



SURVEYOR'S REPORT

**Specific Purpose Survey of the
United States Geological Survey
Recorder Well G-3699
in
Miami-Dade County, Florida**

Prepared for:

South Florida Water Management District

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Field Date: March 27, 2019
Report Date: May 22, 2019
BEC Order #: 03-86445

INSPIRED BEYOND MEASURE • SINCE 1898

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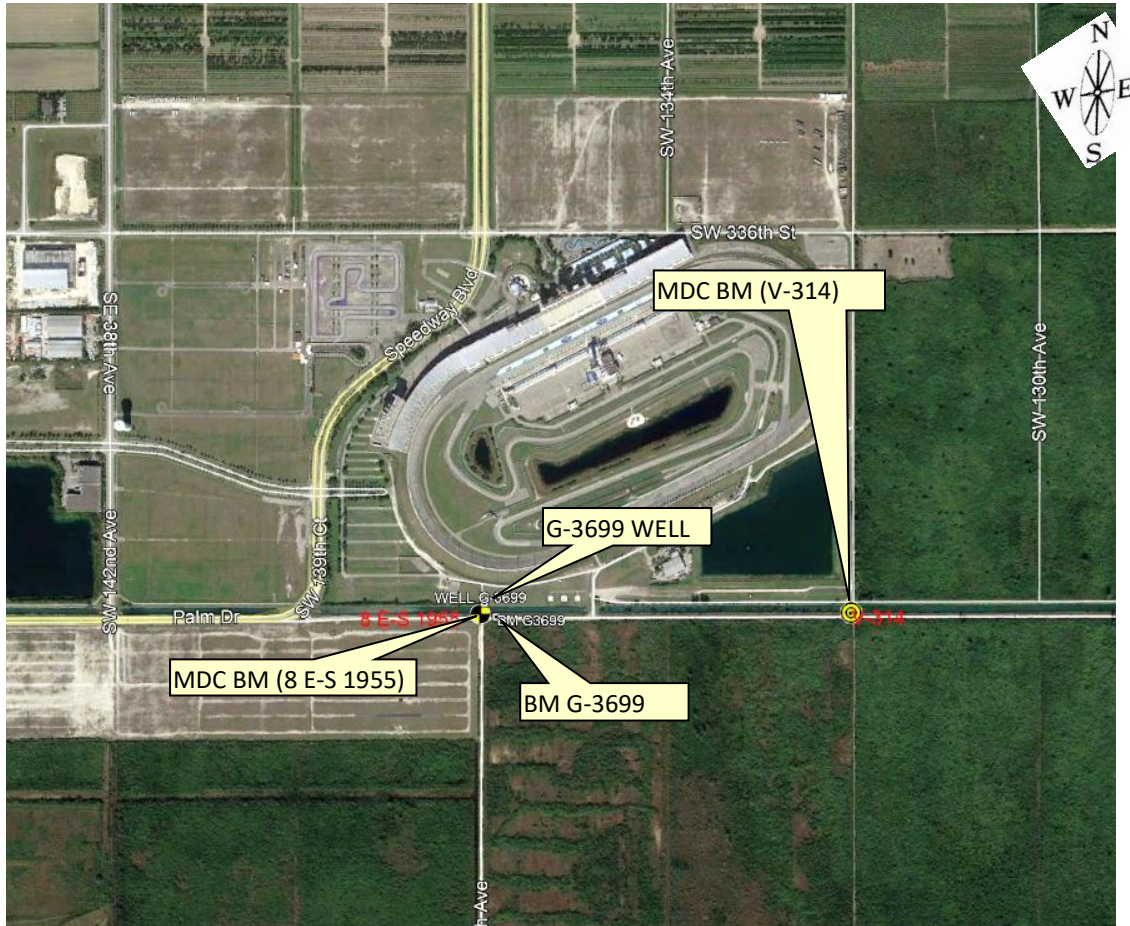
SURVEYOR'S REPORT

PURPOSE

The purpose of this survey is to set an Elevation Reference Mark (Benchmark) consisting of a mag nail and washer and to establish a North American Vertical Datum of 1988 (NAVD 88) elevation on said Benchmark and on an additional Reference Point with a Brass plate, both at United States Geological Survey Well G-3699.

LOCATION OF PROJECT

The United States Geological Survey's Recorder Well **G-3699** is located in Section 23, Township 57 South, Range 39 East, Miami-Dade 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-3699 add 1.53'**. 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

The project horizontal datum is the North American Datum 83 (NAD 83(2011)) (EPOCH:2010.0000).

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 (.05 √ miles) on this project meets or exceeds third order closures as required by SFWMD for this project per executed SOW for 4600003705-WO04 and discussions with SFWMD.

A level loop was run from the Miami-Dade County Benchmark V-314, through the well site, and to the Miami-Dade County Benchmark 8 E-S 1955. The measurements were collected using an Automatic Level and were hand written in Biscayne Engineering Co, Inc. Field Book 2981 Pages 42-45, dated March 27, 2019 reduced and adjusted electronically. Additional data was manually recorded in the field book.

GPS METHODS

Latitude and Longitude for Benchmark G-3699 were established by observing a 3-minute session of GPS data on March 27, 2019 using a Trimble R-8-S and The Florida Permanent Reference Network (FPRN). The FPRN network consists of nearly 100 Continuously Operating Reference Stations (CORS) located throughout Florida.


EQUIPMENT USED


- Trimble GPS unit R-8-S, Serial Number 5625R066188.
- TOPCON DL-500 digital level Serial Number 512386 and a folding bar code rod.
- TOPCON Total Station GM-103, Serial Number ZQ000748.

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VERTICAL CONTROL POINT

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

M-DC V-314					
25° 26' 52.98" (N)	80° 24' 13.76" (W)	6.18 ft.	(NAVD88)	1.88 m	Published
		7.70 ft.	(NGVD29)	2.35 m	Published
		THE MARK IS LOCATED: SW 344 ST --- 40' NORTH OF C/L SW 132 AVE --- 19' WEST OF C/L NGS BRASS DISC IN CONCRETE			

M-DC 8 E-S 1955					
25° 26' 52.86" (N)	80° 24' 42.91" (W)	4.94 ft.	(NAVD88)	1.51 m	Published
		6.46 ft.	(NGVD29)	1.97 m	Published
		THE MARK IS LOCATED: SW 344 ST (SOUTH SIDE OF CANAL) --- 37' NORTH OF C/L SW 137 AVE --- 15' WEST OF C/L US GEOLOGICAL SURVEY DISC IN WEST END OF SOUTH CONC BRIDGE ABUTMENT.			

SURVEYOR'S REPORT

BM: G-3699 (Set as part of this survey)					
25° 26' 52.67" (N)	80° 24' 41.61" (W)	6.45 ft.	(NAVD88)	1.97 m	Level run
		7.98 ft.	(NGVD29)	2.43 m	
			ft. 1.53 (conversion factor)		Corpscon 6.0.1
		STATION IS A MAG NAIL AND WASHER STAMPED "BEC 0129 AND G-3699" SET ON THE TOP OF CONCRETE POST LOCATED: PALM DRIVE --- 15' NORTH OF CENTERLINE SW 137 TH AV. --- 110' EAST OF CENTERLINE			

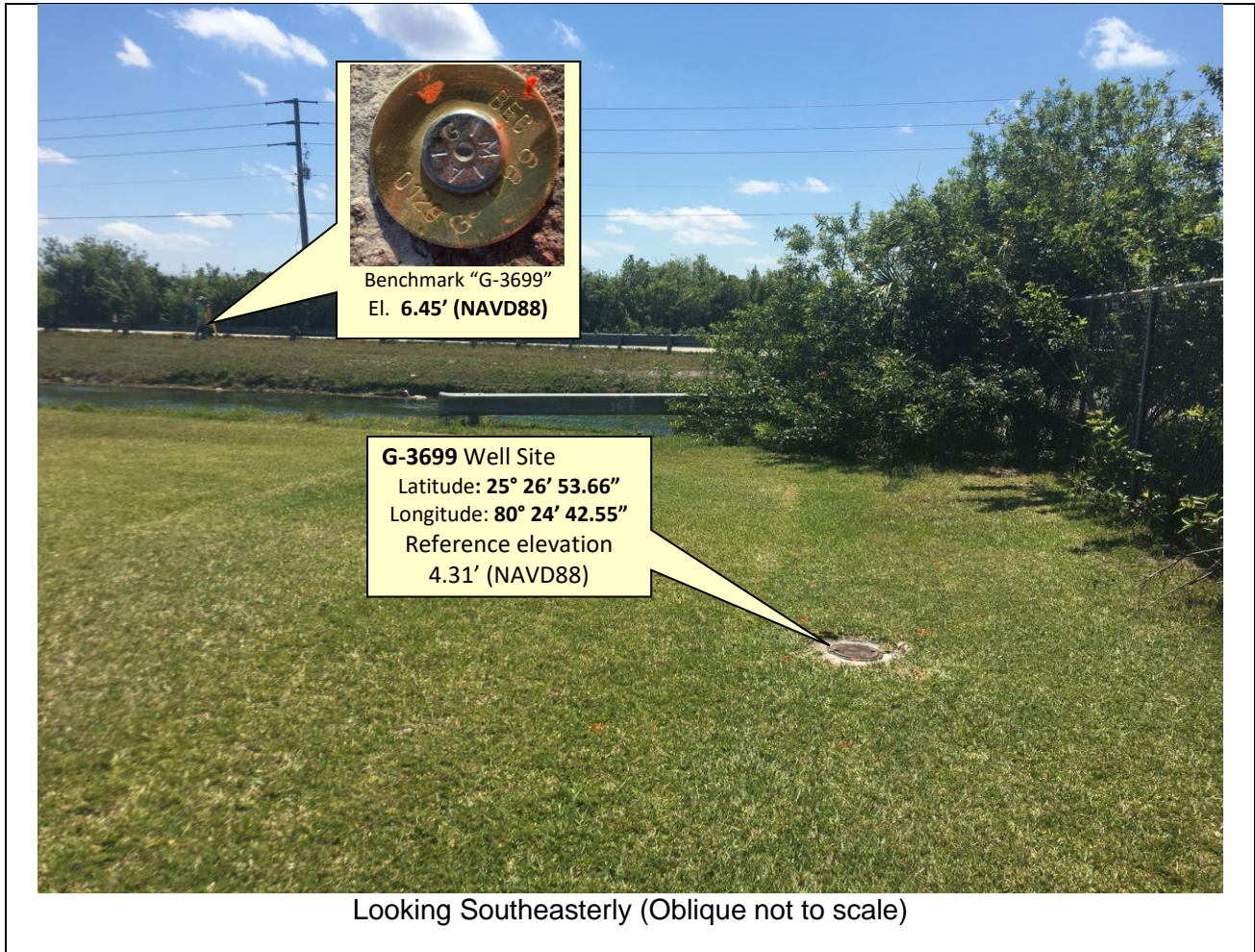
Field Book 2981, Page 44

BMS	BS	MEAN	HP	FS	MEAN	ELEV	BENCHM	DESC
TPL				620 4945 3635	4948	4234		SET NL ON SW 344 ST
SINGE	597 468 339	468	3914					
FXS				624 4735 3525	4733	4131		SET NL ON SW 344 ST
HAVE	541 460 379	460	3731					
BM 1				3121 2291	2291	6.45		SW 344 ST --- 15 FT NORTH OF SW 137 AV --- 100 WEST OF BEC NAIL STAMPED G-3699
HAVE	316 256 1965							
BM 2				465 4338 4028	4339	467		SW 137 AV --- 15 FT WEST OF SW 344 ST 10 FT N OF BEC NAIL G-3699

**BM G-3699
ELEVATION: 6.45'
(NAVD88)**

PROJECT RESULTS

Overall Site

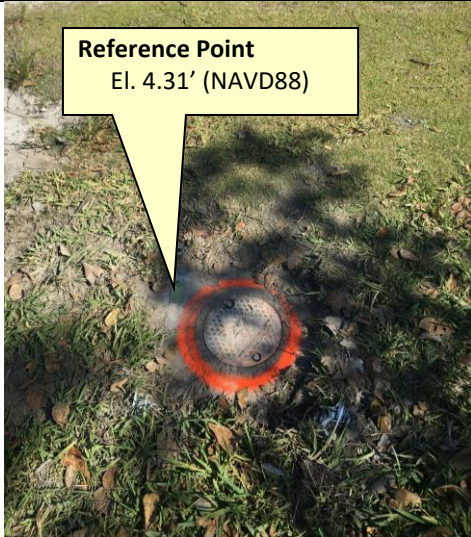
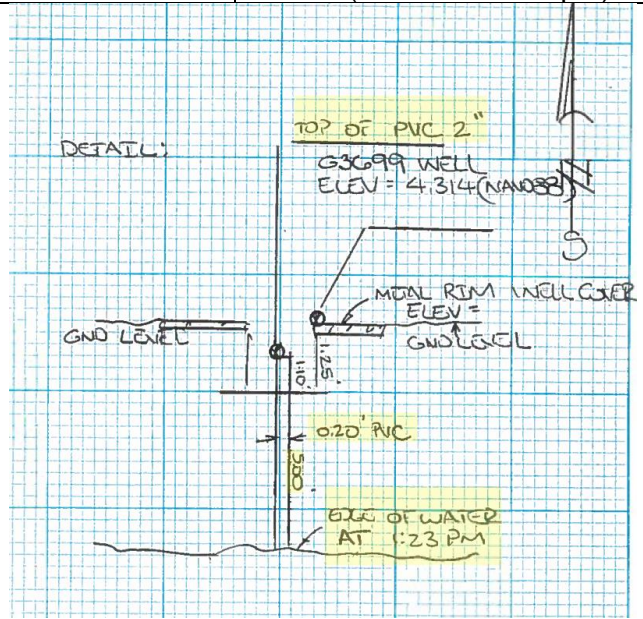


SURVEYOR'S REPORT

Tabular Form

Reference and Ground Elevations: (NAVD88)			
Well	Ground Elevation	Reference Elevation	Comments
G-3699	4.53 ft.	4.31 ft.	Top of 2" PVC Pipe.
Offset to NGVD29: +1.53' (See Project Vertical Datum Notes in Page: 4)			

Well diameter	Casing material	DTW
2"	Metal	5.00 ft. (3/27/19 at 1:23 pm)



Side view (Oblique Not to scale)



Top view (Not to scale)

SURVEYOR'S REPORT

Source & Site Benchmark	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon)
V-314 (M-DC)	6.18 ft. (Published)	7.70 ft.	
8 E-S 1955 (M-DC)	4.94 ft. (Published)	6.46 ft.	
G-3699 (SFWMD)	6.45 ft. (Measured)		7.98 ft. (Converted))

Surveyor's 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 1.53 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: March 27, 2019, BEC job No. 03-86445.
7. SFWMD Data records (on file at the District's headquarters):
 - A. Electronic Data files:
 - Miscellaneous picture files
 - B. Conventional reporting
 - Field Book: 2981 pages 42-45

Abbreviations:

- EI.** - Elevation
- DTW** - Distance to the water table inside the well
- M-DC** - Miami-Dade 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
- BEC** - Biscayne Engineering Company, Inc.

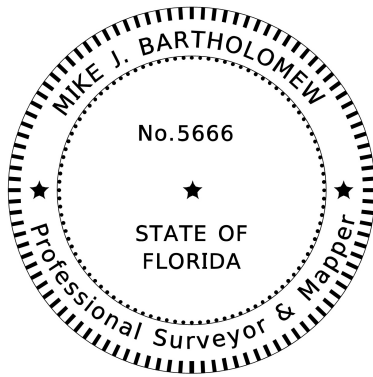
SURVEYOR'S REPORT

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
March 27, 2019

Mike Bartholomew, PSM, President
Florida Professional Surveyor and Mapper
License Number 5666
State of Florida
Biscayne Engineering Company, Inc. LB No 0129
529 West Flagler Street, Miami, FL. 33130
Tel (305) 324-7671





SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18

DESIGNATION: G-3699	PROJECT: G-3699
ESTABLISHED BY: SOUTH FLORIDA WATER MANAGEMENT DISTRICT	SURVEYOR: Mike Bartholomew
RECOVERED BY: BISCAYNE ENGINEERING CO.	DATE: 03/27/19

GEOGRAPHIC POSITION

SECTION 26	TOWNSHIP 57 SOUTH	RANGE 39 EAST
COUNTY: MIAMI-DADE	NAME OF QUADRANGLE: HOMESTEAD GEOGRAPHIC INDEX OF QUAD:	

HORIZONTAL DATUM: 1927 **1983** 2022 Other _____ (circle one) ZONE **E** or W

VERTICAL DATUM: MSL 1929 **1988** 2022 Other _____ (circle one)

VERTICAL ACCURACY: 1 2 **3**

STATE PLANE COORDINATE	(N) Y= 405486.12	(E) X= 850336.59	NAVD 88 EL. 6.45' NGVD 29 EL. 7.98'
------------------------	------------------	------------------	--

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.)
 ACTUAL NGS or (ngvd29.txt file)
 OPUS Ortho Height

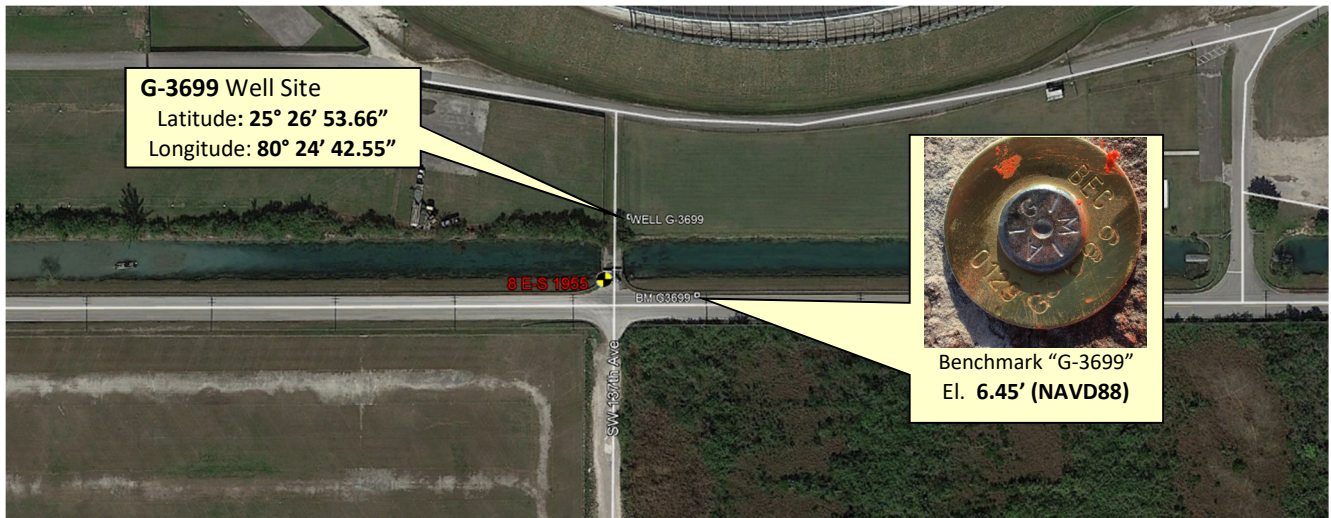
LATITUDE: **25° 26' 52.67" (N)** LONGITUDE: **80° 24' 41.61" (W)** (Source) GPS RTK (FPRN)

RECOVERY DATA

Stamping: G-3699 BEC 0129
 To Reach: STATION IS A MAG NAIL AND WASHER STAMPED "BEC 0129 AND G-3699" SET ON THE TOP OF CONCRETE POST. LOCATED: PALM DRIVE --- 15' NORTH OF CENTERLINE, SW 137TH AV. --- 110' EAST OF CENTERLINE.
 NOTABLE LAND MARKS: HOMESTEAD-MIAMI SPEEDWAY
 MDC-SOURCE BENCHMARK: V-314, 8 E-S 1955
 FIELD BOOK PAGE 2981- 44

PICTURES

Aerial Overall Site



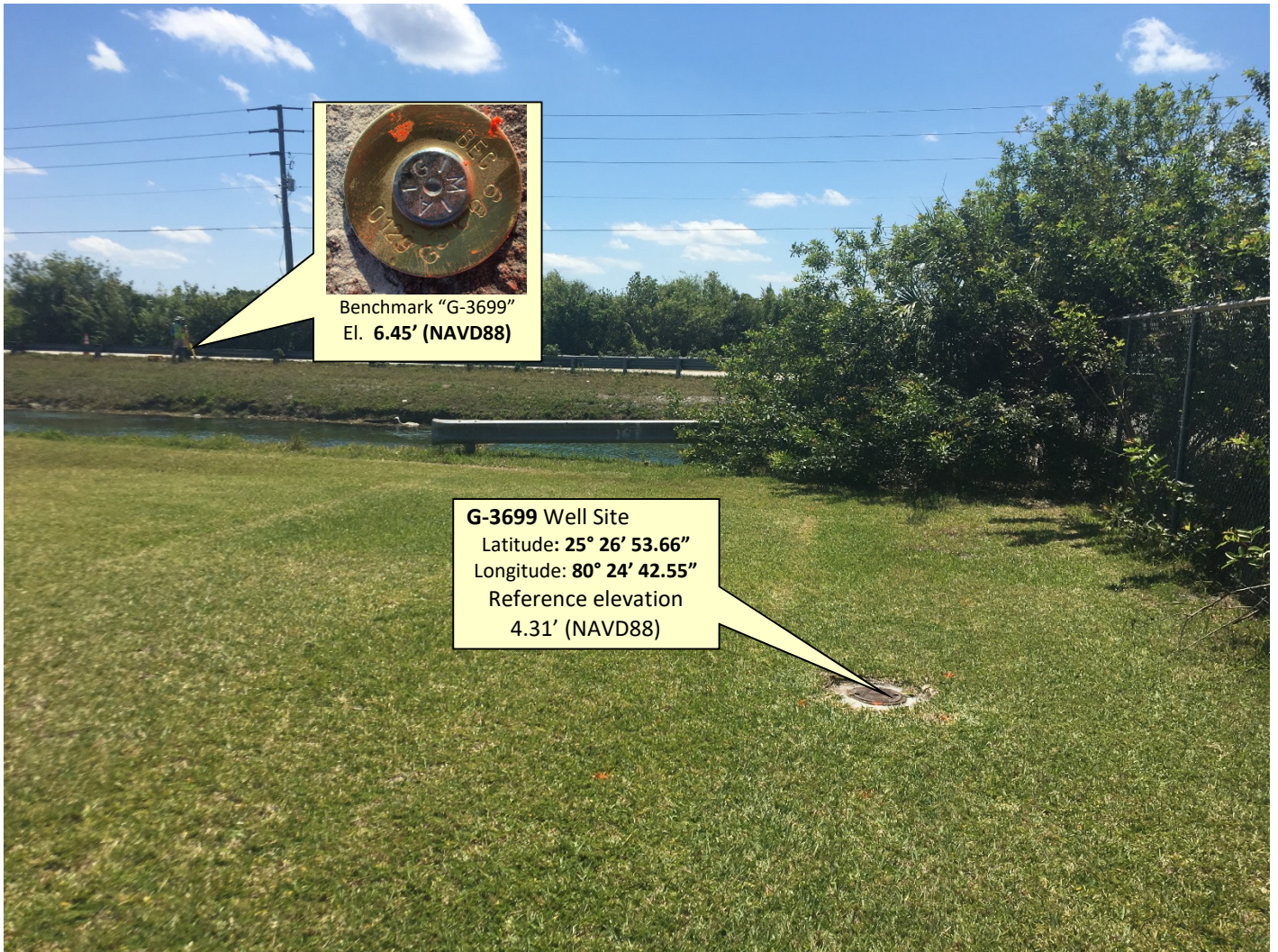
NOT TO SCALE (Google Earth product)



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18

Overall Site



Benchmark "G-3699"
El. 6.45' (NAVD88)

G-3699 Well Site
Latitude: 25° 26' 53.66"
Longitude: 80° 24' 42.55"
Reference elevation
4.31' (NAVD88)

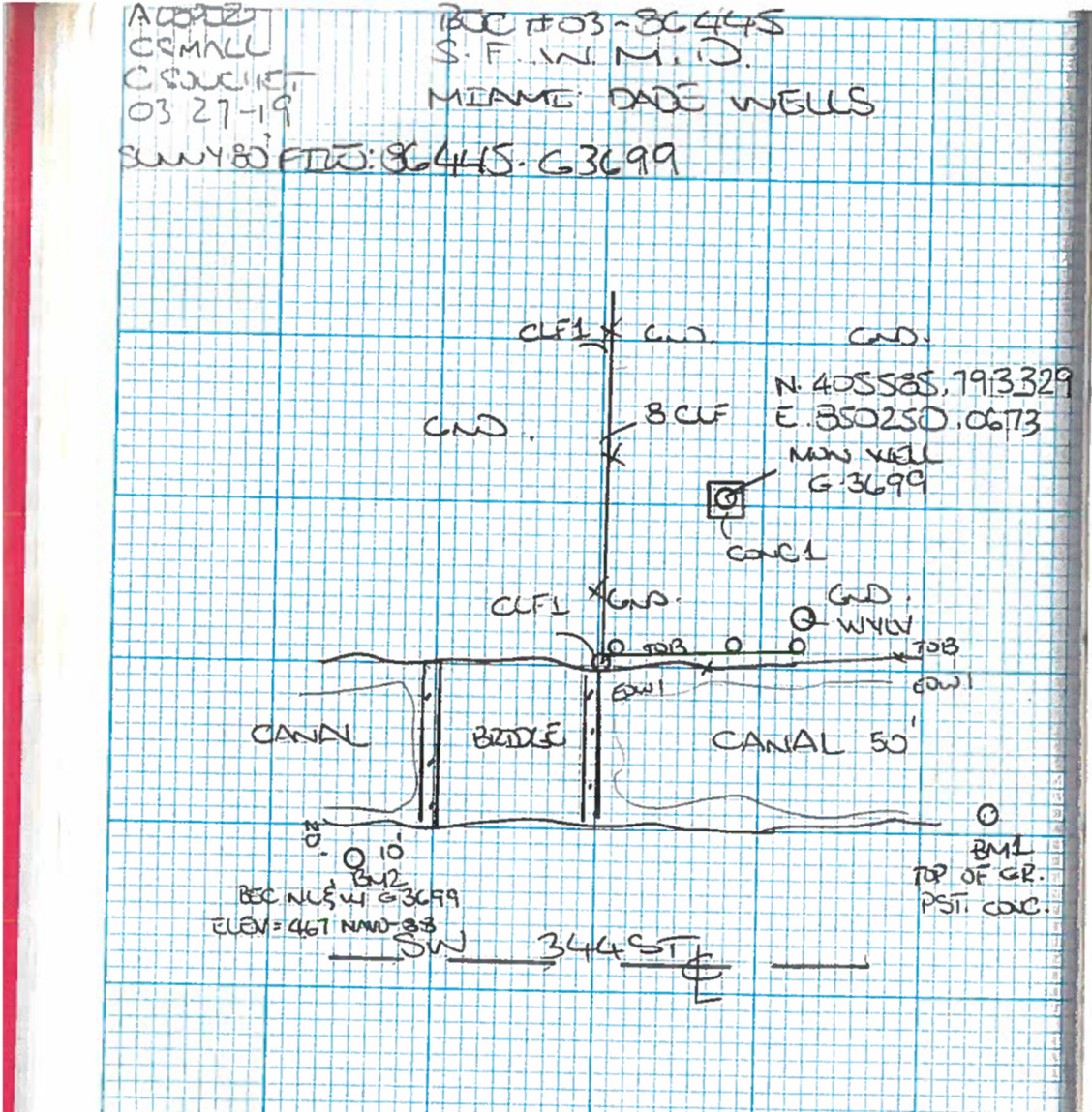
Looking Southeasterly (Oblique not to scale)



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18

SKETCH



Office

Project

22 May 2019

INPUT

Geographic, NAD83
Vertical - NAVD88, U.S. Feet

OUTPUT

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

BM G3699

1/1

Latitude: 25 26 52.67
Longitude: 80 24 41.61
Elevation/Z: 6.45

Latitude: 25 26 52.67000
Longitude: 80 24 41.61000
Elevation/Z: 7.976

Remark:

Office

Project

22 May 2019

INPUT

Geographic, NAD83
Vertical - NAVD88, U.S. Feet

OUTPUT

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

WELL G3699

1/1

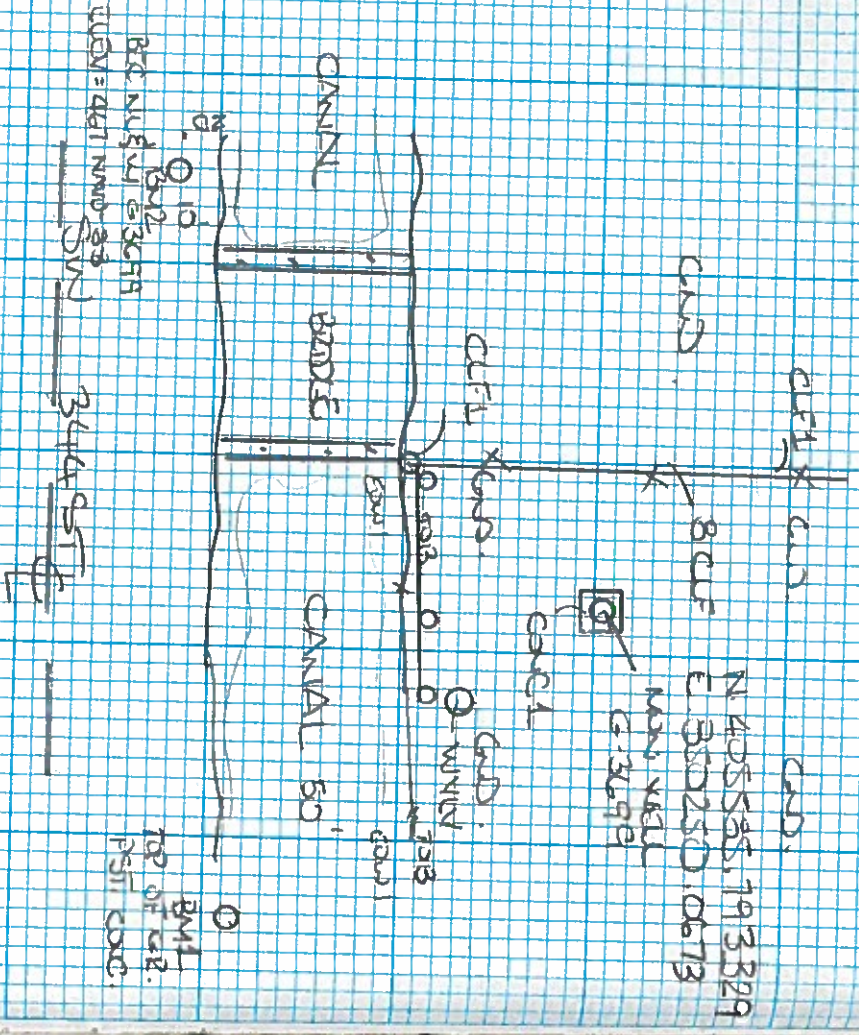
Latitude: 25 26 53.66
Longitude: 80 24 42.55
Elevation/Z: 4.31

Latitude: 25 26 53.66000
Longitude: 80 24 42.55000
Elevation/Z: 5.836

Remark:

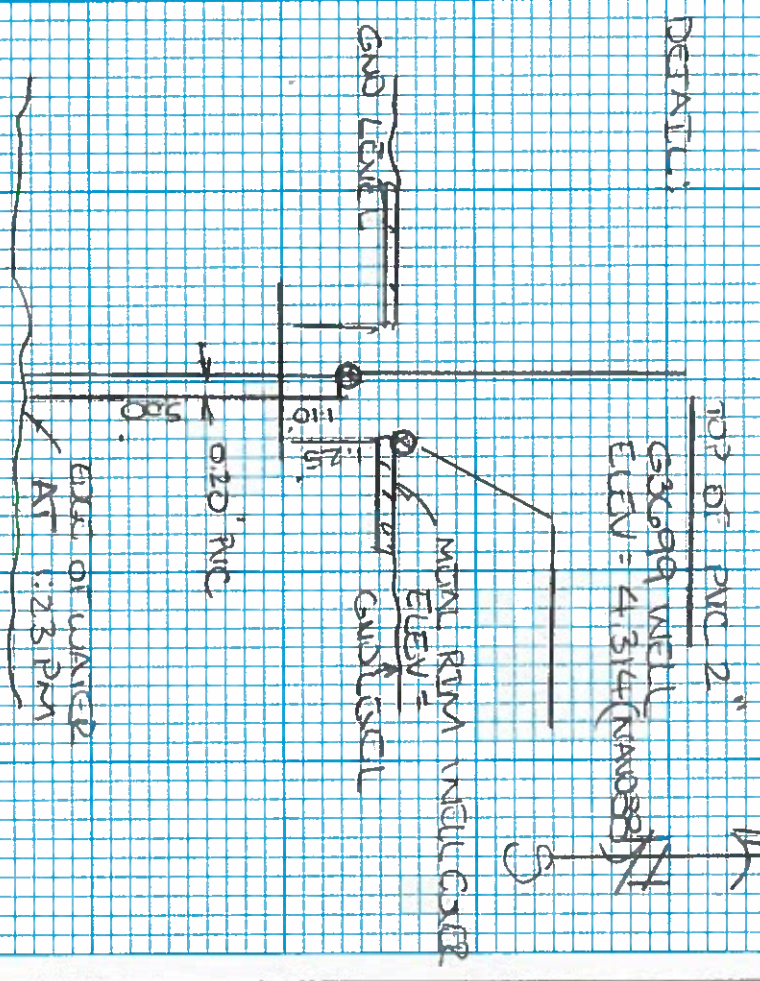
ALBIZ
 CSMNL
 CSMNL
 03-27-19
 BUREAU FILE: 36445-63699

BOG #03-36445
 S.F. IN N.D.
 MINNEAPAC WELLS
 LOCATIONS AND ELEVATIONS FOR



4.3699 WELLS

DETAILS



BEIJING #03-36445

S.F. W. N. D.

MEANING MADE WORDS

AUCR2
SMALL
ESCAPEMENT
08.27-19
SUNNY 85° BENCH RUN FOR WELL G-3699

3M5 B5 MEAN WT FS MEAN

V-314
NAV88
335
3023
2693
3022 9202

TP1
626
496
365
597
474
350
473 6

SHANK
626
496
365
4956 9422

TP2
603
471
335
4706

SHANK
1905
470
349
4698 9414

TP3
607
489
371
489 489

SHANK
599
465
335
465 9174

EUSY

BAN EUSY DSC

6.18 (UNIT 88)

SUN 3445ST-40 NORTH

SUN 132 ANT-19 WEST
OF THE NICS BRASS DSC.

4466
SET ALL ONI ASSEMBLY

4716
SET ALL ONI ASSEMBLY

4524
SET ALL ONI ASSEMBLY

140002
 03-27-19
 03-27-19
 BONDING - BONDING FOR WELD G-3699

BONDING
 STUWARD
 MANDI WELLS

BMS 135 MENU MID FS MENU

620
 4945 4948
 3682

EXOT: BUBLES: DORC.
 SET NL ON SW 344101

TR4
 497
 4030 339
 468 8914

604
 4785 4783
 3525

4131
 SET NL ON SW 344101

SHAKC 460
 379
 460 8731

3121
 2281 2281
 1442

645
 SW 344101 15 FT WEST
 OF SW 137 AND 100 FT WEST
 OF E BDC WELLS MI STAMPED
 G-3699

SHAKC 816
 250 1905
 2550 9003

465
 4330 4338
 4028

467
 SW 137 AND 15 FT WEST
 OF SW 344101 10 FT WEST
 OF E BDC WELLS MI STAMPED
 G-3699

BML2

AUDIT
 OSMAU
 CSDJHCIT
 03-27-19
 SUNNY RD
 BENCH RUN FOR WELL G-3699

SECTION 8-36-99
 SEWING
 MINUTE PAIDS WELLS

PMS 185 MOUND HT FS NEAN

SUDK 4545 4231 8901
 423 392

TDC 434
 3941 3942
 3545

ANVC 4428 4426 9385
 3722

TOP OF 2" PVC 4905
 5011
 4224

N. RIN 565
 4825 4825
 399

SHAK 325
 4325 4325 8885
 525

8-ES 458
 3942 3943
 3309

NAVD88

21701-40

ELEV. BUREAU DESS

4959 SET N/C

4314 TOP OF PVC 2"

436 MAIN LID COVER
 N. RIN

4942 494 (NAND-88)
 (ELEV: 0027)
 SW 3/4 ST SOUTH SIDE DE
 CANAL SW 3/4 N.E. 15 WEST
 OF CENTER LINE U.S.G
 SURVEY OSC

Survey Control Points

Horizontal a



Find address or place

About

V-314 - NEW

Name: V-314

Elev(NGVD29): 7.70

Elev(NAVD88): 6.18

Northing: 405,528.16

Easting: 852,889.28

Location1: SW 344 ST --- 40' NORTH OF C/L

Location2: SW 132 AVE --- 19' WEST OF C/L

Location3:

Description1: NGS BRASS DISC IN CONCRETE

Description2:

Field Book:

Zones: VII

Circuit:

Set Date: 08-23-2005

Locator: 7914 W

Last Check: 08-23-2005

Adjustment:

Adjustment-Date: 03-09-2011

Status: NEW



Public Works Survey Control Point

Welcome to Miami-Dade County Survey Control Points.

Public Works Survey Control Points is an Web Application that displays the Horizontal and Vertical Control Points layers as well as street maintenance layer and Municipality for Miami-Dade County. It is being used by Public Works Department in Miami-Dade County.

The information available in this search has been assembled for the use of Miami-Dade County Public Works for the design and development of Public Works projects. No degree or order of accuracy has been assigned to data in this package unless specifically stated.

Although this package has been prepared from the best available information, Miami-Dade County assumes no responsibility for the accuracy or completeness of the information or any errors or omission and makes no warranties, expressed or implied, concerning accuracy, completeness, reliability or suitability of this data.

This data should not be relied upon as the sole basis for solving a problem whose incorrect solution could result in injury to person or property. Elevations must be verified consistent with procedures established by Chapter 472 Florida Statutes "Land Surveying and Mapping" and the Florida Administrative Code Chapter 61G17-6 "Minimum Technical Standards".

Some of the GIS datasets presented in this website are available for free download. Please visit our [Open Data](#) website for more information.

For questions, comments or to report a problem with this website, please email [Miami-Dade County GIS](#).

PALM DR

[Zoom to](#)

100ft

-80.404 25.448 Degrees

Survey Control Points

Horizontal a



+ Find address or place About

8 E-S 1955 - EXISTING

Name: 8 E-S 1955

Elev(NGVD29): 6.46

Elev(NAVD88): 4.94

Northing: 405,505.14

Easting: 850,217.44



Public Works Survey Control Point

Welcome to Miami-Dade County Survey Control Points.

Location1: SW 344 ST (SOUTH SIDE OF CANAL) --- 37' NORTH OF C/L

Location2: SW 137 AVE --- 15' WEST OF C/L

Location3:

Description1: US GEOLOGICAL SURVEY DISC IN WEST END OF SOUTH CONC BRIDGE ABUTMENT.

Description2:

Field Book:

Zones: VII

Circuit: 536,538

Set Date:

Locator: 7924

Last Check: 07-19-2010

Adjustment:

Adjustment-Date: 03-09-2011

Status: EXISTING

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[Zoom to](#)

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200ft
-80.410 25.448 Degrees