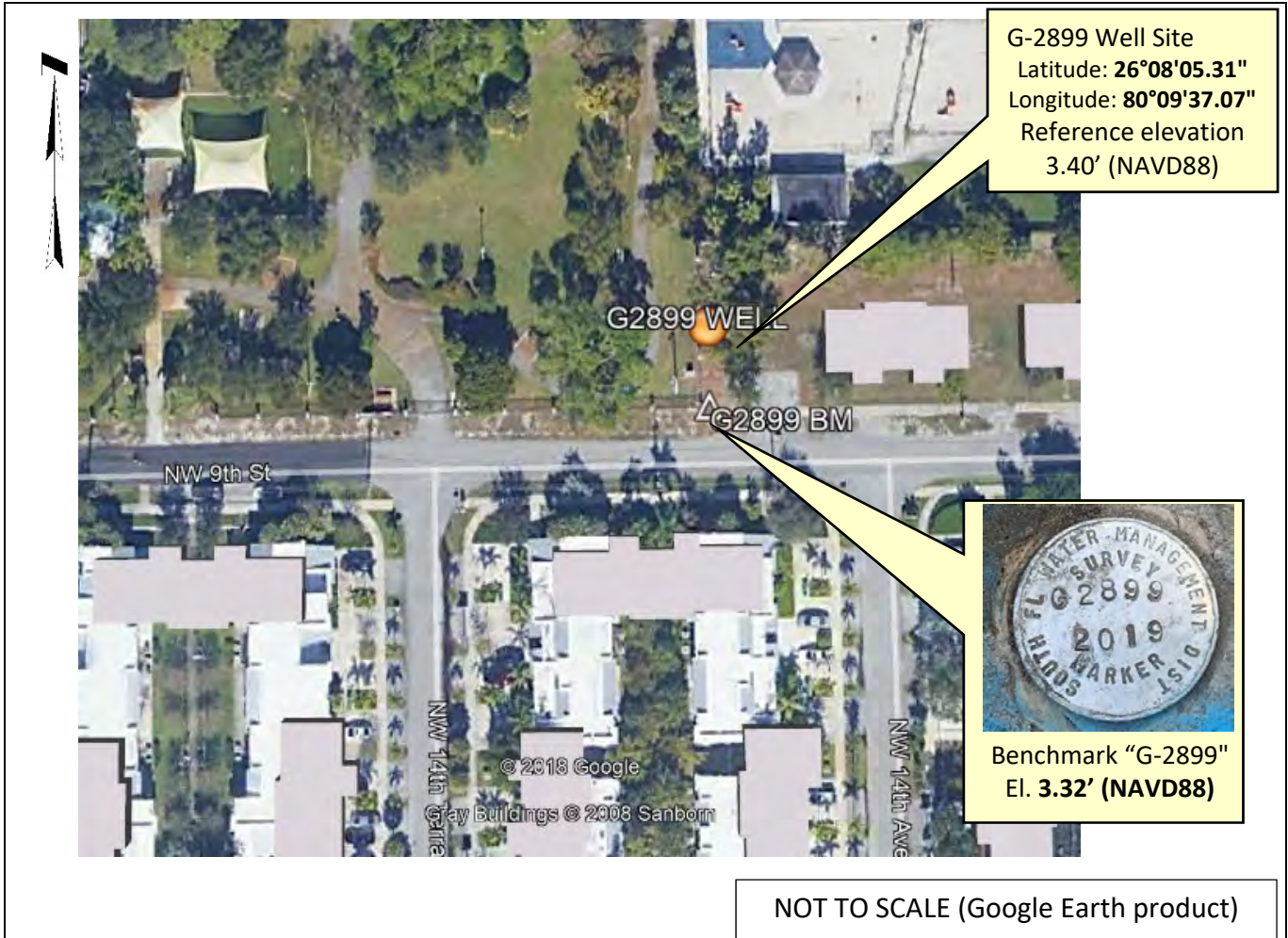
Site Sketch





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18



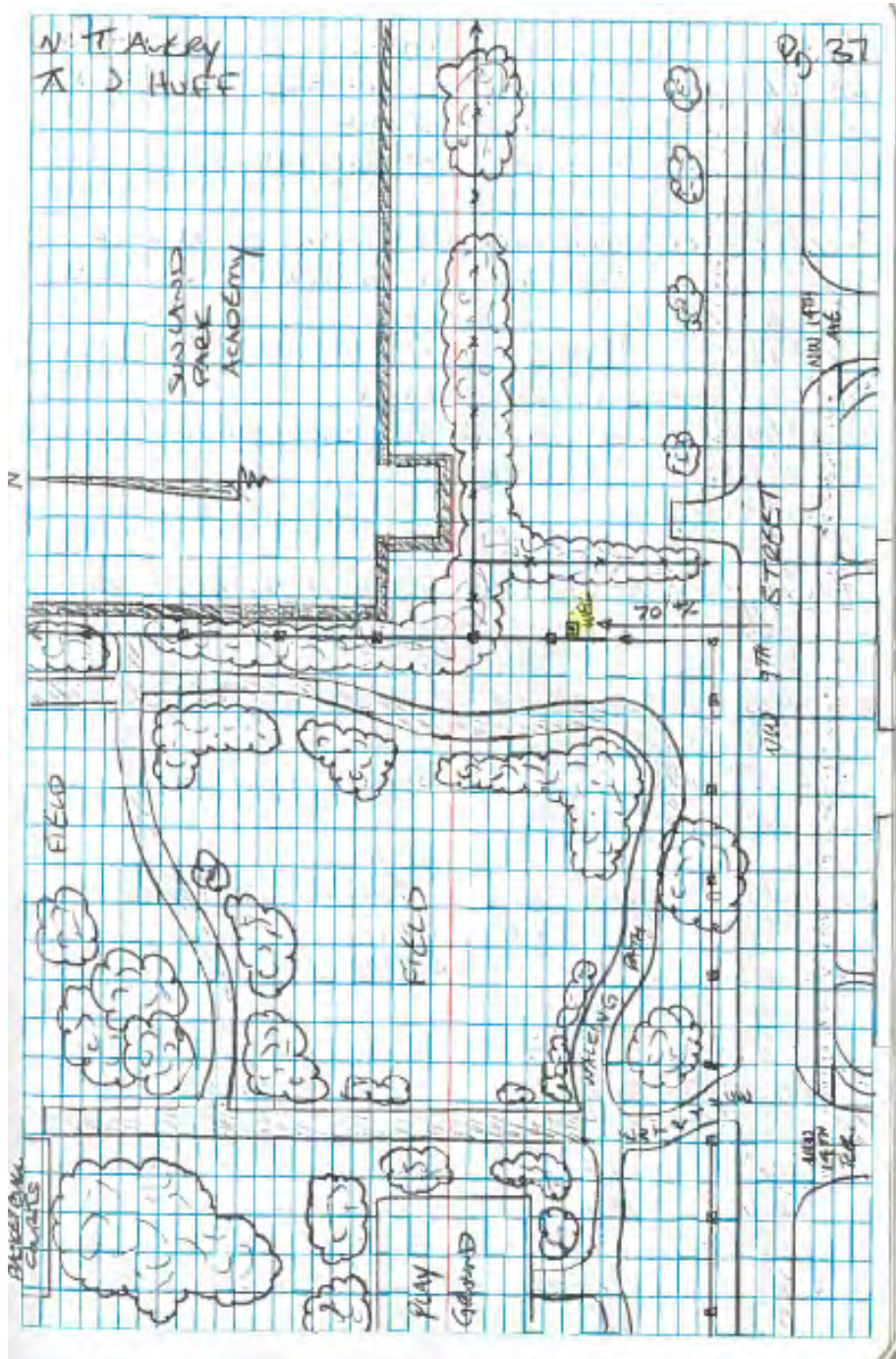


SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18

SKETCH

FIELD BOOK SFWMD #1, PAGE 37



Office

Project

2 December 2019

INPUT

State Plane, NAD83
0901 - Florida East, U.S. Feet
Vertical - NAVD88, U.S. Feet

OUTPUT

Geographic, NAD83
Vertical - NGVD29 (Vertcon94), U.S. Feet

BM G2899

1/2

Northing/Y: 655536.7	Latitude: 26 08 04.90979
Easting/X: 931658.5	Longitude: 80 09 37.06469
Elevation/Z: 3.32	Elevation/Z: 4.895
Convergence: 0 22 11.62946	
Scale Factor: 1.000028203	
Combined Factor: 1.000032057	

WELL G2899

2/2

Northing/Y: 655576.73'	Latitude: 26 08 05.30629
Easting/X: 931657.65'	Longitude: 80 09 37.07118
Elevation/Z: 3.40	Elevation/Z: 4.975
Convergence: 0 22 11.63181	
Scale Factor: 1.000028202	
Combined Factor: 1.000032053	

Remark:

Corpscon v6.0.1, U.S. Army Corps of Engineers

SPECTRA SR20 S F W MD 09/29/19
 SN 1165 (PAPER) P.S.G.S. WELLS & BMS
 TRIMBLE NET JOB # 50099999
 POWER HT. G. SUR WELL SITE: G-2899

TASK: OBTAIN HORIZONTAL LOCATIONS ON ALL
 R.M.S FOR WELL & MEASURING POINTS

STARTED AT

PT #	(N) ELL	(E) ELL	(Z) ELL	PT #	DESC.	DISTANCE
3/0	17	-0.019	0.058	C 0021	5024	CHK-W 30 SEC
* LOCATE PTS 12030-12031						
3/0	17	0.023	0.093	C 0027	5025	CHK-OUT 30 SEC
..						

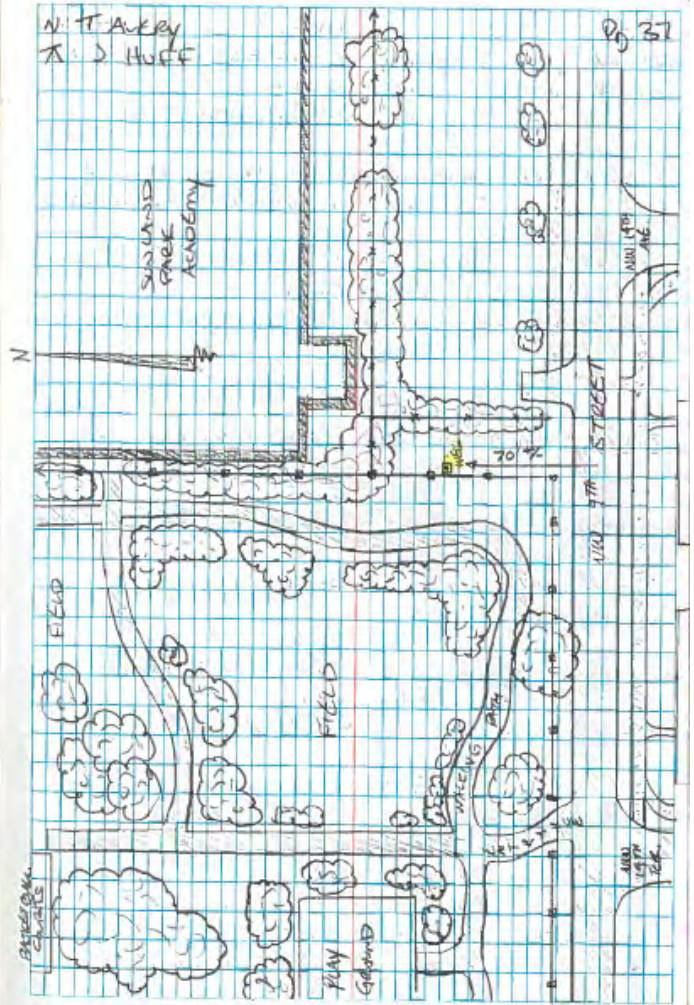
PT #	DESCRIPTION
12030	N. EDGE OF TOP OF PVC WELL HEAD
12031	N. EDGE OF TOP OF WELL CASING

WATER LEVEL READING WAS TAKEN @
 2:20 PM @ 3.25' FROM TOP OF PVC
 WELL HEADS

SIZE OF PVC WELL HEAD = 2.0" I.D.
 METAL CASING (ENCLOSURE) = 7.0" I.D.

I.D. = INSIDE DIAMETER

* THIS WELL SITE WAS LOCATED APPROX. 70' NORTH
 OF NEW 9TH ST. (FRONT OF ROAD). THE SITE IS
 SET IN A 2' x 2' CONCRETE SLAB. THERE WAS
 NO CAP ON METAL CASING OR WELL HEAD ENCLOSURE.



Tolson S.F.W.M.D. 04/24/19
 AT-G-2 USGS Wells & Ems
 Spt: 1639 VEG# 00099999
 WELL SITE: G-2899

TASK: ELEVATE MONITORING POINT (4) CORNERS OF CONCRETE AROUND WELL CASING, & GROUND (N. OF CONC SLAB AROUND WELL CASING.)

ELEVATION DESCRIPTION
 BENCH ~~100.00~~ 3.32' ALUMINUM DISC SET IN CONCRETE
 (WHIDDEN) (NAVD 88)

STA ID	READING	MEAN	ELEV	READING	MEAN	ELEV	ELEV
							100.00 3.32
Bm	5.445		5.105				
	5.325	5.325	100.00 5.005	5.005	5.005	100.00 3.640	
	5.205		8.645	4.905			
	20'/28'			20'/40'			
			5.10				
Bm	100.00 5.00	4.983	100.00 3.647				
			8.645	4.895			
				20.5'/41.5'			
			5.10				
Bm	100.00 5.005	5.0033	100.00 3.642				
			8.645	4.905			
				19.5'			
			5.105				
Bm	100.00 5.005	5.0050	100.00 3.640				
			8.645	4.905			
				20'/44'			

N. T. AVERY
 J. HUFF

Pg. 38

STAMPED: "SOUTH F.E. WATER MANAGEMENT DIST SURVEY MARKER G-2899, 2019"

FORESIGHT (+)
 DESCRIPTION

NW CORNER OF CONC. SLAB AROUND WELL CASING

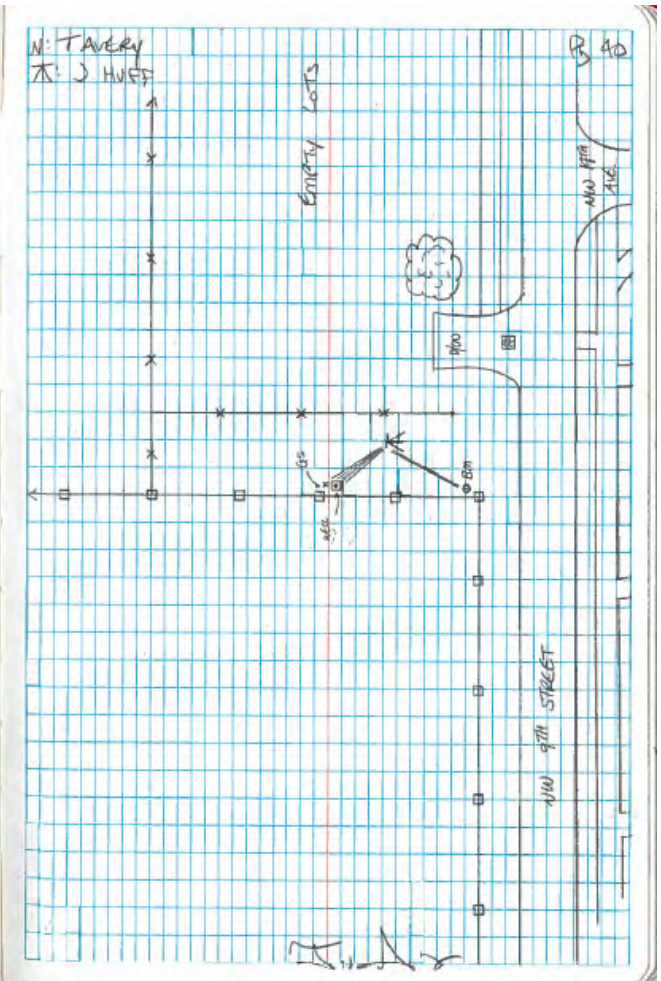
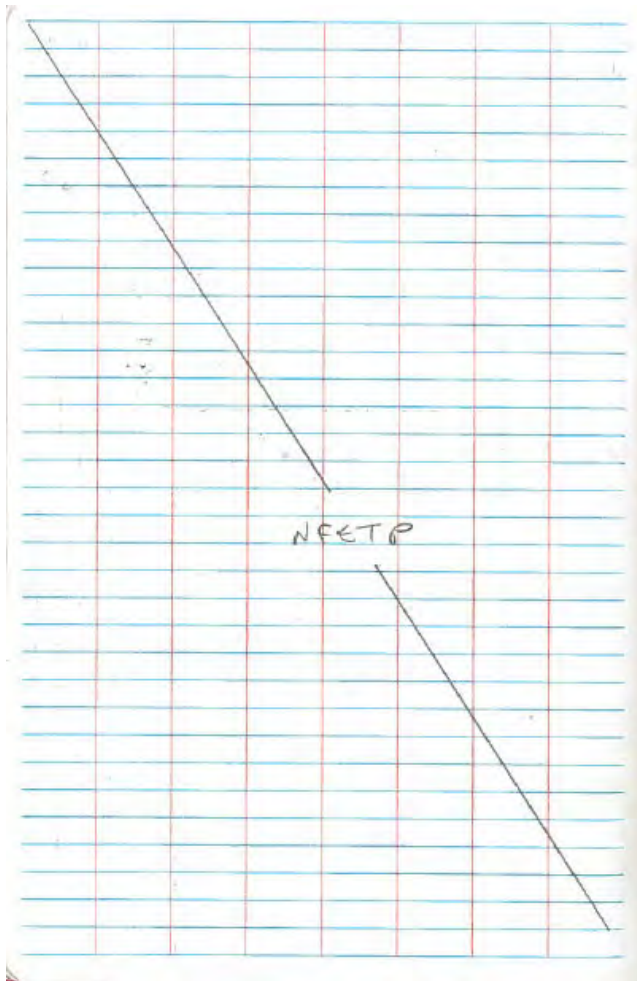
NE CORNER OF CONC. SLAB AROUND WELL CASING

SW CORNER OF CONC. SLAB AROUND WELL CASING

SE CORNER OF CONC. SLAB AROUND WELL CASING

Tolson	S.F.W.M.D.		9/24/19	
AT-62	USGS WELLS & BMS			
S/N: 1432	JOB #: 50099999			
	WELL SITE: G-2899			
TASK: CONTINUE TO ELEVATE POINTS OF INTEREST				
	BACKSIGHT (+)	IK	FORESIGHT (-)	ADJ.
STA ID	READINGS	MEAN ELEV.	READINGS	MEAN ELEV. ELEV.
		5.215		
BM		105.3230	5.11	5.1100
		8.645	5.005	100.2150 3.535
			21' / 45'	
		5.345		
BM		105.3230	5.24	5.2433
		8.645	5.145	100.2150 3.402
			20' / 44'	
		5.09		
BM		105.3230	4.99	4.9983
		8.645	4.885	100.2150 3.647
			20.5' / 48.5'	
*BENCH SET-UP				
	5.12	105.347	5.475	
MF	5.32	5.02	105.3367	5.360
	4.92		8.667	5.240
	20' / 64.5'		23.5' / 88'	99.974
*END LEVEL CAMP				

N.T. AVERY	Pg. 39
T: J. HOFF	
FORESIGHT (-)	
DESCRIPTION	
GROUND SHOT N. OF WELL CASING & SLABS	
MEASURING POINT @ N EDGE OF PVC OPENING	
MEASURING POINT (NORTH EDGE OF METAL CASING)	
BACK @ STARTING POINT (SITE BM)	
Check In = -0.012'	



The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.3

1 National Geodetic Survey, Retrieval Date = JUNE 17, 2019

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AD2569 *****
AD2569 TIDAL BM - This is a Tidal Bench Mark.
AD2569 DESIGNATION - P 235
AD2569 PID - AD2569
AD2569 STATE/COUNTY- FL/BROWARD
AD2569 COUNTRY - US
AD2569 USGS QUAD - FORT LAUDERDALE NORTH (1995)
AD2569
AD2569 *CURRENT SURVEY CONTROL
AD2569
AD2569* NAD 83(2011) POSITION- 26 08 13.89852(N) 080 08 18.76241(W) ADJUSTED
AD2569* NAD 83(2011) ELLIP HT- -23.854 (meters) (06/27/12) ADJUSTED
AD2569* NAD 83(2011) EPOCH - 2010.00
AD2569* NAVD 88 ORTHO HEIGHT - 1.833 (meters) 6.01 (feet) ADJUSTED
AD2569
AD2569 GEOID HEIGHT - -25.707 (meters) GEOID12B
AD2569 NAD 83(2011) X - 981,291.333 (meters) COMP
AD2569 NAD 83(2011) Y - -5,644,965.181 (meters) COMP
AD2569 NAD 83(2011) Z - 2,792,704.754 (meters) COMP
AD2569 LAPLACE CORR - -3.10 (seconds) DEFLEC12B
AD2569 DYNAMIC HEIGHT - 1.830 (meters) 6.00 (feet) COMP
AD2569 MODELED GRAVITY - 979,060.0 (mgal) NAVD 88
AD2569
AD2569 VERT ORDER - FIRST CLASS I
AD2569
AD2569 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AD2569 Standards:
AD2569 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AD2569 Horiz Ellip SD_N SD_E SD_h (unitless)
AD2569 -----
AD2569 NETWORK 1.48 2.45 0.61 0.60 1.25 -0.00822604
AD2569 -----
AD2569 Click here for local accuracies and other accuracy information.
AD2569
AD2569
AD2569 The horizontal coordinates were established by GPS observations
AD2569 and adjusted by the National Geodetic Survey in June 2012.
AD2569
AD2569 NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AD2569 been affixed to the stable North American tectonic plate. See
AD2569 NA2011 for more information.
AD2569
AD2569 The horizontal coordinates are valid at the epoch date displayed above
AD2569 which is a decimal equivalence of Year/Month/Day.
AD2569
AD2569 The orthometric height was determined by differential leveling and
AD2569 adjusted by the NATIONAL GEODETIC SURVEY
AD2569 in May 1994.
AD2569
AD2569 Significant digits in the geoid height do not necessarily reflect accuracy.
AD2569 GEOID12B height accuracy estimate available here.
AD2569
    
```

"P 235" Benchmark Datasheet (2 of 4)

AD2569.This Tidal Bench Mark is designated as VM 19048
 AD2569.by the [CENTER FOR OPERATIONAL OCEANOGRAPHIC PRODUCTS AND SERVICES](#).
 AD2569
 AD2569.[Photographs](#) are available for this station.
 AD2569
 AD2569.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AD2569
 AD2569.The Laplace correction was computed from DEFLEC12B derived deflections.
 AD2569
 AD2569.The ellipsoidal height was determined by GPS observations
 AD2569.and is referenced to NAD 83.
 AD2569
 AD2569.The dynamic height is computed by dividing the NAVD 88
 AD2569.geopotential number by the normal gravity value computed on the
 AD2569.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AD2569.degrees latitude (g = 980.6199 gals.).
 AD2569
 AD2569.The modeled gravity was interpolated from observed gravity values.
 AD2569
 AD2569. The following values were computed from the NAD 83(2011) position.
 AD2569
 AD2569;

	North	East	Units	Scale Factor	Converg.
AD2569;SPC FL E	- 200,098.842	286,143.401	MT	1.00003277	+0 22 46.2
AD2569;SPC FL E	- 656,490.95	938,788.81	sFT	1.00003277	+0 22 46.2
AD2569;UTM 17	- 2,891,162.550	586,114.009	MT	0.99969156	+0 22 46.2

AD2569
 AD2569!
 AD2569!SPC FL E - Elev Factor x Scale Factor = Combined Factor
 AD2569!SPC FL E - 1.00000375 x 1.00003277 = 1.00003652
 AD2569!UTM 17 - 1.00000375 x 0.99969156 = 0.99969531
 AD2569
 AD2569_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ8611491162(NAD 83)
 AD2569
 AD2569
 AD2569 SUPERSEDED SURVEY CONTROL
 AD2569

AD2569	NAD 83(2007)-	26 08 13.89866(N)	080 08 18.76300(W)	AD(2002.00)	0
AD2569	ELLIP H (02/10/07)	-23.836 (m)		GP(2002.00)	
AD2569	NAD 83(1999)-	26 08 13.89872(N)	080 08 18.76326(W)	AD()	1
AD2569	ELLIP H (12/12/02)	-23.820 (m)		GP()	4 1
AD2569	NAVD 88	1.83 (m)		6.0 (f) LEVELING	3
AD2569	NAVD 88 (06/15/91)	1.846 (m)		6.06 (f) SUPERSEDED	1 1
AD2569	NGVD 29 (??/??/92)	2.327 (m)		7.63 (f) SUPERSEDED	1 1
AD2569	NGVD 29 (09/01/92)	2.319 (m)		7.61 (f) ADJUSTED	1 1

AD2569
 AD2569. Superseded values are not recommended for survey control.
 AD2569
 AD2569.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AD2569. See file [dsdata.pdf](#) to determine how the superseded data were derived.
 AD2569
 AD2569_MARKER: DB = BENCH MARK DISK
 AD2569_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AD2569_STAMPING: P 235 1965
 AD2569_MARK LOGO: CGS
 AD2569_PROJECTION: RECESSED 10 CENTIMETERS
 AD2569_MAGNETIC: N = NO MAGNETIC MATERIAL
 AD2569_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AD2569+STABILITY: SURFACE MOTION
 AD2569_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AD2569+SATELLITE: SATELLITE OBSERVATIONS - April 13, 2017
 AD2569
 AD2569 HISTORY - Date Condition Report By
 AD2569 HISTORY - 1965 MONUMENTED CGS
 AD2569 HISTORY - 1973 GOOD NGS
 AD2569 HISTORY - 1982 GOOD USPSQD

"P 235" Benchmark Datasheet (3 of 4)

AD2569	HISTORY	- 1987	GOOD	USPSQD
AD2569	HISTORY	- 1988	GOOD	USPSQD
AD2569	HISTORY	- 1989	GOOD	USPSQD
AD2569	HISTORY	- 1990	GOOD	USPSQD
AD2569	HISTORY	- 19911231	GOOD	NGS
AD2569	HISTORY	- 20020521	GOOD	MAPTEC
AD2569	HISTORY	- 20061116	GOOD	FLDEP
AD2569	HISTORY	- 20080507	GOOD	FLDT
AD2569	HISTORY	- 20101006	GOOD	FLDT
AD2569	HISTORY	- 20120731	GOOD	FA&MM
AD2569	HISTORY	- 20120731	GOOD	FA&MM
AD2569	HISTORY	- 20120913	GOOD	AMEC
AD2569	HISTORY	- 20141013	GOOD	GEOCAC
AD2569	HISTORY	- 20170413	GOOD	WANTGP

AD2569

AD2569

STATION DESCRIPTION

AD2569

AD2569 DESCRIBED BY COAST AND GEODETIC SURVEY 1965

AD2569 2.8 MI N FROM FORT LAUDERDALE.

AD2569 ABOUT 2.85 MILES NORTH ALONG THE FLORIDA EAST COAST RAILWAY

AD2569 FROM THE STATION AT FORT LAUDERDALE, IN SECTION 3, R 42 E,

AD2569 T 50 S, 0.1 MILE NORTH OF MILEPOST 340, NEAR THE CROSSING OF

AD2569 EAST SUNRISE BLVD, 77 FEET NORTH OF THE CENTER LINE OF EAST

AD2569 SUNRISE BLVD, 29.4 FEET NORTHWEST OF AND ACROSS THE NORTHWEST

AD2569 SIDE TRACK FROM NORTHWEST RAIL OF SOUTHBOUND TRACK, 26 FEET

AD2569 SOUTHEAST OF THE CENTER LINE OF NE 5TH TERRACE, 2.9 FEET WEST

AD2569 OF THE WEST CORNER OF A BATTERY WELL FOR SIGNAL, 1.7 FEET

AD2569 NORTHEAST OF A VERTICAL RAIL IN GROUND PROJECTING 3 FEET ABOVE

AD2569 THE LEVEL OF THE GROUND, 2 FEET SOUTHWEST OF A METAL WITNESS

AD2569 POST, ABOUT LEVEL WITH THE TRACK AND SET IN THE TOP OF A CONCRETE

AD2569 POST PROJECTING 3 INCHES ABOVE THE LEVEL OF THE GROUND.

AD2569

AD2569

STATION RECOVERY (1973)

AD2569

AD2569 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1973

AD2569 RECOVERED IN GOOD CONDITION.

AD2569

AD2569

STATION RECOVERY (1982)

AD2569

AD2569 RECOVERY NOTE BY US POWER SQUADRON 1982

AD2569 CHANGE DESC: MARKER NOW SIX INCHES BELOW NOT THREE INCHES ABOVE

AD2569 GROUND LEVEL AND WITNESS POST MISSING--SHOULD BE SECTION 34 NOT 3.

AD2569

AD2569

STATION RECOVERY (1987)

AD2569

AD2569 RECOVERY NOTE BY US POWER SQUADRON 1987 (JHH)

AD2569 RECOVERED IN GOOD CONDITION.

AD2569

AD2569

STATION RECOVERY (1988)

AD2569

AD2569 RECOVERY NOTE BY US POWER SQUADRON 1988 (JHH)

AD2569 RECOVERED IN GOOD CONDITION.

AD2569

AD2569

STATION RECOVERY (1989)

AD2569

AD2569 RECOVERY NOTE BY US POWER SQUADRON 1989 (JHH)

AD2569 RECOVERED IN GOOD CONDITION.

AD2569

AD2569

STATION RECOVERY (1990)

AD2569

AD2569 RECOVERY NOTE BY US POWER SQUADRON 1990 (JHH)

AD2569 RECOVERED IN GOOD CONDITION.

AD2569

"P 235" Benchmark Datasheet (4 of 4)

AD2569 STATION RECOVERY (1991)
AD2569
AD2569 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1991
AD2569 IN FORT LAUDERDALE, AT THE INTERSECTION OF EAST SUNRISE BOULEVARD AND
AD2569 THE FLORIDA EAST COAST RAILROAD, 11.6 M (38.1 FT) NORTH OF THE CENTER
AD2569 OF THE WESTBOUND LANES OF THE BOULEVARD, 9.0 M (29.5 FT) NORTHWEST OF
AD2569 THE NEAR RAIL, 7.5 M (24.6 FT) SOUTHEAST OF AND LEVEL WITH THE
AD2569 CENTERLINE OF NORTHEAST 5TH TERRACE, 0.9 M (3.0 FT) WEST OF THE WEST
AD2569 CORNER OF A BATTERY WELL, 0.3 M (1.0 FT) SOUTH OF A WITNESS POST, AND
AD2569 THE MONUMENT IS 0.1 M (0.3 FT) BELOW THE GROUND SURFACE.
AD2569
AD2569 STATION RECOVERY (2002)
AD2569
AD2569 RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
AD2569 RECOVERED AS DESCRIBED.
AD2569
AD2569 STATION RECOVERY (2006)
AD2569
AD2569 RECOVERY NOTE BY FL DEPT OF ENV PRO 2006 (JRH)
AD2569 RECOVERED AS DESCRIBED.
AD2569
AD2569 STATION RECOVERY (2008)
AD2569
AD2569 RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 2008 (PED)
AD2569 RECOVERED IN GOOD CONDITION.
AD2569
AD2569 STATION RECOVERY (2010)
AD2569
AD2569 RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 2010 (PED)
AD2569 RECOVERED AS DESCRIBED
AD2569
AD2569 STATION RECOVERY (2012)
AD2569
AD2569 RECOVERY NOTE BY FUGRO AERIAL & MOBILE MAPPING INC 2012 (MRY)
AD2569 RECOVERED IN GOOD CONDITION.
AD2569
AD2569 STATION RECOVERY (2012)
AD2569
AD2569 RECOVERY NOTE BY FUGRO AERIAL & MOBILE MAPPING INC 2012
AD2569 RECOVERED IN GOOD CONDITION.
AD2569
AD2569 STATION RECOVERY (2012)
AD2569
AD2569 RECOVERY NOTE BY AMEC EARTH & ENVIRONMENTAL 2012 (RLE)
AD2569 RECOVERED IN GOOD CONDITION.
AD2569
AD2569 STATION RECOVERY (2014)
AD2569
AD2569 RECOVERY NOTE BY GEOCACHING 2014 (KEN)
AD2569 IT IS 11.6 M (3.5 FT) NORTH OF THE CENTER OF THE WESTBOUND LANES OF
AD2569 THE BOULEVARD, 9.0 M (2.7 FT) NORTHWEST OF THE NEAR RAIL, 7.5 M (2.3
AD2569 FT) SOUTHEAST OF AND LEVEL WITH THE CENTERLINE OF NORTHEAST FIFTH
AD2569 TERRACE AND 2 FT (0.6 M) SOUTHWEST OF A WITNESS POST.
AD2569
AD2569 STATION RECOVERY (2017)
AD2569
AD2569 RECOVERY NOTE BY WANTMAN GROUP INC 2017 (JKA)
AD2569 RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:04

The NGS Data Sheet

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

PROGRAM = datasheet95, VERSION = 8.12.5.3

1 National Geodetic Survey, Retrieval Date = JUNE 17, 2019

AD2568

AD2568 DESIGNATION - S 235

AD2568 PID - AD2568

AD2568 STATE/COUNTY- FL/BROWARD

AD2568 COUNTRY - US

AD2568 USGS QUAD - FORT LAUDERDALE NORTH (1995)

AD2568

*CURRENT SURVEY CONTROL

AD2568

AD2568* NAD 83(1986) POSITION- 26 08 13.44 (N) 080 07 47.16 (W) HD_HELD1

AD2568* [NAVD 88](#) ORTHO HEIGHT - 1.304 (meters) 4.28 (feet) ADJUSTED

AD2568

AD2568 GEOID HEIGHT - -25.735 (meters) GEOID12B

AD2568 DYNAMIC HEIGHT - 1.302 (meters) 4.27 (feet) COMP

AD2568 MODELED GRAVITY - 979,059.7 (mgal) NAVD 88

AD2568

AD2568 VERT ORDER - FIRST CLASS I

AD2568

AD2568 The horizontal coordinates were determined by differentially corrected

AD2568 hand held GPS observations or other comparable positioning techniques

AD2568 and have an estimated accuracy of +/- 3 meters.

AD2568

AD2568 The orthometric height was determined by differential leveling and

AD2568 adjusted by the NATIONAL GEODETIC SURVEY

AD2568 in May 1994.

AD2568

AD2568 Significant digits in the geoid height do not necessarily reflect accuracy.

AD2568 GEOID12B height accuracy estimate available [here](#).

AD2568

AD2568 [Photographs](#) are available for this station.

AD2568

AD2568 The dynamic height is computed by dividing the NAVD 88

AD2568 geopotential number by the normal gravity value computed on the

AD2568 Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AD2568 degrees latitude (g = 980.6199 gals.).

AD2568

AD2568 The modeled gravity was interpolated from observed gravity values.

AD2568

AD2568; North East Units Estimated Accuracy

AD2568; SPC FL E - 200,090.6 287,021.4 MT (+/- 3 meters HH1 GPS)

AD2568

AD2568 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ8699191154(NAD 83)

AD2568

SUPERSEDED SURVEY CONTROL

AD2568

AD2568 NAVD 88 (06/15/91) 1.316 (m) 4.32 (f) SUPERSEDED 1 1

AD2568 NGVD 29 (??/??/92) 1.797 (m) 5.90 (f) SUPERSEDED 1 1

AD2568 NGVD 29 (09/01/92) 1.791 (m) 5.88 (f) ADJUSTED 1 1

AD2568

AD2568 Superseded values are not recommended for survey control.

AD2568

AD2568 NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

"S 235" Benchmark Datasheet (2 of 3)

AD2568 See file [dsdata.pdf](#) to determine how the superseded data were derived.

AD2568

AD2568_MARKER: DB = BENCH MARK DISK

AD2568_SETTING: 31 = SET IN A PAVEMENT SUCH AS STREET, SIDEWALK, CURB, ETC.

AD2568_SP_SET: STORM DRAIN

AD2568_STAMPING: S 235 1965

AD2568_MARK LOGO: CGS

AD2568_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

AD2568_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

AD2568+SATELLITE: SATELLITE OBSERVATIONS - March 14, 2010

AD2568

AD2568	HISTORY	- Date	Condition	Report By
AD2568	HISTORY	- 1965	MONUMENTED	CGS
AD2568	HISTORY	- 1982	GOOD	USPSQD
AD2568	HISTORY	- 1987	GOOD	USPSQD
AD2568	HISTORY	- 1988	GOOD	USPSQD
AD2568	HISTORY	- 1989	GOOD	USPSQD
AD2568	HISTORY	- 1990	GOOD	USPSQD
AD2568	HISTORY	- 19910624	GOOD	USPSQD
AD2568	HISTORY	- 19911231	GOOD	NGS
AD2568	HISTORY	- 20021114	GOOD	USPSQD
AD2568	HISTORY	- 20100314	GOOD	GEOCAC

AD2568

STATION DESCRIPTION

AD2568

AD2568 DESCRIBED BY COAST AND GEODETIC SURVEY 1965

AD2568 3.4 MI NE FROM FORT LAUDERDALE.

AD2568 ABOUT 2.85 MILES NORTH ALONG THE FLORIDA EAST COAST RAILWAY

AD2568 FROM THE STATION AT FORT LAUDERDALE, THENCE 0.55 MILE EAST ALONG

AD2568 SUNRISE BLVD, AT THE INTERSECTION OF NE 14TH AVENUE AND SUNRISE

AD2568 BLVD, SET IN THE TOP OF THE NORTHEAST CORNER OF A 4-BY-3 1/2

AD2568 FOOT CONCRETE BASE FOR A MANHOLE WITH COVER, 74 FEET NORTHEAST

AD2568 OF THE NORTHEAST CORNER OF THE FORT LAUDERDALE PUBLIC LIBRARY,

AD2568 30 FEET WEST OF THE CENTER LINE OF NE 14TH AVENUE, 24 FEET SOUTH

AD2568 OF THE EXTENDED CURB OF SUNRISE BLVD. AND ABOUT LEVEL WITH THE

AD2568 BLVD. IN SECTION 2, R 42 E, T 50 S.

AD2568

STATION RECOVERY (1982)

AD2568

AD2568 RECOVERY NOTE BY US POWER SQUADRON 1982

AD2568 RECOVERED IN GOOD CONDITION.

AD2568

STATION RECOVERY (1987)

AD2568

AD2568 RECOVERY NOTE BY US POWER SQUADRON 1987 (JHH)

AD2568 RECOVERED IN GOOD CONDITION.

AD2568

STATION RECOVERY (1988)

AD2568

AD2568 RECOVERY NOTE BY US POWER SQUADRON 1988 (JHH)

AD2568 RECOVERED IN GOOD CONDITION.

AD2568

STATION RECOVERY (1989)

AD2568

AD2568 RECOVERY NOTE BY US POWER SQUADRON 1989 (JHH)

AD2568 RECOVERED IN GOOD CONDITION.

AD2568

STATION RECOVERY (1990)

AD2568

AD2568 RECOVERY NOTE BY US POWER SQUADRON 1990 (JHH)

AD2568 RECOVERED IN GOOD CONDITION.

AD2568

STATION RECOVERY (1991)

AD2568

The NGS Data Sheet

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

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PROGRAM = datasheet95, VERSION = 8.12.5.2
1      National Geodetic Survey,  Retrieval Date = MAY 20, 2019
D02655 *****
D02655 DESIGNATION - 016
D02655 PID - D02655
D02655 STATE/COUNTY- FL/BROWARD
D02655 COUNTRY - US
D02655 USGS QUAD - POMPANO BEACH (1983)
D02655
D02655 *CURRENT SURVEY CONTROL
D02655
D02655* NAD 83(1986) POSITION- 26 14 34. (N) 080 06 08. (W) SCALED
D02655* NAVD 88 ORTHO HEIGHT - 2.232 (meters) 7.32 (feet) ADJUSTED
D02655
D02655 GEOID HEIGHT - -25.867 (meters) GEOID12B
D02655 DYNAMIC HEIGHT - 2.229 (meters) 7.31 (feet) COMP
D02655 MODELED GRAVITY - 979,071.4 (mgal) NAVD 88
D02655
D02655 VERT ORDER - SECOND CLASS II
D02655
D02655.The horizontal coordinates were scaled from a topographic map and have
D02655.an estimated accuracy of +/- 6 seconds.
D02655.
D02655.The orthometric height was determined by differential leveling and
D02655.adjusted by the NATIONAL GEODETIC SURVEY
D02655.in December 2012.
D02655
D02655.Significant digits in the geoid height do not necessarily reflect accuracy.
D02655.GEOID12B height accuracy estimate available here.
D02655
D02655.Photographs are available for this station.
D02655
D02655.The dynamic height is computed by dividing the NAVD 88
D02655.geopotential number by the normal gravity value computed on the
D02655.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
D02655.degrees latitude (g = 980.6199 gals.).
D02655
D02655.The modeled gravity was interpolated from observed gravity values.
D02655
D02655; North East Units Estimated Accuracy
D02655;SPC FL E - 211,820. 289,700. MT (+/- 180 meters Scaled)
D02655
D02655_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNK896028(NAD 83)
D02655
D02655 SUPERSEDED SURVEY CONTROL
D02655
D02655.No superseded survey control is available for this station.
D02655
D02655_MARKER: DB = BENCH MARK DISK
D02655_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
D02655_STAMPING: 016 2011
D02655_MARK LOGO: FL2570
D02655_PROJECTION: RECESSED 5 CENTIMETERS
D02655_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT
D02655_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
D02655+STABILITY: SURFACE MOTION

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