

Identification Information:

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Citation Information:

Darren Townsend

Cooner & Associates, Inc.

Originator: Darren Townsend(ed.)
Publication_Date: 20050518
Publication_Time: Unknown
Title: S. F. W. M. D. Well MCCARTHUR
Edition: 1
Series_Information:
Publication_Information:
Publication_Place: Not published
Publisher: None
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Larger_Work_Citation:
Citation_Information:
Series_Information:
Publication_Information:

Description:

Abstract:

South Florida Water Management District
Well MCCARTHUR

Purpose:

To establish NAVD 88 and NGVD 29 elevations on a new benchmark at well site from nearby, existing benchmarks.

Supplemental Information:

ACCOMPANYING DIGITAL FILES
MCCARTHUR.GEN , CORPSMET95 FILE
MCCARTHUR.DOC , BENCHMARK RECOVERY FORM
MCCARTHUR.PDF , SCANNED COPIES OF FIELD
NOTES, VERTCON CALCULATIONS (IF APPLICABLE)
AND LEAST SQUARES ADJUSTMENT
MCCARTHUR.PPT , POWER POINT FILES OF WELL
SITE PICTURES

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:
Range_of_Dates/Times:
Beginning_Date: 20050119
Ending_Date: 20050328

Multiple_Dates/Times:

Currentness_Reference: Publication Date

Status:

Progress: Complete
Maintenance_and_Update_Frequency: Unknown

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -081° 12' 23. 93"
East_Bounding_Coordinate: -081° 12' 23. 90"
North_Bounding_Coordinate: +27° 26' 19. 12"
South_Bounding_Coordinate: +27° 26' 18. 18"

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: Record Survey
Theme_Keyword: Well Site

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: SFWMD WELL MCCARTHUR
Place_Keyword: SEC. 14, TWP 35, RGE 31
Place_Keyword: HIGHLANDS COUNTY FL

Stratum:

Temporal:

Access_Constraints: None

Use_Constraints:

The wells have keyed or combination locks.
See point of contact for key or combination.

Point_of_Contact:

Contact_Information:

Contact_Person_Primary:
Contact_Person: Elvie D. Ebanks
Contact_Organization: South Florida Water Management District
Contact_Organization_Primary:

Elvie D. Ebanks

SFWMD

McCarthur.gen

Contact_Position: Professional Surveyor & Mapper

Contact_Address:

Address_Type: mailing and physical address

Address: 3301 Gun Club Road

City: West Palm Beach

State_or_Province: Florida

Postal_Code: 33406

Country: USA

Contact_Voice_Telephone: (561) 753-2400, Ext. 4717

Contact_Electronic_Mail_Address: eebanks@sfwmd.gov

Hours_of_Service: 8:00 am to 5:00 pm EST

Security_Information:

Cross_Reference:

Citation_Information:

Series_Information:

Publication_Information:

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

Equipment Used

The horizontal location of the wells and benchmark was performed using differentially corrected TRIMBLE GPS PATHFINDER PRO XR receiver. The vertical data was collected using a LEICA NA3003 electronic digital level. Coordinates are based on the Florida State Plane Coordinate System, East Zone, NAD 83/99. Elevations are based on NAVD 88.

Logical_Consistency_Report:

Horizontal data was established using differentially corrected GPS signals from U.S. Coast Guard Beacon at Cape Canaveral. Vertical data was established using existing NGS control points C463 and B463.

Completeness_Report:

Project Results

Existing well site scheduled to be replaced. Elevation not taken on well.

Well McCarthur

Lat. +27° 26' 18.18"

Long. -081° 12' 23.93"

N 1128587.12'

E 589141.02'

NEW SITE BENCHMARK

MCAR5 is a standard SFWMD aluminum disk set in top of a class "C" concrete monument, flush with the ground. A magnet was set on the south side of the mark. To reach the mark from the intersection of County Road 621 and US Highway 98, turn left on to US Highway 98, heading Northwest for 0.5 miles to a gate on the right. Go through the gate and follow the dirt road (Blue Hammock Road) for 1.0 mile to the mark on the left. Mark is S 40°E, 14.5' from a large oak tree and N 45°W, 70.0' from a barbed wire fence. Mark is set flush with ground.

Lat. +27° 26' 19.12"

Long. -081° 12' 23.90"

N 1128681.99'

E 589143.53'

53.84' (NAVD 88)

54.99' (NGVD 29) calculated using 1.15' offset value based on

VERTical CONversion (VERTCON) Transformation Program Version 2.10 performed on existing NGS benchmarks B463 and C463.

54.88' (NGVD 29) calculated using 1.04' offset value based

FDEP preliminary elevation for benchmark B463 as shown on SFWMD online Benchmark Database.

54.87' (NGVD 29) calculated using 1.03' offset value based

FDEP preliminary elevation for benchmark C463 as shown on SFWMD online Benchmark Database.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

McCarthur.gen

Horizontal

The horizontal positions of the well and benchmark MCAR5 were established with differentially corrected GPS signals from U.S. Coast Guard Beacon at Cape Canaveral.

Quantitative_Horizontal_Positional_Accuracy_Assessment:

Horizontal_Positional_Accuracy_Value: sub meter

Horizontal_Positional_Accuracy_Explanation: The intended

positional accuracy for this survey is sub meter.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

A level line was run originating on benchmark C463 with an NAVD 88 elevation and running through NEW SITE BECHMARK MCAR5 and terminating on benchmark B463 in accordance with Florida Minimum Technical Standards (Chapter 61G17-6).

Quantitative_Vertical_Positional_Accuracy_Assessment:

Vertical_Positional_Accuracy_Value: 0.013 ft

Vertical_Positional_Accuracy_Explanation: NAVD 88 level run, 0.013

ft closure in 12435.5 ft, max. allowed 0.046 ft (MTS)

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Series_Information:

Publication_Information:

Larger_Work_Citation:

Citation_Information:

Series_Information:

Publication_Information:

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Range_of_Dates/Times:

Multiple_Dates/Times:

Process_Step:

Process_Description:

The horizontal work was performed using a Trimble GPS Pathfinder Pro XR receiver using U.S. Coast Guard beacon at Cape Canaveral. The level line was performed using a Leica NA3003 electronic digital level.

Process_Date: 20050128

Process_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Organization_Primary:

Contact_Address:

Spatial_Data_Organization_Information:

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Planar:

Map_Projection:

Albers_Conical_Equal_Area:

Azimuthal_Equidistant:

Equidistant_Conic:

Equiangular:

General_Vertical_Near-sited_Perspective:

Gnomonic:

Lambert_Azimuthal_Equal_Area:

Lambert_Conformal_Conic:

Mercator:

Modified_Stereographic_for_Alaska:

Miller_Cylindrical:

Oblique_Mercator:

Oblique_Line_Point:

Orthographic:

Polars_Stereographic:

Polyconic:

Robinson:

Sinusoidal:

van_der_Grinten:

Space_Oblique_Mercator_(Landsat):

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 Stereographic:
 Transverse_Mercator:
 van_der_Grinten:
 Grid_Coordinate_System:
 Universal_Transverse_Mercator:
 Transverse_Mercator:
 Universal_Polar_Stereographic:
 Polar_Stereographic:
 State_Plane_Coordinate_System:
 Lambert_Conformal_Conic:
 Transverse_Mercator:
 Oblique_Mercator:
 Oblique_Line_Point:
 Polyconic:
 ARC_Coordinate_System:
 Equi_rectangular:
 Azimuthal_Equidistant:
 Local_Planar:
 Planar_Coordinate_Information:
 Coordinate_Representation:
 Distance_and_Bearing_Representation:
 Local :
 Geodetic_Model :
 Horizontal_Datum_Name: North American Datum of 1983
 Ellipsoid_Name: Geodetic Reference System 80
 Vertical_Coordinate_System_Definition:
 Altitude_System_Definition:
 Depth_System_Definition:
 Entity_and_Attribute_Information:
 Detailed_Description:
 Entity_Type:
 Attribute:
 Attribute_Domain_Values:
 Attribute_Value_Accuracy_Information:
 Overview_Description:
 Distribution_Information:
 Distributor:
 Contact_Information:
 Contact_Person_Primary:
 Contact_Organization_Primary:
 Contact_Address:
 Standard_Order_Process:
 Digital_Form:
 Digital_Transfer_Information:
 Digital_Transfer_Option:
 Online_Option:
 Computer_Contact_Information:
 Network_Address:
 Dialup_Instructions:
 Offline_Option:
 Recording_Capacity:
 Available_Time_Period:
 Time_Period_Information:
 Single_Date/Time:
 Range_of_Dates/Times:
 Multiple_Dates/Times:
 Metadata_Reference_Information:
 Metadata_Date: 20050518
 Metadata_Contact:
 Contact_Information:
 Contact_Person_Primary:
 Contact_Person: Darren Townsend
 Contact_Organization: Cooner & Associates, Inc.
 Contact_Organization_Primary:
 Contact_Position: Project Surveyor
 Contact_Address:
 Address_Type: mailing and physical address
 Address: 5670 Zip Drive
 City: Fort Myers
 State_or_Province: Florida
 Postal_Code: 33905
 Country: USA

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Contact_Voice_Telephone: (239) 277-0722

Contact_Facsimile_Telephone: (239) 277-7179

Contact_Electronic_Mail_Address: darrent@cooner.com

Hours_of_Service: 8:00 am to 5:00 pm EST

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: 19980601

Metadata_Security_Information:

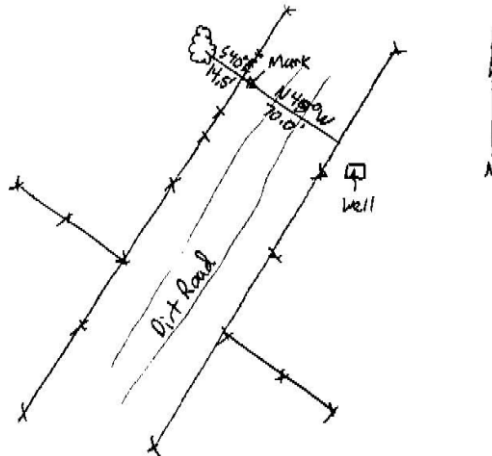


SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY <u>Highlands</u>	PROJECT <u>McArthur</u>	DESIGNATION <u>MCAR 5</u>
SECTION <u>14</u>	TOWNSHIP <u>35S</u>	RANGE <u>31E</u>
GEOGRAPHIC INDEX OF QUAD		
Established by <u>X</u> Recovered by Cooner & Associates, Inc.	NAME OF QUADRANGLE Basinger NW	
SURVEYOR <u>RJE</u> DATE <u>1 / 19 / 2005</u>	FIELD BOOK <u>81</u> PAGE <u>9,10-13</u>	
HORIZONTAL DATUM: 1927 <u>1983</u> Other _____ (circle one) ZONE <u>E</u> or W		
VERTICAL DATUM: MSL 1929 <u>1988</u> Other _____ (circle one)		
CONTROL ACCURACY: HORIZONTAL 1 2 3 <u>Sub-meter</u> (circle one) VERTICAL 1 <u>2</u> 3		
STATE PLANE COORDINATES	X <u>589143.53'</u>	Y <u>1128681.99'</u> EL. <u>53.84'</u>
LATITUDE <u>27° 26' 19.12" N</u>	LONGITUDE <u>081° 12' 23.90" W</u>	
DESCRIPTION SFWMD ALUM. DISK IN CONCRETE STAMPED MCAR5		
To Reach:		
To reach the mark from the intersection of County Road 621 and US Highway 98, turn left on to US Highway 98, heading Northwest for 0.5 miles to a gate on the right. Go through the gate and follow the dirt road (Blue Hammock Road) for 1.0 mile to the mark on the left.		
Notable Land marks:		
Mark is S 40°E, 14.5' from a large oak tree and N 45°W, 70.0' from a barbed wire fence. Mark is set flush with ground.		

SKETCH



The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.11
1      National Geodetic Survey,  Retrieval Date = MARCH  2, 2017
AH8822 *****
AH8822 DESIGNATION - C 463
AH8822 PID - AH8822
AH8822 STATE/COUNTY- FL/HIGHLANDS
AH8822 COUNTRY - US
AH8822 USGS QUAD - BASINGER NW (1972)
AH8822
AH8822 *CURRENT SURVEY CONTROL
AH8822
AH8822* NAD 83(2011) POSITION- 27 25 18.11147(N) 081 12 25.57326(W) ADJUSTED
AH8822* NAD 83(2011) ELLIP HT- -11.084 (meters) (06/27/12) ADJUSTED
AH8822* NAD 83(2011) EPOCH - 2010.00
AH8822* NAVD 88 ORTHO HEIGHT - 14.932 (meters) 48.99 (feet) ADJUSTED
AH8822
AH8822 GEOID HEIGHT - -26.023 (meters) GEOID12B
AH8822 NAD 83(2011) X - 866,048.597 (meters) COMP
AH8822 NAD 83(2011) Y - -5,598,925.034 (meters) COMP
AH8822 NAD 83(2011) Z - 2,919,766.079 (meters) COMP
AH8822 LAPLACE CORR - -1.36 (seconds) DEFLEC12B
AH8822 DYNAMIC HEIGHT - 14.909 (meters) 48.91 (feet) COMP
AH8822 MODELED GRAVITY - 979,126.6 (mgal) NAVD 88
AH8822
AH8822 VERT ORDER - SECOND CLASS I
AH8822
AH8822 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH8822 Standards:
AH8822 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH8822 Horiz Ellip SD_N SD_E SD_h (unitless)
AH8822 -----
AH8822 NETWORK 1.05 1.61 0.44 0.42 0.82 0.03149503
AH8822 -----
AH8822 Click here for local accuracies and other accuracy information.
AH8822
AH8822
AH8822.The horizontal coordinates were established by GPS observations
AH8822.and adjusted by the National Geodetic Survey in June 2012.
AH8822
AH8822.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AH8822.been affixed to the stable North American tectonic plate. See
AH8822.NA2011 for more information.
AH8822
AH8822.The horizontal coordinates are valid at the epoch date displayed above
AH8822.which is a decimal equivalence of Year/Month/Day.
AH8822
AH8822.The orthometric height was determined by differential leveling and
AH8822.adjusted by the NATIONAL GEODETIC SURVEY
AH8822.in July 1999.
AH8822
AH8822.Significant digits in the geoid height do not necessarily reflect accuracy.

```

AH8822.GEOID12B height accuracy estimate available [here](#).

AH8822

AH8822.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AH8822

AH8822.The Laplace correction was computed from DEFLEC12B derived deflections.

AH8822

AH8822.The ellipsoidal height was determined by GPS observations

AH8822.and is referenced to NAD 83.

AH8822

AH8822.The dynamic height is computed by dividing the NAVD 88

AH8822.geopotential number by the normal gravity value computed on the

AH8822.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8822.degrees latitude (g = 980.6199 gals.).

AH8822

AH8822.The modeled gravity was interpolated from observed gravity values.

AH8822

AH8822. The following values were computed from the NAD 83(2011) position.

AH8822

AH8822;		North	East	Units	Scale Factor	Converg.
AH8822;SPC FL E	-	342,145.333	179,522.358	MT	0.99994635	-0 05 43.4
AH8822;SPC FL E	-	1,122,521.81	588,982.94	sFT	0.99994635	-0 05 43.4
AH8822;UTM 17	-	3,033,160.576	479,529.345	MT	0.99960517	-0 05 43.4

AH8822

AH8822! - Elev Factor x Scale Factor = Combined Factor

AH8822!SPC FL E - 1.00000174 x 0.99994635 = 0.99994809

AH8822!UTM 17 - 1.00000174 x 0.99960517 = 0.99960691

AH8822

AH8822_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML7952933160 (NAD 83)

AH8822

SUPERSEDED SURVEY CONTROL

AH8822

AH8822	NAD 83(2007)-	27 25 18.11177(N)	081 12 25.57436(W)	AD(2002.00)	0
AH8822	ELLIP H (02/10/07)	-11.084 (m)		GP(2002.00)	
AH8822	NAD 83(1999)-	27 25 18.11160(N)	081 12 25.57424(W)	AD()	1
AH8822	ELLIP H (05/31/01)	-11.064 (m)		GP()	4 1
AH8822	NAD 83(1990)-	27 25 18.11048(N)	081 12 25.57393(W)	AD()	1
AH8822	ELLIP H (06/01/99)	-11.087 (m)		GP()	4 1
AH8822	NAVD 88	14.97 (m)	49.1 (f)	LEVELING	3

AH8822

AH8822.Superseded values are not recommended for survey control.

AH8822

AH8822.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH8822.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8822

AH8822_MARKER: F = FLANGE-ENCASED ROD

AH8822_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

AH8822_STAMPING: C 463 1997

AH8822_MARK LOGO: NGS

AH8822_PROJECTION: FLUSH

AH8822_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8822_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

AH8822_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8822+SATELLITE: SATELLITE OBSERVATIONS - May 27, 2010

AH8822_ROD/PIPE-DEPTH: 19.0 meters

AH8822

AH8822	HISTORY	- Date	Condition	Report By
AH8822	HISTORY	- 1997	MONUMENTED	FLDEP
AH8822	HISTORY	- 20050119	GOOD	INDIV
AH8822	HISTORY	- 20080418	GOOD	INDIV
AH8822	HISTORY	- 20100527	GOOD	SESMC

AH8822

AH8822

STATION DESCRIPTION

AH8822

AH8822'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8822'THE MARK IS ABOUT 29.7 MI (47.8 KM) NORTHWEST OF OKEECHOBEE, 4.3 MI

AH8822'(6.9 KM) WEST OF THE KISSIMMEE RIVER, 3.3 MI (5.3 KM) SOUTHEAST OF

AH8822'LORIDA IN SECTION 23, TOWNSHIP 35 SOUTH, RANGE 31 EAST. TO REACH THE

AH8822'MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98

AH8822'FOR 3.4 MI (5.5 KM) TO THE JUNCTION OF COUNTY ROAD 621 ON THE RIGHT

AH8822'AND THE MARK ON THE LEFT, A STAINLESS STEEL ROD DRIVEN TO REFUSAL AT A

AH8822'DEPTH OF 62.2 FT (19.0 M) WITH A LOGO CAP FLUSH WITH THE GROUND AND

AH8822'LEVEL WITH U.S. HIGHWAY 98, THE DATUM POINT IS RECESSD 0.3 FT (9.1

AH8822'CM) BELOW THE LEVEL OF THE LOGO CAP. LOCATED 54.0 FT (16.5 M)

AH8822'NORTHEAST OF THE CENTERLINE OF U.S. HIGHWAY 98, 44.6 FT (13.6 M)

AH8822'NORTHWEST OF A POWER POLE WITH 3 GUY WIRES ATTACHED, 1.2 FT (0.4 M)

AH8822'SOUTHWEST OF A CARSONITE WITNESS POST AND BARBWIRE FENCE. NOTE ACCESS

AH8822'TO DATUM POINT IS HAD THROUGH A 5-INCH LOGO CAP.

AH8822

AH8822

STATION RECOVERY (2005)

AH8822

AH8822'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005

AH8822'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

AH8822

AH8822

STATION RECOVERY (2008)

AH8822

AH8822'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2008 (JCR)

AH8822'RECOVERED AS DESCRIBED. RECOVERY NOTE BY SOUTHEASTERN SURVEYING AND

AH8822'MAPPING CORP.

AH8822'

AH8822

AH8822

STATION RECOVERY (2010)

AH8822

AH8822'RECOVERY NOTE BY SOUTHEASTERN SURVEY AND MAPPIN 2010 (JCR)

AH8822'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

The NGS Data Sheet

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

```

PROGRAM = datasheet95, VERSION = 8.11
1      National Geodetic Survey,  Retrieval Date = MARCH  2, 2017
AH8821 *****
AH8821 DESIGNATION - B 463
AH8821 PID - AH8821
AH8821 STATE/COUNTY- FL/HIGHLANDS
AH8821 COUNTRY - US
AH8821 USGS QUAD - BASINGER NW (1972)
AH8821
AH8821 *CURRENT SURVEY CONTROL
AH8821
AH8821* NAD 83(2011) POSITION- 27 25 30.98840(N) 081 12 51.30328(W) ADJUSTED
AH8821* NAD 83(2011) ELLIP HT- -10.005 (meters) (06/27/12) ADJUSTED
AH8821* NAD 83(2011) EPOCH - 2010.00
AH8821* NAVD 88 ORTHO HEIGHT - 16.009 (meters) 52.52 (feet) ADJUSTED
AH8821
AH8821 GEOID HEIGHT - -26.021 (meters) GEOID12B
AH8821 NAD 83(2011) X - 865,322.430 (meters) COMP
AH8821 NAD 83(2011) Y - -5,598,853.563 (meters) COMP
AH8821 NAD 83(2011) Z - 2,920,118.395 (meters) COMP
AH8821 LAPLACE CORR - -1.32 (seconds) DEFLEC12B
AH8821 DYNAMIC HEIGHT - 15.985 (meters) 52.44 (feet) COMP
AH8821 MODELED GRAVITY - 979,126.8 (mgal) NAVD 88
AH8821
AH8821 VERT ORDER - SECOND CLASS I
AH8821
AH8821 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AH8821 Standards:
AH8821 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AH8821 Horiz Ellip SD_N SD_E SD_h (unitless)
AH8821 -----
AH8821 NETWORK 0.94 1.49 0.39 0.38 0.76 0.01012680
AH8821 -----
AH8821 Click here for local accuracies and other accuracy information.
AH8821
AH8821
AH8821.The horizontal coordinates were established by GPS observations
AH8821.and adjusted by the National Geodetic Survey in June 2012.
AH8821
AH8821.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
AH8821.been affixed to the stable North American tectonic plate. See
AH8821.NA2011 for more information.
AH8821
AH8821.The horizontal coordinates are valid at the epoch date displayed above
AH8821.which is a decimal equivalence of Year/Month/Day.
AH8821
AH8821.The orthometric height was determined by differential leveling and
AH8821.adjusted by the NATIONAL GEODETIC SURVEY
AH8821.in July 1999.
AH8821
AH8821.Significant digits in the geoid height do not necessarily reflect accuracy.

```

AH8821.GEOID12B height accuracy estimate available [here](#).

AH8821

AH8821.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AH8821

AH8821.The Laplace correction was computed from DEFLEC12B derived deflections.

AH8821

AH8821.The ellipsoidal height was determined by GPS observations

AH8821.and is referenced to NAD 83.

AH8821

AH8821.The dynamic height is computed by dividing the NAVD 88

AH8821.geopotential number by the normal gravity value computed on the

AH8821.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AH8821.degrees latitude (g = 980.6199 gals.).

AH8821

AH8821.The modeled gravity was interpolated from observed gravity values.

AH8821

AH8821. The following values were computed from the NAD 83(2011) position.

AH8821

AH8821;		North	East	Units	Scale Factor	Converg.
AH8821;SPC FL E	-	342,542.868	178,816.348	MT	0.99994671	-0 05 55.3
AH8821;SPC FL E	-	1,123,826.06	586,666.64	sFT	0.99994671	-0 05 55.3
AH8821;UTM 17	-	3,033,557.975	478,823.575	MT	0.99960554	-0 05 55.3

AH8821

AH8821! - Elev Factor x Scale Factor = Combined Factor

AH8821!SPC FL E - 1.00000157 x 0.99994671 = 0.99994828

AH8821!UTM 17 - 1.00000157 x 0.99960554 = 0.99960711

AH8821

AH8821_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RML7882333557(NAD 83)

AH8821

AH8821 SUPERSEDED SURVEY CONTROL

AH8821

AH8821	NAD 83(2007)-	27 25 30.98866(N)	081 12 51.30435(W)	AD(2002.00)	0
AH8821	ELLIP H (02/10/07)	-10.007 (m)		GP(2002.00)	
AH8821	NAD 83(1999)-	27 25 30.98854(N)	081 12 51.30429(W)	AD()	1
AH8821	ELLIP H (05/31/01)	-9.989 (m)		GP()	4 1
AH8821	NAD 83(1990)-	27 25 30.98740(N)	081 12 51.30392(W)	AD()	1
AH8821	ELLIP H (06/01/99)	-10.016 (m)		GP()	4 1
AH8821	NAVD 88	16.05 (m)	52.7 (f)	LEVELING	3

AH8821

AH8821.Superseded values are not recommended for survey control.

AH8821

AH8821.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AH8821.[See file dsdata.txt](#) to determine how the superseded data were derived.

AH8821

AH8821_MARKER: DD = SURVEY DISK

AH8821_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AH8821_STAMPING: B 463 1997

AH8821_MARK LOGO: FLDEP

AH8821_MAGNETIC: N = NO MAGNETIC MATERIAL

AH8821_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AH8821+STABILITY: SURFACE MOTION

AH8821_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AH8821+SATELLITE: SATELLITE OBSERVATIONS - December 15, 2014

AH8821

AH8821	HISTORY	- Date	Condition	Report By
AH8821	HISTORY	- 1997	MONUMENTED	FLDEP
AH8821	HISTORY	- 20050119	GOOD	INDIV
AH8821	HISTORY	- 20050628	GOOD	MACTEC
AH8821	HISTORY	- 20091118	GOOD	PICKET
AH8821	HISTORY	- 20141215	GOOD	SFLWMD

AH8821

AH8821

STATION DESCRIPTION

AH8821

AH8821'DESCRIBED BY FL DEPT OF ENV PRO 1997 (JLM)

AH8821'THE MARK IS ABOUT 30.2 MI (48.6 KM) NORTHWEST OF OKEECHOBEE, 4.8 MI

AH8821'(7.7 KM) WEST OF THE KISSIMMEE RIVER, 2.8 MI (4.5 KM) SOUTHEAST OF

AH8821'LORIDA IN SECTION 22, TOWNSHIP 35 SOUTH, RANGE 31 EAST. TO REACH THE

AH8821'MARK FROM THE POST OFFICE IN LORIDA, GO SOUTHEAST ON U.S. HIGHWAY 98

AH8821'FOR 2.8 MI (4.5 KM) TO THE MARK ON THE LEFT, SET IN THE TOP OF A ROUND

AH8821'CONCRETE MONUMENT FLUSH WITH THE GROUND AND 0.5 FT (15.2 CM) BELOW THE

AH8821'LEVEL OF U.S. HIGHWAY 98. LOCATED 58.0 FT (17.7 M) SOUTHEAST OF THE

AH8821'APPROXIMATE CENTERLINE OF A DIRT ROAD LEADING NORTHEAST, 52.8 FT (16.1

AH8821'M) NORTHEAST OF THE CENTERLINE OF U.S. HIGHWAY 98, 1.5 FT (0.5 M)

AH8821'SOUTHWEST OF A BARBWIRE FENCE AND 1.4 FT (0.4 M) SOUTHWEST OF A

AH8821'CARSONITE WITNESS POST.

AH8821

AH8821

STATION RECOVERY (2005)

AH8821

AH8821'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005

AH8821'RECOVERED AS DESCRIBED. RECOVERY NOTE BY COONER AND ASSOCIATES, INC.

AH8821

AH8821

STATION RECOVERY (2005)

AH8821

AH8821'RECOVERY NOTE BY MACTEC ENGINEERING AND CONSULTING 2005 (CGB)

AH8821'RECOVERED AS DESCRIBED

AH8821

AH8821

STATION RECOVERY (2009)

AH8821

AH8821'RECOVERY NOTE BY PICKETT AND ASSOCIATES 2009 (JM)

AH8821'RECOVERED IN GOOD CONDITION.

AH8821

AH8821

STATION RECOVERY (2014)

AH8821

AH8821'RECOVERY NOTE BY S FL WATER MGMT DIST 2014

AH8821'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:01

McCarthur



- COONER & ASSOCIATES, INC
 - Date of photo: January 19, 2005
- View: Looking North at BM MCAR5

McCarthur



- COONER & ASSOCIATES, INC
 - Date of photo: January 19, 2005
- View: Looking at top view of BM MCAR5

McCarthur



- COONER & ASSOCIATES, INC
- Date of photo: January 19, 2005
 - View: Looking North at well

020801.03

SFWMD

McArthur

Benchmark Recovery Notes

K463 - Recovered In Good Condition

B463 - Recovered In Good Condition

B463 No. 1 - Recovered In Good Condition, Turned
Through On Level Run

C463 Has NGS PID "AH8822"

B463 Has NGS PID "AH8821"

Sketch For Level Run Is On Page 13, FB81

1/19/05

FB81

P69

Etgeton

Z. Aman

Collins

020801.03		SFWMO McArthur			
+	HE	-	EL	Adj EL	PT#
5.075	60.105	5.045	55.060		11
5.049	60.135	5.403	54.732	54.74'	112
5.923	59.781	5.949	53.832	53.84'	113
4.483	59.755	4.610	55.145		14
4.787	59.628	4.613	55.015		15
4.468	59.802	5.105	54.697		16
4.702	59.165	5.309	53.856		17
5.256	58.558	5.422	53.136		18
5.027	58.392	4.917	53.475		19
4.802	58.502	5.042	53.460		20
	58.262				

1/19/05

FB91

PG11

Etgeton

Z. Amann Collins

Description

TP (600 Nail)

Found 3" Aluminum Disk In ~12" Poured Concrete Monument "SO. FLA WATER MANAGEMENT DIST. 8463 No. 1"

Set 3" Aluminum Disk In ~12" Poured Concrete Monument "SO. FLA. WATER MANAGEMENT DIST, MCAR 5"

TP (600 Nail)

TP (600 Nail)

TP (600 Nail)

TP (600 Nail)

TP (600 Nail)

TP (600 Nail)

TP (600 Nail)

020801.03		SFWMO McArthur			
HI=58.262					
+	HI	-	EL	Adj EL	PT#
4.783		5.304	52.958		21
	57.741				
5.167		4.567	53.174		22
	58.338				
		5.831	52.507	52.52'	23 123
			(Posted 52.52)		

LINE LENGTH = 12435.5'

$$\text{ALLOWABLE MISCLOSURE} = 0.03 \sqrt{12435.5/5280}$$

$$= +/- 0.046$$

ACTUAL MISCLOSURE = -0.013'

1/19/05
FB81
Pg 12
Etgeon
Z. Aman Collins

Description
TP (60D Nail)
TP (60D Nail)

Found 3" Brass Disk In ~12" Concrete Monument
" FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
8463 1997 "

020801.03

SFWMD
McArthur

A-Well site

N: 1128587.12'

E: 589141.02'

EL.

B-Set 3" Aluminum Disk In ~12" Poured Concrete Monument
"SO. FLA. WATER MANAGEMENT DIST. BM MCARS"

N: 1128681.99'

E: 589143.53'

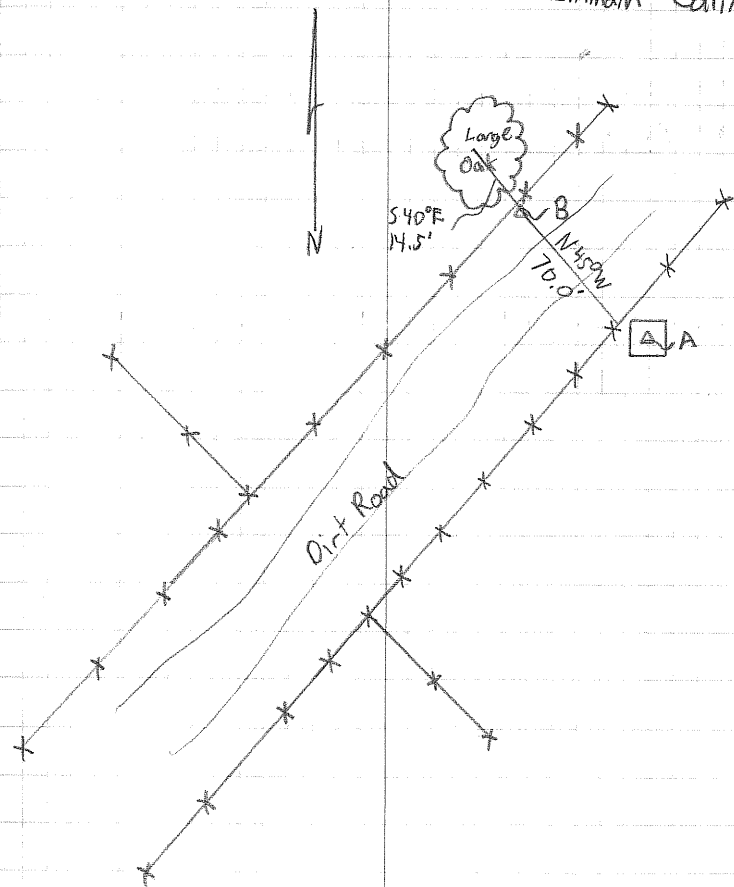
EL.

1/19/05

F081

PG-13

Etgeton
Z. Amann Collins



020801.03

SFWMD

McArthur (Well Elevation)

+	HI	-	EL	ADJ EL	PT#
---	----	---	----	--------	-----

* Well could not be elevated as it is scheduled
to be replaced

3/28/05

FB 86

PGS 1

Etgeton
Collins

Description

MCCARTHUR . RAW

410089+?.....1
110090+00000100 83..11+00048990
110091+00000100 32..01+00209390 331107+00055935 52..07+0003+004
110092+00000001 32..01+00257430 332107+00044110 52..07+0003+003
110093+00000001 573..1-00048050 574..1+00466820 83..01+00050173
110094+00000001 32..01+00265640 331107+00052774 52..07+0003+079
110095+00000002 32..01+00276330 332107+00048934 52..07+0003+004
110096+00000002 573..1-00058730 574..1+01008790 83..01+00050557
110097+00000002 32..01+00286760 331107+00051206 52..07+0003+004
110098+00000003 32..01+00285930 332107+00044323 52..07+0003+012
110099+00000003 573..1-00057900 574..1+01581480 83..01+00051245
110100+00000003 32..01+00276310 331107+00051548 52..07+0003+007
110101+00000004 32..01+00299670 332107+00048171 52..07+0003+020
110102+00000004 573..1-00081270 574..1+02157460 83..01+00051583
110103+00000004 32..01+00298010 331107+00052209 52..07+0003+013
110104+00000005 32..01+00290240 332107+00041565 52..07+0003+013
110105+00000005 573..1-00073500 574..1+02745720 83..01+00052647
110106+00000005 32..01+00274650 331107+00055492 52..07+0003+013
110107+00000006 32..01+00331740 332107+00049495 52..07+0003+005
110108+00000006 573..1-00130590 574..1+03352100 83..01+00053247
110109+00000006 32..01+00300950 331107+00050161 52..07+0003+007
110110+00000007 32..01+00312760 332107+00047123 52..07+0003+032
110111+00000007 573..1-00142400 574..1+03965820 83..01+00053551
110112+00000007 32..01+00299110 331107+00049512 52..07+0003+013
110113+00000008 32..01+00293720 332107+00044357 52..07+0003+009
110114+00000008 573..1-00137010 574..1+04558650 83..01+00054066
110115+00000008 32..01+00315270 331107+00052473 52..07+0003+052
110116+00000009 32..01+00278540 332107+00045849 52..07+0003+016
110117+00000009 573..1-00100280 574..1+05152470 83..01+00054728
110118+00000009 32..01+00309150 331107+00055550 52..07+0003+011
110119+00000010 32..01+00313730 332107+00050743 52..07+0003+003
110120+00000010 573..1-00104860 574..1+05775340 83..01+00055209
110121+00000010 32..01+00320620 331107+00048937 52..07+0003+007
110122+00000011 32..01+00300000 332107+00050453 52..07+0003+013
110123+00000011 573..1-00084250 574..1+06395960 83..01+00055058
110124+00000011 32..01+00127350 331107+00050745 52..07+0003+002
110125+00000112 32..01+00145100 332107+00054026 52..07+0003+008
110126+00000112 573..1-00102000 574..1+06668400 83..01+00054730
110127+00000112 32..01+00091520 331107+00050485 52..07+0003+005
110128+00000113 32..01+00133080 332107+00059491 52..07+0003+006
110129+00000113 573..1-00143550 574..1+06893000 83..01+00053829
110130+00000113 32..01+00247250 331107+00059234 52..07+0003+004
110131+00000014 32..01+00310980 332107+00046096 52..07+0003+020
110132+00000014 573..1-00207280 574..1+07451230 83..01+00055143
110133+00000014 32..01+00311540 331107+00044826 52..07+0003+025
110134+00000015 32..01+00308540 332107+00046126 52..07+0003+021
110135+00000015 573..1-00204290 574..1+08071310 83..01+00055013
110136+00000015 32..01+00320350 331107+00047872 52..07+0003+019
110137+00000016 32..01+00288180 332107+00051051 52..07+0003+005
110138+00000016 573..1-00172120 574..1+08679840 83..01+00054695
110139+00000016 32..01+00323170 331107+00044682 52..07+0003+008
110140+00000017 32..01+00312730 332107+00053093 52..07+0003+070
110141+00000017 573..1-00161680 574..1+09315740 83..01+00053854
110142+00000017 32..01+00324990 331107+00047020 52..07+0003+038
110143+00000018 32..01+00309280 332107+00054221 52..07+0003+027
110144+00000018 573..1-00145970 574..1+09950000 83..01+00053134
110145+00000018 32..01+00268540 331107+00052558 52..07+0003+031
110146+00000019 32..01+00283260 332107+00049173 52..07+0003+022
110147+00000019 573..1-00160690 574..1+10501800 83..01+00053472
110148+00000019 32..01+00306660 331107+00050274 52..07+0003+009
110149+00000020 32..01+00240340 332107+00050416 52..07+0003+014
110150+00000020 573..1-00094370 574..1+11048800 83..01+00053458
110151+00000020 32..01+00312160 331107+00048016 52..07+0003+041
110152+00000021 32..01+00282090 332107+00053041 52..07+0003+020
110153+00000021 573..1-00064300 574..1+11643050 83..01+00052955
110154+00000021 32..01+00336390 331107+00047828 52..07+0003+002
110155+00000022 32..01+00228920 332107+00045666 52..07+0003+009

MCCARTHUR.RAW

110156+00000022	573..1+00043180	574..1+12208360	83..01+00053172
110157+00000022	32..01+00160840	331107+00051641	52..07+0003+006
110158+00000123	32..01+00066270	332107+00058313	52..07+0003+004
110159+00000123	573..1+00137740	574..1+12435470	83..01+00052504

MCCARTHUR

STAR*DNA Version 4.0.2
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Input Field File : J:\2002\A020801.03\levelpak\MCCARTHUR\MCCARTHUR.RAW
 Output Data File : J:\2002\A020801.03\levelpak\MCCARTHUR\MC CARTHUR.dat
 Date Processed : 01-28-2005 08:25:00

Line	Point	Type	E	D	Sum E	Sum D	Desc
3	100	B	5.5935	209.3900	0.0000	0.0000	
4		F	4.4110	257.4300	1.1825	466.8200	
6		B	5.2774	265.6400			
7		F	4.8934	276.3300	1.5665	1008.7900	
9		B	5.1206	286.7600			
10		F	4.4323	285.9300	2.2548	1581.4800	
12		B	5.1548	276.3100			
13		F	4.8171	299.6700	2.5925	2157.4600	
15		B	5.2209	298.0100			
16		F	4.1565	290.2400	3.6569	2745.7100	
18		B	5.5492	274.6500			
19		F	4.9495	331.7400	4.2566	3352.1000	
21		B	5.0161	300.9500			
22		F	4.7123	312.7600	4.5604	3965.8100	
24		B	4.9512	299.1100			
25		F	4.4357	293.7200	5.0759	4558.6400	
27		B	5.2473	315.2700			
28		F	4.5849	278.5400	5.7383	5152.4500	
30		B	5.5550	309.1500			
31		F	5.0743	313.7300	6.2190	5775.3300	
33		B	4.8937	320.6200			
34		F	5.0453	300.0000	6.0674	6395.9500	
36		B	5.0745	127.3500			
37	112	F	5.4026	145.1000	5.7393	6668.4000	

Line	Point	Type	E	D	Sum E	Sum D	Desc
39	112	B	5.0485	91.5200	0.0000	0.0000	
40	113	F	5.9491	133.0800	-0.9006	224.6000	

Line	Point	Type	E	D	Sum E	Sum D	Desc
42	113	B	5.9234	247.2500	0.0000	0.0000	
43		F	4.6096	310.9800	1.3138	558.2300	
45		B	4.4826	311.5400			
46		F	4.6126	308.5400	1.1838	1178.3100	
48		B	4.7872	320.3500			
49		F	5.1051	288.1800	0.8659	1786.8400	
51		B	4.4682	323.1700			
52		F	5.3093	312.7300	0.0248	2422.7400	
54		B	4.7020	324.9900			
55		F	5.4221	309.2800	-0.6953	3057.0100	
57		B	5.2558	268.5400			
58		F	4.9173	283.2600	-0.3568	3608.8100	
60		B	5.0274	306.6600			
61		F	5.0416	240.3400	-0.3710	4155.8100	
63		B	4.8016	312.1600			
64		F	5.3041	282.0900	-0.8735	4750.0600	
66		B	4.7828	336.3900			
67		F	4.5666	228.9200	-0.6573	5315.3700	
69		B	5.1641	160.8400			
70	123	F	5.8313	66.2700	-1.3245	5542.4800	

Process completed with 0 errors and 0 warnings.

Summary of Files Used and Option Settings
=====

Project Folder and Data Files

Project Name MCCARTHUR
Project Folder J:\2002\A020801.03\STARNET
Data File List J:\2002\A020801.03\levelpak\MCCARTHUR\MC CARTHUR.dat

Project Option Settings

STAR*NET Run Mode : Adjust with Error Propagation
Type of Adjustment : Lev
Project Units : FeetUS
Input/Output Coordinate Order : North-East
Create Coordinate File : Yes

Instrument Standard Error Settings

Project Default Instrument
Differential Levels : 0.010000 FeetUS / Mile

Listing of Input Data

=====

[File: J:\2002\A020801.03\LEVELPAK\MCCARTHUR\MC CARTHUR.DAT]

STAR*DNA Version 4.0.2

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Input Field File : J:\2002\A020801.03\levelpak\MCCARTHUR\MCCARTHUR.RAW

Date Processed : 01-28-2005 08:25:00

.Units FeetUS

.Sep -

.3D

NAVD 88 BM ELEVATIONS

E 100 48.99 !

E 123 52.52 !

Elevation Difference Records

# Stations	Diff	Dist	Descriptor
L 100-112	5.73930	6668	
L 112-113	-0.90060	225	
L 113-123	-1.32450	5542	

Summary of Unadjusted Input Observations

=====

Number of Entered Stations (FeetUS) = 2

Fixed Stations	Elev	Description
100	48.9900	
123	52.5200	

Number of Differential Level Observations (FeetUS) = 3

From	To	Elev Diff	StdErr	Length
100	112	5.7393	0.0112	6668
112	113	-0.9006	0.0021	225
113	123	-1.3245	0.0102	5542

Adjustment Statistical Summary

=====

Number of Stations = 4
Number of Observations = 3
Number of Unknowns = 2
Number of Redundant Obs = 1

Observation	Count	Sum Squares of StdRes	Error Factor
Level Data	3	1.060	1.030
Total	3	1.060	1.030

The Chi-Square Test at 5.00% Level Passed
Lower/Upper Bounds (0.031/2.241)

Adjusted Elevations and Error Propagation (FeetUS)

=====

Station	Elev	StdDev	95%	Description
100	48.9900	0.000000	0.000000	
123	52.5200	0.000000	0.000000	
112	54.7378	0.007653	0.015000	
113	53.8375	0.007628	0.014950	

Adjusted Observations and Residuals
=====

Adjusted Differential Level Observations (FeetUS)

From	To	Elev Diff	Residual	StdErr	StdRes
100	112	5.7478	0.0085	0.0112	0.8
112	113	-0.9003	0.0003	0.0021	0.1
113	123	-1.3175	0.0070	0.0102	0.7

Elapsed Time = 00:00:00

VERTICAL CONVERSION (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.10

Station Name: H11		
Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
27 25 42.00000	81 13 15.00000	-0.349

Station Name: B463		
Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
27 25 30.99000	81 12 51.30000	-0.350

Station Name: C463		
Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
27 25 18.11000	81 12 25.57000	-0.350

H11

~~54.734'~~
o/s 1.1483'

NAVD 88 16.334 m - (-0.349) = 16.683 m
(53.59') (54.734')

C463

NAVD 88 14.932 m - (-0.350) = 15.282 m
(48.99') (50.138')

B463

NAVD 88 16.009 m - (-0.350) = 16.359 m
(52.52') (53.671')