

Appendix 5-4: Annual Permit Report for the Buttermilk/Packingham Slough, G-700 Pump Station Bypass Removal

Permit Report (May 1, 2014–April 30, 2015)
Permit Number: 0267164

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SUMMARY

Based on Florida Department of Environmental Protection (FDEP) permit reporting guidelines, **Table 1** lists key permit-related information associated with this report. **Table 2** lists the attachments included with this report. **Table A-1** in Attachment A lists specific pages, tables, graphs, and attachments where project status and annual reporting requirements are addressed. This annual report satisfies the reporting requirements specified in the permit.

Table 1. Key permit-related information.

Project Name:	Buttermilk/Packingham Slough, G-700 Pump Station Bypass Removal
Permit Number:	0267164-005
Issue and Expiration Dates:	Issued: 12/21/2012; Expires: 8/8/2017
Project Phase:	Operations
Permit Specific Condition Requiring Annual Report:	21
Reporting Period:	May 1, 2014–April 30, 2015
Report Lead:	Violeta Ciuca vciuca@sfwmd.gov 561-682-2611
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Table 2. Attachments included with this report.

Attachment	Title
A	Specific Conditions and Cross-References
B	Hydrologic Data

PROJECT STATUS

The construction of this project was completed January 2014. Currently, the project is in the operational phase and this report provides an evaluation of the results from the permit requirements for the G-700 pump station. The reporting period is from May 1, 2014 to April 30, 2015.

CONCLUSIONS REGARDING PROJECT SUCCESS

The success of the project was very good during the reporting period. The highest stage [51.42 feet (ft) National Geodetic Vertical Datum of 1929 (NGVD29)] at G-700 is lower than the elevation (55.0-55.5 ft NGVD29) of River Ranch Boulevard and the elevation (56 ft NGVD29) of State Road 60.

PROBLEMS ENCOUNTERED

No problems were encountered during the reporting period.

ACTIONS TO ADDRESS PROBLEMS

There were no problems to address during the reporting period.

INTRODUCTION

PROJECT OVERVIEW

The purpose of the project is to implement an engineering solution in lieu of real estate acquisition for the Kissimmee River Restoration Project (KRRP), to provide a level of flood protection in the post-KRRP condition equal to that of the pre-KRRP condition.

In an effort to reduce costs and avoid a requirement to displace residents in the Packingham Slough, the United States Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD or District) examined various alternatives, culminating in the decision to install a gated culvert structure along with a pump station to eliminate back flow of water through this culvert system. Construction of the culvert and pump station eliminated the need to acquire 300 parcels in Packingham Slough that would have been impacted.

The pump station is located west of the Kissimmee River (C-38 canal), south of State Road 60, and approximately 200 feet east of River Ranch Boulevard in Packingham Slough (Section 10, Township 31S, Range 31E; **Figure 1**). The two 300-foot berm cuts are located south of State Road 60, between River Ranch Boulevard and the Kissimmee River, along the east levee of Packingham Slough (Section 3, Township 31S, Range 31E) in Polk County, Florida. Packingham Slough is a Class III water body, as defined in Chapter 62-302, Florida Administrative Code.

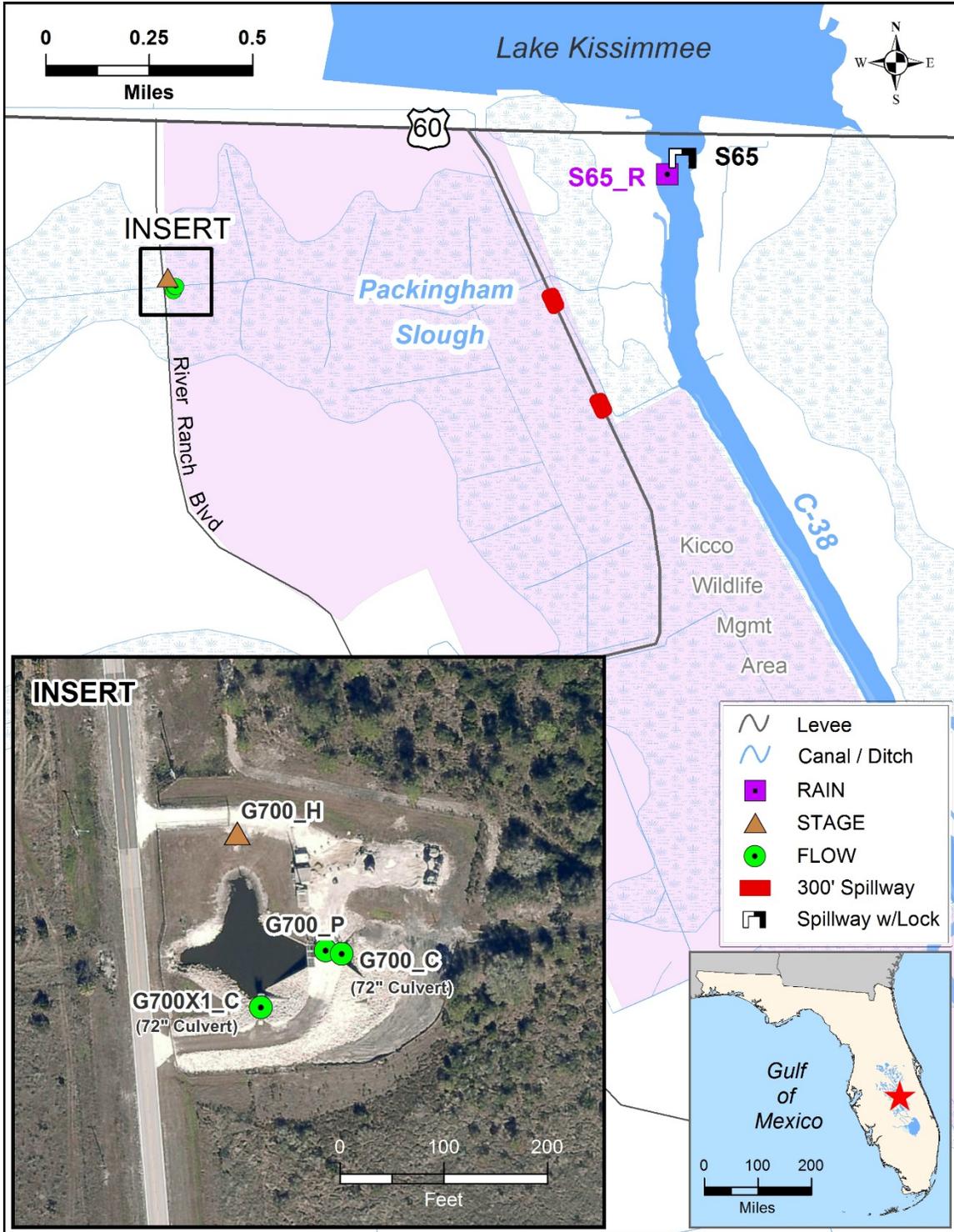


Figure 1. Map of Buttermilk/Packingham Slough and surrounding areas, showing the G-700 pump station and other features.

The G-700 Pump Station consists of two 40-cubic feet per second pumps and one automated 72-inch gated culvert. The two pumps are identical. One serves as the primary pump, and the other as the backup pump. Under normal conditions, Packingham Slough waters reach the G-700 ring levee via two 72-inch culverts maintained by Polk County under River Ranch Boulevard. An additional 72-inch gated culvert was installed in the ring levee to provide additional emergency gravity drainage capacity. This culvert will normally remain closed, and will only be operated manually during extreme flow events. Additionally, two 300-foot berm cuts were installed in the east levee of Packingham Slough, approximately one mile to the east of the G-700 pump station. Each spillway is armored with an articulated block mat and rip-rap. Following major storm events, the spillways allow Packingham Slough to drain more rapidly as Kissimmee River stages decrease. The project is complete and operating as designed.

PERMIT HISTORY

The original Environmental Resource Permit and all permit modifications issued to the District are as follows:

- 0267164-004, issued August 8, 2012, with an expiration date of August 8, 2017.
- 0267164-005, issued December 21, 2012, is a modification with an expiration date of August 8, 2017.

HYDROLOGIC MONITORING

RAINFALL

Daily rainfall for the Buttermilk/Packingham Slough project area was monitored at weather station S65_R (**Table 3**), and is shown in **Figure 2**. Daily rainfall data used for this section are provided in Attachment B. The area received 53.69 inches during Water Year 2015 (WY2015) (May 1, 2014–April 30, 2015) (**Table 4**). The rainfall received in WY2015 was 6.7 inches higher than in WY2014. During WY2015, September 2014 was the wettest month (9.34 inches) for the area and December 2014 was the driest month (0.49 inches).

Table 3. Rainfall monitoring station and DBHYDRO database DBKey for the Buttermilk/Packingham Slough project area.

Station	DBKey	Parameter
S65_R	RQ463/VN302	Rainfall

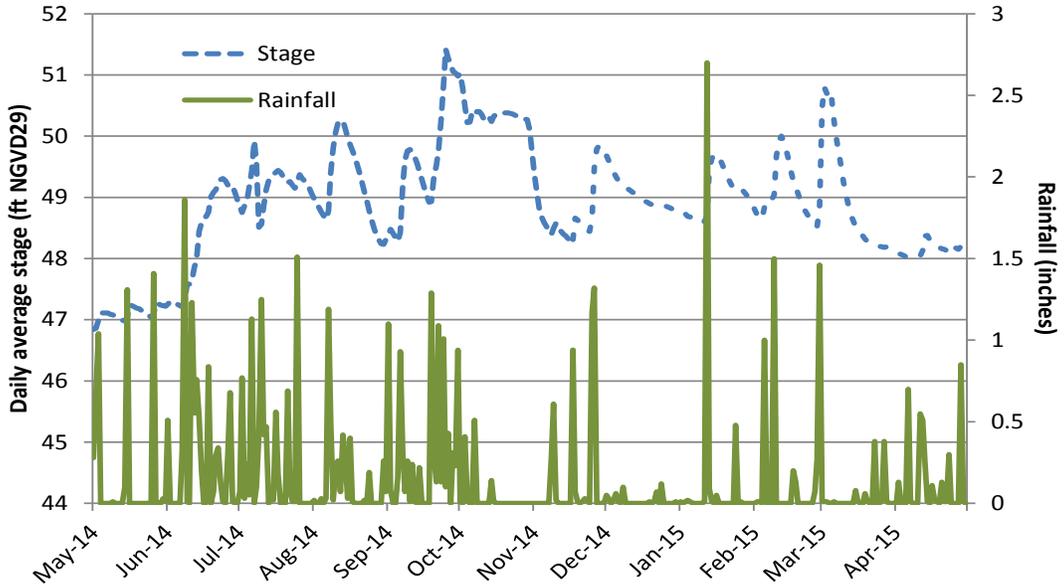


Figure 2. Daily rainfall and stages at the Buttermilk/Packingham Slough project for WY2015.

Table 4. Monthly rainfall and total flow in the Buttermilk/Packingham Slough project area for WY2015.

Month	Rainfall (inches)	Total Flow (acre-feet)
May	4.88	699
June	8.64	1,236
July	8.08	1,717
August	4.02	1,632
September	9.34	2,066
October	1.10	692
November	4.48	563
December	0.49	583
January	3.40	586
February	4.65	529
March	0.99	996
April	3.62	405
Total	53.69	11,704

STAGES AND FLOWS

Stages and flows in the Buttermilk/Packingham Slough Project area were monitored at the stations listed in **Table 5**. For sites G700_C and G700X1_C, estimated provisional flow data were used. All stage and flow data used in this report are provided in Attachment B. Total monthly flows from the G-700 pump station, G-700 culvert, and G700X1_C auxiliary culvert are shown in **Table 4**. Daily rainfall and stages for WY2015 are shown in **Figure 2**.

Table 5. Water stage and flow monitoring stations and database DBkeys.

Latitude	Longitude	Status	DBHYDRO Station Name	DBHYDRO DBKey
274756.674	811303.958	Existing	G700_P	90719
274756.115	811304.087	Existing	G700X1_C	*
274756.641	811303.784	Existing	G700_C	*
274757.791	811304.913	Existing	G700_H	90706

* Flow data are provisional, estimated, and not available in the DBHYDRO database.

During the wet season, the lowest stage observed (G700_H) at Buttermilk/Packingham Slough was 47.21 ft NGVD29 on June 7, 2014, and the highest stage observed was 51.42 ft NGVD29, on September 25, 2014. For comparison, the elevation of River Ranch Boulevard, located near the G-700 structure, is approximately 55.0 to 55.5 ft NGVD29, and the elevation of State Road 60 at the intersection of River Ranch Boulevard is approximately 56 ft NGVD29.

The highest monthly flow volume (2,066 acre-feet) for the reporting period (WY2015) occurred during the wet season, in September 2014, and the lowest flow volume (405 acre-feet) occurred in April 2015. Flow volume was almost twice as much as last year due to increased rainfall this year.

Attachment A: Specific Conditions and Cross-References

Table A-1. Specific conditions, actions taken, and cross-references presented in this report for the Buttermilk/Packingham Slough G-700 Pump Station Bypass Removal (Environmental Resource Permit 0267164-005).

Specific Condition	Description	Applicable Phase	Action Taken	Reported in the 2016 SFER Vol. 3, App. 5-4 in:			
				Narrative (page #s)	Figure	Table	Attachment
17	Flood Protection Monitoring	Operations	Hydrometeorological data (stage, flow, and rainfall) were collected as required.	4-6	2	3-5	B
21	Annual Status Report	Operations	This document constitutes the annual report, and was completed as required.	All	All	All	All

Attachment B: Hydrologic Data

This project information is required by Specific Conditions 17 and 21 of the Buttermilk/Packingham Slough, G-700 Pump Station Bypass Removal project permit (0267164), and is available upon request.