
PROJECT MEMORANDUM



DATE: August 24, 2006
TO: **Roland Raymundo, P.E. – Seminole County - Roads / Stormwater**
FROM: Mark Ellard / Steve Sommerfeldt - Inwood
CC: David Coleman - Inwood
RE: **MULLET LAKE PARK ROAD STORMWATER IMPROVEMENTS
PROJECT STATUS**

Objective:

The purpose of this memorandum is to provide a project status, a summary of the recent SJRWMD meetings regarding the project, and to discuss options on how to proceed further with the project.

Brief Project Description:

Flooding in the project area was recommended to be addressed by two improvements measures. The first measure was upgrades to the side and cross drain system along Mullet Lake Park Road from Osceola Road north to the St. Johns River. This was intended to improve conveyance and reduce flooding of properties near Retreat Road and other locations. The second improvement measure was attenuation of contributing flows upstream of SR 46 by the construction of a weir on the downstream edge of the wetlands associated with the City of Sanford's Site 10 sprayfield property. This was intended to reduce peak discharges and associated flooding impacts downstream in the Mullet Lake Park Road ditch system.

The project area has two outfall locations. The intended outfall directly to the St. Johns River is located at the north end of the Mullet Lake Park Road ditch. The other unintended outfall is located at a low spot within the east top of bank of the ditch near the intersection of Mullet Lake Park Road and Retreat Road. This second (unintended) outfall has developed over time and drains to the east to a wetland area that eventually drains into the St. Johns River. Discharge to the east from this outfall only occurs when the Mullet Lake Park Road Ditch stages up high enough to overtop the ditch's east top of bank in this area. This overtopping floods nearby residential yards and roads. Modeling indicates it occurs as often as the mean-annual storm event.

A pre-application meeting was held with the SJRWMD on April 13, 2006 to discuss the proposed project improvements. Concerns were raised concerning potential increases in peak discharges to the St. Johns River as well as wetland impacts associated with the recommended improvements discussed above. In order to properly quantify permit requirements, the SJRWMD asked for some additional information on pre. vs. post discharge rates as well as the amount of surface water and wetland impacts from the project improvements. A subsequent meeting with the SJRWMD was held on May 9, 2006 to discuss the supplemental data. The objective of this meeting was to discuss in further detail the above mentioned concerns related to the Mullet Lake Park Road Stormwater Improvements Project.

Pre. vs. Post Discharge Rate Discussion:

As part of permitting of typical stormwater improvements, it must be demonstrated the peak post-discharge rate will be less than or equal to the peak pre-discharge rate. If that cannot occur, then an analysis to show that there will be no significant impacts caused by increases in peak post-discharge rates from the project outfall is necessary.

Initially, the combined discharge rates from both project outfalls (mentioned above) were evaluated in aggregate to evaluate peak discharge rate impacts because both outfalls discharge to the St. Johns River. Using this analysis scenario, reducing the flow to the east (unintended) outfall and redirecting it to the north (intended) outfall would not cause a significant overall increase or decrease to the aggregate post discharge rates to the St. Johns River. The approach to this analysis is crucial to the project because the main goal was to significantly reduce the discharge to the east (unintended) outfall near Retreat Road.

Specifically, the recommended approach to reducing the flooding was to upsize the existing undersized culverts in the ditch downstream of Retreat Road. Upsizing the existing undersized culverts increases the peak discharge rates at the north (intended) outfall but decreases the discharge rates at the east (unintended) outfall. Since the overall runoff volume is not changing, this provides no significant increase or decrease in aggregate peak discharge rates into the St. Johns River. This information was provided to the SJRWMD at the pre-application meeting held on April 13, 2006.

At the April 13, 2006 meeting, the SJRWMD asked that Inwood provide them with additional information on the discharge rates from the proposed project so they could review and determine if the increases were too significant to be permitted. Inwood provided the SJRWMD (on April 17, 2006) with aggregate discharge data that demonstrated the pre. vs. post peak discharge rates remained fairly constant with a slight reduction for all storm events (except the 100-year/24-hour event where a slight increase was noted). Following a review of this data the SJRWMD asked (on April 18, 2006) to see a detailed break down of the separate discharges going to the east (unintended) outfall and north (intended) outfall. Inwood provided the SJRWMD (on April 21, 2006) with such information. When compared separately in isolation, expected significant increases in peak flow were noted at the north (intended) outfall while significant decreases in flow were noted at the east (unintended) outfall (although some flow remained to the east for all storm events).

On May 9, 2006, an additional pre-application meeting was held to discuss in more detail the specifics about the project. The SJRWMD explained that they considered the approach of aggregating the flows from both outfalls, but ultimately felt that the discharge rates at each outfall location would need to be compared separately. The SJRWMD felt that eliminating or significantly reducing the high stage discharge to the east (unintended) outfall would have adverse effects on the existing wetlands. Also, that any significant increase in the discharge rate at the north (intended) outfall location would not be perceived well by the public nor would it be permissible since the St. Johns River in this area has severe flooding issues during the rainy season.

As an alternative, the SJRWMD suggested that the County could install some type of controlled outfall at Retreat Road that would redirect the flow along Retreat Road and directly to the wetland. This could prevent the uncontrolled flooding of the residential yards homes being impacted under current conditions. Retreat Road is not a County maintained road, nor does the

County own right-of-way or easements along Retreat Road. As such, this type of improvement would require the County to work out an easement agreement with the residents along Retreat Road. This would allow the County permanent maintenance access to their properties (where improvements would be constructed / installed) and Retreat Road. In the past, the residents in the area have not been willing to cooperate with the County on this issue.

As another option, the SJRWMD also suggested that the County could pursue land acquisitions near Mullet Lake Park Road to construct a stormwater pond facility that would provide for flood attenuation for the problem areas and act to further decrease peak discharges at the north (intended) outfall.

Wetland and Surface Water Impact Discussion:

A preliminary sketch/calculation of the wetland (1.29 impacted acres) and surface water impacts (0.22 impacted acres) was provided to the SJRWMD at the May 9, 2006 meeting. The wetland impacts are primarily associated with the proposed attenuation weir at the Site 10 property. The SJRWMD stated that since the wetland impacts exceed the 1.0 acre threshold, an individual permit would be necessary. Also that mitigation would have to be provided for all direct wetland impacts and all parcels/property owners being impacted would need to be contacted and give written consent of the impacts.

A question of which basin the project is located in arose. It was explained that geographically (per the SJRWMDs basin lines) some of the wetland impacts may be technically located in the delineated Lake Jesup basin. From a hydraulic standpoint, however, the project all drains within the St. Johns basin. The SJRWMD then explained that they would need Board approval if mitigation was sought in the St. Johns basin for the wetland impacts located geographically within their delineation of the Lake Jesup basin.

The idea of whether retaining runoff within the wetland would be considered enhancement to the existing wetland was discussed, since it is thought that the wetland has been drained due to the box culvert installation when S.R. 46 was built. The SJRWMD stated that such enhancements are difficult to prove and would have to be clearly demonstrated before any such decision could be made regarding any mitigation benefit this may represent.

Project Standings/Direction:

The project has reached a point where decisions need to be made on which direction the County would prefer to pursue with regard to the improvements along Mullet Lake Park Road. Because of the concerns over increases in peak discharges to the north outfall from the Mullet Lake Park Road ditch, and concerns over maintaining some flow to the east near Retreat Road, the recommended project improvements as currently conceptualized do not appear permissible from the SJRWMD at present.

The County should consider the following options. A supporting "ball-park" cost projection spreadsheet is attached that provides cursory analysis of cost impacts.

- 1) Expand project scope to address SJRWMD concerns and modify/add to the design improvement recommendations. The following options could be analyzed and evaluated:
 - A. The County could pursue the option of securing an engineered outfall to the east. The following implications could be expected:

- Flow to the east near Retreat Road would have to remain in some measure. Evaluation of wetland hydrology would be required to establish minimum hydration levels;
 - Additional data collection (survey, environmental, geotechnical), engineering analysis, and hydraulic modeling would need to be performed to properly evaluate the wetland system;
 - Easements or right-of-way for Retreat Road and from several residential properties adjacent to Mullet Lake Park Road would need to be acquired. This would allow the County to construct a high-stage overflow structure that could be piped down Retreat Road to a better discharge point and reduce or eliminate flooding;
 - This could reduce peak discharges through the intended Mullet Lake Park Road outfall under project conditions.
- B. The County could pursue the option of attenuating (utilizing a stormwater pond) more flow from the Mullet Lake Park Road ditch to help reduce the peak discharge rates at the downstream outfall of the ditch. The following implications could be expected:
- Additional data collection (survey, environmental, geotechnical), engineering analysis, and hydraulic modeling would be required to determine an optimum pond site;
 - Additional property acquisition, easements, and/or right-of-way of private property would be necessary;
 - The issue of maintaining flow to the east near Retreat Road would remain unless addressed in conjunction with option "A" above.
- C. Option "A" could be evaluated individually; however, option "B" would need to be evaluated in conjunction with some degree of option "A".
- D. Further evaluation of the feasibility of utilizing the Site 10 wetland area for attenuation would require additional environmental and survey data acquisition for hydrologic analysis as well as administrative efforts to coordinate with the affected property owners.
- 2) The other option available to the County is that project activity could be put on hiatus. The overall cost / benefit of the project may not be great enough to warrant project continuation at this time.
- A. The areas that are experiencing problems under the current conditions would continue to experience the same problems.
 - B. The County would still have the option of continuing the project at a later time if deemed necessary.

**PROJECTED ADDITIONAL COSTS FOR PROJECT CONTINUATION
PROJECT STATUS MEMORANDUM
MULLET LAKE PARK ROAD STORMWATER IMPROVEMENTS
SEMINOLE COUNTY, FLORIDA**



SECURING AN ENGINEERED OUTFALL TO EAST			EST COSTS*
	ANALYSIS & DESIGN		
		ENGINEERING	\$ 50,000
		SURVEY	\$ 20,000
		ENVIRONMENTAL	\$ 10,000
		GEOTECHNICAL	\$ 5,000
		ANALYSIS & DESIGN TOTAL:	\$ 85,000
	EASEMENTS		
		SURVEY / TITLE	\$ 5,000
		6 PROPERTIES, 1500' LONG x 20' WIDE, \$2/FT2	\$ 60,000
		EASEMENT TOTAL:	\$ 65,000
	CONSTRUCTION IMPACTS		
		PIPE OUTFALL (ASSUME ~1500' OF ~36 RCP WITH ASSOCIATED APPURTENANCES)	\$ 750,000
		CONSTRUCTION IMPACTS TOTAL:	\$ 750,000
SECURING A POND SITE FOR ATTENUATION			EST COSTS*
	ANALYSIS & DESIGN		
		ENGINEERING	\$ 75,000
		SURVEY	\$ 30,000
		ENVIRONMENTAL	\$ 5,000
		GEOTECHNICAL	\$ 10,000
		ANALYSIS & DESIGN TOTAL:	\$ 120,000
	PROPERTY ACQUISITION		
		SURVEY / TITLE	\$ 5,000
		3 to 4 ACRE POND, ~ \$100,000 PER ACRE	\$ 400,000
		PROPERTY ACQUISITION TOTAL:	\$ 405,000
	CONSTRUCTION IMPACTS		
		BYPASS PIPE TO AND FROM POND (ASSUME ~500' OF ~36 RCP WITH ASSOCIATED APPURTENANCES)	\$ 250,000
		POND SITE CONSTRUCTION (LOCATION NOT IDENTIFIED), ~ \$200,000/PER ACRE	\$ 800,000
		CONSTRUCTION IMPACTS TOTAL:	\$ 1,050,000
FURTHER EVALUATION OF SITE 10 WETLAND BERM OPTION			EST COSTS*
	ANALYSIS & DESIGN		
		ENGINEERING	\$ 20,000
		SURVEY	\$ 10,000
		ENVIRONMENTAL	\$ 10,000
		ANALYSIS & DESIGN TOTAL:	\$ 40,000

* COSTS PROVIDED APPROXIMATE BASED ON ENGINEERING JUDGMENT WITH PAST PROJECTS.
COSTS SHOULD NOT BE RELIED UPON FOR BUDGETING PURPOSES WITHOUT DETAILED REFINEMENT.