

# **SURVEYOR'S REPORT**

**Specific Purpose Survey of the  
United States Geological Survey  
Recorder Well 02268600 Lake Rosalie  
(South Florid Water Management District  
designation L ROSALI)  
in  
Polk County, Florida**

**Prepared for:**

**South Florida Water Management District**

**Prepared by:**

**Howard J. Ehmke II PSM 4191**

**An employee of the  
South Florida Water Management District**



**3301 Gun Club Road**

**West Palm Beach, Florida 33406**

**Ph. (561) 686-8800 (ext. 2978)**

**Fax (561) 682-0066**

**Field Date: December 19, 2016**

**Report Date: December 21, 2016**

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**SURVEYOR'S REPORT**

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# SURVEYOR'S REPORT

## PURPOSE

The purpose of this survey is to compare the water level readings at “L ROSALI” (United States Geological Survey (USGS) 02268600 Lake Rosalie) and South Florida Water Management District’s (SFWMD’s) KUB009 at structure G-103 HW. Base on Mr. Paul Linton’s email of October 26, 2015, there is a 0.3 foot discrepancy between the two stations.

First the two stations need to be tied together on the same vertical datum (NAVD88). KUB009 had previously been tied into the NGS network and this survey established a new NAVD88 on L ROSALI well site on the current reference point and the staff gauge (two points with NGVD29 elevation data). Then a comparison was made between the current USGS values and the new values.

## LOCATION OF PROJECT

The USGS (02268600 Lake Rosalie) L ROSALI Recorder Well is located in Section 21 Township 29 South, Range 29 East in Polk County Florida.



General Location (Intended Display scale is “Not to Scale”)

# SURVEYOR'S REPORT

Continued

NGS Q505 (AJ6636)  
Benchmark  
Lat: 27°56'42"N  
Long: 81°25'27"W

L ROSALI Well Site (Not to Scale)



Temporary  
Benchmark "LR"  
Lat: 27°56'35"N  
Long: 81°25'26"W

L ROSALI Well Site  
Lat: 27°56'35"N  
Long: 81°25'25"W

# **SURVEYOR'S REPORT**

Continued

## **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 add **1.211 feet**. These 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.

## **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 on this project meets or exceeds third order closures ( $.05\sqrt{\text{miles}}$ ) as required by law for this type of work.

A level line was run from the National Geodetic Survey (NGS) monument "Q505 (PID AJ6636) to NGS monument PO6 Reset (AF7018) to verify the elevation on Q505 (PID AJ6636). A level loop was run from Q505 (PID AJ6636) to the set site. The data was hand written in South Florida Water Management District Field Book Misc 7B pages 22-24, last date December 19, 2016, reduced and adjusted electronically (file name: LROSALI). Additional data was manually recorded in the field book.

## **EQUIPMENT USED**


The Tremble DiNi digital level Serial Number 772297 and a folding bar code rod.


# SURVEYOR'S REPORT

Continued

## VERTICAL CONTROL POINT

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

<b>BM: Q505 (PID AJ6636) (NGS VERTICAL ONLY)</b>			
27°56'42" (N) Scaled	081°25'26"(W) Scaled	60.623 ft.	(NAVD 88) 18.478m published
		61.834 ft.	(NGVD29) 1.211 ft. Corpscon 6.0.1
		<p>The mark is about 13.4 miles East-Northwest of Lake Wales, in Section 21, Township 29 South, Range 29 East. To reach the mark from the intersection of State Road 27 and State Road 60 in Lake Wales, go East-Southeast on State Road 60 for 7.3 miles to the junction of Mammoth Grove Road on the left; turn left on Mammoth Grove Road and go North for 2.05 miles to the junction of Camp Mack Road on the right; turn right on Camp Mack Road and go North for 0.25 of a mile to a curve East; continue East on Camp Mack Road for 2.3 miles to the junction of Barney Keen Road (Boy Scout Road); continue Northeasterly on Camp Mack Road for 1.9 miles to the mark on the right, set in the top of a round concrete monument flush with the ground and 2.0 feet below the level of Camp Mack Road. Located 100.3 feet Northeast of the approximate centerline of a driveway to Lous Hardware at 100732, 48.0 feet Southeast of the approximate centerline of Camp Mack Road, 22.6 feet Southwest of the South entrance to Tiotie Beach Estates, 2.0 feet Northwest of a wooden fence and 1.2 feet Northwest of a carsonite witness post.</p>	

<b>BM: PO6 Reset (PID AF7018) (NGS Vertical only)</b>			
26°56'03" (N) Scaled	081°26'11"(W) Scaled	60.016 ft.	(NAVD 88) 18.293m published
		61.227 ft.	(NAVD 29) 1.211ft. Corpscon 6.0.1
		<p>The mark is about 12.4 miles East-Northwest of Lake Wales, in Section 29, Township 29 South, Range 29 east. To reach the mark from the intersection of State Road 27 and State Road 60 in Lake Wales, go East-Southeast on State Road 60 for 7.3 miles to the junction of Mammoth Grove Road on the left; turn left on Mammoth Grove Road and go North for 2.05 miles to the junction of Camp Mack Road on the right; turn right on Camp Mack Road and go North for 0.25 of a mile to a curve east; continue East on Camp Mack Road for 2.3 miles to the junction of Barney Keen Road (Boy Scout Road); continue North on Camp Mack Road for 0.75 of a mile to the mark on the left, set in the East end of the concrete headwall level with Camp Mack Road. Located 44.7 feet Northwest of the centerline of Camp Mack Road, 27.0 feet East of the West end of the headwall, 23.2 feet North of a barbwire fence and 1.0 foot West of the East end of the headwall.</p>	

# SURVEYOR'S REPORT

## CONTINUED

### BM: LR (Temporary Benchmark Set at Well Site)

27°56'35" (N) Scaled	081°25'26" (W) Scaled		59.73 ft.	(NAVD 88)	18.205m	Established
			60.94 ft.	(NAVD 29)	1.211ft.	Corpscon 6.0.1



The mark is about 13.3 miles East-Northwest of Lake Wales, in Section 21, Township 29 South, Range 29 East. To reach the mark from the intersection of State Road 27 and State Road 60 in Lake Wales, go East-Southeast on State Road 60 for 7.3 miles to the junction of Mammoth Grove Road on the left; turn left on Mammoth Grove Road and go North for 2.05 miles to the junction of Camp Mack Road on the right; turn right on Camp Mack Road and go North for 0.25 of a mile to a curve East; continue East on Camp Mack Road for 2.3 miles to the junction of Barney Keen Road (Boy Scout Road); continue Northeastly on Camp Mack Road for 1.8 miles to Fort Gardner Road on the right; turn right and go East and South to Kentucky Avenue on the left; turn left onto Kentucky Avenue and go East 260 feet to North Marina Parkway; turn left on to North Marina Parkway and go 200 feet to station location on the left; the station is a railroad spike stamped "TBM LR" located on the North side of a 20-inch oak tree, 107 feet East of the centerline of North Marina Parkway, 18 feet North of an old east/west hog wire fence and 56.4 feet southwest of the southwest corner of the walkway to USGS L ROSALI well site.

### Field Notes

FB Misc 7B pages 22 thru 24

22	MISC FB# 7B 12-15-16	29	RGC	29	22
	ESTABLISH NAVD88 EL @ USGS WELL (ROSALI)				
STA 1775		EL		BM EL	
Q505 1 BM				60.62 NAVD 88	
TEN 3 RR SPIKE		59.728			
Q505 5 BM		60.62		60.62	
	DIFF. 0.00				
STA	+ HT	-	EL	BM EL	
TEN RR SPIKE			59.73	59.728 NAVD 88	
	4.04	63.74			
REF		5.98	58.20		
FROM		11.57	52.20		
TEN RR SPIKE		4.04	53.73	59.73	
	K08009 SITE				
REF MARK				59.05 NAVD 88	
DTM		6.85	52.20		
STAFF GA					

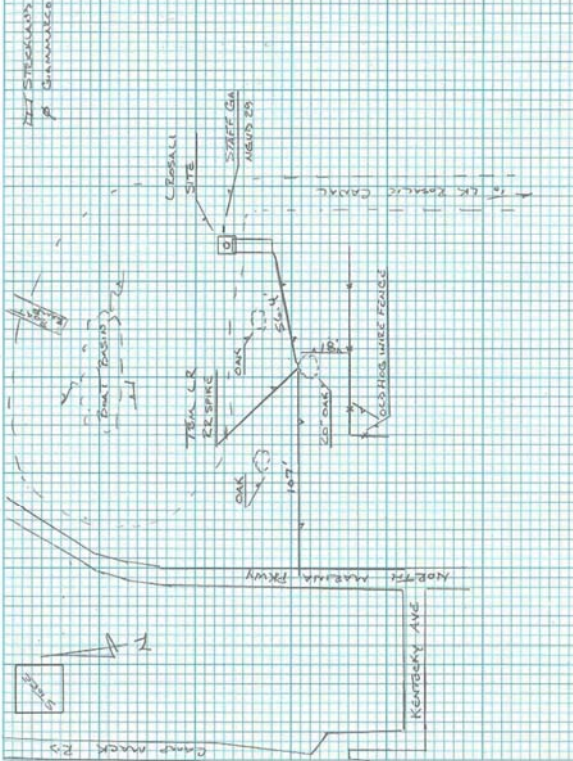
  

MISC FB# 7B 12-15-16	22
CR USED DINE LEVEL & BAR CODE RODS FILE NAME: ROSALI	K DILL STEELMAN'S Q GAMMAREO
COMMENTS	
BM Q 505 2001 FID FLOPPY BRASS DISK GOOD COND & CAMP MACK RD & ROSALI BLVD	
TEN LR"	
TEN RR SPIKE SET IN NNE FACE OF 20" OAK 1.1' ABOVE GROUN STANDS "TEN LR" THIS IS THE MIDDLE OAK OF 3 OAKS	
Q505 2001 AS ABOVE	
COMMENTS	
TEN LR AS ABOVE	
REF D11 ATOP OF PLYWOOD PLATFORM (NOT STABLE)	
TOP OF WATER @ ROSALI SITE STAFF GA READS 53.10 @ 11:58 AM NHD 29 (NAVD 88 = 52.20 + 1.21 = 53.41)	
TEN LR AS ABOVE	
REF D11 MARK EL 53.05 NAVD 88 SEE PG 11 THIS BOOK	
DTM DIST TO WATER FROM REF EL 59.05	
STAFF GA READS 52.30 NAVD 88 @ 12:32 PM	

# SURVEYOR'S REPORT CONTINUED

23 MISC FB# 78 12-15-16  
 SEC 21 TWP 29 RGE 29  
 CONT'D FROM PG-22  
 DETAIL of LEOSALL SITE

MISC FB# 78 12-15-16 23



24 MISC FB# 78 12-19-16  
 SEC 21, 29 TWP 29 RGE 29  
 CHECK BETWEEN 4505 & PAGE RESET 1983  
 LINE # 33  
 STA / PTE  
 4505 115  
 22  
 PAGE RESET  
 60.013  
 60.02  
 \* DIFF = 0.007 \*

MISC FB# 78 12-19-16 24  
 CONT'D FROM PG-22  
 FILE NAME: LEOSALL  
 COMMENTS  
 BAK 4505 2001 TO FILED? BEARS DSK GOOD COPY  
 FROM PAGE RESET 1983 FD STAMP AL CAP IN CONC HEADWALL  
 STAMPED "201 PAGE RESET 1983" IN GOOD COND



# SURVEYOR'S REPORT

Continued

## PROJECT RESULTS

Tabular Form

### Reference and Staff Gauge Elevations:

<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>
<u>Well</u>	<u>Ref. El.</u>	<u>Water El.</u>	<u>USGS</u>	<u>Staff G.</u>	<u>(C-D)</u>	<u>Corpscon</u>	<u>(F-G)</u>
L ROSALI	58.29	52.20*	53.11	53.10*	0.91	+1.211	0.301
KUB009	59.05	52.20**				+1.214	

\*- Direct field shot taken at 11:58AM 15-dec-16, Field Book Misc 7B page 22

\*\* - Distance to Water taken at 12:32AM 15-dec-16, Field Book Misc 7B page 22

<b>Source &amp; Site Benchmark:</b>	<b>NAVD88</b>	<b>Corpscon</b>	<b>NGVD29</b>
NGS Q505 (AJ6636)	El. 60.623	+1.211	El. 61.834
NGS PO6 Reset (AF7017)	El. 60.016	+1.211	El. 61.227
TBM "LR" (SFWMD)	El. 59.73	+1.211	El. 60.941

### **USGS "on line" data for 02268600 Lake Rosalie near Lake Wales, FL.**

Daily Mean Lake or reservoir water surface elevation above NGVD 1929, feet	
DATE	Dec 2016
15	53.11 <sup>P</sup>
COUNT	1
MAX	53.11
MIN	53.11

Explanation	
P	Provisional data subject to revision.

### **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 signature and the original raised 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 **1.211** 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: **December 19, 2016**

# SURVEYOR'S REPORT

Continued

7. The site name of "L ROSALI" was taken from SFWMD's DBHYDRO database. The Site name of USGS 02268600 Lake Rosalie was taken from the USGS web site.
8. SFWMD Data records (on file at the District's headquarters):
  - A. Electronic Data files:
    - Miscellaneous picture files
    - Digital level run
    - File names: LROSALI
  - B. Conventional reporting
    - Field Book: Misc 7B page 22-24

## Abbreviations:

**DTW** -Distance to Water  
**El.** - Elevation  
**NAVD 88** - 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

## 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.

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**Last date of Survey**

19-dec-16

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**Howard J. Ehmke II PSM**

(Responsible Surveyor and Mapper)

**Professional Surveyor and Mapper**

State of Florida Certificate No. 4191

South Florida Water Management District

# Office

## Project

15 December 2016

### INPUT

Geographic, flhpgn - Florida HPGN  
Vertical - NAVD88, U.S. Feet

### OUTPUT

State Plane, flhpgn - Florida HPGN  
0901 - Florida East, U.S. Feet  
Vertical - NGVD29 (Custom), U.S. Feet

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## Lk Rosalie

1/1

**Latitude:** 27 56 35.00  
**Longitude:** 81 25 26.00  
**Elevation/Z:** 0

**Northing/Y:** 1312238.645  
**Easting/X:** 519309.455  
**Elevation/Z:** 1.211  
**Convergence:** -0 11 55.08448  
**Scale Factor:** 0.999962646  
**Combined Factor:** 0.999966834

# Office

## Project

21 December 2016

### INPUT

Geographic, flhpgn - Florida HPGN  
Vertical - NAVD88, U.S. Feet

### OUTPUT

State Plane, flhpgn - Florida HPGN  
0901 - Florida East, U.S. Feet  
Vertical - NGVD29 (Custom), U.S. Feet

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## KUB009

1/1

**Latitude:** 27 56 35.47  
**Longitude:** 81 21 22.99  
**Elevation/Z:** 0

**Northing/Y:** 1312216.569  
**Easting/X:** 541103.785  
**Elevation/Z:** 1.214  
**Convergence:** -0 10 01.20989  
**Scale Factor:** 0.999956352  
**Combined Factor:** 0.999960560



# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16

Site Name: <b>L ROSALI</b>		Date of Field Work: <b>19-dec-16</b>	
Party Chief: <b>Strickland</b>	Field Book: <b>Misc 7B</b>	Pages <b>22 and 23</b>	
Site Benchmark: <b>LR</b>	Benchmark Elevation (NAVD88) <b>59.73</b>	Corpscon 6.0.1 Conversion Factor (NAVD88 to NGVD29) <b>+1.211</b>	
Reference Elevation(s) (NAVD88): <b>58.29</b>	Existing Tag Elevation (Datum): <b>None</b>	Calibration Port Elevation(s) (NAVD88): <b>Not Applicable</b>	
Ground Elevation (NAVD88): <b>Not required</b>		Pad Elevation (NAVD88): <b>Not Applicable</b>	
Latitude: <b>27° 56' 35"</b>		Longitude: <b>81° 25' 26" (Scaled from Google Earth)</b>	

Notes:  
**NAVD88** – North American Vertical Datum of 1988  
**NGVD29**- National Geodetic Vertical Datum of 1929  
**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.

### PICTURES

USGS LRosali Overall Site



Looking Easterly (Not to Scale)



Temporary Benchmark "LR"  
El. 58.29 NAVD88

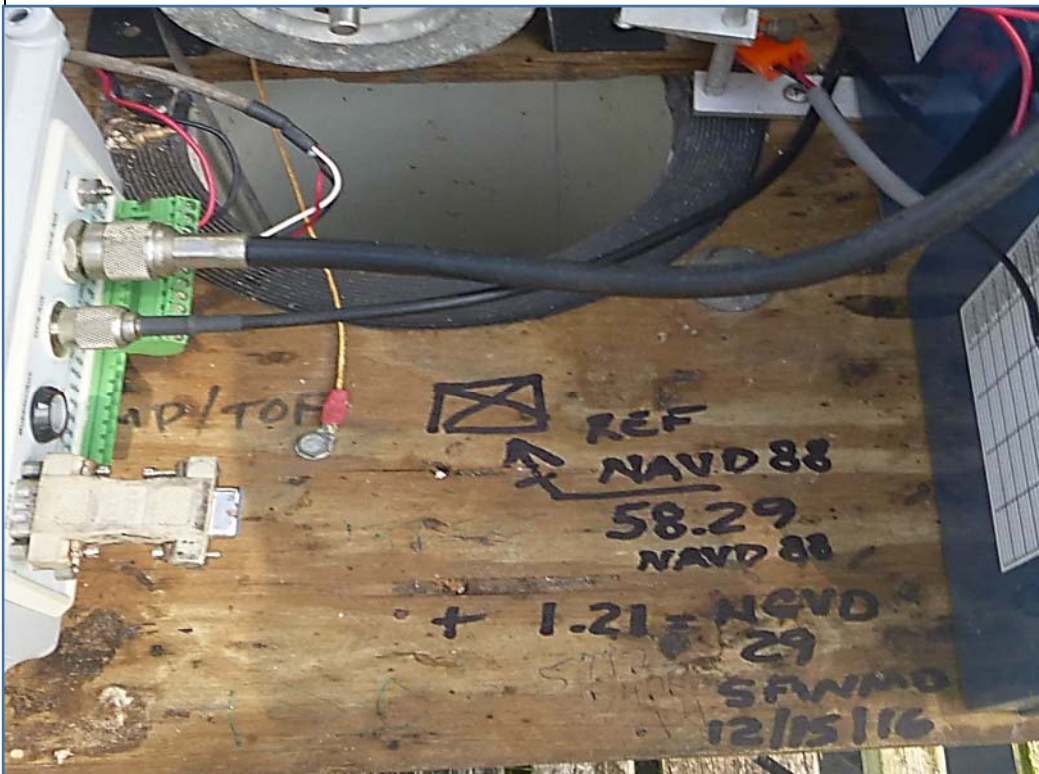


# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 1/16



Looking Northerly from South end of walkway (Not to Scale)



Reference Mark El. 58.29 NAVD88



Water at Staff Gauge El. 53.10 NGVD29