HYDRO ENGINEERING SOLUTIONS

A DIVISION OF HYDRO, LLC

August 3, 2022

Mr. Joey Nunnally, P.E.
Baldwin County Engineer
Baldwin County Highway Department
P.O. Box 220
Silverhill, Alabama 36576

RE: Proposal for Regional Detention at Specific Locations
        Using Updated GSSHA Models

Dear Joey,

We are pleased to provide this proposal to assist Baldwin County in planning of stormwater detention management and improvements throughout the county.   Currently GSSHA watershed models exist in Baldwin County for Bay Minette Creek, Honeycut Creek, Red Hill Creek, Martin Branch, Dennis Creek, Spanish Fort Branch, D'Olive Creek, Fish River, Magnolia River, Bon Secour River, and Wolf Bay Watersheds that are available for use by the County. The watershed locations are shown in Figure 1. The drainage areas for these watersheds are shown in Table 1.

Table 1 – Watershed drainage areas

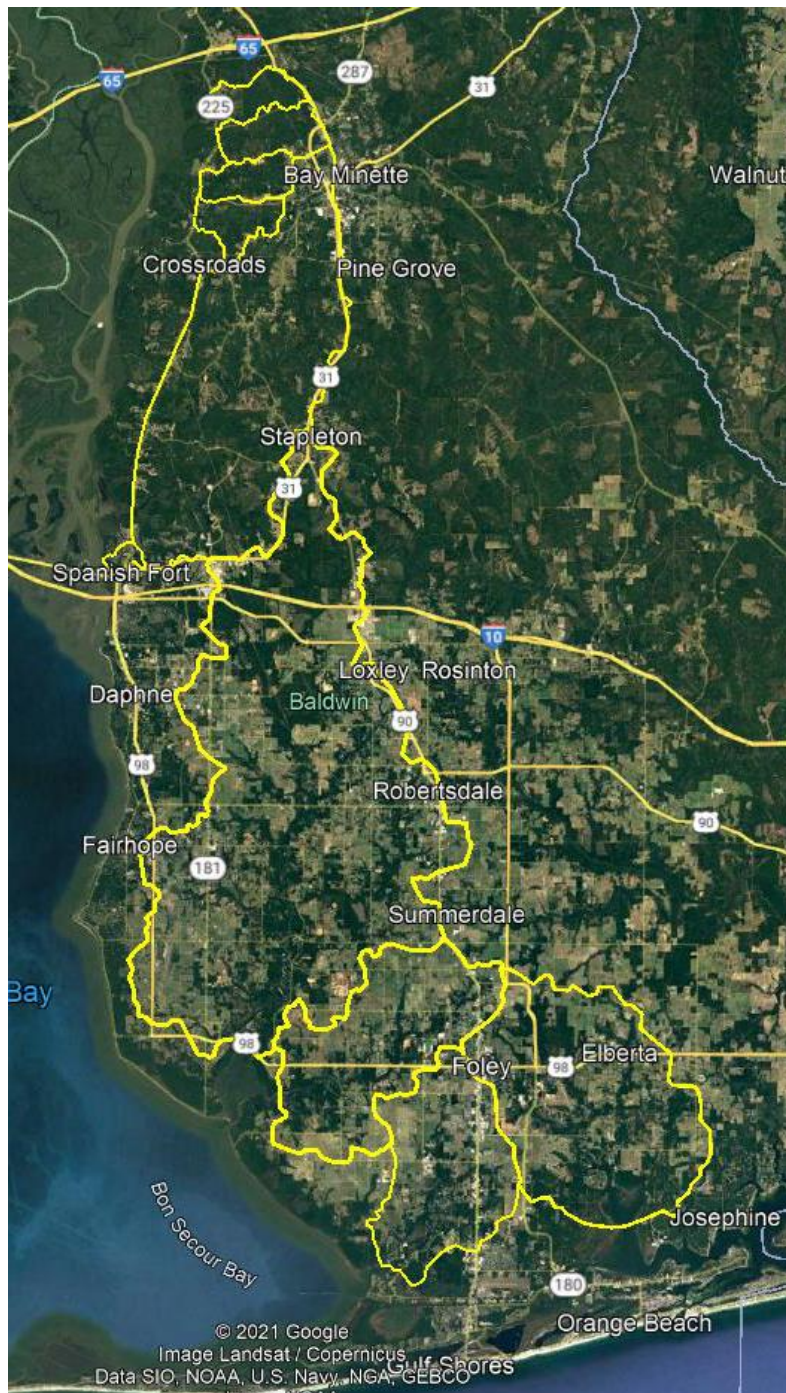| Basin Description	Drainage Area (mi^2)
Bay Minette Creek	72
Spanish Fort Branch	1
D'Olive Creek	13
Fish River	151
Magnolia River	41
Bon Secour River	31
Wolf Bay	57

Figure 1. Existing GSSHA Watershed Models Bay Minette Creek, Honeycut Creek, Red Hill Creek, Martin Branch, Dennis Creek, Spanish Fort Branch, D'Olive Creek, Fish River, Magnolia River, Bon Secour River, and Wolf Bay Watershed Locations

These models were developed either by Baldwin County or the Mobile Bay National Estuary Program (MBNEP) and can be utilized to guide design of priority coastal habitat restoration projects and provide watershed resource managers a useful tool to guide implementation of future stormwater projects. The development of hydrologic models has been recommended in multiple WMPs and can now be used to address issues including but not limited to:

- Evaluating the impacts of future growth (i.e. increased runoff).
- Helping engineers evaluate proposed new developments with respect to compliance with stormwater related codes or standards established for such new developments.
- Evaluating potential watershed impacts due to proposed detention/retention facilities

SCOPE OF SERVICES

The County identified areas within specific Baldwin County watersheds where they have received complaints about flooding or where rapid development is occurring and stormwater management is taking place. Based on this, we have 12 locations to be evaluated for possible detention shown in Figure 2. A low flow (2-year) and a high flow (100-year) event will be evaluated for each conceptual detention site. Our deliverables will be a letter report of the evaluation of conceptual detention at or near each area, and we will update and modify the Fish River model to be uploaded into AGWA to be used for any other possible detention areas within that watershed.
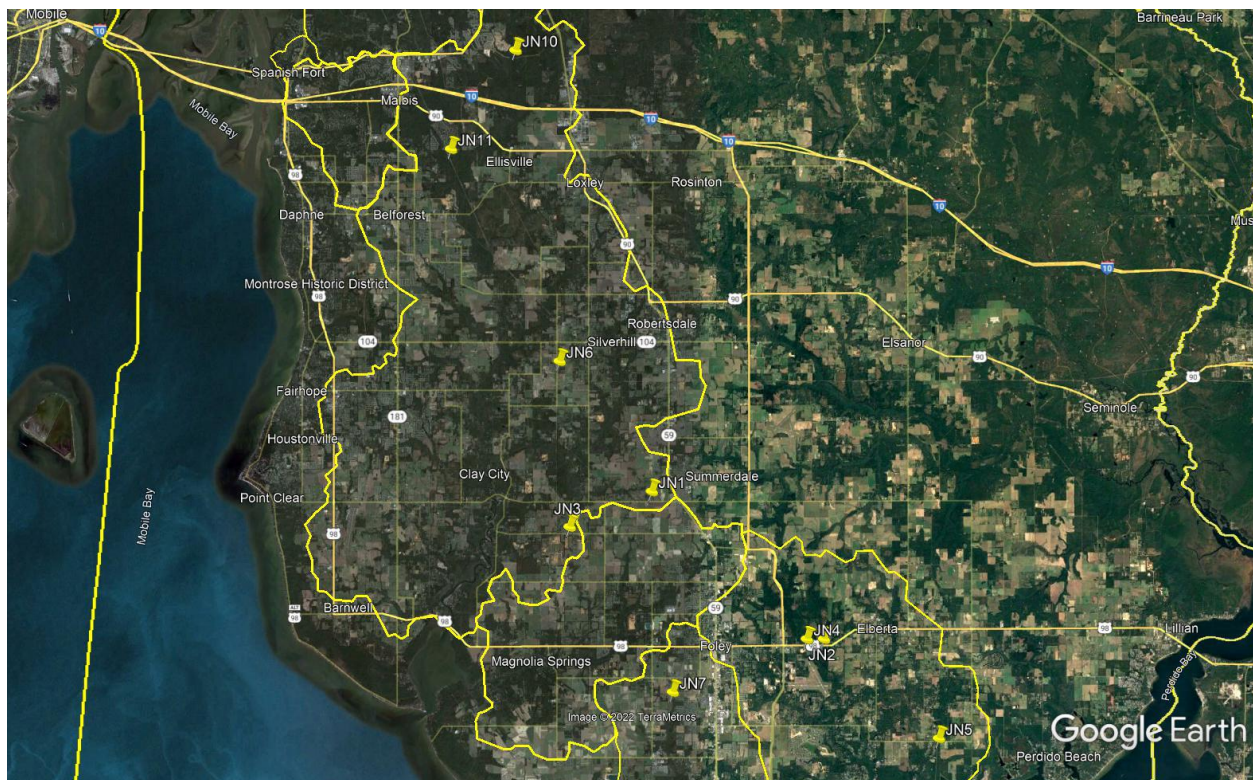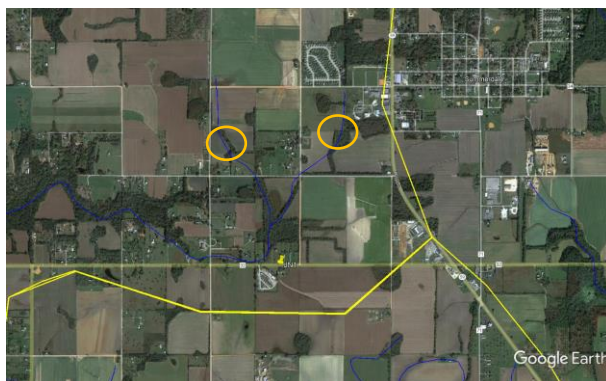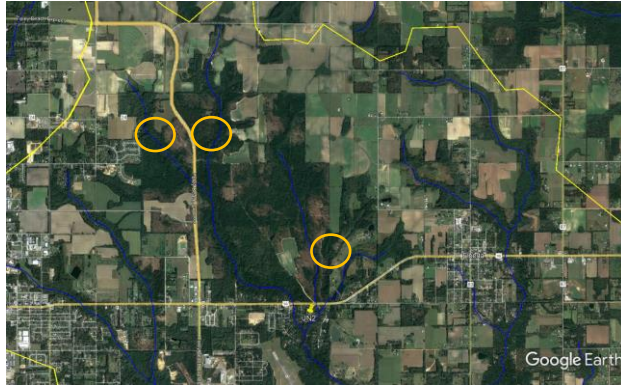
Figure 2. Existing GSSHA Watershed Models D'Olive Creek, Fish River, Magnolia River, Bon Secour, and Wolf Bay Watersheds with locations identified by the County to be evaluated.

JN1 is located at County Road 32. We will compute discharges using the updated Fish River GSSHA model and evaluate possible detention at two locations leading to County Road 32.

JN2 is located on Sandy Creek. We will compute discharges using the Wolf Bay GSSHA model and evaluate possible detention at three locations leading to US98.
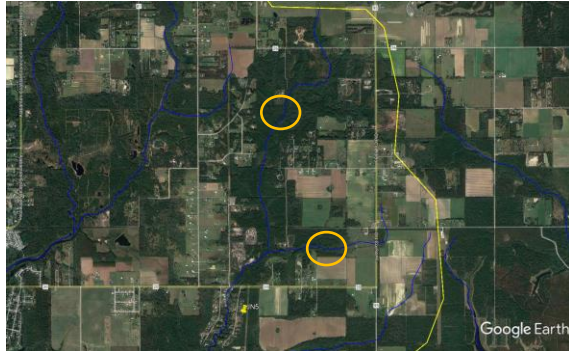

JN3 is located at County Road 28. We will compute discharges using the updated Fish River GSSHA model and evaluate possible detention at this location.

JN4 is located at US 98. We will input this regional detention facility into the GSSHA model for evaluation and update the Wolf Bay model.
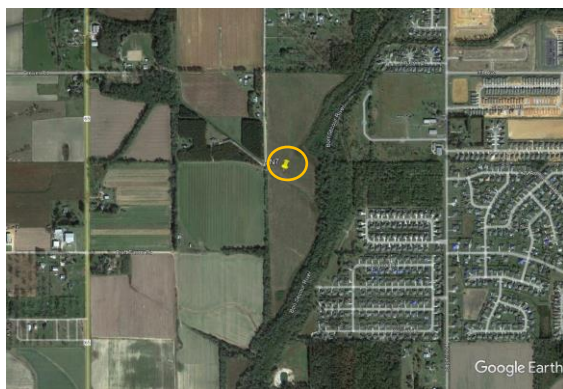
JN5 is located on Hammock Creek. We will compute discharges using the Wolf Bay GSSHA model and evaluate possible detention at two locations leading to County Road 20.

JN6 is located at Camellia Road and County Road 49. We will compute discharges using the updated Fish River model and evaluate the detention pond for the subdivision adjacent to Camellia Road.
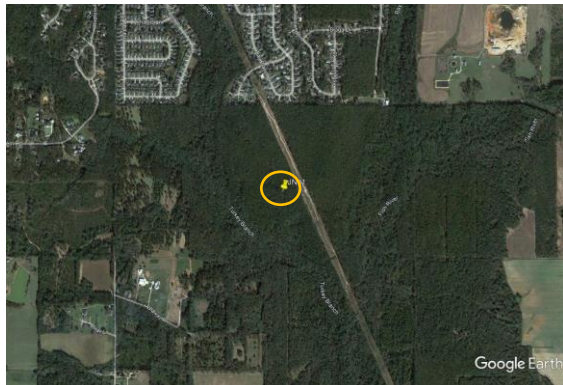

JN7 is located at County Road 26 and County Road 65. We will input this regional detention facility into the GSSHA model for evaluation and update the Bon Secour model.

JN10 is located between US31 and Highway 59. This is a very large development area with many tracts to be developed. We will incorporate the development's current land use changes into the existing GSSHA model to update the model in this area to use for future management.

JN11 is located below Asbury Hill Road. This is another large area to be developed. We will incorporate it into the updated model for evaluation.

As part of JN1, JN3, JN6, JN10, and JN11 we propose to update the previously calibrated Fish River GSSHA model and input this model into Aquaveo's Automated GSSHA Watershed Analysis (AGWA) program. Due to the size, we anticipate breaking the model up into five basins to make it more manageable on runtimes. This can be used going forward to easily perform evaluation of other complaint areas or development areas in need of stormwater management. Models will be setup for a low flow (2-year) and a high flow (100-year) event. A one-year subscription is included in the fee.

SCHEDULE

Hydro, LLC is prepared to initiate work upon receipt of authorization to proceed. The work will be accomplished over a fifteen-month period.

FEES

Hydro, LLC shall provide the services described herein at an hourly rate. We estimate the cost to be $153,000. Of this amount $31,000 is the AGWA subscription for the Fish River Watershed. We will do or help the county analyze up to five others, not currently proposed detention sites, in the Fish River watershed using AGWA.

Our fee is based on the following assumptions.

- The County shall provide the most current background GIS information for the development of the models including zoning, aerials and lidar.
- The County will provide survey information if needed.

Summary

We appreciate the opportunity to assist Baldwin County. If you have any questions or require any additional information, please contact me at (334) 466-0894.

If you need anything else let me know.

Sincerely,

John E Curry, PE
President

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