

# ***Project G-3A Final Report ( w/G-3 project sheet)*** **8/28/09**

>>from Project sheet Rev-2<<

**Project Name:** Outfall rebuild G-3a **Date:** **July 10, 2009**  
**SWM project leader(s):** J. Van Dusen & C. Roland

**Problem/ ID:** (From Master Plan doc.) Pond 8 cannot handle the design storm volume and begins to overtop potentially causing golf and yard flooding. The pipe system in the Club House parking lot is inadequate to handle the design storm and overtops causing flooding.

**New information:** Flooding and discovery of a 15" CPP drain, during construction of house on Lot #314 has generated concern over conditions and location of existing drainage structures. Map location of "culvert" w/18" CMP. pipe could not be verified by test digging on June 3, 2009. **Positive pond discharge to outfall point may not exist?**

### **HDR's Input and recommended solutions:**

Replace existing pipe system from drop inlet at Club House Road to Pond 8 with new double 24" CPPs. Replace existing drop inlets on new pipe system to accommodate new pipe. The Existing parking lot to pond#8 drain is a single 18" galv. pipe. Its location was verified on June 3,2009. Replacement or relocation of the parking lot to pond #8 drain will be addressed at a future time as Project G-3b.

**Project G-3a** : This work will include a new drain from pond#8, under Genoes Point roadway, and through Lot #315/316 to a prescribed outfall point. It will also include some of the swale improvements described in the Master Plan's-G-1 project to remediate roadway and lot flood problems. Following Committee discussions with contractors it was determined that an open pipe discharge, with double 18" pipes would accommodate > 25year storm design. The current pond MSL / overflow point is 8.7ft. (weir elev. checked @8.89ft -- relative to benchmark on Genoes Pt. roadway of11.26ft) The recommended maximum pond overflow level is 9.5ft. The elevation near the "G" outfall point, (between lot #315&#316) was found to be 7.2ft.

The revised plan is to install double 18" CPP pipe under fairway#18 and cart path, into a new 4'X4' drop inlet on the west side of Genoes Pt. road. (see contractor alternatives below) A junction box will be required on the east side of the roadway as well to accommodate double 18" CPP under the roadway and down to the outfall point.

An improved swale (with>2:1 slopes) will be constructed along the west side of the roadway, near the junction of lots#351&#352, connecting (possibly with some 15" CPP?) to the new drop inlet.

**Additional Engineering:** Verify condition of existing drain structures at the G-3 outfall. ie, sock pipes -- a new junction box may be required at this location?

Contractor Alternative

*Contractor suggests running a single 24" CPP line from Pond #8 into Junction box near roadway, with 2X18"CPP under road and into box at outfall. A connection of this pipe, via a drop inlet, to existing swale under cart path would be included!*

Estimated materials list: **As completed and Invoiced 8/18/09**

<b>Material Item w/o tax</b>	<b>QTY/description</b>	<b>7/16bid &gt;&gt;final billing</b>
Sand/Gravel/RipRap	6 tons rip rock/stone,	\$729.95 >>364.84
24" CPP pond to road	<b>200ft@ \$19.75/ft</b>	\$3950.00 >>3950.00
Double 18" CPP under road to outfall.	<b>600ft@ \$12.67/ft</b>	\$7602.00 >>7602.00
15" CPP connecting swale to J-box ?	80ft installed.@\$11./ft	\$809.90 >>809.90
Other pipe connections	Tie in existing drains	\$ tbd >>cont.?
<b>Control Boxes/grates:</b>	1) 4X5ft drop inlet w/drive over grate.	\$1590.00 >>1590.00
junction/west of road j-box east of road &outfall?	1)4'X5' j-box w/ring&cover	\$3180.00 >>1590.00
New box at cart path	1)2x3ft w/drive over grate	\$629.00 >> 629.00
<b>added J-box for tie in of existing pipes</b>	1) 2x3 w/concrete top	\$ >>629.00
Concrete	Box patching @100/pipe	\$800 >> \$850.00
<b>Other ie, seed, patch</b>		
Repaving road/cart path	_subcontract_	\$3000.00 >>3000.00
Replace sod in fairway	1500 sq. ft?	\$500 >>
<i>LFCC labor not included</i>	3500sq. ft.??	\$4750 >>4643.60
Landscap/sod lot #315		
<b>Total Materials Estimate</b>	Including sales tax	\$27540.65 >>25657.44
<b>Labor Costs</b>		
Drain from pond#8	500 ft total length	\$14961.90>> 10,000.00
Roadside swale w/15" CPP	200foot 4:1 seeded?	\$ 1840.00 >> 1,840.00
<b>Materials + Labor Total</b>		<b>\$44,342.55&gt;&gt;37,497.44</b>

**Contractor Bid:** name: **Hardee Enterprizes**

Date:\_7/16/09>> revised 7/20/09

**Cost Proposal:** a) **labor \$ 16,801.9** b) **materials \$ 27,540.65**

Materials advance request: \$17,000 Check(s) issued: by July 24

Estimated Start Date \_7/20/09\_

Completion Date : **8/17/09**

Revised Contract Est. Cost: \$ 40,308.95 Date: 7/20/09

*POA Approval signed by G. Ackley date\_ 7/21/09*

*LFCC Approval signed by D. Brewer date\_ 7/21/09*

Homeowner Notification? Yes  
Yes, Lots # 314, 315, 316 349,350,351\_\_\_\_\_  
Follow-up/Maintenance Required Yes, --- swale cleaning

Utility Location Required: Water, \_yes\_\_ Elect. \_yes\_\_ Telephone \_yes\_\_  
*Utility location shall be responsibility of contractor*

Some exploratory work near #18 fairway carried out to locate existing pipes  
Paid June 9: \$405.00 charged against" 2008 SWM



**Figure 8, New Genoes Point Swale**

## Detail Report for G-3A as completed August 17, 2009

All elevations for this project were recorded relative to benchmark #10 on Genoes point road. ( @ 11.25ft) The invert elevation (pipe bottom) at Pond #8, was set @ 8.8ft.

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**Hardee Enterprizes** began work on July 22, with the installation of a new 24" CPP line across the #18 fairway, connecting through a 2X3ft inlet box on the west side of the cart path.(**Figure 1**) . This inlet w/ drive over grate, replaces an existing CMP and blind swale on the east side of the cart path. **Fig. 2** below, shows the completed structure in this area. The invert elevation (pipe bottom) at Pond #8, was set @ 8.8ft. Elevation of the drain line in this box was recorded @ 7.0ft.

This 24" drain continues under the cart path into a 4X5ft. junction box( "west J-box" see **Fig. 7**) and drop inlet, with drive over grate. This structure was located at a swale on the west side of Genoes Point road. Two 18" CPP lines run from this "west J-box" , under the roadway and into another 4X5ft Junction box, with a fix manhole cover. Pipe elevation of the drain lines out of this, "east side J- box" were at 5.9ft . **Figure 3**, shows installation of the box along with existing utilities.

From the east J-box, these 18" pipes were run approximately 300ft (primarily through Lot #315) toward the designated outfall point between Lots #315& 316. Previous exploration for existing drains in this area found a single 15" CPP line at the outfall area . Intersection of this existing 15" line, along with a 6" sock pipe of unknown origin, was made approximately 100ft from the final outfall point.



**Figure 1, drain line/@ 18 fairway**



**Fig. 2, new inlet & drain at cart path**



**Fig. 3, East J-box connections**

**Figure 4**, shows the discovery of these existing pipes. Both existing drains were tied into one of the new 18" lines, via a 2X3ft box, as shown in **Fig. 5**. A new outfall (with open 18" pipes) was established into the dispersive swale and under growth, located approximately 85ft from the Lockwood Folly River.(see **Figure 6**)

Also constructed, as part of the project G-3A plan, was a swale running along the west side of Genoes point road, in front of Lots #349 to #352.( see **Figure 8**, on p-3)

This new structure was connected via 80ft of 15" CPP, into the "west J-box" shown in **Figure 7**,below.

Work was completed on August 17, at a cost of \$ **37,497.44**, which included re-sod/ seed, as well as paving.

Some exploratory work near #18 fairway carried out to locate existing pipes Paid June 9: \$405.00 charged against" 2008 SWM

Credit must be given to the contractor and to the co-operation of Lot #315/316 owners for keeping this project under budget!



**Fig. 4, Existing 15" & 6" drains discovery on lot #315.**



**Fig. 5, tie in of existing drain**



**Figure 7, Completed "west j-box" & lot 315**



**Fig. 6 New "G Outfall" to Swale**