SURVEYOR'S REPORT

Specific Purpose Survey of the
United States Geological Survey
Recorder Well G-2903
in
Broward County, Florida

Prepared for:

South Florida Water Management District

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Prepared by:

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Florida Professional Surveyor and Mapper
License Number 5381
State of Florida

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131 West Kaley Street, Orlando, FL. 32806
Tel (321) 354-9826

Field Date: September 25, 2019
Report Date: December 4, 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-2903** is located in Section 28, Township 51 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-2903 (G2903 2019), add 1.59'**. 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 / GPS METHODS (Site Benchmark, Vertical Data)

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 "BC 531" (AC4693), through the well site, and back to the NGS Benchmark "BC 531" (AC4693), using a digital level. A GPS base receiver was then set on NGS BM "Y 238" (AC2377) and a GPS Rover checked into NGS Benchmark "BC 531" (AC4693) within tolerance. Observations and measurements were collected using a Digital Level, GPS base receiver, and a GPS rover which were hand written in Whidden Surveying & Mapping, Inc. Field Book W 203 Page 65-66 dated September 11, 2019, and field book W212 page 68 dated November 25, 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-2903 (G2903 2019) were established by observing a 3-minute session of GPS data on September 25, 2019 using a Trimble R-8-3 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 SPS 882 Serial #: 5213485282
- Trimble GPS unit R6-4 Serial #: 0220266504
- Dini Digital Level Serial #: 735642

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

A level loop was run from the previously established Site Benchmark G-2903 (G2903 2019), through the USGS benchmarks "RM 1", "RM 2", "RM 3", through all corner of 22" x 22" concrete slab around well casing, through the ground shot north of the well casing (ground elevation), through the well monitoring point, through the North edge of metal casing, 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 45-49, dated September 25, 2019. Additional data was manually recorded.

GPS METHODS (horizontal position of Well G-2903 monitoring point & USGS Benchmarks)

Latitude and Longitude for Well G-2903 monitoring point (North edge of 2" PVC well head at black mark) and USGS RM 1 (Nail and disc in concrete curb), USGS RM 2 (Nail and disc in concrete sidewalk), and USGS RM 3 (Nail and disc in concrete) were established by observing a 3-minute session of GPS data on September 25, 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

VERTICAL CONTROL POINT

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

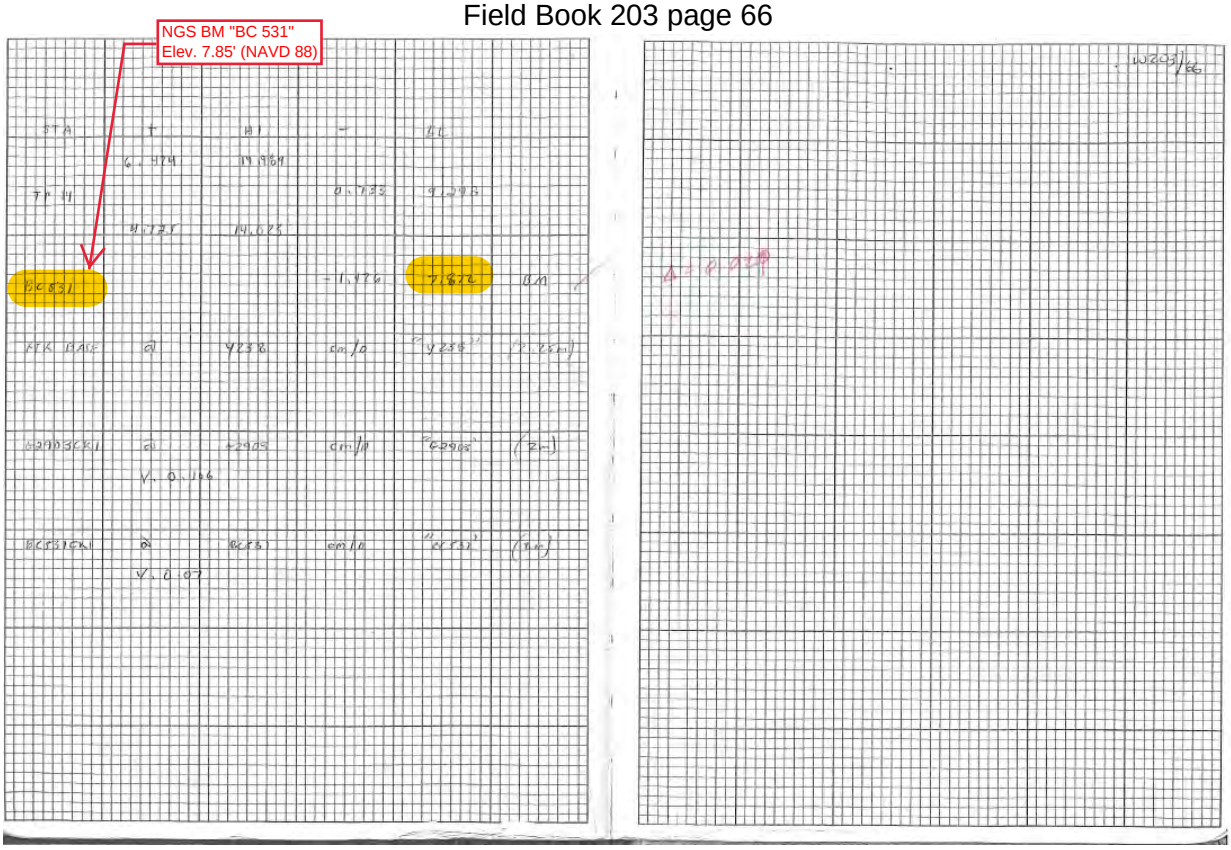
NGS Benchmark "Y 238" (AC2377)						
25° 57' 52.80" (N)	80° 08' 51.36" (W)	Published	6.98 ft.	(NAVD88)	2.13 m	Published
						
THE MILE MARKER HAS MOVED SINCE LAST RECOVERY. THE MARK IS DIRECTLY ACROSS THE STREET FROM THE STOP SIGN LOCATED ON THE CORNER OF DIXIE HIGHWAY AND NORTHEAST 204TH. IT IS BURIED SEVERAL FEET BELOW A LAYER OF ROCKS ON THE RAILROAD RIGHT-OF-WAY. 18.1 FT WEST OF THE WESTERN RAIL NGS BENCHMARK IS A DISC INSIDE OF A PVC BENCHMARK CASING STAMPING: U.S. COAST AND GEODETIC SURVEY BENCHMARK Y 238 1965						

NGS Benchmark "BC 531" (AD2478)						
25° 58' 59.52" (N)	80° 08' 53.47" (W)	Published	7.85 ft.	(NAVD88)	2.39 m	Published
						
IN HALLANDALE, AT THE INTERSECTION OF DIXIE HIGHWAY AND SOUTHWEST 2ND STREET, 44.6 FT EAST OF AND LEVEL WITH THE HIGHWAY CENTER, 24.3 FT WEST OF THE NEAR RAIL OF THE FLORIDA EAST COAST RAILROAD, 15.7 FT SOUTHEAST OF AN UNDERGROUND CABLE WARNING MARKER,15.4 FT SOUTH OF A CONCRETE RAILROAD ROW MARKER,1.0 FT NORTH OF A WITNESS POST, ON THE EXTENDED CENTERLINE OF THE STREET. A SECOND SET OF RAILROAD TRACKS HAS BEEN ADDED SINCE ORIGINAL DESCRIPTION AND MONUMENT WAS RECOVERED UNDER ABOUT 2 FT OF RAILROAD BALLAST NGS BENCHMARK IS A DISC ON CONCRETE MONUMENT STAMPING: BROWARD COUNTY ENG. DEPT. BC 531						

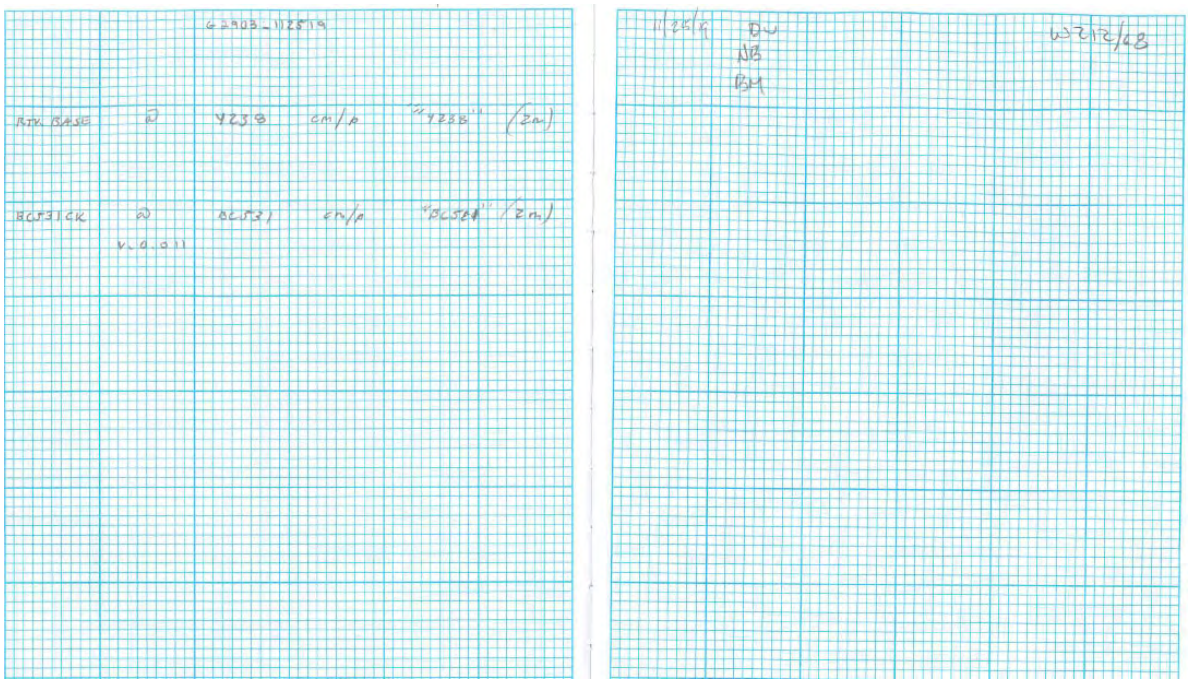
BM: G-2903 (Existing on site benchmark)						
25° 58' 45.78" (N)	80° 09' 8.19" (W)		3.65 ft.	(NAVD88)	1.11 m	Level run
NAD_83(2011)			5.24 ft.	(NGVD29)	1.60 m	Converted
				1.59 ft. (conversion factor)		Corpscon 6.0.1
			STATION IS A S.F.W.M.D. BM STAMPED "G2903 2019" SET IN CURB OF CONCRETE LIFT STATION SLAB LOCATED: EAST OF SW 4TH AVENUE ADJACENT TO NW CORNER OF A POND			

Field Book W203, Page 65

Field Book 203 page 66



Field Book 212 page 68



PROJECT RESULTS

Overall Site

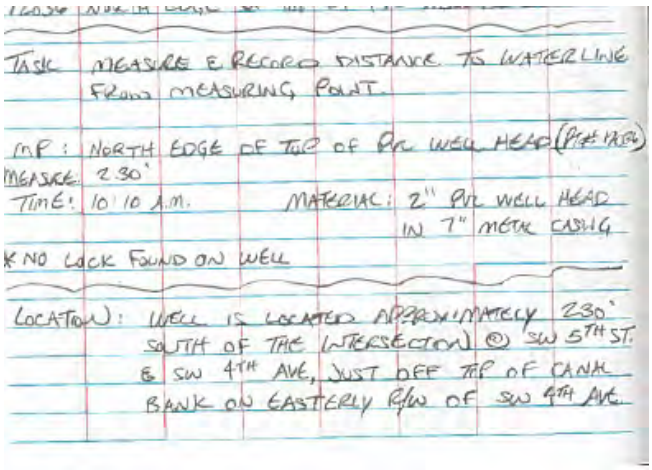
Looking Northeasterly (Oblique not to scale)

Tabular Form

Reference and Ground Elevations: NAVD88			
Well	Ground Elevation	Reference Elevation	Comments
G-2903	3.60 ft.	3.41 ft.	North edge of top of well head
Offset to NGVD29: +1.59' (See Project Vertical Datum Notes in Page: 4)			
Well diameter		Casing material	DTW
2" PVC		metal	-2.30 ft. (9/25/19 at 10:10 AM)

Source & Site Benchmark	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon)
NGS "BC 531" (AC4693)	7.85 ft. (Published)	9.45 ft.	
NGS "Y 238" (AC2377)	6.98 ft. (Published)	8.56 ft.	
BM G-2903 (SFWMD)	3.65 ft. (Measured)		5.24 ft. (Converted)
RM-1	3.53 ft. (Measured)		
RM-2	3.60 ft. (Measured)		
RM-3	3.47 ft. (Measured)		

Well Photos and Diagrams (Continued)



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 1.59 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 25, 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
   Field Book: W203 pages 65-66 and W212 page 68

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. 25, 2019

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-2903	Project Name: USGS Ph 2, BROWARD	Type: V	State Plane Zone: FL East
Stamping: G2903 2019	Field Book Name: W203	Field Book Page: 65	
Established By: DEWBERRY / WHIDDEN	Recovered By: N/A	Recovery Date: N/A	
Surveyor: WILLIAM D. DONLEY	Established Date: 09/11/19	Status: New	

GEOGRAPHIC POSITION INFORMATION

Section: 28	Township: 51 SOUTH	Range: 42 EAST	
County: BROWARD	Quadrangle: NORTH MIAMI	Quad Index: 1602	NGS Source BM(s): BC 531
NAD83 Adj. Year: 2011	Vertical Datum: NAVD1988	Horizontal Datum: NAD1983	NGS PID(s): AC4693
NAVD88 Elevation (feet): 3.65	NGVD29 Elevation (feet): 5.24	2022 Elevation: N/A	NGS NAVD88 Elev (ft): 7.85
NAVD88 Class: N/A	NGVD29 Class: N/A	Other Elevation: N/A	NGS NAVD88 Elev (m): 2.394
NAVD88 Order: 3	NGVD29 Order: N/A	Other Elevation Type: N/A	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: +	1.59	Actual NGS Elevation or ngvd29.txt file:	N/A	OPUS Ortho Height:	N/A
Northing (Y) (feet):	599100.3	Easting (X) (feet):	934656.7	Source of Latitude & Longitude:	AVERAGED FPRN & TRIMBLE VRSNOW RTK
Latitude:	25 (DD°)	58 (MM')	45.78 (SS")	Longitude:	80 (DD°)	9 (MM')	8.19 (SS")
Latitude (Decimal Degrees):	25.979383			Longitude (Decimal Degrees):	-80.152275		

RECOVERY DATA

How to Reach:	1. HEAD SOUTH ON DIXIE HIGHWAY FROM HALLANDALE BEACH BLVD FOR 0.4 MILES 2. TURN RIGHT ONTO SW 5TH STREET, CONTINUE 0.25 MILES 3. TURN LEFT ONTO SW 4TH AVENUE 4. TRAVEL SOUTH FOR 160 FEET TO THE MARK ON THE LEFT
Description/Notes:	2" ALUMINUM SFWMD DISK SET IN THE CONCRETE SLAB OF A LIFT STATION, NEAR THE NW CORNER.
Notable Landmarks:	WASTE WATER LIFT STATION 12
Other Source Benchmarks:	N/A

PICTURES

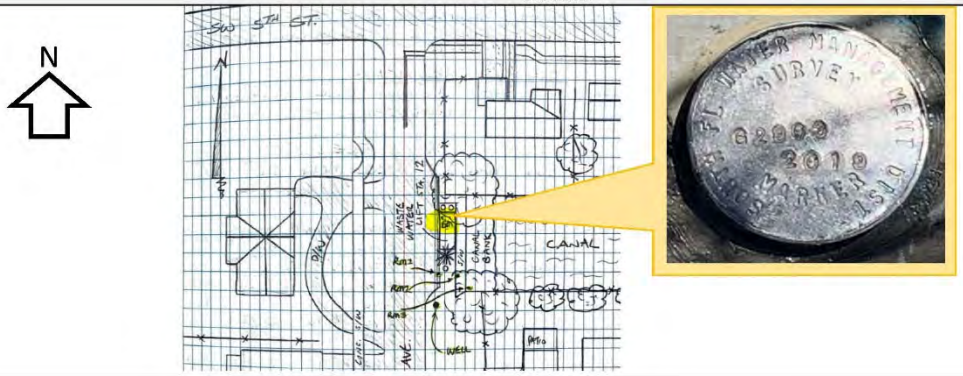
Aerial View of Overall Site

N

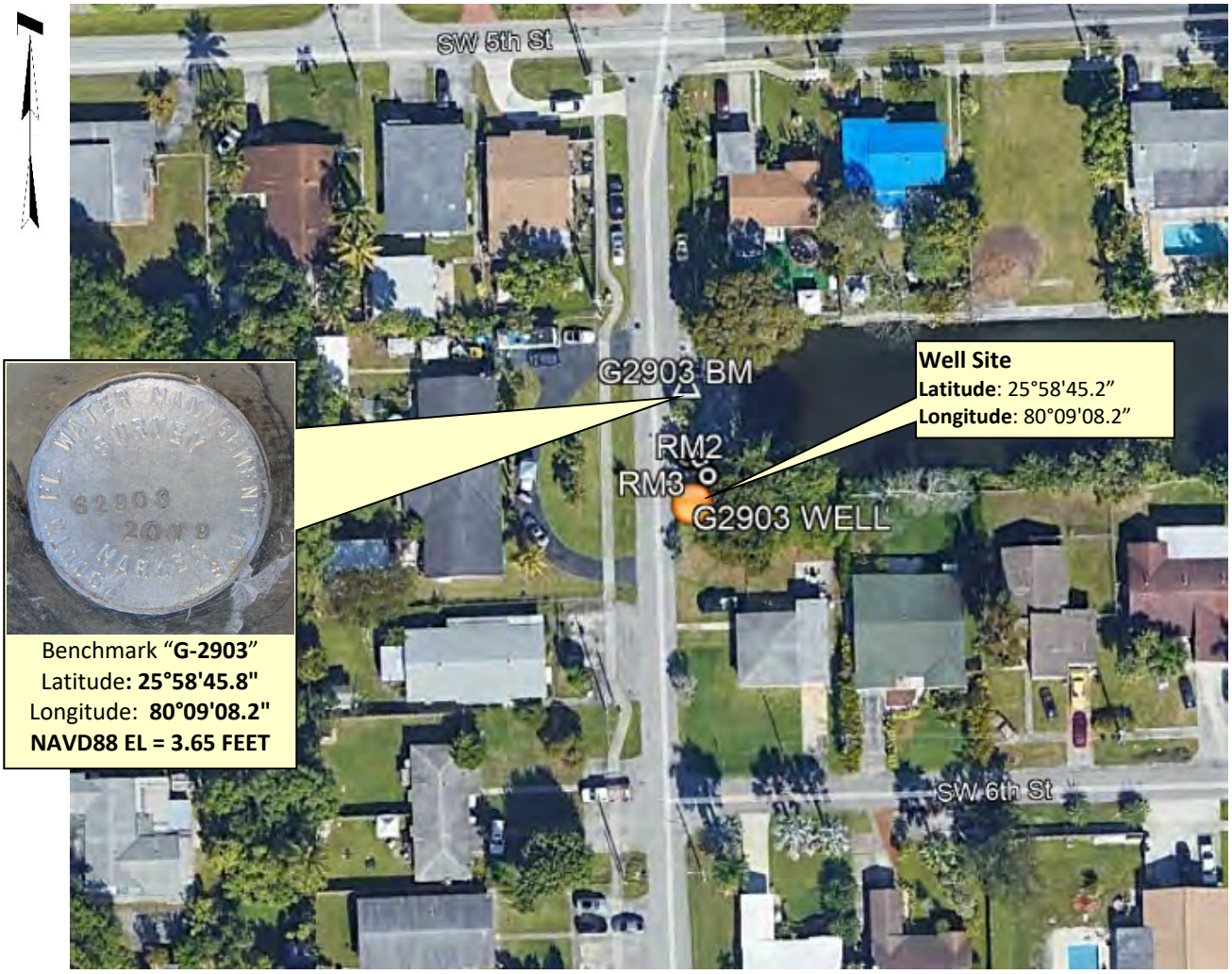
NOT TO SCALE. AERIAL FROM GOOGLEEARTH.

PICTURES

Site Sketch

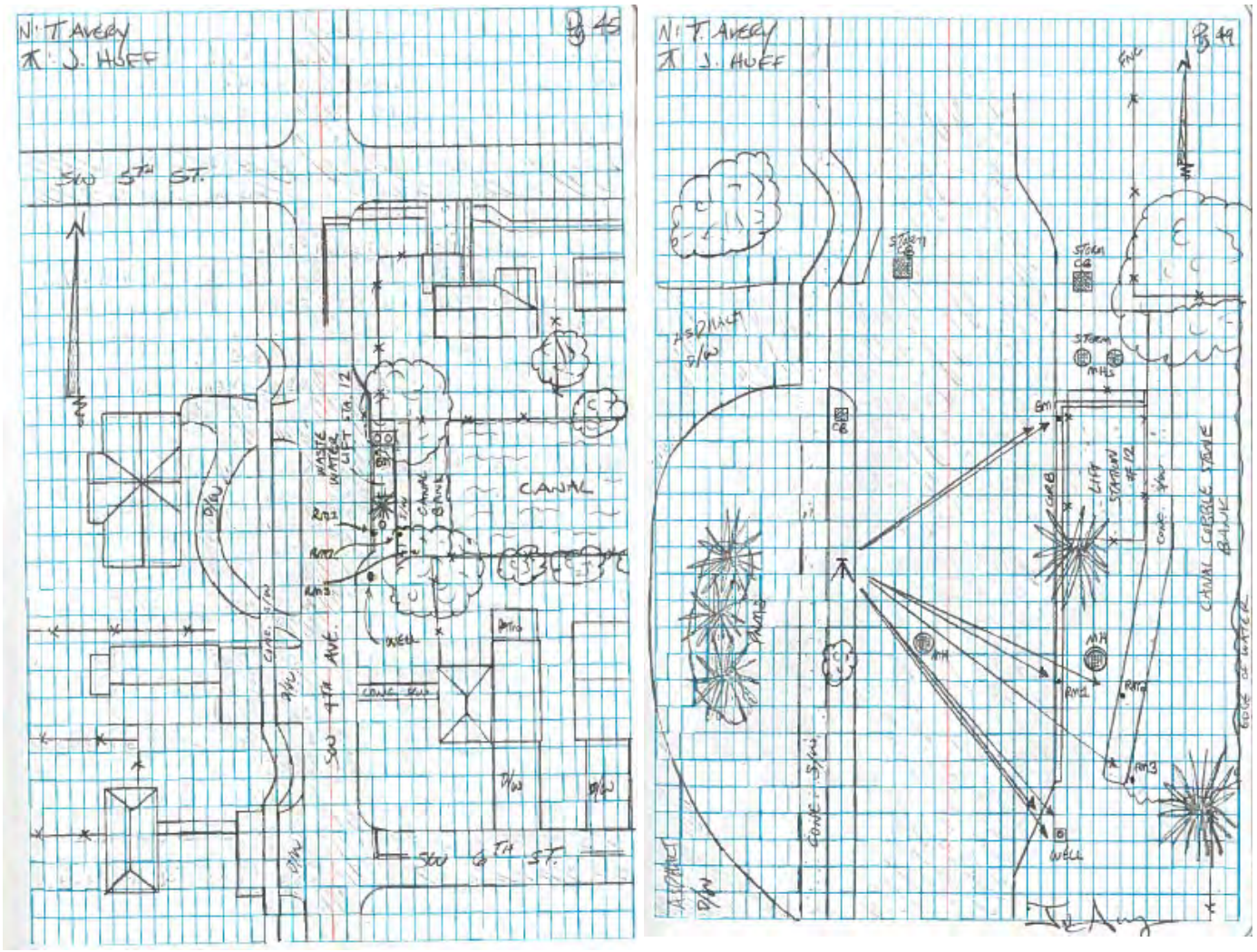


SOUTH FLORIDA WATER MANAGEMENT DISTRICT



SKETCH

FIELD BOOK SFWMD #1, PAGE 45 & 49



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 G2903

1/2

Northing/Y: 599100.3
Easting/X: 934656.7
Elevation/Z: 3.65
Convergence: 0 22 16.91707
Scale Factor: 1.000030110
Combined Factor: 1.000033945

Latitude: 25 58 45.78469
Longitude: 80 09 08.19340
Elevation/Z: 5.235

WELL G2903

2/2

Northing/Y: 599042.53'
Easting/X: 934659.60'
Elevation/Z: 3.41
Convergence: 0 22 16.92159
Scale Factor: 1.000030112
Combined Factor: 1.000033959

Latitude: 25 58 45.21236
Longitude: 80 09 08.16572
Elevation/Z: 4.995

SPECTRA SP20 S.F.W.M.D 09/25/19
ROVER S/N:
TRIMBLE NET USGS WELLS & BMS
JOB #: 50099949
TROVER HI: 6.562 WELL SITE: G-2903

TASK: OBTAIN HORIZONTAL LOCATIONS ON ALL REF. MONUMENTATION & WELL MEASURING POINT

	PT #	(N) ERR	(E) ERR	(Z) ERR	STORED AS PT #	DESCRIPTIONS
S/O	19	-0.012	-0.011	F0.071	5027	CHK IN BM @ G2003

* LOCATED PT #'S 12032 – 12036
S/O * I-MAN FORGOT TO CHECK OUT. NO OBSERVATION RECORDED.

PT #	DESCRIPTION
12032	NDF "USGS RM2" @ EDGE OF SIDEWALK
12033	NDF "USGS RM1" (IN TOP OF CURB)
12034	NDF - RM3 "LB 2098"
12035	NORTH EDGE OF TOP OF METAL CASING
12036	NORTH EDGE OF TOP OF PVC WELL HEAD

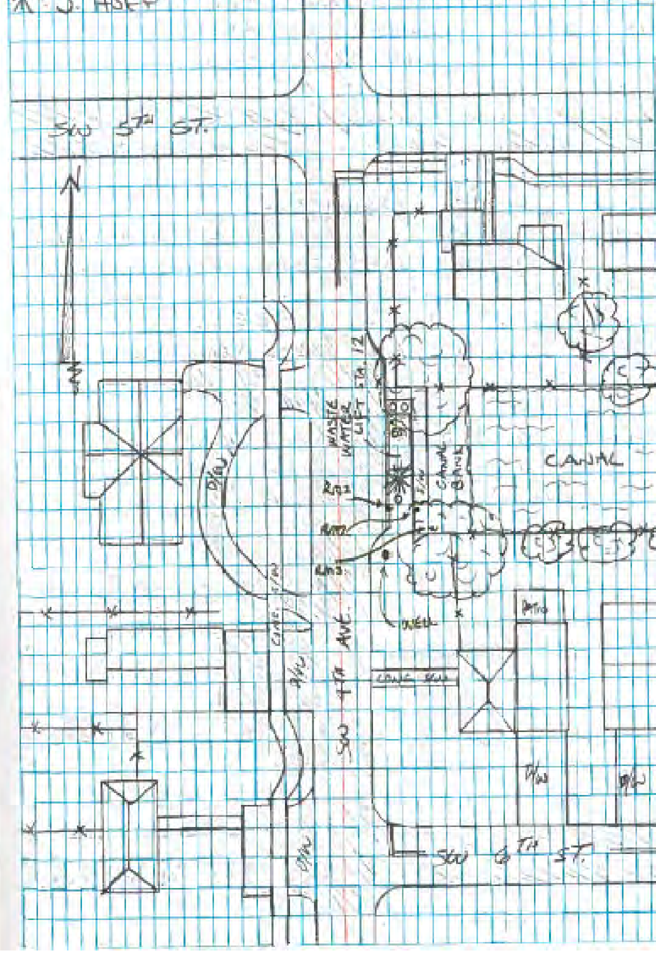
TASK: MEASURE & RECORD DISTANCE TO WATERLINE FROM MEASURING POINT.

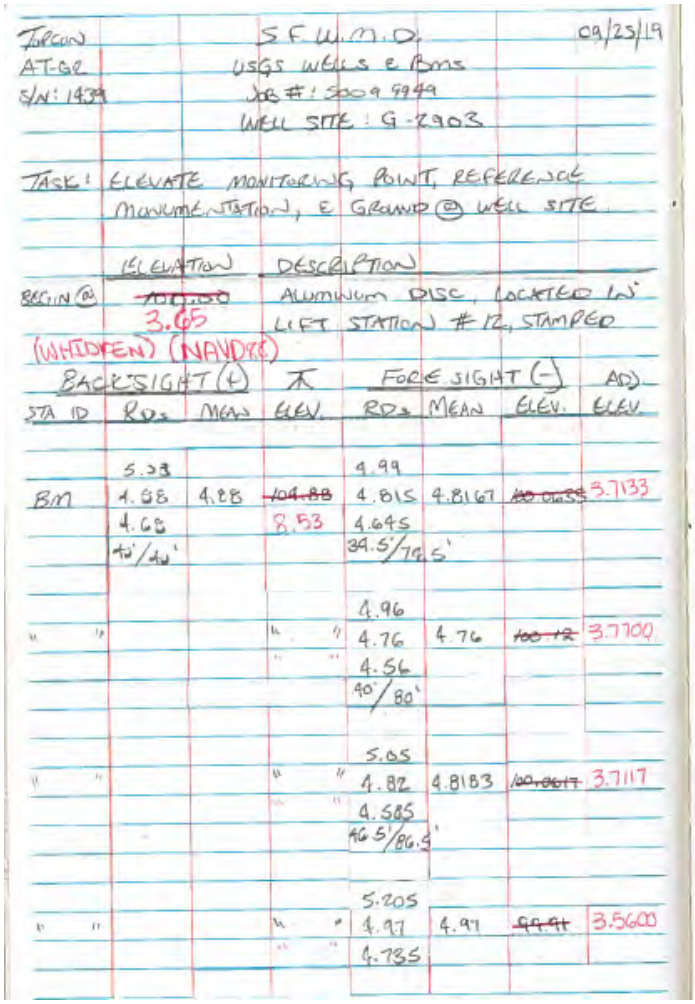
MP: NORTH EDGE OF TOP OF PVC WELL HEAD (PT# 12036)
MEASURE: 2.30'
TIME: 10:10 A.M. MATERIAL: 2" PVC WELL HEAD IN 7" METAL CASING

* NO LOCK FOUND ON WELL

LOCATION: WELL IS LOCATED APPROXIMATELY 230' SOUTH OF THE INTERSECTION @ SW 5TH ST. & SW 4TH AVE, JUST OFF TOP OF CANAL BANK ON EASTERLY R/W OF SW 4TH AVE.

N: T. AVERY Pg 45
⊼: J. HOFF





TOPCON
AT-G2
S/N: 1439

S.F.W.M.D.
09/23/19
USGS WELLS & BMs
JOB #: 5009 5949
WELL SITE: G-2903

TASK: ELEVATE MONITORING POINT, REFERENCE MONUMENTATION, & GROUND @ WELL SITE.

BEGIN @ ELEVATION 3.65 DESCRIPTION ALUMINUM DISC, LOCATED IN LIFT STATION #12, STAMPED

(WHIDDEN) (NAVD88)

STA ID	BACKSIGHT (+) RDs	MEAN	↗ ELEV.	FORE SIGHT (-) RDs	MEAN	ELEV.	ADJ ELEV.
	5.33			4.99			
BM	1.98	4.88	~~104.88~~	4.815	4.8167	~~100.0033~~	3.7133
	4.68		8.53	4.645			
	40'/40'			39.5'/79.5'			
				4.96			
" "			" "	4.76	4.76	~~100.12~~	3.7700
				4.56			
				40'/80'			
				5.05			
" "			" "	4.82	4.8183	~~100.0617~~	3.7117
				4.585			
				46.5'/86.5'			
				5.205			
" "			" "	4.97	4.97	~~99.91~~	3.5600
				4.735			

N: T. AVERY
A: D. HUFF

RG46

TOP OF CURB IN FRONT OF WASTE WATER "S.F.W.M.D. SURVEY MARKER G2903 2019"

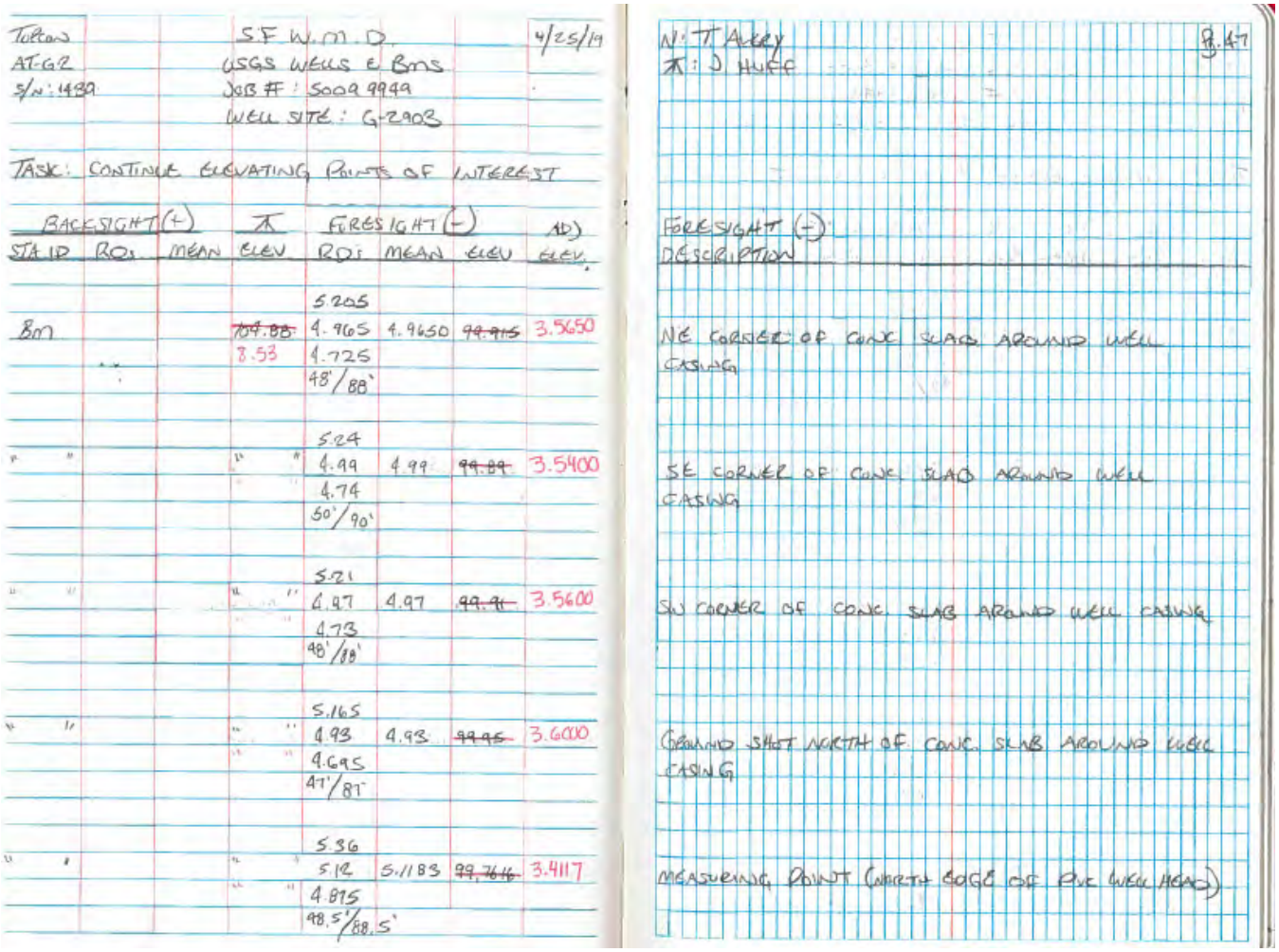
FORE SIGHT (-)
DESCRIPTION

RM1 - REC. NAIL & DISC, STAMPED "USGS RM1" LOCATED IN TOP OF CURB, ON EASTERLY R/W OF SW 4TH AVE., S OF WASTE WATER LIFT STATION #12

RM2 - REC NAIL & DISC, STAMPED "USGS RM2" LOCATED IN SIDEWALK ON EASTERLY R/W OF SW 4TH AVE., S. OF WASTE WATER LIFT STATION #12

RM3 - REC. NAIL & DISC, STAMPED "LB 2098" LOCATED IN CONC. CANAL BANK, ON EASTERLY R/W OF SW 4TH AVE., S. OF WASTE WATER LIFT STATION #12.

NW CORNER OF CONC. SLAB AROUND WELL CASING (22" x 22")



Topcon
AT-G2
S/N: 1439

SFWMD
USGS WELLS & BMs
JOB #: 5009 9999
WELL SITE: G-2903

4/25/19

TASK: CONTINUE ELEVATING POINTS OF INTEREST

BACKSIGHT (+) STA ID	RODs	MEAN	℄ ELEV	FORESIGHT (-) RODs	MEAN	ELEV	AD) ELEV.
				5.205			
BM			~~704.88~~ 8.53	4.965 4.725 48'/88'	4.9650	~~99.915~~	3.5650
"	"	"	"	5.24 4.99 4.74 50'/90'	4.99	~~99.89~~	3.5400
"	"	"	"	5.21 4.97 4.73 48'/88'	4.97	~~99.91~~	3.5600
"	"	"	"	5.165 4.93 4.695 47'/87'	4.93	~~99.95~~	3.6000
"	"	"	"	5.36 5.12 4.875 98.5'/88.5'	5.1183	~~99.764~~	3.4117

N: TT Akey
℄: D Hurff

8.47

FORESIGHT (+)
DESCRIPTION

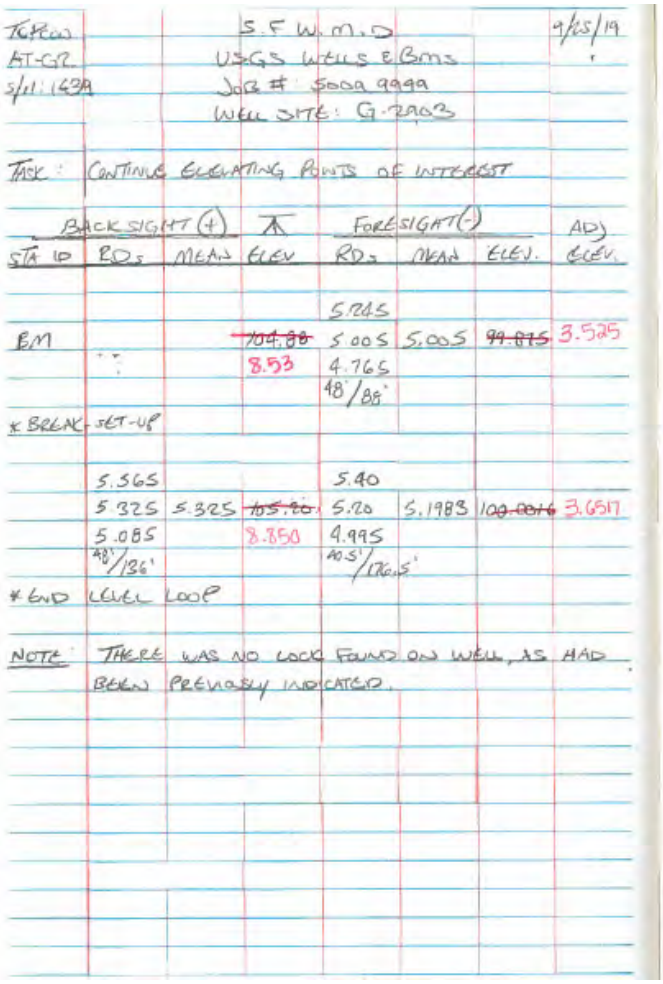
NE CORNER OF CONC SLAB AROUND WELL CASING

SE CORNER OF CONC SLAB AROUND WELL CASING

SW CORNER OF CONC SLAB AROUND WELL CASING

GROUND SHOT NORTH OF CONC. SLAB AROUND WELL CASING

MEASURING POINT (NORTH EDGE OF FIVE WELL HEAD)



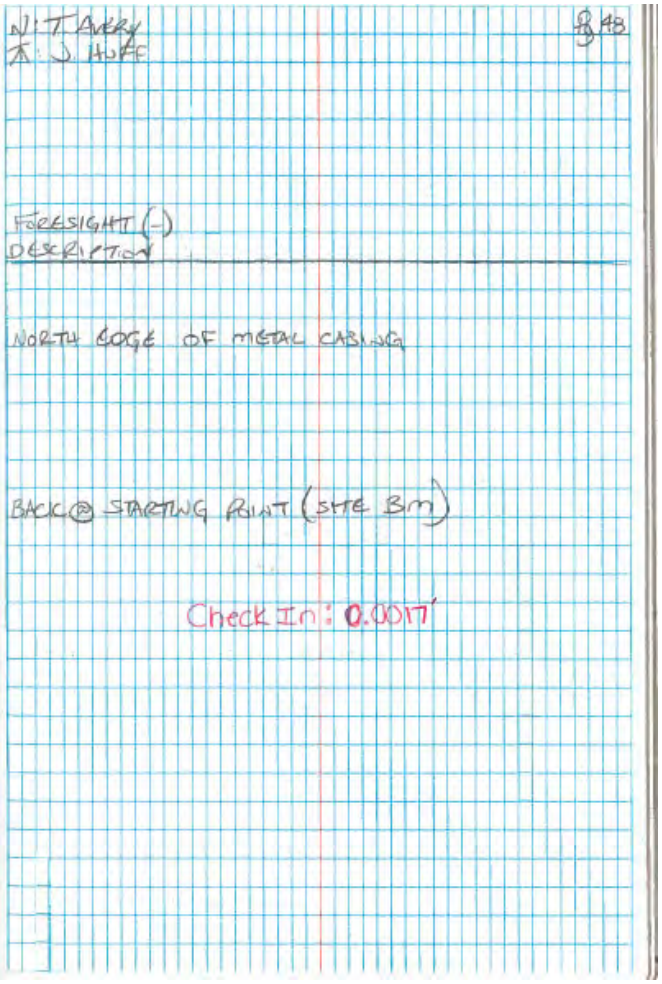
TOPCON
AT-CR
S/N: 169A

S.F.W.M.D. 9/25/19
USGS WELLS & BMs
JOB #: 5009 9999
WELL SITE: G-2903

TASK: CONTINUE ELEVATING POINTS OF INTEREST

STA ID	BACKSIGHT (+) RDs	MEAN	ELEV	FORESIGHT (-) RDs	MEAN	ELEV.	ADJ ELEV.
				5.245			
BM			~~104.88~~	5.005	5.005	~~99.875~~	3.525
			8.53	4.765			
				48'/88'			
* BREAK- SET-UP							
	5.565			5.40			
	5.325	5.325	~~105.20~~	5.20	5.1983	~~100.0016~~	3.6517
	5.085		8.350	4.995			
	48'/136'			40.5'/176.5'			
* END LEVEL LOOP							

NOTE: THERE WAS NO LOCK FOUND ON WELL, AS HAD BEEN PREVIOUSLY INDICATED.



N: T AVERY
A: J. HUFF

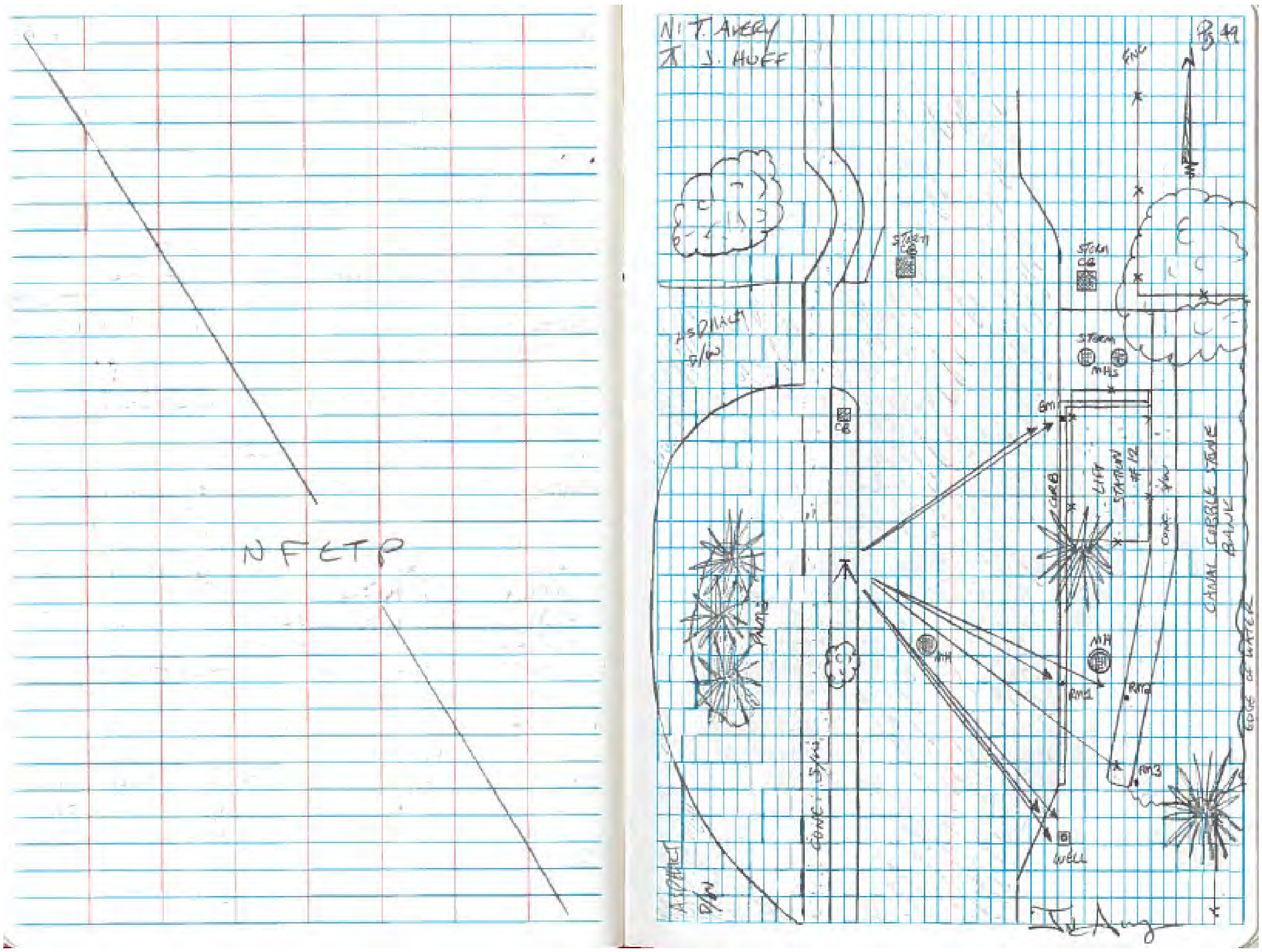
pg 48

FORESIGHT (-)
DESCRIPTION

NORTH EDGE OF METAL CASING

BACK @ STARTING POINT (SITE BM)

Check In: 0.0017'


NFETP
N: T. AVERY
J. HUFF
PG 49
FNC
STORM CB
ASPHALT S/W
STORM
MHs
BM
CB
CURB
LIFT STATION #12
CONC. S/W
CANAL COBBLE STONE BANK
EDGE OF WATER
PALMS
MH
RM1
RM2
RM3
WELL
CONC. S/W
ASPHALT D/W

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
 AC4693 ***********************************************************************
 AC4693  DESIGNATION -  BC 531
 AC4693  PID         -  AC4693
 AC4693  STATE/COUNTY-  FL/BROWARD
 AC4693  COUNTRY     -  US
 AC4693  USGS QUAD   -  NORTH MIAMI (1988)
 AC4693
 AC4693                         *CURRENT SURVEY CONTROL
 AC4693 ______________________________________________________________________
 AC4693* NAD 83(1986) POSITION- 25 58 59.52   (N) 080 08 53.47   (W)   HD_HELD1
 AC4693* NAVD 88 ORTHO HEIGHT -     2.394 (meters)        7.85  (feet) ADJUSTED
 AC4693 ______________________________________________________________________
 AC4693  GEOID HEIGHT    -        -25.600 (meters)                     GEOID12B
 AC4693  DYNAMIC HEIGHT  -          2.390 (meters)        7.84  (feet) COMP
 AC4693  MODELED GRAVITY -    979,050.8   (mgal)                       NAVD 88
 AC4693
 AC4693  VERT ORDER      -  FIRST     CLASS II
 AC4693
 AC4693.The horizontal coordinates were determined by differentially corrected
 AC4693.hand held GPS observations or other comparable positioning techniques
 AC4693.and have an estimated accuracy of +/- 3 meters.
 AC4693.
 AC4693.The orthometric height was determined by differential leveling and
 AC4693.adjusted by the NATIONAL GEODETIC SURVEY
 AC4693.in May 1994.
 AC4693
 AC4693.Significant digits in the geoid height do not necessarily reflect accuracy.
 AC4693.GEOID12B height accuracy estimate available here.
 AC4693
 AC4693.Photographs are available for this station.
 AC4693
 AC4693.The dynamic height is computed by dividing the NAVD 88
 AC4693.geopotential number by the normal gravity value computed on the
 AC4693.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AC4693.degrees latitude (g = 980.6199 gals.).
 AC4693
 AC4693.The modeled gravity was interpolated from observed gravity values.
 AC4693
 AC4693;                    North         East     Units  Estimated Accuracy
 AC4693;SPC FL E     -   183,031.5     285,290.7     MT  (+/- 3 meters HH1 GPS)
 AC4693
 AC4693_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ8526174101(NAD 83)
 AC4693
 AC4693                             SUPERSEDED SURVEY CONTROL
 AC4693
 AC4693  NGVD 29 (09/01/92)    2.880  (m)             9.45   (f) ADJUSTED    1 2
 AC4693
 AC4693.Superseded values are not recommended for survey control.
 AC4693
 AC4693.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AC4693.See file dsdata.pdf to determine how the superseded data were derived.
 AC4693
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AC4693_MARKER: DD = SURVEY DISK
AC4693_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
AC4693_STAMPING: BC 531
AC4693_MARK LOGO: FL-011
AC4693_PROJECTION: RECESSED 61 CENTIMETERS
AC4693_MAGNETIC: N = NO MAGNETIC MATERIAL
AC4693_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AC4693+STABILITY: SURFACE MOTION
AC4693_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR
AC4693+SATELLITE: SATELLITE OBSERVATIONS - February 01, 2017
AC4693
AC4693  HISTORY     - Date     Condition       Report By
AC4693  HISTORY     - 1987     MONUMENTED      FL-011
AC4693  HISTORY     - 19901228 GOOD            NGS
AC4693  HISTORY     - 20170201 GOOD            USACE
AC4693
AC4693                          STATION DESCRIPTION
AC4693
AC4693'DESCRIBED BY NATIONAL GEODETIC SURVEY 1990
AC4693'IN HALLANDALE, AT THE INTERSECTION OF DIXIE HIGHWAY AND SOUTHWEST 2ND
AC4693'STREET, 13.6 M (44.6 FT) EAST OF AND LEVEL WITH THE HIGHWAY CENTER,
AC4693'7.4 M (24.3 FT) WEST OF THE NEAR RAIL OF THE FLORIDA EAST COAST
AC4693'RAILROAD, 4.8 M (15.7 FT) SOUTHEAST OF AN UNDERGROUND CABLE WARNING
AC4693'MARKER, 4.7 M (15.4 FT) SOUTH OF A CONCRETE RAILROAD RIGHT-OF-WAY
AC4693'MARKER, 0.3 M (1.0 FT) NORTH OF A WITNESS POST, ON THE EXTENDED
AC4693'CENTERLINE OF THE STREET, AND THE MONUMENT IS 0.1 M (0.3 FT) BELOW
AC4693'THE GROUND SURFACE.
AC4693
AC4693                          STATION RECOVERY (2017)
AC4693
AC4693'RECOVERY NOTE BY US ARMY CORPS OF ENGINEERS 2017 (JLN)
AC4693'A SECOND SET OF RAILROAD TRACKS HAVE BEEN ADDED WEST OF THOSE
AC4693'DESCRIBED IN THE ORIGINAL DESCRIPTION.  MONUMENT RECOVERED UNDER ABOUT
AC4693'2 FT (0.6 M) OF RAILROAD BALLAST.

*** retrieval complete.
Elapsed Time = 00:00:03
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The NGS Data Sheet

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

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PROGRAM = datasheet95, VERSION = 8.12.5.4
1         National Geodetic Survey,   Retrieval Date = NOVEMBER 26, 2019
 AC2377 ***********************************************************************
 AC2377  DESIGNATION -  Y 238
 AC2377  PID         -  AC2377
 AC2377  STATE/COUNTY-  FL/MIAMI-DADE
 AC2377  COUNTRY     -  US
 AC2377  USGS QUAD   -  NORTH MIAMI (1988)
 AC2377
 AC2377                        *CURRENT SURVEY CONTROL
 AC2377  ______________________________________________________________________
 AC2377* NAD 83(2011) POSITION- 25 57 52.79580(N) 080 08 51.35709(W)   ADJUSTED
 AC2377* NAD 83(2011) ELLIP HT-    -23.469 (meters)         (06/27/12)   ADJUSTED
 AC2377* NAD 83(2011) EPOCH    -  2010.00
 AC2377* NAVD 88 ORTHO HEIGHT -      2.126 (meters)         6.98   (feet) ADJUSTED
 AC2377  ______________________________________________________________________
 AC2377  GEOID HEIGHT    -        -25.602 (meters)                       GEOID18
 AC2377  NAD 83(2011) X  -    981,835.707 (meters)                       COMP
 AC2377  NAD 83(2011) Y  - -5,653,391.075 (meters)                       COMP
 AC2377  NAD 83(2011) Z  -  2,775,532.697 (meters)                       COMP
 AC2377  LAPLACE CORR    -         -3.97  (seconds)                      DEFLEC18
 AC2377  DYNAMIC HEIGHT  -          2.123 (meters)         6.97   (feet) COMP
 AC2377  MODELED GRAVITY -    979,049.7   (mgal)                         NAVD 88
 AC2377
 AC2377  VERT ORDER      -  FIRST     CLASS I
 AC2377
 AC2377  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 AC2377  Standards:
 AC2377         FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
 AC2377            Horiz  Ellip           SD_N   SD_E   SD_h       (unitless)
 AC2377  ------------------------------------------------------------------
 AC2377  NETWORK    1.65   2.65           0.67   0.68   1.35     -0.06666638
 AC2377  ------------------------------------------------------------------
 AC2377  Click here for local accuracies and other accuracy information.
 AC2377
 AC2377
 AC2377.The horizontal coordinates were established by GPS observations
 AC2377.and adjusted by the National Geodetic Survey in June 2012.
 AC2377
 AC2377.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 AC2377.been affixed to the stable North American tectonic plate. See
 AC2377.NA2011 for more information.
 AC2377
 AC2377.The horizontal coordinates are valid at the epoch date displayed above
 AC2377.which is a decimal equivalence of Year/Month/Day.
 AC2377
 AC2377.The orthometric height was determined by differential leveling and
 AC2377.adjusted by the NATIONAL GEODETIC SURVEY
 AC2377.in June 1991.
 AC2377
 AC2377.Significant digits in the geoid height do not necessarily reflect accuracy.
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AC2377.GEOID18 height accuracy estimate available here.
AC2377
AC2377.Click here to see if photographs exist for this station.
AC2377
AC2377.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AC2377
AC2377.The Laplace correction was computed from DEFLEC18 derived deflections.
AC2377
AC2377.The ellipsoidal height was determined by GPS observations
AC2377.and is referenced to NAD 83.
AC2377
AC2377.The dynamic height is computed by dividing the NAVD 88
AC2377.geopotential number by the normal gravity value computed on the
AC2377.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AC2377.degrees latitude (g = 980.6199 gals.).
AC2377
AC2377.The modeled gravity was interpolated from observed gravity values.
AC2377
AC2377. The following values were computed from the NAD 83(2011) position.
AC2377
AC2377;                    North          East      Units Scale Factor Converg.
AC2377;SPC FL E     -   180,978.467   285,362.869   MT  1.00003112   +0 22 23.6
AC2377;SPC FL E     -   593,760.19    936,228.01    sFT 1.00003112   +0 22 23.6
AC2377;UTM  17      - 2,872,048.700   585,333.743   MT  0.99968991   +0 22 23.6
AC2377
AC2377!             -  Elev Factor  x  Scale Factor =   Combined Factor
AC2377!SPC FL E     -   1.00000369  x   1.00003112  =   1.00003481
AC2377!UTM  17      -   1.00000369  x   0.99968991  =   0.99969360
AC2377
AC2377_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ8533372048(NAD 83)
AC2377
AC2377                           SUPERSEDED SURVEY CONTROL
AC2377
AC2377  NAD 83(2007)-  25 57 52.79594(N)     080 08 51.35770(W) AD(2002.00) 0
AC2377  ELLIP H (02/10/07)  -23.451  (m)                        GP(2002.00)
AC2377  NAD 83(1999)-  25 57 52.79595(N)     080 08 51.35767(W) AD(       ) 1
AC2377  ELLIP H (12/12/02)  -23.446  (m)                        GP(       ) 4 1
AC2377  NAVD 88               2.13   (m)            7.0     (f) LEVELING    3
AC2377  NGVD 29 (??/??/92)    2.609  (m)            8.56    (f) SUPERSEDED  1 1
AC2377  NGVD 29 (09/01/92)    2.609  (m)            8.56    (f) ADJUSTED    1 1
AC2377
AC2377.Superseded values are not recommended for survey control.
AC2377
AC2377.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AC2377.See file dsdata.pdf to determine how the superseded data were derived.
AC2377
AC2377_MARKER: DB = BENCH MARK DISK
AC2377_SETTING: 46 = COPPER-CLAD STEEL ROD W/O SLEEVE (10 FT.+)
AC2377_STAMPING: Y 238 1965
AC2377_MARK LOGO: CGS
AC2377_PROJECTION: FLUSH
AC2377_MAGNETIC: A = STEEL ROD ADJACENT TO MONUMENT
AC2377_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
AC2377_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AC2377+SATELLITE: SATELLITE OBSERVATIONS - October 26, 2018
AC2377_ROD/PIPE-DEPTH: 9.5  meters
AC2377
AC2377  HISTORY     - Date     Condition        Report By
AC2377  HISTORY     - 1965     MONUMENTED       CGS
AC2377  HISTORY     - 1973     GOOD             NGS
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AC2377  HISTORY     - 1981     POOR            FLDNR
AC2377  HISTORY     - 19901218 GOOD            NGS
AC2377  HISTORY     - 20020629 GOOD            MAPTEC
AC2377  HISTORY     - 20110105 GOOD            FLDT
AC2377  HISTORY     - 20120904 GOOD            AMEC
AC2377  HISTORY     - 20141027 GOOD            GEOCAC
AC2377  HISTORY     - 20181026 GOOD            INDIV
AC2377
AC2377                          STATION DESCRIPTION
AC2377
AC2377'DESCRIBED BY COAST AND GEODETIC SURVEY 1965
AC2377'3.4 MI S FROM HOLLYWOOD.
AC2377'ABOUT 3.45 MILES SOUTH ALONG THE FLORIDA EAST COAST RAILWAY FROM
AC2377'THE STATION AT HOLLYWOOD, IN SECTION 34, R 42 E, T 51 S, 130
AC2377'YARDS NORTH OF THE CROSSING OF NE 203RD STREET, 45 FEET
AC2377'NORTHWEST OF MILEPOST 352, ABOUT 0.65 MILE SOUTH OF THE
AC2377'DADE-BROWARD COUNTY LINE, 40.5 FEET EAST OF THE CENTER LINE OF
AC2377'WEST DIXIE HIGHWAY, 19.1 FEET WEST OF THE WEST RAIL OF THE
AC2377'SOUTHBOUND TRACK, 2 1/2 FEET NORTH OF A POWER LINE POLE, 2 1/2
AC2377'FEET SOUTH OF THE EXTENDED CENTER LINE OF NE 204 TERRACE, 1.1
AC2377'FEET SOUTH OF A METAL WITNESS POST, AND IS A DISK SET ON THE
AC2377'TOP OF A COPPER COATED STEEL ROD PROJECTING 1 INCH ABOVE THE
AC2377'LEVEL OF THE GROUND AND PROTECTED BY A 5 INCH IRON PIPE WHICH
AC2377'PROJECTS 2 INCHES ABOVE THE LEVEL OF THE GROUND.  THE ROD WAS
AC2377'DRIVEN TO REFUSAL AT A DEPTH OF 31 FEET.  NOTE-- 23 FT S OF THE
AC2377'EXTENDED CENTERLINE OF NE 204TH TERRACE.
AC2377
AC2377                          STATION RECOVERY (1973)
AC2377
AC2377'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1973
AC2377'RECOVERED IN GOOD CONDITION.
AC2377
AC2377                          STATION RECOVERY (1981)
AC2377
AC2377'RECOVERY NOTE BY FL DEPT OF NAT RES 1981
AC2377'THE IRON PIPE IS GONE AND THE MARK IS BENT. THE POWER LINE POLE IS
AC2377'GONE THE WITNESS POST IS 4.0 FEET SOUTHWEST OF THE MARK. THE MARK IS
AC2377'22.5 FEET SOUTH OF THE EXTENDED.
AC2377
AC2377                          STATION RECOVERY (1990)
AC2377
AC2377'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1990
AC2377'2.3 KM (1.4 MI) SOUTHERLY ALONG WEST DIXIE HIGHWAY FROM THE
AC2377'INTERSECTION OF HALLANDALE BEACH BOULEVARD (STATE HIGHWAY 858) IN
AC2377'HALLANDALE, 13.6 M (44.6 FT) NORTH OF RAILROAD MILE POST 352, 12.4 M
AC2377'(40.7 FT) EAST OF AND LEVEL WITH THE HIGHWAY CENTERLINE, 8.0 M (26.2
AC2377'FT) SOUTH OF THE EXTENDED CENTER OF NORTHEAST 204TH TERRACE, 5.7 M
AC2377'(18.7 FT) WEST OF THE NEAR RAIL OF THE FLORIDA EAST COAST RAILROAD,
AC2377'5.4 M (17.7 FT) SOUTHEAST OF A UTILITY POLE WITH A GUY WIRE, AND 0.4
AC2377'M (1.3 FT) SOUTH OF A WITNESS POST.  NOTE--ACCESS TO THE DISK IS
AC2377'THROUGH A 5-INCH LOGO CAP STAMPED Y 238.
AC2377
AC2377                          STATION RECOVERY (2002)
AC2377
AC2377'RECOVERY NOTE BY MAPTECH INCORPORATED 2002 (AL)
AC2377'FOUND AS DESCRIBED
AC2377'
AC2377
AC2377                          STATION RECOVERY (2011)
AC2377
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AC2377'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 2011 (PED)
AC2377'RECOVERED IN GOOD CONDITION.
AC2377
AC2377                          STATION RECOVERY (2012)
AC2377
AC2377'RECOVERY NOTE BY AMEC EARTH & ENVIRONMENTAL 2012 (RLE)
AC2377'RECOVERED IN GOOD CONDITION.
AC2377
AC2377                          STATION RECOVERY (2014)
AC2377
AC2377'RECOVERY NOTE BY GEOCACHING 2014 (KEN)
AC2377'THE MARK IS 60.8 FT (18.5 M) NORTHWEST OF MM 352 AND 18.8 FT (5.7 M)
AC2377'WEST OF THE WESTERN RAIL.
AC2377
AC2377                          STATION RECOVERY (2018)
AC2377
AC2377'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2018 (CAN)
AC2377'THE MILE MARKER HAS MOVED SINCE LAST RECOVERY.  THE MARK IS DIRECTLY
AC2377'ACROSS THE STREET FROM THE STOP SIGN LOCATED ON THE CORNER OF DIXIE
AC2377'HIGHWAY AND NORTHEAST 204TH.  IT IS BURIED SEVERAL FEET BELOW A LAYER
AC2377'OF ROCKS ON THE RAILROAD RIGHT-OF-WAY.

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