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SURVEYOR'S REPORT

Specific Purpose Survey of the United States
Geological Survey Well **M 1255**
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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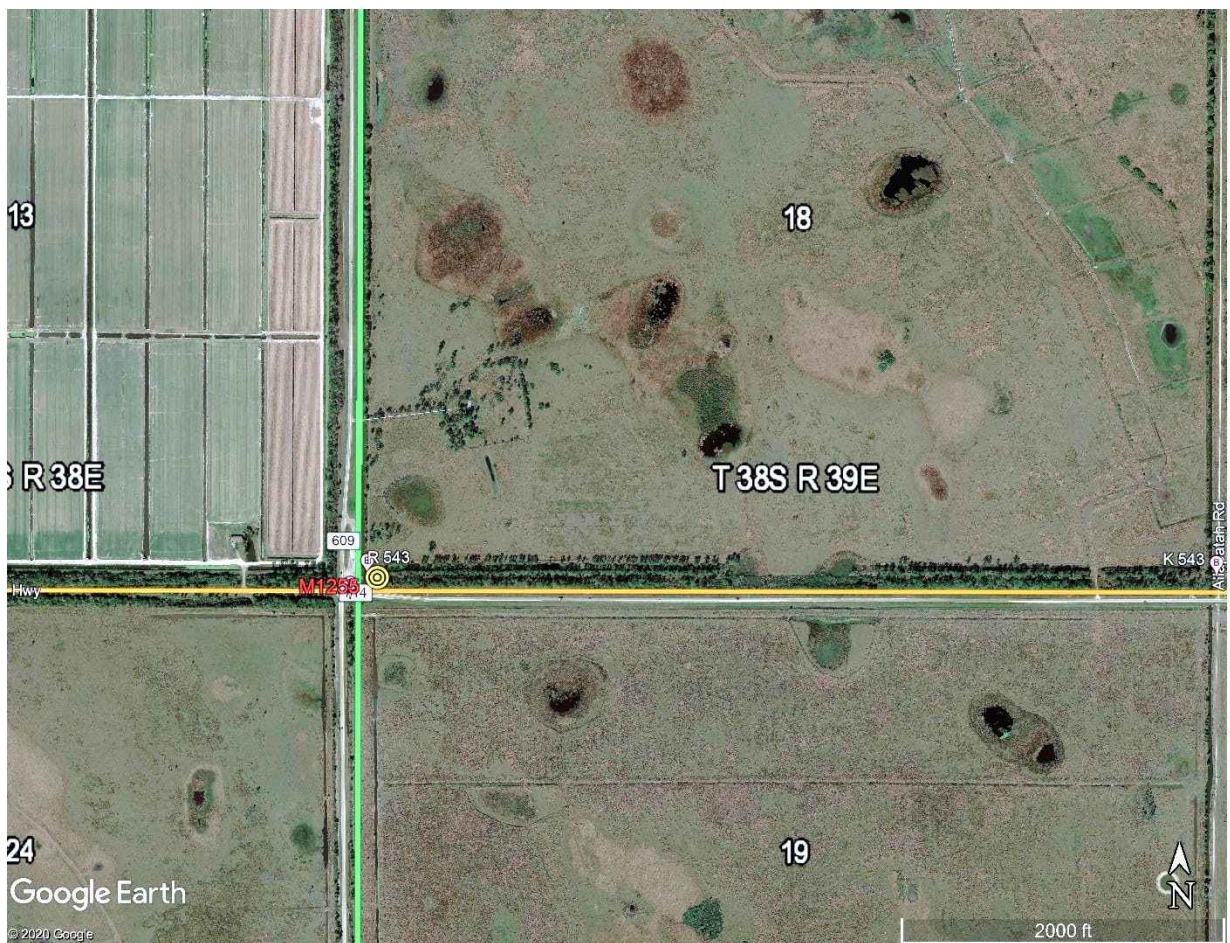
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PURPOSE

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 1255". However this well is 68 feet from an existing NGS Benchmark "R 543" (NGSPID AJ8524) and 219 feet from an existing NGS Benchmark "J 543" (NGSPID AJ8513) it was decided that a new benchmark specifically for this well would not be necessary.

LOCATION OF PROJECT

The United States Geological Survey Well "M 1255" is located in the Section 18, Township 38 South, Range 39 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-1255 add 1.421**. 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) per executed SOW for 4600003703 WO07.

Leveling was run from National Geodetic Survey (NGS) monument "R 543" (NGSPID AJ8524) to the well measuring point and closing on National Geodetic Survey (NGS) monument "J 543" (NGSPID AJ8513) using a Leica DNA 10 digital level S/N 331745

GPS METHODS

Since a new benchmark was not established, there was not need for the OPUS session. Latitude and Longitude were taken directly from the NGS Datasheets available from the NGS website.

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 1.421 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: February 4, 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 17-19

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.

February 4, 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.





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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U.S.G.S. Station Name: M 1255	U.S.G.S. Station Number: 270913080284901	Agency: GCY, INC.	Date of Field Work: 2/4/2020
Party Chief: LAPOLLA	Field Book: GCY 1862	Page(s): 17-19	Report Prepared by: ANDERSEN

SITE SPECIFIC DATA

Site Benchmark: R 543	Benchmark Elevation(s) (NAVD88): 27.464	Corpscon 6.0.1 Conversion Factor (NAVD88 to NGVD29) + 1.421	
Well Reference Elevation (NAVD88): 29.658	DTW: 5.28 (02/04/2020 at 9:55 AM)	Ground Elevation (NAVD88): 28.2	Pad Elevation (NAVD88): N/A

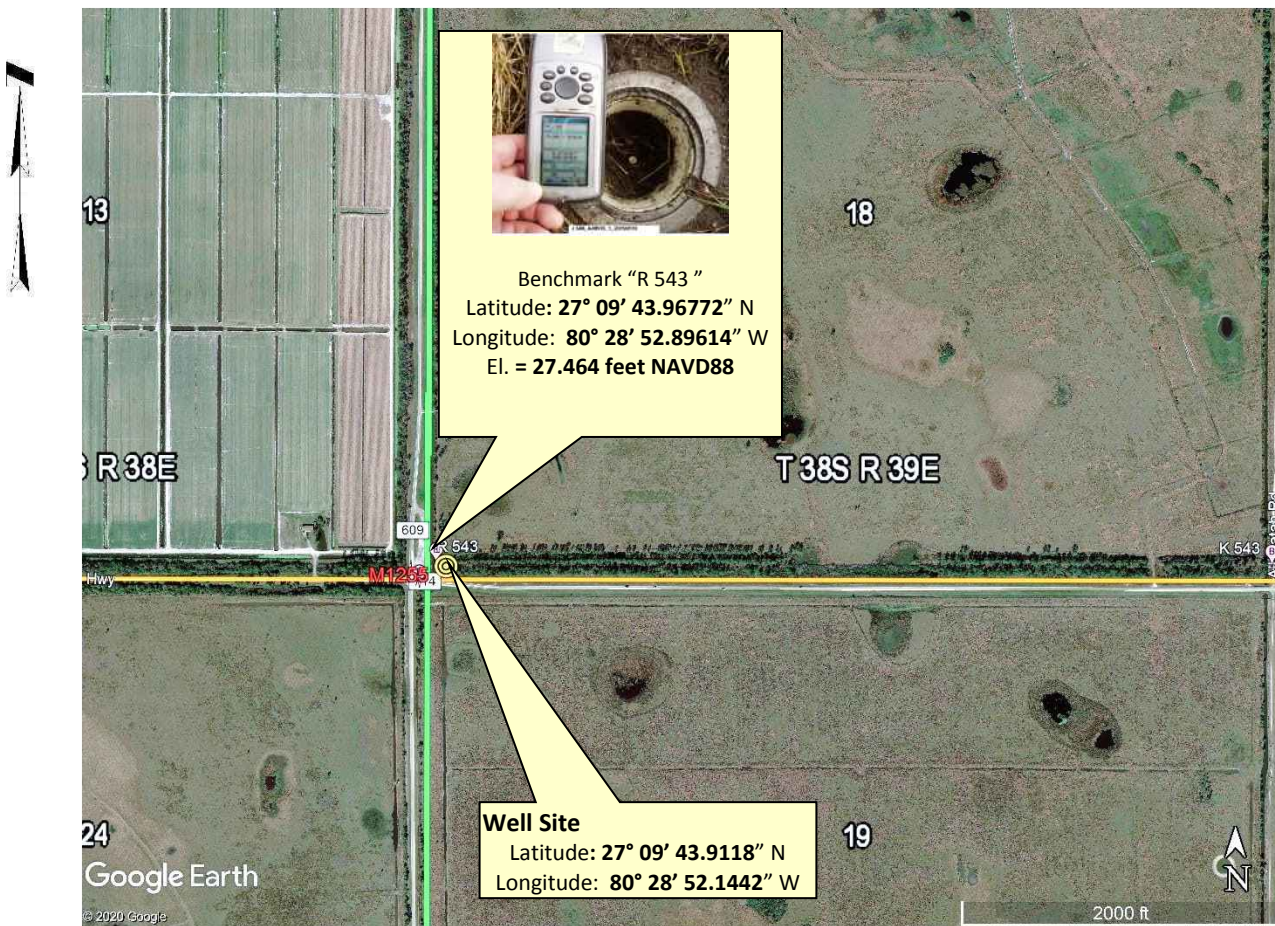
GEOGRAPHIC DATA

Section 18	Township 38 S	Range 39 E
Well Latitude: 27° 09' 43.9118" N	Well Longitude: 80° 28' 52.1442" W	Location Source: RTK GPS
State Plane Coordinates:	Northing (Y) = 1028480.78	Easting (X) = 824872.30

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 1255"
Reference Point: MAGIC MARKER BOX

Reference Point El. = 29.658 feet NAVD88

Distance to Water = 5.28 feet from reference point (02/4/2020 at 9:55 AM)



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New Aluminum Tag





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USGS RMs NONE



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Site Benchmark

Site Benchmark Overall Photo



Site BM:



Latitude: 27° 09' 43.96772" N
Longitude: 80° 28' 52.89614" W
NAVD88 EL = 27.464





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Source Benchmarks



R 543, AJ8524, 2, 20150113

NGS Benchmark "R 543" (AJ8524)



Latitude: 27° 09' 43.96772" N
Longitude: 80° 28' 52.89614" W
NAVD88 EL = 27.464



J 543, AJ8513, 2, 20150113

NGS Benchmark "J 543" (AJ8513)



Latitude: 27° 09' 42.58241" N
Longitude: 80° 28' 54.05973" W
NAVD88 EL = 28.848



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"J 543" Benchmark Datasheet (1 of 4)

4/26/2020

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 26, 2020

```

AJ8513 *****
AJ8513 DESIGNATION - J 543
AJ8513 PID - AJ8513
AJ8513 STATE/COUNTY- FL/MARTIN
AJ8513 COUNTRY - US
AJ8513 USGS QUAD - INDIANTOWN NW (2018)
AJ8513
AJ8513 *CURRENT SURVEY CONTROL
AJ8513
AJ8513 *-----*
AJ8513* NAD 83(2011) POSITION- 27 09 42.58241(N) 080 28 54.05973(W) ADJUSTED
AJ8513* NAD 83(2011) ELLIP HT- -18.230 (meters) (06/27/12) ADJUSTED
AJ8513* NAD 83(2011) EPOCH - 2010.00
AJ8513* NAVD 88 ORTHO HEIGHT - 8.793 (meters) 28.85 (feet) ADJUSTED
AJ8513
AJ8513 GEOID HEIGHT - -27.020 (meters) GEOID18
AJ8513 NAD 83(2011) X - 939,047.438 (meters) COMP
AJ8513 NAD 83(2011) Y - -5,600,526.899 (meters) COMP
AJ8513 NAD 83(2011) Z - 2,894,172.703 (meters) COMP
AJ8513 LAPLACE CORR - -1.58 (seconds) DEFLEC18
AJ8513 DYNAMIC HEIGHT - 8.779 (meters) 28.80 (feet) COMP
AJ8513 MODELED GRAVITY - 979,100.8 (mgal) NAVD 88
AJ8513
AJ8513 VERT ORDER - FIRST CLASS II
AJ8513
AJ8513 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AJ8513 Standards:
AJ8513 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AJ8513 Horiz Ellip SD_N SD_E SD_h (unitless)
AJ8513 -----
AJ8513 NETWORK 0.88 1.41 0.38 0.34 0.72 0.12304496
AJ8513 -----
AJ8513 Click here for local accuracies and other accuracy information.
AJ8513
AJ8513
AJ8513.The horizontal coordinates were established by GPS observations
AJ8513.and adjusted by the National Geodetic Survey in June 2012.
AJ8513
AJ8513.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AJ8513.been affixed to the stable North American tectonic plate. See
AJ8513.NA2011 for more information.
AJ8513
AJ8513.The horizontal coordinates are valid at the epoch date displayed above
AJ8513.which is a decimal equivalence of Year/Month/Day.
AJ8513
AJ8513.The orthometric height was determined by differential leveling and
AJ8513.adjusted by the NATIONAL GEODETIC SURVEY
AJ8513.in May 2002.
AJ8513
AJ8513.Significant digits in the geoid height do not necessarily reflect accuracy.
AJ8513.GEOID18 height accuracy estimate available here.
AJ8513
AJ8513.Click photographs - Photos may exist for this station.
AJ8513

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"J 543" Benchmark Datasheet (2 of 4)

4/26/2020

DATASHEETS

AJ8513.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AJ8513

AJ8513.The Laplace correction was computed from DEFLEC18 derived deflections.

AJ8513

AJ8513.The ellipsoidal height was determined by GPS observations

AJ8513.and is referenced to NAD 83.

AJ8513

AJ8513.The dynamic height is computed by dividing the NAVD 88

AJ8513.geopotential number by the normal gravity value computed on the

AJ8513.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AJ8513.degrees latitude (g = 980.6199 gals.).

AJ8513

AJ8513.The modeled gravity was interpolated from observed gravity values.

AJ8513

AJ8513. The following values were computed from the NAD 83(2011) position.

AJ8513

AJ8513;		North	East	Units	Scale Factor	Converg.
AJ8513;SPC FL E	-	313,440.436	251,369.014	MT	0.99997374	+0 14 11.8
AJ8513;SPC FL E	-	1,028,345.83	824,699.84	sFT	0.99997374	+0 14 11.8
AJ8513;UTM 17	-	3,004,465.473	551,351.487	MT	0.99963255	+0 14 11.8

AJ8513

AJ8513! - Elev Factor x Scale Factor = Combined Factor

AJ8513!SPC FL E - 1.00000286 x 0.99997374 = 0.99997660

AJ8513!UTM 17 - 1.00000286 x 0.99963255 = 0.99963541

AJ8513

AJ8513_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML5135104465(NAD 83)

AJ8513

AJ8513	PID	Reference Object	Distance	Geod. Az
AJ8513				ddmmss.s
AJ8513	AJ8524 R 543		53.332 METERS	03655

AJ8513

AJ8513

SUPERSEDED SURVEY CONTROL

AJ8513

AJ8513 NAD 83(2007)- 27 09 42.58257(N) 080 28 54.06039(W) AD(2002.00) 0

AJ8513 ELLIP H (02/10/07) -18.206 (m) GP(2002.00)

AJ8513 NAD 83(1999)- 27 09 42.58267(N) 080 28 54.06071(W) AD() 1

AJ8513 ELLIP H (12/12/02) -18.209 (m) GP() 4 2

AJ8513 NAVD 88 8.79 (m) 28.8 (f) LEVELING 3

AJ8513

AJ8513.Superseded values are not recommended for survey control.

AJ8513

AJ8513.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AJ8513.See file [dsdata.pdf](#) to determine how the superseded data were derived.

AJ8513

AJ8513_MARKER: F = FLANGE-ENCASED ROD

AJ8513_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AJ8513_STAMPING: J 543 2001 CERP

AJ8513_MARK LOGO: NONE

AJ8513_PROJECTION: RECESSED 5 CENTIMETERS

AJ8513_MAGNETIC: 0 = OTHER; SEE DESCRIPTION

AJ8513_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AJ8513_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AJ8513+SATELLITE: SATELLITE OBSERVATIONS - January 13, 2015

AJ8513_ROD/PIPE-DEPTH: 24.4 meters

AJ8513

AJ8513 HISTORY - Date Condition Report By

AJ8513 HISTORY - 20010912 MONUMENTED FOST

AJ8513 HISTORY - 20020417 GOOD MAPTEC

AJ8513 HISTORY - 20060817 GOOD FLDEP

AJ8513 HISTORY - 20100317 GOOD INDIV

AJ8513 HISTORY - 20150113 GOOD FLDEP

AJ8513

AJ8513 STATION DESCRIPTION



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"J 543" Benchmark Datasheet (3 of 4)

4/26/2020

DATASHEETS

AJ8513

AJ8513'DESCRIBED BY CHARLEY FOSTER AND ASSOCIATES 2001 (JB)
 AJ8513'THE MONUMENT IS LOCATED 22.2 MILES (35.71 KM) SOUTHEAST OF OKEECHOBEE,
 AJ8513'FL. AND 9.6 MILES (15.50 KM)
 AJ8513'NORTH OF INDIANTOWN, FL., SECTION 18, TOWNSHIP 38 SOUTH, RANGE 39
 AJ8513'EAST.
 AJ8513'
 AJ8513'OWNERSHIP IS MARTIN COUNTY RIGHT OF WAY.
 AJ8513'
 AJ8513'TO REACH THE MONUMENT FROM THE JUNCTION OF THE FLORIDA TURNPIKE, STATE
 AJ8513'ROAD 714 AND COUNTY
 AJ8513'ROAD 714 IN PALM CITY, GO WEST ON STATE ROAD 714/COUNTY ROAD 714 11.1
 AJ8513'MILES (17.86 KM) TO THE
 AJ8513'INTERSECTION OF COUNTY ROAD 609 AND STATE ROAD 714/COUNTY ROAD 714.
 AJ8513'THE MONUMENT IS LOCATED IN
 AJ8513'THE SOUTHEAST QUADRANT OF THE INTERSECTION. THE MONUMENT IS 12.2 MILES
 AJ8513'(19.63 KM) EAST OF THE
 AJ8513'JUNCTION OF COUNTY ROAD 714 AND STATE ROAD 710. THE MONUMENT IS 5.9
 AJ8513'MILES (9.50 KM) WEST OF THE
 AJ8513'CENTER OF THE NORTHBOUND LANES BRIDGE OF THE I-95 OVERPASS.
 AJ8513'
 AJ8513'THE MONUMENT IS 43.0 FEET (13.11 M) SOUTH OF THE CENTERLINE OF COUNTY
 AJ8513'ROAD 714, 48.5 FEET (14.78 M)
 AJ8513'EAST OF THE CENTERLINE OF COUNTY ROAD 609, 11.0 FEET (3.35 M) NORTH OF
 AJ8513'THE NORTH TOP OF BANK OF
 AJ8513'THE ROADWAY DITCH AND 11.0 FEET (3.35 M) NORTH OF A CARSONITE WITNESS
 AJ8513'POST. NOTE ACCESS TO THE
 AJ8513'DATUM POINT (THE TOP OF A STAINLESS STEEL ROD) IS HAD THROUGH A 5 INCH
 AJ8513'LOGO CAP. NOTE A MAGNET
 AJ8513'WAS PLACED INSIDE THE PVC PIPE.

AJ8513

STATION RECOVERY (2002)

AJ8513

AJ8513'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
 AJ8513'THE MONUMENT IS LOCATED 22.2 MILES (35.71 KM) SOUTHEAST OF OKEECHOBEE,
 AJ8513'FL. AND 9.6 MILES
 AJ8513'(15.50 KM)
 AJ8513'NORTH OF INDIANTOWN, FL., SECTION 18, TOWNSHIP 38 SOUTH, RANGE 39
 AJ8513'EAST.
 AJ8513'
 AJ8513'OWNERSHIP IS MARTIN COUNTY RIGHT OF WAY.
 AJ8513'
 AJ8513'TO REACH THE MONUMENT FROM THE JUNCTION OF THE FLORIDA TURNPIKE, STATE
 AJ8513'ROAD 714 AND
 AJ8513'COUNTY
 AJ8513'ROAD 714 IN PALM CITY, GO WEST ON STATE ROAD 714/COUNTY ROAD 714 11.1
 AJ8513'MILES (17.86 KM) TO
 AJ8513'THE
 AJ8513'INTERSECTION OF COUNTY ROAD 609 AND STATE ROAD 714/COUNTY ROAD 714.
 AJ8513'THE MONUMENT IS
 AJ8513'LOCATED IN
 AJ8513'THE SOUTHEAST QUADRANT OF THE INTERSECTION. THE MONUMENT IS 12.2 MILES
 AJ8513'(19.63 KM) EAST OF
 AJ8513'THE
 AJ8513'JUNCTION OF COUNTY ROAD 714 AND STATE ROAD 710. THE MONUMENT IS 5.9
 AJ8513'MILES (9.50 KM) WEST
 AJ8513'OF THE
 AJ8513'CENTER OF THE NORTHBOUND LANES BRIDGE OF THE I-95 OVERPASS.
 AJ8513'
 AJ8513'THE MONUMENT IS 43.0 FEET (13.11 M) SOUTH OF THE CENTERLINE OF COUNTY
 AJ8513'ROAD 714, 48.5 FEET
 AJ8513'(14.78 M)
 AJ8513'EAST OF THE CENTERLINE OF COUNTY ROAD 609, 11.0 FEET (3.35 M) NORTH OF
 AJ8513'THE NORTH TOP OF
 AJ8513'BANK OF

https://www.ngs.noaa.gov/cgi-bin/ds_mark.pl?PidBox=AJ8513

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"J 543" Benchmark Datasheet (4 of 4)

4/26/2020

DATASHEETS

AJ8513'THE ROADWAY DITCH AND 11.0 FEET (3.35 M) NORTH OF A CARSONITE WITNESS
AJ8513'POST. NOTE ACCESS
AJ8513'TO THE
AJ8513'DATUM POINT (THE TOP OF A STAINLESS STEEL ROD) IS HAD THROUGH A 5 INCH
AJ8513'LOGO CAP. NOTE A
AJ8513'MAGNET
AJ8513'WAS PLACED INSIDE THE PVC PIPE.
AJ8513'
AJ8513'STATION RECOVERY (2002)
AJ8513'RECOVERY NOTE BY MAPTECH, INCORPORATED 2002 (CDP)
AJ8513'RECOVERED AS DESCRIBED.
AJ8513
AJ8513 STATION RECOVERY (2006)
AJ8513
AJ8513'RECOVERY NOTE BY FL DEPT OF ENV PRO 2006 (BPJ)
AJ8513'RECOVERED IN GOOD CONDITION.
AJ8513'
AJ8513'NOTE THE MARK WAS NOT LEVELED TO.
AJ8513
AJ8513 STATION RECOVERY (2010)
AJ8513
AJ8513'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2010 (BJS)
AJ8513'RECOVERED IN GOOD CONDITION.
AJ8513
AJ8513 STATION RECOVERY (2015)
AJ8513
AJ8513'RECOVERY NOTE BY FL DEPT OF ENV PRO 2015 (BPJ)
AJ8513'RECOVERED AS DESCRIBED.

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

https://www.ngs.noaa.gov/cgi-bin/ds_mark.pr?PidBox=AJ8513

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"R 543" Benchmark Datasheet (1 of 4)

4/26/2020

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 26, 2020

```

AJ8524 *****
AJ8524 DESIGNATION - R 543
AJ8524 PID - AJ8524
AJ8524 STATE/COUNTY- FL/MARTIN
AJ8524 COUNTRY - US
AJ8524 USGS QUAD - INDIANTOWN NW (2018)
AJ8524
AJ8524 *CURRENT SURVEY CONTROL
AJ8524
AJ8524* NAD 83(2011) POSITION- 27 09 43.96772(N) 080 28 52.89614(W) ADJUSTED
AJ8524* NAD 83(2011) ELLIP HT- -18.652 (meters) (06/27/12) ADJUSTED
AJ8524* NAD 83(2011) EPOCH - 2010.00
AJ8524* NAVD 88 ORTHO HEIGHT - 8.371 (meters) 27.46 (feet) ADJUSTED
AJ8524
AJ8524 GEOID HEIGHT - -27.022 (meters) GEOID18
AJ8524 NAD 83(2011) X - 939,075.751 (meters) COMP
AJ8524 NAD 83(2011) Y - -5,600,502.034 (meters) COMP
AJ8524 NAD 83(2011) Z - 2,894,210.447 (meters) COMP
AJ8524 LAPLACE CORR - -1.58 (seconds) DEFLEC18
AJ8524 DYNAMIC HEIGHT - 8.358 (meters) 27.42 (feet) COMP
AJ8524 MODELED GRAVITY - 979,100.9 (ngal) NAVD 88
AJ8524
AJ8524 VERT ORDER - FIRST CLASS II
AJ8524
AJ8524 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AJ8524 Standards:
AJ8524 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AJ8524 Horiz Ellip SD_N SD_E SD_h (unitless)
AJ8524 -----
AJ8524 NETWORK 0.51 1.08 0.22 0.20 0.55 -0.04702744
AJ8524 -----
AJ8524 Click here for local accuracies and other accuracy information.
AJ8524
AJ8524
AJ8524.The horizontal coordinates were established by GPS observations
AJ8524.and adjusted by the National Geodetic Survey in June 2012.
AJ8524
AJ8524.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AJ8524.been affixed to the stable North American tectonic plate. See
AJ8524.NA2011 for more information.
AJ8524
AJ8524.The horizontal coordinates are valid at the epoch date displayed above
AJ8524.which is a decimal equivalence of Year/Month/Day.
AJ8524
AJ8524.The orthometric height was determined by differential leveling and
AJ8524.adjusted by the NATIONAL GEODETIC SURVEY
AJ8524.in May 2002.
AJ8524
AJ8524.Significant digits in the geoid height do not necessarily reflect accuracy.
AJ8524.GEOID18 height accuracy estimate available here.
AJ8524
AJ8524.Click photographs - Photos may exist for this station.
AJ8524

```

https://www.ngs.noaa.gov/cgi-bin/ds_mark.pl?PidBox=AJ8524

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"R 543 " Benchmark Datasheet (2 of 4)

4/26/2020

DATASHEETS

AJ8524.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AJ8524

AJ8524.The Laplace correction was computed from DEFLEC18 derived deflections.

AJ8524

AJ8524.The ellipsoidal height was determined by GPS observations

AJ8524.and is referenced to NAD 83.

AJ8524

AJ8524.The dynamic height is computed by dividing the NAVD 88

AJ8524.geopotential number by the normal gravity value computed on the

AJ8524.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AJ8524.degrees latitude (g = 980.6199 gals.).

AJ8524

AJ8524.The modeled gravity was interpolated from observed gravity values.

AJ8524

AJ8524. The following values were computed from the NAD 83(2011) position.

AJ8524

AJ8524;		North	East	Units	Scale Factor	Converg.
AJ8524;SPC FL E	-	313,483.206	251,400.872	MT	0.99997378	+0 14 12.4
AJ8524;SPC FL E	-	1,028,486.15	824,804.36	sFT	0.99997378	+0 14 12.4
AJ8524;UTM 17	-	3,004,508.228	551,383.334	MT	0.99963259	+0 14 12.4

AJ8524

AJ8524! - Elev Factor x Scale Factor = Combined Factor

AJ8524 SPC FL E - 1.00000293 x 0.99997378 = 0.99997671

AJ8524! UTM 17 - 1.00000293 x 0.99963259 = 0.99963552

AJ8524

AJ8524 U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNL5138304508(NAD 83)

AJ8524

AJ8524	PID	Reference Object	Distance	Geod. Az
AJ8524				ddmmss.s
AJ8524	AJ8513 J 543		53.332 METERS	21655

AJ8524

AJ8524

SUPERSEDED SURVEY CONTROL

AJ8524

AJ8524	NAD 83(2007)-	27 09 43.96788(N)	080 28 52.89680(W)	AD(2002.00)	0
AJ8524	ELLIP H (02/10/07)	-18.629 (m)		GP(2002.00)	
AJ8524	NAD 83(1999)-	27 09 43.96798(N)	080 28 52.89710(W)	AD()	A
AJ8524	ELLIP H (12/09/02)	-18.632 (m)		GP()	4 1
AJ8524	NAVD 88	8.37 (m)	27.5 (f)	LEVELING	3

AJ8524

AJ8524.Superseded values are not recommended for survey control.

AJ8524

AJ8524.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AJ8524.See file [dsdata.pdf](#) to determine how the superseded data were derived.

AJ8524

AJ8524_MARKER: F = FLANGE-ENCASED ROD

AJ8524_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AJ8524_STAMPING: R 543 2001 CERP

AJ8524_MARK LOGO: NONE

AJ8524_PROJECTION: RECESSED 5 CENTIMETERS

AJ8524_MAGNETIC: 0 = OTHER; SEE DESCRIPTION

AJ8524_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AJ8524_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AJ8524+SATELLITE: SATELLITE OBSERVATIONS - January 13, 2015

AJ8524_ROD/PIPE-DEPTH: 24.4 meters

AJ8524

AJ8524	HISTORY	- Date	Condition	Report By
AJ8524	HISTORY	- 20010917	MONUMENTED	FOST
AJ8524	HISTORY	- 20020425	GOOD	MAPTEC
AJ8524	HISTORY	- 20021204	GOOD	MAPTEC
AJ8524	HISTORY	- 20021204	GOOD	MAPTEC
AJ8524	HISTORY	- 20041024	GOOD	FLDEP
AJ8524	HISTORY	- 20060817	GOOD	FLDEP
AJ8524	HISTORY	- 20071101	GOOD	GCT



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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"R 543" Benchmark Datasheet (3 of 4)

4/26/2020

DATASHEETS

AJ8524 HISTORY - 20090828 GOOD DEGROV
 AJ8524 HISTORY - 20150113 GOOD FLDEP

AJ8524

AJ8524

STATION DESCRIPTION

AJ8524

AJ8524'DESCRIBED BY CHARLEY FOSTER AND ASSOCIATES 2001 (JB)
 AJ8524'THE MONUMENT IS LOCATED 10.1 MILES (16.25 KM) NORTH OF INDIANTOWN, FL.
 AJ8524'AND 14.0 MILES (22.53 KM) WEST
 AJ8524'OF PALM CITY, FL., SECTION 18, TOWNSHIP 38 SOUTH, RANGE 39 EAST.
 AJ8524'
 AJ8524'OWNERSHIP IS MARTIN COUNTY RIGHT OF WAY.

AJ8524'

AJ8524'THE MONUMENT IS IN THE NORTHEAST QUADRANT OF THE INTERSECTION. TO
 AJ8524'REACH THE MONUMENT FROM
 AJ8524'THE INTERSECTION OF COUNTY ROAD 714 AND COUNTY ROAD 609, 11.1 MILES
 AJ8524'(17.86 KM) WEST OF THE JUNCTION
 AJ8524'OF THE FLORIDA TURNPIKE, STATE ROAD 714 AND COUNTY ROAD 714 IN PALM
 AJ8524'CITY FL., GO EAST ON COUNTY
 AJ8524'ROAD 714 FOR APPROXIMATELY 100 FEET (30.48 M) THEN TURN NORTH ON DIRT
 AJ8524'ROAD. MONUMENT IS LOCATED
 AJ8524'ON THE LEFT (WEST) BY SOUTHEAST FENCE CORNER POST.

AJ8524'

AJ8524'THE MONUMENT IS 4.8 FEET (1.46 M) SOUTH OF FENCE CORNER POST, 101.0
 AJ8524'FEET 30.78 M) NORTH OF
 AJ8524'CENTERLINE OF COUNTY ROAD 714, 81.0 FEET (24.69 M) WEST OF THE CENTER
 AJ8524'OF A DIRT ROAD AND 4.0 FEET
 AJ8524'(1.22 M) SOUTH OF CARSONITE WITNESS POST. NOTE ACCESS TO THE DATUM
 AJ8524'POINT (TOP OF A STAINLESS
 AJ8524'STEEL ROD) IS HAD THROUGH A 5 INCH LOGO CAP. NOTE A MAGNET WAS PLACED
 AJ8524'INSIDE THE PVC PIPE.

AJ8524

AJ8524

STATION RECOVERY (2002)

AJ8524

AJ8524'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (CDP)
 AJ8524'THE MONUMENT WAS RECOVERED AS DESCRIBED IN L26245.

AJ8524'

AJ8524'STATION RECOVERY (2002)
 AJ8524'RECOVERY NOTE BY MAPTECH, INCORPORATED 2002 (CDP)
 AJ8524'RECOVERED AS DESCRIBED.

AJ8524

AJ8524

STATION RECOVERY (2002)

AJ8524

AJ8524'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (JB)
 AJ8524'RECOVERED AS DESCRIBED WITH FOLLOWING CHANGE

AJ8524'

AJ8524'AT HIGHWAY 714 AT HIGHWAY 609. TAKE I 95 AND HIGHWAY 714 (EXIT 62)
 AJ8524'PROCEED WEST ON
 AJ8524'HIGHWAY 714 FOR 5.3 MILES TO STATION ON RIGHT.

AJ8524

AJ8524

STATION RECOVERY (2002)

AJ8524

AJ8524'RECOVERY NOTE BY MAPTECH INCORPORATED 2002
 AJ8524'RECOVERY NOTE BY CREECH ENGINEERS, INCORPORATED. - MELBOURNE 2006
 AJ8524'(DTB) RECOVERED AS DESCRIBED.

AJ8524

AJ8524

STATION RECOVERY (2004)

AJ8524

AJ8524'RECOVERY NOTE BY FL DEPT OF ENV PRO 2004 (JLM)
 AJ8524'RECOVERED AS DESCRIBED.

AJ8524

AJ8524

STATION RECOVERY (2006)

AJ8524

AJ8524'RECOVERY NOTE BY FL DEPT OF ENV PRO 2006 (BPJ)
 AJ8524'RECOVERED IN GOOD CONDITION.

AJ8524'



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"R 543" Benchmark Datasheet (4 of 4)

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DATASHEETS

AJ8524'NOTE THE MARK WAS NOT LEVELED TO.

AJ8524

AJ8524

STATION RECOVERY (2007)

AJ8524

AJ8524'RECOVERY NOTE BY GUSTIN, COTHERN, AND TUCKER, I 2007 (HWW)

AJ8524'RECOVERED IN GOOD CONDITION.

AJ8524

AJ8524

STATION RECOVERY (2009)

AJ8524

AJ8524'RECOVERY NOTE BY DEGROVE SURVEYORS INCORPORATED 2009 (RLT)

AJ8524'RECOVERED IN GOOD CONDITION.

AJ8524

AJ8524

STATION RECOVERY (2015)

AJ8524

AJ8524'RECOVERY NOTE BY FL DEPT OF ENV PRO 2015 (BPJ)

AJ8524'RECOVERED AS DESCRIBED.

*** retrieval complete.

Elapsed Time = 00:00:03



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Field Notes (1 of 3)

714-609				18-1020-07-02				1862 17			
SFWMD USDD / PH3 WELLS				18-1020-07-02				1862 17			
BENCH RUN FOR NEW "M.P." @				60° Sunny				2.4.20 TUES			
WELL M1255 (NAVD88)				LEICA DINA10				M. LAPOLLA PC			
PEG TEST:				FILE: SFWMD WELLS				B. GORMAN TR			
COLL. ERR. OLD = 5.9"				LINE: M1255							
DIFF = -4.3"				COLL. ERR. NEW = 1.6"							
RETCLE: 4.392'											
STA	TOTAL DIST	G.D. HT.	ADJ	DESC							
R543	0	27.463'		NGS BM R 543 PID: A18524							
				LISTED NAVD88 = 27.463'							
1	100.06'	29.658'		WELL M1255 "MEASUREMENT POINT" USED							
				OLD USGS MAGIC MARKER BOX, ON TOP OF							
				PLYWOOD @ WELL OPENING. BM 1862.17A							
J543	321.44'	28.847'		NGS BM J543 PID: A18513							
				LISTED NAVD88 EL = 28.848'							
				FIELD = 28.847'							
				ERR = -0.001							
				DIST IN MILES = 0.06							
				MIS @ 0.02 PER MILE = .005							
				* END RUN *							
				J543 28.848'							



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Field Notes (2 of 3)

7/14/69					1862 18	
SFWMD-USGS / PI23 WELLS					18-1020-07-02	
BENCH RUN FOR "NG" SHOT @					65° SUNNY	
WELL M1255 (NAVD88)					2.4. LOTYES	
					M. LaPolla PC	
					B. Goldman R	
STA	+	Hr	-	EL	NOT	DESC
R 543	5.757			27.463'		NBS BM R 543 LISTED EL= 27.463'
	5.502					
	5.248					
	(5.502)	32.965'				
5.9.1			4.74	28.225'		NG @ WELL M1255
			3.56			
			3.303			
			3.049			
"M.P."			(3.304)	29.661'		MEASURING POINT @ WELL M1255
						LISTED NAVD88= 29.658'
						Err: +0.003
						* END RUN *



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Field Notes (3 of 3)

7/4/2019		18-1026-07-02	
SFWMD - USDA / PWS WELLS		1862 19	
WELL M1255 DATA (NOV08)		105° Summit	
WELL DIAMETER = 4" PVC		J.L. LOTYES	
PICTURES 100-0920 & 100-0921		M. La Polla PC	
D.T.W. = 5.28'		B. Gorman	
TIME: 9:55 AM		PICTURES:	
DATE: 02/04/2020		WELL:	
MEASUREMENT POINT = 29.658'		100-0922 Looking NORTH	
TOP OF WATER EL = 24.378'		100-0923 "	
WELL CASING HEAD:		100-0924 BRASS TAG	
ALUMI. BOX W/ HINGED LTD		100-0925 "	
(L) 2.69' x (W) 1.80' x (H) 1.30'		100-0926 Box	
GPS: FILL: SFWMD USGS PWS WELLS 1862		100-0927	
10004 WELL "M1255" (Alum. Box Same Size)		100-0928	
N: 1028480.775		100-0929	
E: 824872.298		100-0930 Looking SW	
		NGS BM R543	
		100-0931	
		100-0932	
		100-0933	
		100-0934	

*410234+00000000?.....1
*110235+000000000000R543 83..51+0000000000027463
*110236+000000000000R543 32...1+0000000000050567 331.21+0000000000005413
390...+0000000000000005 391.21+0000000000000000
*110237+0000000000000001 32...1+0000000000049493 332.21+0000000000003218
390...+0000000000000005 391.21+0000000000000000
*110238+0000000000000001 573..1+000000000001074 574..1+000000000010060
83..21+0000000000029658
*110239+0000000000000001 32...1+0000000000108813 331.21+000000000005125
390...+0000000000000005 391.21+0000000000000000
*110240+000000000000J543 32...1+0000000000112570 332.21+000000000005936
390...+0000000000000005 391.21+0000000000000000
*110241+000000000000J543 573..1-000000000002683 574..1+0000000000321443
83..21+0000000000028847

Palm City

26 April 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

R 543 - M-1255

1/2

Northing/Y: 1028486.15
Easting/X: 824804.36
Elevation/Z: 27.464
Convergence: 0 14 12.37265
Scale Factor: 0.999973779
Combined Factor: 0.999976702

Latitude: 27 09 43.96771
Longitude: 80 28 52.89613
Elevation/Z: 28.885

R 543 - M-1255

2/2

Northing/Y: 1028486.15
Easting/X: 824804.36
Elevation/Z: 0
Convergence: 0 14 12.37265
Scale Factor: 0.999973779
Combined Factor: 0.999978016

Latitude: 27 09 43.96771
Longitude: 80 28 52.89613
Elevation/Z: 1.421

Remark: