

### SURVEYOR'S REPORT

Specific Purpose Survey of the United States Geological Survey Recorder Well G-3705 in Miami-Dade County, Florida

# Prepared for:

# **South Florida Water Management District**

3301 Gun—Club Road West Palm Beach, Florida 33406 Ph. (561) 686-8800 (ext. 2978) Fax (561) 682-0066

## 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: February 7, 2019 Report Date: March 20, 2019

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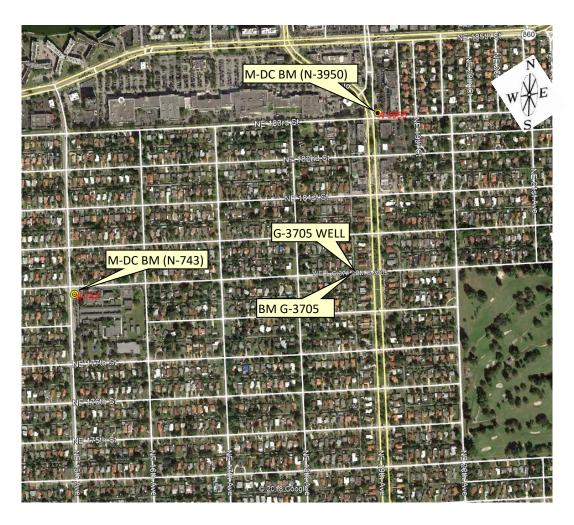
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## **PURPOSE**

The purpose of this survey is to set an Elevation Reference Mark (Benchmark) being 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-3705**.

## **LOCATION OF PROJECT**

The United States Geological Survey's Recorder Well **G-3705** is located in Section 9, Township 52 South, Range 42 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-3705 add 1.57**'. 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 N-743, through the well site, and to the Miami-Dade County Benchmark N-3950. The measurements were collected using an Automatic Level and were hand written in Biscayne Engineering Co, Inc. Field Book 2990 pages 18-23, dated February 07, 2019, reduced and adjusted electronically. Additional data was manually recorded in the field book.

#### **GPS METHODS**

Latitude and Longitude for Benchmark G-3705 were established by observing a 3-minute session of GPS data on February 07, 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 5625R066118.
- TOPCON DL-502 digital level Serial Number 512386 and a folding bar code rod.
- TOPCON Total Station ES 103, Serial Number ZQ000748.
- TOPCON Auto-level ATG3, Serial Number 5F9515.

# **VERTICAL CONTROL POINT**

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

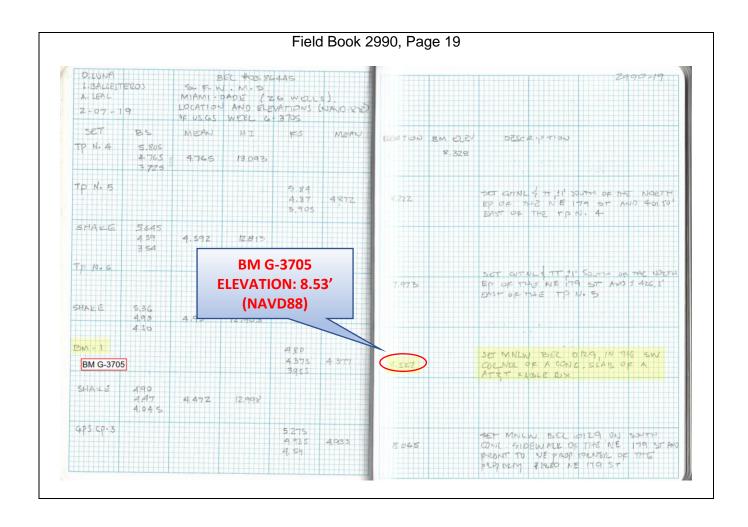
M-DC BM N-743			T	
25° 56' 24.51" (N)   80° 10' 13.76" (W)	8.99 ft.	(NAVD88)	2.74 m	Published
	10.56 ft.	(NGVD29)	3.22 m	Published
	SOUTH C NE 15 AV PK NAIL	 RK IS LOCAT OF C/L 'E 41' EAS AND BRASS TE SIDEWA	ST OF C/L WASHER I	

M-DC BM N-3950				
25° 56' 39.72"(N)   80° 09' 45.48" (W)	10.22 ft.	(NGVD 29)	3.12 m	Published
	11.78 ft.	(NAVD-88)	3.59 m	Published
	NORTH (	RK IS LOCAT DF C/L /E 35' EAS		
	LANE			
		AND ALUMIN T OF TRAFFI		

BM: G-3705 (Set as part of this survey)

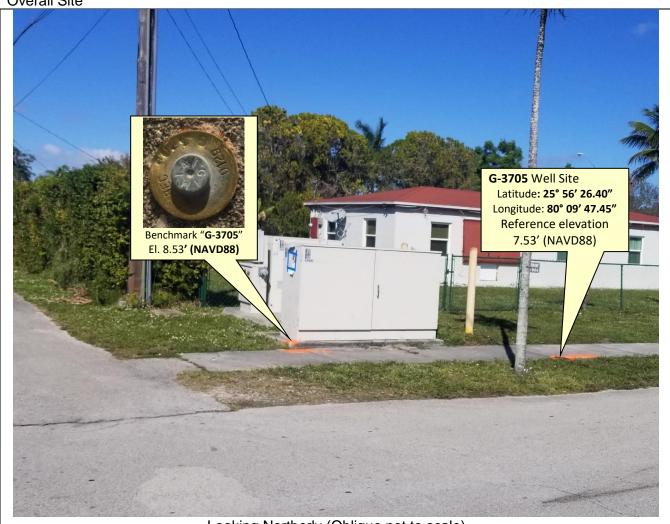
#### SURVEYOR'S REPORT

25° 56' 26.43" (N)	80° 09' 47.58" (W)	8.53 ft.	(NAVD88)	2.60 m	Level run
		10.10 ft.	(NGVD29)	3.08 m	Converted
			1.57 ft.		
			(conversion		
			factor)		
		STATION	IS A MAG NA	AIL AND WASH	ER
		STAMPED	"BEC 0129	and G-3705" S	ET ON
		THE SW C	ORNER OF	A CONCRETE	SLAB OF A
		AT&T CAE	BLE BOX		
		LOCATED	: NE 19 <sup>TH</sup> AV	'ENUE 150' \	WEST OF
		CL.			
		NE 179 <sup>™</sup> \$	STREET 1	8' NORTH OF	CL.
A PARTY OF THE PAR					



# PROJECT RESULTS

Overall Site



Looking Northerly (Oblique not to scale)

#### **SURVEYOR'S REPORT**

## Tabular Form

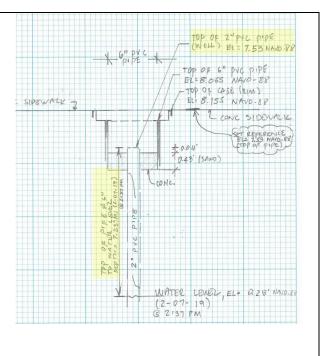
Reference and Ground Elevations: (NAVD88)						
Well	Ground Elevation Reference Elevation				nents	
G-3705	8.08 ft.	8.08 ft. 7.53 ft.			f 2" PVC PIPE	
Offset to NGVD	29: +1.57' (See Proje	ect Vertical D	Datum Note	s in Pa	ge: 4)	
Well diameter			Casing ma	aterial	DTW	
2"			Metal		7.25 ft. (02/07/19 at 2:37	
					PM)	

USGS Published: (Per USGS Report Site #: 255625080094901 G-3705) (NGVD29)							
Well	Ground Elevation Reference Elevation Comments						
G-3705	-	11.68 ft.	Top of Base				

Source & Site	NAVD88	NGVD29 (Published)	NGVD29 (Corpscon)
Benchmark			6.0.1
N-743 (M-DC)	8.99 ft. (Published)	10.56 ft.	
N-3950 (M-DC)	10.22 ft. (Published)	11.78 ft.	
G-3705 (SFWMD)	8.53 ft. (Measured)		10.10 ft. (Converted)

# Well Photos and Diagrams





#### Well Photos and Diagrams (Continued)





Side view (Oblique Not to scale)

Top view (Not to scale)

## 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 1.57 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 FI.
- 6. Date of last field work: February 7, 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: 2990 pages 18-23

#### Abbreviations:

**EI.** - Elevation

**DTW** - Distance to the water table inside the well

M-DC - Miami-Dade County

NAVD 88 - North American Vertical Datum of 1988 NGVD 29 - National Geodetic Vertical Datum of 1929

NGS - National Geodetic Survey

**PSM** - Professional Surveyor & Mapper

PID - Permanent Identifiers

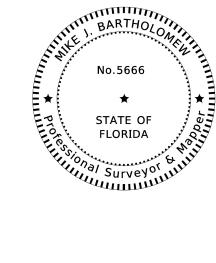
**SFWMD -** South Florida Water Management District

USGS - United States Geological SurveyBEC - 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.

Last date of Survey February 7, 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-3705		PROJECT: G-3705			
ESTABLISHED BY: SOUTH FLORIDA DISTRICT	WATER MANAGEMENT	SURVEYOR: Mike Bartholomew			
RECOVERED BY: BISCAYNE ENG	SINEERING CO.	DATE: 02/07/19			
	GEOGRAPH	IC POSITION			
SECTION 9	TOWNSHIP 52 SOUTH	RANGE 42 EAST			
COUNTY:MIAMI-DADE	NAME OF QUADRANG GEOGRAPHIC INDEX				
HORIZONTAL DATUM: 1927		(circle one) ZONE © or W			
VERTICAL DATUM: MSL 1929	1988 2022 Other	(circle one)			
VERTICAL ACCURACY: 1 2 3					
STATE PLANE COORDINATE (N) Y= 585007.51		(E) X= 931152.34	NAVD 88 EL. 8.53'		

NGVD 29 EL. 10.10'

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 ° 56' 26.43 " (N) LONGITUDE: 80° 09' 47.58" (W) (Source) GPS RTK (FPRN)

RECOVERY DATA

Stamping: G-3705 BEC 0129

To Reach: STATION IS A MAG NAIL AND WASHER STAMPED "BEC 0129 AND G-3705" SET ON THE SW CORNER OF A CONCRETE SLAB OF A AT&T CABLE BOX. LOCATED: NE 19TH AVENUE --- 150' WEST OF CL., NE 179TH STREET --- 18' NORTH OF CL.

NOTABLE LAND MARKS: GREYNOLDS GOLF COURSE

MDC-SOURCE BENCHMARKS: N-743, N-3950

FIELD BOOK PAGE 2990-19

#### **PICTURES**

Aerial Overall Site



NOT TO SCALE (Google Earth product)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18

## **Overall Site**

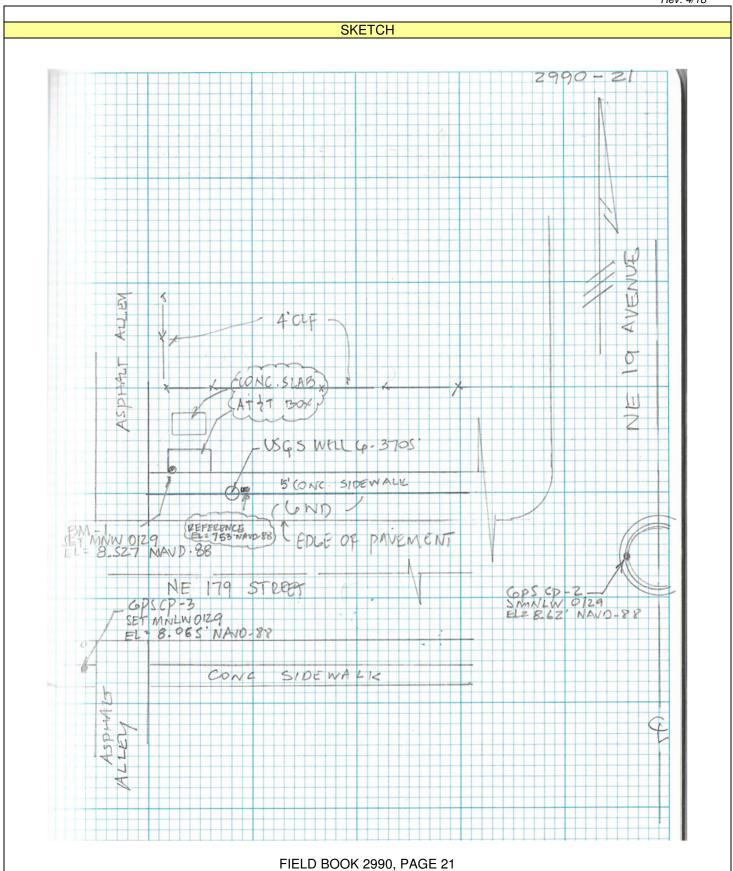


Looking Northerly (Oblique not to scale)



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/18



# Office

## **Project**

17 May 2019

#### **INPUT**

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

#### **OUTPUT**

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

**BM G-3705** 

1/1

Latitude: 25 56 26.43 Longitude: 80 09 47.58 **Latitude:** 25 56 26.43000 **Longitude:** 80 09 47.58000

Elevation/Z: 8.527

Elevation/Z: 10.095

# Office

## **Project**

17 May 2019

#### **INPUT**

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

#### **OUTPUT**

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

**WELL G-3705** 

1/1

Latitude: 25 56 26.40 Longitude: 80 09 47.45

**Latitude:** 25 56 26.40000 **Longitude:** 80 09 47.45000

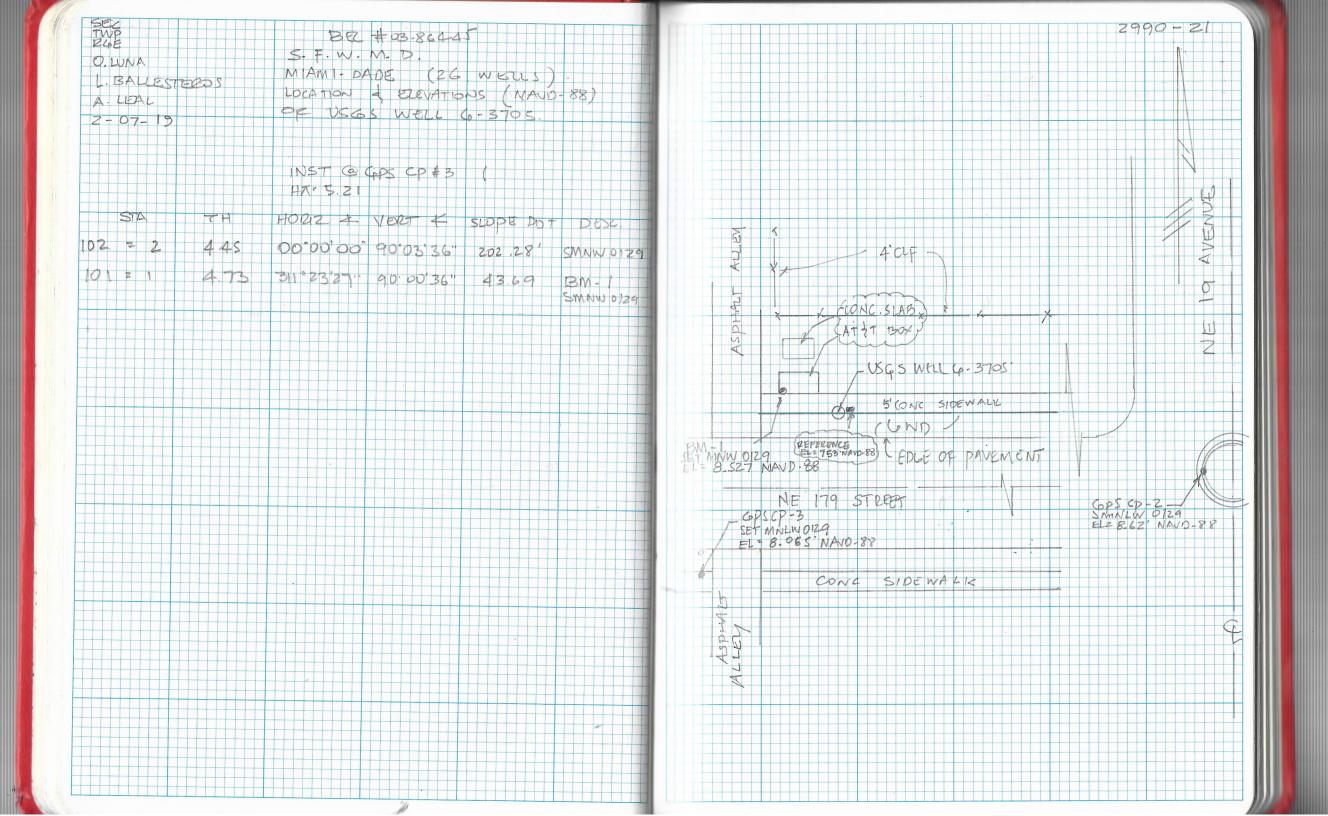
Elevation/Z: 7.53

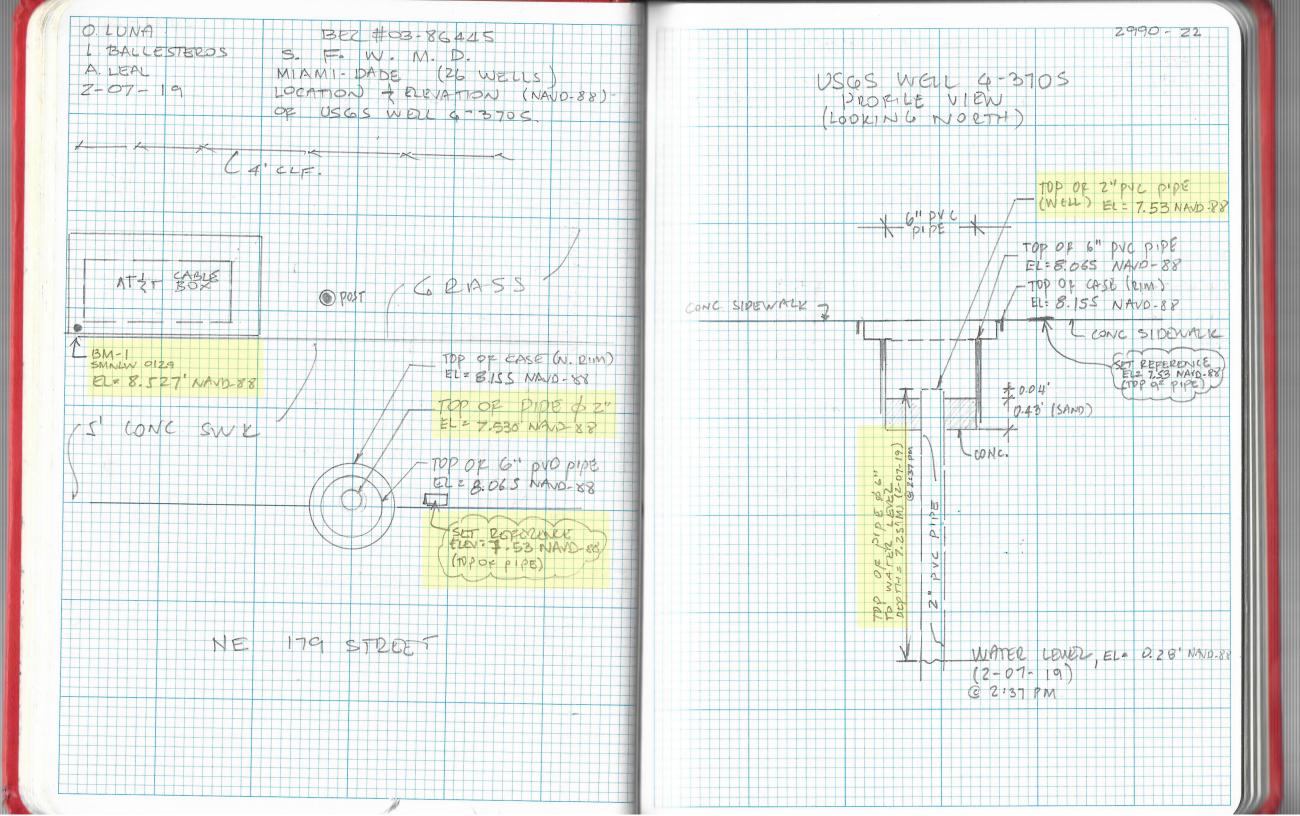
Elevation/Z: 9.098

O, LUNA L. BALLES A. LEA L 2-07-1		S. F. W MAM DAD	#03-86445 . M. D. E (26 WELLS) J AND ELEJATION (NAVD-88) OF		2990-18
SET N-74-3	5.37 4.87	VSGS W MEAN 4.868	ELL G.3705 MEAN  HI PS: MEAN  13.858	LLEVATION BIM ELE	NE 179 ST 66' SOUTH OF C/L
TP N. 1	4.365		5.70 5.065 S045 4.43	8.793	SET CUT NL & TT, SET ON ASPITALT PAU.  1'+ SOUTH DE THE NORTH EP OF THE NE  179 ST., + 230' EAST OF THE & GENE IS AV.
SHACE TIP N. Z	\$.995 4.985 3.975	4.985	13.778		
SI-AKE	5.90		4.32 4.815 4.82 3.86 S	8.958	SCT CUTNLY IT, 11' & SOUTH OF THE  NOOTH EP OF THE TP NO. 1  \$393' EAST OF THE TP NO. 1
T p N. 3	4.87	4.87	5.965 5.965 5.965	8.813	SET CUTNE THE TONE 179 ST, ± 396' BAST DIETHE TONE 179 ST, ± 396'
SHAKE	5625 456 3.50	4562	13.375		
TP No A			6.13 5,045 3,965	8,37.8	SET CUT W( \$ 179 1 SOUTH OF THE NORTH  EP OF THE NE 179 1 ST. AND \$ 429 EAST OF  THE TON 13

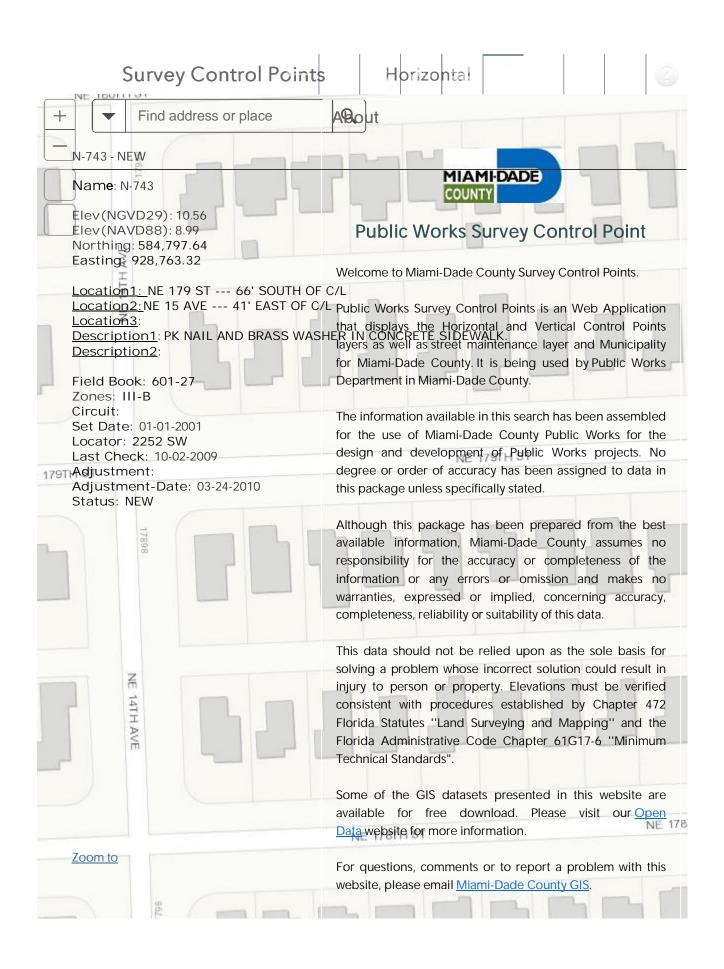
D.LUNA L.BALLESTEROS A. LEAL 2-07-19	BEC #03.86  S- F- W. M. D.  MIAMI-DADE (Z  LOCATION AND ELE  OR US GS WEEL G.	CS CNAM SNOTTAN		2990-19
TP N. 4 5.805 4 765 3	MEAN H7 4765 13.093	ES MSAV	1/EVA 7/02 BM ELEV 8.328	DCCRIPTION
SHAKE 5645 4 59 3 54	4. S9Z 12.813	5.84 4.87 481Z 3,905	8.222	EP OF THE TO N. 4
TP No G SHAKE 5.36		s.92 4.84 3.76	7,973	SET CUTIVLE IT THE SOUTH DE THE WEST AND I AZG, S' DAST OF THE TO NO. 5
4.93 4.50 BM G-3705	4.93 12.903	4.80 4.37s 4.377 39ss	8.527	SET MNLW BEZ O 129, IN THE SW COLNEL OF A CONC, SLAB OF A ATTEABLE BX
SHALE 490 4.47 4.045	4.472 12.998	5.275 4.935 4.933 4.59	8.065	SET MNLW BILL OF THE NE 179 ST AND
				PRONT TO NE PROPIONNER DE THE PROPINA #1880 NE 179 ST

0. LUNA L. BALLESTEMOD A. LEAL 2-07-19	5. FW.M.D. MIAMI - DAOE (20 LOCATION & ELEVATOR VSGS WELL 3-70	s was)		2990-20
SCT BS GPS CP # 3 5.46S 4.95 4.44	MEAN HI 4.952 13.017	FS MEAN	8.06S	DECRIPTION
4PSCP#2		4.90 4.395 3.895	8.62	SET MNLW BEC 0129 ON WEST CONC. CUEB OR THE ROUNDAROUT, DEATED INTHE INTERMEDIAN NE 179 ST & NW 19 AVE.
SHAKE 5.71 4.68 3.65	4.68 13.30	<b>5</b> .945 <b>4</b> .805 <b>4</b> .805	8.495	SOT COT NE & TT, ±1' WOT OF THE BAST FROM SIPEWAZIC ON ASPITANT DEIVOUM
5 HAZE 5.870 4.870 3.870	4.870 13.365	3.665		± 245' NW27+ OF THE NE 180 °57
TPN. 8  SHAKE 6.61  5.37		5.145 4.190 4.192 5.240 3.24	9.173	SET CUT NL ; TT. ON ASPITALT PARKING SPACES IT I'WEST OF THE CAST THON SWE FRONT LOOML # 1845 (RESTAURANT)
N-3950	5.37 14.543	5.76 5 4.32 2.87	10.22s 10.22	NE 183 ST 50' NORTH OF CIL NE 19 AVE - 35' EAST OF MORTHBOUND LANE PICKAL & ALUM. WASHER IN CONC. FRONT OF TRAFFIC SIGNAL POLE, EL = 10, 72' NAV D - 88

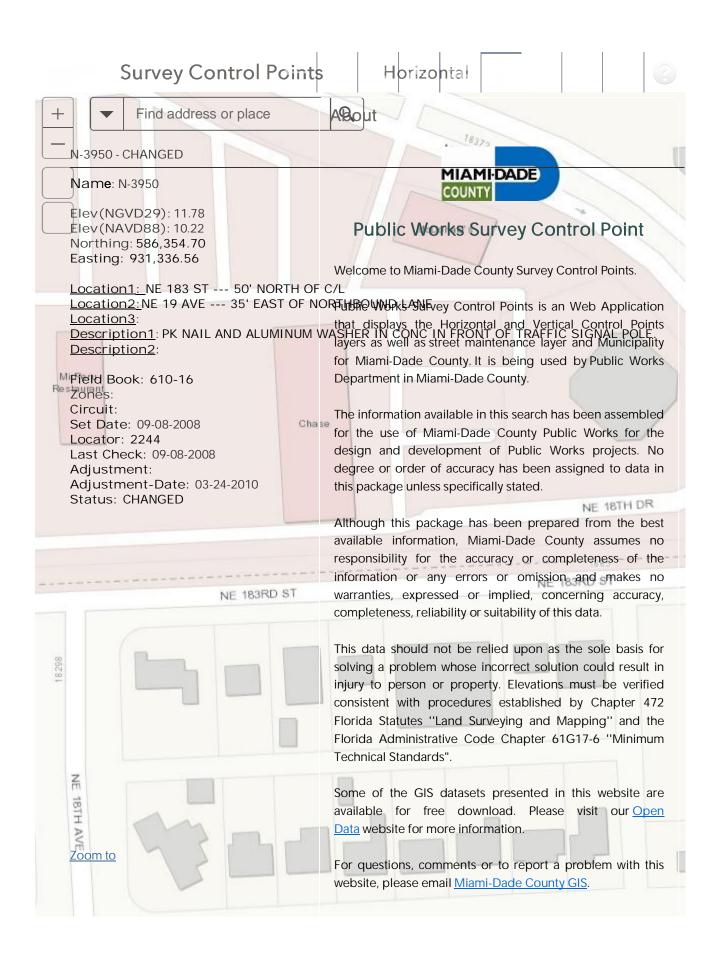




O.LUNA. L.BALLETER A.LEAL 2-07-1		S.F.W.	AND ELEVA	(26 WEW)	-88)				2990-2	23
6ps-cp+3	5.015 4.815	MEAN 4.815	12.88	FS ME	5AV	11 AVA1702 BM 8	065	DED CRIPTION  SEE PAGE N. 19	ELEV 806S	NWD 88
TOP OF CASE TOP OF PIPE WAL 6-3705				4.80 4.725 4.815 5.49 5.35 5.21	35	8.08 8.06 S 7.53	7	SOUTH SIDE OF MAS TOP OF MORTH PIM. ( TOP OF G" PVC PIPE DIP OF PVC PIPE Z" WELL G-3705).	(MORPH R	
	5.675 5.53 5.385	5.53	13.06							
BM - I				4.715 4.535 4.355	35	8.525 8.5	527 5	ET MNLW BEL 0129	, EL  8.527	NAJO - 22



**100ft** -80.170 25.940 Degrees



**100ft** -80.162 25.945 Degrees