

# SURVEYOR'S REPORT

Specific Purpose Survey of the United States Geological Survey Recorder Well G-614 in Miami-Dade County, Florida

**Prepared for:** 

# South Florida Water Management District

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**Prepared by:** 

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

> Field Date: March 29, 2019 Report Date: May 08, 2019 BEC Order #: 03-86445

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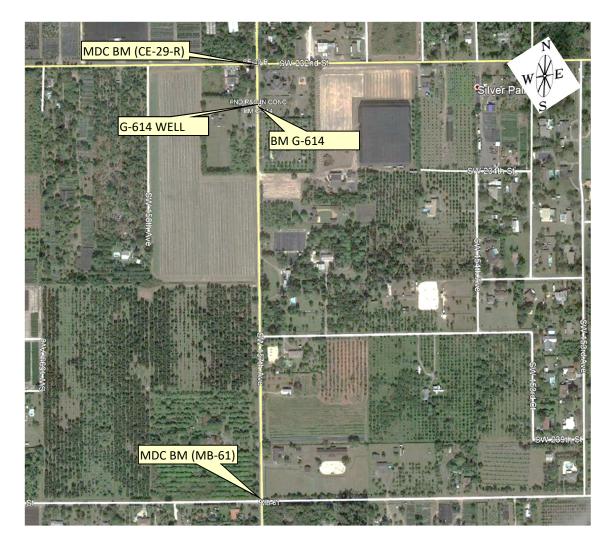
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## **PURPOSE**

The purpose of this survey is to set an Elevation Reference Mark (Benchmark) consisting of a 3/4" iron rebar and cap 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-614**.

## LOCATION OF PROJECT

The United States Geological Survey's Recorder Well **G-614** is located in Section 21, Township 56 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-614 add 1.52**'. 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  $\checkmark$  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 MB-61, through the well site, and to the Miami-Dade County Benchmark CE-29-R. The measurements were collected using a Digital Level and were hand written in Biscayne Engineering Co, Inc. Field Book 2995 pages 6-10, dated March 29, 2019, reduced and adjusted electronically. Additional data was manually recorded in the field book.

#### **GPS METHODS**

Latitude and Longitude for Benchmark G-614 were established by observing a 3-minute session of GPS data on March 29, 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-502 digital level Serial Number 512386 and a folding bar code rod.
- TOPCON Total Station ES 103, Serial Number ZQ000748.

## VERTICAL CONTROL POINT

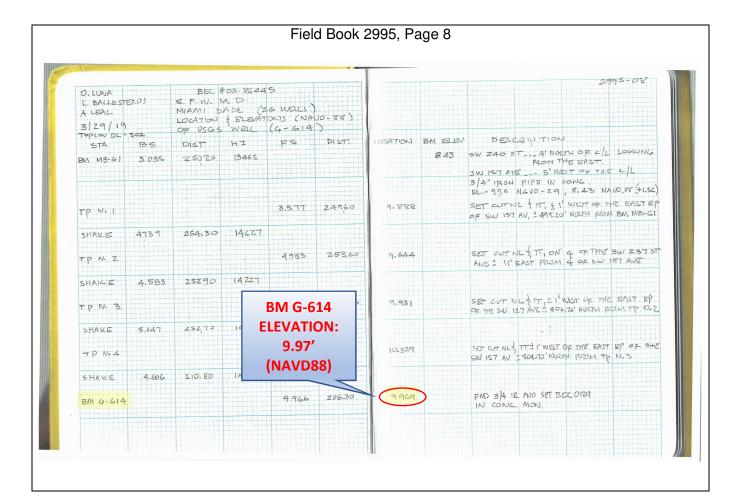
The Vertical Control point utilized and set as part of this survey is the:

M-DC BM MB-61				
25° 32' 36.81" (N) 80° 26' 43.58" (W)	8.43 ft.	(NAVD88)	2.57 m	Published
	9.95 ft.	(NGVD29)	3.03 m	Published
		TH STREET, 4		
		RLINE LOOKIN		
		TH AVENUE, 5	FEET WE	ST OF THE
and the second of the second of the	CENTE	RLINE.		
and the second states and the second	3/4" IRC	ON PIPE IN CO	NCRETE	MONUMENT.
A CONTRACTOR OF A CONTRACTOR O				
A state of the second se				
AND ALL AND				
The second s				

M-DC BM CE-29-R				
25° 33' 3.41" (N) 80° 26' 43.84" (W)	11.12 ft.	(NAVD88)	3.39 m	Published
	12.65 ft.	(NGVD29)	3.86 m	Published
	SOUTHW CENTER ON CENT BRASS D AND IS T	/EST 232 <sup>ND</sup> S <sup>-</sup> LINE. SOUTH FERLINE. DISK IN CONC HE SOUTHEA 17-56-39.	IREET ON IWEST 157	<sup>™</sup> AVENUE NUMENT

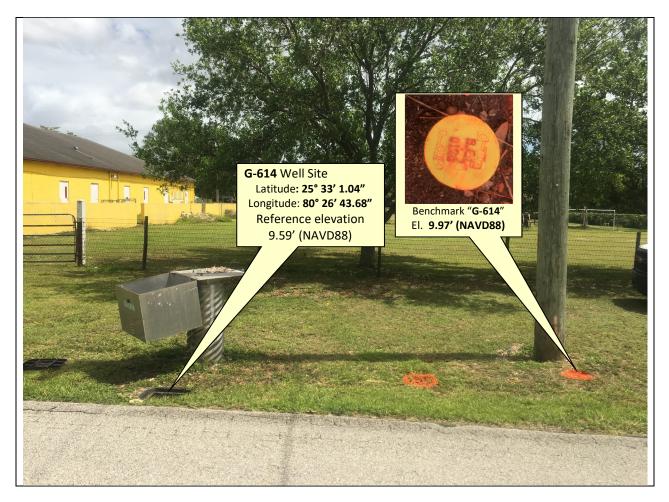
#### SURVEYOR'S REPORT

BM: G-614 (Set as part of this survey)				
25° 33' 0.91" (N) 80° 26' 43.64" (W)	9.97 ft.	(NAVD88)	3.04 m	Level run
NAD_83(2011)(EPOCH:2010.0000)	11.50 ft.	(NGVD29)	3.51 m	Converted
			1.52 ft. (conversion factor)	Corpscon 6.0.1
		S 3/4" IRON I 9 "G-614 BEC	REBAR AND ( 0129)	CAP
	WITH SW 1	I 57 <sup>™</sup> AV, 254	TION OF SW 2 4 FEET SOUT TO THE EAS	H ON SW



## PROJECT RESULTS

**Overall Site** 



Looking Easterly (oblique not to scale)

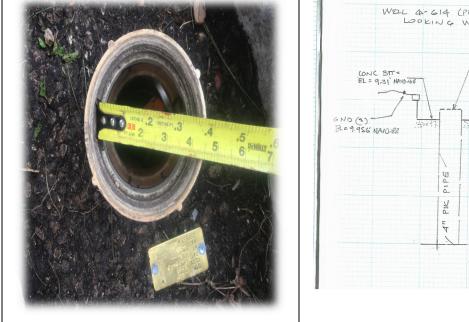
## Tabular Form

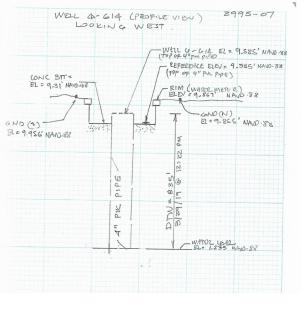
Reference and	<b>Ground Elevations</b>	: NAVD	38				
Well	Ground Elevation	Refere	nce Elevation	Comments			
G-614	9.96ft.	9.59 ft.		Top of 4" PVC PIPE	op of 4" PVC PIPE		
Offset to NGVD2	29: +1.52' (See Proje	ect Vertio	cal Datum Note	in Page: 4)			
Well diameter			Casing mater	I DTW			
4"			Metal	8.35 ft. (03/29/1	9 at 12:22 PM)		

USGS Published: (Per USGS Report Site #: 253258080264301 G-614) (NGVD29)								
Well	Ground Elevation	Ground Elevation Reference Elevation Comments						
G-614	-	11.002	Top of flange					

Source & Site Benchmark	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon) 6.0.1
CE-29-R (MDC)	11.12 ft. (Published)	12.65 ft.	
MB-61 (MDC)	8.43 ft. (Published)	9.95 ft.	
G-614 (SFWMD)	9.97 ft. (RM-1)		11.50 ft. (Converted)
RM-2	9.849 ft. (Measured)		

## Well Photos and Diagrams (Continued)





#### Well Photos and Diagrams (Continued)



#### 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 1.53 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 29, 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: 2995 pages 06-10

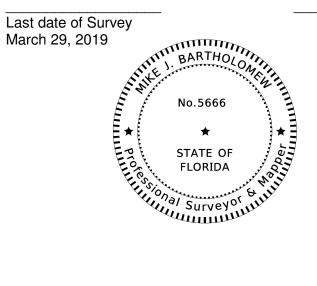
#### Abbreviations:

El	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 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.



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-614		PROJECT: G-614	
ESTABLISHED BY: SOUTH FLORIDA V DISTRICT	WATER MANAGEMENT	SURVEYOR: Mike Bartholome	ew
RECOVERED BY: BISCAYNE ENG	INEERING CO.	DATE: 03/29/19	
	GEOGRAPH	IC POSITION	
SECTION 21	TOWNSHIP 56 SOUTH	RANGE 39 EAST	
	NAME OF QUADRANG	ALE: GOULDS	
COUNTY:MIAMI-DADE	GEOGRAPHIC INDEX	OF QUAD:	
HORIZONTAL DATUM: 1927 (19	83 2022 Other (0	circle one) ZONE 🕑 or W	
VERTICAL DATUM: MSL 1929	(1988) 2022 Other	(circle one)	
VERTICAL ACCURACY: 1 2 3	)		
STATE PLANE COORDINATE	(N) Y= 442614.05	(E) X= 838996.80	NAVD 88 EL.9.97' NGVD 29 EL. 11.50'
CORPSCON 6.0.1 CONVERSION F Development Center Topographic Engineering Cel vertcon05.txt and vertcon05.05 files supplied by ACTUAL NGS or (ngvd29.txt file) OPUS Ortho Height	nter Alexandria, Virginia Windows	-based program to convert coordinates and	rs Engineering Research and
LATITUDE: 25 ° 33' 0.91 " (N)	LONGITUDE: 80° 26'	43.64" (W) (Source) GPS R	TK (FPRN)
	RECOVE	RY DATA	
Stamping: G-614 BEC 0129			
To Reach: FROM THE INTERSECT AND 14 FEET TO THE EAST.	ION OF SW 232ND ST V	VITH SW 157TH AV, 254 FEET	SOUTH ON SW 157TH AV
NOTABLE LAND MARKS: SW 157 <sup>TH</sup>	AVENUE		
MDC-SOURCE BENCHMARKS: BM	l-61, CE-29-R		
FIELD BOOK PAGE 2995-08	PICT		
	Aerial Ov		
C-614 Well Site Latitude: 25° 33' 1.04" Longitude: 80° 26' 43.68"	WELLS-614 FND R&C IN COM BM G-614	Benchmark "G-62 El. 9.97' (NAVD	



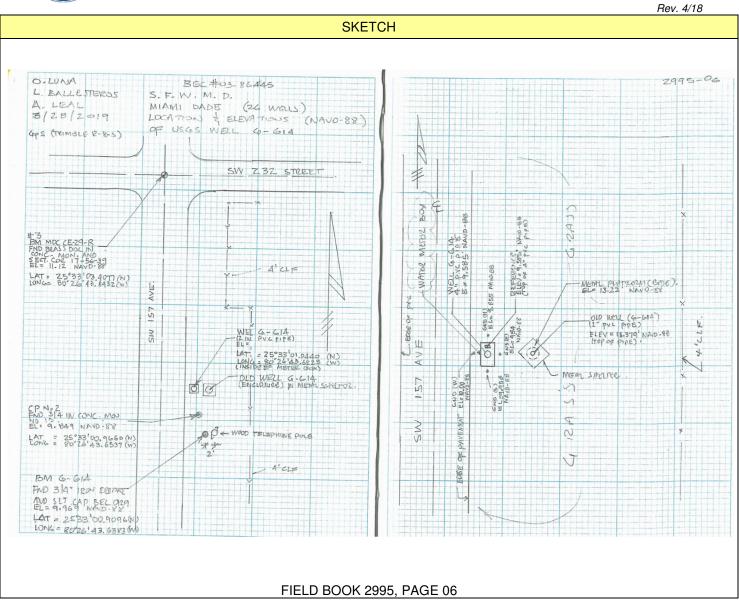
# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Looking Easterly (oblique not to scale)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT



# Office

Project

16 April 2019

#### INPUT

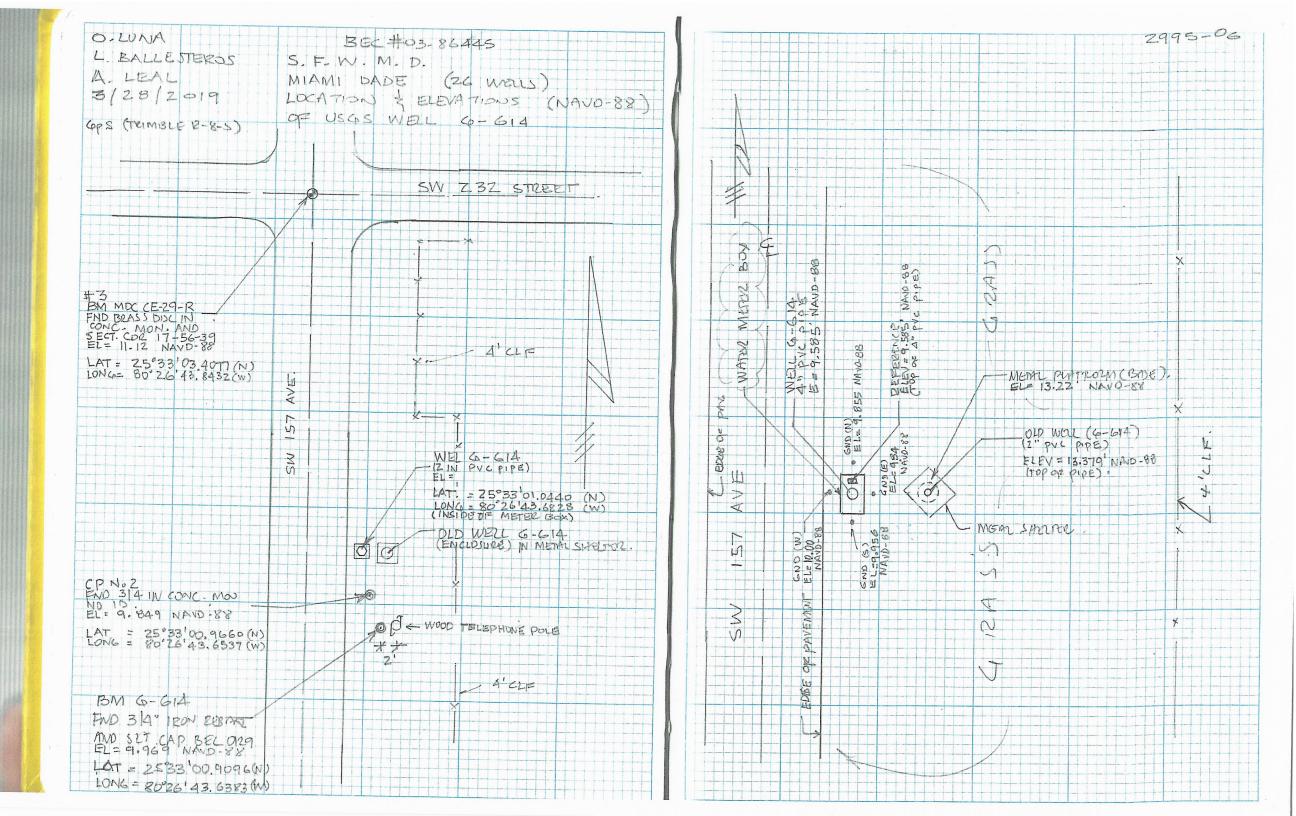
Geographic, NAD83 Vertical - NAVD88, U.S. Feet

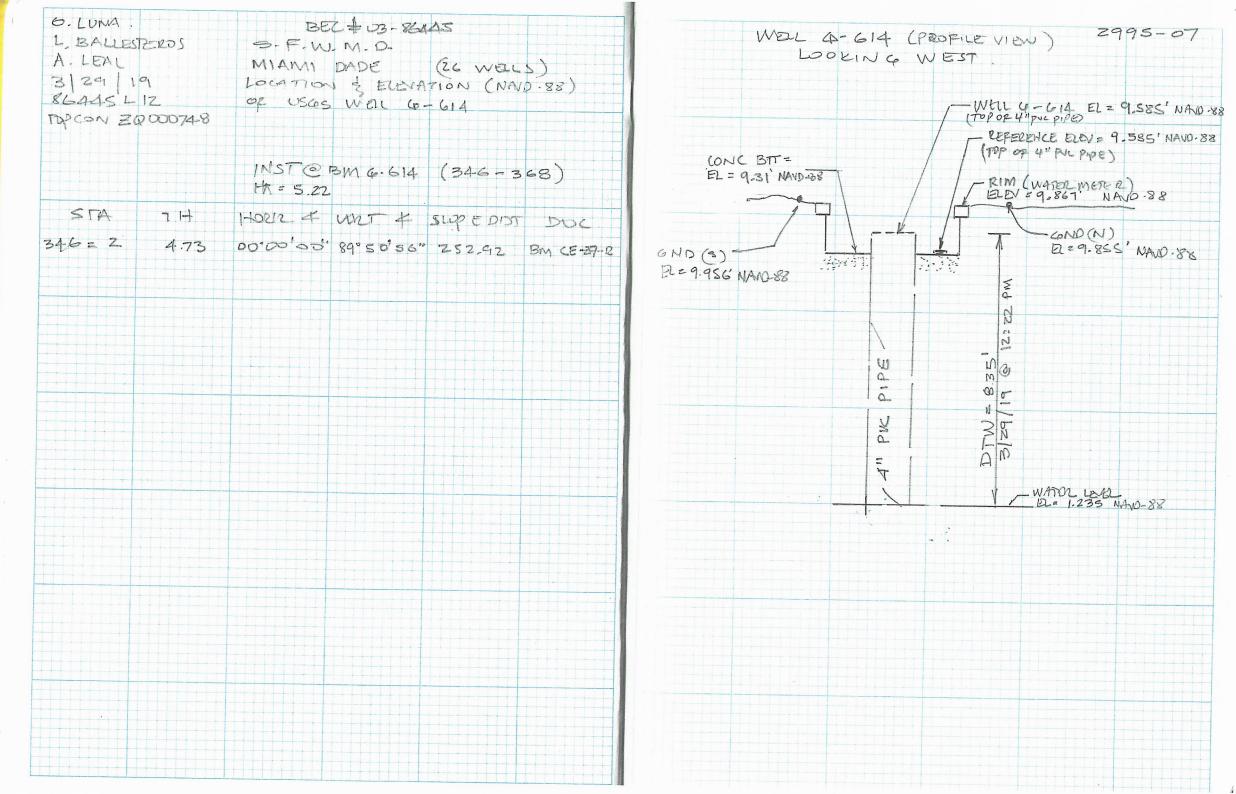
#### OUTPUT

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

#### G-614

Latitude: 25 33 00.91 Longitude: 80 26 43.64 Elevation/Z: 9.969 1/1 Latitude: 25 33 00.91000 Longitude: 80 26 43.64000 Elevation/Z: 11.495





	BEC #03-8644	E			2995-08
2. LUNA BALLESTERDS H. LEAL	S. F. W. M. D. MIAMI DADE (2 IOCATION & ELEVATI	6 WALS.)	JD-88)		
3/29/19 opcon DL - 502 STA 135 N MB-61 5.035	OF USGS WELL	(4-614 FS	)	HEVATION BM EL	EV. DESCRIPTION. SW Z40 ST 4' NOETH OF C/L LODKING
					FROM THE EAST. SW 157 AVE 5' WOT DE THE C/L. 3/4" IRON PIPE IN CONC. EL= 995 NGVD-29, 8.43 NAVD, 88 (+1.52)
P N. 1		3,517	24960	9.888	SET CUTNZ & NT, ± 1' WENT OF THE EASTER OF SW 157 AV, ± 499.20' NOUTH FROM BM MB-GI
5HAKE 4739 PN-2	254.30 14627	4.983	2.53.60	9.644	SET OUT NL & T. ON' q. OF THE SW 237 ST AND = 11' EAST FROM & OR SW 157 AVE
HAILE 4.583	2.5290 14227	4.296	253.30	9.931	SET OUT NUZTT, ± 1 WEST OF THE EAST EP OF THE SW 15.7 AVE ± 506,70' NURTH FROM TO 10-7
TP No 4	252.70 14.978	4649	252.00	10.329	SET CUT NLZ TTZ I' WEST OF THE EAST EP OF THE SW 157 AV. 1 504.70' NORTH FROM TO N.3
SHAKE. 4.606	210.80 14.935	4.966	206.30	9.969	FND 3/4 12 AND SET ISEC 0129

L BALLES A. LEAL 3/29/20	219	S.F.W MIAMID LUCATION OF USGS	C # 03-86. N.M.D. DADC ZG V ? ELEVATI S WELL CO.	· (wars) 10N (N 614	NAUO-88)		2995-09
STA BM 4-614	BS 4.667	MEAN	1-1 7-	PS	MBAN	MENATION BME	2201. DESCRIPTION 1969
	5.446	91.90	15.295	4.787	29.4-0	7.84-9	17ND 3/4 IRON RERAZ IN GONC, MON
DLD WEZL M. PLATFORM				1.916		13.379	TOP OF 2" PVC
ONC. BTT				2.073 5.983		9.312	ON METAL BASE (OUS WELL) CONC. INSIDE THE NEW WELL G-614
NEIL 6-614				5,710		9.585	TOP OF 4" PVC PIPE
POPCAJE NO (N)				5.428	83.40	9.867	ON NO2777 RIM OF A WATER MOSER BOX
ND (E)				5.440 5.455	82.90	9.855	ON EAST GRASS
ND (5)				5.339	84.00 85.50	9.956	ON SANTH GALASS
ND (W)				5.292	84-20	10.003	on wey corans
(w)				4,863	8460	10.432	ON EP WEST TO THE WELL 6.614

A. LEAL 3 29 2019 86445 L 12	MIAMI LOCATIO	DADE V & ELEVA es war	nas (N) 6-614	AND 88)							
STA BS	PS7-	HT.	FS	DIST	REVADON	BM ELO	DE	scription	)		
NAVD88			4.174	156.80	11-12.1	11.12		ST ON			
							BRASS U IS THE S	AV ON MUC IN · CC SE SCUT. CO	R. 17-56.	-39	
					Dupor e	+a.001	ELEV = 1	2.65 N6V9-	29, R= 11.12	NAJD-88 (+	1.53)

## Search Address or Control Point

Search for an address or locate on map



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Vertical Control Points

CE- 29-R - EXISTING

Name: CE- 29-R

Elev(NGVD29): 12.65 Elev(NAVD88): 11.12 Northing: 442,872.73 Easting: 838,987.56

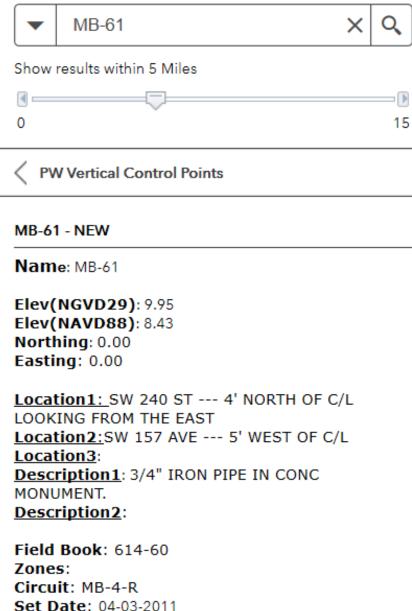
Location1: SW 232 ST --- ON C/L Location2:SW 157 AVE --- ON C/L Location3: Description1: BRASS DISC IN CONC MON AND IS THE SE COR 17-56-39. Description2:

Field Book: 470-27 Zones: IV-B Circuit: 448 Set Date: Locator: 6943 Last Check: 08-08-2012 Adjustment: Adjustment-Date: 03-09-2011 Status: EXISTING Search Address or Control Point

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Search for an address or locate on map



Set Date: 04-03-2011 Locator: 5943 S Last Check: 02-13-2011 Adjustment: Adjustment-Date: 04-03-2011

Status: NEW