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MEMORANDUM

To:	Jennifer Marshall, PE FDOT Chief Engineer of Production
From:	Victor Gallo, PE – Project Manager Armando Orozco, PE – Deputy Project Manager Kimley-Horn & Associates, Inc.
Date:	December 23, 2025
Subject:	New Stormwater Rule Evaluation for State Road 45 (US 41) Project Development and Environment (PD&E) Study

Introduction & Objective

This project is located in SR 45 (US 41) from Kracker Avenue to south of SR 676 (Causeway Boulevard) in Hillsborough County, Florida. This technical memorandum provides a revised analysis of the State Road 45 PD&E Study from February 2025 (Work Program Item Segment No. 430056-1), following the new water quality and nutrient removal rule as set forth in Chapter 62-330, F.A.C. The project is to improve regional mobility and accommodate the future traffic needs of SR 45. The proposed improvements primarily consist of widening the existing four-lane divided flush shoulder typical section and curb and gutter typical section facility to a six-lane divided facility. The total length of this project is approximately 7.0 miles. There are 10 total basins. Basins 1-4 and 7-10 are within the flush shoulder typical section and Basins 5 and 6 are within the curb and gutter typical section.

The objective of this task is to review the pond site alternatives developed in the original Pond Siting Report, utilizing traditional first flush treatment volume design and performance standards, and to assess the modifications required to meet the new water quality criteria established by the updated stormwater rule. The new water quality criteria are quantified differently, focusing on the removal of Total Nitrogen (TN) and Total Phosphorus (TP) in surface water discharges, as determined by Best Management Practice (BMP) efficiency rates based on the existing ambient water quality conditions of the downstream Water of the State, as outlined in Sections 8.3.2 through 8.3.5 of the Applicant's Handbook Volume I (A.H. Vol I).

This technical memorandum aims to provide findings and mitigative alternatives regarding the impacts of the new stormwater rule, set forth in Chapter 62-330, F.A.C., on stormwater management systems for curb and gutter and flush shoulder typical sections. The minimum nutrient reduction performance standards for all sites, as specified in Section 8.3 of the updated A.H. Vol. I, are summarized in **Table 1**. Due to the ambiguity in the new stormwater rule regarding which water quality parameters will classify as the impaired classification at the time of this analysis, FDOT developed two scenarios to evaluate any additional potential impact to the work program of interpretation variations by the regulatory

agencies. As such, this memorandum follows the new water quality criteria in the Statewide ERP A.H. Vol. 1.

The Original Pond Siting report states "*due to the impaired status of several receiving water bodies, it is essential to demonstrate no net increase in nutrient loading (pre vs. post comparison) to avoid contributing to impairment. Nutrient loading calculations show that a wet pond cannot meet nutrient loading requirements for certain basins; therefore, dry detention ponds were considered for siting estimates*." Our analysis, however, indicates that shallow dry BMPs are only needed for Basins 5 and 6. For the remaining basins, dry ponds would not be feasible unless the roadway profile is elevated to provide sufficient storage above the Normal Water Level (NWL) without potentially creating flood conditions. Instead, our evaluation confirms that by optimizing the space originally designated in the Pond Siting Report and incorporating upstream BMPs, the minimum required nutrient reduction rates can be achieved without the need for elevated dry ponds. ICPR (v4.07.04) modeling further demonstrates no adverse flooding impacts, and attenuation requirements are not applicable, as the project discharges directly to an infinite basin with no pre/post peak discharge control criteria.

New Stormwater Rule

The memorandum provides the results of the new stormwater rule as written in Part II of A.H. Vol. I. The new water quality design and performance standards are not in effect for current ERP application to analyze regulatory agency's interpretation of the standards. This memo presumes the use of the new stormwater rule standards without the use of any grandfathering provisions within the rule to truly assess the future impact on the Department's Work Program once this rule takes full effect. The regulatory agency's interpretation of these standards has not been fully determined. To account for this uncertainty, two scenarios were developed to document the potential impacts on the work program pertaining to impaired waters parameters for total nutrient reduction. Impaired waters were determined based on assessment categories 4a, 4b, and 5 as set forth in the Biennial Assessment 2022/24 for the 303(d) list of the Clean Water Act Section 303(d).

Scenario 1 assumes the continued application of precedence for impairment of nutrients, with the exception of nitrate/nitrite, serving as the basis for post-development minimum nutrient reduction rate standards for impaired waters. In contrast, Scenario 2 considers the added risk of all water quality parameters being used as a basis to require higher nutrient reduction.

Table 1 summarizes the new minimum stormwater performance standard requirements in Section 8.3 of the 2024 A.H. Vol. I. This section provides further performance requirements for redevelopment projects as well; however, only performance requirements pertaining to the SR 45 project were included in **Table 1**. The original Pond Siting Report for SR 45 (dated February 2025) was utilized to facilitate modeling nutrient reduction calculations. Nutrient loading analyses were performed for predevelopment and post-development conditions to determine the percentage increase in nutrient loading. In no case was the increase in loading larger than the minimum nutrient reduction rates required by the new rule. Therefore, minimum nutrient reduction rates control.

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Table 1: New Water Quality Performance Standard Requirements

Downstream Ambient Water Quality	Post Dev. TP Minimum Reduction Rate %	Post-Dev. TN Minimum Reduction Rate %	Nutrient Loading Analysis	Presumptive TSS Removal Efficiencies %	A.H. Section
All Sites	80	55	Post ≤ Pre	80	8.3.2
Impaired Waters	80	80	Post ≤ Pre	80	8.3.4
OFW	90	80	Post ≤ Pre	95	8.3.3
Impaired + OFW	95	95	Post ≤ Pre	95	8.3.4

It should be noted that impaired waters not meeting their designated use at the time of application must follow the impaired performance standards. For example, during the PD&E phase, a WBID may be listed as assessment category 4a (impaired with a TMDL); however, by the time the project advances to design and the ERP application is submitted, the WBID could be reclassified as assessment category 2t (meeting its designated use). Then the WBID would no longer be considered impaired and the impaired performance standards would not apply. As the impaired list is updated every two years, the opposite may be true as well. A waterbody that may not be impaired during the PD&E phase could change to impaired with the biennial assessment update by the time the project advances to design and the ERP application is submitted. Then the WBID would be considered impaired and the impaired performance standards would apply. The impairment status of a WBID at the time of ERP application will ultimately determine the water quality performance standard requirements.

Methodology

Basins 1-4 and 7-10 (Flush Shoulder Typical)

BMPTrains 2020 Version 4.3.5 was employed to evaluate the nutrient reduction provided by the stormwater alternatives originally sized and sited in the Pond Siting Report. Based on findings, vegetated filter strips (VFS) and swales were also modeled in series with the originally sized facilities to determine combined nutrient reduction for Basins 1-4 and 7-10 (flush shoulder typical). Unlike the other BMPs mentioned, VFS treatment historically has not been accepted by the WMDs; however, FDOT worked closely with FDEP to incorporate them into the listed Traditional Stormwater BMPs within Appendix O of A.H. Vol. 1 as it is a recognized form of treatment by the EPA. FDOT's 2020 research for WMDs and FDEP demonstrated VFS efficiencies utilizing standard roadway designs and specifications. VFS's are vegetated surfaces (front slope of roadway embankment) that treat sheet flow from the adjacent flush shoulder roadway, which is limited to flush shoulder typical sections. They can achieve a high annual runoff capture rate, utilizing the soil's ability to absorb the runoff within the soil's pore space. Various studies have shown that VFS effectively remove sediment, sediment-bound pollutants, and nutrients (US EPA 840-B-92-002, 1993). The BMPTrains model's primary focus was on the reduction of TN and TP, providing reasonable assurance with the new required criteria set forth in Chapter 62-330 F.A.C. and the A.H Vol I.

For Basins 1-4 and 7-10, two BMPTrains files were generated: one for the swales and ponds in series, and another for the Vegetated Filter Strips (VFS). Within the ponds BMPTrains, separate catchments were created for each pond alternative (as set forth in the original Pond Siting Report). The pre/post event mean concentration (EMC) values were sourced from FDEP 2024 ERP A.H. Vol. 1, Table 9.2. The treatment section incorporated the relevant treatments of wet detention, VFS, and swales, with multiple treatment options applied in series where applicable. The VFS BMPTrains incorporated two catchments per roadway basin, representing the two VFS alongside SR 45: East and West. Refer to **Figure 1** for a cross-sectional view of the VFS width and contributing width per proposed typical section. To be conservative, a VFS depth of 1-foot was adopted. The width of directly connected impervious area (DCIA) corresponded to the travel lanes flowing to the respective VFS per proposed typical section as shown in **Figure 1**. A standard value of 0.2 was used for storage capacity and the VFS slope to 16.67% for the assumed 1:6 front slopes. Individual efficiency rates from BMPTrains were analyzed for each subbasin to properly identify the combined treatment efficiency rate. **Equation 1** was used to determine the combined efficiency rates of the VFS, swales, and ponds originally sized in the Pond Siting Report. This equation was derived from 2024 AH Vol. 1 Equation 9-5.

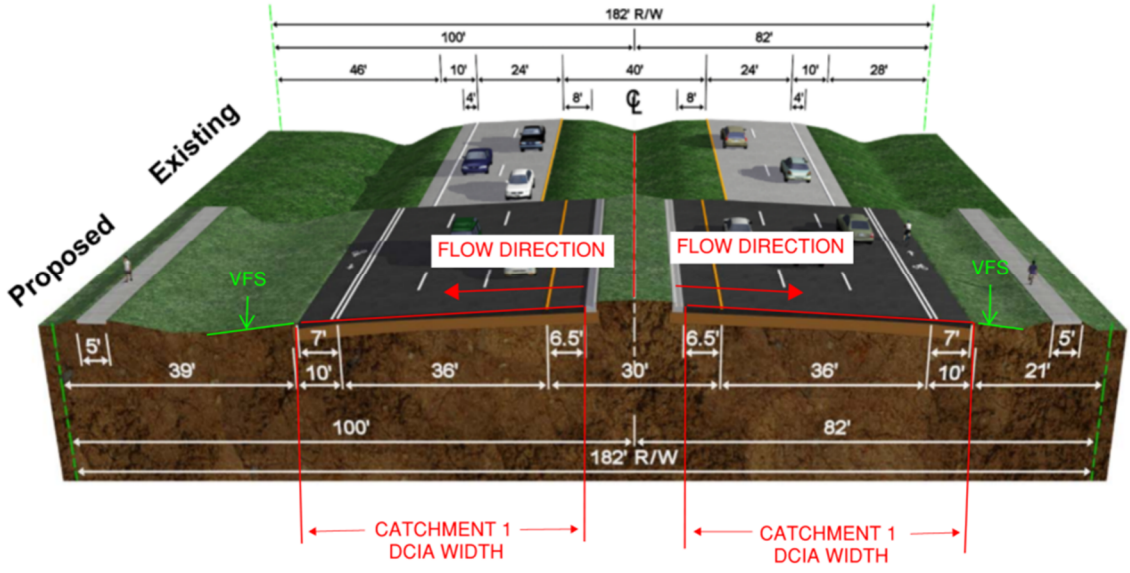


Figure 1: Typical Section - Two Catchments for VFS Analysis

$$Overall\ Treatment\ Train\ Efficiency = Eff1 + [(1 - Eff1)xEff2] + \left[\left((1 - Eff1) - \left((1 - Eff1)xEff2\right)\right)xEff3\right]$$ – **Equation 1**

or (simplified form)

$$= 1 - [(1 - Eff1)x(1 - Eff2)x(1 - Eff3)x \dots x(1 - Effn)]$$

Basins 5 and 6 (Curb and Gutter Typical)

These basins are within an urban area where there is a closed stormwater system that includes curb and gutter inlets. The stormwater ponds as sized in the original Pond Siting Report were unable to meet the minimum nutrient reduction rate required based on impairment status of both scenarios 1 & 2. Although the original Pond Siting Report specified dry ponds, the estimated depth to the NWL made them infeasible, once converted to wet ponds, the available Permanent Pool Volume (PPV) did not provide sufficient nutrient reduction to meet the requirements of the new rule. To mitigate these deficiencies these basins were analyzed using Alternative 1, which optimizes the original site in the Pond Siting Report by optimizing the PPV to the threshold of nutrient reduction as set forth in Appendix O of the A.H. Vol. I and utilizing the remaining area as a dry BMP (Split BMP). The Split BMPs were modeled in BMPTrains to obtain a combined nutrient reduction efficiency rate, which meet the required efficiency removal rates for both scenarios.

Analysis & Results

The original Pond Siting Report includes 10 regional basins, each with potential alternatives of stormwater management facilities. Each basin was analyzed in BMPTrains to assess the performance of the ponds and additional BMPs. Two different scenarios were evaluated to determine minimum required efficiency rates for each basin per the new rule.

Scenario 1: Basins with Downstream Impaired Waterbodies with Nutrient Water Quality Impairments

Scenario 1 includes basins specifically impaired for nutrients. Basins 6 and 7 are the only ones within the project limits impaired for nutrients (TN and chlorophyll-a). Basins 6 and 7 are affected by the impairment of the respective WBID, requiring their SMFs to provide minimum nutrient reductions of 80% for both TN and TP.

Table 2: Summary of Findings – Scenario 1

Total No. Pond Alternatives	Alternatives Impaired for Nutrients	Basins Draining into an OFW
20	4	0

Scenario 2: Basins with Downstream Impaired Waterbodies with Any Water Quality Impairments

Scenario 2 assumes that basins discharging to WBIDs with any listed impairment (including non-nutrient) must meet the higher nutrient reduction standards of impaired waters. In Scenario 2, all basins are impaired.

Table 3: Summary of Findings – Scenario 2

Total No. Pond Alternatives	Alternatives With Non-Nutrient Impairments	Alternatives Impaired for Bacteria	Alternatives Impaired for Mercury	Basins Draining into an OFW
20	20	18	17	0

Basins 1-4 and 7-10 (Flush Shoulder Typical)

These basins are in a rural area where the roadway includes a flushed shoulder. The nutrient reduction of these basins was analyzed using the original ponds from the Pond Siting Report, in conjunction with swales and VFS. The VFSs have a 1-foot depth and a 1:6 slope. There is one VFS on each side of the road draining into the swales to allow for effective nutrient reduction. Modeling the ponds with the additional BMPs upstream in series allowed all basins to meet the required performance standards without additional BMPs or modifications of the pond as sized in the Pond Siting Report. It's important to note that because this project discharges to a tidally influenced basin (infinite basin) it does not have to adhere to pre-post discharge criteria and has no need for attenuation**. *The ponds proposed in the original PSR were sized for treatment only, thus may not be needed as the VFS and swales treatment train provides sufficient nutrient reduction to meet the criteria of the new rule in these basins*.**

Basins 5 and 6 (Curb and Gutter Typical)

Alternative 1 uses the original pond sites that were proposed in the Pond Siting Report and optimized the footprint to include additional treatment using a treatment train of a dry BMP and the PPV of a wet pond. The treatment trains were modeled in BMPTrains in series to determine if the combined efficiency would meet the required performance standards. Dry BMPs provide significant additional treatment compared to wet ponds. These dry BMPs are designed to be no deeper than 2 feet, with 1-foot for retention and 1-foot for freeboard and other variables. These selected BMPs maintain at least a 1-foot separation from the bottom of the dry pond to the NWL. All ponds in conjunction with dry BMPs significantly improved overall performance, meeting the specified criteria outlined in the new stormwater rule. **Figure 2** shows the cross-section of the dry BMP and wet pond treatment train. These treatment trains would also include a flow diversion structure that would connect to the existing trunkline. A flow diversion structure would direct stormwater towards the dry BMP at a higher elevation while also routing it to the wet pond, ensuring sufficient flow during larger storm events. Additionally, to minimize

introducing flooding conditions, ICPR models with the updated graded system verified that the Stormwater Management Facilities (SMFs) provide at least 1-foot of freeboard between the NWL and the inside of berm elevation for the 25yr-24hr storm event per FDOT Standards. The pond discharges to an infinite basin; therefore, pre and post discharge criteria were not required. **Figure 3** shows a diagram of a flow diversion structure. Please note, calculations and exhibits for this alternative are indicative of scenario 2, which is the worst-case scenario of the two.

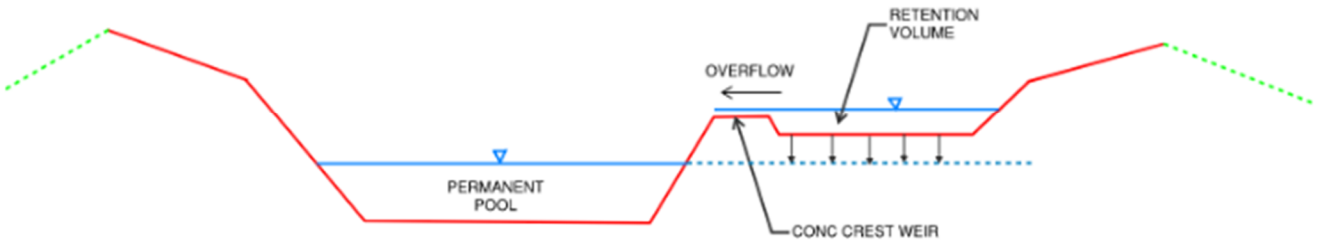


Figure 2: Cross section of Split BMP Treatment Train

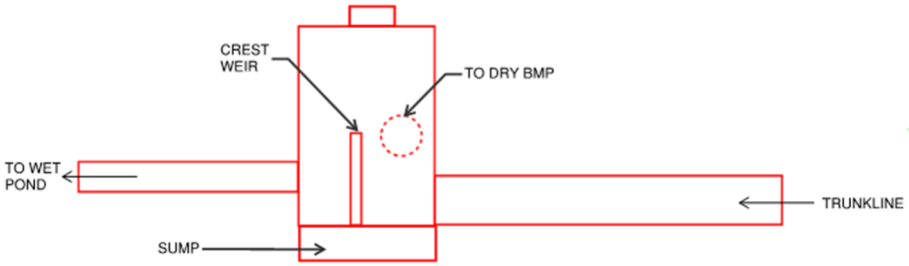


Figure 3: Flow Diversion Structure Sketch

The split BMP was sized to maximize the wet detention side with a maximum 200-day residence time to adhere to the limitation in the A.H. Vol. I Appendix O, and the remainder space was converted to dry retention to enhance the original site's nutrient removal. If it is decided in design that only Scenario 1 needs to be met, there may be opportunities to reduce pond sizes accordingly.

The intent of the weir length in the flow diversion structure is to balance the volume of stormwater routed to the dry BMP and the wet pond with the primary goal of maintaining the Hydraulic Grade Line (HGL) of the system below the Lowest Edge of Pavement (LEOP). This length can be re-evaluated and designed in detail in the design stage. The modeled weir widths differ between Basins 5 and 6. Because of the variation in weir elevations, different widths were used to achieve lower staging. Alternatives 5a and 5b use 12-foot weirs, while Alternatives 6a and 6b use 30-foot weirs.

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Alternative 1 Hydraulic Considerations

Comprehensive ICPR (v4.07.04) models were developed to provide adequate assurance of the hydraulic feasibility of the flow diversion structure proposed for Split BMPs, a comparative elevation analysis was conducted to evaluate potential impacts, including the risk of roadway flooding. Critical elevations were assessed, including the LEOP, the proposed invert elevations of the conveyance pipes leading to the dry retention BMP, the weir crest elevation directing flow to the wet pond and the design peak stage of the primary pond. This analysis was carried out for each design alternative to support planning-level decisions and confirm that the proposed configurations can accommodate anticipated drainage conditions. Refer to **Table 4** for a summary of the comparative elevation analysis. Refer to **Appendix A** for a visual hydraulic evaluation of each alternative.

Table 4: Alternatives HGL and Hydraulic Feasibility Evaluation

Alternative	NWL	Wet Pond Peak Stage (25yr-24hr)	Inv. Pipe to Dry BMP	Dry BMP Pond Bottom	Dry Retention Weir Inv.	Flow Diversion Structure Peak Stage (25yr-24hr)	LEOP EL.
5A	3’	4.66’	4.4’	4’	4.8’	6.00’	7’
5B	3’	4.56’	4.3’	4’	4.7’	6.02’	7’
6A	3’	5.01’	4.1’	4’	5’	6.13’	7’
6B	3’	4.92	4.1’	4’	5’	6.05	7’

The systems can maintain a 1-foot freeboard between the design stage and inside berm elevation for the 25year-24hour storm event, which allows for a more strategic division of function between BMPs: the dry retention segment of the Split BMP can be optimized for water quality treatment due to its high nutrient removal efficiency while still providing storage. The wet pond can serve primarily for stormwater storage and attenuation, although the wet pond still provides treatment within its PPV, the elimination of the traditional first-flush treatment volume enables discharge to begin at or near the NWL, allowing for more efficient use of available space. Refer to **Appendix A** for hydraulic evaluation diagrams of each alternative.

Another key finding was the operational flexibility of the flow diversion structure; its configuration can be adjusted to achieve target flow distribution and storage outcomes. A comparison of key hydraulic elevations such as design peak stages in the Split BMP and flow diversion structure, invert elevations of flow diversion components, and the LEOP to assess feasibility is shown in **Table 4.**

Additionally, if lower hydraulic stages in the system are preferred, it is worth noting that the new rule allows the release of water beginning at the normal water elevation, as there is no longer a required treatment volume. Even in the more detailed analysis, the systems attenuate only about 50% of its potential capacity to meet pre- versus post-development discharge criteria. In the case of basins with a tidally influenced outfalls, there is no limit to the post-development discharge rate. It is important to note that the models were developed conservatively. This conservative approach not only supports

planning-level decision-making but also preserves flexibility to refine and optimize system performance during the final design phase.

Other Alternatives Investigated

In addition to the site optimization treatment trains (Alternative 1), other alternatives were considered but discarded due to feasibility issues. In Basins 5 and 6, linear treatment swales in the roadway corridor were considered in conjunction with ditch blocks with the originally sized ponds to enhance nutrient reduction. The swales featured a 5-foot bottom with an additional 2 feet on either side for the front and back slopes. The swales option was excluded because it would require a bubble-up structure for stormwater treatment, which was deemed incompatible to be in-line with the trunkline, as it would impede flow during larger storm events. A bypass trunkline option was also discarded after the preliminary analysis indicated that the hydraulic head required to bubble-up water into the swale could lead to flooding onto the road through inlets. Although swales performed well in BMPTrains when coupled with originally sited ponds, design feasibility indicated potential hydraulic performance complications.

Stormwater harvesting was considered as another alternative; however, a significant amount of green space would be required to irrigate for this to be effective. Because these basins are in an urban area and lack adequate amounts of green space, this alternative was not feasible.

Exfiltration trenches were considered as another alternative. However, the treatment provided did not compensate for the deficiencies of the wet ponds with reasonable exfiltration trench lengths.

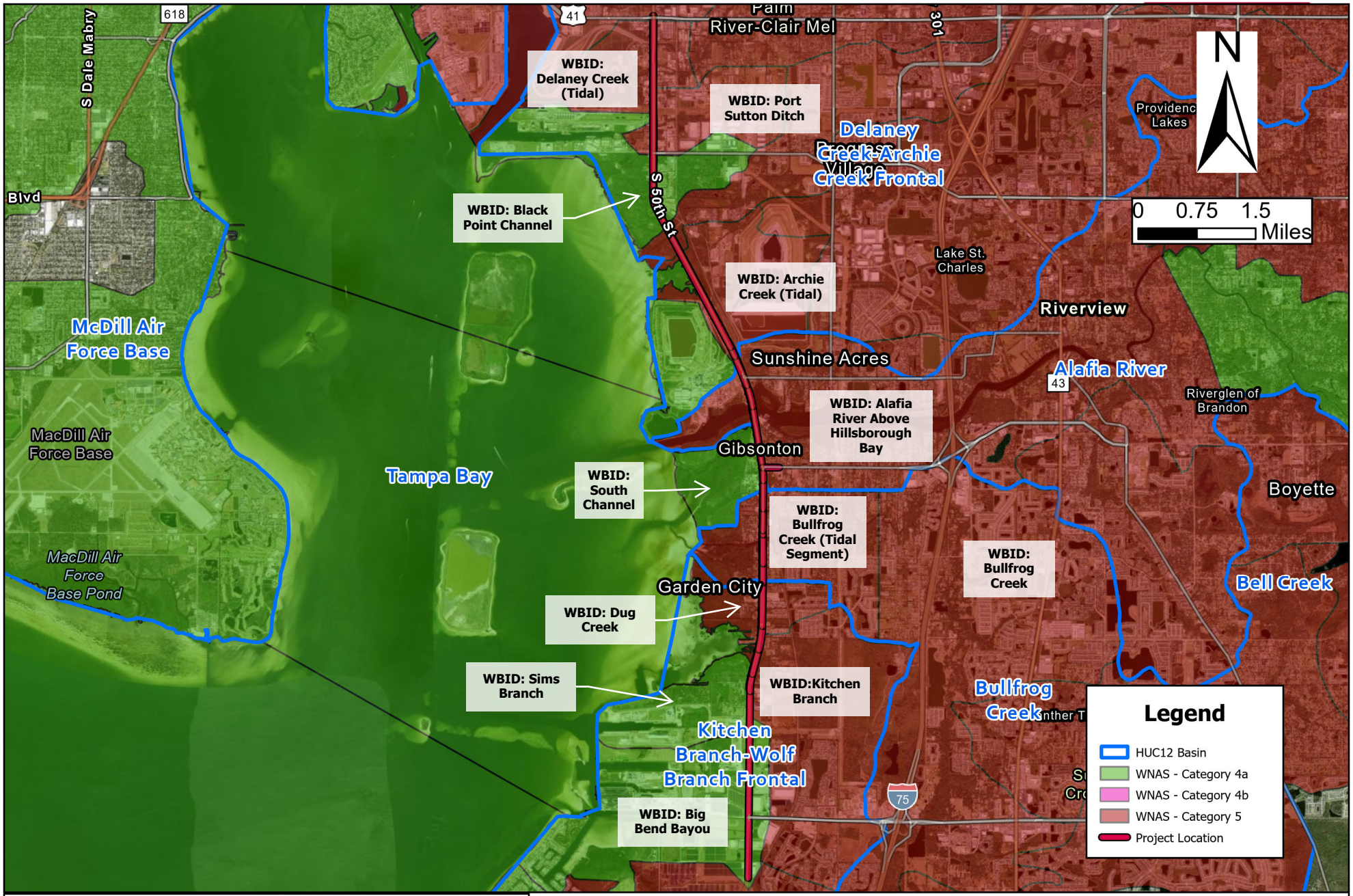
Conclusion

In conclusion, Basins 5 and 6, as originally sited cannot provide the required nutrient reduction in the new rule. Treatment trains in Alternative 1 (Split BMPs) allowed both basins to meet the nutrient reduction criteria with no need for additional right-of-way compared to the original PSR for both scenarios. Basins 1-4 and 7-10, within the flush shoulder typical, satisfy the nutrient reduction criteria for both scenarios with the swales and VFS treatment train. Given that this is a tidally influenced basin, ponds proposed in Basins 1-4 and 7-10, would not be needed for treatment or attenuation.

APPENDIX A

Matrices & Exhibits

Nutrient Loading Calculations						
Basin	Total Nitrogen Loading			Total Phosphorus Loading		
	Pre (kg/yr)	Post (kg/yr)	Increase Loading	Pre (kg/yr)	Post (kg/yr)	Increase Loading
1	16.471	29.923	45%	2.28	4.141	45%
2	19.333	35.215	45%	2.676	4.874	45%
3	20.699	37.604	45%	2.865	5.204	45%
4	22.967	41.779	45%	3.179	5.782	45%
5	27.261	49.526	45%	3.773	6.854	45%
6	44.676	77.279	42%	6.183	10.695	42%
7	74.027	120.979	39%	10.245	16.743	39%
8	20.181	36.628	45%	2.793	5.069	45%
9	19.343	35.169	45%	2.677	4.867	45%
10	19.273	34.996	45%	2.667	4.843	45%



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WNAS & HUC 12 Basins

SR-45 NEW RULES POND SITING ANALYSIS
HILLSBOROUGH COUNTY, FLORIDA

Scale: As Noted	Project No: 240000011	May, 2025	

SR 45 - Waters Not Attaining Standards						
WBID	WATERBODY NAME	PARAMETER IWR	PARAMETER GROUP	ASSESSMENT CATEGORY	ASSESSMEN STATUS	COMMENTS
1682	KITCHEN BRANCH	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
		Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.
1676A	DUG CREEK	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
1666A	BULLFROG CREEK (TIDAL SEGMENT)	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
		Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.
1621G	ALAFIA RIVER ABOVE HILLSBOROUGH BAY	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
		Nutrients (Total Nitrogen)	Nutrients	4a	TMDL Complete	This waterbody is impaired for this parameter and will remain in category 4a because there is a DEP adopted dissolved oxygen and nutrient TMDL.
		Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.
		Nutrients (Chlorophyll-a)	Nutrients	4a	TMDL Complete	This waterbody is impaired for this parameter and will remain in category 4a because there is a DEP adopted dissolved oxygen and nutrient TMDL.
		Dissolved Oxygen (Percent Saturation)	Dissolved Oxygen	4a	TMDL Complete	This waterbody is impaired for this parameter and is being placed in category 4a because there is a DEP adopted Dissolved Oxygen and Nutrient TMDL. Dissolved oxygen measurements taken within tidal areas are assessed using associated specific conductivity data (4,580 Âµmhos/cm, or 1,500 mg/L chloride, or 2.7 PSU salinity) for the determination of applicable freshwater or marine criteria as described in 62-303.320(11), F.A.C. Samples used in this assessment when the freshwater criteria apply were evaluated against a time of day adjustment as described in 62-303.420(9), F.A.C.
1628A	ARCHIE CREEK (TIDAL)	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
		Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.
1632	DELANEY CREEK POPOFF CANAL	Enterococci	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
		Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.
1666	BULLFROG CREEK	Escherichia coli	Bacteria	5	Impaired	This waterbody is impaired for this parameter based on the number of exceedances for the sample size and anthropogenic sources have been identified using land use. This parameter will remain on the Verified List and the 303(d) List.
1664	SOUTH CHANNEL	Mercury (in fish tissue)	Mercury (in fish tissue)	4a	TMDL Complete	This waterbody has no data for this parameter but meets Planning List requirements based on DOH fish consumption advisory. This parameter is being placed in category 4a because there is a DEP adopted mercury TMDL.

Scenario 1 - Performance Efficiency Rates for Basins 1-4 & 7-10 (Flush Soulder Typical)

HUC-12	Facility Information			BMP Series Train			Basin Information		Nitrogen					Phosphorus				
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**BMP Element 3**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate ***	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate***
Kitchen Branch-Wolf Branch Frontal	1	1A	wet	Wet pond	Swale	VFS	No Hazards		43%	61%	60%	*55%*	**91%**	78%	61%	60%	*80%*	**97%**
		1C	wet	Wet pond	Swale	VFS	No Hazards		43%	61%	60%	*55%*	**91%**	78%	61%	60%	*80%*	**97%**
	2	2A	wet	Wet pond	Swale	VFS	No Hazards		42%	62%	60%	*55%*	**91%**	76%	62%	60%	*80%*	**96%**
		2B	wet	Wet pond	Swale	VFS	No Hazards		43%	62%	60%	*55%*	**91%**	79%	62%	60%	*80%*	**97%**
	3	3A	wet	Wet pond	Swale	VFS	No Hazards		43%	63%	60%	*55%*	**92%**	79%	63%	60%	*80%*	**97%**
		3B	wet	Wet pond	Swale	VFS	No Hazards		42%	63%	60%	*55%*	**91%**	73%	63%	60%	*80%*	**96%**
		3C	wet	Wet pond	Swale	VFS	No Hazards		43%	63%	60%	*55%*	**92%**	79%	63%	60%	*80%*	**97%**
Bullfrog Creek	4	4A	wet	Wet pond	Swale	VFS	No Hazards		42%	63%	60%	*55%*	**91%**	76%	63%	60%	*80%*	**96%**
		4B	wet	Wet pond	Swale	VFS	No Hazards		42%	63%	60%	*55%*	**91%**	75%	63%	60%	*80%*	**96%**
		4C	wet	Wet pond	Swale	VFS	No Hazards		42%	63%	60%	*55%*	**91%**	74%	63%	60%	*80%*	**96%**
Alafia River / Delaney Creek- Archie Creek Frontal	7	7A	wet	Wet pond	Swale	VFS	Impaired Waters	Nutrients (Total Nitrgen, Chlorophyll a)	42%	72%	60%	*80%*	**94%**	74%	72%	60%	*80%*	**97%**
		7B	wet	Wet pond	Swale	VFS	Impaired Waters		42%	72%	60%	*80%*	**94%**	73%	72%	60%	*80%*	**97%**
Delaney Creek- Archie Creek Frontal	8	8A	wet	Wet pond	Swale	VFS	No Hazards		43%	62%	60%	*55%*	**91%**	80%	62%	60%	*80%*	**97%**
		8B	wet	Wet pond	Swale	VFS	No Hazards		41%	62%	60%	*55%*	**91%**	71%	62%	60%	*80%*	**96%**
	9	9A/10A	wet	Wet pond	Swale	VFS	No Hazards		43%	62%	60%	*55%*	**91%**	80%	62%	60%	*80%*	**97%**
	10	9A/10A	wet	Wet pond	Swale	VFS	No Hazards		43%	62%	60%	*55%*	**91%**	80%	62%	60%	*80%*	**97%**

1B and 2C removed based on CRAs

*NOTE: TOTAL NITROGEN REDUCTION CAN BE MET WITH VFS + SWALE ONLY IN NON-IMPAIRED BASINS; HOWEVER, PONDS HELP MEET TOTAL PHOSPHORUS REDUCTION. OPPORTUNITY TO EXISTS TO REDUCE SIZE OF PONDS IN DESIGN TO JUST MEET TP REDUCTION SINCE ATTENUATION IS NOT REQUIRED FOR INFINITE BASINS.

Scenario 1 - Performance Efficiency Rates for Basins 5-6 (Curb and Gutter Typical)

HUC-12	Facility Information			BMP Series Train		Basin Information		Nitrogen				Phosphorus			
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate ***	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate**
Tampa Bay / Bullfrog Creek	5	5A	wet	Wet Pond	Dry BMP	No Hazards		41%	72%	*55%*	**83%**	71%	72%	*80%*	**92%**
		5B	wet	Wet Pond	Dry BMP	No Hazards		42%	67%	*55%*	**81%**	77%	67%	*80%*	**92%**
Tampa Bay / Alafia River	6	6A	wet	Wet Pond	Dry BMP	Impaired Waters	Nutrients (Total Nitrgen)	39%	67%	*80%*	**80%**	66%	67%	*80%*	**89%**
		6B	wet	Wet Pond	Dry BMP	Impaired Waters		41%	68%	*80%*	**81%**	70%	68%	*80%*	**90%**

NOTE: NUTRIENT REDUCTION CAN ALSO BE MET BY ADDING A SIDE BANK FILTER IN SERIES WITH THE PPV IN NON-IMPAIRED BASINS.

Scenario 2 - Performance Efficiency Rates for Basins 1-4 & 7-10 (Flush Shoulder Typical)

HUC-12	Facility Information			BMP Series Train			Basin Information		Nitrogen					Phosphorus				
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**BMP Element 3**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate***	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate***
Kitchen Branch-Wolf Branch Frontal	1	1A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	43%	61%	60%	*80%*	**91%**	78%	61%	60%	*80%*	**97%**
		1C	wet	Wet Pond	Swale	VFS	Impaired Waters		43%	61%	60%	*80%*	**91%**	78%	61%	60%	*80%*	**97%**
	2	2A	wet	Wet Pond	Swale	VFS	Impaired Waters		42%	62%	60%	*80%*	**91%**	76%	62%	60%	*80%*	**96%**
		2B	wet	Wet Pond	Swale	VFS	Impaired Waters		43%	62%	60%	*80%*	**91%**	79%	62%	60%	*80%*	**97%**
	3	3A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria	43%	63%	60%	*80%*	**92%**	79%	63%	60%	*80%*	**97%**
		3B	wet	Wet Pond	Swale	VFS	Impaired Waters		42%	63%	60%	*80%*	**91%**	73%	63%	60%	*80%*	**96%**
		3C	wet	Wet Pond	Swale	VFS	Impaired Waters		43%	63%	60%	*80%*	**92%**	79%	63%	60%	*80%*	**97%**
Bullfrog Creek	4	4A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	42%	63%	60%	*80%*	**91%**	76%	63%	60%	*80%*	**96%**
		4B	wet	Wet Pond	Swale	VFS	Impaired Waters		42%	63%	60%	*80%*	**91%**	75%	63%	60%	*80%*	**96%**
		4C	wet	Wet Pond	Swale	VFS	Impaired Waters		42%	63%	60%	*80%*	**91%**	74%	63%	60%	*80%*	**96%**
Alafia River / Delaney Creek- Archie Creek Frontal	7	7A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue), Nutrients (Total Nitrogen, Chlorophyll-a)	42%	72%	60%	*80%*	**94%**	74%	72%	60%	*80%*	**97%**
		7B	wet	Wet Pond	Swale	VFS	Impaired Waters		42%	72%	60%	*80%*	**94%**	73%	72%	60%	*80%*	**97%**
Delaney Creek- Archie Creek Frontal	8	8A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	43%	62%	60%	*80%*	**91%**	80%	62%	60%	*80%*	**97%**
		8B	wet	Wet Pond	Swale	VFS	Impaired Waters		41%	62%	60%	*80%*	**91%**	71%	62%	60%	*80%*	**96%**
	9	9A/10A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	43%	62%	60%	*80%*	**91%**	80%	62%	60%	*80%*	**97%**
	10	9A/10A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	43%	62%	60%	*80%*	**91%**	80%	62%	60%	*80%*	**97%**

1B and 2C removed based on CRAs

*NOTE: TOTAL NITROGEN REDUCTION CAN BE MET WITH VFS + SWALE ONLY IN NON-IMPAIRED BASINS; HOWEVER, PONDS HELP MEET TOTAL PHOSPHORUS REDUCTION. OPPORTUNITY TO EXISTS TO REDUCE SIZE OF PONDS IN DESIGN TO JUST MEET TP REDUCTION SINCE ATTENUATION IS NOT REQUIRED FOR INFINITE BASINS.

Scenario 2 - Performance Efficiency Rates for Basins 5-6 (Curb and Gutter Typical)

HUC-12	Facility Information			BMP Series Train		Basin Information		Nitrogen				Phosphorus			
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate**
Tampa Bay / Bullfrog Creek	5	5A	wet	Wet Pond	Dry BMP	Impaired Waters	Bacteria, Mercury (in fish tissue)	41%	72%	*80%*	**83%**	71%	72%	*80%*	**92%**
		5B	wet	Wet Pond	Dry BMP	Impaired Waters		42%	67%	*80%*	**81%**	77%	67%	*80%*	**92%**
Tampa Bay / Alafia River	6	6A	wet	Wet Pond	Dry BMP	Impaired Waters	Mercury (in fish tissue), Nutrients (Total Nitrogen, Chlorophyll-a)	39%	67%	*80%*	**80%**	66%	67%	*80%*	**89%**
		6B	wet	Wet Pond	Dry BMP	Impaired Waters		41%	68%	*80%*	**81%**	70%	68%	*80%*	**90%**

NOTE: NUTRIENT REDUCTION CAN ALSO BE MET BY ADDING A SIDE BANK FILTER IN SERIES WITH THE PPV IN NON-IMPAIRED BASINS.

Scenario 1 - Performance Efficiency Rates for Basins 1-4 & 7-10 (Flush Soulder Typical) - NO PONDS																		
HUC-12	**Facility Information**			**BMP Series Train**			**Basin Information**		**Nitrogen**					**Phosphorus**				
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**BMP Element 3**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate**
Kitchen Branch-Wolf Branch Frontal	1	1A	wet	Wet pond	Swale	VFS	No Hazards		0%	61%	60%	*55%*	**84%**	0%	61%	60%	*80%*	**84%**
		1C	wet	Wet pond	Swale	VFS	No Hazards		0%	61%	60%	*55%*	**84%**	0%	61%	60%	*80%*	**84%**
	2	2A	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**
		2B	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**
	3	3A	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
		3B	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
		3C	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
Bullfrog Creek	4	4A	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
		4B	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
		4C	wet	Wet pond	Swale	VFS	No Hazards		0%	63%	60%	*55%*	**85%**	0%	63%	60%	*80%*	**85%**
Alafia River / Delaney Creek- Archie Creek Frontal	7	7A	wet	Wet pond	Swale	VFS	Impaired Waters	Nutrients (Total Nitrgen, Chlorophyll a)	0%	72%	60%	*80%*	**89%**	0%	72%	60%	*80%*	**89%**
		7B	wet	Wet pond	Swale	VFS	Impaired Waters		0%	72%	60%	*80%*	**89%**	0%	72%	60%	*80%*	**89%**
Delaney Creek- Archie Creek Frontal	8	8A	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**
		8B	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**
	9	9A/10A	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**
	10	9A/10A	wet	Wet pond	Swale	VFS	No Hazards		0%	62%	60%	*55%*	**85%**	0%	62%	60%	*80%*	**85%**

1B and 2C removed based on CRAs

Scenario 2 - Performance Efficiency Rates for Basins 1-4 & 7-10 (Flush Shoulder Typical) - NO PONDS																	
HUC-12	**Facility Information**			**BMP Series Train**			**Basin Information**		**Nitrogen**					**Phosphorus**				
HUC-12 Name	**Basin**	**Pond ID**	**Facility Type**	**BMP Element 1**	**BMP Element 2**	**BMP Element 3**	**Basin Impairment**	**Impairments**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Nitrogen Treatment (New Rule)***	**Nitrogen Combined Nutrient Reduction Rate**	**BMP Element 1 Nutrient Reduction Rate**	**BMP Element 2 Nutrient Reduction Rate**	**BMP Element 3 Nutrient Reduction Rate**	***Req. Phosphorus Treatment (New Rule)***	**Phosphorus Combined Nutrient Reduction Rate**
Kitchen Branch-Wolf Branch Frontal	1	1A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	0%	61%	60%	*80%*	**84%**	0%	61%	60%	*80%*	**84%**
		1C	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	61%	60%	*80%*	**84%**	0%	61%	60%	*80%*	**84%**
	2	2A	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**
		2B	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**
	3	3A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria	0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
		3B	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
		3C	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
Bullfrog Creek	4	4A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
		4B	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
		4C	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	63%	60%	*80%*	**85%**	0%	63%	60%	*80%*	**85%**
Alafia River / Delaney Creek- Archie Creek Frontal	7	7A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue), Nutrients (Total Nitrogen, Chlorophyll-a)	0%	72%	60%	*80%*	**89%**	0%	72%	60%	*80%*	**89%**
		7B	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	72%	60%	*80%*	**89%**	0%	72%	60%	*80%*	**89%**
Delaney Creek- Archie Creek Frontal	8	8A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**
		8B	wet	Wet Pond	Swale	VFS	Impaired Waters		0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**
	9	9A/10A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**
	10	9A/10A	wet	Wet Pond	Swale	VFS	Impaired Waters	Bacteria, Mercury (in fish tissue)	0%	62%	60%	*80%*	**85%**	0%	62%	60%	*80%*	**85%**

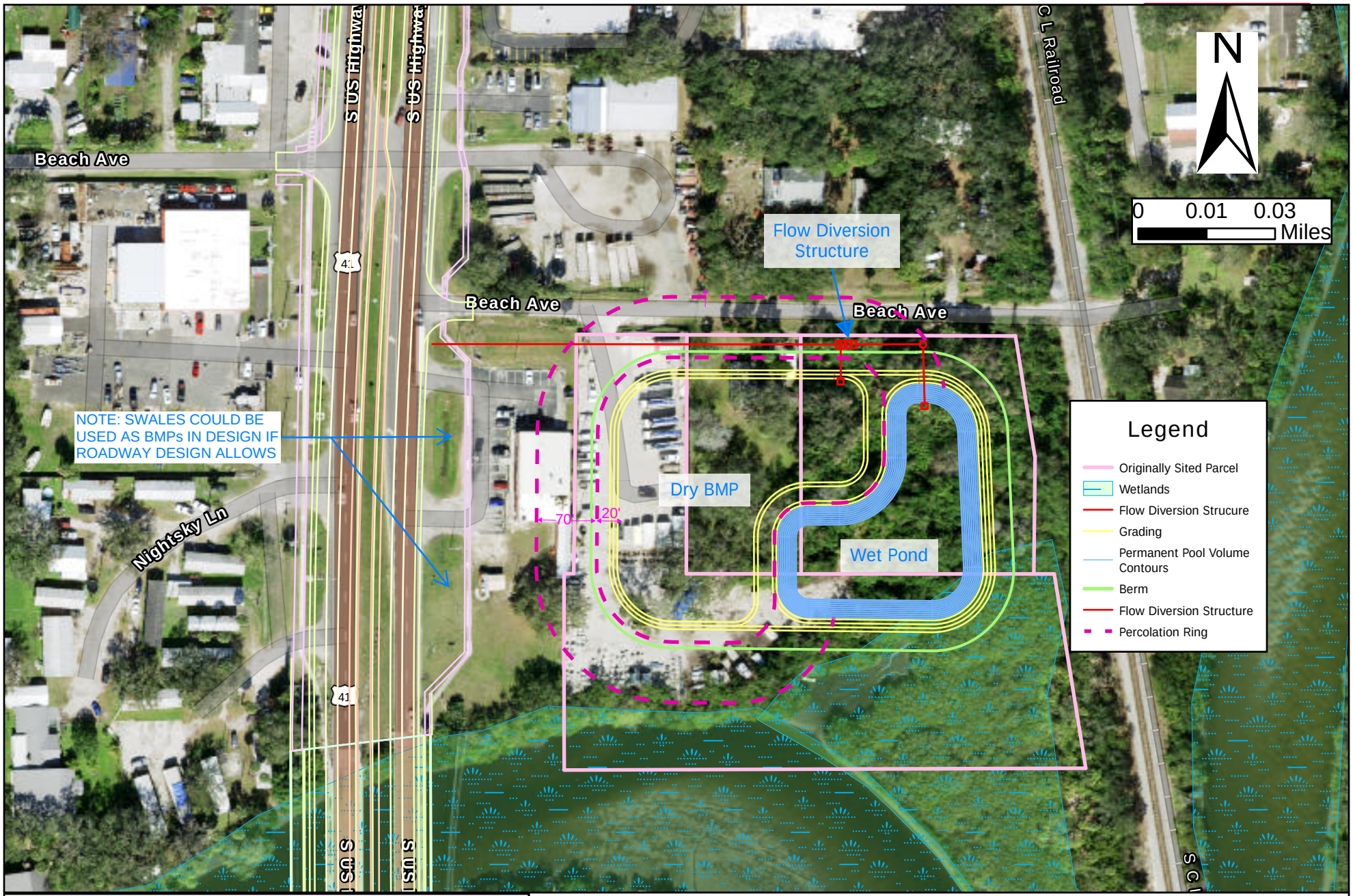
1B and 2C removed based on CRAs

Pond 5A				Pond 5A dry			
Stage *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**	**Stage** *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**
-7.00	0.47	0.00	Pond Bottom	4.00	1.13	0.00	Pond Bottom
3.00	0.81	**6.38**	Control	4.80	1.21	**0.94**	Control

Pond 5B				Pond 5B dry			
Stage *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**	**Stage** *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**
-9.00	0.71	0.00	Pond Bottom	4.00	1.10	0.00	Pond Bottom
3.00	1.32	**12.17**	Control	4.70	1.21	**0.81**	Control

Pond 6A				Pond 6A dry			
Stage *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**	**Stage** *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**
-7.00	0.39	0.00	Pond Bottom	4.00	1.21	0.00	Pond Bottom
3.00	0.72	**5.51**	Control	5.00	1.29	**1.25**	Control

Pond 6B				Pond 6B dry			
Stage *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**	**Stage** *ft-NAVD*	**Area** *acres*	**Volume** *ac-ft*	**Description**
-7.00	0.68	0.00	Pond Bottom	4.00	1.24	0.00	Pond Bottom
3.00	1.03	**8.56**	Control	5.00	1.33	**1.29**	Control



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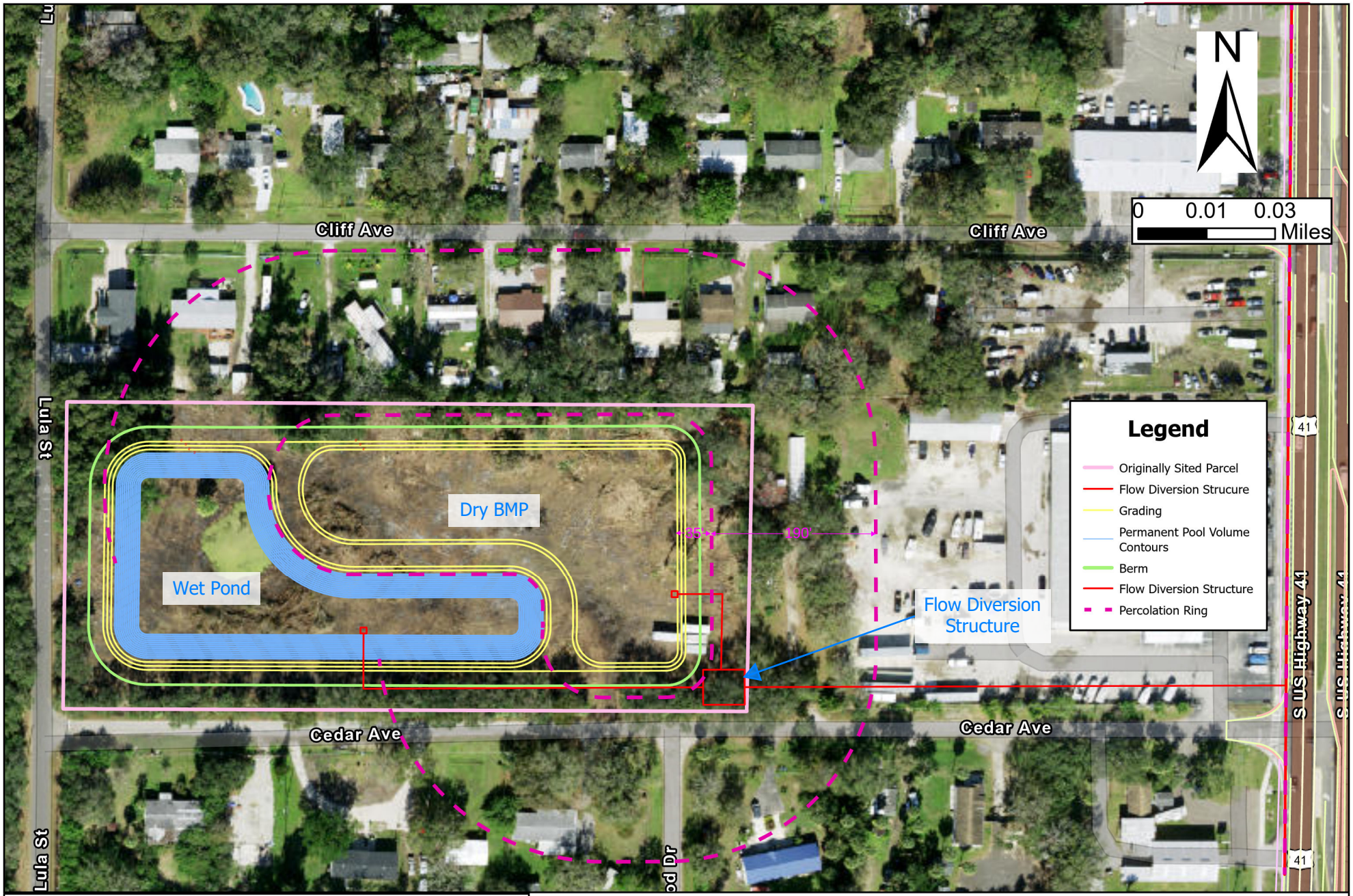
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www.kimley-horn.com CA 00000696

SPLIT BMP - 5A

SR-45 NEW RULES POND SITING ANALYSIS
HILLSBOROUGH COUNTY, FLORIDA

Scale: As Noted	FPID: 430056-1	November, 2025	Figure 1

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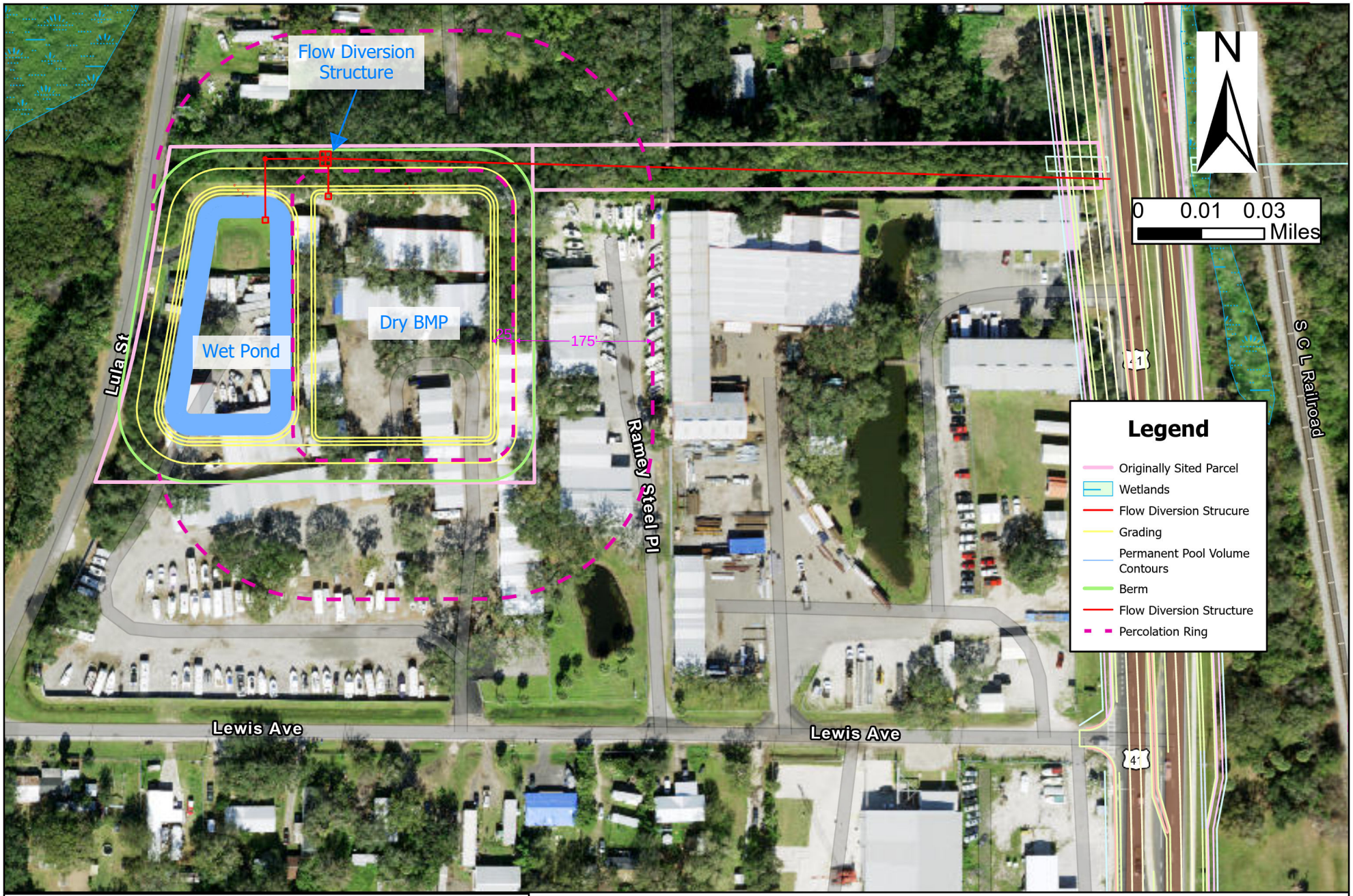
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SPLIT BMP - 5B

SR-45 NEW RULES POND SITING ANALYSIS
HILLSBOROUGH COUNTY, FLORIDA

Scale: As Noted	FPID: 430056-1	November, 2025	Figure 2



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SPLIT BMP - 6A

SR-45 NEW RULES POND SITING ANALYSIS
HILLSBOROUGH COUNTY, FLORIDA

Scale: As Noted	FPID: 430056-1	November, 2025	Figure 3



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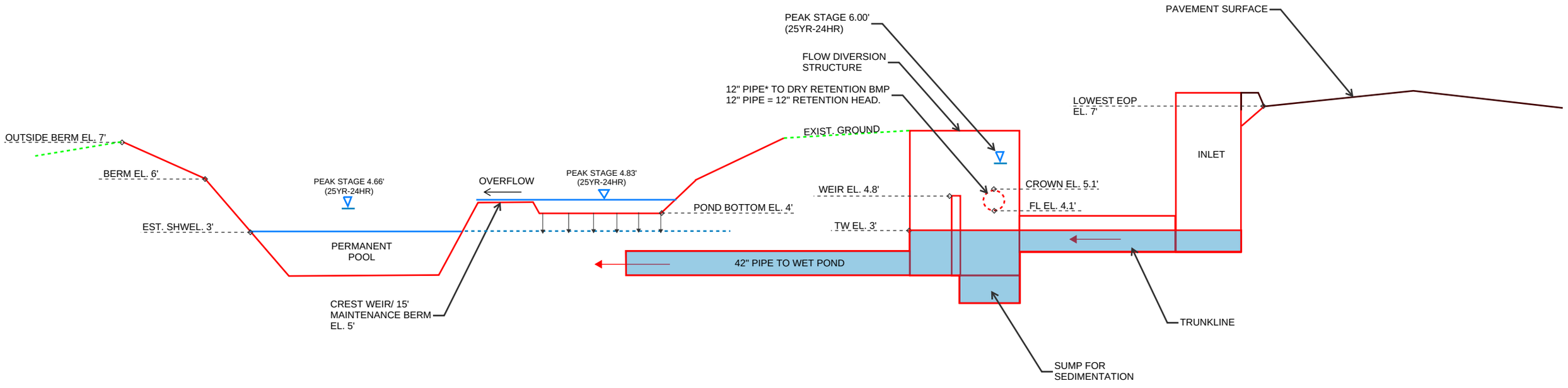
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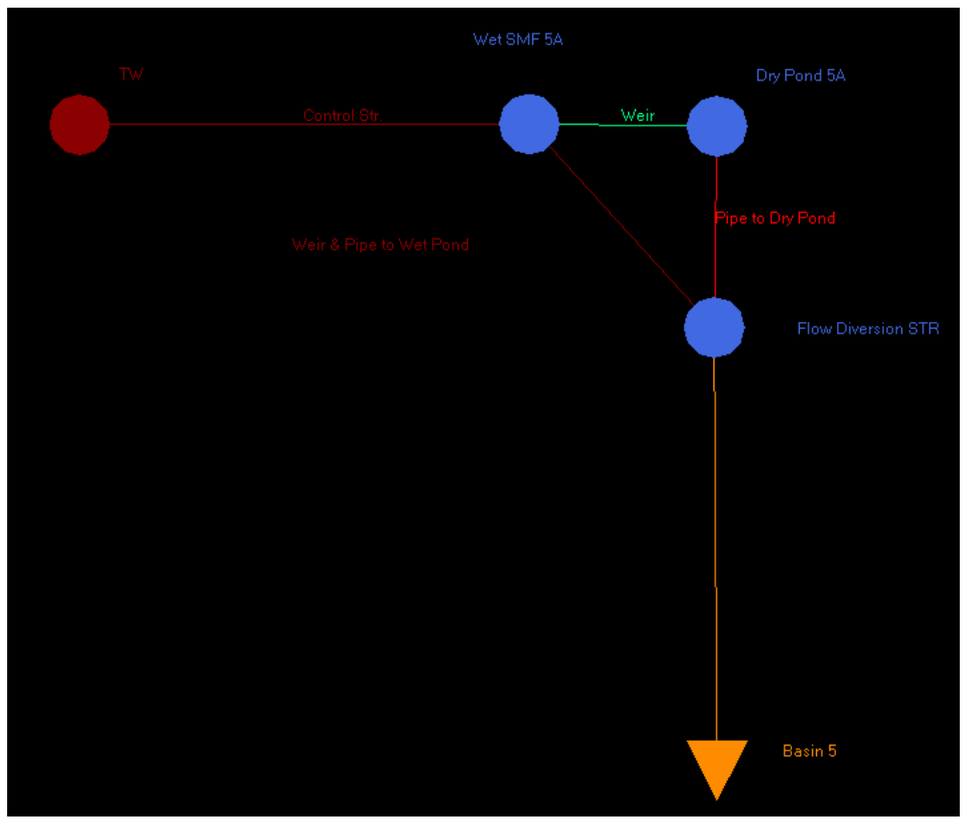
SPLIT BMP - 6B

SR-45 NEW RULES POND SITING ANALYSIS
HILLSBOROUGH COUNTY, FLORIDA

Scale: As Noted	FPID: 430056-1	November, 2025	Figure 4

ALTERNATIVE 5A HYDRAULIC EVALUATION





Report Viewer : 1D Nodes - Max

Menu

Node Name	Maximum Stage [ft]
Dry Retention BMP 5A	4.83
Flow Diversion STR	6.00
Wet SMF 5A	4.66

OPTIMIZED RETENTION DEPTH OF 1 FOOT.

HGL BELOW
LEOP EL.

POST DISCHARGE< PRE

Report Viewer : Simple Basins - Max

Menu

Scenario	Sim	Maximum Flow Rate [cfs]
Pre	25Yr-24hr	47.48

Report Viewer : 1D Links - Max

Menu

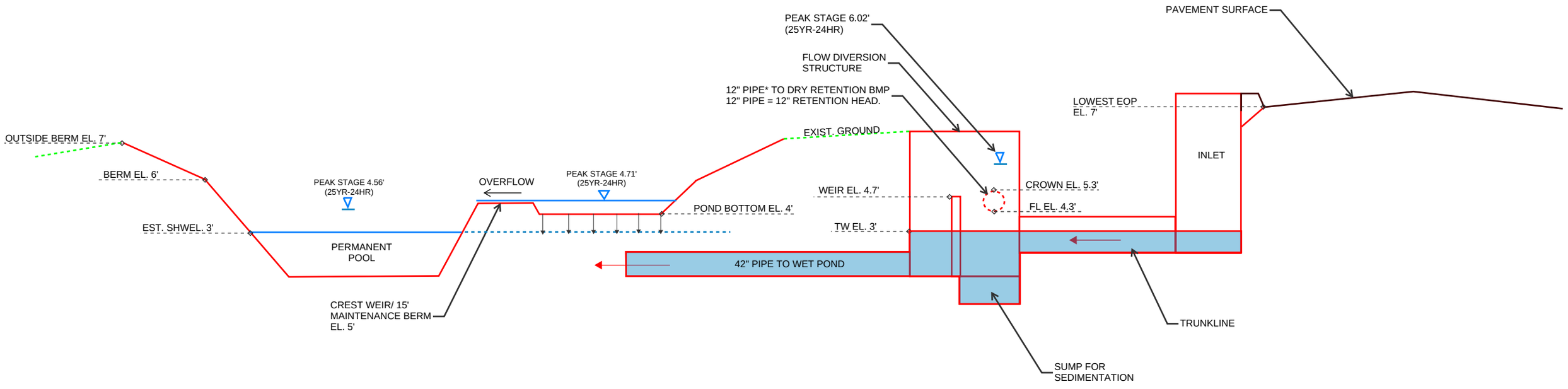
From Node Name	To Node Name	Maximum Flow Rate [cfs]
Flow Diversion STR	Dry Retention BMP 5A	5.06
Dry Retention BMP 5A	Wet SMF 5A	4.52
~~D~Weir _Pipe to Wet Pond~N	Wet SMF 5A	50.20
~~D~Control Str.~N	TW	27.17

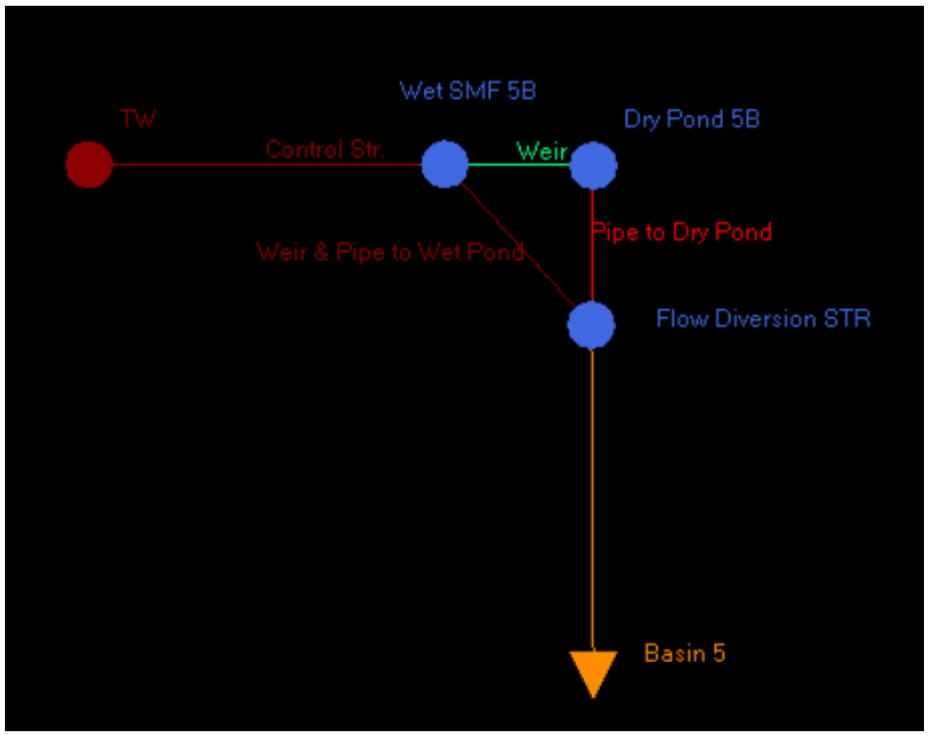
SUFFICIENT FLOW TO OPTIMIZE 1' RETENTION DEPTH,
NOT SO MUCH IT OVERWHELS SYSTEM

DISCHARGE THROUGH OVERLAND WEIR (BERM), HYDRAULIC
INTERACTION THROUGH BERM CAN BE ELIMIATED IF DESIRED.

MOST RUNOFF IS ROUTED TO WET POND

ALTERNATIVE 5B HYDRAULIC EVALUATION





Report Viewer : 1D Nodes - Max

Menu

Node Name	Maximum Stage [ft]
Dry Retention BMP 5B	4.71
Flow Diversion STR	6.02
Wet SMF 5B	4.56

OPTIMIZED RETENTION DEPTH OF 1 FOOT.

HGL BELOW LEOP EL.

POST DISCHARGE< PRE

Report Viewer : Simple Basins - Max

Menu

Scenario	Sim	Maximum Flow Rate [cfs]
Pre	25Yr-24hr	47.48

Menu

From Node Name	To Node Name	Maximum Flow Rate [cfs]
~~D~Control Str.~N	TW	21.40

Report Viewer : 1D Links - Max

Menu

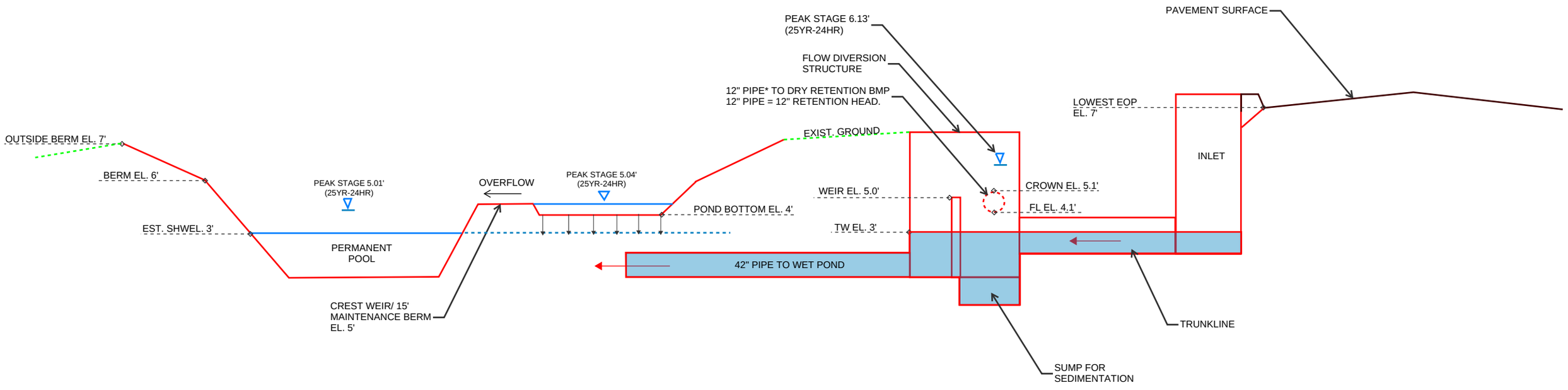
From Node Name	To Node Name	Maximum Flow Rate [cfs]
Flow Diversion STR	Dry Retention BMP 5B	2.94
Dry Retention BMP 5B	Wet SMF 5B	0.90
~~D~Weir _Pipe to Wet Pond~N	Wet SMF 5B	52.31

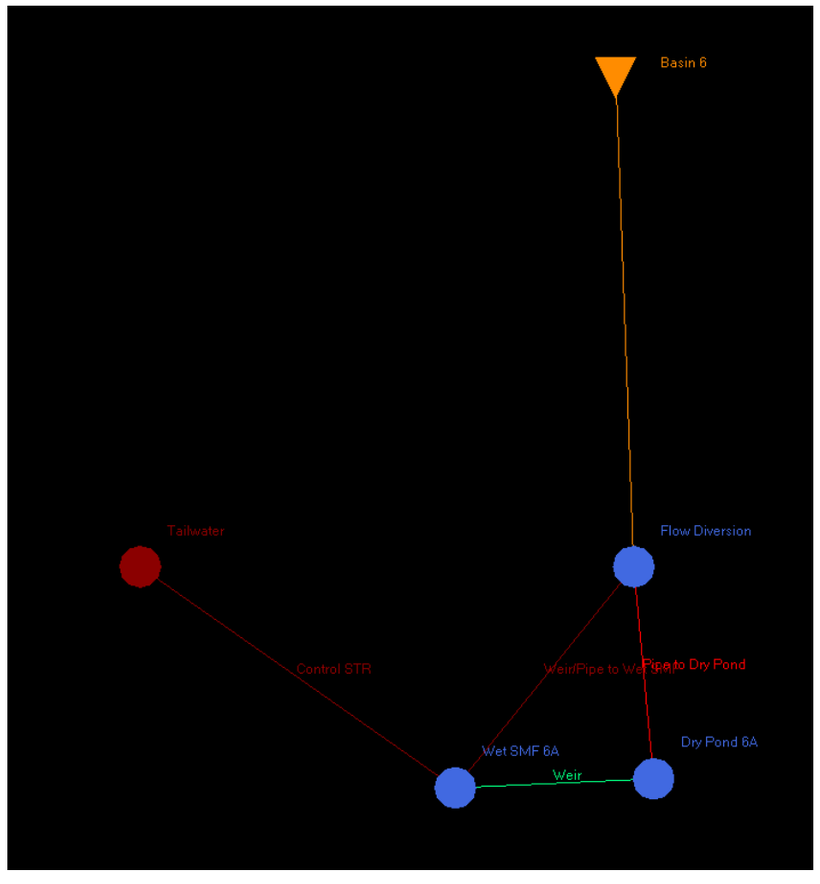
SUFFICIENT FLOW TO OPTIMIZE 1' RETENTION DEPTH, NOT SO MUCH IT OVERWHELS SYSTEM

DISCHARGE THROUGH OVERLAND WEIR (BERM), HYDRAULIC INTERACTION THROUGH BERM CAN BE ELIMIATED IF DESIRED.

MOST RUNOFF IS ROUTED TO WET POND

ALTERNATIVE 6A HYDRAULIC EVALUATION





Report Viewer : 1D Nodes - Max

Menu

Node Name	Maximum Stage [ft]
Dry Rentention BMP 6A	5.04
Flow Diversion	6.13
Wet SMF 6A	5.01

OPTIMIZED RETENTION DEPTH OF 1 FOOT.

HGL BELOW LEOP EL.

POST DISCHARGE< PRE

Report Viewer : Simple Basins - Max

Menu

Basin Name	Maximum Flow Rate [cfs]
Pre Basin 6	77.74

Report Viewer : 1D Links - Max

Menu

From Node Name	To Node Name	Maximum Flow Rate [cfs]
~~D~Control STR~N	Tailwater	67.93

Report Viewer : 1D Links - Max

Menu

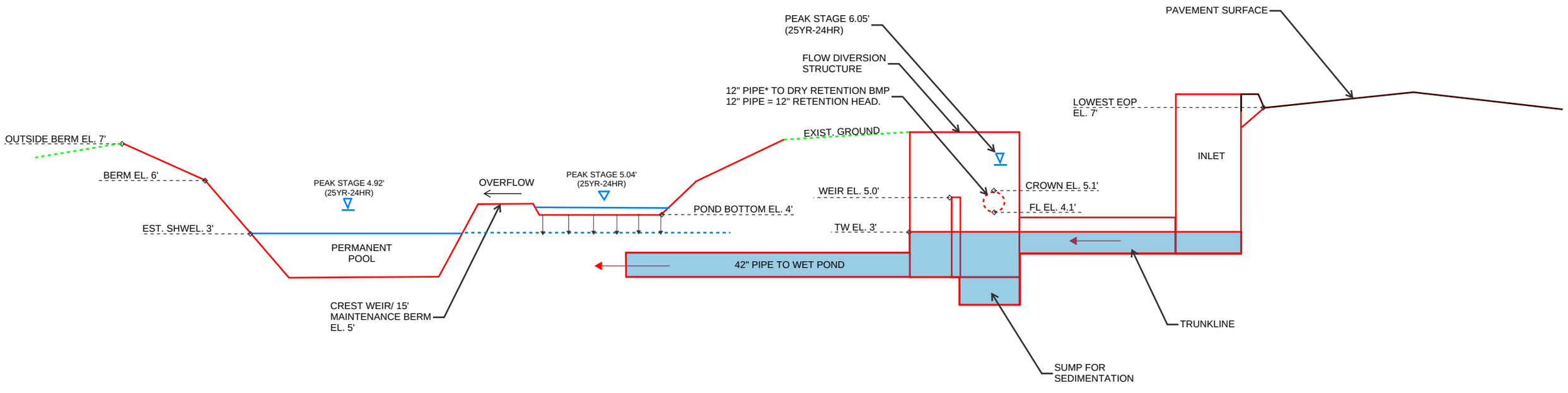
From Node Name	To Node Name	Maximum Flow Rate [cfs]
Flow Diversion	Dry Rentention BMP 6A	4.99
Dry Rentention BMP 6A	Wet SMF 6A	4.42
~~D~Weir/Pipe to Wet SMF~N	Wet SMF 6A	85.47

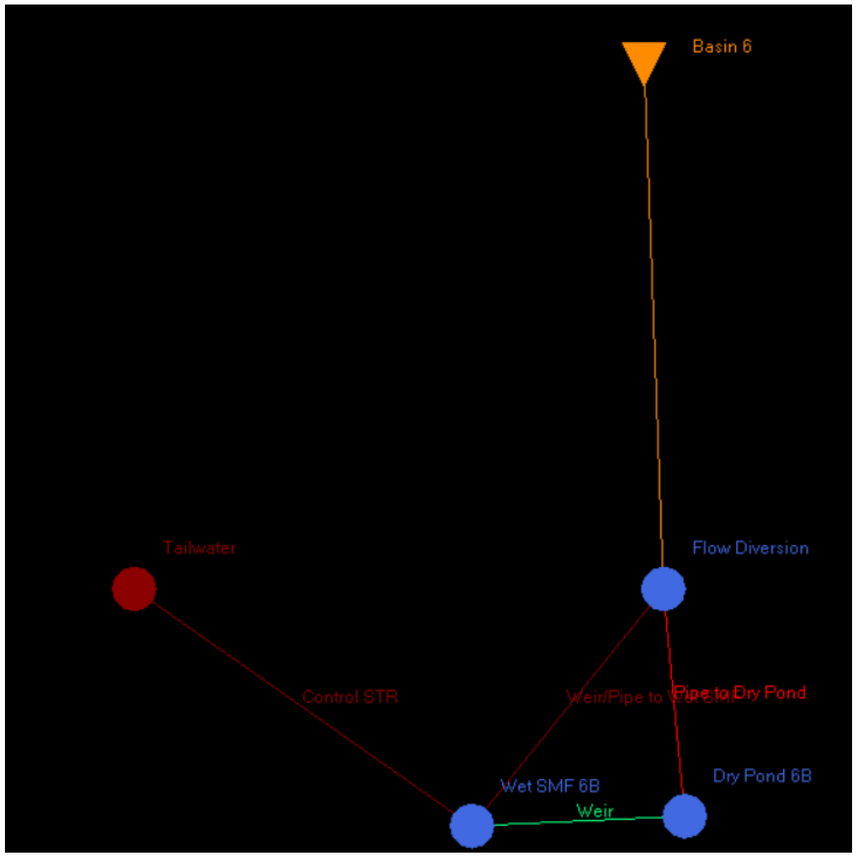
SUFFICIENT FLOW TO OPTIMIZE 1' RETENTION DEPTH, NOT SO MUCH IT OVERWHELS SYSTEM

DISCHARGE THROUGH OVERLAND WEIR (BERM), HYDRAULIC INTERACTION THROUGH BERM CAN BE ELIMIATED IF DESIRED.

MOST RUNOFF IS ROUTED TO WET POND

ALTERNATIVE 6B HYDRAULIC EVALUATION





Report Viewer : 1D Nodes - Max

Menu

Node Name	Maximum Stage [ft]
Dry Rentention BMP 6B	5.04
Flow Diversion	6.05
Wet SMF 6B	4.92

OPTIMIZED RETENTION DEPTH OF 1 FOOT.

HGL BELOW LEOP EL.

POST DISCHARGE< PRE

Report Viewer : Simple Basins - Max

Menu

Basin Name	Maximum Flow Rate [cfs]
Pre Basin 6	77.74

Report Viewer : 1D Links - Max

Menu

From Node Name	To Node Name	Maximum Flow Rate [cfs]
~~D~Control STR~N	Tailwater	57.47

Report Viewer : 1D Links - Max

Menu

From Node Name	To Node Name	Maximum Flow Rate [cfs]
Flow Diversion	Dry Rentention BMP 6B	4.84
Dry Rentention BMP 6B	Wet SMF 6B	3.89
~D~Weir/Pipe to Wet SMF~N	Wet SMF 6B	85.62

SUFFICIENT FLOW TO OPTIMIZE 1' RETENTION DEPTH, NOT SO MUCH IT OVERWHELS SYSTEM

DISCHARGE THROUGH OVERLAND WEIR (BERM), HYDRAULIC INTERACTION THROUGH BERM CAN BE ELIMIATED IF DESIRED.

MOST RUNOFF IS ROUTED TO WET POND

APPENDIX B

BMPTrains Reports

VFS BMPTrains Report

Flush Shoulder Typical Section*

*VFS will provide same efficiency per typical section based on input parameters and catchments

Complete Report (not including cost) Ver 4.3.5

Project: Suburban Typical SR45
Date: 5/22/2025 4:31:43 PM

Site and Catchment Information

Analysis: Specified Removal Efficiency

Catchment Name	East Outer (Basin 1)	West Outer (Basin 1)
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall	53.00	53.00

Pre-Condition Landuse Information

Landuse	User Defined Values	User Defined Values
Area (acres)	7.48	7.48
Rational Coefficient (0-1)	0.32	0.32
Non DCIA Curve Number	69.00	69.00
DCIA Percent (0-100)	33.80	33.80
Nitrogen EMC (mg/l)	1.250	1.250
Phosphorus EMC (mg/l)	0.173	0.173
Runoff Volume (ac-ft/yr)	10.687	10.687
Groundwater N (kg/yr)	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000
Nitrogen Loading (kg/yr)	16.471	16.471
Phosphorus Loading (kg/yr)	2.280	2.280

Post-Condition Landuse Information

Landuse	User Defined Values	User Defined Values
Area (acres)	7.48	7.48
Rational Coefficient (0-1)	0.59	0.59
Non DCIA Curve Number	69.00	69.00
DCIA Percent (0-100)	68.80	68.80

Wet Pond Area (ac)	0.00	0.00
Nitrogen EMC (mg/l)	1.250	1.250
Phosphorus EMC (mg/l)	0.173	0.173
Runoff Volume (ac-ft/yr)	19.415	19.415
Groundwater N (kg/yr)	0.000	0.000
Groundwater P (kg/yr)	0.000	0.000
Nitrogen Loading (kg/yr)	29.923	29.923
Phosphorus Loading (kg/yr)	4.141	4.141

Catchment Number: 1 Name: East Outer (Basin 1)

Project: Suburban Typical SR45
Date: 5/22/2025

Multiple BMP in Series Design Parameters

BMP in Series Number: 1
BMP Type: Vegetated Filter Strip

VFS Width (ft)	18.000
VFS Length (ft)	0.000
VFS Depth (ft)	1.000
Width of Area Feeding Buffer (ft)	49.500
Water storage capacity of soil (in/in)	0.200
Slope of VFS (< 20%)	16.670
Annual Capture Percentage	60

BMP in Series Number: 2
BMP Type: None

BMP in Series Number: 3
BMP Type: None

BMP in Series Number: 4
BMP Type: None

Watershed Characteristics

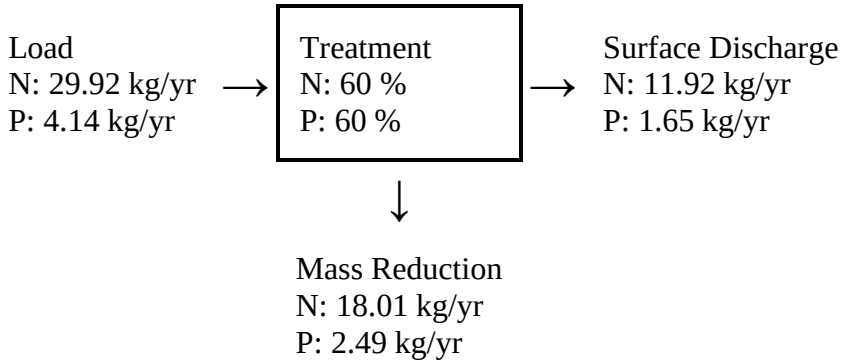
Catchment Area (acres)	7.48
Contributing Area (acres)	7.480
Non-DCIA Curve Number	69.00
DCIA Percent	68.80

Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

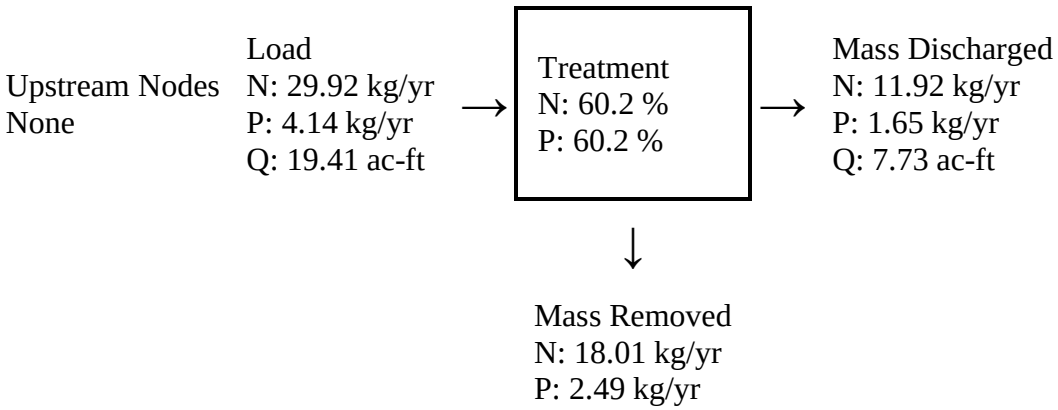
Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	60
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	60

Load for Multiple BMP in Series



Load Diagram for Multiple BMP (As Used In Routing)



Catchment Number: 2 Name: West Outer (Basin 1)

Project: Suburban Typical SR45
Date: 5/22/2025

Multiple BMP in Series Design Parameters

BMP in Series Number: 1
BMP Type: Vegetated Filter Strip

VFS Width (ft)	18.000
VFS Length (ft)	0.000
VFS Depth (ft)	1.000
Width of Area Feeding Buffer (ft)	49.500
Water storage capacity of soil (in/in)	0.200
Slope of VFS (< 20%)	16.670
Annual Capture Percentage	60

BMP in Series Number: 2
BMP Type: None

BMP in Series Number: 3
BMP Type: None

BMP in Series Number: 4
BMP Type: None

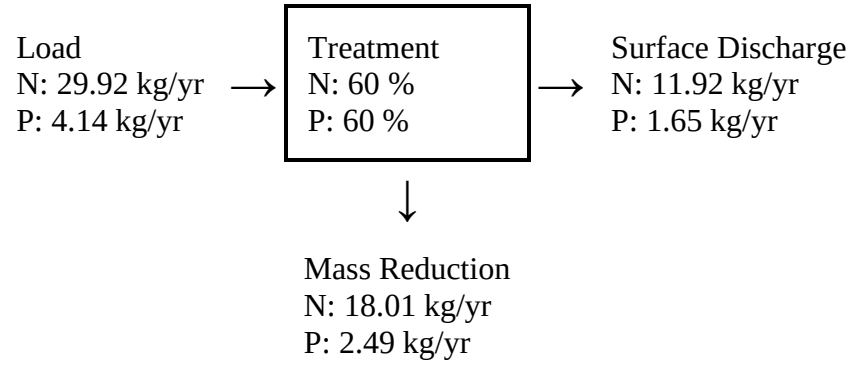
Watershed Characteristics

Catchment Area (acres)	7.48
Contributing Area (acres)	7.480
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

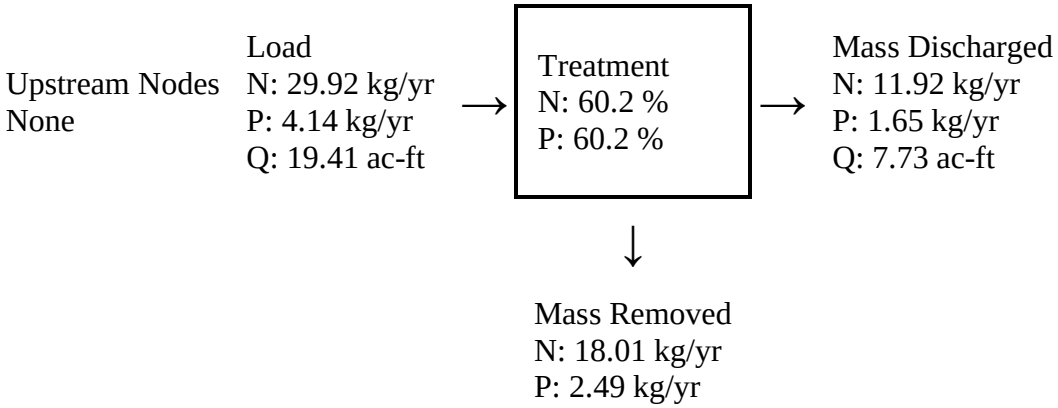
Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	60
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	60

Load for Multiple BMP in Series



Load Diagram for Multiple BMP (As Used In Routing)



Summary Treatment Report Version: 4.3.5

Project: Suburban Typical
SR45

Analysis Type: Specified Removal Efficiency

Date:5/22/2025

BMP Types:

Catchment 1 - (East Outer (Basin 1)) Multiple BMP

Catchment 2 - (West Outer (Basin 1)) Multiple BMP

Routing Summary

Catchment 1 Routed to Outlet
Catchment 2 Routed to Outlet

Based on % removal values to the nearest percent

Total nitrogen target removal met? **No**
Total phosphorus target removal met? **No**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	32.94 kg/yr	
Total N post load	59.85 kg/yr	
Target N load reduction	80 %	
Target N discharge load	11.97 kg/yr	
Percent N load reduction	60 %	
Provided N discharge load	23.84 kg/yr	52.56 lb/yr
Provided N load removed	36.01 kg/yr	79.41 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	4.559 kg/yr	
Total P post load	8.283 kg/yr	
Target P load reduction	80 %	
Target P discharge load	1.657 kg/yr	
Percent P load reduction	60 %	
Provided P discharge load	3.299 kg/yr	7.27 lb/yr
Provided P load removed	4.984 kg/yr	10.99 lb/yr

BMPTRAINS REPORTS
PONDS + SWALES

BASIN 1

Project: Basin 1

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 1 SMF 1A	Basin 1 SMF 1C
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00
Pre-Condition Landuse Information		
Pre-Condition Landuse	User Defined Values	User Defined Values
Pre Condition Area (acres)	7.48	7.48
Pre Rational Coefficient (0-1)	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00
Pre DCIA Percent (0-100)	33.80	33.80
Pre Nitrogen EMC (mg/l)	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	10.687	10.687
Pre Nitrogen Loading (kg/yr)	16.471	16.471
Pre Phosphorus Loading (kg/yr)	2.280	2.280
Post-Condition Landuse Information		
Post-Condition Landuse	User Defined Values	User Defined Values
Post Condition Area (acres)	7.48	7.48
Post Rational Coefficient (0-1)	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00
Post DCIA Percent (0-100)	68.80	68.80
Post Nitrogen EMC (mg/l)	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173
Post Runoff Volume (ac-ft/yr)	19.415	19.415
Post Nitrogen Loading (kg/yr)	29.923	29.923

Post Phosphorus Loading (kg/yr)	4.141	4.141

Project: Basin 1 – SMF 1A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	8.090
Permanent Pool Volume (ac-ft) for 31 days residence	1.649
Annual Residence Time (days)	152
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	7.48
Contributing Area (acres)	7.480
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	78

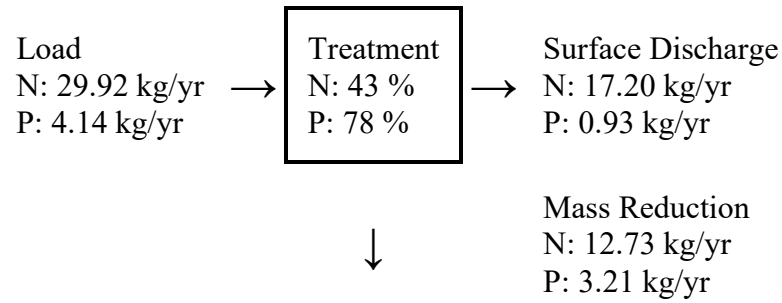
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 1
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	3,580.000
Average Impervious Length (ft)	1,790.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	7.479
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	7.48
Contributing Area (acres)	7.480
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	61

Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	61

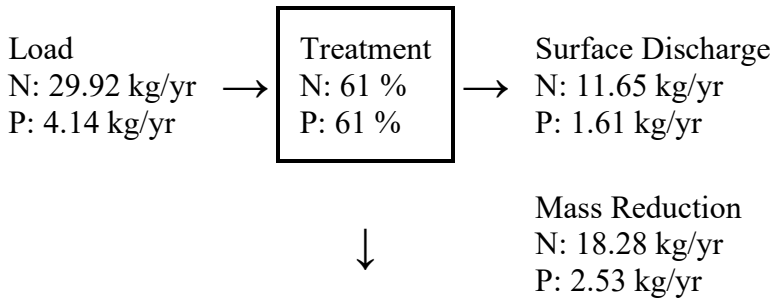
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	4.603
TN Mass Load (kg/yr)	18.275
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	2.529
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



Project: Basin 1 – SMF 1C
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	8.340
Permanent Pool Volume (ac-ft) for 31 days residence	1.649
Annual Residence Time (days)	157
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	7.48
Contributing Area (acres)	7.480

Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	78

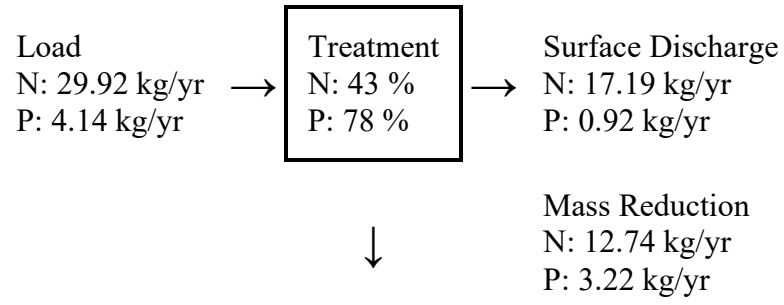
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



BASIN 2

Project: Basin 2

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 2 SMF 2A	Basin 2 SMF 2B	Basin 2 SMF 2C
Rainfall Zone	Florida Zone 4	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00	53.00
Pre-Condition Landuse Information			
Pre-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Pre Condition Area (acres)	8.78	8.78	8.78
Pre Rational Coefficient (0-1)	0.32	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00	69.00
Pre DCIA Percent (0-100)	33.80	33.80	33.80
Pre Nitrogen EMC (mg/l)	1.250	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	12.544	12.544	12.544
Pre Nitrogen Loading (kg/yr)	19.333	19.333	19.333
Pre Phosphorus Loading (kg/yr)	2.676	2.676	2.676
Post-Condition Landuse Information			
Post-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Post Condition Area (acres)	8.78	8.78	8.78
Post Rational Coefficient (0-1)	0.59	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00	69.00
Post DCIA Percent (0-100)	69.00	69.00	69.00
Post Nitrogen EMC (mg/l)	1.250	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173	0.173
Post Runoff Volume (ac-ft/yr)	22.848	22.848	22.848
Post Nitrogen Loading (kg/yr)	35.215	35.215	35.215
Post Phosphorus Loading (kg/yr)	4.874	4.874	4.874

Project: Basin 2 – SMF 2A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	8.100
Permanent Pool Volume (ac-ft) for 31 days residence	1.941
Annual Residence Time (days)	129
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	8.78
Contributing Area (acres)	8.780
Non-DCIA Curve Number	69.00
DCIA Percent	69.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	76

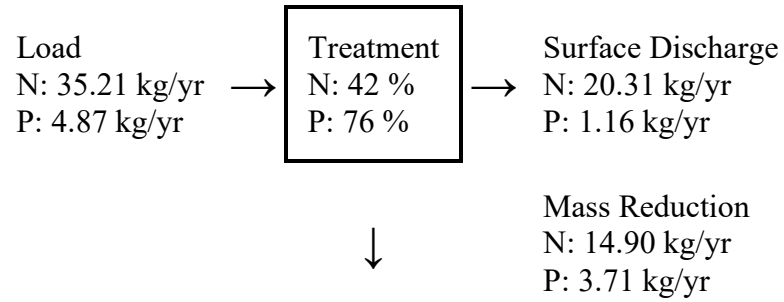
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 2 – SMF 2B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	10.680
Permanent Pool Volume (ac-ft) for 31 days residence	1.941
Annual Residence Time (days)	171
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	8.78
Contributing Area (acres)	8.780
Non-DCIA Curve Number	69.00
DCIA Percent	69.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	79

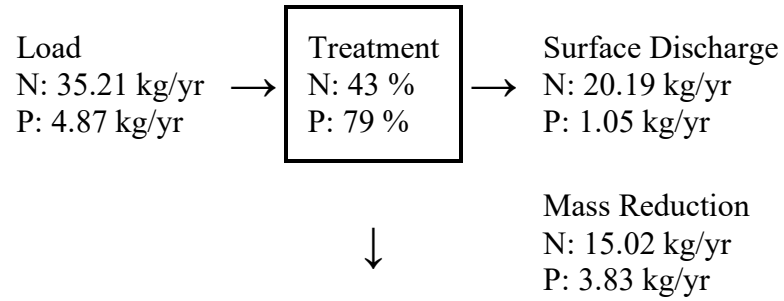
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 2
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,202.000
Average Impervious Length (ft)	2,101.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	8.778
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	8.78
Contributing Area (acres)	8.780

Non-DCIA Curve Number	69.00
DCIA Percent	69.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	62
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	62

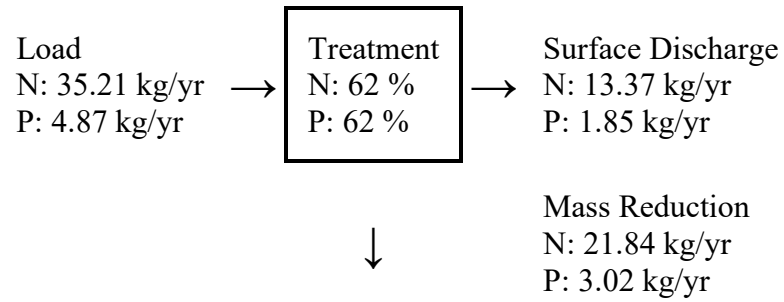
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	5.466
TN Mass Load (kg/yr)	21.840
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	3.023
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 3

Project: Basin 3

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 3 SMF 3A	Basin 3 SMF 3B	Basin 3 SMF 3C
Rainfall Zone	Florida Zone 4	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00	53.00
Pre-Condition Landuse Information			
Pre-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Pre Condition Area (acres)	9.40	9.40	9.40
Pre Rational Coefficient (0-1)	0.32	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00	69.00
Pre DCIA Percent (0-100)	33.80	33.80	33.80
Pre Nitrogen EMC (mg/l)	1.250	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	13.430	13.430	13.430
Pre Nitrogen Loading (kg/yr)	20.699	20.699	20.699
Pre Phosphorus Loading (kg/yr)	2.865	2.865	2.865
Post-Condition Landuse Information			
Post-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Post Condition Area (acres)	9.40	9.40	9.40
Post Rational Coefficient (0-1)	0.59	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00	69.00
Post DCIA Percent (0-100)	68.80	68.80	68.80
Post Nitrogen EMC (mg/l)	1.250	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173	0.173
Post Runoff Volume (ac-ft/yr)	24.399	24.399	24.399
Post Nitrogen Loading (kg/yr)	37.604	37.604	37.604
Post Phosphorus Loading (kg/yr)	5.204	5.204	5.204

Project: Basin 3 -SMF 3A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	11.620
Permanent Pool Volume (ac-ft) for 31 days residence	2.072
Annual Residence Time (days)	174
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	9.40
Contributing Area (acres)	9.400
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	79

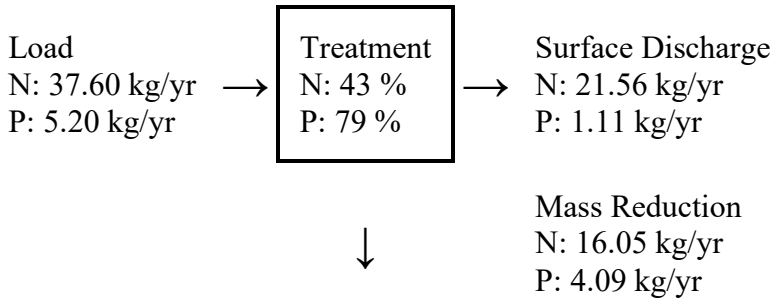
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 3 – SMF 3B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	5.900
Permanent Pool Volume (ac-ft) for 31 days residence	2.072
Annual Residence Time (days)	88
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	9.40
Contributing Area (acres)	9.400
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	73

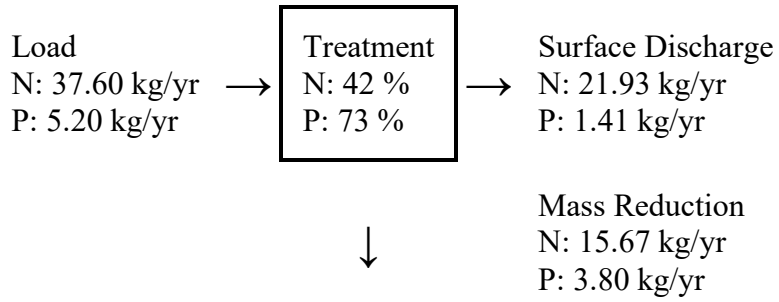
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 3 -SMF 3C
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	12.550
Permanent Pool Volume (ac-ft) for 31 days residence	2.072
Annual Residence Time (days)	188
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	9.40
Contributing Area (acres)	9.400
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	79

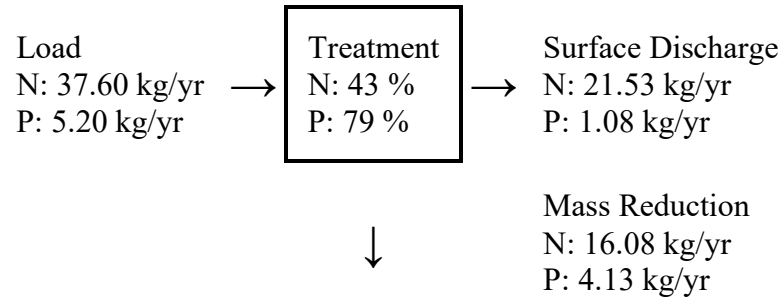
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 3
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,498.000
Average Impervious Length (ft)	2,249.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000

Runoff Area (acres)	9.397
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	9.40
Contributing Area (acres)	9.400
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	63
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	63

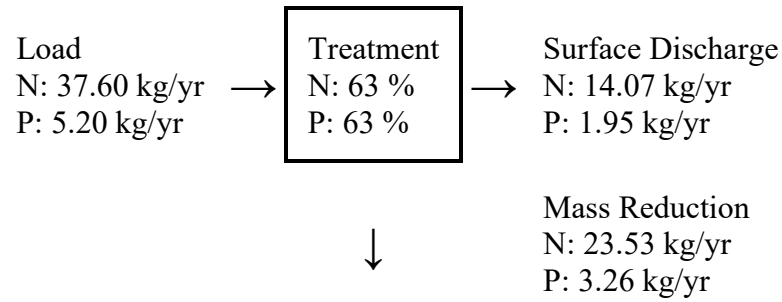
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	5.868
TN Mass Load (kg/yr)	23.532
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	3.257
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 4

Project: Basin 4

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 4 SMF 4A	Basin 4 SMF 4B	Basin 4 SMF 4C
Rainfall Zone	Florida Zone 4	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00	53.00
Pre-Condition Landuse Information			
Pre-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Pre Condition Area (acres)	10.43	10.43	10.43
Pre Rational Coefficient (0-1)	0.32	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00	69.00
Pre DCIA Percent (0-100)	33.80	33.80	33.80
Pre Nitrogen EMC (mg/l)	1.250	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	14.901	14.901	14.901
Pre Nitrogen Loading (kg/yr)	22.967	22.967	22.967
Pre Phosphorus Loading (kg/yr)	3.179	3.179	3.179
Post-Condition Landuse Information			
Post-Condition Landuse	User Defined Values	User Defined Values	User Defined Values
Post Condition Area (acres)	10.43	10.43	10.43
Post Rational Coefficient (0-1)	0.59	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00	69.00
Post DCIA Percent (0-100)	68.90	68.90	68.90
Post Nitrogen EMC (mg/l)	1.250	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173	0.173
Post Runoff Volume (ac-ft/yr)	27.107	27.107	27.107
Post Nitrogen Loading (kg/yr)	41.779	41.779	41.779
Post Phosphorus Loading (kg/yr)	5.782	5.782	5.782

Project: Basin 4 – SMF 4A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	9.000
Permanent Pool Volume (ac-ft) for 31 days residence	2.302
Annual Residence Time (days)	121
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	10.43
Contributing Area (acres)	10.430
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	76

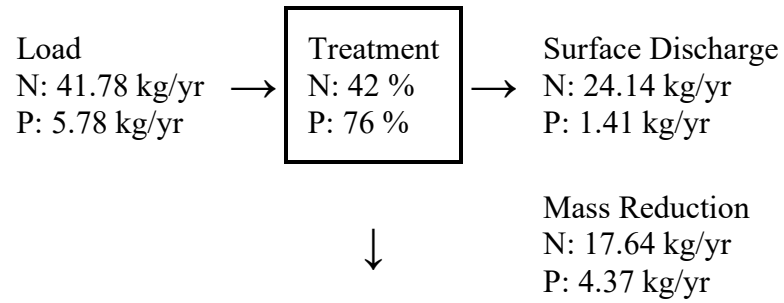
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 4 – SMF 4B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	7.980
Permanent Pool Volume (ac-ft) for 31 days residence	2.302
Annual Residence Time (days)	107
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	10.43
Contributing Area (acres)	10.430
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	75

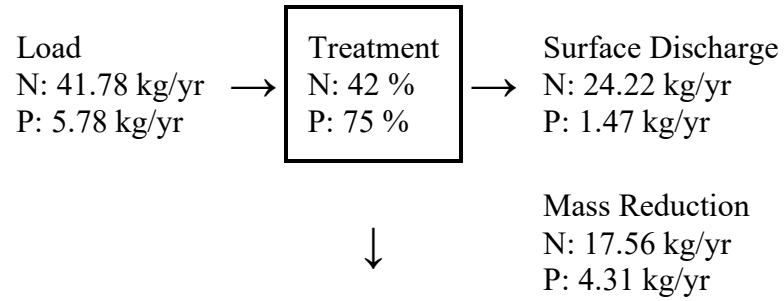
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 4
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	7.200
Permanent Pool Volume (ac-ft) for 31 days residence	2.302
Annual Residence Time (days)	97
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	10.43
Contributing Area (acres)	10.430
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	74

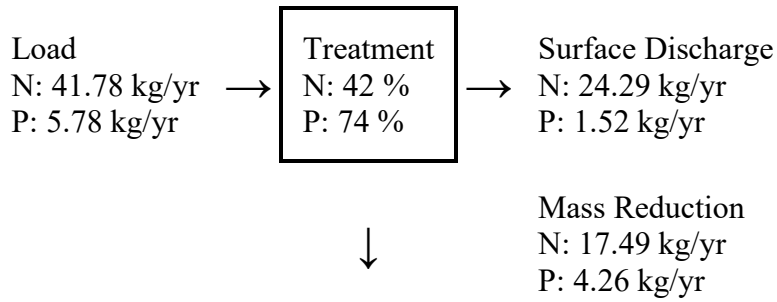
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 4
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,994.000
Average Impervious Length (ft)	2,497.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000

Runoff Area (acres)	10.433
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	10.43
Contributing Area (acres)	10.430
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	63
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	63

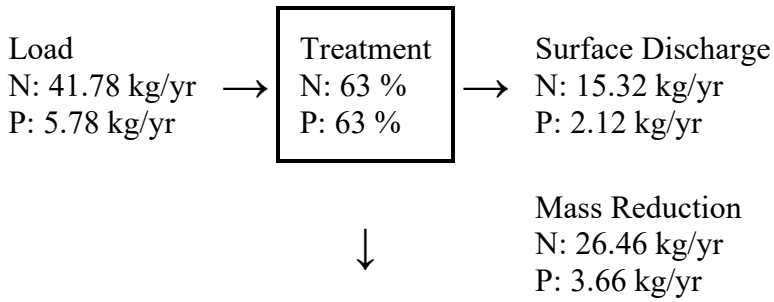
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	6.567
TN Mass Load (kg/yr)	5.778
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.800
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 7

Project: Basin 7

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 7 SMF 7A	Basin 7 SMF 7B
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00
Pre-Condition Landuse Information		
Pre-Condition Landuse	User Defined Values	User Defined Values
Pre Condition Area (acres)	30.21	30.21
Pre Rational Coefficient (0-1)	0.36	0.36
Pre Non DCIA Curve Number	69.00	69.00
Pre DCIA Percent (0-100)	38.66	38.66
Pre Nitrogen EMC (mg/l)	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	48.031	48.031
Pre Nitrogen Loading (kg/yr)	74.027	74.027
Pre Phosphorus Loading (kg/yr)	10.245	10.245
Post-Condition Landuse Information		
Post-Condition Landuse	User Defined Values	User Defined Values
Post Condition Area (acres)	30.21	30.21
Post Rational Coefficient (0-1)	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00
Post DCIA Percent (0-100)	68.88	68.88
Post Nitrogen EMC (mg/l)	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173
Post Runoff Volume (ac-ft/yr)	78.494	78.494
Post Nitrogen Loading (kg/yr)	120.979	120.979
Post Phosphorus Loading (kg/yr)	16.743	16.743

Project: Basin 7 – SMF 7A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	20.460
Permanent Pool Volume (ac-ft) for 31 days residence	6.667
Annual Residence Time (days)	95
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	30.21
Contributing Area (acres)	30.210
Non-DCIA Curve Number	69.00
DCIA Percent	68.88
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	74

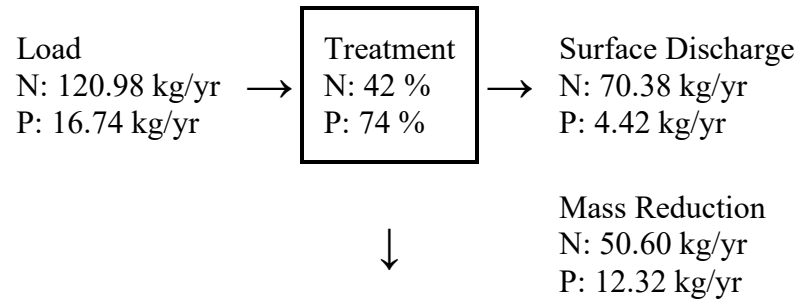
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 7 – SMF 7B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	18.060
Permanent Pool Volume (ac-ft) for 31 days residence	6.667
Annual Residence Time (days)	84
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	30.21
Contributing Area (acres)	30.210
Non-DCIA Curve Number	69.00
DCIA Percent	68.88
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	73

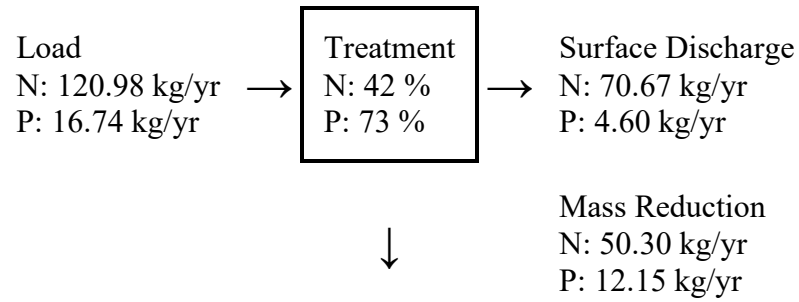
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 7
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	14,460.000
Average Impervious Length (ft)	7,230.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	30.208
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	30.21

Contributing Area (acres)	30.210
Non-DCIA Curve Number	69.00
DCIA Percent	68.88
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	72
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	72

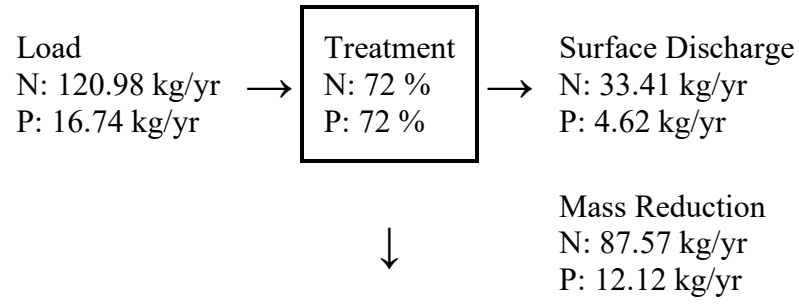
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	20.634
TN Mass Load (kg/yr)	17.090
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	2.365
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 8

Project: Basin 8

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 8 SMF 8A	Basin 8 SMF 8B
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00
Pre-Condition Landuse Information		
Pre-Condition Landuse	User Defined Values	User Defined Values
Pre Condition Area (acres)	9.15	9.15
Pre Rational Coefficient (0-1)	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00
Pre DCIA Percent (0-100)	33.87	33.87
Pre Nitrogen EMC (mg/l)	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	13.094	13.094
Pre Nitrogen Loading (kg/yr)	20.181	20.181
Pre Phosphorus Loading (kg/yr)	2.793	2.793
Post-Condition Landuse Information		
Post-Condition Landuse	User Defined Values	User Defined Values
Post Condition Area (acres)	9.15	9.15
Post Rational Coefficient (0-1)	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00
Post DCIA Percent (0-100)	68.85	68.85
Post Nitrogen EMC (mg/l)	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173
Post Runoff Volume (ac-ft/yr)	23.765	23.765
Post Nitrogen Loading (kg/yr)	36.628	36.628
Post Phosphorus Loading (kg/yr)	5.069	5.069

Project: Basin 8 – SMF 8A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	13.000
Permanent Pool Volume (ac-ft) for 31 days residence	2.018
Annual Residence Time (days)	200
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	9.15
Contributing Area (acres)	9.150
Non-DCIA Curve Number	69.00
DCIA Percent	68.85
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	80

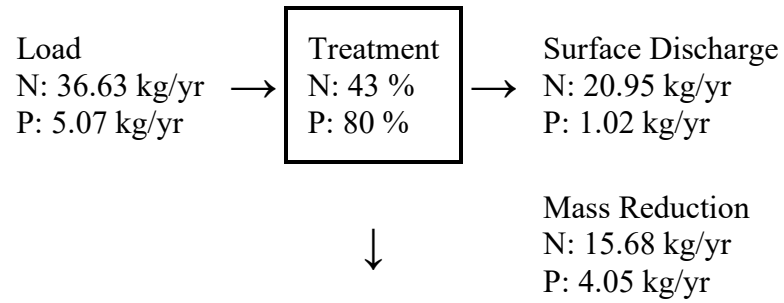
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 8 – SMF 8B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	4.320
Permanent Pool Volume (ac-ft) for 31 days residence	2.018
Annual Residence Time (days)	66
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	9.15
Contributing Area (acres)	9.150
Non-DCIA Curve Number	69.00
DCIA Percent	68.85
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	71

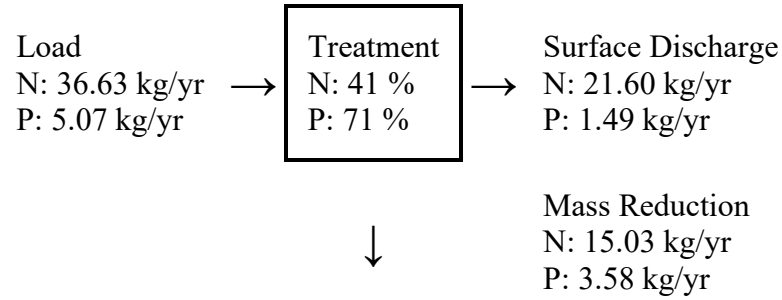
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 8
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,382.000
Average Impervious Length (ft)	2,191.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	9.154
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	9.15
Contributing Area (acres)	9.150

Non-DCIA Curve Number	69.00
DCIA Percent	68.85
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	62
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	62

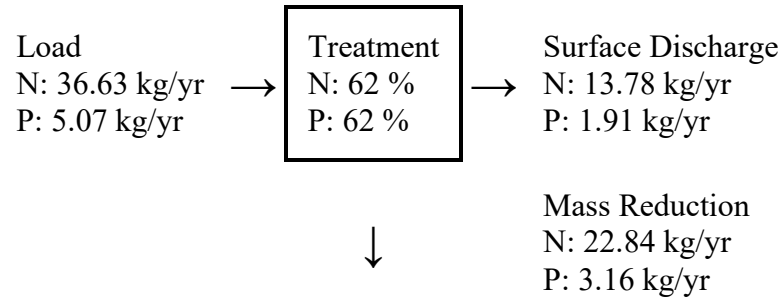
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	5.704
TN Mass Load (kg/yr)	5.194
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.719
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 9

Project: Basin 9

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 9 SMF 9A/10A
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall (in)	53.00
Pre-Condition Landuse Information	
Pre-Condition Landuse	User Defined Values
Pre Condition Area (acres)	8.78
Pre Rational Coefficient (0-1)	0.32
Pre Non DCIA Curve Number	69.00
Pre DCIA Percent (0-100)	33.82
Pre Nitrogen EMC (mg/l)	1.250
Pre Phosphorus EMC (mg/l)	0.173
Pre Runoff Volume (ac-ft/yr)	12.550
Pre Nitrogen Loading (kg/yr)	19.343
Pre Phosphorus Loading (kg/yr)	2.677
Post-Condition Landuse Information	
Post-Condition Landuse	User Defined Values
Post Condition Area (acres)	8.78
Post Rational Coefficient (0-1)	0.59
Post Non DCIA Curve Number	69.00
Post DCIA Percent (0-100)	68.90
Post Nitrogen EMC (mg/l)	1.250
Post Phosphorus EMC (mg/l)	0.173
Post Runoff Volume (ac-ft/yr)	22.819
Post Nitrogen Loading (kg/yr)	35.169
Post Phosphorus Loading (kg/yr)	4.867

Project: Basin 9 – SMF 9A/10A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	12.500
Permanent Pool Volume (ac-ft) for 31 days residence	1.938
Annual Residence Time (days)	200
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	8.78
Contributing Area (acres)	8.780
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	80

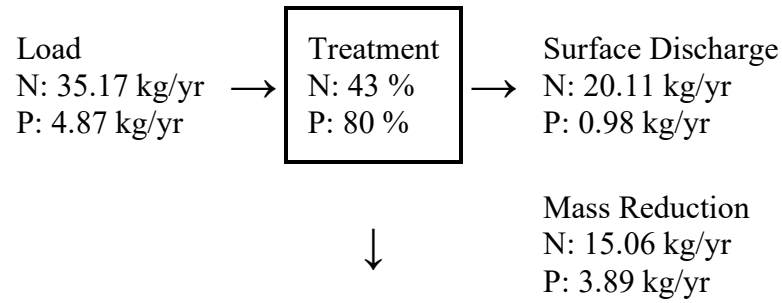
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 9
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,202.000
Average Impervious Length (ft)	2,101.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	8.778
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	8.78
Contributing Area (acres)	8.780
Non-DCIA Curve Number	69.00
DCIA Percent	68.90
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	62

Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	62

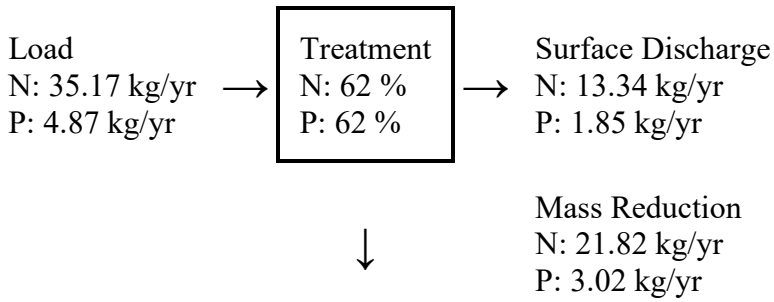
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	5.461
TN Mass Load (kg/yr)	5.032
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.696
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BASIN 10

Project: Basin 10

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 9 SMF 9A/10A
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall (in)	53.00
Pre-Condition Landuse Information	
Pre-Condition Landuse	User Defined Values
Pre Condition Area (acres)	8.74
Pre Rational Coefficient (0-1)	0.32
Pre Non DCIA Curve Number	69.00
Pre DCIA Percent (0-100)	33.86
Pre Nitrogen EMC (mg/l)	1.250
Pre Phosphorus EMC (mg/l)	0.173
Pre Runoff Volume (ac-ft/yr)	12.504
Pre Nitrogen Loading (kg/yr)	19.273
Pre Phosphorus Loading (kg/yr)	2.667
Post-Condition Landuse Information	
Post-Condition Landuse	User Defined Values
Post Condition Area (acres)	8.74
Post Rational Coefficient (0-1)	0.59
Post Non DCIA Curve Number	69.00
Post DCIA Percent (0-100)	68.87
Post Nitrogen EMC (mg/l)	1.250
Post Phosphorus EMC (mg/l)	0.173
Post Runoff Volume (ac-ft/yr)	22.706
Post Nitrogen Loading (kg/yr)	34.996
Post Phosphorus Loading (kg/yr)	4.843

Project: Basin 10 – SMF 9A/10A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	12.450
Permanent Pool Volume (ac-ft) for 31 days residence	1.928
Annual Residence Time (days)	200
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	8.74
Contributing Area (acres)	8.740
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	43
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	80

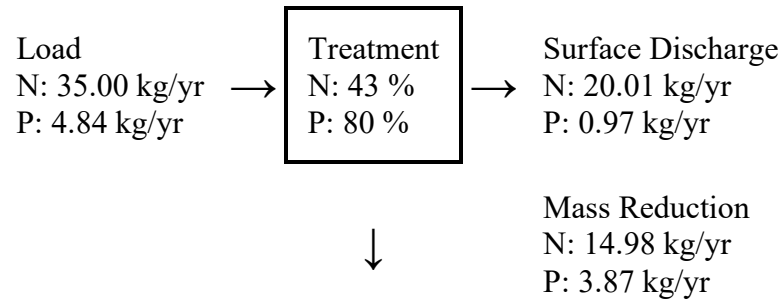
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 10
Date: 10/9/2025

Swale Design

Swale Top Width for Flood Conditions - **W** (ft)	11.000
Swale Bottom Width - **B** (ft)	5.000
Swale Length - **L** (ft)	4,182.000
Average Impervious Length (ft)	2,091.000
Average Impervious Width (ft)	109.000
Average Pervious Width (ft)	73.000
Swale Slope (foot drop/foot length) - **S**	0.001
Mannings N	0.060
Soil Infiltration Rate (in/hr)	2.500
Side Slope of Swale horizontal/vertical - **Z**	6.000
Average Height of Swale Block - **H**	0.500
Length of Berm Upstream of Crest - $\mathbf{L_b}$	0.000
Runoff Area (acres)	8.737
Number of Swale Blocks	2

Watershed Characteristics

Catchment Area (acres)	8.74
Contributing Area (acres)	8.740
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	62

Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	62

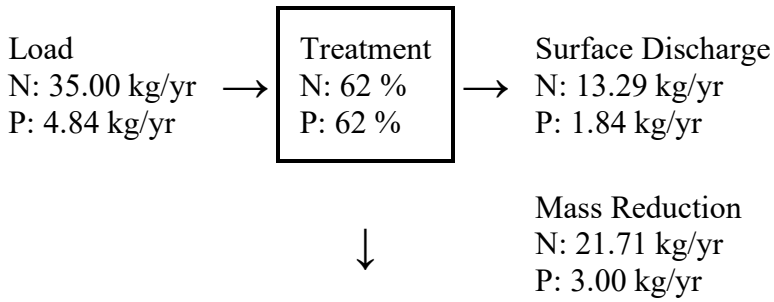
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	5.433
TN Mass Load (kg/yr)	7.564
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	1.047
TP Concentration (mg/L)	0.000

Load Diagram for Swale (stand-alone)



BMPTrains Report

Curb and Gutter Typical Section

Basin 5

Project: Basin 5

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 5 SMF 5A	Basin 5 SMF 5B
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00
Pre-Condition Landuse Information		
Pre-Condition Landuse	User Defined Values	User Defined Values
Pre Condition Area (acres)	12.38	12.38
Pre Rational Coefficient (0-1)	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00
Pre DCIA Percent (0-100)	33.80	33.80
Pre Nitrogen EMC (mg/l)	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	17.687	17.687
Pre Nitrogen Loading (kg/yr)	27.261	27.261
Pre Phosphorus Loading (kg/yr)	3.773	3.773
Post-Condition Landuse Information		
Post-Condition Landuse	User Defined Values	User Defined Values
Post Condition Area (acres)	12.38	12.38
Post Rational Coefficient (0-1)	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00
Post DCIA Percent (0-100)	68.80	68.80
Post Nitrogen EMC (mg/l)	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173
Post Runoff Volume (ac-ft/yr)	32.133	32.133
Post Nitrogen Loading (kg/yr)	49.526	49.526

Post Phosphorus Loading (kg/yr)	6.854	6.854

Project: Basin 5 – SMF 5A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	6.380
Permanent Pool Volume (ac-ft) for 31 days residence	2.729
Annual Residence Time (days)	72
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	12.38
Contributing Area (acres)	12.380
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	71

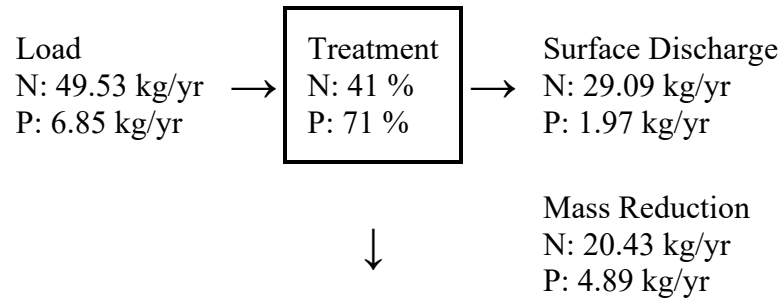
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 5 – SMF 5A
Date: 10/9/2025

Retention Design

Retention Depth (in)	0.911
Retention Volume (ac-ft)	0.940

Watershed Characteristics

Catchment Area (acres)	12.38
Contributing Area (acres)	12.380
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	72
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	72

Media Mix Information

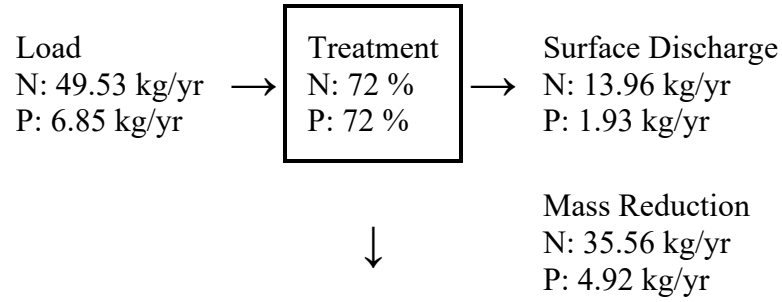
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	35.564

TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	4.922
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Project: Basin 5 – SMF 5B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	12.170
Permanent Pool Volume (ac-ft) for 31 days residence	2.729
Annual Residence Time (days)	138
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	12.38
Contributing Area (acres)	12.380
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	77

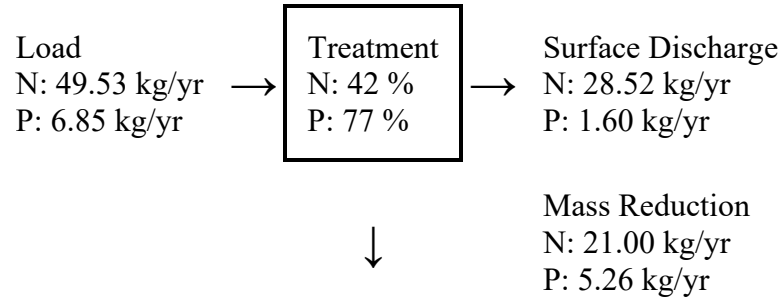
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 5 -SMF 5B
Date: 10/9/2025

Retention Design

Retention Depth (in)	0.785
Retention Volume (ac-ft)	0.810

Watershed Characteristics

Catchment Area (acres)	12.38
Contributing Area (acres)	12.380
Non-DCIA Curve Number	69.00
DCIA Percent	68.80
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	67
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	67

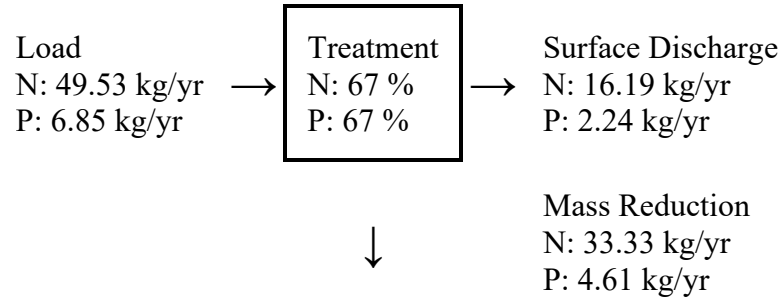
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	33.334
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	4.613
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Basin 6

Project: Basin 6

Date: 10/09/2025

Catchment Information

Analysis: Specified Removal Efficiency Required Removal N: 80% P: 80%

Catchment Name	Basin 6 SMF 6A	Basin 6 SMF 6B
Rainfall Zone	Florida Zone 4	Florida Zone 4
Annual Mean Rainfall (in)	53.00	53.00
Pre-Condition Landuse Information		
Pre-Condition Landuse	User Defined Values	User Defined Values
Pre Condition Area (acres)	20.27	20.27
Pre Rational Coefficient (0-1)	0.32	0.32
Pre Non DCIA Curve Number	69.00	69.00
Pre DCIA Percent (0-100)	33.84	33.84
Pre Nitrogen EMC (mg/l)	1.250	1.250
Pre Phosphorus EMC (mg/l)	0.173	0.173
Pre Runoff Volume (ac-ft/yr)	28.987	28.987
Pre Nitrogen Loading (kg/yr)	44.676	44.676
Pre Phosphorus Loading (kg/yr)	6.183	6.183
Post-Condition Landuse Information		
Post-Condition Landuse	User Defined Values	User Defined Values
Post Condition Area (acres)	20.27	20.27
Post Rational Coefficient (0-1)	0.59	0.59
Post Non DCIA Curve Number	69.00	69.00
Post DCIA Percent (0-100)	68.87	68.87
Post Nitrogen EMC (mg/l)	1.250	1.250
Post Phosphorus EMC (mg/l)	0.173	0.173
Post Runoff Volume (ac-ft/yr)	50.790	49.984
Post Nitrogen Loading (kg/yr)	78.280	77.038
Post Phosphorus Loading (kg/yr)	10.834	10.662

Project: Basin 6 – SMF 6A
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	5.510
Permanent Pool Volume (ac-ft) for 31 days residence	4.314
Annual Residence Time (days)	40
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	20.27
Contributing Area (acres)	19.550
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	39
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	66

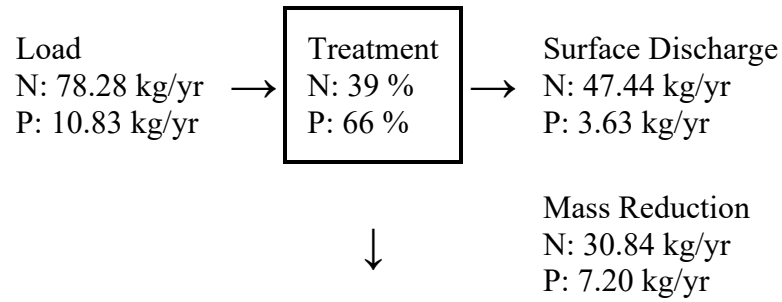
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 6 – SMF 6A
Date: 10/9/2025

Retention Design

Retention Depth (in)	0.768
Retention Volume (ac-ft)	1.251

Watershed Characteristics

Catchment Area (acres)	20.27
Contributing Area (acres)	19.550
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	67
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	67

Media Mix Information

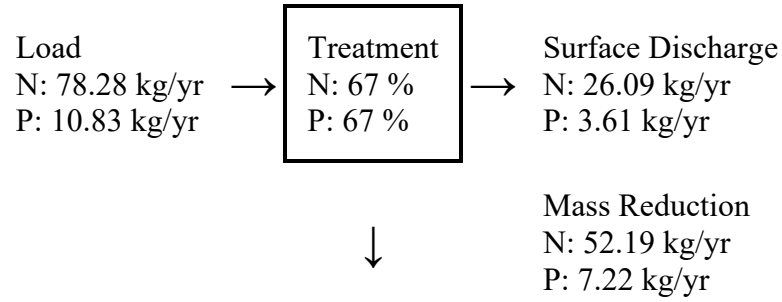
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	52.193

TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	7.223
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Project: Basin 6 – SMF 6B
Date: 10/9/2025

Wet Detention Design

Permanent Pool Volume (ac-ft)	8.560
Permanent Pool Volume (ac-ft) for 31 days residence	4.245
Annual Residence Time (days)	63
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	20.27
Contributing Area (acres)	19.240
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	41
Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	70

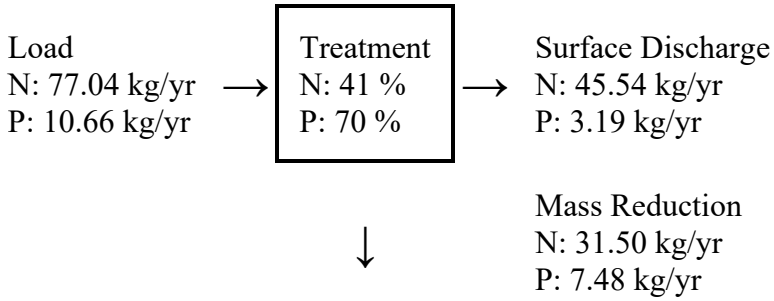
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Project: Basin 6 – SMF 6B
Date: 10/9/2025

Retention Design

Retention Depth (in)	0.805
Retention Volume (ac-ft)	1.291

Watershed Characteristics

Catchment Area (acres)	20.27
Contributing Area (acres)	19.240
Non-DCIA Curve Number	69.00
DCIA Percent	68.87
Rainfall Zone	Florida Zone 4
Rainfall (in)	53.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	68

Required TP Treatment Efficiency (%)	80
Provided TP Treatment Efficiency (%)	68

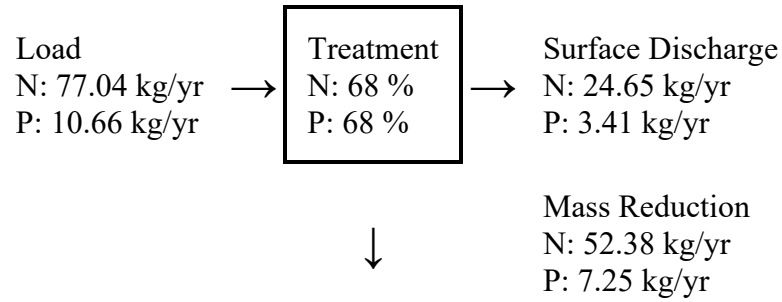
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	52.384
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	7.250
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



APPENDIX C

ICPR Reports

Simple Basin: Basin 5

Scenario:	Post SMF 5A
Node:	Flow Diversion STR
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	12.3800 ac
Curve Number:	89.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Post SMF 5A]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Basin 5	25Yr-254hr	55.27	12.0500	7.98	6.64	12.3800	89.0	0.00	0.00

Simple Basin: Basin 5

Scenario:	Post SMF 5B
Node:	Flow Diversion STR
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	12.3800 ac
Curve Number:	89.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Post SMF 5B]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Basin 5	25Yr-254hr	55.27	12.0500	7.98	6.64	12.3800	89.0	0.00	0.00

Simple Basin: Pre Conditions

Scenario:	Pre
Node:	Dummy Node
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	0.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	12.3800 ac
Curve Number:	79.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Pre]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Pre Conditions	25Yr-24hr	47.48	12.0500	7.98	5.46	12.3800	79.0	0.00	0.00

Node: Dry Retention BMP 5A

Scenario:	5A Recovery
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	4.80 ft
Warning Stage:	5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.80	1.2100	52708

Stage [ft]	Area [ac]	Area [ft2]
4.00	1.1300	49223

Comment:

Node: GW

Scenario: 5A Recovery
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 10.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	72.0000	3.00

Comment:

Node: Dry Retention BMP 5B

Scenario: 5B Recovery
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.70 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.70	1.2100	52708
4.00	1.1000	47916

Comment:

Node: GW

Scenario: 5B Recovery
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 10.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00

Year	Month	Day	Hour	Stage [ft]
0	0	0	72.0000	3.00

Comment:

Node: Dry Retention BMP 5A

Scenario: Post SMF 5A
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.80	1.2100	52708
4.00	1.1300	49223

Comment:

Node: Flow Diversion STR

Scenario: Post SMF 5A
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 7.00 ft

Stage [ft]	Area [ac]	Area [ft2]
7.00	0.0000	1
5.00	0.0000	1

Comment: Providing small areas to model a node with insignificant storage, for routing purposes.

Node: TW

Scenario: Post SMF 5A
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	24.0000	3.00

Comment:

Node: Wet SMF 5A

Scenario: Post SMF 5A
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 6.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	0.8062	35118
4.00	0.8800	38333
5.00	2.1800	94961

Comment: Storage comes from wet pond up to stage 5'. This was done to be conservatice by attenuating only from the wet pond available storage.

Node: Dry Retention BMP 5B

Scenario: Post SMF 5B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.70	1.2100	52708
4.00	1.1000	47916

Comment:

Node: Flow Diversion STR

Scenario: Post SMF 5B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 7.00 ft

Stage [ft]	Area [ac]	Area [ft2]
7.00	0.0000	1
5.00	0.0000	1

Comment: Providing small areas to model a node with insignificant storage, for routing purposes.

Node: TW

Scenario: Post SMF 5B
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	24.0000	3.00

Comment:

Node: Wet SMF 5B

Scenario: Post SMF 5B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 6.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	1.3200	57499
4.00	1.4300	62291
5.00	1.5400	67082

Comment: Storage comes from wet pond up to stage 5'. This was done to be conservatice by attenuating only from the wet pond available storage.

Node: Dummy Node

Scenario: Pre
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	24.0000	3.00

Comment: This node is a "dummy" node intended to determine pre-development runoff for pre/post discharge analysis.

Node Max Conditions [Post SMF 5A]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
Dry Retention BMP 5A	25Yr-254hr	5.00	4.83	0.0009	5.06	4.47	52720
Flow Diversion STR	25Yr-254hr	7.00	6.00	-0.0010	55.27	55.27	100
TW	25Yr-254hr	0.00	3.00	0.0000	27.11	0.00	0
Wet SMF 5A	25Yr-254hr	6.00	4.66	0.0010	52.33	27.11	75639

Node Max Conditions [Post SMF 5B]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]
Dry Retention BMP 5B	25Yr-254hr	5.00	4.71	0.0004	2.94	0.87	52764
Flow Diversion STR	25Yr-254hr	7.00	6.02	0.0010	55.27	55.25	100
TW	25Yr-254hr	0.00	3.00	0.0000	21.40	0.00	0
Wet SMF 5B	25Yr-254hr	6.00	4.56	-0.0010	52.31	21.40	64988

Percolation Link: L-0060PERC

Scenario:	5A Recovery	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Dry Retention BMP 5A		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	924.00 ft
Flow Direction:	Both	Perimeter 2:	1031.00 ft
Aquifer Base Elevation:	-50.00 ft	Perimeter 3:	1456.00 ft
Water Table Elevation:	3.00 ft	Distance P1 to P2:	20.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	70.00 ft
Horizontal Conductivity:	10.000 fpd	# of Cells P1 to P2:	4
Vertical Conductivity:	5.000 fpd	# of Cells P2 to P3:	18
Fillable Porosity:	0.350		
Layer Thickness:	1.00 ft		

Comment:

Link Min/Max Conditions [5A Recovery]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
L-0060PERC	Recovery	3.05	0.00	-0.07	0.00	0.00	0.00

Percolation Link: L-0060PERC

Scenario:	5B Recovery	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Dry Retention BMP 5B		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	1116.00 ft
Flow Direction:	Both	Perimeter 2:	1336.00 ft
Aquifer Base Elevation:	-50.00 ft	Perimeter 3:	2428.00 ft
Water Table Elevation:	3.00 ft	Distance P1 to P2:	35.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	190.00 ft
Horizontal Conductivity:	10.000 fpd	# of Cells P1 to P2:	7
Vertical Conductivity:	5.000 fpd	# of Cells P2 to P3:	45
Fillable Porosity:	0.300		
Layer Thickness:	1.00 ft		

Comment:

Link Min/Max Conditions [5B Recovery]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
L-0060PERC	Recovery	3.05	0.00	-0.08	0.00	0.00	0.00

Drop Structure Link: Control Str.		Upstream Pipe		Downstream Pipe	
Scenario:	Post SMF 5A	Invert:	0.00 ft	Invert:	-1.00 ft
From Node:	Wet SMF 5A	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	TW	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	3.00 ft	Max Depth:	3.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	80.00 ft	Top Clip			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000

Bend Location: 0.00 dec
Energy Switch: Energy

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	**Top Clip**	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	3.00 ft	Ref Node:	
Control Elevation:	3.00 ft	**Discharge Coefficients**	
Max Depth:	7.58 ft	Weir Default:	3.200
Max Width:	4.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Weir (Type H)

Drop Structure Comment:

Link Min/Max Conditions [Post SMF 5A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Control Str. - Pipe	25Yr-254hr	27.11	0.00	-0.03	0.00	0.00	0.00
Control Str. - Weir: 1	25Yr-254hr	27.11	0.00	-0.02	4.09	4.09	4.09

Pipe Link: Pipe to Dry Pond		Upstream		Downstream	
Scenario:	Post SMF 5A	Invert:	4.10 ft	Invert:	4.00 ft
From Node:	Flow Diversion STR	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Dry Retention BMP 5A	**Geometry: Circular**		**Geometry: Circular**	
		Max Depth:	1.00 ft	Max Depth:	1.00 ft
Link Count:	1	**Bottom Clip**			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Damping:	0.0000 ft	Op Table:		Op Table:	
Length:	30.00 ft	Ref Node:		Ref Node:	
FHWA Code:	0	Manning's N:	0.0000	Manning's N:	0.0000
Entr Loss Coef:	0.30	**Top Clip**			
Exit Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Bend Loss Coef:	0.00	Op Table:		Op Table:	
Bend Location:	0.00 dec	Ref Node:		Ref Node:	

Energy Switch:	Energy	Manning's N:	0.0000	Manning's N:	0.0000
Comment:					

Link Min/Max Conditions [Post SMF 5A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Pipe to Dry Pond	25Yr-254hr	5.06	0.00	-0.02	6.45	6.71	6.58

Weir Link: Weir

Scenario:	Post SMF 5A	**Bottom Clip**	
From Node:	Dry Retention BMP 5A	Default:	0.00 ft
To Node:	Wet SMF 5A	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	**Top Clip**	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	4.80 ft	**Discharge Coefficients**	
Control Elevation:	4.80 ft	Weir Default:	2.800
Cross Section:	Berm	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Link Min/Max Conditions [Post SMF 5A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir	25Yr-254hr	4.47	0.00	0.02	0.00	0.00	0.00

Drop Structure Link: Weir & Pipe to Wet Pond

		Upstream Pipe		**Downstream Pipe**	
		Invert:	-2.00 ft	Invert:	-3.00 ft
Scenario:	Post SMF 5A	Manning's N:	0.0120	Manning's N:	0.0120
From Node:	Flow Diversion STR	**Geometry: Circular**		**Geometry: Circular**	
To Node:	Wet SMF 5A	Max Depth:	3.50 ft	Max Depth:	3.50 ft
Link Count:	1	**Bottom Clip**			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Solution:	Combine	Op Table:		Op Table:	

Increments:	0	Ref Node:		Ref Node:	
Pipe Count:	1	Manning's N:	0.0000	Manning's N:	0.0000
Damping:	0.0000 ft	Top Clip			
Length:	130.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	0	Op Table:		Op Table:	
Entr Loss Coef:	0.00	Ref Node:		Ref Node:	
Exit Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component			
Weir:	1	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	4.80 ft	Op Table:	
Control Elevation:	4.80 ft	Ref Node:	
Max Depth:	999.00 ft	Discharge Coefficients	
Max Width:	12.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Weir

Drop Structure Comment:

Link Min/Max Conditions [Post SMF 5A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir & Pipe to Wet Pond - Pipe	25Yr-254hr	50.20	0.00	-0.06	0.00	0.00	0.00
Weir & Pipe to Wet Pond - Weir: 1	25Yr-254hr	50.21	0.00	-0.09	3.50	3.50	3.50

Drop Structure Link: Control Str.		Upstream Pipe		Downstream Pipe	
Scenario:	Post SMF 5B	Invert:	0.00 ft	Invert:	-1.00 ft
From Node:	Wet SMF 5B	Manning's N:	0.0130	Manning's N:	0.0130
To Node:	TW	Geometry: Circular		Geometry: Circular	

Link Count:	1	Max Depth:	2.00 ft	Max Depth:	2.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	80.00 ft	Top Clip			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.00	Op Table:		Op Table:	
Exit Loss Coef:	0.00	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	3.00 ft	Ref Node:	
Control Elevation:	3.00 ft	Discharge Coefficients	
Max Depth:	7.58 ft	Weir Default:	3.200
Max Width:	4.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Weir (Type H)

Drop Structure Comment:

Link Min/Max Conditions [Post SMF 5B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Control Str. - Pipe	25Yr-254hr	21.40	0.00	-0.02	0.00	0.00	0.00
Control Str. - Weir: 1	25Yr-254hr	21.40	0.00	-0.02	3.42	3.42	3.42

Pipe Link: Pipe to Dry Pond		Upstream		Downstream	
Scenario:	Post SMF 5B	Invert:	4.30 ft	Invert:	4.00 ft
From Node:	Flow Diversion STR	Manning's N:	0.0130	Manning's N:	0.0130

To Node:	Dry Retention BMP 5B	Geometry: Circular		Geometry: Circular	
		Max Depth:	1.00 ft	Max Depth:	1.00 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Damping:	0.0000 ft	Op Table:		Op Table:	
Length:	120.00 ft	Ref Node:		Ref Node:	
FHWA Code:	0	Manning's N:	0.0000	Manning's N:	0.0000
Entr Loss Coef:	0.30	Top Clip			
Exit Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Bend Loss Coef:	0.00	Op Table:		Op Table:	
Bend Location:	0.00 dec	Ref Node:		Ref Node:	
Energy Switch:	Energy	Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Link Min/Max Conditions [Post SMF 5B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Pipe to Dry Pond	25Yr-254hr	2.94	0.00	-0.01	3.74	4.75	4.25

Weir Link: Weir

Scenario:	Post SMF 5B	Bottom Clip	
From Node:	Dry Retention BMP 5B	Default:	0.00 ft
To Node:	Wet SMF 5B	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	4.70 ft	Discharge Coefficients	
Control Elevation:	4.70 ft	Weir Default:	2.800
Cross Section:	Berm	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Link Min/Max Conditions [Post SMF 5B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir	25Yr-254hr	0.87	0.00	0.02	0.00	0.00	0.00

Drop Structure Link: Weir & Pipe to Wet Pond		Upstream Pipe		Downstream Pipe	
		Invert:	-2.00 ft	Invert:	-3.00 ft
Scenario:	Post SMF 5B	Manning's N:	0.0130	Manning's N:	0.0130
From Node:	Flow Diversion STR	Geometry: Circular		Geometry: Circular	
To Node:	Wet SMF 5B	Max Depth:	3.50 ft	Max Depth:	3.50 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Solution:	Combine	Op Table:		Op Table:	
Increments:	0	Ref Node:		Ref Node:	
Pipe Count:	1	Manning's N:	0.0000	Manning's N:	0.0000
Damping:	0.0000 ft	Top Clip			
Length:	400.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	0	Op Table:		Op Table:	
Entr Loss Coef:	0.00	Ref Node:		Ref Node:	
Exit Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	4.70 ft	Ref Node:	
Control Elevation:	4.70 ft	Discharge Coefficients	
Max Depth:	999.00 ft	Weir Default:	3.200
Max Width:	12.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Weir

Drop Structure Comment:

Link Min/Max Conditions [Post SMF 5B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir & Pipe to Wet Pond - Pipe	25Yr-254hr	52.31	0.00	0.06	0.00	0.00	0.00
Weir & Pipe to Wet Pond -	25Yr-254hr	52.31	0.00	0.08	3.41	3.41	3.41

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir: 1							

Weir Cross Section: Berm

Scenario: Post SMF 5A
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	4.80
1	316.00	4.80

Comment:

Weir Cross Section: Berm

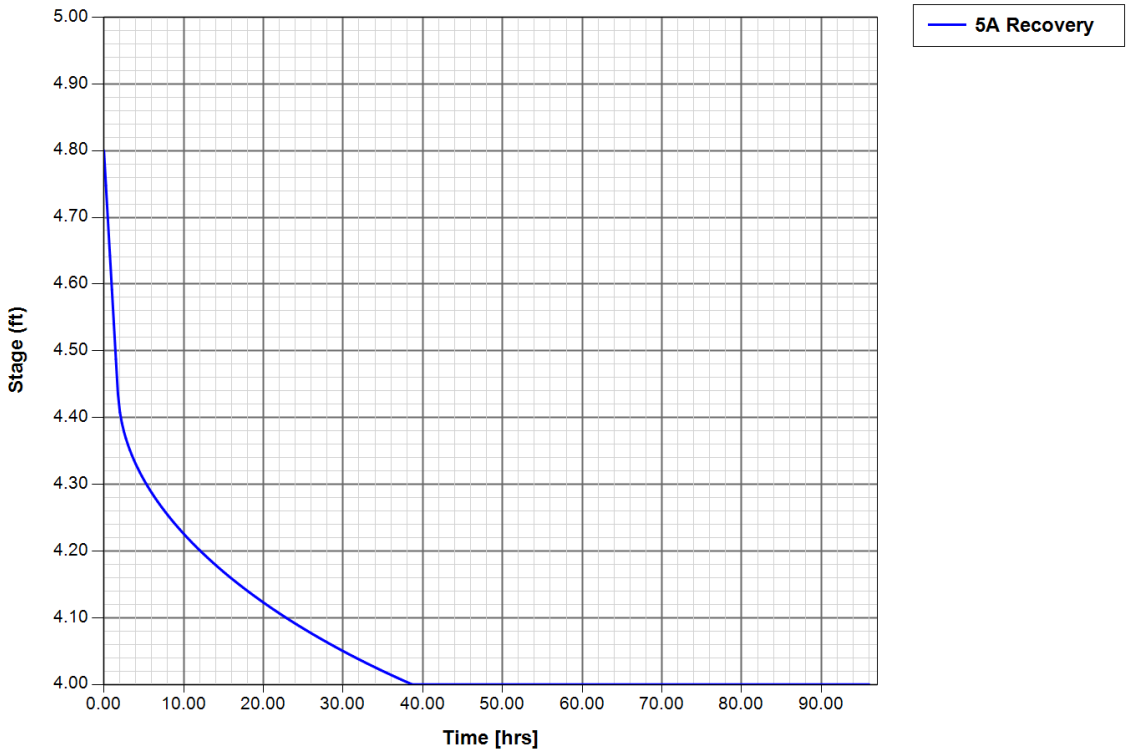
Scenario: Post SMF 5B
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	4.70
1	430.00	4.70

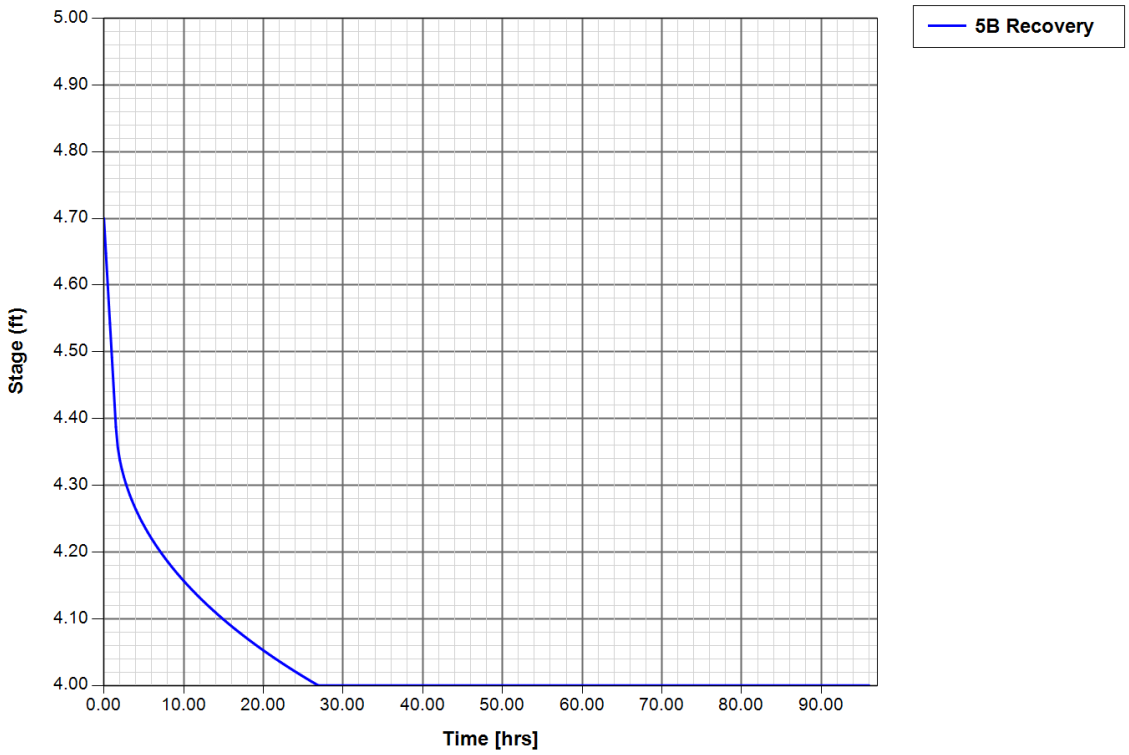
Comment:

Stage | Multi-Scenario [Node: Dry Retention BMP 5A] Sim: Recovery



Note: Although in SWFWMD jurisdiction, attenuation model is not being held to initial stages set to the 36-hr water quality drawdown since attenuation is not required for tidal basins within SWFWMD criteria and the 25-yr modeling effort is being performed for FDOT standards only to demonstrate ability to accomodate conveyance systems's HGL of Split BMP system.

Stage | Multi-Scenario [Node: Dry Retention BMP 5B] Sim: Recovery



Note: Although in SWFWMD jurisdiction, attenuation model is not being held to initial stages set to the 36-hr water quality drawdown since attenuation is not required for tidal basins within SWFWMD criteria and the 25-yr modeling effort is being performed for FDOT standards only to demonstrate ability to accomodate conveyance systems's HGL of Split BMP system.

Simulation: Recovery

Scenario:	5A Recovery
Run Date/Time:	12/16/2025 2:40:57 PM
Program Version:	ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	96.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area	100 ft2	Min Node Srf Area	100 ft2

(2D):		(1D):	
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: Recovery

Scenario: 5B Recovery
Run Date/Time: 12/16/2025 2:41:40 PM
Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	96.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Lookup Tables

Boundary Stage Set:

Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25Yr-254hr

Scenario:	Post SMF 5A
Run Date/Time:	12/16/2025 2:42:24 PM
Program Version:	ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000

Max Calculation Time: 30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

IA Recovery Time: 24.0000 hr
ET for Manual Basins: False
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 7.98 in
Storm Duration: 24.0000 hr

Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25Yr-254hr

Scenario: Post SMF 5B
Run Date/Time: 12/16/2025 2:42:55 PM
Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources		Lookup Tables	
Rainfall Folder:		Boundary Stage Set:	
Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.98 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25Yr-24hr

Scenario:	Pre
Run Date/Time:	10/16/2025 1:59:03 PM
Program Version:	ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

Hydrology [sec]	Surface Hydraulics	Groundwater [sec]

	[sec]		
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD

		Rainfall Amount:	7.98 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simple Basin: Basin 6

Scenario:	Pond 6A
Node:	Flow Diversion
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	99999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	20.2700 ac
Curve Number:	89.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Pond 6A]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Basin 6	25 y 24 h	90.50	12.0500	7.98	6.64	20.2700	89.0	0.00	0.00

Simple Basin: Basin 6

Scenario:	Pond 6B
Node:	Flow Diversion
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	99999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	20.2700 ac
Curve Number:	89.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Pond 6B]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Basin 6	25 y 24 h	90.50	12.0500	7.98	6.64	20.2700	89.0	0.00	0.00

Simple Basin: Pre Basin 6

Scenario:	Pre
Node:	pre
Hydrograph Method:	NRCS Unit Hydrograph
Infiltration Method:	Curve Number
Time of Concentration:	10.0000 min
Max Allowable Q:	99999.00 cfs
Time Shift:	0.0000 hr
Unit Hydrograph:	UH256
Peaking Factor:	256.0
Area:	20.2700 ac
Curve Number:	79.0
% Impervious:	0.00
% DCIA:	0.00
% Direct:	0.00
Rainfall Name:	

Comment:

Simple Basin Runoff Summary [Pre]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Pre Basin 6	25 y 24 h	77.74	12.0500	7.98	5.46	20.2700	79.0	0.00	0.00

Node: Dry Rentention BMP 6A

Scenario:	Pond 6A
Type:	Stage/Area
Base Flow:	0.00 cfs
Initial Stage:	4.00 ft
Warning Stage:	5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	1.2100	52708
5.00	1.2900	56192

Comment:

Node: Flow Diversion

Scenario: Pond 6A
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 6.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	0.0030	131
6.00	0.0030	131

Comment:

Node: Tailwater

Scenario: Pond 6A
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	24.0000	3.00
0	0	0	0.0000	3.00

Comment:

Node: Wet SMF 6A

Scenario: Pond 6A
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	0.7200	31363
4.00	0.7830	34107
5.00	0.8520	37113

Comment:

Node: Dry Rentention BMP 6A

Scenario: Pond 6A Recovery
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	1.2100	52708
5.00	1.2900	56192

Comment:

Node: GW

Scenario: Pond 6A Recovery
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	72.0000	3.00

Comment:

Node: Dry Rentention BMP 6B

Scenario: Pond 6B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 4.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	1.2400	54014
5.00	1.3300	57935

Comment:

Node: Flow Diversion

Scenario: Pond 6B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 6.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	0.0030	131
6.00	0.0030	131

Comment:

Node: Tailwater

Scenario: Pond 6B
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	24.0000	3.00
0	0	0	0.0000	3.00

Comment:

Node: Wet SMF 6B

Scenario: Pond 6B
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 3.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
3.00	1.0200	44431
4.00	1.1000	47916
5.00	1.1800	51401

Comment:

Node: Dry Rentention BMP 6B

Scenario: Pond 6B Recovery
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 5.00 ft
Warning Stage: 5.00 ft

Stage [ft]	Area [ac]	Area [ft2]
4.00	1.2400	54014
5.00	1.3300	57935

Comment:

Node: GW

Scenario: Pond 6B Recovery
Type: Time/Stage
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 0.00 ft
Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	3.00
0	0	0	72.0000	3.00

Comment:

Node: pre

Scenario: Pre
Type: Stage/Area
Base Flow: 0.00 cfs
Initial Stage: 0.00 ft
Warning Stage: 100000000000.00 ft

Stage [ft]	Area [ac]	Area [ft2]
0.00	0.0001	4
1.00	0.0002	9

Comment:

Drop Structure Link: Control STR

Scenario: Pond 6A
From Node: Wet SMF 6A

Upstream Pipe
Invert: -1.00 ft
Manning's N: 0.0120

Downstream Pipe
Invert: -1.50 ft
Manning's N: 0.0120

To Node:	Tailwater	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	100.00 ft	Top Clip			
FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.50	Op Table:		Op Table:	
Exit Loss Coef:	0.30	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	3.00 ft	Ref Node:	
Control Elevation:	3.00 ft	Discharge Coefficients	
Max Depth:	15.17 ft	Weir Default:	3.200
Max Width:	8.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment: Control Structure (DBI H 2 grates)

Drop Structure Comment:

Link Min/Max Conditions [Pond 6A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Control STR - Pipe	25 y 24 h	67.93	0.00	-0.06	0.00	0.00	0.00
Control STR - Weir: 2	25 y 24 h	67.93	0.00	-0.04	4.23	4.23	4.23

Pipe Link: Pipe to Dry Pond		Upstream		Downstream	
Scenario:	Pond 6A	Invert:	4.10 ft	Invert:	4.00 ft

From Node:	Flow Diversion	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Dry Rentention BMP 6A	Geometry: Circular		Geometry: Circular	
		Max Depth:	1.00 ft	Max Depth:	1.00 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Damping:	0.0000 ft	Op Table:		Op Table:	
Length:	36.00 ft	Ref Node:		Ref Node:	
FHWA Code:	0	Manning's N:	0.0000	Manning's N:	0.0000
Entr Loss Coef:	0.30	Top Clip			
Exit Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Bend Loss Coef:	0.00	Op Table:		Op Table:	
Bend Location:	0.00 dec	Ref Node:		Ref Node:	
Energy Switch:	Energy	Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Link Min/Max Conditions [Pond 6A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Pipe to Dry Pond	25 y 24 h	4.99	0.00	-0.02	6.35	6.35	6.35

Weir Link: Weir

Scenario:	Pond 6A	Bottom Clip	
From Node:	Dry Rentention BMP 6A	Default:	0.00 ft
To Node:	Wet SMF 6A	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	5.00 ft	Discharge Coefficients	
Control Elevation:	5.00 ft	Weir Default:	2.800
Cross Section:	weir	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Link Min/Max Conditions [Pond 6A]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir	25 y 24 h	4.42	0.00	0.01	0.00	0.00	0.00

Drop Structure Link: Weir/Pipe to Wet SMF		Upstream Pipe		Downstream Pipe	
		Invert:	-2.00 ft	Invert:	-3.00 ft
Scenario:	Pond 6A	Manning's N:	0.0120	Manning's N:	0.0120
From Node:	Flow Diversion	Geometry: Circular		Geometry: Circular	
To Node:	Wet SMF 6A	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Solution:	Combine	Op Table:		Op Table:	
Increments:	0	Ref Node:		Ref Node:	
Pipe Count:	1	Manning's N:	0.0000	Manning's N:	0.0000
Damping:	0.0000 ft	Top Clip			
Length:	130.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	0	Op Table:		Op Table:	
Entr Loss Coef:	0.50	Ref Node:		Ref Node:	
Exit Loss Coef:	0.30	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component		Bottom Clip	
Weir:	1	Default:	0.00 ft
Weir Count:	1	Op Table:	
Weir Flow Direction:	Both	Ref Node:	
Damping:	0.0000 ft	Top Clip	
Weir Type:	Sharp Crested Vertical	Default:	0.00 ft
Geometry Type:	Rectangular	Op Table:	
Invert:	5.00 ft	Ref Node:	
Control Elevation:	5.00 ft	Discharge Coefficients	
Max Depth:	999.00 ft	Weir Default:	3.200
Max Width:	30.00 ft	Weir Table:	
Fillet:	0.00 ft	Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Link Min/Max Conditions [Pond 6A]

Link Name	Sim Name	Max Flow	Min Flow [cfs]	Min/Max	Max Us	Max Ds	Max Avg

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir/Pipe to Wet SMF - Pipe	25 y 24 h	85.47	0.00	-0.11	0.00	0.00	0.00
Weir/Pipe to Wet SMF - Weir: 1	25 y 24 h	85.47	0.00	-0.16	2.91	2.91	2.91

Percolation Link: L-0050PERC			
Scenario:	Pond 6A Recovery	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Dry Rentention BMP 6A		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	915.00 ft
Flow Direction:	Both	Perimeter 2:	1071.00 ft
Aquifer Base Elevation:	-50.00 ft	Perimeter 3:	2014.00 ft
Water Table Elevation:	3.00 ft	Distance P1 to P2:	25.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	175.00 ft
Horizontal Conductivity:	10.000 fpd	# of Cells P1 to P2:	5
Vertical Conductivity:	5.000 fpd	# of Cells P2 to P3:	35
Fillable Porosity:	0.380		
Layer Thickness:	1.00 ft		
Comment: Use select FDOT A3 soils for higher fillable porosity			

Link Min/Max Conditions [Pond 6A Recovery]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
L-0050PERC	Recovery	3.25	0.00	-0.05	0.00	0.00	0.00

Drop Structure Link: Control STR		Upstream Pipe		Downstream Pipe	
Scenario:	Pond 6B	Invert:	1.00 ft	Invert:	0.50 ft
From Node:	Wet SMF 6B	Manning's N:	0.0120	Manning's N:	0.0120
To Node:	Tailwater	Geometry: Circular		Geometry: Circular	
Link Count:	1	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Flow Direction:	Both	Bottom Clip			
Solution:	Combine	Default:	0.00 ft	Default:	0.00 ft
Increments:	0	Op Table:		Op Table:	
Pipe Count:	1	Ref Node:		Ref Node:	
Damping:	0.0000 ft	Manning's N:	0.0000	Manning's N:	0.0000
Length:	100.00 ft	Top Clip			

FHWA Code:	0	Default:	0.00 ft	Default:	0.00 ft
Entr Loss Coef:	0.50	Op Table:		Op Table:	
Exit Loss Coef:	0.30	Ref Node:		Ref Node:	
Bend Loss Coef:	0.00	Manning's N:	0.0000	Manning's N:	0.0000
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component

Weir:	1
Weir Count:	1
Weir Flow Direction:	Both
Damping:	0.0000 ft
Weir Type:	Sharp Crested Vertical
Geometry Type:	Rectangular
Invert:	3.00 ft
Control Elevation:	3.00 ft
Max Depth:	15.17 ft
Max Width:	8.00 ft
Fillet:	0.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Top Clip

Default:	0.00 ft
Op Table:	
Ref Node:	

Discharge Coefficients

Weir Default:	3.200
Weir Table:	
Orifice Default:	0.600
Orifice Table:	

Weir Comment: Control Structure (DBI H 2-4 grates)

Drop Structure Comment:

Link Min/Max Conditions [Pond 6B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Control STR - Pipe	25 y 24 h	57.47	0.00	-0.63	0.00	0.00	0.00
Control STR - Weir: 2	25 y 24 h	57.47	0.00	-1.30	3.76	3.76	3.76

Pipe Link: Pipe to Dry Pond

Scenario:	Pond 6B
From Node:	Flow Diversion
To Node:	Dry Rentention BMP 6B
Link Count:	1
Flow Direction:	Both
Damping:	0.0000 ft
Length:	36.00 ft
FHWA Code:	0

Upstream

Invert:	4.10 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	1.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Downstream

Invert:	4.00 ft
Manning's N:	0.0120

Geometry: Circular

Max Depth:	1.00 ft

Bottom Clip

Default:	0.00 ft
Op Table:	
Ref Node:	
Manning's N:	0.0000

Entr Loss Coef:	0.30	Top Clip			
Exit Loss Coef:	0.50	Default:	0.00 ft	Default:	0.00 ft
Bend Loss Coef:	0.00	Op Table:		Op Table:	
Bend Location:	0.00 dec	Ref Node:		Ref Node:	
Energy Switch:	Energy	Manning's N:	0.0000	Manning's N:	0.0000

Comment:

Link Min/Max Conditions [Pond 6B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Pipe to Dry Pond	25 y 24 h	4.84	0.00	-0.02	6.16	6.16	6.16

Weir Link: Weir

Scenario:	Pond 6B	Bottom Clip	
From Node:	Dry Rentention BMP 6B	Default:	0.00 ft
To Node:	Wet SMF 6B	Op Table:	
Link Count:	1	Ref Node:	
Flow Direction:	Both	Top Clip	
Damping:	0.0000 ft	Default:	0.00 ft
Weir Type:	Broad Crested Vertical	Op Table:	
Geometry Type:	Irregular	Ref Node:	
Invert:	5.00 ft	Discharge Coefficients	
Control Elevation:	5.00 ft	Weir Default:	2.800
Cross Section:	weir	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Comment:

Link Min/Max Conditions [Pond 6B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir	25 y 24 h	3.89	0.00	0.01	0.00	0.00	0.00

Drop Structure Link: Weir/Pipe to Wet SMF		Upstream Pipe		Downstream Pipe	
		Invert:	-2.00 ft	Invert:	-3.00 ft
Scenario:	Pond 6B	Manning's N:	0.0120	Manning's N:	0.0120
From Node:	Flow Diversion	Geometry: Circular		Geometry: Circular	

To Node:	Wet SMF 6B	Max Depth:	4.00 ft	Max Depth:	4.00 ft
Link Count:	1	Bottom Clip			
Flow Direction:	Both	Default:	0.00 ft	Default:	0.00 ft
Solution:	Combine	Op Table:		Op Table:	
Increments:	0	Ref Node:		Ref Node:	
Pipe Count:	1	Manning's N:	0.0000	Manning's N:	0.0000
Damping:	0.0000 ft	Top Clip			
Length:	130.00 ft	Default:	0.00 ft	Default:	0.00 ft
FHWA Code:	0	Op Table:		Op Table:	
Entr Loss Coef:	0.50	Ref Node:		Ref Node:	
Exit Loss Coef:	0.30	Manning's N:	0.0000	Manning's N:	0.0000
Bend Loss Coef:	0.00				
Bend Location:	0.00 dec				
Energy Switch:	Energy				

Pipe Comment:

Weir Component			
Weir:	1	Bottom Clip	
Weir Count:	1	Default:	0.00 ft
Weir Flow Direction:	Both	Op Table:	
Damping:	0.0000 ft	Ref Node:	
Weir Type:	Sharp Crested Vertical	Top Clip	
Geometry Type:	Rectangular	Default:	0.00 ft
Invert:	5.00 ft	Op Table:	
Control Elevation:	5.00 ft	Ref Node:	
Max Depth:	999.00 ft	Discharge Coefficients	
Max Width:	30.00 ft	Weir Default:	3.200
Fillet:	0.00 ft	Weir Table:	
		Orifice Default:	0.600
		Orifice Table:	

Weir Comment:

Drop Structure Comment:

Link Min/Max Conditions [Pond 6B]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
Weir/Pipe to Wet SMF - Pipe	25 y 24 h	85.62	0.00	0.10	0.00	0.00	0.00
Weir/Pipe to Wet SMF - Weir: 1	25 y 24 h	85.62	0.00	-0.18	2.97	2.97	2.97

Percolation Link: L-0050PERC

Scenario:	Pond 6B Recovery	Surface Area Option:	Vary Based on Stage/Area Table
From Node:	Dry Rentention BMP 6B		
To Node:	GW	Vertical Flow Termination:	Horizontal Flow Algorithm
Link Count:	1	Perimeter 1:	924.00 ft
Flow Direction:	Both	Perimeter 2:	1080.00 ft
Aquifer Base Elevation:	-50.00 ft	Perimeter 3:	2023.00 ft
Water Table Elevation:	3.00 ft	Distance P1 to P2:	25.00 ft
Annual Recharge Rate:	0 ipy	Distance P2 to P3:	150.00 ft
Horizontal Conductivity:	10.000 fpd	# of Cells P1 to P2:	5
Vertical Conductivity:	5.000 fpd	# of Cells P2 to P3:	30
Fillable Porosity:	0.390		
Layer Thickness:	1.00 ft		

Comment: Use select FDOT A3 soils for higher fillable porosity

Link Min/Max Conditions [Pond 6B Recovery]

Link Name	Sim Name	Max Flow [cfs]	Min Flow [cfs]	Min/Max Delta Flow [cfs]	Max Us Velocity [fps]	Max Ds Velocity [fps]	Max Avg Velocity [fps]
L-0050PERC	Recovery	3.35	0.00	-0.06	0.00	0.00	0.00

Weir Cross Section: weir

Scenario: Pond 6A
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	5.00
1	285.00	5.00

Comment:

Weir Cross Section: weir

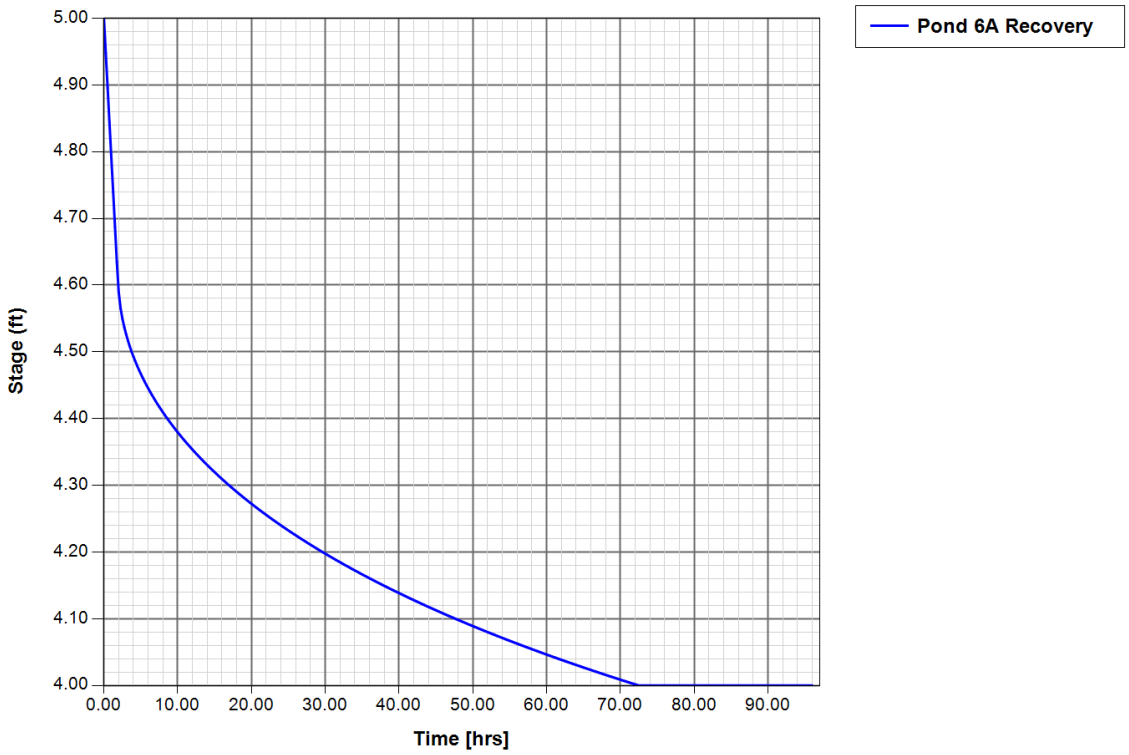
Scenario: Pond 6B
Lid: No

Bottom Point Table

Order	Station [ft]	Elevation [ft]
0	0.00	5.00
1	212.00	5.00

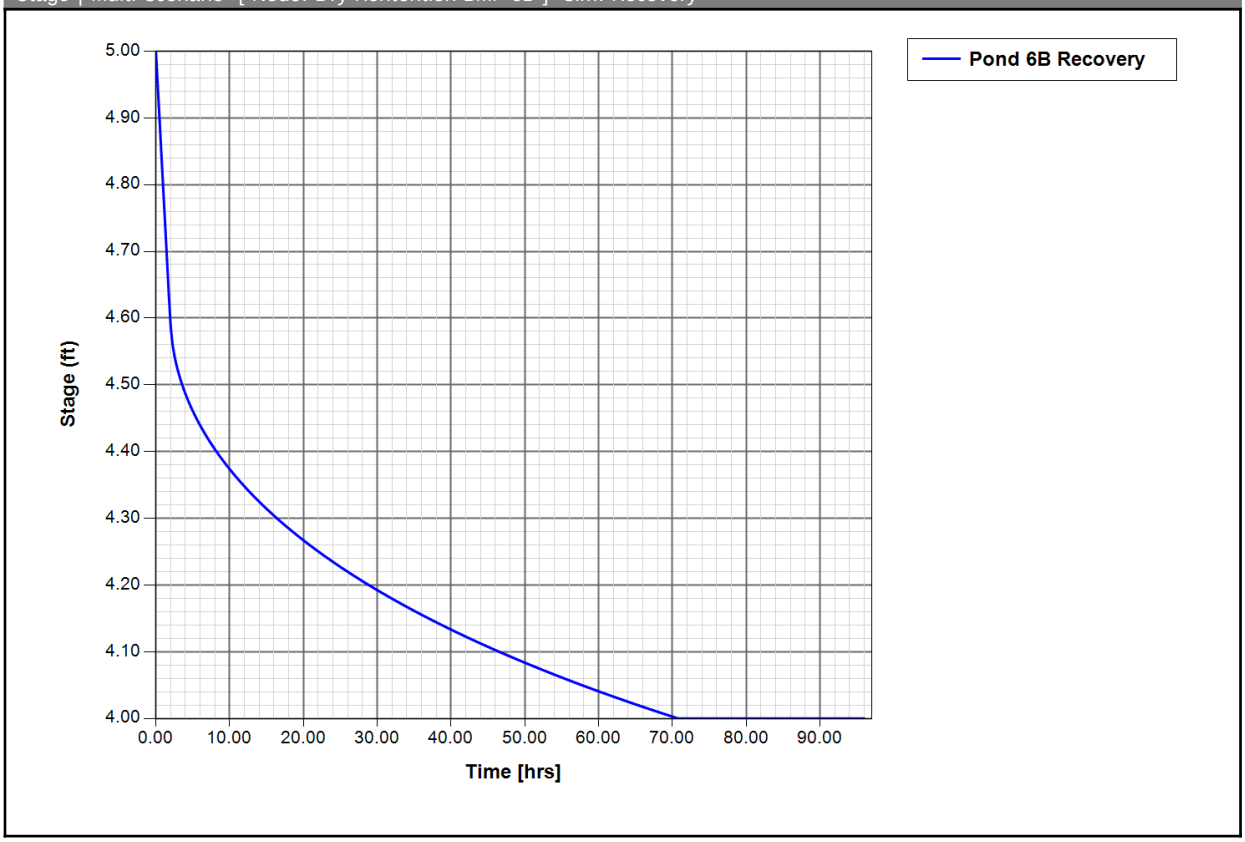
Comment:

Stage | Multi-Scenario [Node: Dry Rentention BMP 6A] Sim: Recovery



Note: Although in SWFWMD jurisdiction, attenuation model is not being held to initial stages set to the 36-hr water quality drawdown since attenuation is not required for tidal basins within SWFWMD criteria and the 25-yr modeling effort is being performed for FDOT standards only to demonstrate ability to accomodate conveyance systems's HGL of Split BMP system.

Stage | Multi-Scenario [Node: Dry Rentention BMP 6B] Sim: Recovery



Note: Although in SWFWMD jurisdiction, attenuation model is not being held to initial stages set to the 36-hr water quality drawdown since attenuation is not required for tidal basins within SWFWMD criteria and the 25-yr modeling effort is being performed for FDOT standards only to demonstrate ability to accomodate conveyance systems's HGL of Split BMP system.

Simulation: 25 y 24 h

Scenario:	Pond 6A
Run Date/Time:	9/10/2025 2:12:02 PM
Program Version:	ICPR4 4.07.04

General

Run Mode:	Normal			
	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	24.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	True
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.98 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area	100 ft2	Min Node Srf Area	100 ft2

(2D):		(1D):	
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: Recovery

Scenario: Pond 6A Recovery
Run Date/Time: 11/18/2025 6:23:41 PM
Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	96.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Lookup Tables

Boundary Stage Set:

Reference ET Folder:		Extern Hydrograph Set:	
Unit Hydrograph Folder:		Curve Number Set:	
		Green-Ampt Set:	
		Vertical Layers Set:	
		Impervious Set:	
		Roughness Set:	
		Crop Coef Set:	
		Fillable Porosity Set:	
		Conductivity Set:	
		Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25 y 24 h

Scenario:	Pond 6B
Run Date/Time:	9/10/2025 2:13:45 PM
Program Version:	ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000

Max Calculation Time: 30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	24.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching: SAOR
Max Iterations: 6
Over-Relax Weight Fact: 0.5 dec
dZ Tolerance: 0.0010 ft
Max dZ: 1.0000 ft
Link Optimizer Tol: 0.0001 ft

IA Recovery Time: 24.0000 hr
ET for Manual Basins: True
Smp/Man Basin Rain Opt: Global
OF Region Rain Opt: Global
Rainfall Name: ~FLMOD
Rainfall Amount: 7.98 in

Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: Recovery

Scenario: Pond 6B Recovery
Run Date/Time: 11/18/2025 6:33:59 PM
Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	96.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	96.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:	
Reference ET Folder:	
Unit Hydrograph Folder:	

Lookup Tables

Boundary Stage Set:	
Extern Hydrograph Set:	
Curve Number Set:	
Green-Ampt Set:	
Vertical Layers Set:	
Impervious Set:	
Roughness Set:	
Crop Coef Set:	
Fillable Porosity Set:	
Conductivity Set:	
Leakage Set:	

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain Opt:	Global
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	0.00 in
Edge Length Option:	Automatic	Storm Duration:	72.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

Simulation: 25 y 24 h

Scenario:	Pre
Run Date/Time:	4/1/2025 6:41:18 PM
Program Version:	ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	24.0000

	Hydrology [sec]	Surface Hydraulics [sec]	Groundwater [sec]
Min Calculation Time:	60.0000	0.1000	900.0000
Max Calculation Time:		30.0000	

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000
0	0	0	24.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Groundwater

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	60.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:
Reference ET Folder:
Unit Hydrograph Folder:

Lookup Tables

Boundary Stage Set:
Extern Hydrograph Set:
Curve Number Set:
Green-Ampt Set:
Vertical Layers Set:
Impervious Set:
Roughness Set:
Crop Coef Set:
Fillable Porosity Set:
Conductivity Set:
Leakage Set:

Tolerances & Options

Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6	ET for Manual Basins:	False
Over-Relax Weight Fact:	0.5 dec		
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain	Global

		Opt:	
Max dZ:	1.0000 ft	OF Region Rain Opt:	Global
Link Optimizer Tol:	0.0001 ft	Rainfall Name:	~FLMOD
		Rainfall Amount:	7.98 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
Dflt Damping (2D):	0.0050 ft	Dflt Damping (1D):	0.0050 ft
Min Node Srf Area (2D):	100 ft2	Min Node Srf Area (1D):	100 ft2
Energy Switch (2D):	Energy	Energy Switch (1D):	Energy

Comment:

APPENDIX D

Original Pond Siting Report

POND SITING REPORT

Florida Department of Transportation
District Seven

US 41 (SR 45) Project Development and Environment (PD&E) Study
Limits of Project: From Kracker Avenue to South of SR 676 (Causeway Blvd)
Hillsborough County, Florida
Work Program Item Segment Number: 430056-1
ETDM Number: 5180
Date: February 2025

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022, and executed by the Federal Highway Administration and FDOT.

US 41 (SR 45)
From Kracker Avenue to South of SR 676 (Causeway Blvd)

Project Development & Environment (PD&E) Study

Pond Siting Report

Work Program Item Segment No. 430056-1
ETDM Project No. 5180
Hillsborough County, Florida

Prepared for:

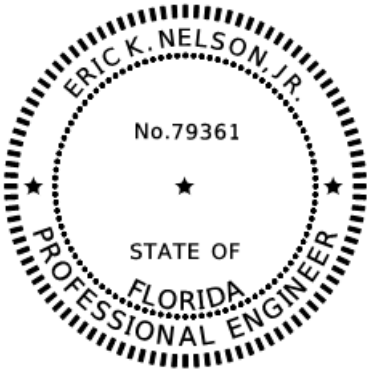
Florida Department of Transportation
District Seven

In Coordination with:

Hillsborough County Florida

Prepared by:
Consor Engineers, LLC
2818 Cypress Ridge Boulevard, Suite 200
Wesley Chapel, FL 33544

February 2025



This item has been digitally signed and sealed by:

On the date indicated adjacent to the seal:

Printed Copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Consor Engineers, LLC
2818 Cypress Ridge Boulevard, Suite 200
Wesley Chapel, FL 33544
Eric K. Nelson Jr., P.E. NO. 79361

EXECUTIVE SUMMARY

The objective of the Project Development and Environment (PD&E) study is to assist the Florida Department of Transportation's (FDOT) Office of Environmental Management (OEM) in making a decision on the type, location, and conceptual design of proposed improvements for the widening of US 41 (SR 45) from Kracker Avenue to south of Causeway Boulevard (SR 676). This study documents the need for these improvements, as well as the procedures used to develop and evaluate various options, including proposed typical sections, preliminary horizontal alignments, and intersection enhancements. The PD&E study meets all applicable requirements, including those of the National Environmental Policy Act (NEPA), to qualify for federal-aid funding for subsequent development phases (design, right-of-way acquisition, and construction).

The project involves evaluating alternative capacity and operational improvements to US 41 from Kracker Avenue (milepoint 15.784) to south of Causeway Boulevard (milepoint 22.791) in Hillsborough County, covering a distance of approximately 7.0 miles. The highway will be upgraded from its current four-lane divided rural and urban facility to a six-lane divided facility. Bridges over Bullfrog Creek and the Alafia River are planned for replacement. The project also includes the evaluation of stormwater management facilities (SMF) and floodplain compensation (FPC) sites. US 41 is a major north-south arterial of regional significance that parallels Interstate 75 (I-75) and US 301 in Hillsborough County, with an existing posted speed limit of 50 miles per hour (mph) in the North Gibsonton area and 55 mph in the areas to the south and north.

As part of the PD&E Study, this *Pond Siting Report* identifies SMF and FPC site alternatives, and includes the analysis for selection of preferred sites. This study analyzed SMF site alternatives that are hydraulically feasible and environmentally permissible based on the best available information. These alternatives were then compared based on potential relocations and community impacts; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; and economic factors including right of way costs.

Planned improvements include widening to six lanes, as well as intersection enhancements, construction of stormwater management facilities (SMF), floodplain compensation facilities (FPC), and multimodal facilities. The planned typical sections include both suburban and urban sections. Additional right-of-way will be required in the North Gibsonton area for the planned improvements. Alternatives to replace the bridges at Bullfrog Creek and the Alafia River were evaluated. Planned typical sections are shown in **Figures 1-4, 1-5, and 1-6**. A "No-Build" Alternative was also evaluated. No future phases for this proposed project are included in FDOT's current adopted 5-year work program (Fiscal Years 16/17 through 20/21).

This evaluation finds that acquisition of right of way for SMF and FPC site will be required. The following matrix indicating the preferred SMF and FPC alternatives:

SMF #	Pond Area (Ac)	*FPC #	Est. Total Cost
1C	1.71	-	$ 809,607.68
2A	2.02	-	$ 128,657.60
3C	6.17	3C	$ 1,230,915.67
4C	2.25	4C	$ 1,771,329.19
5B	5.03	-	$ 1,548,181.63
6A	4.34	-	$3,788,511.61
7A	7.13	-	$ 1,026,486.29
8B	2.00	-	$ 646,343.17
9A/10A	6.35	9A/10A	$ 1,370,898.10
		Total Estimated Cost	**$ 14,274,833.27**

*FPC area is included in pond site area.

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SECTION 1 INTRODUCTION

The objective of the Project Development and Environment (PD&E) study is to assist the Florida Department of Transportation's (FDOT) Office of Environmental Management (OEM) in making a decision on the type, location, and conceptual design of proposed improvements for the widening of US 41 (SR 45) from Kracker Avenue to south of Causeway Boulevard (SR 676). This study documents the need for these improvements, as well as the procedures used to develop and evaluate various options, including proposed typical sections, preliminary horizontal alignments, and intersection enhancements. The PD&E study meets all applicable requirements, including those of the National Environmental Policy Act (NEPA), to qualify for federal-aid funding for subsequent development phases (design, right-of-way acquisition, and construction).

1.1 PROJECT DESCRIPTION

The project involves evaluating alternative capacity and operational improvements to US 41 from Kracker Avenue (milepoint 15.784) to south of Causeway Boulevard (milepoint 22.791) in Hillsborough County, covering a distance of approximately 7.0 miles. The highway will be upgraded from its current four-lane divided rural and urban facility to a six-lane divided facility. Bridges over Bullfrog Creek and the Alafia River are planned for replacement. The project also includes the evaluation of stormwater management facilities (SMF) and floodplain compensation (FPC) sites. US 41 is a major north-south arterial of regional significance that parallels Interstate 75 (I-75) and US 301 in Hillsborough County, with an existing posted speed limit of 50 miles per hour (mph) in the North Gibsonton area and 55 mph in the areas to the south and north. A project location map is provided in **Figure 1-1**.

This project was screened through FDOT's Efficient Transportation Decision Making (ETDM) process as ETDM Project No. 5180. The ETDM Programming Screen Summary Report, published on October 27, 2022, contains comments from the Environmental Technical Advisory Team (ETAT) regarding the project's effects on various natural, physical, and social resources. A Type 2 Categorical Exclusion is the class of action for this PD&E study.

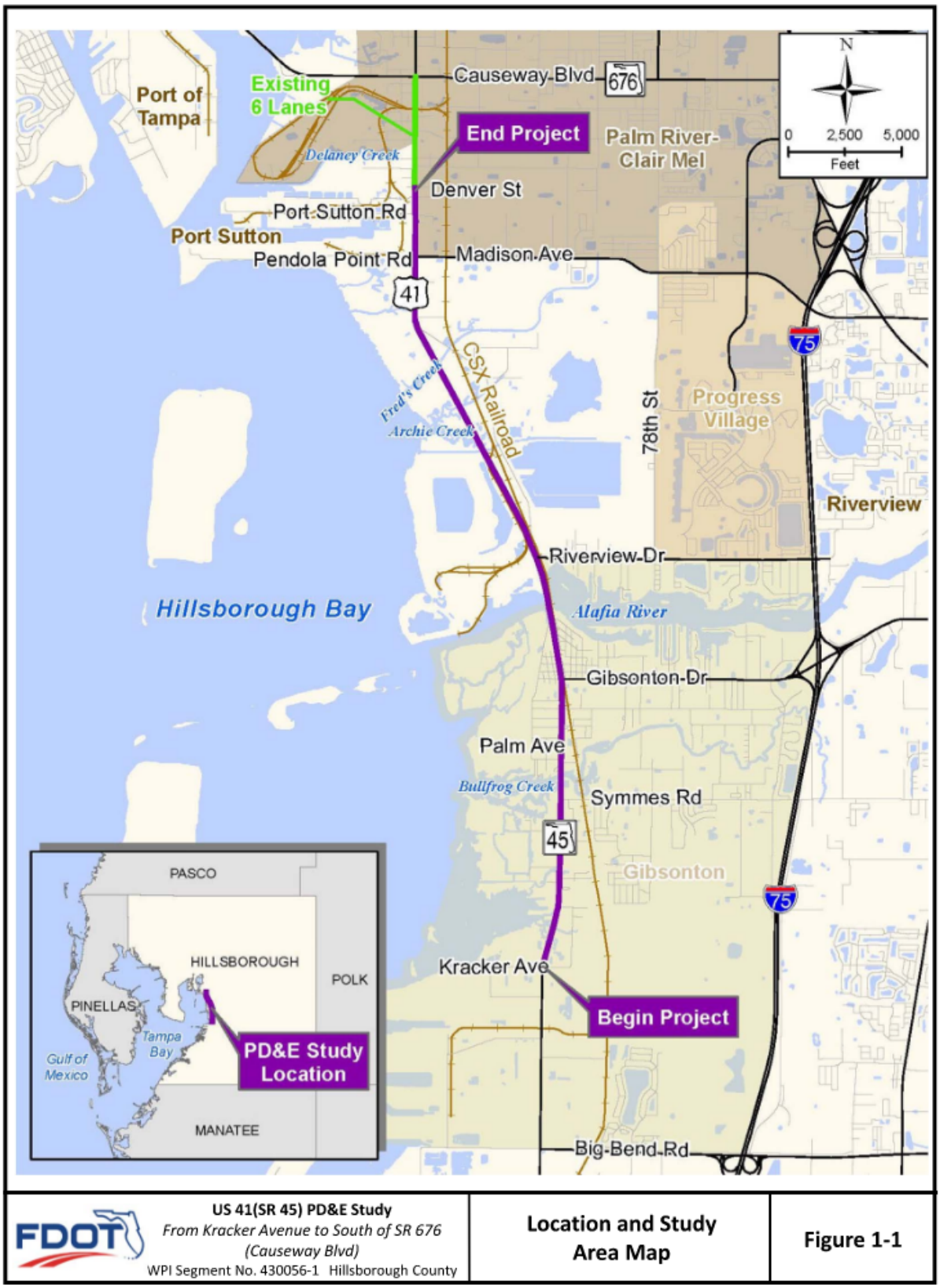


Figure 1-1 Project Location Map

1.2 EXISTING FACILITY AND PROPOSED IMPROVEMENTS

1.2.1 Existing Facility

US 41 currently has both four-lane divided rural and urban typical sections (**Figure 1-2**). Additionally, a 0.9-mile segment near the north end, between Denver Street and SR 676, was previously widened to a six-lane urban section. Existing lane widths vary from 11 to 12 feet, and median widths vary from 19 to 40 feet. The rural typical section areas include 4-foot paved shoulders. The posted speed limit is 50 miles per hour (mph) in the North Gibsonton area and 55 mph in the areas to the south and north. The existing right-of-way width varies from 100 feet in North Gibsonton to 182 feet in the areas to the south and north. Existing bridge typical sections are shown in **Figure 1-2 & Figure 1-3**.

1.2.2 Proposed Improvements

Planned improvements include widening to six lanes, as well as intersection enhancements, construction of stormwater management facilities (SMF), floodplain compensation facilities (FPC), and multimodal facilities. The planned typical sections include both suburban and urban sections. Additional right-of-way will be required in the North Gibsonton area for the planned improvements. Alternatives to replace the bridges at Bullfrog Creek and the Alafia River were evaluated. Planned typical sections are shown in **Figures 1-4, 1-5, and 1-6**. A "No-Build" Alternative was also evaluated. No future phases for this proposed project are included in FDOT's current adopted 5-year work program (Fiscal Years 16/17 through 20/21).

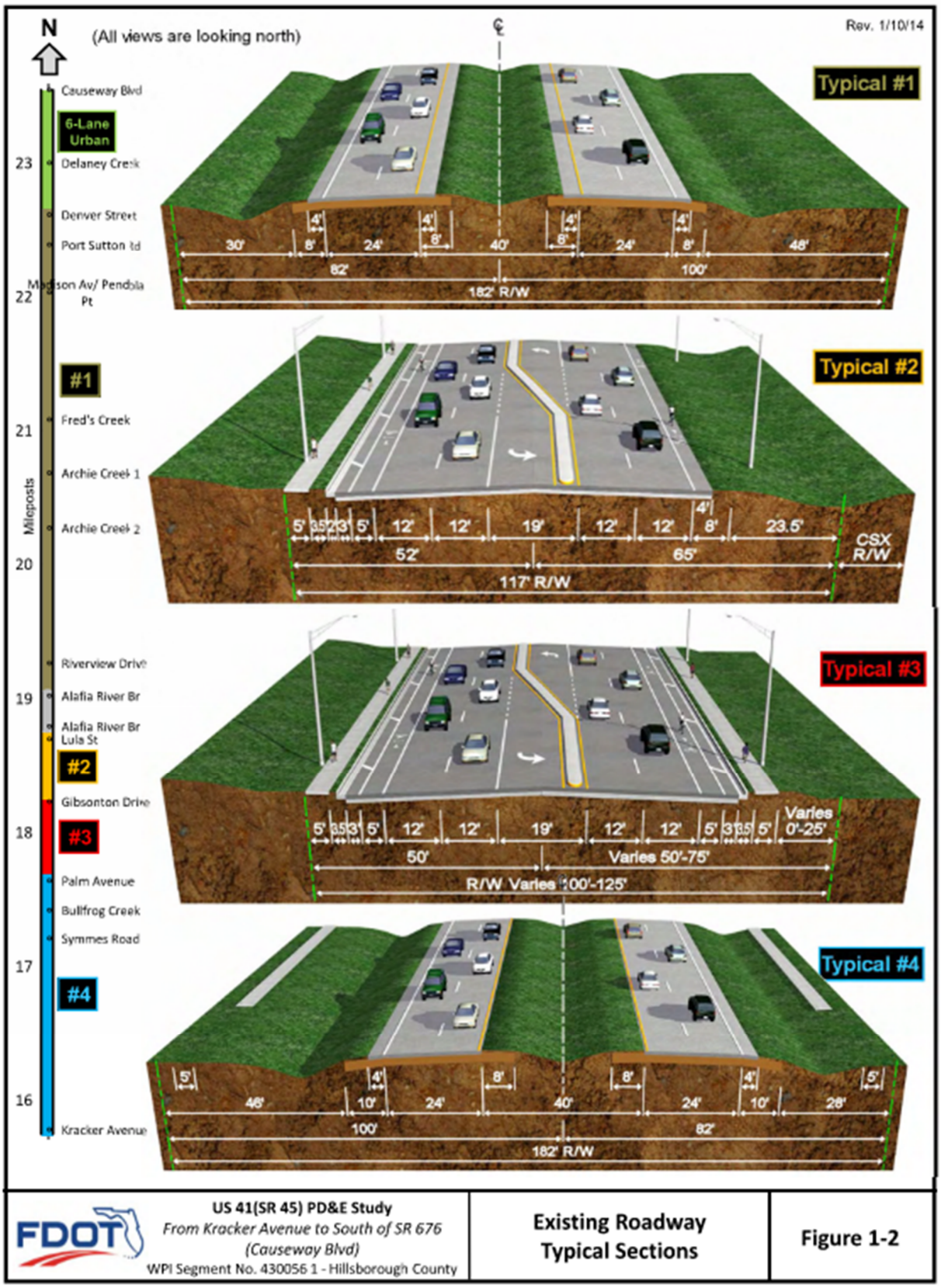


Figure 1-2 Existing roadway typical sections.

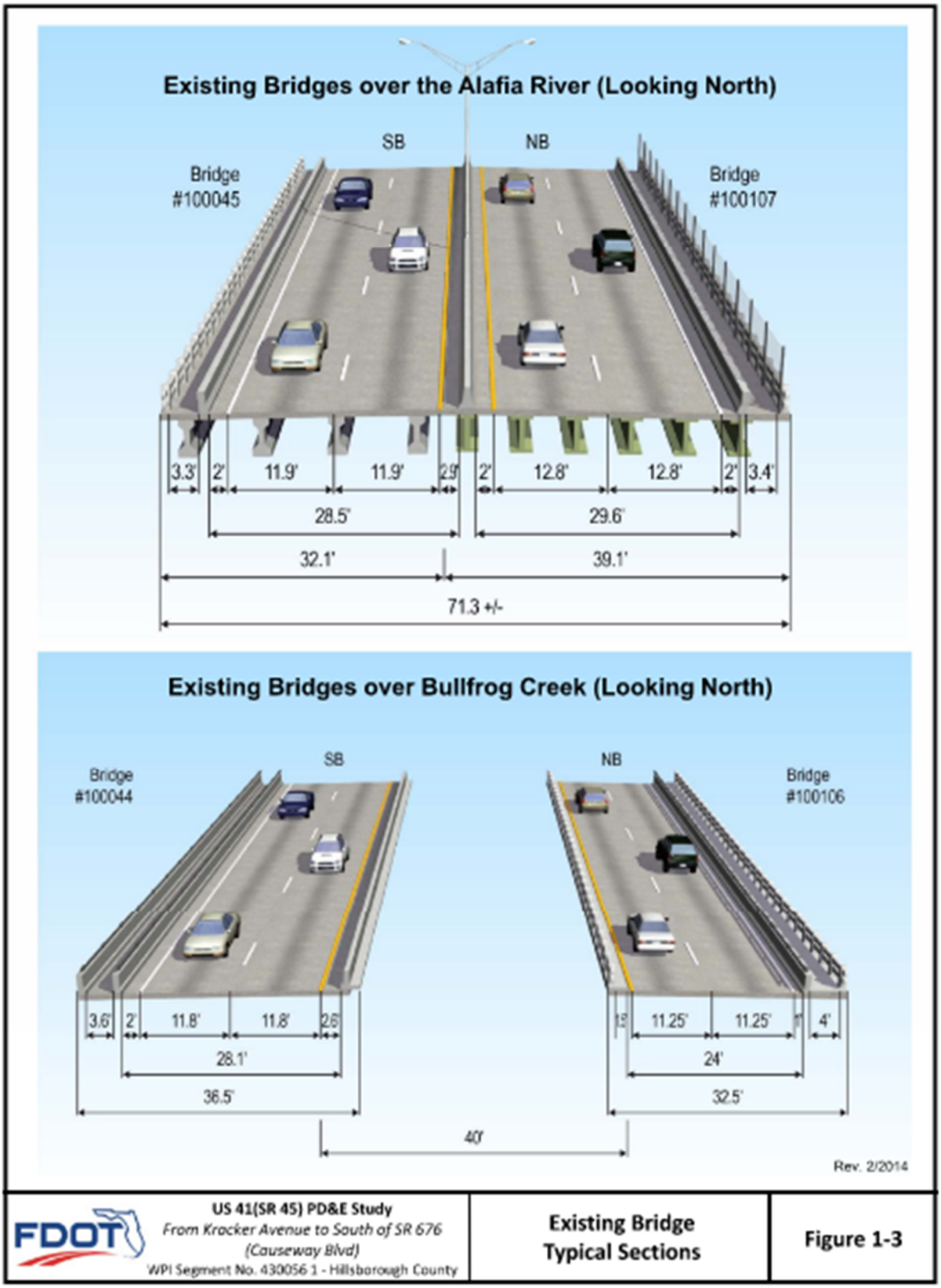


Figure 1-3 Existing bridge typical section.

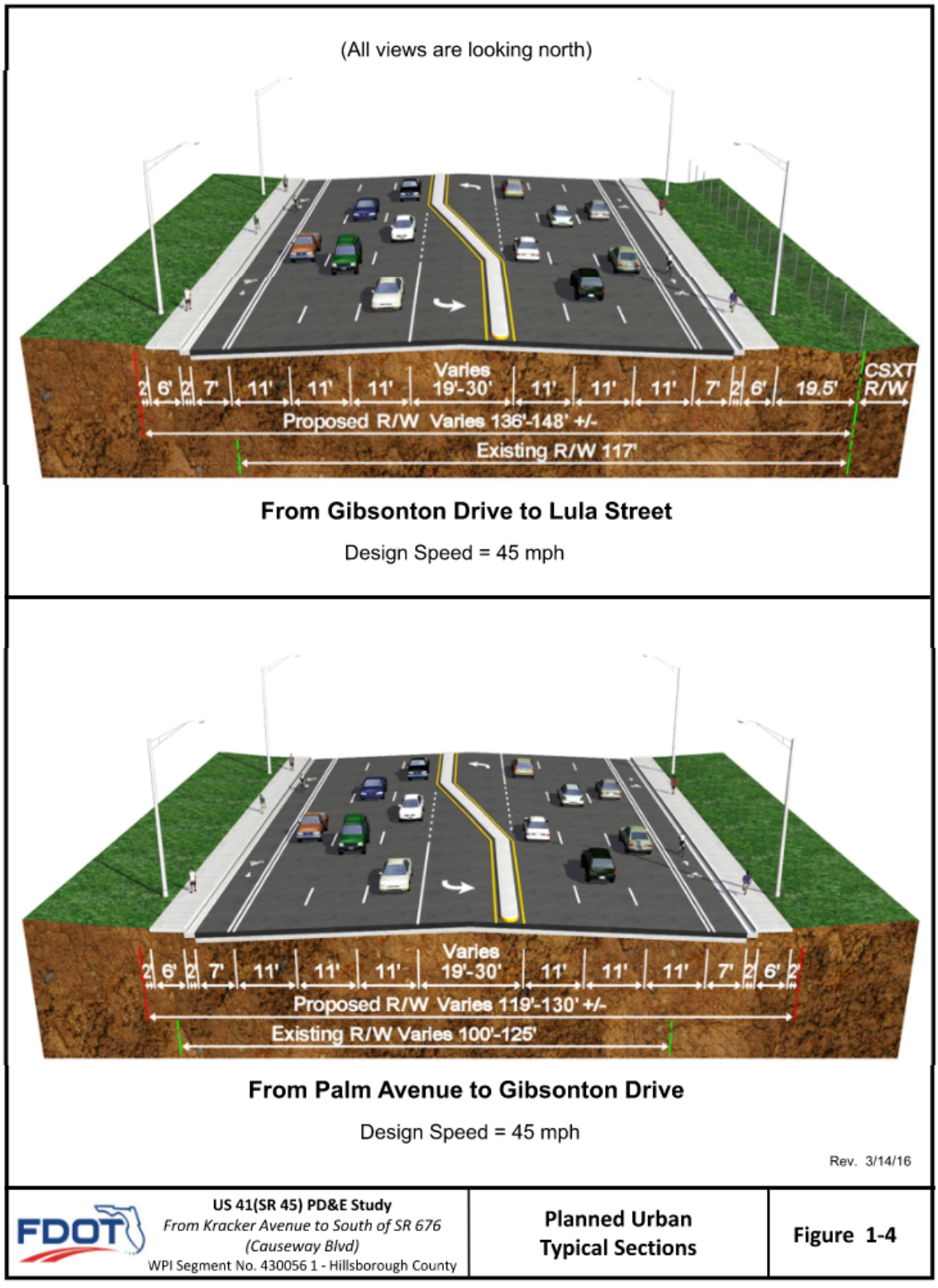


Figure 1-4 Existing bridge typical section.

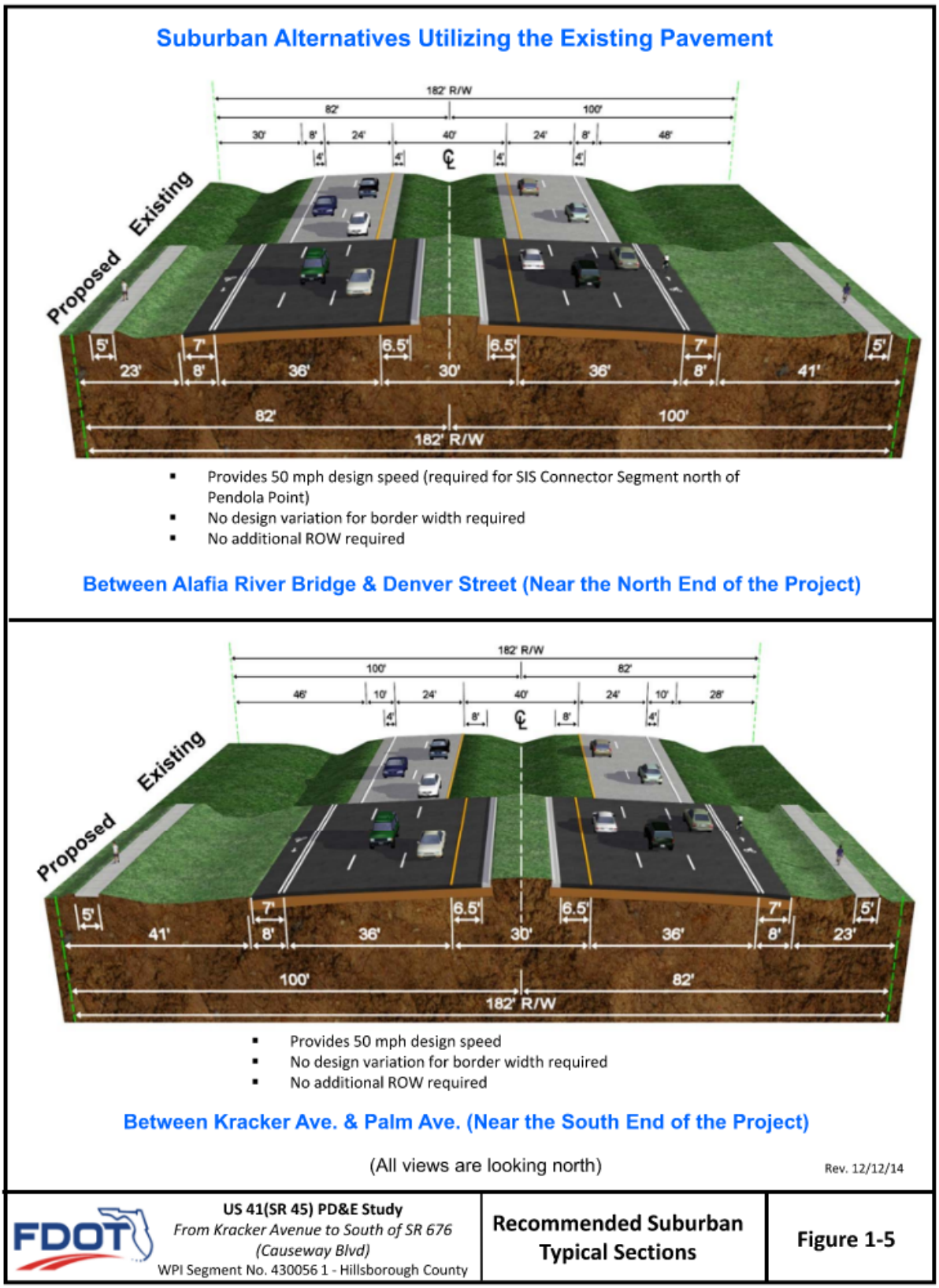
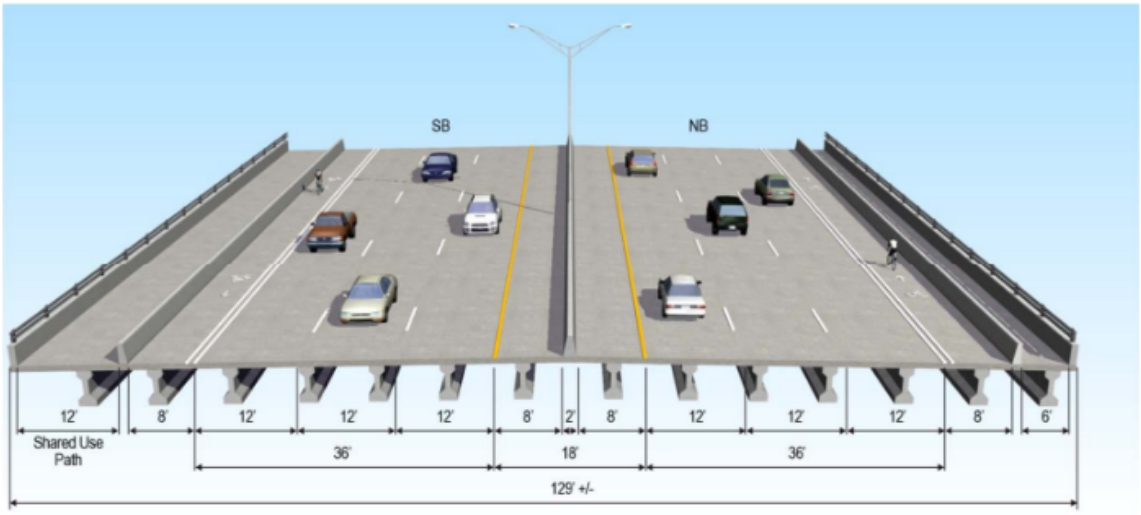


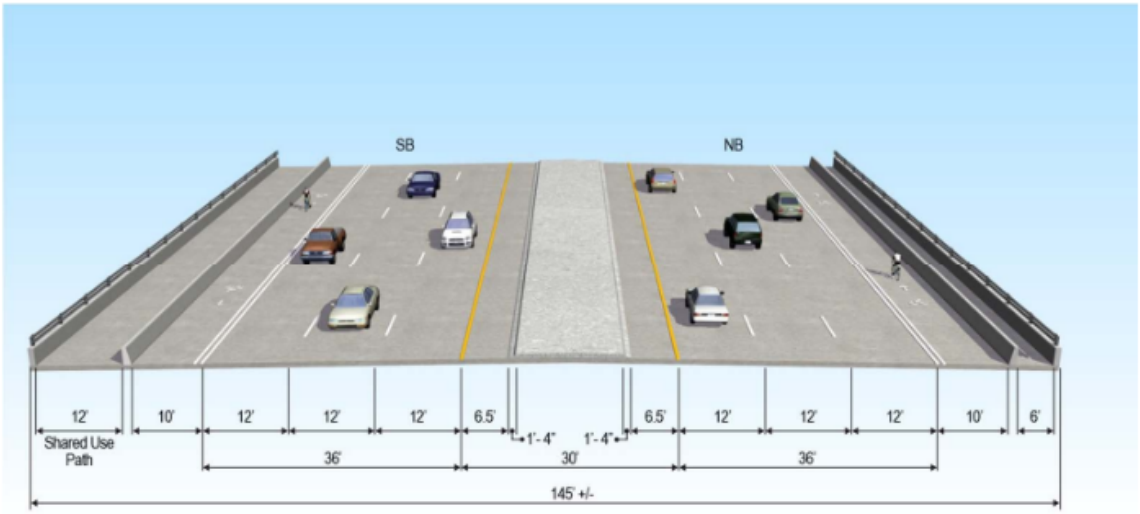
Figure 1-5 Suburban typical sections.

(All views are looking north)



Bridge at Alafia River

Design Speed = 50 mph



Bridge at Bullfrog Creek

Design Speed = 50 mph

Rev. 10/12/16

FDOT **US 41(SR 45) PD&E Study** *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Planned Bridge Typical Sections**	**Figure 1-6**

Figure 1-6 Planned bridge typical sections.

1.3 REPORT PURPOSE

As part of the PD&E Study, this *Pond Siting Report* identifies SMF and FPC site alternatives, and includes the analysis for selection of preferred sites. This study analyzed SMF site alternatives that are hydraulically feasible and environmentally permissible based on the best available information. These alternatives were then compared based on potential relocations and community impacts; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; and economic factors including right of way costs.

SECTION 2 EXISTING CONDITIONS

2.1 SOILS

Per National Natural Resources Conservation Service (NRCS) soils data, soils within the project limits are described by Hillsborough County, as listed in **Table 2-1** below. See **Figure B-1** in **Appendix B** for a map of the soils within the project area.

Table 2-1 USDA Soils

Map #	Soil Name	Hydrologic Group	Depth to High Water Table (ft)	Soil Type	Description
5	Basinger, Holopaw, and Samsula soils	D	+2 – 1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
15	Felda Fine Sand	B/D	0 – 1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-1%
17	Floridana Sand	B/D	0 – 1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-1%
24	Kesson Muck	D	0 – 0.5	Sandy soil	Very poorly drained soil in depressions, slopes 0-1%
27	Malabar Sand	B/D	0 – 1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
29	Myakka sand	B/D	0 – 1.0	Sandy soil	Very poorly drained soil in flatwoods, slopes 0-8%
30	Myakka Sand, frequently flooded	B/D	0 – 1.0	Sandy soil	Very poorly drained soil in flatwoods, slopes 0-8%
38	Pinellas Fine Sand	B/D	0 – 1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
44	St. Augustine Fine Sand	C	1.5 – 3.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-5%
46	St. Johns Sand	B/D	0 – 1.0	Sandy soil	Very poorly drained soil in broad areas, slopes 0-5%
57	Wabasso Fine Sand	B/D	0 – 1.0	Sandy and loamy soil	Very poorly drained soil in flatwoods, slopes 0-2%

2.2 LAND USE

This project lies within Hillsborough County. The existing land use within the project vicinity is a mix of residential, office commecial, mixed use, natural preservation, light industrial, and heavy industrial properties. **Figure B-2** in **Appendix B** displays the various land use types within the project area.

2.3 CROSS DRAINS

There are 12 cross drains within the project limits. See **Table 2-2** for cross drain locations.

Table 2-2 Existing Cross Drains

Cross Drain No.	Mile Post	Description
1	16.038	10'x5' CBC
2	16.123	10'x5' CBC
3	16.620	10'x8' CBC
4	16.989	36" CC
5	18.160	2-36" CC
6	19.211	30" CC
7	21.423	15" CC
8	21.727	36" CC
9	21.779	2-36" CC
10	21.968	2-36" CC
11	22.166	15" CC
12	22.313	10'x7' CBC

2.4 BRIDGE STRUCTURES

There are six (6) bridge pair/bridge culverts within the study limits. See **Table 2-3** for bridge locations.

Table 2-3 Existing Bridge Pair/Bridge Culvert

Bridge No.	Mile Post	Pipe Size/Type & Water Body
100044	17.422 (SB)	Bridge Pair (Bullfrog Creek)
100106	17.422 (NB)	Bridge Pair (Bullfrog Creek)
100045	18.914 (SB)	Bridge Pair (Alafia Creek)
100107	18.914 (NB)	Bridge Pair (Alafia Creek)
100046	20.271	36' Bridge Culvert (Archie Creek)
100047	20.686	31' Bridge Culvert (Archie Creek)
100467	21.084	26' Bridge Culvert (Fred's Creek)
100048	23.003	36' Bridge Culvert (Delaney Creek)

2.5 FLOODPLAINS AND FLOODWAYS

The FEMA Flood Insurance Rate Map (FIRM) panels dated August 28, 2008—12057C0484H, 12057C0482H, 12057C0369H, and 12057C0367H—indicate that the study limits are within Flood Zone AE (El 11.0 ft) from approximately Station 831+00 to approximately Station 840+00 and Zone AE (10.0 ft) for the remainder of the study limits. FEMA maps are provided in **Appendix A**. According to the Southwest Florida Water Management District (SWFWMD), the FEMA elevations are based on storm

surge conditions, and base floodplain impacts will be assessed based on the lower riverine floodplain elevations.

Hillsborough County provided the following studies that establish the base floodplain for the project limits:

- Bullfrog Creek/Wolf Branch Watershed Management Plan, dated October 2000
- Countywide Master Plan Update for the Alafia River Watershed, dated November 2010
- Delaney Creek Area Stormwater Master Plan Update, dated April 2007

Hillsborough County also provided GIS data along with the reports, which identify model node locations and other information. A nodal diagram of the stormwater management model is provided in **Figure B-3** of **Appendix B**, along with excerpts from these reports in **Appendix E**. Floodplain elevations for each project basin are identified in **Table 2-4.** Bullfrog Creek elevations are provided in NGVD 29; however, these elevations have been converted to NAVD 88 using a conversion factor of -0.9.

The project's drainage design will be consistent with local FEMA, FDOT, and Southwest Florida Water Management District (SWFWMD) design guidelines, which state that no net encroachment into the floodplain up to that encompassed by the 100-year event will be allowed if it adversely affects conveyance, storage, water quality, or adjacent lands, and that any required compensating storage shall be equivalently provided. Therefore, no significant changes in base flood elevations or limits will occur.

Table 2-4 Preliminary Floodplain Encroachment Summary

Regional Basins	Project Basin No.	Project Basin Boundaries	Model Node ID	Zone AE-Hillsborough County 100 yr flood EL (ft-NAVD 88) ①
Kitchen Branch	1	Sta 831+00 to Sta 848+90	822100	2.8
	2	Sta 848+90 to Sta 869+91	822000	1.1
Kracker Ave	3	Sta 869+91 to Sta 892+40	821200	5.0
Bullfrog Creek	4	Sta 892+40 to Sta 917+37	810020,810110	5.1
	5	Sta 917+37 to Sta 946+99	810100	5.6
Gibsonton	6	Sta 946+99 to Sta 995+51	700050	1.8
North Prong Alafia R	7	Sta 995+51 to Sta 96+75	280015	3.9
Archie Creek	8	Sta 96+75 to Sta 118+66	260040	4.5
Palm River-Clair Mel	9	Sta 118+66 to Sta 139+67	240040	4.9
	10	Sta 139+67 to Sta 160+58	200305	7.4
Black Point Channel	11	Sta 160+58 to Sta 189+78	200300,200340	5.1
Black Point Drain	12	Sta 189+78 to Sta 208+79	200025	7.6
	13	Sta 208+79 to Sta 220+62	200080	5.5

① The estimated 100-year elevations are taken from Bullfrog Creek/Wolf Branch Watershed Management Plan, Countywide Masterplan Update for the Alafia River Watershed, and the Delany Creek Area Stormwater Master Plan Update.

2.6 EXISTING DRAINAGE PATTERNS

Overall, stormwater within the project area ultimately discharges into Tampa Bay. The US 41 project area is comprised of twelve regional basins:

Basin 1

Basin 1 covers the segment of US 41 from Kracker Avenue to Kitchen Branch at Station 845+65. This basin primarily consists of residential and suburban mixed-use areas. Runoff from US 41 in this basin flows north to Kitchen Branch and then west via open channels to wetlands connected to Tampa Bay.

Basin 2

Basin 2 extends from Kitchen Branch at Station 845+65 to the intersection of Adams Street and US 41 at Station 870+00. This basin primarily consists of suburban mixed-use areas. Runoff from US 41 in this basin flows south to Kitchen Branch and then west via open channels to wetlands connected to Tampa Bay.

Basin 3

Basin 3 extends from the intersection of Adams Street and US 41 at Station 870+00 to the intersection of US 41 and Isabel Avenue at Station 892+60. This basin primarily consists of residential and office commercial areas. Runoff from US 41 in this basin flows north to Dug Creek and then west via Dug Creek, which is connected to Tampa Bay.

Basin 4

Basin 4 covers the area from the intersection of US 41 and Isabel Avenue at Station 892+60 to Bullfrog Creek at Station 917+00. This basin primarily consists of residential and office commercial areas. Runoff from US 41 in this basin flows north to Bullfrog Creek and then west via Bullfrog Creek, which is connected to Tampa Bay.

Basin 5

Basin 5 extends from Bullfrog Creek at Station 917+00 to the intersection of US 41 and Nudy Avenue at Station 946+62. This basin primarily consists of residential and office commercial areas. Runoff from US 41 in this basin flows south to Bullfrog Creek and then west via Bullfrog Creek, which is connected to Tampa Bay. Adjacent to Basins 4 and 5 is the Gibsonton Mitigation Site (ERP 45295.000), a potential mitigation area.

Basin 6

Basin 6 extends from the intersection of US 41 and Nudy Avenue at Station 946+62 to the Alafia River at Station 996+00. This basin primarily consists of residential and office commercial areas. Runoff from US 41 in this basin flows through open channels to a drainage easement at approximately Station 956+00 and then west via the drainage easement, which is connected to Tampa Bay.

Basin 7

Basin 7 extends from the Alafia River at Station 996+00 to Archie Creek South at Station 96+50. Land use within this basin includes natural preservation, residential, and heavy industrial areas. Runoff within this basin flows south to the Alafia River and north to Archie Creek South, both of which are connected to Tampa Bay.

Basin 8

Basin 8 extends from Archie Creek South at Station 96+50 to Archie Creek North at Station 118+50. Land use within this basin includes natural preservation and heavy industrial areas. Runoff within this basin flows south to Archie Creek South and north to Archie Creek North, both of which are connected to Tampa Bay.

Basin 9

Basin 9 extends from Archie Creek North at Station 118+50 to Fred's Creek at Station 138+75. Land use within this basin includes natural preservation and heavy industrial areas. Runoff within this basin flows south to Archie Creek North and north to Fred's Creek, both of which are connected to Tampa Bay.

Basin 10

Basin 10 extends from Fred's Creek at Station 138+75 to just south of the intersection of US 41 and Bloomingdale Avenue at approximately Station 160+00. Land use within this basin is primarily light industrial. Runoff from US 41 in this basin flows south to Fred's Creek, which is connected to Tampa Bay.

Basin 11

Basin 11 extends from just south of the intersection of US 41 and Bloomingdale Avenue at approximately Station 160+00 to the intersection of US 41 and Madison Avenue at Station 189+75. Land use within this basin is primarily light industrial. In the existing condition, runoff collects in the roadway ditches and travels through side drains to one of two interconnected cross drains before outfalling to the west side of US 41 (SR 45) and ultimately into Tampa Bay.

Basin 12

Basin 12 extends from the intersection of US 41 and Madison Avenue at Station 189+75 to the intersection of US 41 and Port Sutton Road at Station 208+79. Land use within this basin includes both light and heavy industrial areas. Runoff from US 41 in this basin is directed to a 10' x 7' box culvert located about 400-feet south of Port Sutton Road and conveyed by open channels to wetlands at Station 205+00, which are connected to Tampa Bay.

Basin 13

Basin 13 extends from the intersection of US 41 and Port Sutton Road at Station 208+79 to the intersection of US 41 and Denver Street at Station 220+62. Land use within this basin includes heavy industrial. Runoff is collected by curb inlets north of Denver Street and piped south to roadway ditches, before outfalling through a 24" cross drain., which ultimately outfall into Tampa Bay.

2.7 EXISTING ENVIRONMENTAL PERMITS

There are multiple existing Southwest Florida Water Management District (SWFWMD) environmental resource permits (ERP) within the project corridor. SWFWMD Permit No. 43044554.000 (US 41 from South of 15th Avenue to South of Bullfrog Creek) and SWFWMD permit No. 43043191.000 (US 41 from North of Bullfrog Creek to Denver Street) provide information on wetland/surface water impacts but no new stormwater water management system is being proposed for either project.

2.8 SPECIAL BASIN CRITERIA

This project is within three watersheds: Delaney Creek, Alafia River, and Bullfrog Creek. The proposed drainage areas are divided into 12 sub-basins. The basin limits and areas are presented in **Appendix A**.

The following **Table 2-5** summarizes the verified Impaired Water Body Identification (WBID) System based on Department of Environmental Protection (DEP) Geographic Information System (GIS) and **Figure 2-1** is the WBID Map. This project is not located within any Outstanding Florida Waters (OFW). The ultimate discharge of the study basins is Tampa Bay.

Table 2-5 Summary of WBIDs.

Regional Basins	Project Basin No.	WBID	Impairments
Kitchen Branch	1	1682	Fecal Coliform, Nutrients (Chlorophyll-a), Dissolved Oxygen (Nutrients and BOD)
	2		
Direct Runoff to Bay	3	1676	Fecal Coliform, Nutrients (Chlorophyll-a), Dissolved Oxygen (Nutrients and BOD)
Bullfrog Creek	4	1666A	Dissolved Oxygen, Nutrients (Chlorophyll-a and Historic Chlorophyll-a)
	5		
Direct Runoff to Bay	6	1664	(1)
North Prong Alafia R	7	1621G	Mercury (in fish tissue), Nutrients (Chlorophyll-a), Dissolved Oxygen
Archie Creek	8	1628A	Fecal Coliform (2)
Unnamed Canal	9	1632	Fecal Coliform (2)
	10		
Black Point Channel	11	1637	(2)
Black Point Drain	12	1636	Fecal Coliform, Dissolved Oxygen (Nutrients and BOD)
	13		

(1) Per discussion with SWFWMD this basin requires pre vs. post nutrient loading analysis since it drains directly to the bay

(2) Per discussion with SWFWMD these basins do not require pre vs. post nutrient loading analysis

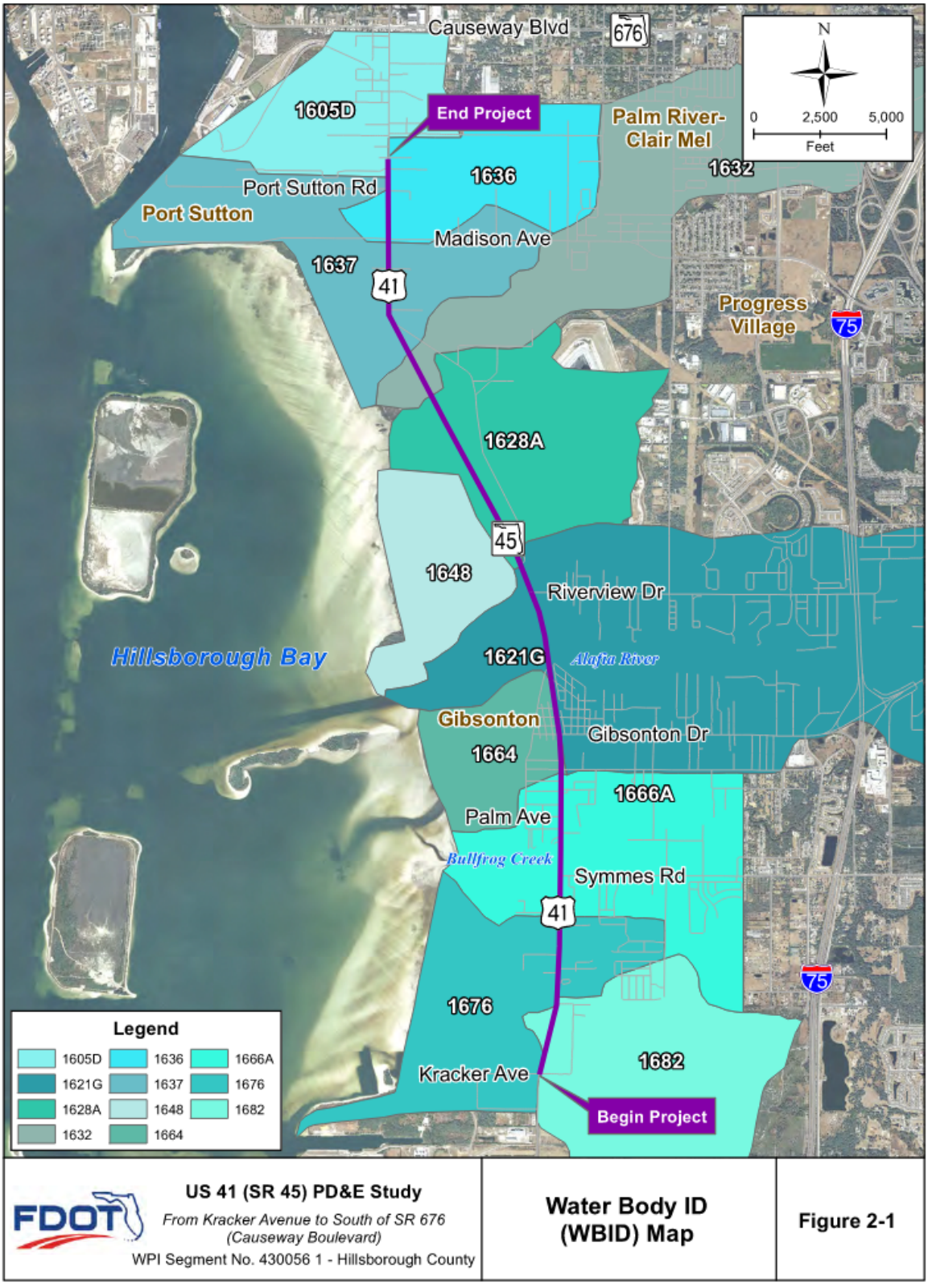


Figure 2-1 US 41 WBID map.

SECTION 3 PROPOSED CONDITIONS

3.1 PROPOSED ROADWAY

The preferred build alternative includes widening the road to six lanes, improving intersections, and constructing stormwater management and floodplain compensation facilities. It also features the addition of buffered bicycle lanes and sidewalks in areas lacking them, along with a shared-use path aligned with the county's South Coast Greenway plans, enhancing accommodation for bicyclists and pedestrians. To implement these improvements, additional right-of-way will be needed in the northern Gibsonton area. Furthermore, the plan calls for replacing the bridges over Bullfrog Creek and the Alafia River, as both are currently functionally obsolete. The new bridges will have wider shoulders and sidewalks. A "No-Build" alternative was also evaluated.

3.2 CROSS DRAINS

The existing twelve (12) cross drains will be extended or replaced as needed to accommodate the new road width. A cross drain analysis will be performed during the design phase of the project.

3.3 BRIDGE STRUCTURES

There are six (6) bridges within the project limits traversing Bullfrog Creek, Alafia River, Archie Creek South, Archie Creek North, Freds Creek, and Delaney Creek.

3.4 FLOODPLAINS AND FLOODWAYS

As discussed in **Section 2.5,** Hillsborough County provided GIS data along with various studies to evaluate potential floodplain impacts. The FEMA Flood Insurance Rates Map was also reviewed. The project limits have been evaluated to determine potential impacts to the base floodplain. Cup for cup compensation has been programed for any fill placed within the riverine floodplain. Alternatively, per discussion with SWFWMD, modeling and documentation could be provided to demonstrate that the fill placed within the riverine floodplain will not adversely affect conveyance, storage, water quality or adjacent lands. Therefore, it is anticipated that much of the floodplain mitigation provisions identified by this evaluation could be eliminated or reduced through more detailed analysis and modeling.

SECTION 4 STORMWATER MANAGEMENT ALTERNATIVES

4.1 STORMWATER MANAGEMENT CRITERIA

The following subsections describe water quality and quantity requirements for the project.

4.1.1 WATER QUALITY

The SWFWMD ERP Applicant's Handbook Vol. II, Part IV – Stormwater Quality identifies water quality treatment criteria.

1. A wet detention treatment system shall treat one inch of runoff from the contributing area.
2. A manmade wet detention system shall include a minimum of 35 percent littoral zone, concentrated at the outfall, for biological assimilation of pollutants. The treatment volume shall be no greater than 18 inches above the control elevation (orifice elevation/SHWL).
3. The wet detention system's treatment volume shall be discharged in no less than 120 hours (5 days) with no more than one-half the total volume being discharged within the first 60 hours (2.5 days).
4. Dry retention treatment shall treat one-half inch of runoff from the contributing pavement area. The total treatment volume shall again be available within 72 hours, however, only that volume which can again be available within 36 hours may be counted as part of the volume required for water quantity storage.

Criterion 1 was utilized to estimate the required water quality for the wet pond. Criteria 2 and 3 will be implemented in final design. Criterion 4 for dry retention ponds is provided as well for the following reason: Due to the impaired status for many of the receiving water bodies it is necessary to demonstrate that the project will not contribute to the impairment through demonstration of no net increase in nutrient loading from the project (pre vs. post nutrient loading comparison). Based on the Nutrient Loading calculations, shown in **Appendix C**, a wet pond would not be capable of meeting requirements for nutrient loading for some basins, therefore dry detention ponds have been considered in the estimation of pond sizing requirements.

4.1.2 DISCHARGE ATTENUATION

The SWFWMD ERP Applicant's Handbook Vol. II, Part III – Stormwater Quantity/Flood Control identifies runoff attenuation and discharge criteria. In general, for basins with a positive outfall, and that do not discharge to an infinite basin, SWFWMD will require the proposed discharge rate from the basin be less than or equal to the existing discharge rate for the 25-yr/24-hr SWFWMD storm event. Additionally, FDOT Criteria requires Florida Administrative Code 14-86 evaluation for closed basins or basins with historical flooding.

The majority of the basins are considered to meet the infinite basin criteria based on conceptual pond outfall locations, as discussed with SWFWMD August 19, 2015, and are not anticipated to require any discharge attenuation.

4.2 AGENCY COORDINATION

A SWFWMD pre-application meeting was held on January 22, 2014 and on August 19, 2015, to discuss the project's environmental, water quality, and water quantity considerations. A Pond Siting Longlist meeting with FDOT District 7 representatives was held on March 11, 2024, to discuss stormwater management facility and floodplain compensation site alternatives. On June 4, 2024 a coordination meeting was held with representatives from Mosaic Fertilizer and the FDOT to discuss potential pond sites on Mosaic owned property. Then on October 29, 2024 a follow up meeting was held with FDOT District 7 representatives to discuss the draft Pond Site matrix and conceptual drainage maps. Meeting minutes for the SWFWMD pre-application meeting, FDOT D7 meetings and Mosaic meeting can be found in Appendix **F**.

4.3 PROJECT STORMWATER MANAGEMENT ALTERNATIVES

4.3.1 STORMWATER MANAGEMENT REQUIREMENTS

Table 4-1, below, summarizes the stormwater management facility alternative pond sites. Supporting calculations are provided in **Appendix C.**

Table 4-1 Stormwater Management Requirements

Basin	Estimated Required. Water Quality Treatment (ac-ft)	Estimated Required Stormwater Management Volume (ac-ft)
1	0.62	1.2
2	0.73	1.5
3	0.78	1.6
4	0.87	1.7
5	1.03	2.1
6	1.69	3.4
7	2.52	5.0
8	0.76	1.5
9	0.73	1.5
10	0.73	1.5

4.3.2 PROPOSED LAND USE

Pre- and post-conditions impervious and pervious coverages were determined by computing impervious and pervious areas of the preferred roadway alternative. **Table 4-2** below summarizes the proposed land use.

Table 4-2 Land Use Summary

Basin	Existing Land Use (Ac)			Proposed Land Use (Ac)		
	Impervious	Pervious	Total	Impervious	Pervious	Total
1	2.53	4.95	7.48	5.15	2.33	7.48
2	2.97	5.81	8.78	6.05	2.73	8.78
3	3.18	6.22	9.40	6.47	2.92	9.40
4	3.53	6.90	10.43	7.19	3.25	10.43
5	4.19	8.19	12.38	8.52	3.85	12.38
6	6.86	13.41	20.27	13.96	6.31	20.27
7	11.68	18.52	30.21	20.81	9.40	30.21
8	3.10	6.06	9.15	6.30	2.85	9.15
9	2.97	5.81	8.78	6.05	2.73	8.78
10	2.96	5.78	8.74	6.02	2.72	8.74
Totals:	43.98	81.64	125.61	86.51	39.10	125.61

4.3.3 BASIN CONSIDERATIONS

The following paragraphs describe the proposed roadway and drainage improvements within each basin associated with the preferred alternative. Existing flow patterns have been maintained, thus the basin divides and station limits are consistent between existing and proposed conditions. All proposed SMF sites alternatives are proposed dry detention ponds and will provide on-line treatment of runoff and are located directly adjacent to the proposed right-of-way associated with the preferred build alternative. Environmental considerations associated with the proposed improvements are discussed in **SECTION 6** of this report. Conceptual Drainage Maps depicting the basins, SMF, and FPC site alternatives are provided in **Appendix A**. Calculations for the SMF alternatives can be found in **Appendix C**.

Basin 1

There are three SMF alternatives identified for Basin 1. The site for SMF 1A would be a partial take of 1.75 ac. vacant acreage parcel along southbound US 41, north of Kracker Avenue. While SMF 1C would be a whole take of a 1.71 ac. vacant residential parcel at the northwest corner of US 41 and Kracker Avenue. An alternative SMF 1B was identified but eliminated based on the results of the Cultural Resources Assessment Survey (CRAS) Report for a moderate zone of archaeological potential (ZAP) for prehistoric archaeological in the Florida Master Site File (FMSF) records (8HI00036).

SMF 1C is the preferred alternative for Basin 1.

Basin 2

There are three SMF alternatives identified for Basin 2. SMF 2A and SMF 2B, would be a whole take of vacant commercial parcel of 2.02 ac. and 2.25 ac., respectively west of US 41 at Ohio Street. An alternative SMF 2C was identified but eliminated based on the results of the CRAS Report for a high ZAP for prehistoric archaeological in the FMSF records (8HI00035).

SMF 2A is the preferred alternative for Basin 2.

Basin 3

There are three SMF/FPC alternatives pairs identified for Basin 3. SMF/FPC-3A, SMF/FPC-3B, SMF/FPC-3C would be a whole take of 3.57 ac., 5.21 ac., and 6.17 ac., respectively. SMF/FPC-3A is a combination of a commercial and manufactured home parcel on the northwest corner of US 41 and Adams Street with outfall to Dug Creek. This alternative will require the potential relocation of one business and one residence. SMF/FPC-3B is an equipment storage parcel with a 20 foot easement included to access parcel west of US 41 requiring the potential relocation of a business. SMF/FPC-3C is a county owned property west of US 41, with conveyance to the pond provided along Florence Street.

SMF/FPC 3C is the preferred alternative for Basin 3.

Basin 4

There are three SMF/ FPC alternatives pairs identified for Basin 4. SMF/FPC-4A is a partially take of a 2.63 ac. of a commercial parcel at the southwest corner of US 41 and Symmes Road requiring a business relocation. SMF/FPC-4B and SMF/FPC-4C would be a whole take of 2.86 ac. and 2.28 ac., respectively. SMF/FPC-4B is a combination of a vacant residential and manufactured home parcel requiring a residential relocation and SMF/FPC-4C is a commercial office parcel. Both alternatives are west of US 41 and Nena Avenue. Conveyance to these alternatives are along Nena Avenue.

SMF/FPC 4C is the preferred alternative for Basin 4 since there are no potential relocations involved.

Basin 5

There are two hydraulically feasible SMF alternatives identified for Basin 5. SMF 5A is a whole take of a combination of parcels totaling 4.97 ac at the southeast corner of Beach Avenue and US 41. SMF 5B is a whole take of a 5.03 ac. residential parcel at the northeast corner of Lula Street and Cedar Avenue.

SMF 5B is the preferred alternative for Basin 5.

Basin 6

There are four SMF alternatives identified for Basin 6. SMF 6A is a partial take of 4.34 ac. of a 9.13 ac. lot at the northeast corner of Lula Street and Lewis Avenue. Additionally, a 50 feet wide access easement will be needed for conveyance to the pond site. SMF 6B is a whole take of a 6.86 ac. residential parcel east of the CSX Railroad track on the northeast corner of US 41 and Nundy Avenue. Then SMF 6C alternative is a combination of vacant residential parcels and a county owned parcel. This alternative would expand the existing county owned pond into the residential parcels to the north and south. Conveyance from these parcels for alternative SMF 6B and 6C would be through a jack and bore under the CSX Railroad track and would require extensive coordination, flagging, permits, and easements. The SMF 6D alternative is a combination of SMF 6D1 and SMF 6D2. SMF 6D1 is a whole take of two commercial parcels on the southeast corner of US 41 and Nundy Avenue totaling 1.20 ac. This alternative would require a potential business relocation. SMF 6D2 is a whole take of a 1.41 ac.

vacant residential parcel on the northeast of corner of US 41 and Nundy Avenue owned by Mosaic Fertilizer LLC.

SMF 6A is the preferred alternative for Basin 6.

Basin 7

In Basin 7, all the adjacent properties are owned by Mosaic Fertilizer. There are two SMF alternatives identified for the Basin . SMF 7A is adjacent to the northbound travel lane, just north of the intersection of Old US Highway 41A. The SMF is only proposed to be constructed on portion of the parcel not to conflict with the Water piping for the Mosaic Plant. The parcel is a 15.24 ac. partial take of the Mosaic property. SMF 7B is a 5 ac. partial take of the Mosaic Property at the intersection of US 41 and Riverview Drive. Both sites have been cleared by Mosaic as not being in conflict with future expansion of the Gypsum Plant.

SMF 7A is the preferred alternative for Basin 7.

Basin 8

In Basin 8, there are two SMF alternatives identified for the Basin that are hydraulically feasible. SMF 8A and 8B are adjacent to US 41 between Archie Creek South and North. Both SMF are a partial take of the Mosaic Property of 4.13 ac. and 2.00 ac., respectively. Mosaic identified that both of these site are most likely not in conflict with future expansion of the Gypsum Plant operations.

SMF 8B is the preferred alternative for Basin 8.

Basin 9

In Basin 9, there is only one combined alternative for SMF/FPC-9A/10A requiring a 6.34 ac. partial take. The pond site is located south of Fred's Creek and north of Archie Creek North. This combined alternative will provide compensation for Basin 10.

SMF/FPC-9A/10A is the preferred alternative for Basin 9.

Basin 10

All of the adjacent property in Basin 10 is owned by Mosaic Fertilizer and is part of the Archie Creek maintenance program. SMF 10A will be compensated for in Basin 9.

Basin 11-13

The pond siting alternatives for these basins are currently being evaluated by others under FPID No. 430056-2-52-01. The proposed preferred pond site alternative has been included on conceptual drainage maps in **Appendix A**.

SECTION 5 FLOODPLAIN COMPENSATION SITE ALTERNATIVES

5.1 FLOODPLAIN COMPENSATION REQUIREMENTS

The improvements proposed within the preferred roadway alternative will require fill to be placed with the floodplain. These encroachments are listed in

Table 5-1 below.

Table 5-1 Floodplain Encroachment Summary

Basin #/FPC Site No.	Project Basin Boundaries	Estimated Floodplain Encroachment Area (ac) ①	Estimated Floodplain Encroachment Volume (ac-ft) ②④	Estimated Floodplain Compensation (FPC) Site Area (ac) ③
1	Sta. 831+00.00 to Sta 848+90.00	Above 100 yr floodplain		
2	Sta 848+90.00 to Sta. 869+91.00	Above 100 yr floodplain		
3	Sta. 869+91.00 to Sta. 892+40.00	2.74	1.37	1.71
4	Sta. 892+40.00 to Sta. 917+37.00	0.56	0.28	0.35
5	Sta. 917+37.00 to Sta. 946+99.00	Above 100 yr floodplain		
6	Sta. 946+99.00 to Sta. 995+51.00	Above 100 yr floodplain		
7	Sta. 995+51.00 to Sta. 1034+11.00 Sta. 63+05.00 to Sta. 96+75.00	Above 100 yr floodplain		
8	Sta. 96+75.00 to Sta. 118+66.00	Above 100 yr floodplain		
9	Sta. 118+66.00 to Sta. 139+67.00	Above 100 yr floodplain		
10	Sta. 139+67.00 to Sta. 160+58.00	2.54	5.08	6.35
11	Sta. 160+58.00 to Sta. 189+78.00	3.13	1.57	1.96
12	Sta. 189+78.00 to Sta. 208+79.00	2.31	2.31	2.89
13	Sta. 208+79.00 to Sta. 220+62.00	Above 100 yr floodplain		

①The estimated floodplain encroachment area is based on a 26.5 ft width per the length of encroachment per side.

②An estimated fill depth based on contour data and the average depth was estimated per basin.

③An estimated of 1.25 determined the FPC site area.

④See Appendix C (Floodplain Encroachment and Compensation Calculation Summary) for Calculations.

5.2 FLOODPLAIN CONSIDERATIONS

The following paragraphs describe the FPC site alternatives for the preferred build alternative. Environmental considerations associated with the proposed improvements are discussed in **SECTION** 6 of this report. Conceptual Drainage Maps depicting the FPC site alternatives are provided in **Appendix A.** Calculations for the FPC alternatives can be found in **Appendix C.**

FPC-3A

FPC-3A is located on the same 3.57-acre residential parcel as SMF 3A between Adams Street and Mabrey Avenue, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 3A has a required

volume of 1.37 ac-ft and provides an estimated 1.768 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-3B

FPC-3B is located on the same 5.21-acre commercial parcel as SMF 3B between Mabrey Avenue and Bucket Court, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 3B has a required volume of 1.37 ac-ft and provides an estimated 3.039 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-3C

FPC-3C is located on the same 6.17-acre commercial parcel as SMF 3C between Mabrey Avenue and Bucket Court, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 3C has a required volume of 1.37 ac-ft and provides an estimated 5.257 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-4A

FPC-4A is located on the same 2.63-acre commercial parcel as SMF 4A between Nena Avenue and Symmes Road, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 4A has a required volume of 1.3 ac-ft and provides an estimated 0.425 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-4B

FPC-4B is located on the same 2.36-acre residential parcel as SMF 4B between Isabel Avenue and Nena Avenue, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 4B has a required volume of 1.3 ac-ft and provides an estimated 0.527 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-4C

FPC-4C is located on the same 1.94-acre residential parcel as SMF 4C between Isabel Avenue and Nena Avenue, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 4C has a required volume of 1.3 ac-ft and provides an estimated 0.504 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis.

FPC-10A

FPC-10A is located on the same 6.35-acre 1as SMF 10A between Archie Creek North and Fred's Creek, on the west side of US 41. This parcel is directly connected to the floodplain associated with the encroachments. The FPC is in FEMA flood zone elevation 10 ft-NAVD. FPC 10A has a required volume

of 5.08 ac-ft and provides an estimated 6.999 ac-ft of storage volume. Compensation for the floodplain encroachments would be evaluated on a cup-for-cup basis. Other FPC sites were not considered because there were no hydraulically connected sites that were feasible within the encroached Floodplain.

SECTION 6 ENVIRONMENTAL CONSIDERATIONS

The following sections identify and discuss environmental considerations.

6.1 WETLANDS/SURFACE WATER

The proposed Build Alternative would result in approximately 1.29 acres of wetland and 2.12 acres of surface water impacts based on the proposed conceptual design. The majority of the surface water impacts will result from the extension of existing culverts and the replacement of the bridges over Bullfrog Creek and the Alafia River. Wetland mitigation options include compensation pursuant to 373.4137, Florida Statutes (F.S.), purchase of wetland mitigation credits through an approved mitigation bank, potential projects in association with Hillsborough County, or creation, restoration or enhancement of wetlands within the project watersheds. The mitigation will satisfy the requirements of Part IV, Chapter 373, F.S. and 33 United States Code (U.S.C.) 1344.

6.2 SOCIO-CULTURAL FEATURES

Social and economic effects are anticipated to be minimal. There are no planned changes to land use nor aesthetics. Economic conditions may be enhanced through the enhanced mobility

6.3 HISTORIC

The study methodology included a review of FMSF records, NRHP listings, relevant CRAS reports, the U.S. Department of Agriculture's (USDA) Soil Survey of Hillsborough County (USDA 1989), as well as the United States Geological Survey (USGS) Tampa and Gibsonton quadrangle maps (USGS 1944, 1956). Relevant CRAS reports included over 39 CRAS reports conducted within one mile of the pond sites including the previously prepared CRAS: Cultural Resource Assessment Survey US 41 (SR 45) from Kracker Avenue to South of SR 676 (Causeway Boulevard), Project Development and Environment (PD&E) Study, Hillsborough County, Florida (ACI 2013b).

As a result of the preliminary study, the FMSF search indicated that 24 previously recorded archaeological sites are located within one half mile of the proposed pond sites; of these, one site is situated within SMF 2B (8HI00035) and another archaeological site is adjacent to SMF 1B (8HI00036). Both sites are shell midden type sites that have not been evaluated by the State Historic Preservation Officer (SHPO). Based on the Updated Archaeological Site Predictive Model for the Unincorporated Areas of Hillsborough County, Florida (Janus Research 2004), most pond sites are located within moderate sensitivity areas, indicating a moderate potential for the discovery of new sites. Some areas, particularly along mouths of rivers and/or creeks (Alafia River and Bullfrog Creek), have a higher potential for archaeological sites. However, many of the proposed pond sites are characterized by land alteration and highly disturbed soil conditions. Thus, the proposed ponds sites had variable site potential.

The historical background research, including a review of the FMSF and the NRHP digital databases, revealed that sixteen (16) historic resources have been previously recorded within the 150-foot (ft)

buffer to the proposed pond sites and easements, fourteen (14) of which are currently extant. The 14 extant previously recorded resources include ten (10) buildings (8HI12024, 8HI12034, 8HI12036, 8HI12037, 8HI12045, 8HI12046, 8HI12047, 8HI12053, 8HI12054, 8HI12070), three (3) linear resources (8HI12126, 8HI10237, 8HI12129), and one (1) building complex (8HI12120); of these, 13 were determined ineligible for listing in the NRHP by the SHPO. One linear resource, an approximate 1.5-mile segment of the CSX Railroad (8HI10237), was determined eligible for listing in the NRHP by the SHPO under Criterion A in the area of Community Planning and Development and Transportation (ACI 2013a). The previously recorded segment of the railroad is located immediately adjacent to the proposed ponds SMF 6B, SMF 6C, SMF 7B, and SMF 7A and unrecorded segments are located immediately adjacent to proposed ponds SMF 5A and FPC 9A. A review of relevant historic USGS quadrangle maps, historic aerial photographs, and the Hillsborough County property appraiser's website data revealed the potential for 36 new historic resources, 45 years of age or older (constructed in 1979 or earlier), within the 150-ft buffer of each proposed pond site and easement (Henriquez 2024).

A desktop review was done by Anna Geismar at the FDOT of the preferred ponds (SMFs 1C, 2A, 3C, 4B, 5B, 6C, 7A, 8B, and 9A) and FPC sites 3C and 4B. There are no known archaeological or historic concerns with these properties, and they seem unlikely to contain important archaeological deposits. No proposed pond site should be avoided due to cultural resource issues. However, following the selection of preferred pond sites, systematic archaeological field survey is recommended as is a historic/architectural field survey.

6.4 PARKS AND RECREATION

There are no effects to protected properties pursuant to Section 4(f) of the USDOT Act of 1966, Section 6(f) of the Land and Water Conservation Fund of 1965, nor other recreational or protected lands.

6.5 THREATENED AND ENDANGERED SPECIES

After SMF and FPC site alternatives were identified, desktop and field reviews were conducted for the study limits and compiled into the Natural Resources Evaluation (NRE). The NRE documented all potential involvement of species and wetlands within the project area. The project will not have significant impacts on natural resources. There are several listed species that may be present, or their habitat may be present, but the effect determination of may affect, not likely to affect was made for these species including the following Federal Listed faunal and floral species: tricolored bat, eastern black rail, everglade snail kite, Florida scrub-jay, rufa red knot, whooping crane, eastern indigo snake, and pygmy fringe-tree. A no adverse effect is anticipated for the following listed faunal species: West Indian manatee, crested caracara, bald eagle, wood stork, American crocodile, hawksbill sea turtle, and leatherback sea turtle. The proposed SMF and FPC sites are not likely to impact any federal and state listed flora/fauna species

6.6 HAZARDOUS MATERIAL AND CONTAMINATION IMPACT

After SMF and FPC site alternatives were identified, desktop and field reviews were conducted for the study limits and compiled into the Contamination Screening Evaluation Report (CSER). The assignment of a contamination risk rating was based on the current and past presence of contamination and the potential of contamination to be encountered during proposed roadway activities and the potential impact on roadway construction. The contamination risk rating system is divided into four degrees of risk including No Risk, Low Risk, Medium Risk, and High Risk. The risk ratings are defined by the FDOT PD&E Manual. There were ten potential contamination sites identified as High Risk, nine potential contamination sites identified as Medium Risk, 23 potential contamination sites identified as Low Risk, and six sites identified as No Risk for contamination involvement. There is one potential medium risk site located directly on SMF 4A. There are two medium risk potential contamination sites identified immediately adjacent to proposed SMF locations: SMF 6B and SMF 6C.

SECTION 7 SUMMARY AND RECOMMENDATIONS

This evaluation finds that acquisition of right of way for SMF and FPC site will be required. **Table 7-1** presents a matrix indicating the preferred SMF and FPC alternatives (highlighted in yellow).

Refer to **Appendix D** for the Engineer's Estimate for each alternative, and **Appendix E/Table 7-1** for the ROW estimates for each SMF and FPC sites.

Table 7-1 Preferred SMF and FPC Site Matrix

SMF #	Pond Area (Ac)	FPC #	FPC Area (Ac)	Conveyance Easement (Ac)	Est. Wetland Impacts (Ac)	Probability of Species Occurrence	Contamination	Cultural Resources[4]	Potential Relocations[1]	Est. Construction Cost[2]	Est. Wetland Mitigation Cost	Est. Right of Way Cost SMF	Est. Total Cost	Comments
1A	1.75	-	-	-	-	Low	Low	Low-Moderate	--	$ 89,673.64	$ -	$2,110,300.00	$ 2,199,973.64	
1B	1.32	-	-	-	-	Low	Low	Moderate (8HI00036)	--	$ 95,653.58	$ -	$ 494,000	$ 589,653.58	Removed based on CRAS
1C	1.71	-	-	-	-	Low	Low	Low-Moderate	--	$ 100,107.68	$ -	$ 709,500	$ 809,607.68	Preferred Alternative
2A	2.02	-	-	-	-	Low	Low	Low-Moderate	--	$ 128,657.60	$ -	$ 1,247,200	$ 1,375,857.60	Preferred Alternative
2B	2.25	-	-	-	-	Low	Low	Moderate-High	--	$ 211,880.36	$ -	$ 1,972,300	$ 2,184,180.36	
2C	3.54	-	-	-	0.1	Low	Low	High (8HI00035)	--	$ 457,092.95	$ -	$ 1,932,800	$ 2,389,892.95	Removed based on CRAS
3A	3.57	3A	[3]	-	-	Low	Low	Low-Moderate	1R + 1B	$ 132,700.33	$ -	$ 3,208,900	$ 3,341,600.33	
3B	5.21	3B	[3]	0.32	-	Low	Low	Low	1B	$ 417,726.58	$ -	$ 2,175,200	$ 2,592,926.58	
3C	6.17	3C	[3]	-	-	Low	Low	Low-Moderate	--	$ 480,415.67	$ -	$ 750,500	$ 1,230,915.67	Preferred Alternative
4A	2.63	4A	[3]	-	-	Low	Medium	Low-Moderate	1B	$ 181,189.63	$ -	$ 1,880,100	$ 2,061,289.63	
4B	2.86	4B	[3]	-	-	Low	Low	Low	1R	$ 383,015.54	$ -	$ 1,109,000	$ 1,492,015.54	
4C	2.25	4C	[3]	-	-	Low	Low	Low-Moderate	--	$ 84,951.87	$ -	$ 1,642,000	$ 1,726,951.87	Preferred Alternative
5A	4.97	-	-	-	-	Low	Low	Low-Moderate	1R + 1B	$ 373,615.32	$ -	$ 2,373,900	$ 2,747,515.32	
5B	5.03	-	-	-	-	Low	Low	Low	--	$ 569,481.63	$ -	$ 978,700	$ 1,548,181.63	Preferred Alternative
6A	4.34	-	-	0.68	-	Low	Low	Low-Moderate	1B	$ 526,411.61	$ -	$ 3,262,100	$ 3,788,511.61	Preferred Alternative
6B[5]	6.86	-	-	-	-	Low	Medium	Low	1B	$1,271,159.98	$ -	$ 2,693,600	$ 3,964,759.98	Involves CSX Coordination
6C[5]	2.41	-	-	-	-	Low	Medium	Low	--	$1,677,237.73	$ -	$ 742,100	$ 2,419,337.73	Involves CSX Coordination
6D1	1.2	-	-	-	-	Low	Medium	Low	1B	$ 122,011.50	$ -	$ 5,295,500	$ 5,515,129.13	
6D2	1.41	-	-	-	-	Low	Medium	Low	--	$ 97,617.63	$ -			
7A	7.13	-	-	-	1.63	Low	Low	Low	--	$ 366,165.95	$ -	$ 1,411,400	$ 1,777,565.95	Preferred Alternative
7B	5.00	-	-	-	-	Low	Low	Moderate	--	$ 268,411.57	$ -	$ 1,863,400	$ 2,131,811.57	
8A	4.13		-	-	-	Low	No	Low	--	$ 297,280.94	$ -	$ 483,200	$ 780,480.94	
8B	2.00	-	-	-	0.25	Low	No	Low	--	$ 174,043.17	$ -	$ 472,300	$ 646,343.17	Preferred Alternative
9A/10A	6.35	10A	-	-	-	Low	No	Low	--	$ 171,598.10	$ -	$ 1,199,300	$ 1,370,898.10	Preferred Alternative

Notes:

[1] R = Residential; B = Business – (the business relocations are for landlord business for the residential relocations)
[2] Engineer's Estimate of Construction Cost provided in Appendix D.
[3] FPC cost included in R/W area.
[4] All cultural resources ratings for historic archaeological potential are "Low"; The ratings listed are for prehistoric archaeological potential.
[5] SMF 6B and 6C include a $1,000,000 construction cost to account for expenses associated with the CSX Railroad crossing, including but not limited to coordination, flagging, permits, and easements. The actual cost may be significantly higher depending on the required easement.

APPENDICES

APPENDIX A CONCEPTUAL DRAINAGE MAPS AND FEMA FIRM MAPS
APPENDIX B FIGURES
APPENDIX C CALCULATIONS
APPENDIX D ENGINEER'S ESTIMATE OF CONSTRUCTION COST
APPENDIX E SUPPORTING DOCUMENTATION
APPENDIX F MEETING MINUTES

APPENDIX A

Conceptual Drainage Maps and FEMA FIRM MAPS

Block 12500

HOUSE

SMF 1C
1.71 AC.

SMF 1A
1.75 AC.

BEGIN PROJECT

45 41

835

830

PER
PD&E STUDY
WPI No.: 421140-8

PROP. ROW BY OTHERS

C

SPEED LIMIT 55

MOBILE HOME PARK

RV CONSIGNMENT

BASIN 1

MATCH LINE STA. 840+00.00

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 1

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LEGEND

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- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

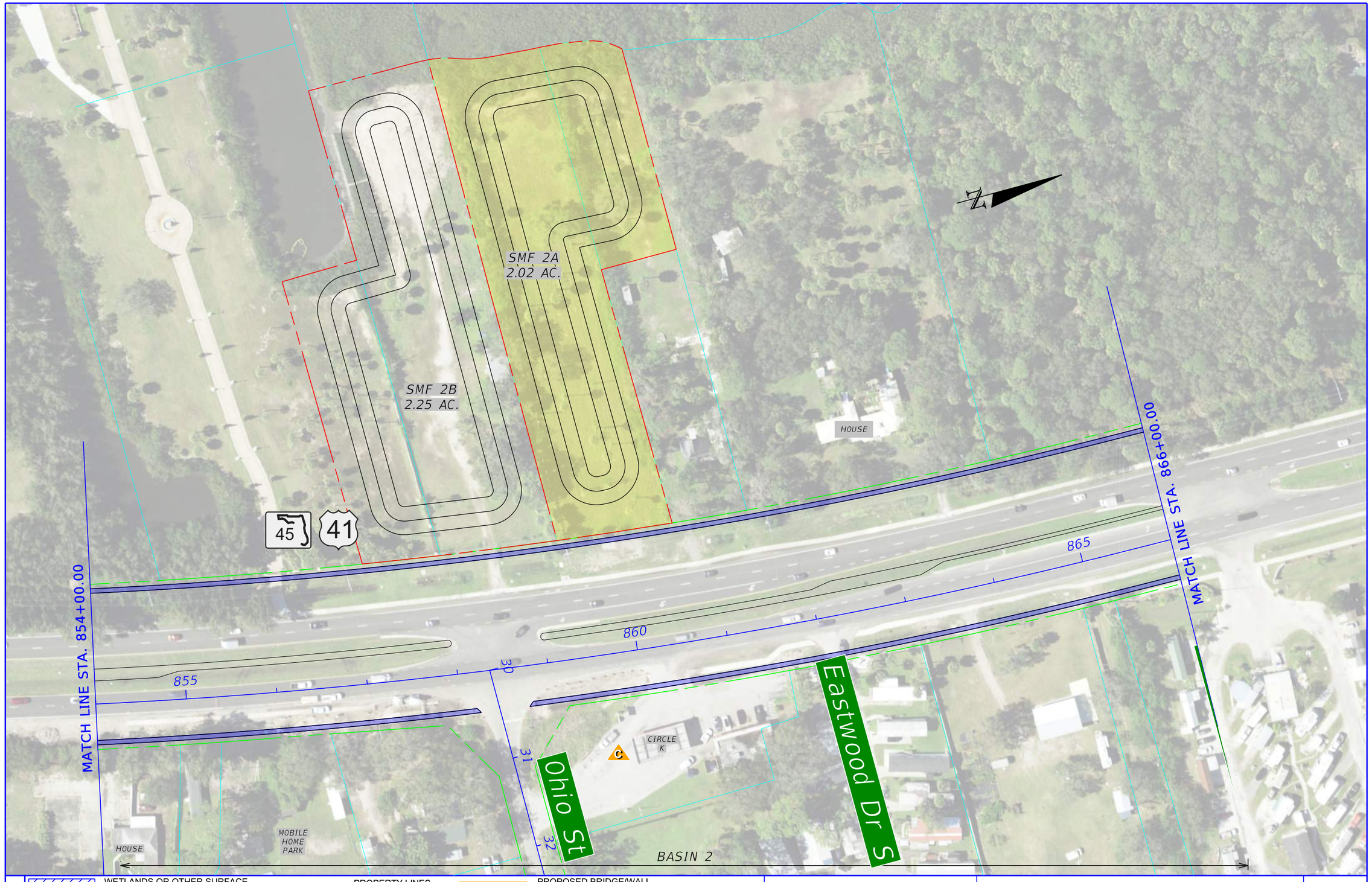
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LEGEND

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- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL: FEBRUARY 2023

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Wesley Chapel, Florida 33544
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US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

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MATCH LINE SEE SHEET 28

Block 11900

Block 11800

Adams St

Mabrey Ave

SMF 3B Easement

SMF 3A
3.57 AC.

FPC 3A

Basin 3 Outfall
Extend/Replace
Culvert

45 41

ADVANCED
AUTO/AIR

L&M
ALTERNATIVE
AUTO SALES

TAMPA BAY MARINE

A. C.
SHULTES

12'X8' BOX CULVERT

MATCH LINE STA. 866+00.00

MATCH LINE STA. 880+00.00

870

875

Eastwood Dr N

Park Grove Dr

Cherry Blossom Trail

Alafia Plaza Dr

THE PARK
AT
PALM GROVE

BUZBEE
CERAMICS

DEAD
SLEDS
PARTS &
SERVICE

MAGNOLIA
TRAIL'S
SUBDIVISION

SWEET
LIVING
MOBILE &
MODULAR
HOMES

BEAVER'S
TREE SERVICE
OF TAMPA BAY, INC

BASIN 2

BASIN 3

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 4

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MATCH LINE SEE SHEET 28

Block 11800

Florence St

Block 11500

Isabel Ave

A. C. SHULTES

JOSS CONTRACTING

LEOLA CONSTRUCTION

DRIRITE

FIVE STAR AUTO REPAIR

CREATIVE KIDS PRESCHOOL

CROSSFIT APOGEE

DARREL ADAMS ENVIRONMENTAL SERVICES

MATCH LINE STA. 880+00.00

880

885

890

MATCH LINE STA. 894+00.00

45 41

FLOWER GARDEN MOBILE HOME PARK

DUG CREEK TOWNHOMES

THE BEAUTY DOCTORS

MOBILE HOME PARK

LEGAL SHRED

Florence St

BASIN 3

BASIN 4

Block 11800

LEGEND

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- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100 Feet

DATE OF AERIAL: FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 5

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MATCH LINE SEE SHEET 29

Nena Ave

SMF 4C
2.25 AC.

FPC 4C

SMF 4A
2.63 AC.

APOLLO ENVIRONMENTAL INC.

GIBTOWN MOTEL

GIBTOWN INN

KEN HOPE AIR CONDITIONING & HEATING

HOUSE

DOLLAR GENERAL

BULLFROG CREEK MARINE

SPEED LIMIT 50

MATCH LINE STA. 894+00.00

MATCH LINE STA. 908+00.00

895

900

905

45

41

FISHERMAN'S ONE STOP

US 41 MOTORS

HOUSE

HOUSE

HOUSE

A-FAB

SHENANDOAH GENERAL CONSTRUCTION

APPLIANCE STORE

RESIDENCE

VACANT LOT

Corwin St

Symmes Rd

Block 11500

GARDENVILLE RECREATION CENTER

26

27

28

29

BASIN 4

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

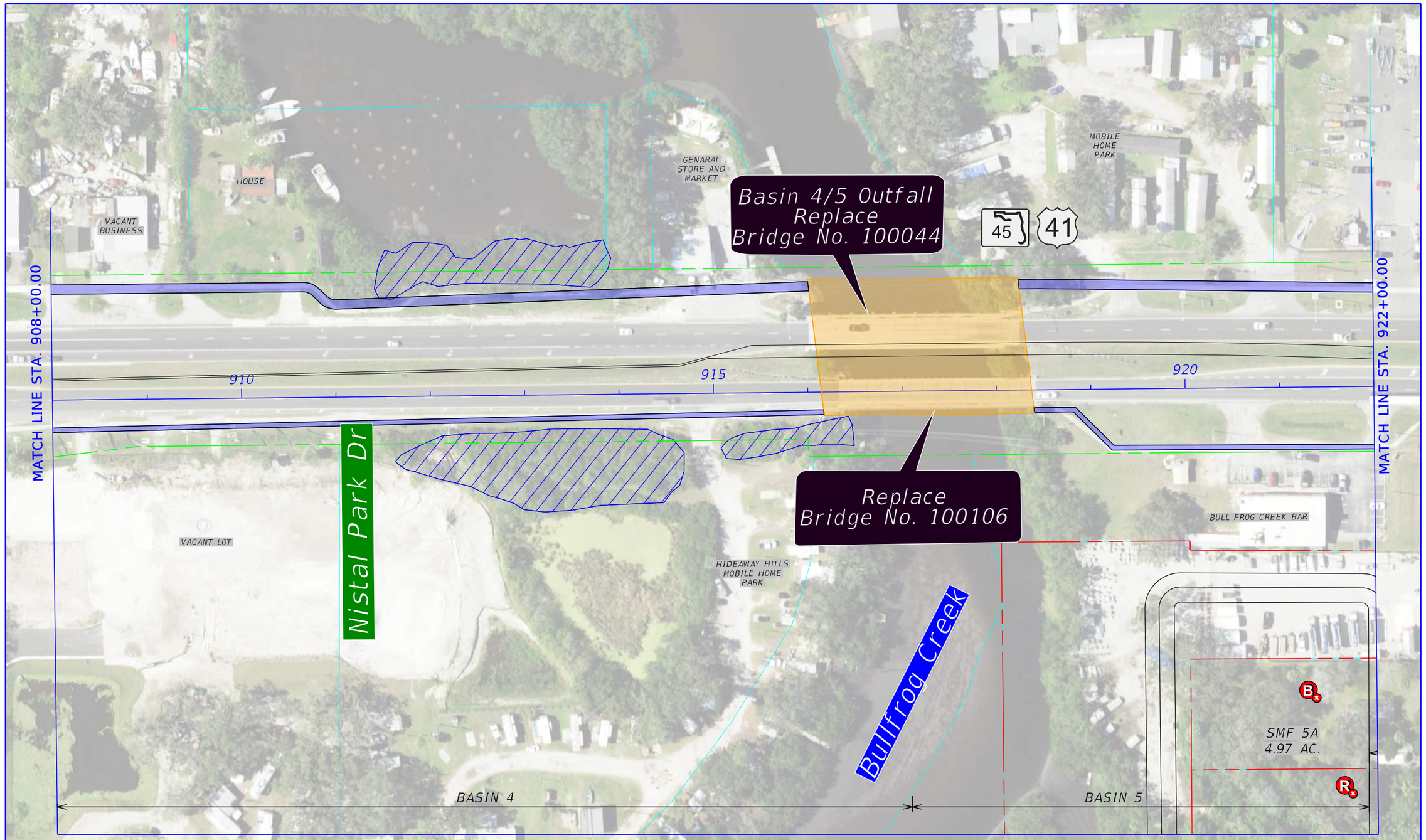
CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

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Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans

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WETLANDS OR OTHER SURFACE WATERS BOUNDARY

PROPERTY LINES

EXISTING ROW

PROPOSED BRIDGE/WALL CULVERT EXTENSION

0 20 100

CONSOR ENGINEERS, LLC

US41 PD&E STUDY

SHEET NO.

MATCH LINE SEE SHEET 30

Block 11000

Block 11000

Block 10900

Beach Ave

Palm Ave

Cedar Ave

Proposed South Coast Greenway Route

ACE TRAILERS, INC

ENZO'S CLASSIC IMPORTS

PLAZA

SOUTH BAY TIRE

BAIT SHOP

THRIFT STORE

APPLIANCES

BAIT SHOP

LA FLOR DE HIDALGO

GAGEL'S AUTO SALES

TORTILLERIA EL CHARRO

GIBSONTON DRIVE THRU BEVERAGE MART

AUTO SALES & STORAGE FACILITY

45

41

MATCH LINE STA. 922+00.00

925

930

935

MATCH LINE STA. 936+00.00

Beach Ave

NEW LINE TRANSPORT

TWIN OAKS PLAZA

USED APPLIANCES

STEPP'S TOWING SERVICE

MOBIL GAS STATION

SMF 5A
4.97 AC.

BASIN 5

CSXT Railroad

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL: FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

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MATCHLINE SEE SHEET 30

MATCHLINE SEE SHEET 31

Block 10900

Block 10800

Block 10800

Block 10700

Cliff Ave

Shirley Ave

Nundy Ave

Lewis Ave

STEPP'S TOWING

NATIONAL EBGINEERING & REPAIR CORP

VACANT

COOL BIRD A/C AND HEATING

JUAN TIRE SERVICE

CAR WASH/EXHAUST SHOP

MATCH LINE STA. 936+00.00

940

945

950

30

MATCH LINE STA. 950+00.00

SHOWTOWN RESTAURANT & LOUNGE

ADVANCE AUTO PARTS

SHELL GAS STATION

SMF 6D1
1.20 AC.

SMOKE SHOP

SMF 6D2
1.41 AC.

31

32

33

34

Mottie Rd

CSXT Railroad

BASIN 5

SMF 6C
2.41 AC.

BASIN 6

LUMBER & FENCING PRODUCTS INC.

MATCHLINE SEE SHEET 33

Block 10900

Block 10800

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIALLY CONTAMINATED SITE
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

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Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 9

MATCH LINE SEE SHEET 31

Drainage Easement

Alice Ave

Maggie St

Basin 6 Outfall
Extend/Replace
Culvert

ALAFIA
MARINA

ALL STEEL
BUILDINGS
AND
COMPONENTS

GIBSONTON
FOOD MART
(CITGO)

VACANT

CRUZCITOS
TIRE
MOIBILE

45 41

MATCH LINE STA. 950+00.00

955

960

(2) 36" RCP

MATCH LINE STA. 963+00.00

CSXT Railroad

SMF 6D2
1.41 AC.

36" JACK & BORE

Indiana St

Gibsonton Dr

Marilla Ave

SMF 6C
2.41 AC.

Block 10000

SMF 6B
6.86 AC.

Massachusetts St

MATCH LINE SEE SHEET 33

605

BASIN 6

LEGEND

WETLANDS OR OTHER SURFACE WATERS BOUNDARY

POTENTIAL BUSINESS RELOCATION
NUMBER OF RELOCATIONS WITHIN PARCEL

POTENTIAL RESIDENTIAL RELOCATION
NUMBER OF RELOCATIONS WITHIN PARCEL

PROPERTY LINES

EXISTING ROW

SMF/FPC ALTERNATIVE

POTENTIALLY CONTAMINATED SITE

PROPOSED BRIDGE/WALL CULVERT EXTENSION

PREFERRED ALTERNATIVE

SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

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Kracker Ave to South of Causeway Blvd (SR676)
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Block 10000

Marilla Ave

Estelle Ave

Anna Ave

Maggie St

EAST BAY BUSINESS CENTER

MOBILE TRUCK REPAIRS; JZL DIESEL & TRAILER FLEET SERVICES, LLC

PATS PLACE HARDWARE (VACANT)

FATHER & SON TIRES, WHEELS, BRAKES

GRANITE & MARBLE

MRS. STICKY FINGER TIPS (VACANT)

45 41

965 970 975

MATCH LINE STA. 963+00.00

MATCH LINE STA. 977+00.00

CSXT Railroad

Indiana St

Indiana St

Estelle Ave

FIRST BAPTIST CHURCH

Anna Ave

New York St

Illinois Ave

Georgia Ave

BASIN 6

LEGEND

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- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100 Feet

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Kracker Ave to South of Causeway Blvd (SR676)

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Block 9800

Proposed South Coast Greenway Route

Lula St

MOSAIC

MOSAIC

EAST BAY MOTEL/APTS

45 41

MATCH LINE STA. 977+00.00

980

985

990

30

31

32

33

34

35

Pennsylvania Ave

Michigan Ave

Indiana St

Ohio Ave

CSXT Railroad

INTER BAY MOORINGS

MATCH LINE STA. 991+00.00

BASIN 6

Block 9800

LEGEND

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- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100 Feet

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Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY

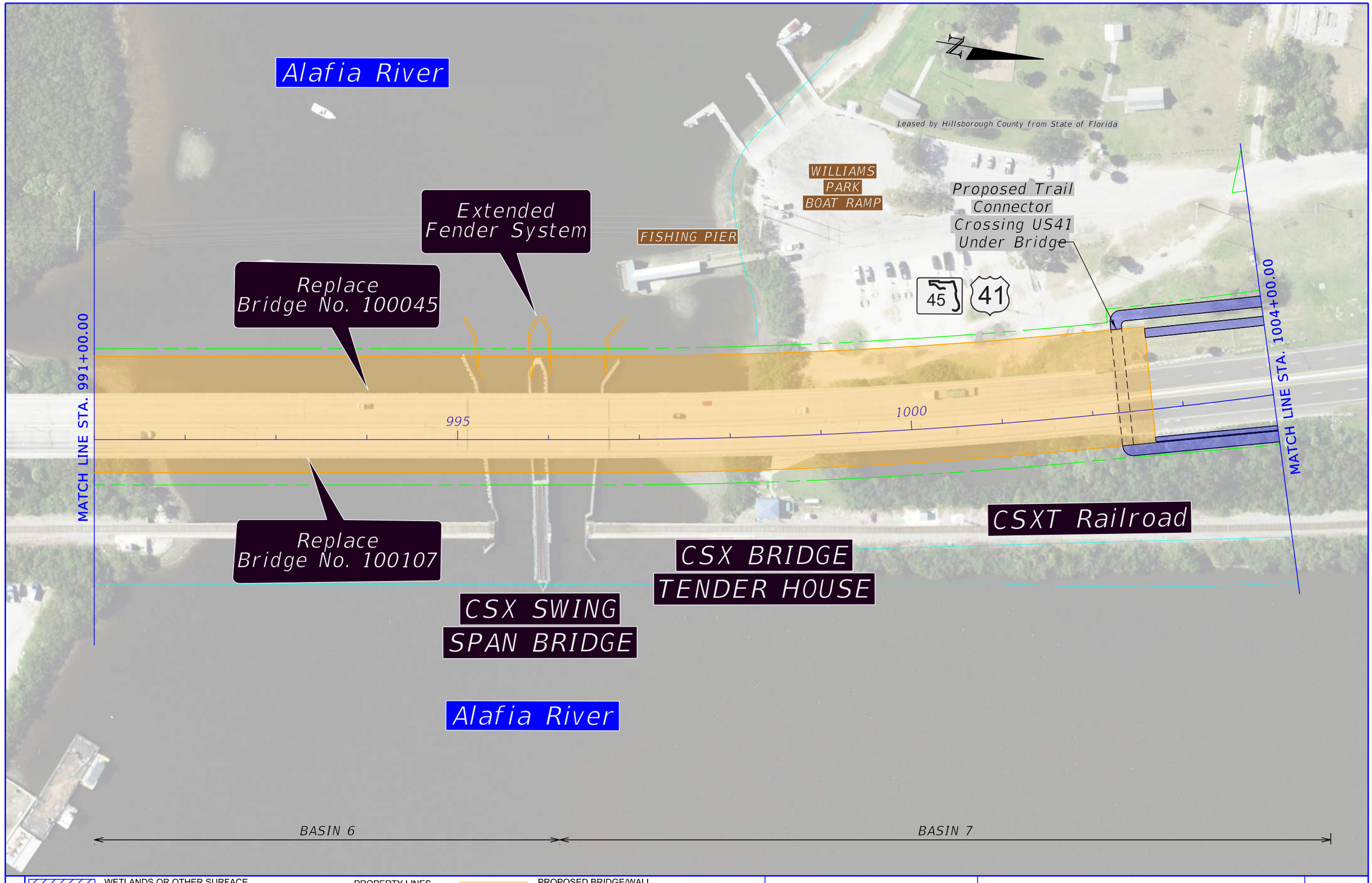
Kracker Ave to South of Causeway Blvd (SR676)

Concept Plans

WPI SEGMENT No.: 430056-1

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LEGEND

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- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL: FEBRUARY 2023

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Wesley Chapel, Florida 33544
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Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
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Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 13

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BASIN 7

TECO SUBSTATION

Mosaic Gate #5

Tamiami Trail

Future South Coast Greenway Trail

STATE OF FLORIDA

MOSAIC FERTILIZER

Wall

45 41

MOSAIC

(Private)

Industrial Access Rd

MOSAIC

MATCH LINE STA. 1004+00.00

1005

1010

1015

26

27

28

30

31

32

33

34

Sidewalk

Wall

CSXT Railroad

Riverview Dr

Future Southcoast Greenway Trail

MATCH LINE STA. 1017+00.00

MOSAIC PARK

SMF 7B
5.00 AC.

Block 9000

MATCH LINE SEE SHEET 34

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

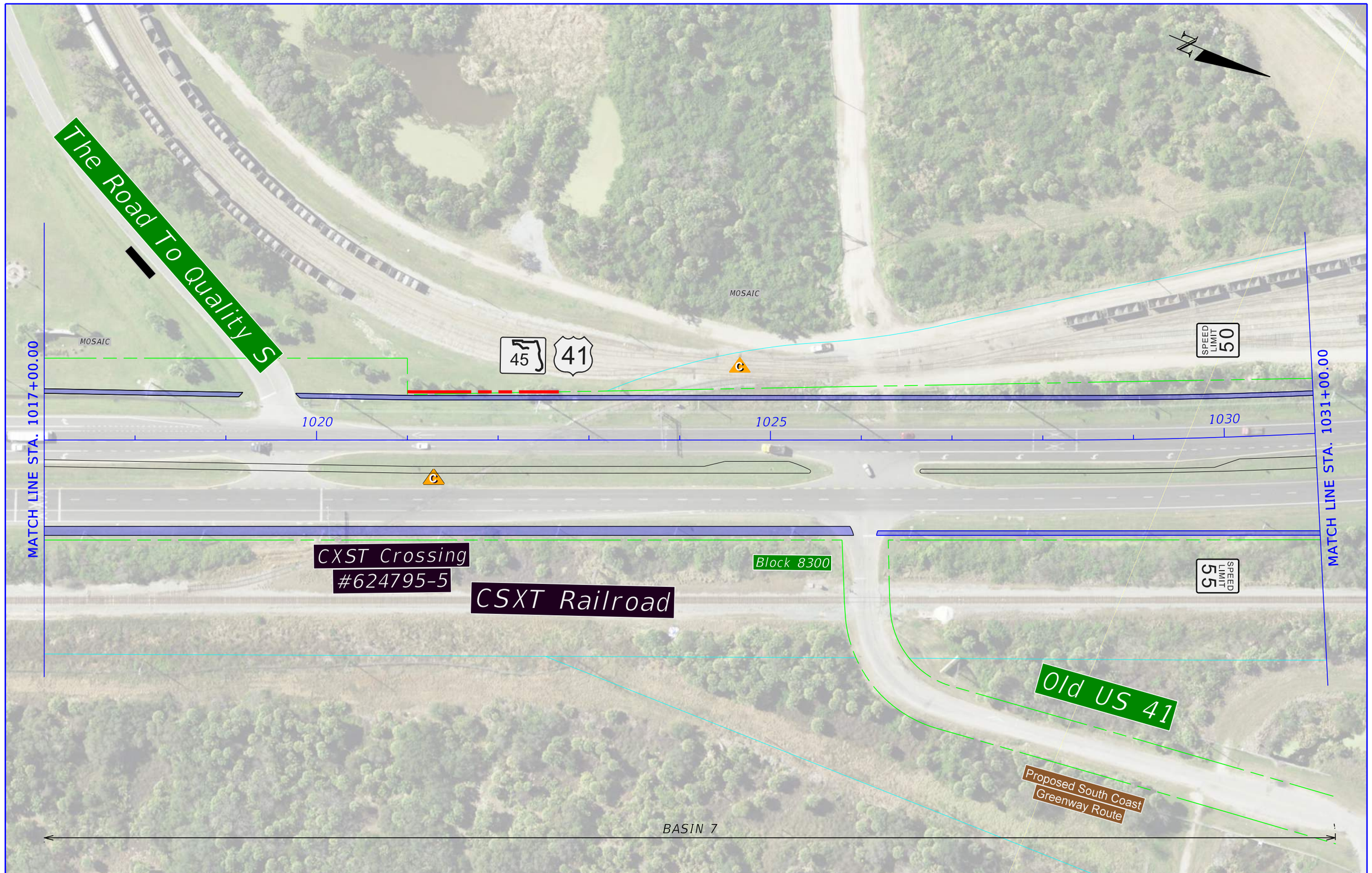
DATE OF AERIAL: FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 14

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LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100 Feet

DATE OF AERIAL: FEBRUARY 2023

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SHEET NO. 15

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MOSAIC

MATCH LINE STA. 1031+00.00

65

70

MATCH LINE STA. 73+00.00

SMF 7A
15.24 AC.

45

41

CSXT Railroad

BASIN 7

LEGEND

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- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

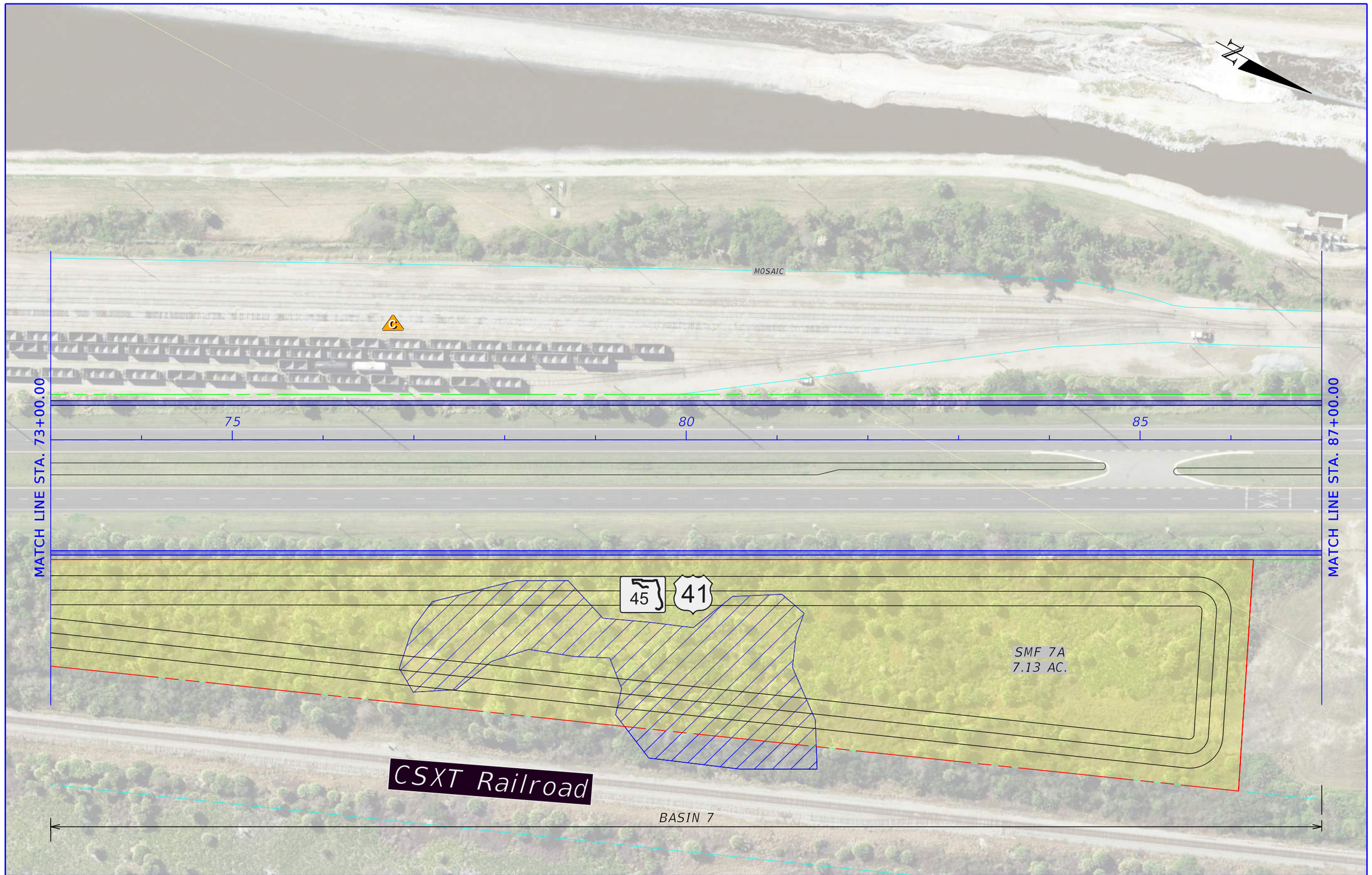
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WPI SEGMENT No.: 430056-1

SHEET NO. 16

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LEGEND

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- POTENTIALLY CONTAMINATED SITE
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- SIDEWALK / PATH

0 20 100
Feet

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SHEET NO. 17

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Basin 7 Outfall
Extend/Replace
Bridge No. 100046
(Bridge Culvert)

Archie Creek South

N

45 41

MOSAIC

90 95 100

(3) 10'X10' BOX CULVERT

MATCH LINE STA. 87+00.00

MATCH LINE STA. 101+00.00

C

CXST Crossing
#624797-F

CSXT Railroad

BASIN 7

BASIN 8

CSXT Railroad

LEGEND

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0 20 100
Feet

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SHEET NO.
18

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MATCH LINE STA. 101+00.00

MATCH LINE STA. 115+00.00

SMF 8A
4.13 AC.

SMF 8B
2.00 AC.

BASIN 8

MOSAIC

MOSAIC

45

41

105

110

N

LEGEND

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- SIDEWALK / PATH

0 20 100
Feet

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SHEET NO. 19

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- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

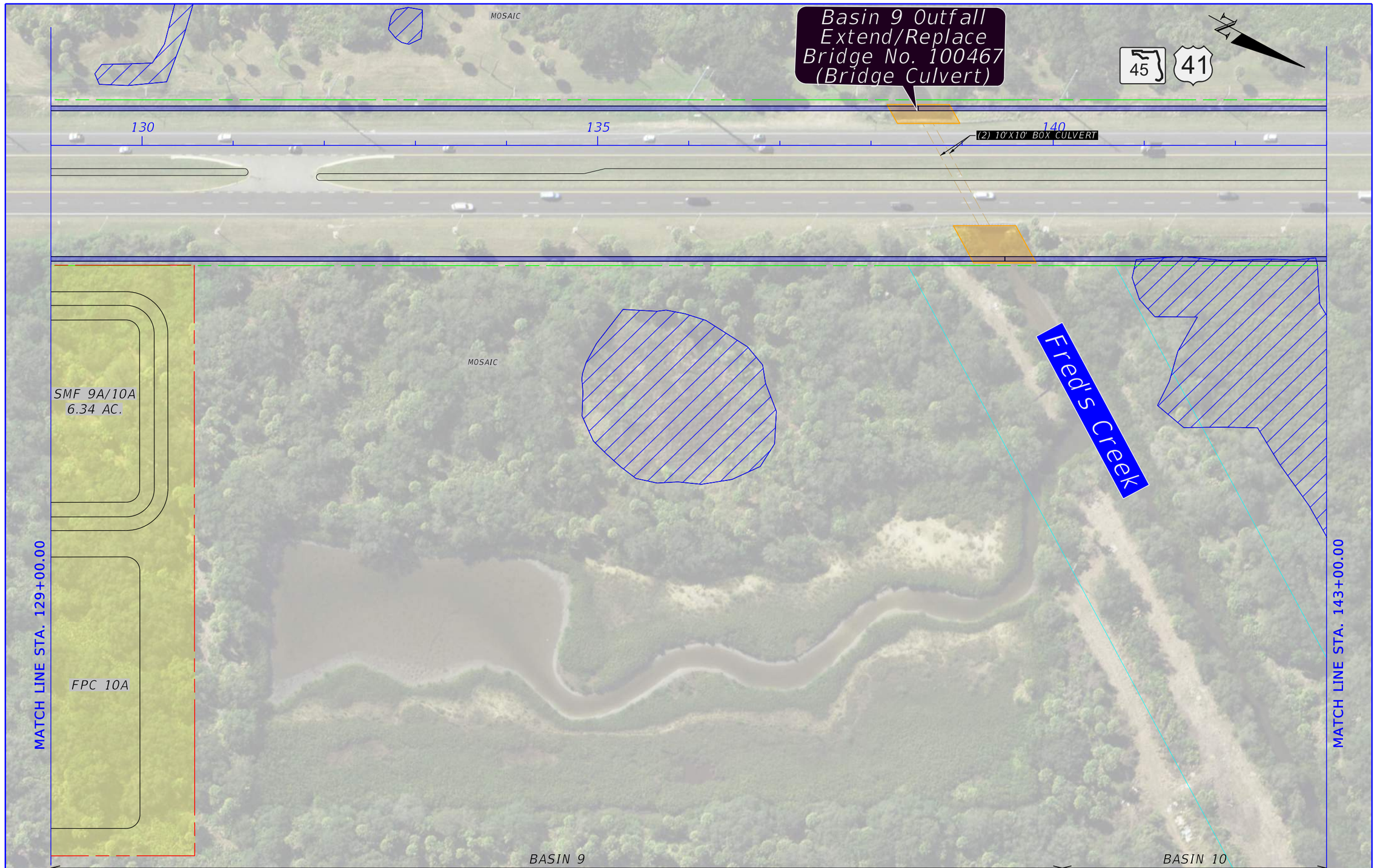
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SHEET NO. 20

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- SIDEWALK / PATH

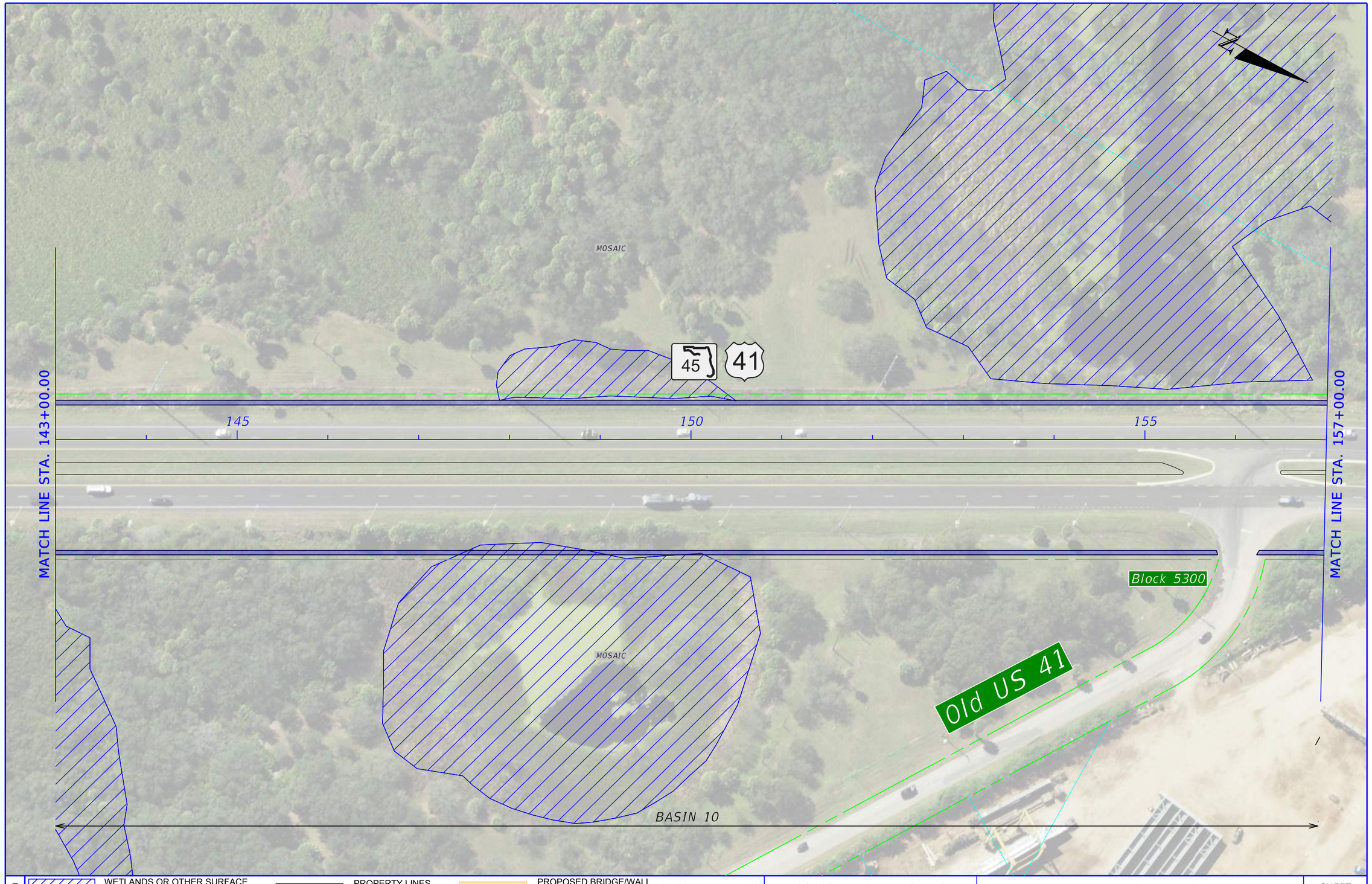
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US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 21



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
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0 20 100
Feet

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SHEET NO. 22

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MOSAIC

TAMPA PORT AUTHORITY

N

45 41

165

160

C

MATCH LINE STA. 157+00.00

Bloomingdale Ave

MATCH LINE STA. 170+00.00

ICWUC

MOBILE MOD

TAMPA STEEL ERECTING CO.

BASIN 11 (BY OTHERS)

Block 5100

TAMPA STEEL ERECTING CO.

LEGEND

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0 20 100
Feet

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Kracker Ave to South of Causeway Blvd (SR676)
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WPI SEGMENT No.: 430056-1

SHEET NO. 23

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POND 1
1.32 AC.
(BY OTHERS)
FPID No. 430056-2-52-01

Block 4800

TAMPA LIQUIDATION CENTER

Dover St

F & R HEAVY DUTY TOWING

POP & BEER BAR & GRILL

TRUCK REPAIR & CERTIFIED FLEET SERVICES

CORNERSTONE COLLISION CENTER

ONE USED AUTO PARTS

MATCH LINE STA. 170+00.00

MATCH LINE STA. 184+00.00

0 175 180

TAMPA SCRAP PROCESSORS

Block 4800

BASIN 11 (BY OTHERS)

SCRAP KING

CACS AUTO SALVAGE

LEGEND

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- SIDEWALK / PATH

0 20 100
Feet

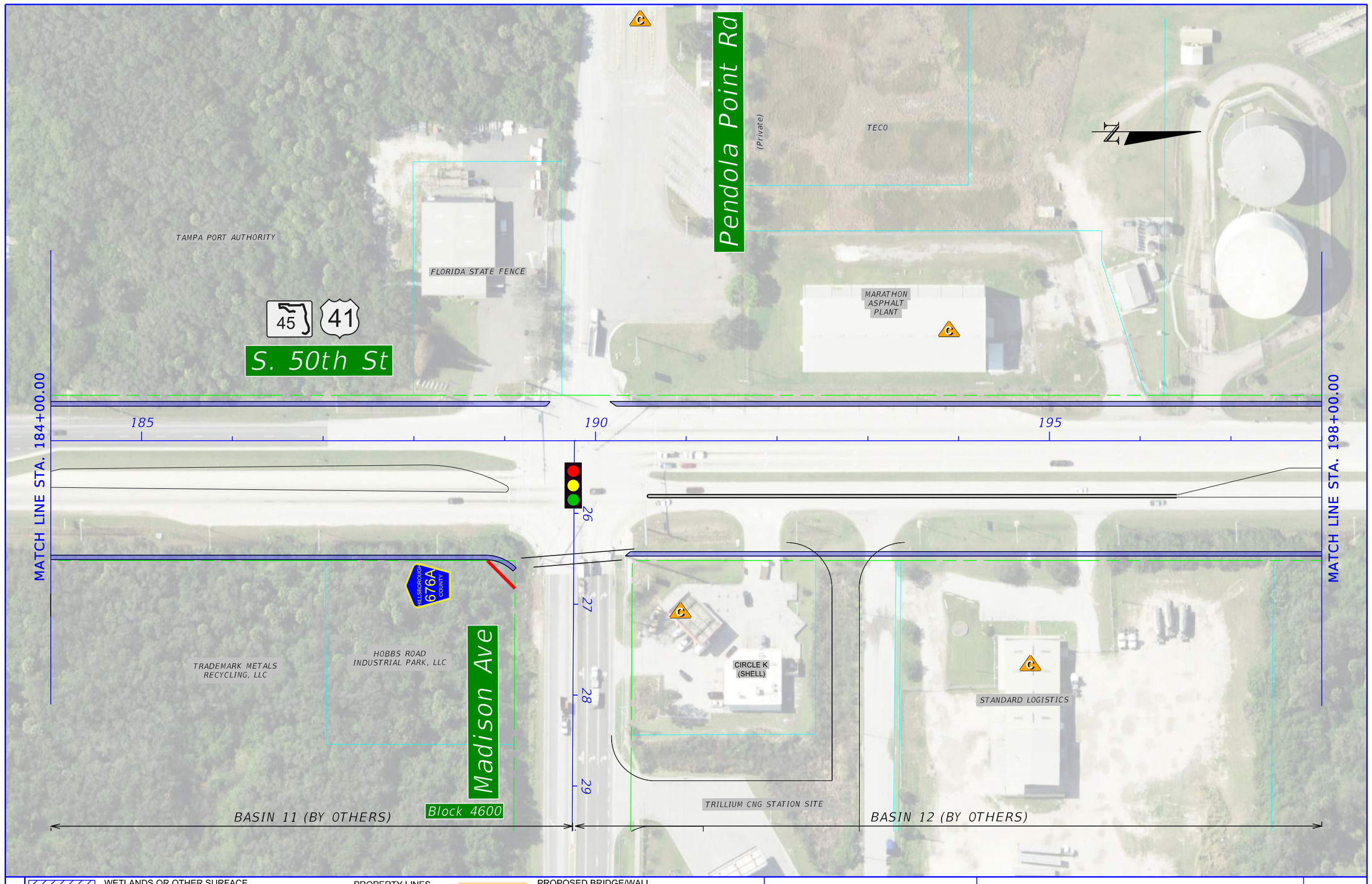
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US41 PD&E STUDY
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SHEET NO. 24



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
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0 20 100
Feet

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SHEET NO. 25

Block 4400

CSXT Railroad

Port Sutton Rd

Basin 12 Outfall
Extend/Replace
Culvert

TMR (TRADEMARK METALS RECYCLING)

ONE STEEL

M.E.B.A.

45 41

S. 50th St

10'X10' BOX CULVERT

200 205 210

26 27 28 29 30

MATCH LINE STA. 198+00.00

MATCH LINE STA. 212+00.00

Montgomery St

BASIN 12 (BY OTHERS)

BASIN 13 (BY OTHERS)

LEGEND

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0 20 100
Feet

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SHEET NO. 26

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CSXT Railroad

GARBA INDUSTRIAL SERVICES

Denver St

Austin St

STRADA SERVICES

JON BOATS

LEE AUTO GROUP TA

TS SITE PREP, INC

45 41

S. 50th St

MATCH LINE STA. 212+00.00

215

220

225

MATCH LINE STA. 226+00.00

SOLUTIONS AUTO PARTS

QUALITY LUGO SERVICES

MARATHON TRUCK AND TRAILER REPAIR

END PROJECT

Santa Fe Rd

PORT CONSOLIDATED, INC.

BASIN 13 (BY OTHERS)

Block 4300

Block 4100

LEGEND

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0 20 100 Feet

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SHEET NO. 27

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Mabrey Ave

FPC 3B

SMF 3B
5.21 AC.

FPC 3C

SMF 3C
6.17 AC.

Florence St

SMF 3B Easement

20.00'

MATCH LINE SEE SHEET 29

MATCH LINE SEE SHEET 4

MATCH LINE SEE SHEET 5

LEGEND

WETLANDS OR OTHER SURFACE WATERS BOUNDARY

POTENTIAL BUSINESS RELOCATION
NUMBER OF RELOCATIONS WITHIN PARCEL

POTENTIAL RESIDENTIAL RELOCATION
NUMBER OF RELOCATIONS WITHIN PARCEL

PROPERTY LINES

EXISTING ROW

SMF/FPC ALTERNATIVE

POTENTIALLY CONTAMINATED SITE

PROPOSED BRIDGE/WALL CULVERT EXTENSION

PREFERRED ALTERNATIVE

SIDEWALK / PATH

0 20 100
Feet

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SHEET NO.
28

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MATCH LINE SEE SHEET 28

Isabel Ave

Nena Ave

FPC 4B

SMF 4B
2.86 AC.

SMF 4C
2.28 AC.

FPC 4C

FPC 4A

SMF 4A
2.63 AC.

MATCH LINE SEE SHEET 6

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
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0 20 100
Feet

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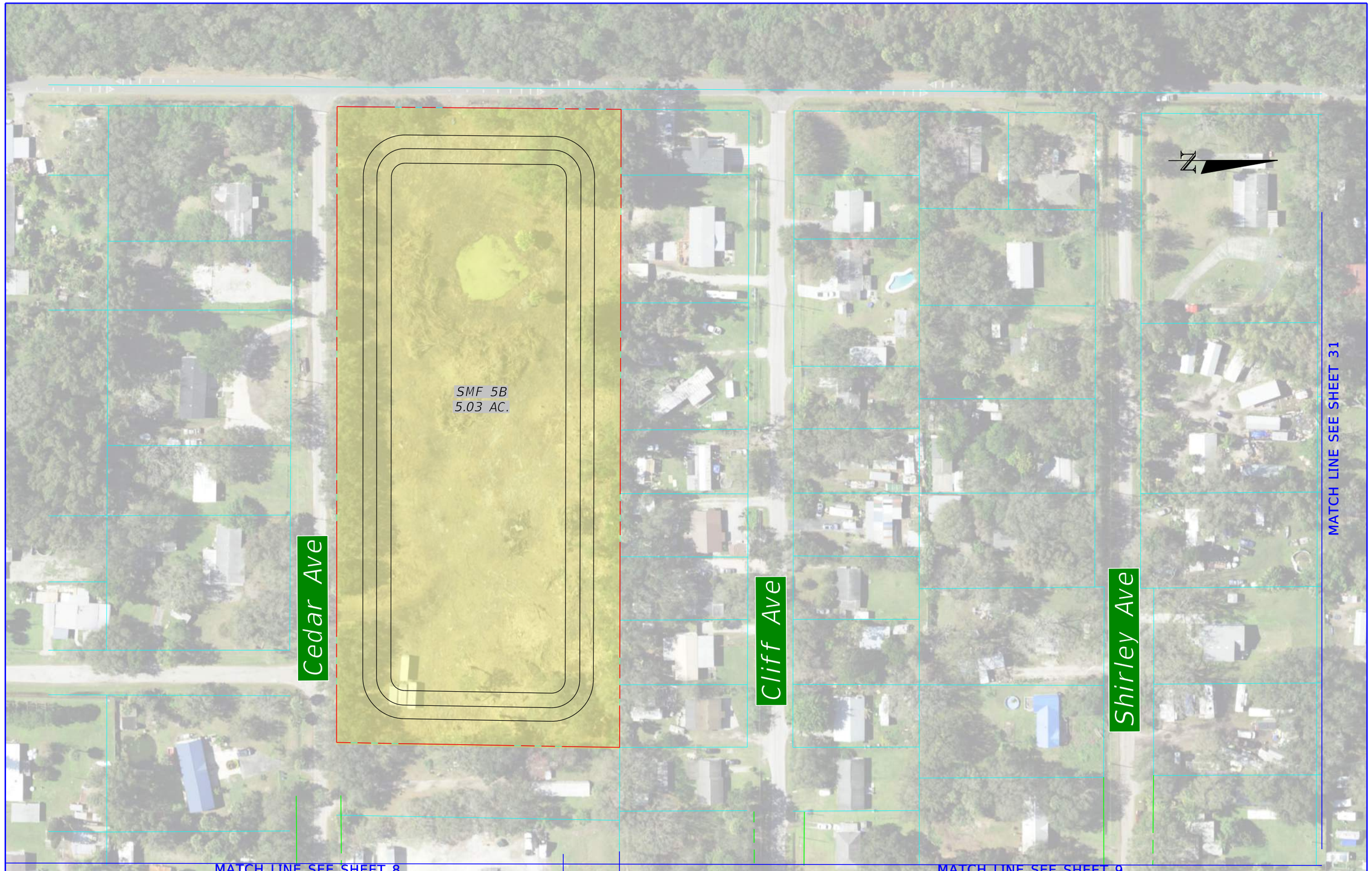
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SHEET NO. 29

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0 20 100
Feet

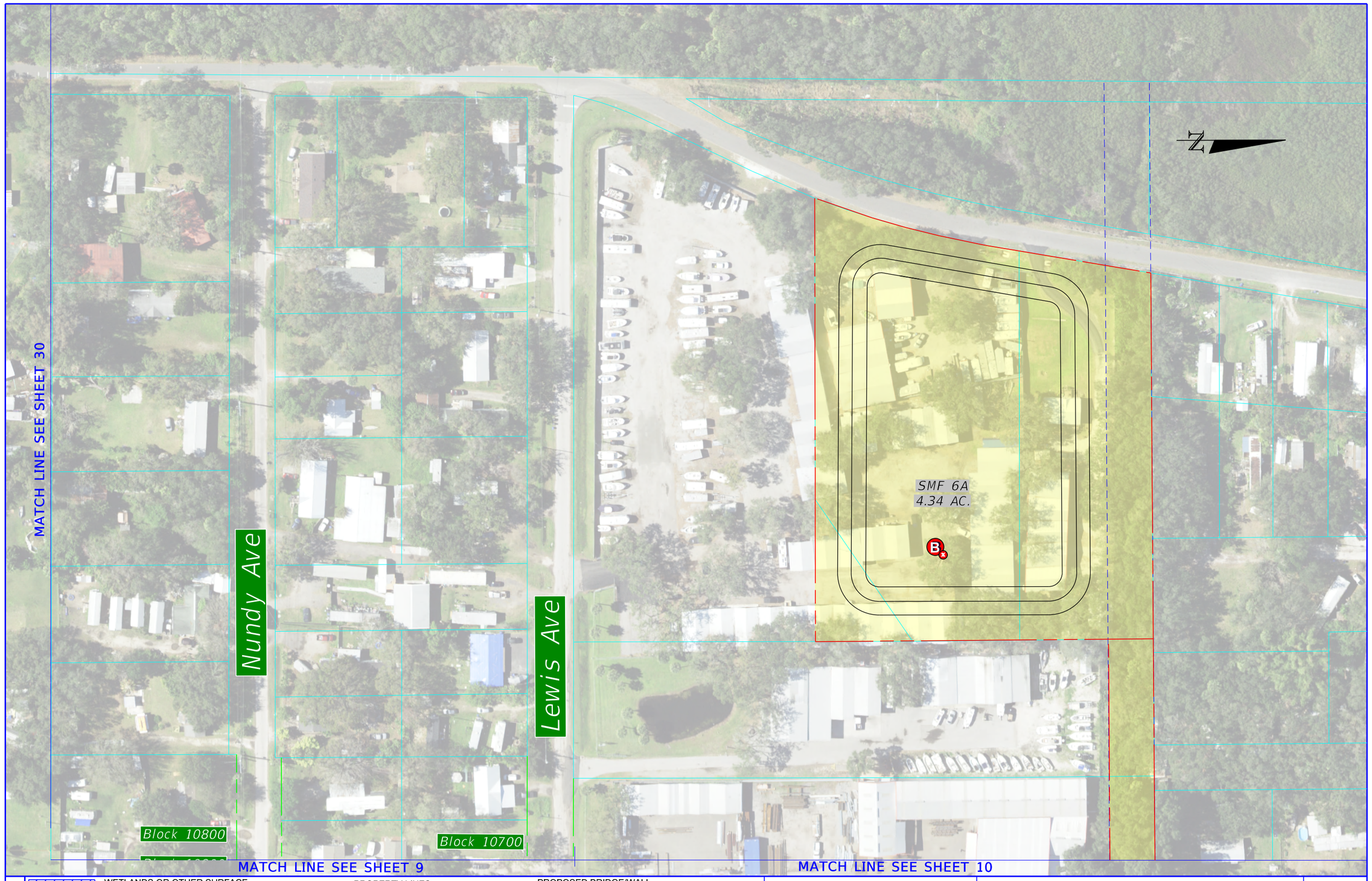
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SHEET NO. 30

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0 20 100
Feet

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WPI SEGMENT No.: 430056-1

SHEET NO. 31

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LEGEND

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- SIDEWALK / PATH

0 20 100
Feet

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Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 32

MATCH LINE SEE SHEET 10

SMF 6B
6.86 AC.

SMF 6C
2.41 AC.

33

34

Nundy Ave

N

LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
- PROPOSED BRIDGE/WALL CULVERT EXTENSION
- PREFERRED ALTERNATIVE
- SIDEWALK / PATH

0 20 100
Feet

DATE OF AERIAL:
FEBRUARY 2023

CONSOR ENGINEERS, LLC
2818 Cypress Ridge Blvd, Suite 200
Wesley Chapel, Florida 33544
Phone: (813) 435-2600 Fax: (813) 435-2601
Engineering Business No. EB6876
Jeffrey S. Novotny, P.E. No. 51083

US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 33

5dhakas 11/14/2024 3:29:49 PM c:\pw_work\american-pw-01\d0868849\PLANRD33.DGN



LEGEND

- WETLANDS OR OTHER SURFACE WATERS BOUNDARY
- POTENTIAL BUSINESS RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- POTENTIAL RESIDENTIAL RELOCATION — NUMBER OF RELOCATIONS WITHIN PARCEL
- PROPERTY LINES
- EXISTING ROW
- SMF/FPC ALTERNATIVE
- POTENTIALLY CONTAMINATED SITE
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- SIDEWALK / PATH

0 20 100
Feet

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US41 PD&E STUDY
Kracker Ave to South of Causeway Blvd (SR676)
Concept Plans
WPI SEGMENT No.: 430056-1

SHEET NO. 34

onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE AE
(EL 10)

Hillsborough County
Unincorporated Areas
120112

STUDY LIMITS

SYMMES RD

TANGLE BRANCH LANE

TANGLE CREEK BOULEVARD

TANGLE BEND DRIVE

TANGLE STONE DRIVE

DRAGON FLY LOOP

SMH 41

NENA AV

NENA AV

ST

WILLIAMS ST

ISABEL AV

CORWIN ST

FLORENCE ST

MABREY AV

DUG CREEK

WILLIAMS ST

ADAMS ST

ADAMS ST

MAGNOLIA TRAILS LANE

CHERRY BLOSSOM TRAIL

34

35

41

$^{30}79^{000m}$N

JOINS PANEL 0503

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0484H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 484 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0484	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0484H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

JOINS PANEL 0482 530000 FT

ZONE X

82°22'30"

27°50'37.5"

ZONE X

SHOWTOWN DR

CEDAR AV

PAYNE AV

LUIG ST

DR

PALM AV

RESTLESS

BEACH AV

RAILROAD

Bullfrog Creek

MARY HALE CIR

810306

27

26

BEACH AV

SUNSET VIEW LANE

AG7612

ZONE X

ZONE X

810100

810050

AG7610

810000

BULLFROG CREEK

810170

ZONE X

STUDY LIMITS

810115

810130

ZONE X

SYMMES RD

ZONE X

TANGLE BRANCH LANE

ZONE X

41 HWY S

ST

NENA AV

NENA AV

ZONE X

WILLIAMS ST

ISABEL AV

ORVIN

TANGLE CREEK BOULEVARD

ZONE X

onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0484H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 484 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0484	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER

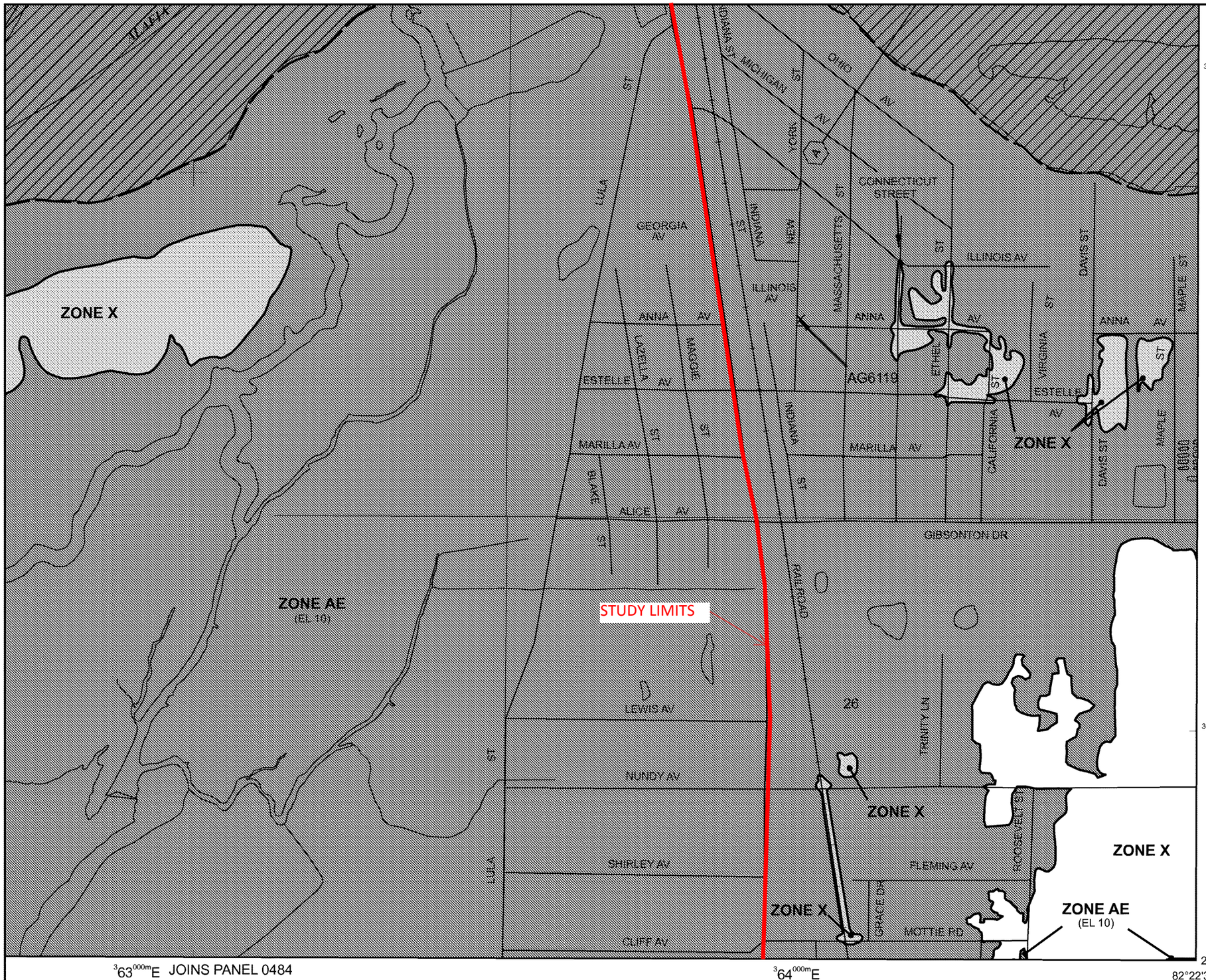
12057C0484H

EFFECTIVE DATE

AUGUST 28, 2008

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0482H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

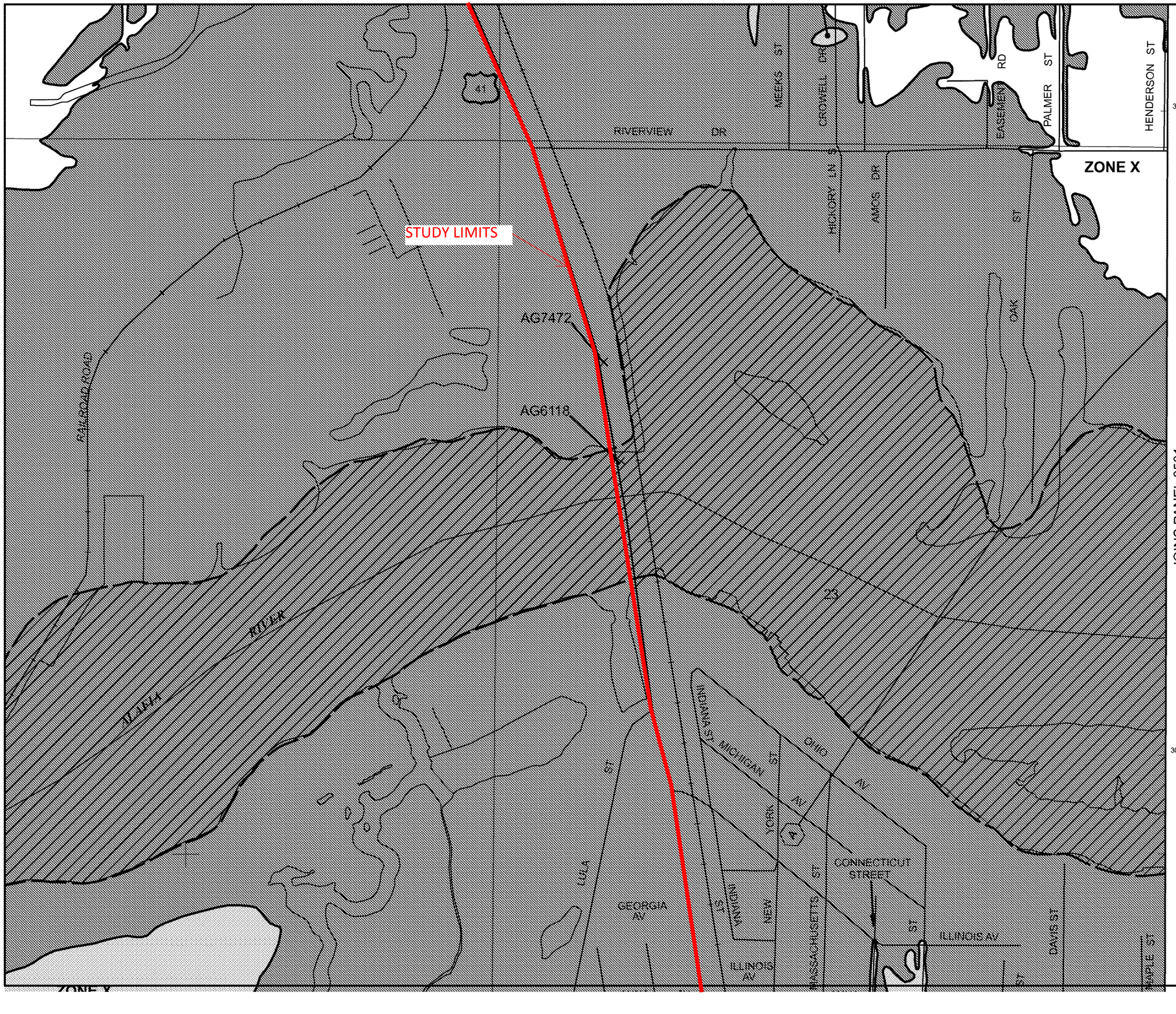
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

METER



NFIP

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0482H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

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onal Flood Insurance Program at 1-800-638-6620.

JOINS PANEL 0369

530000 FT

82°22'30"

27°52'30"

$^{30}84^{000m}$N

$^{30}83^{000m}$N

AG6115

STUDY LIMITS

RAILROAD

OLD 41 HWY

ZONE X

ZONE X

14

ZONE X

ZONE X

ZONE AE
(EL 10)

ZONE X

ZONE X

ZONE X

41

RIVERVIEW DR

MEEKS ST

CROMWELL DR

HICKORY LN N

RD

EASEMENT

PALMER ST

HENDERSON ST

HICKORY LN N

AMOS DR

ST

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0482H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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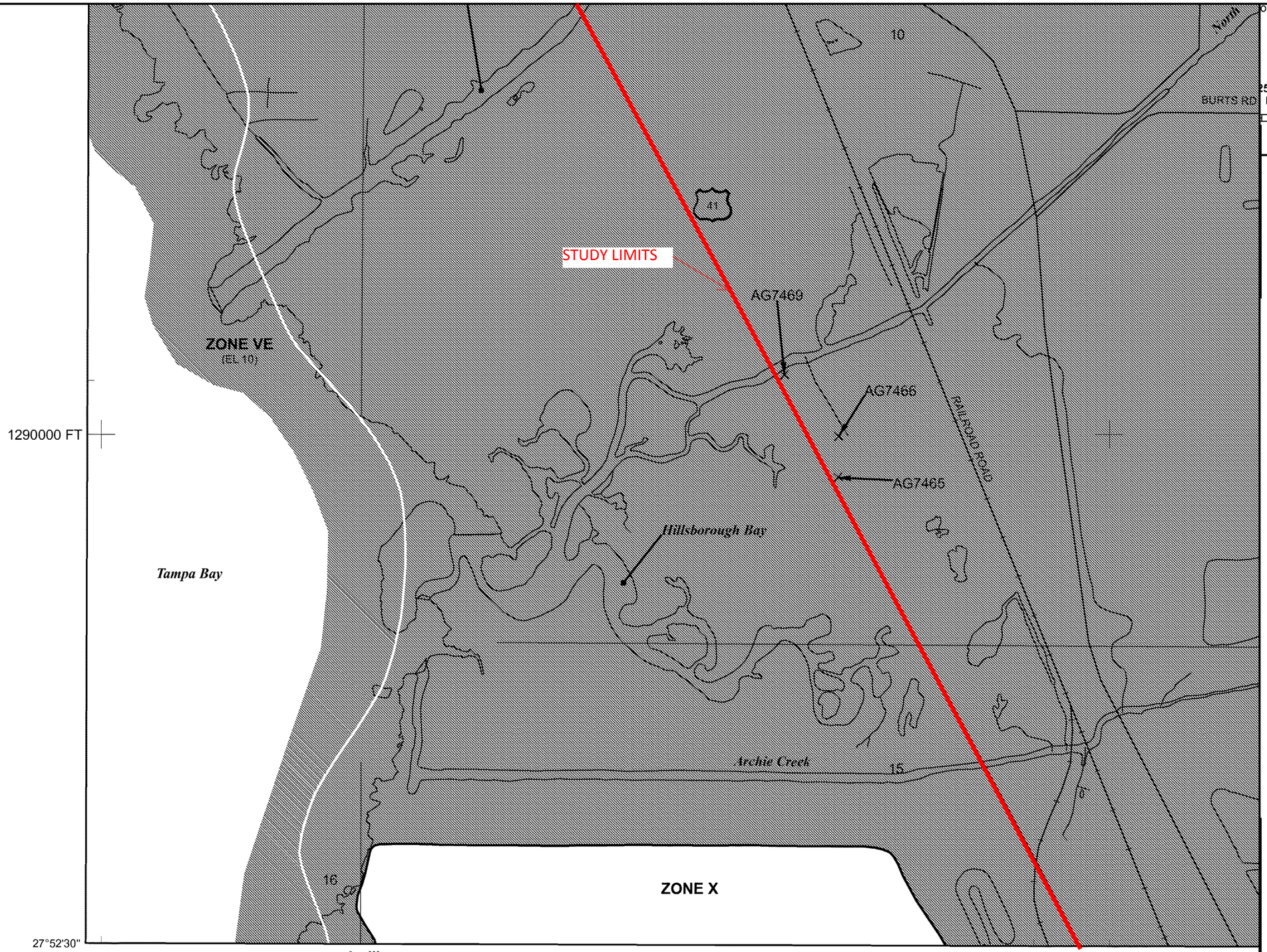
onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0369H

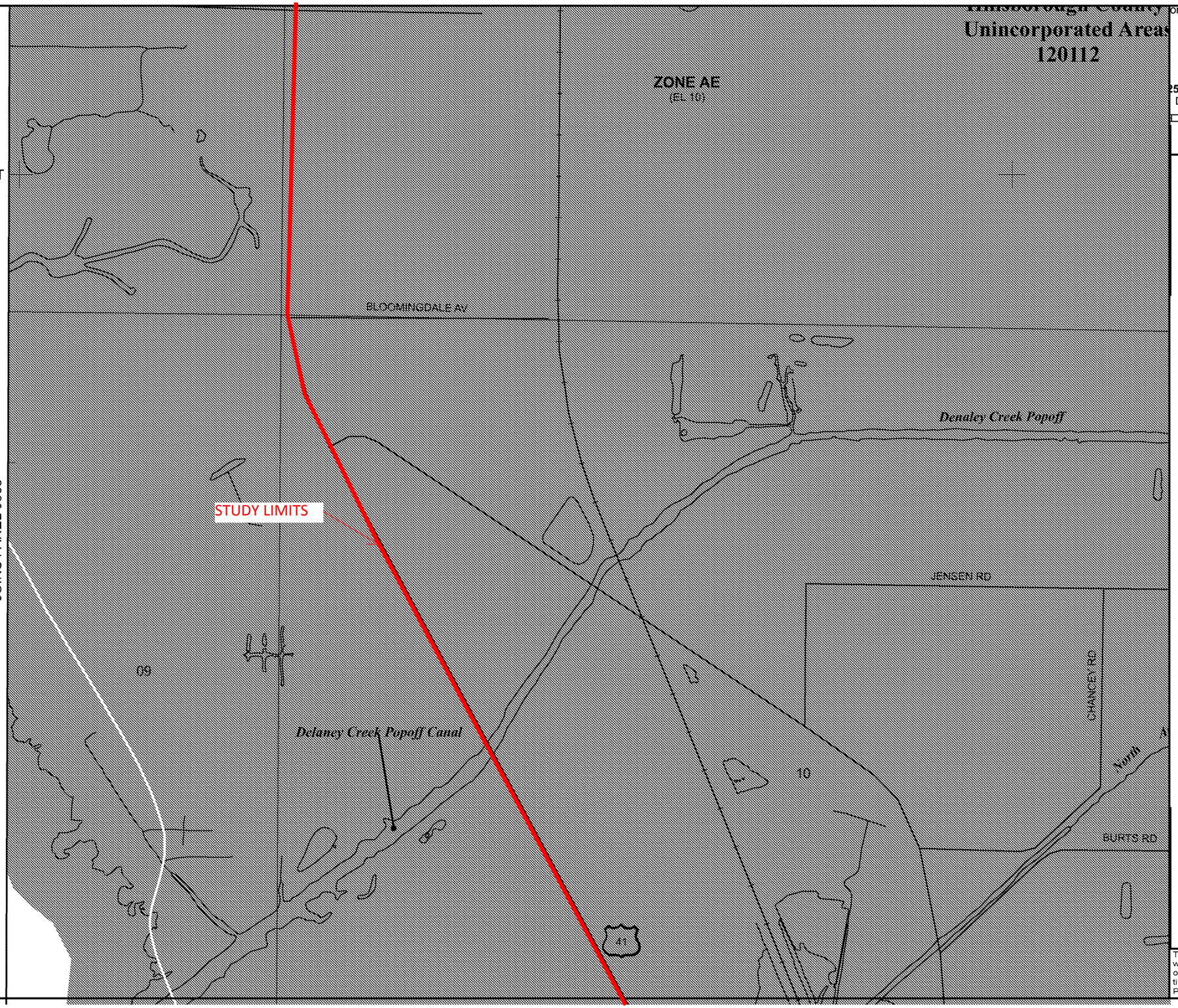
EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

...onal Flood Insurance Program at 1-800-638-6620.

Unincorporated Areas
120112



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0369H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

82°24'22.5"
525000 FT
27°54'22.5"

530000 FT JOINS PANEL

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

RAILROAD ROAD

MONTGOMERY STREET

RAILROAD ROAD

RAILROAD ROAD

S 54TH STREET

PENDOLA POINT ROAD

04

MADISON AVENUE

03

STUDY LIMITS

DOVER ST

ZONE AE
(EL 10)

Hillsborough Coun
Unincorporated Ar
120112

1295000 FT

BLOOMINGDALE Av

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

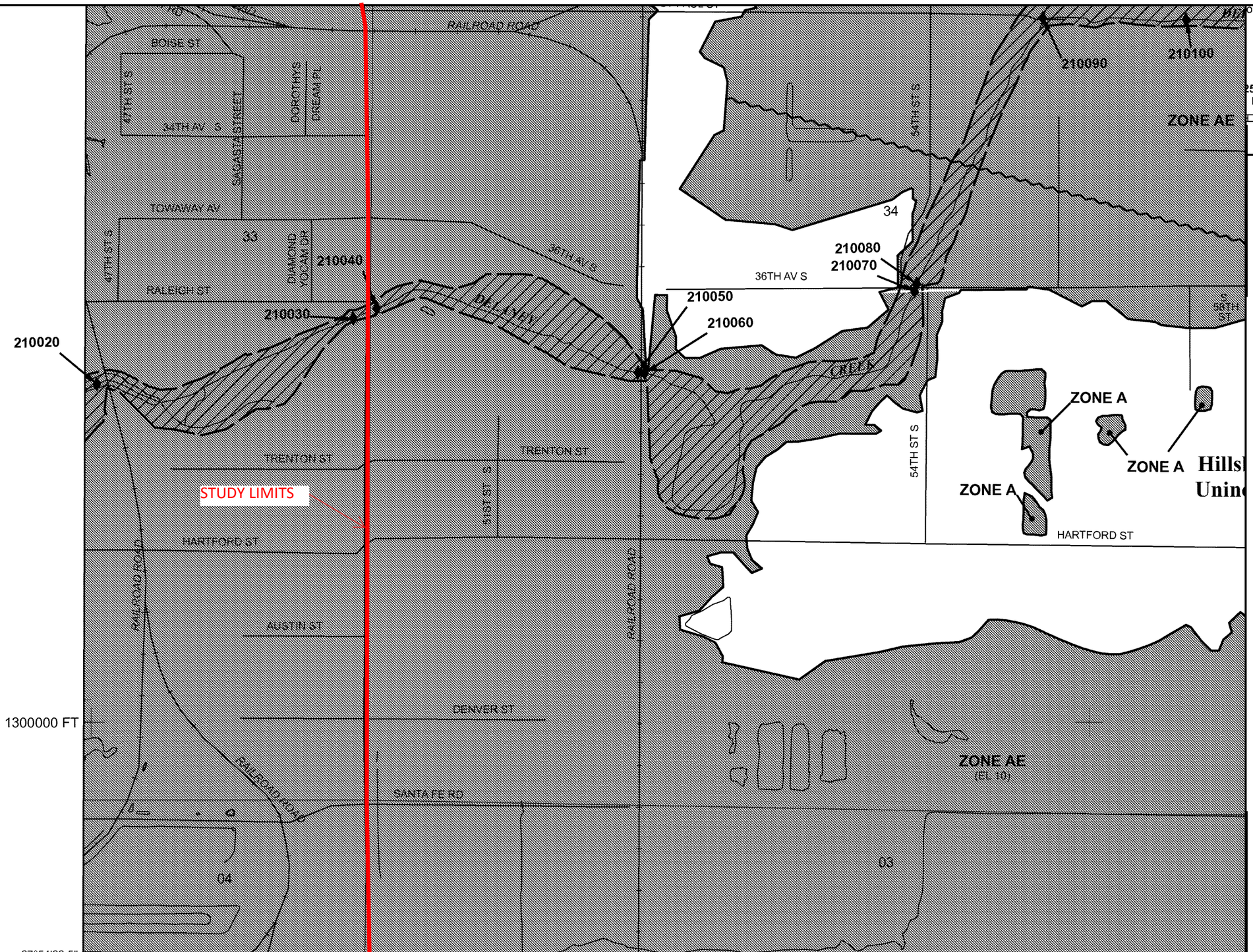
MAP NUMBER
12057C0369H

EFFECTIVE DATE
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Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'

-250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0367H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

STUDY LIMITS

1305000 FT

JOINS PANEL 0366

ZONE A

ZONE X

ZONE AE

Delaney Cree

211010

211000

210090

210100

210080

34

33

47TH ST S

22ND AV S

SAGASTA ST

49TH ST S

50TH ST S

51ST ST S

NEHAUL PL

HABERSHAM LN

23RD AV S

48TH ST S

21ST AV S

24TH AV S

27TH AV S

EL CAMINO BLANCO BL

VIVIAN PL

GELMAN PL S

54TH ST S

58TH ST S

CAUSEWAY BL

39TH AV S

31ST AV S

RAILROAD ROAD

ROCKPORT RD

ST PAUL ST

BOISE ST

DOROTHYS DREAM PL

34TH AV S

TOWAWAY AV

ASHLEY S

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0367H

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onal Flood Insurance Program at 1-800-638-6620.

82°24'22.5"
525000 FT
27°56'15"
1310000 FT
530000 FT JOINS PANEL 0359

MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER

12TH AV S
BRISTOL BAY WAY
56TH ST S
STUDY LIMITS
AG6058
16TH AV S
17TH AV S
19TH AV S
20TH AV S
21ST AV S
22ND AV S
23RD AV S
24TH AV S
46TH ST S
47TH ST S
48TH ST S
49TH ST S
51ST ST S
NEHAUL PL
HABERSHAM LN
SAGASTA ST
28
27
RAILROAD ROAD
TAMPA COMMERCE CT
58TH ST S
58TH STR
ZONE A
ZONE AE
(EL 10)
ZONE X
Delaney Creek

Hillsborough County
Unincorporated Areas
120112

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM
FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

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MAP NUMBER
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END STUDY

STUDY LIMITS

ZONE X

ZONE X

ZONE X

E WASHINGTON ST

AG7546

AG7541

AG7543

AG6055

PALM RIVER

21

22

CITY OF TAMPA

HILLSBOROUGH COUNTY

ROSE LN

FERRY LN

PALM RIVER RD

AG6056

AG6057

ZONE AE
(EL 10)

Hillsborough County
Unincorporated Areas
120112

ZONE X

ZONE X

ZONE AE
(EL 10)

CHARLES DR

DAVIS DRIVE

DREW CT

HUGHES CT

KIRKLAND DR

COOKMAN DR

HAMMON DR

10TH AV S

12TH AV S

525000 FT

27°56'15"

82°24'22.5"

$^{3}62^{000m}E$

$^{3}63^{000m}E$

JOINS PANEL 0367

S 41ST ST

S 42ND ST

S 43RD ST

S 44TH ST

S 45TH ST

S 46TH ST

S 47TH ST

S 48TH ST

S 49TH ST

S 50TH ST

S 51ST ST

S 52ND ST

S 54TH ST

S 55TH ST

S 56TH ST

57TH ST S

58TH ST S

onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0359H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 359 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0359	H
TAMPA, CITY OF	120114	0359	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0359H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

16

15

AG6048

AG6049

City of Tampa 120114

UCETA RD

TRANSPORT DR

DISTRIBUTION DR

UCETA RD

RAILROAD

S 11TH ST

ACLINE DR E

JOINS PANEL 0358

ZONE AE
(EL 10)

AG6053

ADAMO DR

ZONE AE
(EL 10)

E YEOMAN ST

ADAMO DR

ZONE X

1315000 FT

END STUDY

RAILROAD

ZONE X

ZONE X

E WASHINGTON ST

S 56TH ST

ZONE X

STUDY LIMITS

AG7548

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0359H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 359 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0359	H
TAMPA, CITY OF	120114	0359	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0359H

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APPENDIX B

Figures

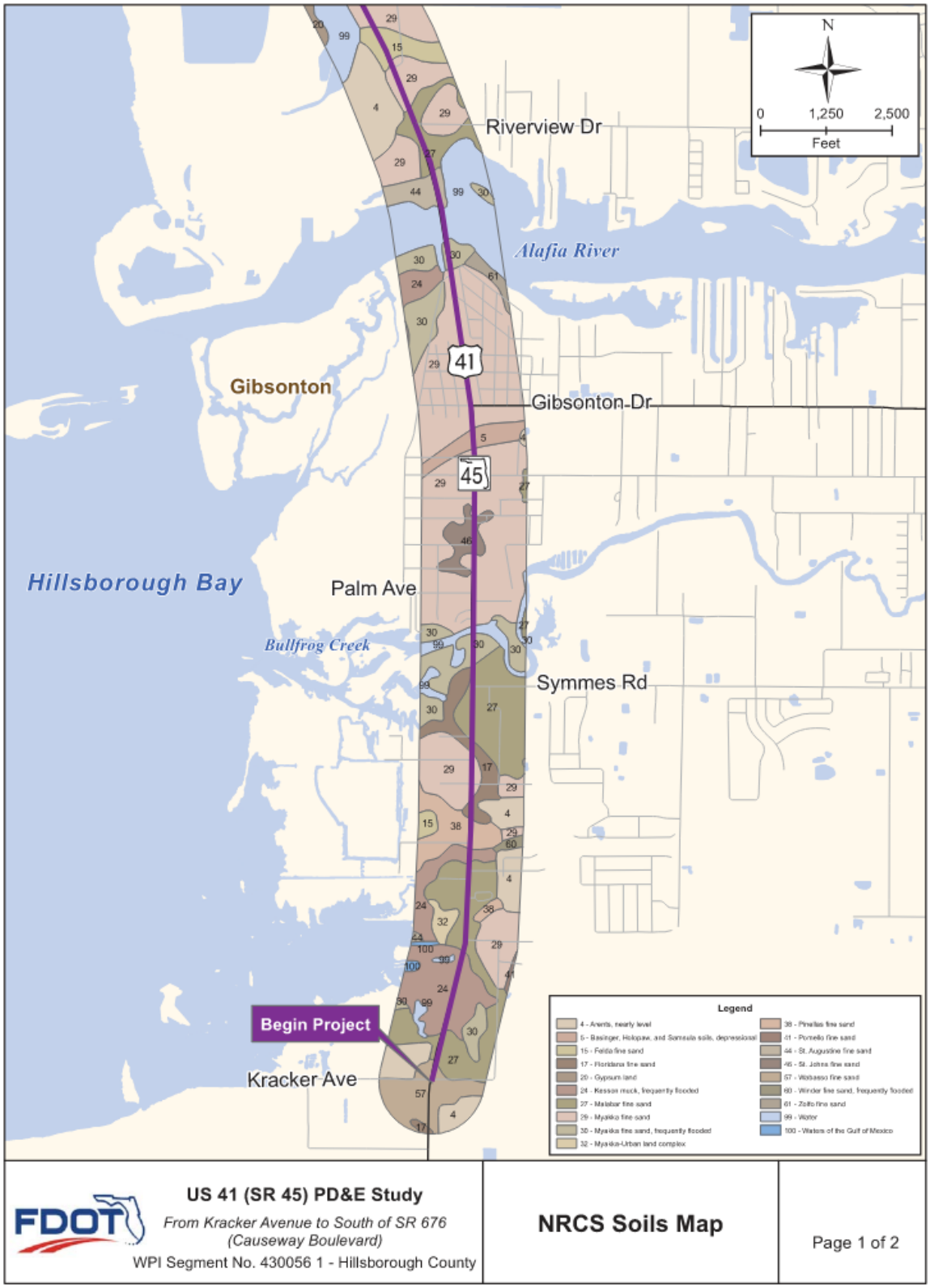


Figure B-1 Soils Map



Figure B-1 Soils Map



Figure B-2 Land Use Map

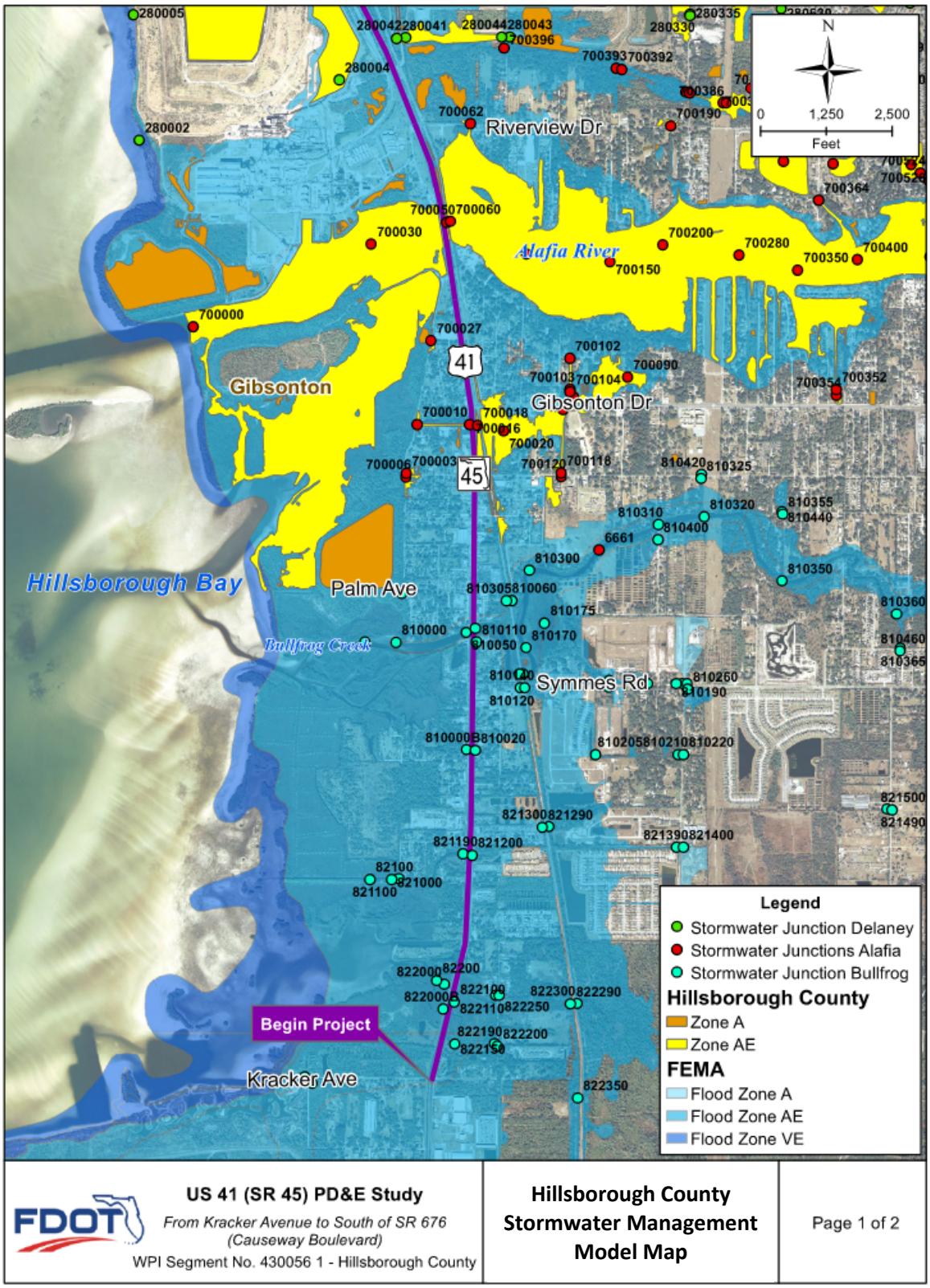


Figure B-3 Hillsborough County Stormwater Management Model (HCSWMM) Map

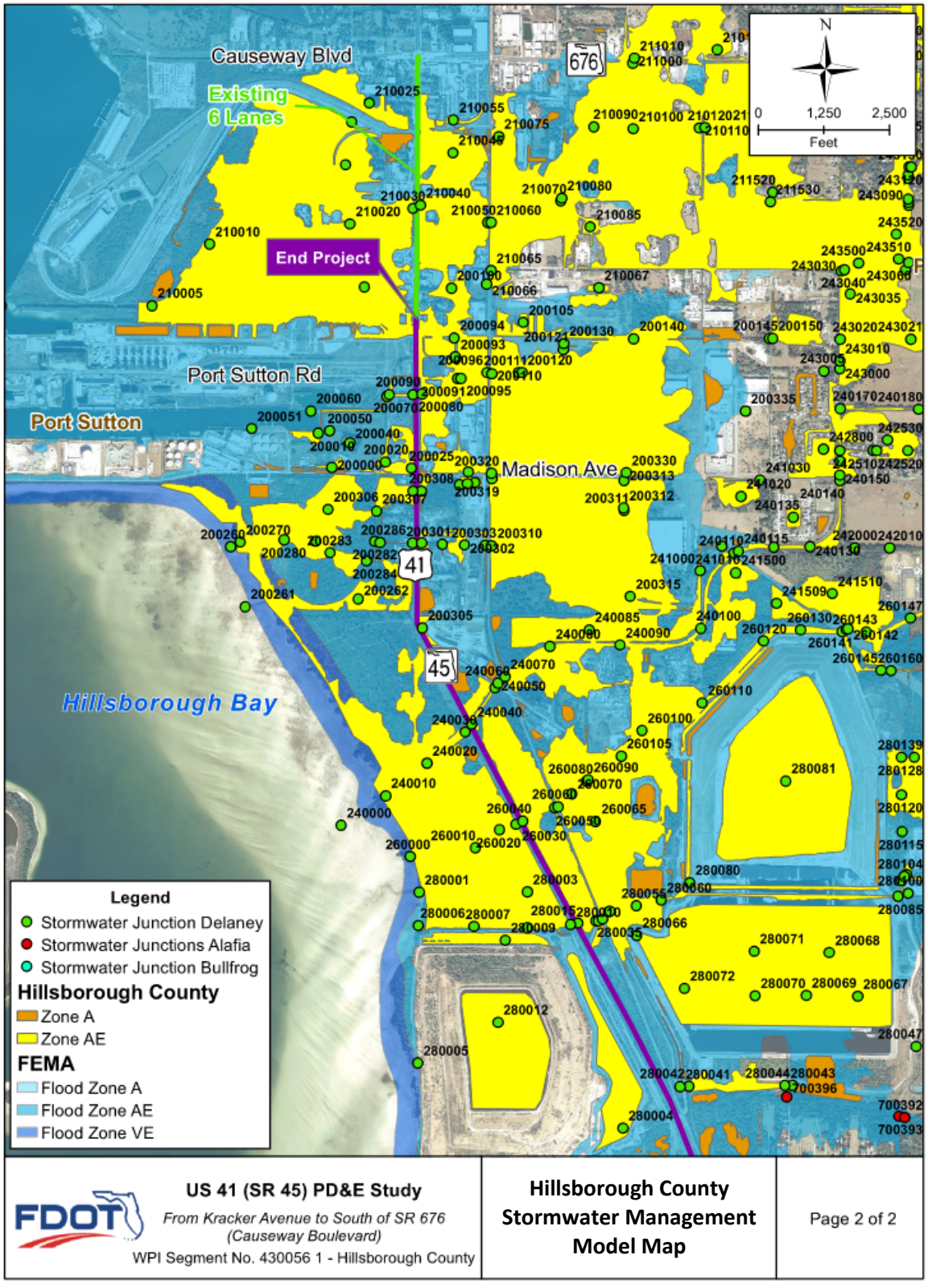


Figure B-3 Hillsborough County Stormwater Management Model (HCSWMM) Map

APPENDIX C

CALCULATIONS

EXISTING LAND USE											
Basin	Sta. From	Sta. To	Length (ft)	Typical R/W Width (ft)	Typical Imp. Width (ft)	Typical Imp. Area (ac)	Add 10% Imp. Area (ac)	Imp. Total (ac)	Pervious Area (ac)	Total Area (ac)	Exist. CN
1	831+00.00	848+90.00	1790	182	56	2.30	0.23	2.53	4.95	7.48	79
2	848+90.00	869+91.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
3	869+91.00	892+40.00	2249	182	56	2.89	0.29	3.18	6.22	9.40	79
4	892+40.00	917+37.00	2497	182	56	3.21	0.32	3.53	6.90	10.43	79
5	917+37.00	946+99.00	2962	182	56	3.81	0.38	4.19	8.19	12.38	79
6	946+99.00	995+51.00	4852	182	56	6.24	0.62	6.86	13.41	20.27	79
7	995+51.00 63+05.00	1034+11.00 96+75.00	7230	182	64	10.62	1.06	11.68	18.52	30.21	80
8	96+75.00	118+66.00	2191	182	56	2.82	0.28	3.10	6.06	9.15	79
9	118+66.00	139+67.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
10	139+67.00	160+58.00	2091	182	56	2.69	0.27	2.96	5.78	8.74	79
11	160+58.00	189+78.00	2920	182	56	3.75	0.38	4.13	8.07	12.20	79
12	189+78.00	208+79.00	1901	182	56	2.44	0.24	2.69	5.25	7.94	79
13	208+79.00	220+62.00	1183	182	56	1.52	0.15	1.67	3.27	4.94	79

Note: The CN value used for pervious area in the calculation is 69.

EXISTING LAND USE											
Basin	Sta. From	Sta. To	Length (ft)	Typical R/W Width (ft)	Typical Imp. Width (ft)	Typical Imp. Area (ac)	Add 10% Imp. Area (ac)	Imp. Total (ac)	Pervious Area (ac)	Total Area (ac)	Exist. CN
1	831+00.00	848+90.00	1790	182	56	2.30	0.23	2.53	4.95	7.48	79
2	848+90.00	869+91.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
3	869+91.00	892+40.00	2249	182	56	2.89	0.29	3.18	6.22	9.40	79
4	892+40.00	917+37.00	2497	182	56	3.21	0.32	3.53	6.90	10.43	79
5	917+37.00	946+99.00	2962	182	56	3.81	0.38	4.19	8.19	12.38	79
6	946+99.00	995+51.00	4852	182	56	6.24	0.62	6.86	13.41	20.27	79
7	995+51.00 63+05.00	1034+11.00 96+75.00	7230	182	64	10.62	1.06	11.68	18.52	30.21	80
8	96+75.00	118+66.00	2191	182	56	2.82	0.28	3.10	6.06	9.15	79
9	118+66.00	139+67.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
10	139+67.00	160+58.00	2091	182	56	2.69	0.27	2.96	5.78	8.74	79
11	160+58.00	189+78.00	2920	182	56	3.75	0.38	4.13	8.07	12.20	79
12	189+78.00	208+79.00	1901	182	56	2.44	0.24	2.69	5.25	7.94	79
13	208+79.00	220+62.00	1183	182	56	1.52	0.15	1.67	3.27	4.94	79

Note: The CN value used for pervious area in the calculation is 69.

PROPOSED LAND USE											
Basin	Sta. From	Sta. To	Length (ft)	Typical R/W Width (ft)	Typical Imp. Width (ft)	Typical Imp. Area (ac)	Add 15% Imp. Area (ac)	Imp. Total (ac)	Pervious Area (ac)	Total Area (ac)	Prop. CN
1	831+00.00	848+90.00	1790	182	109	4.48	0.67	5.15	2.33	7.48	89
2	848+90.00	869+91.00	2101	182	109	5.26	0.79	6.05	2.73	8.78	89
3	869+91.00	892+40.00	2249	182	109	5.63	0.84	6.47	2.92	9.40	89
4	892+40.00	917+37.00	2497	182	109	6.25	0.94	7.19	3.25	10.43	89
5	917+37.00	946+99.00	2962	182	109	7.41	1.11	8.52	3.85	12.38	89
6	946+99.00	995+51.00	4852	182	109	12.14	1.82	13.96	6.31	20.27	89
7	995+51.00 63+05.00	1034+11.00 96+75.00	7230	182	109	18.09	2.71	20.81	9.40	30.21	89
8	96+75.00	118+66.00	2191	182	109	5.48	0.82	6.30	2.85	9.15	89
9	118+66.00	139+67.00	2101	182	109	5.26	0.79	6.05	2.73	8.78	89
10	139+67.00	160+58.00	2091	182	109	5.23	0.78	6.02	2.72	8.74	89
11	160+58.00	189+78.00	2920	182	109	7.31	1.10	8.40	3.80	12.20	89
12	189+78.00	208+79.00	1901	182	109	4.76	0.71	5.47	2.47	7.94	89
13	208+79.00	220+62.00	1183	182	109	2.96	0.44	3.40	1.54	4.94	89

Note: The CN value used for pervious area in the calculation is 69.

Floodplain Encroachments							
Basin No.	**FPC**	**Model Node ID**	**NWL**	**NWL**	**Required Volume**	**Provided Volume**	**Provided Volume**
			Feet NGVD	**Feet NAVD**	*ac-ft*	*cf*	*ac-ft*
3	3A	810000	2.2	1.3	1.37	77,002.80	1.768
	3B	810000	2.2	1.3	1.37	132,361.80	3.039
	3C	810000	2.2	1.3	1.37	228,988.44	5.257
4	4A	810000	2.2	1.3	0.28	18,510.20	0.425
	4B	810000	2.2	1.3	0.28	22,950.22	0.527
	4C	810000	2.2	1.3	0.28	21,975.96	0.504
10	10A	810000	2.2	1.16	5.08	304,880.53	6.999

*NAVD 88 to NGVD 29 conversion factor is -0.9 feet.

US 41 (SR 45) PDE Study
From Kracker Avenue to South of SR 676 (Causeway Boulevard)
Table 7-1 SMF and FPC Site Matrix

SMF #	Pond Area (Ac)	FPC #	FPC Area (Ac)	Conveyance Easement (Ac)	Est. Wetland Impacts (Ac)	Probability of Species Occurrence	Contamination	Cultural Resources[4]	Potential Relocations[1]	Est. Construction Cost[2]	Est. Wetland Mitigation Cost	Est. Right of Way Cost SMF	Est. Total Cost	Comments
1A	1.75	-	-	-	-	Low	Low	Low-Moderate	--	$ 89,673.64	$ -	$2,110,300.00	$ 2,199,973.64	
1B	1.32	-	-	-	-	Low	Low	Moderate (8HI00036)	--	$ 95,653.58	$ -	$ 494,000	$ 589,653.58	Removed based on CRAS
1C	1.71	-	-	-	-	Low	Low	Low-Moderate	--	$ 100,107.68	$ -	$ 709,500	$ 809,607.68	Preferred Alternative
2A	2.02	-	-	-	-	Low	Low	Low-Moderate	--	$ 128,657.60	$ -	$ 1,247,200	$ 1,375,857.60	Preferred Alternative
2B	2.25	-	-	-	-	Low	Low	Moderate-High	--	$ 211,880.36	$ -	$ 1,972,300	$ 2,184,180.36	
2C	3.54	-	-	-	0.1	Low	Low	High (8HI00035)	--	$ 457,092.95	$ -	$ 1,932,800	$ 2,389,892.95	Removed based on CRAS
3A	3.57	3A	[3]	-	-	Low	Low	Low-Moderate	1R + 1B	$ 132,700.33	$ -	$ 3,208,900	$ 3,341,600.33	
3B	5.21	3B	[3]	0.32	-	Low	Low	Low	1B	$ 417,726.58	$ -	$ 2,175,200	$ 2,592,926.58	
3C	6.17	3C	[3]	-	-	Low	Low	Low-Moderate	--	$ 480,415.67	$ -	$ 750,500	$ 1,230,915.67	Preferred Alternative
4A	2.63	4A	[3]	-	-	Low	Medium	Low-Moderate	1B	$ 181,189.63	$ -	$ 1,880,100	$ 2,061,289.63	
4B	2.86	4B	[3]	-	-	Low	Low	Low	1R	$ 383,015.54	$ -	$ 1,109,000	$ 1,492,015.54	
4C	2.25	4C	[3]	-	-	Low	Low	Low-Moderate	--	$ 84,951.87	$ -	$ 1,642,000	$ 1,726,951.87	Preferred Alternative
5A	4.97	-	-	-	-	Low	Low	Low-Moderate	1R + 1B	$ 373,615.32	$ -	$ 2,373,900	$ 2,747,515.32	
5B	5.03	-	-	-	-	Low	Low	Low	--	$ 569,481.63	$ -	$ 978,700	$ 1,548,181.63	Preferred Alternative
6A	4.34	-	-	0.68	-	Low	Low	Low-Moderate	1B	$ 526,411.61	$ -	$ 3,262,100	$ 3,788,511.61	Preferred Alternative
6B[5]	6.86	-	-	-	-	Low	Medium	Low	1B	$1,271,159.98	$ -	$ 2,693,600	$ 3,964,759.98	Involves CSX Coordination
6C[5]	2.41	-	-	-	-	Low	Medium	Low	--	$1,677,237.73	$ -	$ 742,100	$ 2,419,337.73	Involves CSX Coordination
6D1	1.2	-	-	-	-	Low	Medium	Low	1B	$ 122,011.50	$ -	$ 5,295,500	$ 5,515,129.13	
6D2	1.41	-	-	-	-	Low	Medium	Low	--	$ 97,617.63	$ -			
7A	7.13	-	-	-	1.63	Low	Low	Low	--	$ 366,165.95	$ -	$ 1,411,400	$ 1,777,565.95	Preferred Alternative
7B	5.00	-	-	-	-	Low	Low	Moderate	--	$ 268,411.57	$ -	$ 1,863,400	$ 2,131,811.57	
8A	4.13		-	-	-	Low	No	Low	--	$ 297,280.94	$ -	$ 483,200	$ 780,480.94	
8B	2.00	-	-	-	0.25	Low	No	Low	--	$ 174,043.17	$ -	$ 472,300	$ 646,343.17	Preferred Alternative
9A/10A	6.35	10A	-	-	-	Low	No	Low	--	$ 171,598.10	$ -	$ 1,199,300	$ 1,370,898.10	Preferred Alternative

[1] R = Residential; B = Business – (the business relocations are for landlord business for the residential relocations)

[2] Engineer's Estimate of Construction Cost provided in Appendix D.

[3] FPC cost included in R/W area.

[4] All cultural resources ratings for historic archaeological potential are "Low"; The ratings listed are for prehistoric archaeological potential.

[5] SMF 6B and 6C include a $1,000,000 construction cost to account for expenses associated with the CSX Railroad crossing, including but not limited to coordination, flagging, permits, and easements. The actual cost may be significantly higher depending on the required easement.

Stormwater Management Calculations
Basin 1

BASIN 1

POND PROPERTIES, SMF 1A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

$ReqVol := 1.2acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.44 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.62acre \cdot ft$

Stage Storage Calculations

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 2ft$

Pond CWE Area $A_{CWE} := 0.479acre$

Pond top of bank elevation $TOB := 6ft$

Top of Bank Area $A_{TOB} := 0.798 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	2 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	3	0.479	0.04	0.519
2	4	0.958	0.159	1.118
3	5	1.437	0.359	1.796
4	6	1.916	0.638	2.554

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.17\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.169\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 1.796\ ft \cdot acre$

$ReqVol_{20} = 1.44\ ft \cdot acre$

Stormwater Management Calculations
Basin 1

BASIN 1

POND PROPERTIES, SMF 1C

Storage requirement, from spreadsheet
Treatment requirement, from spreadsheet

$ReqVol := 1.2acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.44 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.62acre \cdot ft$

Stage Storage Calculations

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.796acre$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.084 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$

Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$

Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.796	0.036	0.832
2	5	1.592	0.144	1.736
3	6	2.388	0.324	2.712
4	7	3.184	0.576	3.76

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.75\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.745\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.712\ ft \cdot acre$

$ReqVol_{20} = 1.44\ ft \cdot acre$

Stormwater Management Calculations
Basin 1

[1]**BASIN 2**
POND PROPERTIES, SMF 2A

Storage requirement, from spreadsheet
Treatment requirement, from spreadsheet

$ReqVol := 1.50acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.8 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.73acre \cdot ft$

Stage Storage Calculations

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.482acre$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 0.873 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.482	0.049	0.531
2	5	0.964	0.196	1.159
3	6	1.446	0.44	1.886
4	7	1.928	0.782	2.71

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.32\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.317\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 1.886\ ft \cdot acre$

$ReqVol_{20} = 1.8\ ft \cdot acre$

Stormwater Management Calculations

BASIN 2

POND PROPERTIES, SMF 2B

Storage requirement, from spreadsheet

$ReqVol := 1.50acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.8 \cdot acre \cdot ft$

(Required volume increase by 20%)

Treatment requirement, from spreadsheet

$WQ_{Vol} := 0.73acre \cdot ft$

Stage Storage Calculations

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.807acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.219 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.807	0.052	0.858
2	5	1.614	0.206	1.82
3	6	2.421	0.464	2.885
4	7	3.228	0.824	4.052

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.85\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.85\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.884\ ft \cdot acre$

$ReqVol_{20} = 1.8\ ft \cdot acre$

Stormwater Management Calculations

BASIN 3

POND PROPERTIES, SMF 3A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 1.60acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.92 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.78acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Myakka Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.200acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.548 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.2	0.044	1.243
2	5	2.4	0.174	2.574
3	6	3.6	0.392	3.991
4	7	4.8	0.696	5.496

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.63\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.627\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 3.991\ ft \cdot acre$

$ReqVol_{20} = 1.92\ ft \cdot acre$

Stormwater Management Calculations

BASIN 3

POND PROPERTIES, SMF 3B

Storage requirement, from spreadsheet

$ReqVol := 1.60acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.92 \cdot acre \cdot ft$

(Required volume increase by 20%)

Treatment requirement, from spreadsheet

$WQ_{Vol} := 0.78acre \cdot ft$

Stage Storage Calculations

Note: The elevation of the existing ground is 5. Soils are Myakka Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.329acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.714 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.329	0.048	1.377
2	5	2.658	0.192	2.85
3	6	3.987	0.433	4.42
4	7	5.316	0.77	6.086

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.57\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.566\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 4.42\ ft \cdot acre$

$ReqVol_{20} = 1.92\ ft \cdot acre$

Stormwater Management Calculations

BASIN 3

POND PROPERTIES, SMF 3C

Storage requirement, from spreadsheet

$ReqVol := 1.60acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.92 \cdot acre \cdot ft$

(Required volume increase by 20%)

Treatment requirement, from spreadsheet

$WQ_{Vol} := 0.78acre \cdot ft$

Stage Storage Calculations

Note: The elevation of the existing ground is 5. Soils are Myakka Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.859acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 2.290 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.859	0.054	1.913
2	5	3.718	0.216	3.933
3	6	5.577	0.485	6.062
4	7	7.436	0.862	8.298

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.41\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.408\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 6.062\ ft \cdot acre$

$ReqVol_{20} = 1.92\ ft \cdot acre$

Stormwater Management Calculations

BASIN 4

POND PROPERTIES, SMF 4A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 1.70acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 2.04 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.03acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Malabar Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.877acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.258 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.877	0.048	0.925
2	5	1.754	0.191	1.944
3	6	2.631	0.429	3.06
4	7	3.508	0.762	4.27

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.10\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.103\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 3.06\ ft \cdot acre$

$ReqVol_{20} = 2.04\ ft \cdot acre$

Stormwater Management Calculations

BASIN 4

POND PROPERTIES, SMF 4B

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 1.70acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 2.04 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.03acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Malabar Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.780acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.118 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.78	0.042	0.822
2	5	1.56	0.169	1.729
3	6	2.34	0.38	2.72
4	7	3.12	0.676	3.796

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.23\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.229\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.72\ ft \cdot acre$

$ReqVol_{20} = 2.04\ ft \cdot acre$

Stormwater Management Calculations

BASIN 4

POND PROPERTIES, SMF 4C

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 1.70acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 2.04 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.03acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Malabar Sands.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.705acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.010 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.705	0.038	0.743
2	5	1.41	0.153	1.562
3	6	2.115	0.343	2.458
4	7	2.82	0.61	3.43

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.35\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.35\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.458\ ft \cdot acre$

$ReqVol_{20} = 2.04\ ft \cdot acre$

Stormwater Management Calculations

BASIN 5

POND PROPERTIES, SMF 5A

Storage requirement, from spreadsheet

$ReqVol := 2.10acre \cdot ft$

Treatment requirement, from spreadsheet

$ReqVol_{20} := ReqVol \cdot 1.20 = 2.52 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.03acre \cdot ft$

Stage Storage Calculations

Pond CWE elevation $CWE := 3ft$

Note: The elevation of the existing ground is 5. Soils are Myakka Sands.

Pond CWE Area $A_{CWE} := 2.399acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 2.891 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	2.399	0.061	2.46
2	5	4.798	0.246	5.044
3	6	7.197	0.554	7.751
4	7	9.596	0.984	10.58

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.42\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.419\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 7.75\ ft \cdot acre$

$ReqVol_{20} = 2.52\ ft \cdot acre$

Stormwater Management Calculations

BASIN 5

POND PROPERTIES, SMF 5B

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 2.10acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 2.52 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.03acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Myakka Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 2.563acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 3.141 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	2.563	0.072	2.635
2	5	5.126	0.289	5.415
3	6	7.689	0.65	8.339
4	7	10.252	1.156	11.408

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.39\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.391\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 8.339\ ft \cdot acre$

$ReqVol_{20} = 2.52\ ft \cdot acre$

Stormwater Management Calculations

BASIN 6

POND PROPERTIES, SMF 6A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 3.40acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 4.08 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.69acre \cdot ft$

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.998acre$

Note: The elevation of the existing ground is 5. Soils are Myakka Sands

Pond top of bank elevation $TOB := 7ft$

Existing Low EOP = x.xx ft

Top of Bank Area $A_{TOB} := 2.445 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.998	0.056	2.054
2	5	3.996	0.223	4.219
3	6	5.994	0.503	6.497
4	7	7.992	0.894	8.886

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.82\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.823\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 6.497\ ft \cdot acre$

$ReqVol_{20} = 4.08\ ft \cdot acre$

Stormwater Management Calculations

BASIN 6

POND PROPERTIES, SMF 6B

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 3.40acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 4.08 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.69acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Myakka Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 4.257acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 5.025 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	4.257	0.096	4.353
2	5	8.514	0.384	8.898
3	6	12.771	0.864	13.635
4	7	17.028	1.536	18.564

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.39\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.388\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 13.635\ ft \cdot acre$

$ReqVol_{20} = 4.08\ ft \cdot acre$

Stormwater Management Calculations

BASIN 6

POND PROPERTIES, SMF 6C

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 3.40acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 4.08 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.69acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.802acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.245 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.802	0.055	0.857
2	5	1.604	0.221	1.825
3	6	2.406	0.498	2.904
4	7	3.208	0.886	4.094

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.86\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.86\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.904\ ft \cdot acre$

$ReqVol_{20} = 4.08\ ft \cdot acre$

Stormwater Management Calculations

BASIN 6

POND PROPERTIES, SMF 6D (6D1 + 6D2)

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 3.40acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 4.08 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 1.69acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 2ft$

Pond CWE Area $A_{CWE} := 0.547acre + 0.215acre = 0.762 \cdot acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 0.881 \cdot acre + 0.565acre = 1.446 \cdot acre$

Available storage depth $Depth := TOB - CWE \qquad Depth = 5\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	2 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	3	0.762	0.068	0.83
2	4	1.524	0.274	1.798
3	5	2.286	0.616	2.902
4	6	3.048	1.094	4.142
5	7	3.81	1.71	5.52

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.89\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.889\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 4.142\ ft \cdot acre$

$ReqVol_{20} = 4.08\ ft \cdot acre$

Stormwater Management Calculations

BASIN 7

POND PROPERTIES, SMF 7A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 5.00acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 6 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 2.52acre \cdot ft$

Note: The elevation of the existing ground is 6-8 feet. Soils are Myakka Sand.

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 4.737acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 6.08 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	4.737	0.168	4.905
2	5	9.474	0.671	10.145
3	6	14.211	1.511	15.722
4	7	18.948	2.686	21.634

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.51\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.514\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 15.722\ ft \cdot acre$

$ReqVol_{20} = 6\ ft \cdot acre$

Stormwater Management Calculations

BASIN 7

POND PROPERTIES, SMF 7B

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 5.00acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 6 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 2.52acre \cdot ft$

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.957acre$

Note: The elevation of the existing ground is 6-8 feet. Soils are Myakka Sand.

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 2.608 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.957	0.081	2.038
2	5	3.914	0.325	4.239
3	6	5.871	0.732	6.603
4	7	7.828	1.302	9.13

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.22\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.219\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 6.603\ ft \cdot acre$

$ReqVol_{20} = 6\ ft \cdot acre$

Stormwater Management Calculations

BASIN 8

POND PROPERTIES, SMF 8A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 1.50acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.8 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.76acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.869acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 2.442 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.869	0.072	1.941
2	5	3.738	0.287	4.024
3	6	5.607	0.645	6.252
4	7	7.476	1.146	8.622

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.39\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.392\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 6.252\ ft \cdot acre$

$ReqVol_{20} = 1.8\ ft \cdot acre$

Stormwater Management Calculations

BASIN 8

POND PROPERTIES, SMF 8B

Storage requirement, from spreadsheet

$ReqVol := 1.50acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 1.8 \cdot acre \cdot ft$

(Required volume increase by 20%)

Treatment requirement, from spreadsheet

$WQ_{Vol} := 0.76acre \cdot ft$

Stage Storage Calculations

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 0.573acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 0.921 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	0.573	0.044	0.616
2	5	1.146	0.174	1.32
3	6	1.719	0.392	2.111
4	7	2.292	0.696	2.988

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 4.20\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 1.204\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 2.11\ ft \cdot acre$

$ReqVol_{20} = 1.8\ ft \cdot acre$

Stormwater Management Calculations

BASIN 9

POND PROPERTIES, SMF 9A/10A

Storage requirement, from spreadsheet

Treatment requirement, from spreadsheet

Stage Storage Calculations

$ReqVol := 3.00acre \cdot ft$

$ReqVol_{20} := ReqVol \cdot 1.20 = 3.6 \cdot acre \cdot ft$

(Required volume increase by 20%)

$WQ_{Vol} := 0.73acre \cdot ft$

Note: The elevation of the existing ground is 5. Soils are Wabasso Fine Sands

Pond CWE elevation $CWE := 3ft$

Pond CWE Area $A_{CWE} := 1.405acre$

Pond top of bank elevation $TOB := 7ft$

Top of Bank Area $A_{TOB} := 1.787 \cdot acre$

Available storage depth $Depth := TOB - CWE$ $Depth = 4\ ft$

Number of pond stages desired $stage_{number} := Depth \div 1.0ft$

$i := 0 .. stage_{number}$

stage increment $incr := Depth \div stage_{number}$

$stage_i := i \cdot incr$

$elev_i := CWE + i \cdot incr$

Vertical Pond Storage (Vpv) $Vpv1_i := if\left[elev_i > CWE, \left(elev_i - CWE\right) \cdot A_{CWE}, 0\right]$ Note: Vertical storage is storage above the pond bottom or the control water elevation.

Linear Pond Storage (Vpl) $Vpl1_i := if\left[elev_i > CWE \wedge elev_i < TOB + 1in, \frac{\left[\left(elev_i - CWE\right)^2\right] \cdot \left(A_{TOB} - A_{CWE}\right)}{2 \cdot (TOB - CWE)}, 0\right]$

Total wet pond storage $Vpond1 := Vpv1 + Vpl1$ Note: Linear storage is storage over the pond side slopes

Stage Storage Calculation Results

$stage_i =$	$elev_i =$	Vertical Pond Storage (Vpv) $Vpv1_i =$	Linear Pond Storage (Vpl) $Vpl1_i =$	Total dry pond storage (Vpond) $Vpond1_i =$
0 ft	3 ft	0 ·acre·ft	0 ·acre·ft	0 ·acre·ft
1	4	1.405	0.048	1.453
2	5	2.81	0.191	3.001
3	6	4.215	0.43	4.645
4	7	5.62	0.764	6.384

Top of attenuation pool $Att_{elev} := TOB - 1ft$

Water Quality volume stage $Stage_{WQ} := linterp\left(Vpond1, elev, WQ_{Vol}\right)$ $Stage_{WQ} = 3.50\ ft$

Water Quality depth $WQ_{Depth} := Stage_{WQ} - CWE$ $WQ_{Depth} = 0.502\ ft$

Proposed storage volume at weir $Storage_{vol} := linterp\left(elev, Vpond1, Att_{elev}\right)$ $Storage_{vol} = 4.645\ ft \cdot acre$

$ReqVol_{20} = 3.6\ ft \cdot acre$

APPENDIX D

ENGINEER'S ESTIMATE OF CONSTRUCTION COST

Earthw+A1:L23ork Cost Estimate										
SMF/FPC #	Cut cy	Fill cy	Unit Cost 0120 1	0120 6	Linear Ft of 30" Pipe	430175130	4.3E+08 Linear Ft of 36" Pipe		Estimated Construction Cost for CSX Coordinatio	Total
SMF 1A	1,434.62	2,357.23	16.50	28.00	-	-				$ 89,673.64
SMF 1B	2,777.12	1,779.68	16.50	28.00	-	-				$ 95,653.58
SMF 1C	2,777.16	1,938.73	16.50	28.00	-	-				$ 100,107.68
SMF 2A	304.55	4,415.45	16.50	28.00	-	-				$ 128,657.60
SMF 2B	506.05	7,268.94	16.50	28.00	-	-				$ 211,880.36
SMF 2C	3,816.27	14,075.87	16.50	28.00	-	-				$ 457,092.95
SMF 3A	2,653.28	3,175.76	16.50	28.00	-	-				$ 132,700.33
SMF 3B	4,366.70	3,774.15	16.50	28.00	800.00	300.00				$ 417,726.58
SMF 3C	1.33	8,585.49	16.50	28.00	800	300.00				$ 480,415.67
SMF 4A	3,733.25	4,271.11	16.50	28.00	-	-				$ 181,189.63
SMF 4B	2,654.34	2,472.11	16.50	28.00	900	300.00				$ 383,015.54
SMF 4C	1,082.55	2,396.06	16.50	28.00	-	-				$ 84,951.87
SMF 5A	6,792.67	9,340.58	16.50	28.00	-	-				$ 373,615.32
SMF 5B	17,882.38	693.66	16.50	28.00	850	300.00				$ 569,481.63
SMF 6A	1,463.26	10,438.14	16.50	28.00	700.00	300.00				$ 526,411.61
SMF 6B	12,630.28	2,241.44	16.50	28.00	-	-			1,000,000	$ 1,271,159.98
SMF 6C	8,038.76	1,592.80	16.50	28.00	-	-	200	2,500	1,000,000	$ 1,677,237.73
SMF 6D1	7,392.47	1.28	16.50	28.00	-	-				$ 122,011.50
SMF 6D2	396.82	3,252.50	16.50	28.00	-	-				$ 97,617.63
SMF 7A	20,942.22	736.40	16.50	28.00	-	-				$ 366,165.95
SMF 7B	14,068.32	1,295.87	16.50	28.00	-	-				$ 268,411.57
SMF 8A	291.24	10,445.55	16.50	28.00	-	-				$ 297,280.94
SMF 8B	271.59	6,055.78	16.50	28.00	-	-				$ 174,043.17
SMF 9A	4,259.18	3,769.29	16.50	28.00	-	-				$ 175,816.56
SMF 10A	2,242.47	4,807.05	16.50	28.00	-	-				$ 171,598.10
FPC 3A	2,851.96	0.70	16.50	28.00	-	-				$ 47,076.81
FPC 3B	2,688.35	2,237.29	16.50	28.00	-	-				$ 107,001.83
FPC 3C	8,481.05	0.65	16.50	28.00	-	-				$ 139,955.47
FPC 4A	685.56	39.16	16.50	28.00	-	-				$ 12,408.30
FPC 4B	850.01	149.81	16.50	28.00	-	-				$ 18,219.86
FPC 4C	813.92	0.04	16.50	28.00	-	-				$ 13,430.94

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 1A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	9-Jan-25
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.							TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 20,000 =	20,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$89,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	650,787	x	120%	* *Design plan stage*	=	780,900		
14. Water Retention & Mit. (1 Pond)	366,983	x	120%	(0 Parcels w/o R/W Acq)		440,400		
15. SUBTOTAL (55,321)				(Lines 13 &14)			1,221,300	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	549,600		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	549,600	x	33%	)	=	181,400		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		780,000	
26.						TOTAL PHASE 43		$2,001,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $2,110,300

Real Estate:	Roger D. Patton	Signed:		Date: 01/15/25
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25
Relocation:	Roger D. Patton	Signed:		Date: 01/15/25
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 1B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Ponds)		185,565	x	120% (0 Parcels w/o R/W Acq)		222,700		
15. SUBTOTAL (57,499 SF)				(Lines 13 &14)			222,700	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	100,200		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	100,200	x	33%)	=	33,100		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		182,300	
26.						TOTAL PHASE 43		$405,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount		
28. Owner		$41,200	x	0	=	0		
29. Tenant		$25,000	x	0	=	0		
	Move Costs							
30. Residential		$3,000	x	0	=	0		
31. Business/Farm		$53,200	x	0	=	0		
32. Personal Property		$3,000	x	0	=	0		
33. (Lines 28 thru 32)							TOTAL PHASE 45	$0
34. Relocation Services Cost				$0	(Not in Phase Total)			

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$494,000

Real Estate:	Roger D. Patton	Signed:		Date:	08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	08/26/24
Relocation:	Roger D. Patton	Signed:		Date:	08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 1C	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		297,952	x	120% (0 Parcels w/o R/W Acq)		357,500		
15. SUBTOTAL (74,488)				(Lines 13 &14)			357,500	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	160,900		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	160,900	x	33%)	=	53,100		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		263,000	
26.						TOTAL PHASE 43		$620,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42		$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount		
28. Owner		$41,200	x	0	=	0		
29. Tenant		$25,000	x	0	=	0		
	Move Costs							
30. Residential		$3,000	x	0	=	0		
31. Business/Farm		$53,200	x	0	=	0		
32. Personal Property		$3,000	x	0	=	0		
33. (Lines 28 thru 32)						TOTAL PHASE 45		$0
34. Relocation Services Cost				$0	(Not in Phase Total)			
35.								
36.								
37.					(All Phases)	TOTAL ESTIMATE		$709,500

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 2A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	9-Jan-25
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	1	1
Unimproved	1	1
Total Parcels	2	2

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	2	x	20,000 =	Rate)		40,000	
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$40,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					2	Parcels	x 35,000 =	70,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	2	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	2	= 2	Parcels	x	30,000 =	60,000	
8. Mediators	75%	x	2	= 2	Parcels	x	3,500 =	7,000	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$142,500

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	53,360	x	120% * *Design plan stage*	=	64,000			
14. Water Retention & Mit. (1 Pond)	533,176	x	120% (0 Parcels w/o R/W Acq)	=	639,800			
15. SUBTOTAL (66,647)			(Lines 13 &14)			703,800		
16. Admin. Settlements (Factor	20%	x	60% of Line 15)	=	84,500			
17. Litigation Awards (Factor	45%	x	40% of Line 15)	=	126,700			
18. Business Damages (Claims	0	x	0)	=	0			
19. Bus. Damages Incrs. (Factor	25%	x	$ -)	=	0			
20. Owner Appr. Fees (Parcels	2	x	$30,000)	=	60,000			
21. Owner CPA Fees (Claims	0	x	$25,000)	=	0			
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	211,200	x	33%)	=	69,700			
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1) x 18,000	=	18,000			
24. Other Condemn. Costs	2	x	$1,000	=	2,000			
25. SUBTOTAL			(Lines 16 thru 24)	=		360,900		
26.						TOTAL PHASE 43		$1,064,700

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42		$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$1,247,200

Real Estate:	Roger D. Patton	Signed:	Roger D. Patton	Date:	01/15/25
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/25
Relocation:	Roger D. Patton	Signed:	Roger D. Patton	Date:	01/15/25
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/25

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

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The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 2B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	9-Jan-25
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	1	1
Unimproved	1	1
Total Parcels	2	2

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	2	x	20,000 =	Rate)			40,000	
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$40,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					2	Parcels	x 35,000 =	70,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	2	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	2	=	2	Parcels	x 30,000 =	60,000	
8. Mediators	75%	x	2	=	2	Parcels	x 3,500 =	7,000	
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 20,000 =	20,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$162,500

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	404,030	x	120%	* *Design plan stage*	=	484,800		
14. Water Retention & Mit. (1 Pond)	602,556	x	120%	(0 Parcels w/o R/W Acq)	=	723,100		
15. SUBTOTAL (70,132 SF)				(Lines 13 &14)			1,207,900	
16. Admin. Settlements (Factor	20%	x	60%	of Line 15)	=	144,900		
17. Litigation Awards (Factor	45%	x	40%	of Line 15)	=	217,400		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	2	x	$30,000	)	=	60,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	362,300	x	33%	)	=	119,600		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	2	x	$1,000		=	2,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		561,900	
26.						TOTAL PHASE 43		$1,769,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount
28. Owner	$41,200	x	0	=		0
29. Tenant	$25,000	x	0	=		0
	Move Costs					
30. Residential	$3,000	x	0	=		0
31. Business/Farm	$53,200	x	0	=		0
32. Personal Property	$3,000	x	0	=		0
33. (Lines 28 thru 32)					TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.						
37.				(All Phases)	TOTAL ESTIMATE	$1,972,300

Real Estate:	Roger D. Patton	Signed:		Date: 01/15/25
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25
Relocation:	Roger D. Patton	Signed:		Date: 01/15/25
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

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X	Type C - indicates below average confidence
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The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 2C	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

							Amount	
4. Appraisal Fees Through Trial				1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial				0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1 =	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1 =	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1 =	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.				1	Imprvmet	x 20,000 =	20,000	
10. Miscellaneous Contracts				0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review				0	Parcels	x 5,000 =	0	
12.						TOTAL PHASE 4B		$89,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		925,212	x	120% (0 Parcels w/o R/W Acq)		1,110,300		
15. SUBTOTAL (154,202 SF)				(Lines 13 &14)			1,110,300	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	499,600		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	499,600	x	33%)	=	164,900		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		713,500	
26.						TOTAL PHASE 43		$1,823,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount
28. Owner		$41,200	x	0	=	0
29. Tenant		$25,000	x	0	=	0
	Move Costs					
30. Residential		$3,000	x	0	=	0
31. Business/Farm		$53,200	x	0	=	0
32. Personal Property		$3,000	x	0	=	0
33. (Lines 28 thru 32)						TOTAL PHASE 45 $0
34. Relocation Services Cost				$0	(Not in Phase Total)	

35.			
36.			
37.		(All Phases)	TOTAL ESTIMATE $1,932,800

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

Demolition for the remains of a burned out residence is included.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 3A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	1
Unimproved	1	0
Total Parcels	1	1

Estimated Relocatees:	
Business	1
Residential	3
Signs	0
Special	1
Total Relocatees	5

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					3	Imprvmet	x 20,000 =	60,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$129,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)	1,505,892	x	120%	(0 Parcels w/o R/W Acq)		1,807,100		
15. SUBTOTAL (155,509)				(Lines 13 &14)			1,807,100	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	813,200		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	813,200	x	33%	)	=	268,400		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	0	) x 18,000	=	0		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		1,112,600	
26.						TOTAL PHASE 43		$2,919,700

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	3	=	75,000
	Move Costs				
30. Residential	$3,000	x	3	=	9,000
31. Business/Farm	$53,200	x	1	=	53,200
32. Personal Property	$3,000	x	1	=	3,000
33. (Lines 28 thru 32)					TOTAL PHASE 45 $140,200
34. Relocation Services Cost			$14,020	(Not in Phase Total)	

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $3,208,900

Real Estate:	Roger D. Patton	Signed:	Electron	Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:	Electron	Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 3B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	1
Total Relocatees	1

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					1	Claims	x 25,000 =	25,000	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 20,000 =	20,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$114,000

R/W LAND COSTS (PHASE 43)

							Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=		0		
14. Water Retention & Mit. (1 Pond)		780,844	x	120% (0 Parcels w/o R/W Acq)	=		937,000		
15. SUBTOTAL (226,948)				(Lines 13 &14)				937,000	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=		0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=		421,700		
18. Business Damages	(Claims	1	x	0)	=		350,000		
19. Bus. Damages Incrs.	(Factor	25%	x	$ 350,000)	=		87,500		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=		30,000		
21. Owner CPA Fees	(Claims	1	x	$25,000)	=		25,000		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	509,200	x	33%)	=		168,000		
23. Owner Expert Witness	(Comm.+Unimp.)	1	+	0) x 18,000	=		18,000		
24. Other Condemn. Costs		1	x	$1,000	=		1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=			1,101,200	
26.						TOTAL PHASE 43			$2,038,200

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0		TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	1	=	3,000		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$3,000
34. Relocation Services Cost			$300	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$2,175,200

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

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	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 3C	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount			x 120% * *Design plan stage*		=	0		
14. Water Retention & Mit. (1 Pond)	403,148	x	120% (0 Parcels w/o R/W Acq)			483,800		
5. SUBTOTAL (268,765)			(Lines 13 &14)				483,800	
16. Admin. Settlements	(Factor	20%	x	100% of Line 15)	=	96,800		
17. Litigation Awards	(Factor	45%	x	0% of Line 15)	=	0		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	96,800	x	33%)	=	31,900		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		177,700	
26.						TOTAL PHASE 43		$661,500

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $750,500

Real Estate:	Roger D. Patton	Signed:	Roger D. Patton	Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:	Roger D. Patton	Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be 100%, while litigation is factored at zero to reflect the government/public ownership.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 4A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	2	2
Residential	0	0
Unimproved	0	0
Total Parcels	2	2

Estimated Relocatees:	
Business	2
Residential	0
Signs	0
Special	0
Total Relocatees	2

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	2	x	20,000 =	Rate)		40,000	
2. Indirect Overhead	(Parcels	2	x	0 =	Rate)		0	
3.							TOTAL PHASE 41	$40,000

R/W OPS (PHASE 4B)

									Amount	
4. Appraisal Fees Through Trial					2	Parcels	x	35,000 =	70,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x	25,000 =	0	
6. Court Reporter & Process Servers	50%	x	2	=	1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	2	=	2	Parcels	x	30,000 =	60,000	
8. Mediators	75%	x	2	=	2	Parcels	x	3,500 =	7,000	
9. Demolition, Asb. Abate., Survey, etc.					2	Imprvmet	x	20,000 =	40,000	
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0	
11. Appraisal Fee Review					1	Parcels	x	5,000 =	5,000	
12.								TOTAL PHASE 4B		$182,500

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)	1,061,504	x	120%	(0 Parcels w/o R/W Acq)		1,273,800		
15. SUBTOTAL (114,563)				(Lines 13 &14)			1,273,800	
16. Admin. Settlements (Factor	20%	x	60%	of Line 15)	=	152,900		
17. Litigation Awards (Factor	45%	x	40%	of Line 15)	=	229,300		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	2	x	$30,000	)	=	60,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	382,200	x	33%	)	=	126,100		
23. Owner Expert Witness (Comm.+Unimp.)	2	+	0	) x 18,000	=	36,000		
24. Other Condemn. Costs	2	x	$1,000		=	2,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		606,300	
26.						TOTAL PHASE 43		$1,880,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

					Number		Amount	
	Replacement Housing							
28. Owner		$41,200	x	0	=	0		
29. Tenant		$25,000	x	0	=	0		
	Move Costs							
30. Residential		$3,000	x	0	=	0		
31. Business/Farm		$53,200	x	2	=	106,400		
32. Personal Property		$3,000	x	0	=	0		
33. (Lines 28 thru 32)							TOTAL PHASE 45	$106,400
34. Relocation Services Cost				$10,640	(Not in Phase Total)			
35.								
36.								
37.					(All Phases)		TOTAL ESTIMATE	$2,209,000

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

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X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 4B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	1
Residential	2
Signs	0
Special	1
Total Relocatees	4

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels		x 500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels		x 30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels		x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					5	Imprvmet	x 20,000 =	100,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$169,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount			x 120% * *Design plan stage*		=	0		
14. Water Retention & Mit. (1 Pond)	395,604	x	120% (0 Parcels w/o R/W Acq)			474,700		
5. SUBTOTAL (102,802)			(Lines 13 &14)				474,700	
16. Admin. Settlements	(Factor	20%	x 0% of Line 15)		=	0		
17. Litigation Awards	(Factor	45%	x 100% of Line 15)		=	213,600		
18. Business Damages	(Claims	0	x 0)		=	0		
19. Bus. Damages Incrs.	(Factor	25%	x $ -)		=	0		
20. Owner Appr. Fees	(Parcels	1	x $30,000)		=	30,000		
21. Owner CPA Fees	(Claims	0	x $25,000)		=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	213,600	x 33%)		=	70,500		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+ 1) x	18,000	=	18,000		
24. Other Condemn. Costs		1	x $1,000		=	1,000		
25. SUBTOTAL			(Lines 16 thru 24)		=		333,100	
26.						TOTAL PHASE 43		$807,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	2	=	50,000		
	Move Costs						
30. Residential	$3,000	x	2	=	6,000		
31. Business/Farm	$53,200	x	1	=	53,200		
32. Personal Property	$3,000	x	1	=	3,000		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$112,200
34. Relocation Services Cost			$11,220	(Not in Phase Total)			

35.			
36.			
37.	(All Phases)	TOTAL ESTIMATE	$1,109,000

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

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	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF/FPC 4C	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	9-Jan-25
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	108,032	x	120%	* *Design plan stage*	=	129,600		
14. Water Retention & Mit. (1 Pond)	676,048	x	120%	(0 Parcels w/o R/W Acq)		811,300		
15. SUBTOTAL (85,506)				(Lines 13 &14)			940,900	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	423,400		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	423,400	x	33%	)	=	139,700		
23. Owner Expert Witness (Comm.+Unimp.)	1	+	0	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		612,100	
26.						TOTAL PHASE 43		$1,553,000

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

			Number		Amount		
	Replacement Housing						
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$1,642,000

Real Estate:	Roger D. Patton	Signed:		Date:	01/15/25
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/25
Relocation:	Roger D. Patton	Signed:		Date:	01/15/25
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date:	01/15/25

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 5A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	1	1
Residential	1	1
Unimproved	1	1
Total Parcels	3	3

Estimated Relocatees:	
Business	2
Residential	1
Signs	0
Special	0
Total Relocatees	3

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	3	x	20,000 =	Rate)		60,000	
2. Indirect Overhead	(Parcels	3	x	0 =	Rate)		0	
3.							TOTAL PHASE 41	$60,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					3	Parcels	x 35,000 =	105,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	3	= 2	Parcels		x 500 =	1,000	
7. Expert Witness	75%	x	3	= 2	Parcels		x 30,000 =	60,000	
8. Mediators	75%	x	3	= 2	Parcels		x 3,500 =	7,000	
9. Demolition, Asb. Abate., Survey, etc.					2	Imprvmet	x 20,000 =	40,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					1	Parcels	x 5,000 =	5,000	
12.							TOTAL PHASE 4B		$218,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		1,081,894	x	120% (0 Parcels w/o R/W Acq)		1,298,300		
15. SUBTOTAL (210,395)				(Lines 13 &14)			1,298,300	
16. Admin. Settlements	(Factor	20%	x	60% of Line 15)	=	155,800		
17. Litigation Awards	(Factor	45%	x	40% of Line 15)	=	233,700		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	3	x	$30,000)	=	90,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	389,500	x	33%)	=	128,500		
23. Owner Expert Witness	(Comm.+Unimp.)	1	+	1) x 18,000	=	36,000		
24. Other Condemn. Costs		3	x	$1,000	=	3,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		647,000	
26.						TOTAL PHASE 43		$1,945,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number	Amount	
28. Owner	$41,200	x	1	= 41,200	
29. Tenant	$25,000	x	0	= 0	
	Move Costs				
30. Residential	$3,000	x	1	= 3,000	
31. Business/Farm	$53,200	x	2	= 106,400	
32. Personal Property	$3,000	x	0	= 0	
33. (Lines 28 thru 32)				TOTAL PHASE 45	$150,600
34. Relocation Services Cost			$15,060	(Not in Phase Total)	

35.		
36.		
37.	(All Phases)	TOTAL ESTIMATE $2,373,900

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 5B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

									Amount	
4. Appraisal Fees Through Trial					1	Parcels	x	35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x	25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500		
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000		
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500		
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0	
12.								TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		438,214	x	120% (0 Parcels w/o R/W Acq)		525,900		
15. SUBTOTAL (219,017)				(Lines 13 &14)			525,900	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	236,700		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	236,700	x	33%)	=	78,100		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		363,800	
26.						TOTAL PHASE 43		$889,700

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42		$0

RELOCATION COSTS (PHASE 45)

				Number		Amount		
	Replacement Housing							
28. Owner	$41,200	x	0	=	0			
29. Tenant	$25,000	x	0	=	0			
	Move Costs							
30. Residential	$3,000	x	0	=	0			
31. Business/Farm	$53,200	x	0	=	0			
32. Personal Property	$3,000	x	0	=	0			
33. (Lines 28 thru 32)						TOTAL PHASE 45		$0
34. Relocation Services Cost				$0	(Not in Phase Total)			
35.								
36.								
37.					(All Phases)	TOTAL ESTIMATE		$978,700

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: _____ Gaming 1: _____ Special Purpose: X Docs to RW: _____

Comments: _____

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 6A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	1
Residential	0
Signs	0
Special	0
Total Relocatees	1

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					1	Claims	x 25,000 =	25,000	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					14	Imprvmet	x 20,000 =	280,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$374,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120% * *Design plan stage*	=		0		
14. Water Retention & Mit. (1 Pond)	1,255,250	x	120% (0 Parcels w/o R/W Acq)			1,506,300		
15. SUBTOTAL (189,050)			(Lines 13 &14)				1,506,300	
16. Admin. Settlements (Factor	20%	x	0% of Line 15)	=		0		
17. Litigation Awards (Factor	45%	x	100% of Line 15)	=		677,800		
18. Business Damages (Claims	1	x	0)	=		250,000		
19. Bus. Damages Incrs. (Factor	25%	x	$ 250,000)	=		62,500		
20. Owner Appr. Fees (Parcels	1	x	$30,000)	=		30,000		
21. Owner CPA Fees (Claims	1	x	$25,000)	=		25,000		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	740,300	x	33%)	=		244,300		
23. Owner Expert Witness (Comm.+Unimp.)	1	+	0) x 18,000	=		18,000		
24. Other Condemn. Costs	1	x	$1,000	=		1,000		
25. SUBTOTAL			(Lines 16 thru 24)	=			1,308,600	
26.						TOTAL PHASE 43		$2,814,900

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	1	=	53,200		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)					TOTAL PHASE 45		$53,200
34. Relocation Services Cost			$5,320	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)	TOTAL ESTIMATE		$3,262,100

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 6B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	1	1
Residential	0	0
Unimproved	0	0
Total Parcels	1	1

Estimated Relocatees:	
Business	1
Residential	0
Signs	0
Special	1
Total Relocatees	2

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					1	Claims	x 25,000 =	25,000	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 20,000 =	20,000	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$114,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		1,058,055	x	120% (0 Parcels w/o R/W Acq)		1,269,700		
15. SUBTOTAL (298,822)				(Lines 13 &14)			1,269,700	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	571,400		
18. Business Damages	(Claims	1	x	0)	=	300,000		
19. Bus. Damages Incrs.	(Factor	25%	x	$ 300,000)	=	75,000		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	1	x	$25,000)	=	25,000		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	646,400	x	33%)	=	213,300		
23. Owner Expert Witness	(Comm.+Unimp.)	1	+	0) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		1,233,700	
26.						TOTAL PHASE 43		$2,503,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0		TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount		
28. Owner	$41,200	x	0	=	0			
29. Tenant	$25,000	x	0	=	0			
	Move Costs							
30. Residential	$3,000	x	0	=	0			
31. Business/Farm	$53,200	x	1	=	53,200			
32. Personal Property	$3,000	x	1	=	3,000			
33. (Lines 28 thru 32)						TOTAL PHASE 45		$56,200
34. Relocation Services Cost				$5,620	(Not in Phase Total)			
35.								
36.								
37.					(All Phases)	TOTAL ESTIMATE		$2,693,600

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

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	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 6C	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)	314,940	x	120%	(0 Parcels w/o R/W Acq)		377,900		
15. SUBTOTAL (104,980)				(Lines 13 &14)			377,900	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	170,100		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	170,100	x	33%	)	=	56,100		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		275,200	
26.						TOTAL PHASE 43		$653,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $742,100

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 6D-1 and 6D-2	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	9-Jan-25
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	0	0
Total Parcels	0	0

Estimated Relocatees:	
Business	2
Residential	0
Signs	0
Special	0
Total Relocatees	2

R/W SUPPORT COSTS (PHASE 41)

								Amount
1. Direct Labor Cost	(Parcels	0	x	20,000 =	Rate)			0
2. Indirect Overhead	(Parcels	0	x	0 =	Rate)			0
3.							TOTAL PHASE 41	$0

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					0	Parcels	x 35,000 =	0
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0
6. Court Reporter & Process Servers	50%	x	0	=	0	Parcels	x 500 =	0
7. Expert Witness	75%	x	0	=	0	Parcels	x 30,000 =	0
8. Mediators	75%	x	0	=	0	Parcels	x 3,500 =	0
9. Demolition, Asb. Abate., Survey, etc.					1	Imprvmet	x 20,000 =	20,000
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0
12.							TOTAL PHASE 4B	$20,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount	2,402,902	x	120%	* *Design plan stage*	=	2,883,500	
14. Water Retention & Mit. (1 Pond)	676,048	x	120%	(0 Parcels w/o R/W Acq)	=	811,300	
15. SUBTOTAL (85,506)				(Lines 13 &14)			3,694,800
16. Admin. Settlements (Factor	20%	x	60%	of Line 15)	=	443,400	
17. Litigation Awards (Factor	45%	x	40%	of Line 15)	=	665,100	
18. Business Damages (Claims	0	x	0	)	=	0	
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0	
20. Owner Appr. Fees (Parcels	0	x	$30,000	)	=	0	
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0	
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	1,108,500	x	33%	)	=	365,800	
23. Owner Expert Witness (Comm.+Unimp.)	0	+	0	) x 18,000	=	0	
24. Other Condemn. Costs	0	x	$1,000		=	0	
25. SUBTOTAL				(Lines 16 thru 24)	=		1,474,300
26.						TOTAL PHASE 43	$5,169,100

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	2	=	106,400
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $106,400
34. Relocation Services Cost			$10,640	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $5,295,500

Real Estate:	Roger D. Patton	Signed:	[signature]	Date: 01/15/25
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25
Relocation:	Roger D. Patton	Signed:	[signature]	Date: 01/15/25
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 01/15/25

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS:

Both Parcels are associated with mainline acquisitions identified as 8 and 9

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X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 7A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)		663,854	x	120% (0 Parcels w/o R/W Acq)		796,600		
15. SUBTOTAL (663,854)				(Lines 13 &14)			796,600	
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0		
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	358,500		
18. Business Damages	(Claims	0	x	0)	=	0		
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0		
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000		
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0		
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	358,500	x	33%)	=	118,300		
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000		
24. Other Condemn. Costs		1	x	$1,000	=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		525,800	
26.						TOTAL PHASE 43		$1,322,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0		TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)						TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)		TOTAL ESTIMATE	$1,411,400

Real Estate:	Roger D. Patton	Signed:	[signature]	Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:	[signature]	Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 7B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0
3.						TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

								Amount
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0
12.							TOTAL PHASE 4B	$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal
13. Land, Improvements & Severance Damages and Cost to Cure Amount		0	x	120% * *Design plan stage*	=	0	
14. Water Retention & Mit. (1 Pond)		899,459	x	120% (0 Parcels w/o R/W Acq)		1,079,400	
15. SUBTOTAL (217,800)				(Lines 13 &14)			1,079,400
16. Admin. Settlements	(Factor	20%	x	0% of Line 15)	=	0	
17. Litigation Awards	(Factor	45%	x	100% of Line 15)	=	485,700	
18. Business Damages	(Claims	0	x	0)	=	0	
19. Bus. Damages Incrs.	(Factor	25%	x	$ -)	=	0	
20. Owner Appr. Fees	(Parcels	1	x	$30,000)	=	30,000	
21. Owner CPA Fees	(Claims	0	x	$25,000)	=	0	
22. Defend.Atty Fees	(Sum of Lines 16, 17 & 19)	485,700	x	33%)	=	160,300	
23. Owner Expert Witness	(Comm.+Unimp.)	0	+	1) x 18,000	=	18,000	
24. Other Condemn. Costs		1	x	$1,000	=	1,000	
25. SUBTOTAL				(Lines 16 thru 24)	=		695,000
26.						TOTAL PHASE 43	$1,774,400

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing			Number		Amount
28. Owner	$41,200	x	0	=	0	
29. Tenant	$25,000	x	0	=	0	
	Move Costs					
30. Residential	$3,000	x	0	=	0	
31. Business/Farm	$53,200	x	0	=	0	
32. Personal Property	$3,000	x	0	=	0	
33. (Lines 28 thru 32)					TOTAL PHASE 45	$0
34. Relocation Services Cost			$0	(Not in Phase Total)		
35.						
36.						
37.				(All Phases)	TOTAL ESTIMATE	$1,863,400

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The pond location greatly impacts access along Riverview Drive to a large portion of the remainder.

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X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 8A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.							TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	=	1	Parcels	x 500 =	500	
7. Expert Witness	75%	x	1	=	1	Parcels	x 30,000 =	30,000	
8. Mediators	75%	x	1	=	1	Parcels	x 3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)	179,903	x	120%	(0 Parcels w/o R/W Acq)		215,900		
15. SUBTOTAL (179,903)				(Lines 13 &14)			215,900	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	97,200		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	97,200	x	33%	)	=	32,100		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		178,300	
26.						TOTAL PHASE 43		$394,200

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	
35.					
36.					
37.				(All Phases)	TOTAL ESTIMATE $483,200

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

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	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 8B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.								TOTAL PHASE 41	$20,000

R/W OPS (PHASE 4B)

									Amount	
4. Appraisal Fees Through Trial					1	Parcels	x	35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x	25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500		
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000		
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500		
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x	20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x	15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x	5,000 =	0	
12.								TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120% * *Design plan stage*	=	0			
14. Water Retention & Mit. (1 Pond)	174,240	x	120% (0 Parcels w/o R/W Acq)		209,100			
15. SUBTOTAL (87,120)			(Lines 13 &14)			209,100		
16. Admin. Settlements (Factor	20%	x	0% of Line 15)	=	0			
17. Litigation Awards (Factor	45%	x	100% of Line 15)	=	94,100			
18. Business Damages (Claims	0	x	0)	=	0			
19. Bus. Damages Incrs. (Factor	25%	x	$ -)	=	0			
20. Owner Appr. Fees (Parcels	1	x	$30,000)	=	30,000			
21. Owner CPA Fees (Claims	0	x	$25,000)	=	0			
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	94,100	x	33%)	=	31,100			
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1) x 18,000	=	18,000			
24. Other Condemn. Costs	1	x	$1,000	=	1,000			
25. SUBTOTAL			(Lines 16 thru 24)	=		174,200		
26.					TOTAL PHASE 43			$383,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42		$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
Move Costs							
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)					TOTAL PHASE 45		$0
34. Relocation Services Cost			$0	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)	TOTAL ESTIMATE		$472,300

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam.:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	SMF 9B	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

								Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)			20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)			0	
3.							TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120% * *Design plan stage*	=		0		
14. Water Retention & Mit. (1 Pond)	164,656	x	120% (0 Parcels w/o R/W Acq)			197,600		
15. SUBTOTAL (82,328)			(Lines 13 &14)				197,600	
16. Admin. Settlements (Factor	20%	x	0% of Line 15)	=		0		
17. Litigation Awards (Factor	45%	x	100% of Line 15)	=		88,900		
18. Business Damages (Claims	0	x	0)	=		0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -)	=		0		
20. Owner Appr. Fees (Parcels	1	x	$30,000)	=		30,000		
21. Owner CPA Fees (Claims	0	x	$25,000)	=		0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	88,900	x	33%)	=		29,300		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1) x 18,000	=		18,000		
24. Other Condemn. Costs	1	x	$1,000	=		1,000		
25. SUBTOTAL			(Lines 16 thru 24)	=			167,200	
26.					TOTAL PHASE 43			$364,800

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42		$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount		
28. Owner	$41,200	x	0	=	0		
29. Tenant	$25,000	x	0	=	0		
	Move Costs						
30. Residential	$3,000	x	0	=	0		
31. Business/Farm	$53,200	x	0	=	0		
32. Personal Property	$3,000	x	0	=	0		
33. (Lines 28 thru 32)					TOTAL PHASE 45		$0
34. Relocation Services Cost			$0	(Not in Phase Total)			
35.							
36.							
37.				(All Phases)	TOTAL ESTIMATE		$453,800

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A. J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

	Type A - indicates the most confidence
	Type B - indicates above average confidence
X	Type C - indicates below average confidence
	Type D - indicates the least or no confidence

The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT SEVEN RIGHT OF WAY COST ESTIMATE

HDR#: 10375841-8.7

FM#:	430056-1	Alternate:	FPC 9A	District:	Seven
County:	Hillsborough	Segment:	N/A	Date:	August 15,2024
State Rd.:	SR 676	FAP#:	N/A	C.E. Sequence	N/A
Project Des.	US 41 from Kracker Avenue to South Causeway Blvd SR 676				

Parcels	Gross	Net
Commercial	0	0
Residential	0	0
Unimproved	1	1
Total Parcels	1	1

Estimated Relocatees:	
Business	0
Residential	0
Signs	0
Special	0
Total Relocatees	0

R/W SUPPORT COSTS (PHASE 41)

							Amount	
1. Direct Labor Cost	(Parcels	1	x	20,000 =	Rate)		20,000	
2. Indirect Overhead	(Parcels	1	x	0 =	Rate)		0	
3.						TOTAL PHASE 41		$20,000

R/W OPS (PHASE 4B)

								Amount	
4. Appraisal Fees Through Trial					1	Parcels	x 35,000 =	35,000	
5. Business Damage CPA Fees Through Trial					0	Claims	x 25,000 =	0	
6. Court Reporter & Process Servers	50%	x	1	= 1	Parcels	x	500 =	500	
7. Expert Witness	75%	x	1	= 1	Parcels	x	30,000 =	30,000	
8. Mediators	75%	x	1	= 1	Parcels	x	3,500 =	3,500	
9. Demolition, Asb. Abate., Survey, etc.					0	Imprvmet	x 20,000 =	0	
10. Miscellaneous Contracts					0	Per Project	x 15,000 =	0	
11. Appraisal Fee Review					0	Parcels	x 5,000 =	0	
12.							TOTAL PHASE 4B		$69,000

R/W LAND COSTS (PHASE 43)

						Amount	Subtotal	
13. Land, Improvements & Severance Damages and Cost to Cure Amount	0	x	120%	* *Design plan stage*	=	0		
14. Water Retention & Mit. (1 Pond)	553,212	x	120%	(0 Parcels w/o R/W Acq)		663,900		
15. SUBTOTAL (276,606)				(Lines 13 &14)			663,900	
16. Admin. Settlements (Factor	20%	x	0%	of Line 15)	=	0		
17. Litigation Awards (Factor	45%	x	100%	of Line 15)	=	298,800		
18. Business Damages (Claims	0	x	0	)	=	0		
19. Bus. Damages Incrs. (Factor	25%	x	$ -	)	=	0		
20. Owner Appr. Fees (Parcels	1	x	$30,000	)	=	30,000		
21. Owner CPA Fees (Claims	0	x	$25,000	)	=	0		
22. Defend.Atty Fees (Sum of Lines 16, 17 & 19)	298,800	x	33%	)	=	98,600		
23. Owner Expert Witness (Comm.+Unimp.)	0	+	1	) x 18,000	=	18,000		
24. Other Condemn. Costs	1	x	$1,000		=	1,000		
25. SUBTOTAL				(Lines 16 thru 24)	=		446,400	
26.						TOTAL PHASE 43		$1,110,300

* *Design contingency for design plan stage:*
(1) PD&E plans - 120% (2) 30% plans - 115% (3) 60% plans - 110% (4) 90% plans -105% (5) 268 Date -100%

R/W ACQUISITION CONSULTANT (PHASE 42)

27. Acquisition Consultant-50% of parcels	$20,000	x	0	TOTAL PHASE 42	$0

RELOCATION COSTS (PHASE 45)

	Replacement Housing		Number		Amount
28. Owner	$41,200	x	0	=	0
29. Tenant	$25,000	x	0	=	0
	Move Costs				
30. Residential	$3,000	x	0	=	0
31. Business/Farm	$53,200	x	0	=	0
32. Personal Property	$3,000	x	0	=	0
33. (Lines 28 thru 32)					TOTAL PHASE 45 $0
34. Relocation Services Cost			$0	(Not in Phase Total)	

35.			
36.			
37.		(All Phases)	TOTAL ESTIMATE $1,199,300

Real Estate:	Roger D. Patton	Signed:		Date: 08/26/24
Bus. Dam. :	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 08/26/24
Relocation:	Roger D. Patton	Signed:		Date: 08/26/24
Overall Review:	Alfred J. Thompson	Signed:	A.J. Thompson	Date: 08/26/24

Cost Estimate Sequence #: Dated: In the Amount of $ Data Input Completion Date:

REMARKS: Administrative Settlement and Litigation Awards have been adjusted to reflect one ownership. Administrative settlement is considered to be zero, while litigation is factored at 45%.

The following indicates the estimator's confidence in the above estimate:

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	Type D - indicates the least or no confidence

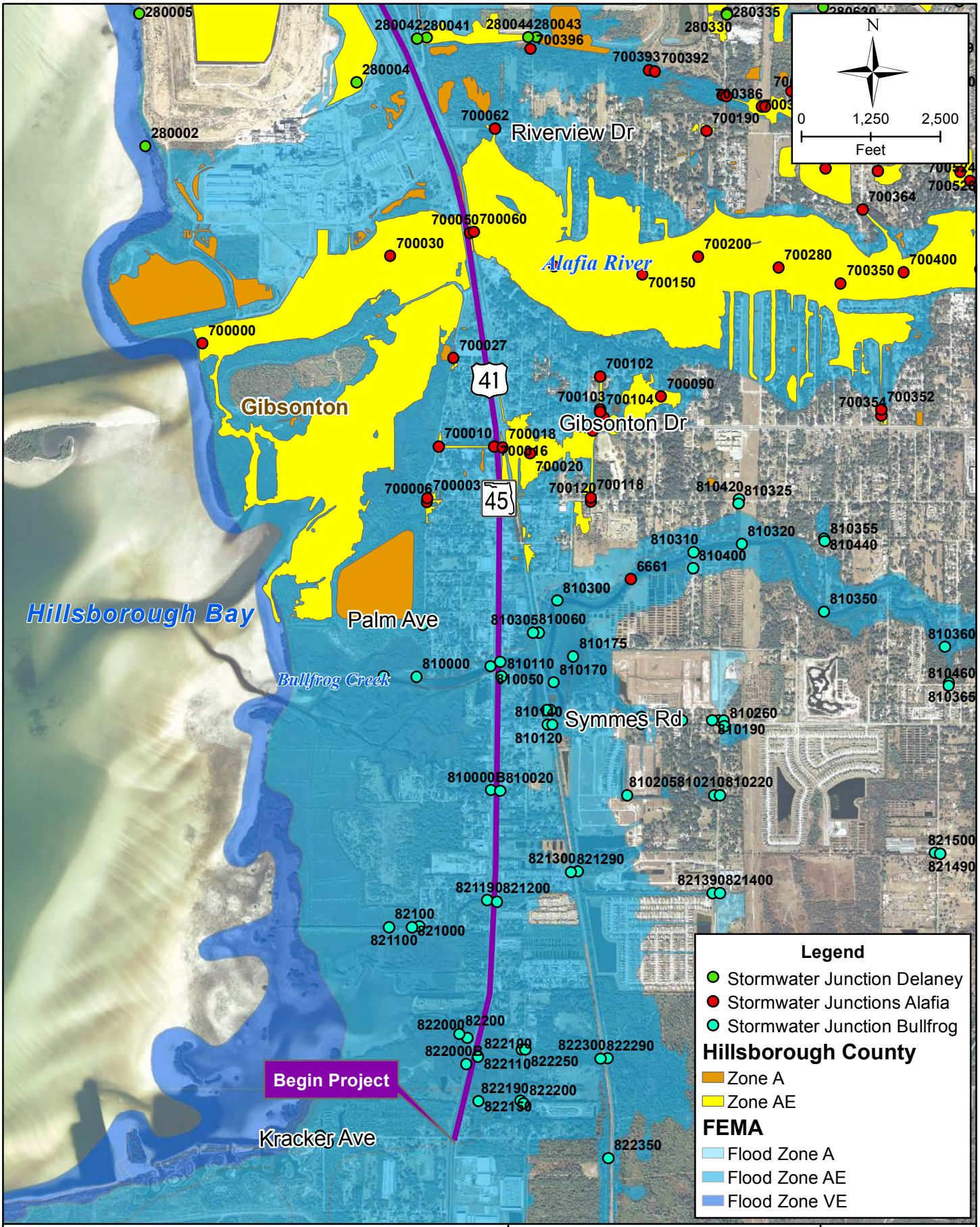
The following indicates the Department's purpose for this estimate:

Work Program Update: Gaming 1: Special Purpose: X Docs to RW:

Comments:

APPENDIX E

SUPPORTING DOCUMENTATION

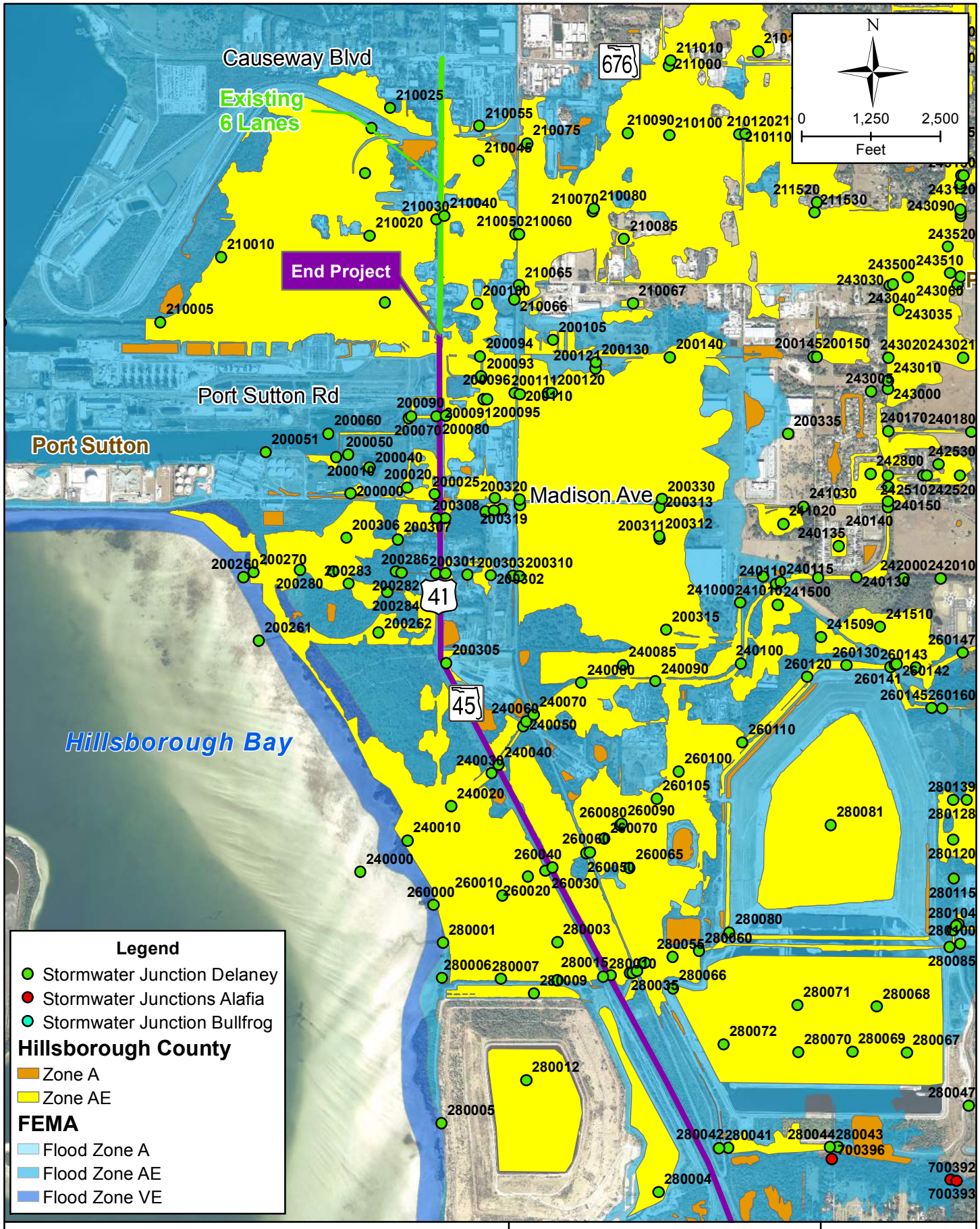


US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

FEMA Map w/ Junctions



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

FEMA Map w/ Junctions

6.3 EXISTING CONDITIONS MODEL SIMULATION RESULTS

The 2.33-, 5-, 10-, 25-, 50- and 100-year design rainfall storm events, each with a design duration of 24 hours, were input to the calibrated model for simulation of peak flood elevations in channels and at structures. Water surface profiles have been generated to show maximum water level elevation for these events. These profiles are presented for each major conveyance system in Exhibits 6-1a through 6-1s. These conditions represent the existing baseline condition (no action plan) flooding response for the Bullfrog Creek/Wolf Branch watershed. A summary of simulated peak stages at all model nodes is presented in Table 6.2 for each design storm simulation.

Table 6.2
DESIGN STORM MODEL OUTPUT SUMMARY

Model Node ID	Existing Conditions Design Flood Elevations (Feet, NGVD)					
	2.33-year	5-year	10-year	25-year	50-year	100-year
Lower Bullfrog Creek						
810000	2.2	2.3	2.6	2.9	3.3	3.6
810020	4.1	4.3	4.6	4.9	5.3	5.5
810040	2.5	3.0	3.8	4.8	5.1	5.1
810050	2.9	3.4	4.1	4.6	5.5	6.1
810060	3.3	3.6	4.3	4.8	5.8	7.4
810100	2.9	3.5	4.2	4.7	5.8	6.5
810110	2.9	3.5	4.2	4.7	5.8	6.5
810115	3.6	4.2	5.1	5.7	6.7	7.4
810120	3.7	4.2	5.1	5.7	6.7	7.4
810130	3.8	4.5	5.5	6.3	7.8	7.5
810140	4.2	4.5	5.5	6.3	7.8	7.5
810170	4.0	4.8	5.8	6.6	8.0	8.0
810175	4.0	4.8	5.8	6.6	8.0	8.0
810180	4.0	4.8	5.8	6.6	8.0	8.0
810185	5.0	5.2	5.8	6.6	8.0	8.0
810190	8.7	8.9	9.3	9.5	10.0	10.2
810195	11.1	11.9	12.1	12.2	12.2	12.2
810200	5.0	5.5	6.1	6.7	8.0	8.2
810205	5.2	5.6	6.2	6.8	8.0	8.2
810210	6.9	7.2	7.4	7.6	8.0	8.4
810220	9.5	9.9	10.4	10.9	11.8	12.5
810240	11.4	12.5	13.3	13.6	13.6	13.6
810260	12.3	13.5	13.7	13.7	13.8	13.9
810300	4.4	5.2	6.3	7.1	8.5	8.6
810305	4.4	5.2	5.6	6.3	7.8	7.5
810310	5.2	6.1	7.3	8.2	9.7	10.0
810320	5.3	6.2	7.5	8.3	9.8	10.2
810325	7.7	7.8	7.9	8.3	9.8	10.2
810350	8.8	10.1	11.8	12.7	14.2	14.9
810355	10.2	10.3	11.8	12.7	14.2	14.9
810360	10.2	11.5	13.2	14.2	15.8	16.6
810365	12.6	12.8	13.2	14.2	15.8	16.6
810370	10.9	12.2	14.0	14.9	16.6	17.4
810380	11.0	12.3	14.1	15.1	16.8	17.7

Table 6.2
DESIGN STORM MODEL OUTPUT SUMMARY

Model Node ID	Existing Conditions Design Flood Elevations (Feet, NGVD)					
	2.33-year	5-year	10-year	25-year	50-year	100-year
817695	73.7	74.6	75.6	76.3	77.3	78.8
817700	73.8	74.7	75.7	76.4	77.4	79.0
817740	73.9	74.7	75.7	76.4	77.4	79.0
817750	74.1	75.1	76.3	77.2	78.5	79.7
817800	80.1	80.4	80.7	80.9	81.2	79.8
Unnamed Southern Fork - Little Bullfrog Creek						
818000	57.8	58.3	58.9	59.3	60.0	60.4
818010	67.6	68.1	68.8	69.2	70.0	70.4
818020	77.8	78.3	79.1	79.5	80.4	80.8
818100	78.6	79.8	82.4	83.8	84.6	84.8
818120	88.0	89.2	91.0	92.4	95.2	96.6
818150	90.1	90.2	91.0	92.4	95.2	96.7
818200	80.7	81.3	81.9	82.5	83.3	83.7
818250	81.6	82.0	82.6	83.5	85.5	87.2
Unnamed North Prong - Upper Bullfrog Creek						
819000	48.0	49.4	51.2	52.3	55.0	55.1
819020	48.7	49.6	51.4	52.4	55.2	55.1
819050	52.7	54.2	55.0	55.4	55.9	56.2
819060	76.5	76.7	77.0	77.2	77.5	77.6
819080	78.2	78.5	78.9	79.1	79.5	79.7
819090	85.9	86.1	86.3	86.4	86.8	86.9
819095	86.5	87.3	88.7	90.0	90.5	90.6
819100	90.7	90.9	91.1	91.3	91.5	91.6
819200	89.3	89.5	89.7	89.9	90.1	90.1
Dug Creek - Coastal						
821000	2.1	2.1	2.1	2.1	2.1	2.4
821100	2.2	2.3	2.2	2.1	2.3	2.7
821190	3.3	3.8	4.5	5.0	5.3	5.4
821200	3.3	3.9	4.7	5.3	5.8	5.9
821290	4.1	4.7	5.4	5.9	6.4	6.7
821300	4.4	5.1	6.1	6.8	7.8	8.4
821390	9.8	10.2	10.7	11.1	11.5	11.7
821400	10.3	10.5	10.9	11.2	12.0	12.7
821490	20.0	20.3	20.6	20.9	21.3	21.5
821500	22.5	22.9	23.9	25.1	26.3	26.4
Kitchen Branch - Coastal						
822000	2.0	2.0	2.0	2.0	2.0	2.0
822050	2.1	2.3	2.8	3.3	4.5	4.7
822100	2.1	2.2	2.5	2.8	3.4	3.7
822110	2.4	2.6	2.9	3.3	3.8	4.1
822150	2.1	2.3	2.5	2.8	3.4	3.8
822190	2.1	2.3	2.5	2.8	3.4	3.8
822200	2.2	2.3	2.5	2.9	3.6	4.0
822250	2.5	2.7	3.1	3.6	4.3	4.6
822290	4.2	4.6	5.2	5.6	6.0	6.2
822300	4.3	4.8	5.6	6.2	7.1	7.7
822350	4.6	5.1	5.7	6.2	6.8	7.1

TABLE 6.11-2
ALAFIA RIVER WATERSHED MANAGEMENT PLAN UPDATE
ALAFIA RIVER MAIN STEM SUBWATERSHED EXISTING CONDITIONS
FLOOD ELEVATIONS SUMMARY

MODEL JUNCTION	LOCATION DESCRIPTION	24-HOUR DURATION DESIGN STORM MAXIMUM FLOOD ELEVATION, ft NAVD 88					
		2.33-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
Alafia River from Hillsborough Bay to U.S. Highway 301							
700000	Hillsborough Bay	1.09	1.09	1.09	1.09	1.09	1.09
700030		1.14	1.17	1.23	1.35	1.48	1.61
700050	U.S. Highway 41 Bridge (d/s); FEMA XS No 1	1.16	1.20	1.29	1.45	1.62	1.80
700060	U.S. Highway 41 Bridge (u/s); FEMA XS No 2B	1.16	1.21	1.30	1.46	1.64	1.82
700100	FEMA XS No 5 (A)	1.17	1.22	1.32	1.50	1.69	1.89
700150	FEMA XS No 6	1.19	1.26	1.38	1.60	1.82	2.05
700200	FEMA XS No 7 (B)	1.21	1.29	1.43	1.68	1.93	2.18
700280	FEMA XS No 8	1.23	1.31	1.47	1.74	2.01	2.28
700350	FEMA XS No 9	1.26	1.36	1.56	1.88	2.19	2.48
700400	FEMA XS No 10 (C)	1.36	1.52	1.80	2.25	2.66	3.04
700500	FEMA XS No 11	1.43	1.62	1.95	2.47	2.93	3.35
700550	FEMA XS No 12	1.46	1.66	2.02	2.56	3.04	3.48
700600	FEMA XS No 13 (D)	1.50	1.72	2.10	2.68	3.19	3.64
700700	I-75 Bridge (d/s)	1.51	1.74	2.13	2.72	3.23	3.69
700750	I-75 Bridge (u/s)	1.57	1.83	2.26	2.91	3.46	3.96
700900	FEMA XS No 14	1.68	1.99	2.49	3.22	3.84	4.39
701000	FEMA XS No 15 (E)	1.76	2.10	2.64	3.43	4.09	4.66
701020	FEMA XS No 16	1.84	2.22	2.80	3.64	4.34	4.94
701100	[S-20-T30-R20]	1.91	2.32	2.94	3.82	4.54	5.16
701180	FEMA XS No 17	1.98	2.41	3.06	3.98	4.74	5.38
701200	FEMA XS No 18	2.04	2.49	3.17	4.12	4.90	5.56
701250	U.S. Highway 301 Bridge (d/s); FEMA XS No 19	2.24	2.76	3.54	4.60	5.45	6.17
Alafia River from U.S Highway 301 to Rice Creek							
701350	U.S. Highway 301 Bridge (u/s); FEMA XS No 20B (F)	2.30	2.84	3.65	4.75	5.62	6.36
701370	FEMA XS No 21	2.34	2.91	3.74	4.87	5.76	6.51
701380	FEMA XS No 22	2.36	2.93	3.76	4.89	5.78	6.54
701390	FEMA XS No 23	2.40	2.98	3.82	4.96	5.86	6.62
701400	[S17-T30-R20]	2.44	3.03	3.88	5.04	5.95	6.71
701500	FEMA XS No 24 (G)	2.68	3.36	4.33	5.61	6.60	7.41
701600	Rice Creek	2.80	3.51	4.53	5.87	6.90	7.74
Alafia River from Rice Creek to Buckhorn Creek							
701700	FEMA XS No 25	2.83	3.56	4.59	5.94	6.98	7.83
701800	FEMA XS No 26 (H)	3.05	3.85	4.95	6.39	7.49	8.39
701900		3.25	4.11	5.26	6.75	7.88	8.81
701950	FEMA XS No 27	3.32	4.19	5.37	6.88	8.02	8.95
702000		3.46	4.38	5.59	7.14	8.32	9.27
702100	FEMA XS No 28	3.71	4.70	5.95	7.54	8.73	9.71
702200	FEMA XS No 29 (I)	3.81	4.82	6.08	7.71	8.94	9.95
702205		4.02	5.07	6.34	7.96	9.19	10.19
702250	FEMA XS No 30	4.19	5.27	6.54	8.17	9.40	10.41
702400	Buckhorn Creek; FEMA XS No 31 (J)	4.77	5.99	7.37	9.11	10.40	11.44
Alafia River from Buckhorn Creek to Bell Creek							
702450	FEMA XS No 32	5.23	6.59	8.07	9.91	11.28	12.39
702500	FEMA XS No 33 (K)	5.27	6.69	8.22	10.07	11.45	12.57
702600		5.34	6.77	8.29	10.16	11.54	12.66
702650	FEMA XS No 34	5.41	6.88	8.47	10.36	11.73	12.83
702700	FEMA XS No 35 (L)	5.49	6.98	8.60	10.58	12.02	13.18
702800		5.65	7.20	8.85	10.83	12.33	13.53
702880	FEMA XS No 36	5.71	7.28	8.92	10.92	12.44	13.64
702900		5.97	7.57	9.23	11.22	12.70	13.89
702950	FEMA XS No 37	6.43	8.15	9.77	11.71	13.17	14.34
703000		6.60	8.33	9.95	11.89	13.34	14.50
703050	FEMA XS No 38	6.81	8.60	10.24	12.19	13.64	14.79
703100	FEMA XS No 39 (M)	7.26	9.21	10.97	13.02	14.53	15.73
703200		7.33	9.32	11.13	13.23	14.78	16.01
703300	FEMA XS No 40 (N)	7.34	9.35	11.19	13.33	14.91	16.15
703400	FEMA XS No 41 (O)	7.62	9.77	11.68	13.83	15.40	16.64
703500	FEMA XS No 42	8.17	10.19	12.06	14.16	15.70	16.92
703550	FEMA XS No 43	8.28	10.30	12.15	14.26	15.79	17.01
703600	FEMA XS No 44 (P)	9.20	11.04	12.83	14.88	16.35	17.53
703700	Bell Creek	9.44	11.30	13.06	15.09	16.54	17.70
Alafia River from Bell Creek to Bell Shoals Road Bridge							
703790	FEMA XS No 45	9.59	11.44	13.19	15.21	16.66	17.82
703800	FEMA XS No 46	9.62	11.47	13.23	15.26	16.72	17.89
703850	FEMA XS No 47	9.92	11.84	13.62	15.63	17.08	18.24
703900	FEMA XS No 48	10.50	12.52	14.42	16.58	18.16	19.34

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
200000	Delaney Pop-off	6.86	14.40	6.80	62.90	(0.06)
200010	Delaney Pop-off	6.77	14.30	6.72	62.90	(0.05)
200020	Delaney Pop-off	7.60	24.80	7.82	64.40	0.22
200025	Delaney Pop-off	7.60	24.80	7.83	64.40	0.23
200040	Delaney Pop-off	11.52	25.40	11.67	62.30	0.15
200050	Delaney Pop-off	3.29	13.40	3.41	62.90	0.12
200051	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200060	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200065	Delaney Pop-off	3.39	19.80	3.50	68.20	0.11
200070	Delaney Pop-off	5.49	19.80	5.86	68.30	0.37
200080	Delaney Pop-off	5.53	19.60	5.90	68.30	0.37
200090	Delaney Pop-off	5.98	19.50	6.41	68.30	0.43
200091	Delaney Pop-off	6.09	19.50	6.50	68.20	0.41
200092	Delaney Pop-off	6.09	19.50	6.50	68.20	0.41
200093	Delaney Pop-off	6.09	19.70	6.50	69.00	0.41
200094	Delaney Pop-off	6.09	19.70	6.50	68.90	0.41
200095	Delaney Pop-off	7.53	17.50	8.01	66.90	0.48
200096	Delaney Pop-off	7.61	17.50	8.09	66.80	0.48
200100	Delaney Pop-off	6.10	20.10	6.51	69.20	0.41
200105	Delaney Pop-off	9.40	13.90	9.40	61.90	0.00
200110	Delaney Pop-off	7.70	18.00	8.20	67.40	0.50
200111	Delaney Pop-off	7.73	18.30	8.22	67.60	0.49
200120	Delaney Pop-off	7.82	18.60	8.31	67.90	0.49
200121	Delaney Pop-off	7.86	18.50	8.34	67.90	0.48
200130	Delaney Pop-off	8.30	13.90	8.57	67.50	0.27
200140	Delaney Pop-off	8.91	14.30	9.05	64.20	0.14
200145	Delaney Pop-off	11.12	15.00	11.07	63.80	(0.05)
200150	Delaney Pop-off	12.98	16.00	13.02	64.80	0.04
200260	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200261	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200262	Delaney Pop-off	2.03	13.10	1.81	61.30	(0.22)
200270	Delaney Pop-off	2.38	13.30	2.23	62.00	(0.15)
200280	Delaney Pop-off	2.80	13.40	2.68	62.20	(0.12)
200281	Delaney Pop-off	2.94	13.50	2.83	62.30	(0.11)
200282	Delaney Pop-off	2.94	13.50	2.84	62.20	(0.10)
200283	Delaney Pop-off	2.97	13.50	2.86	62.30	(0.11)
200284	Delaney Pop-off	2.97	13.50	2.86	62.30	(0.11)
200285	Delaney Pop-off	5.17	13.60	4.79	62.30	(0.38)

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
200286	Delaney Pop-off	3.01	13.50	2.90	62.20	(0.11)
200290	Delaney Pop-off	3.10	13.50	2.99	62.20	(0.11)
200300	Delaney Pop-off	5.82	13.60	5.35	62.20	(0.47)
200301	Delaney Pop-off	6.13	13.50	5.61	62.10	(0.52)
200302	Delaney Pop-off	6.23	13.40	5.71	62.10	(0.52)
200303	Delaney Pop-off	7.43	26.60	7.73	72.00	0.30
200305	Delaney Pop-off	7.43	12.80	7.14	61.10	(0.29)
200306	Delaney Pop-off	3.01	13.40	2.85	62.20	(0.16)
200307	Delaney Pop-off	3.04	13.50	2.87	62.10	(0.17)
200308	Delaney Pop-off	3.06	13.50	2.89	62.10	(0.17)
200310	Delaney Pop-off	7.47	26.60	7.81	72.00	0.34
200311	Delaney Pop-off	7.47	26.60	7.81	72.00	0.34
200312	Delaney Pop-off	7.53	26.10	7.87	72.00	0.34
200313	Delaney Pop-off	7.54	26.10	7.87	71.90	0.33
200315	Delaney Pop-off	7.47	26.70	7.80	72.00	0.33
200319	Delaney Pop-off	7.46	27.30	7.80	72.00	0.34
200320	Delaney Pop-off	6.96	64.00	7.04	72.00	0.08
200330	Delaney Pop-off	8.86	15.90	9.09	65.10	0.23
200335	Delaney Pop-off	8.94	15.30	9.15	64.60	0.21
200340	Delaney Pop-off	4.30	13.40	3.77	61.50	(0.53)
200345	Delaney Pop-off	5.45	15.30	5.44	64.30	(0.01)
200346	Delaney Pop-off	5.47	16.00	5.51	64.80	0.04
200347	Delaney Pop-off	5.49	16.10	5.52	64.90	0.03
200350	Delaney Pop-off	5.52	15.10	5.50	64.30	(0.02)
210000	Delaney Creek	1.60	0.00	1.60	0.00	0.00
210005	Delaney Creek	5.24	18.60	5.65	67.10	0.41
210010	Delaney Creek	5.49	18.50	5.89	67.10	0.40
210015	Delaney Creek	5.50	18.50	5.89	67.10	0.39
210020	Delaney Creek	5.61	18.30	6.01	66.90	0.40
210021	Delaney Creek	5.62	18.60	6.01	67.10	0.39
210022	Delaney Creek	5.61	19.20	6.01	67.10	0.40
210025	Delaney Creek	5.51	18.60	5.90	67.20	0.39
210030	Delaney Creek	5.97	17.20	6.32	66.10	0.35
210040	Delaney Creek	7.74	16.10	7.95	65.10	0.21
210045	Delaney Creek	7.76	16.60	7.98	65.50	0.22
210050	Delaney Creek	8.28	15.80	8.47	64.70	0.19
210055	Delaney Creek	7.77	16.70	7.99	65.60	0.22
210060	Delaney Creek	10.25	15.60	10.39	64.40	0.14

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
230160	Delaney Creek	33.26	45.30	35.89	72.00	2.63
230170	Delaney Creek	33.94	32.30	35.92	72.00	1.98
230175	Delaney Creek	35.67	23.30	37.04	63.60	1.37
230177	Delaney Creek	40.13	13.00	39.87	61.20	(0.26)
230178	Delaney Creek	37.87	14.30	38.18	63.80	0.31
230179	Delaney Creek	41.41	12.70	41.17	61.00	(0.24)
230180	Delaney Creek	35.69	23.20	37.20	63.50	1.51
230185	Delaney Creek	35.66	25.20	36.39	67.60	0.73
230186	Delaney Creek	35.70	23.20	37.25	63.40	1.55
230190	Delaney Creek	39.26	15.10	39.81	61.30	0.55
230195	Delaney Creek	45.97	13.50	46.00	61.60	0.03
230196	Delaney Creek	46.26	12.90	46.17	61.20	(0.09)
230197	Delaney Creek	52.89	13.10	52.59	61.30	(0.30)
230200	Delaney Creek	49.85	25.80	50.80	65.30	0.95
231000	Delaney Creek	33.52	13.80	33.55	62.80	0.03
231001	Delaney Creek	33.55	13.80	33.57	62.80	0.02
233000	Delaney Creek	43.73	24.80	44.15	63.80	0.42
233010	Delaney Creek	38.69	25.60	42.36	72.00	3.67
233015	Delaney Creek	38.69	25.60	42.36	72.00	3.67
234000	Delaney Creek	37.71	15.50	38.40	62.70	0.69
240000	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
240010	Delaney Pop-off	3.90	13.60	3.94	62.30	0.04
240020	Delaney Pop-off	4.25	14.00	4.45	63.50	0.20
240030	Delaney Pop-off	4.47	16.40	4.70	64.30	0.23
240040	Delaney Pop-off	4.90	16.50	5.22	64.50	0.32
240050	Delaney Pop-off	5.58	16.40	5.87	64.60	0.29
240060	Delaney Pop-off	6.72	16.40	7.08	64.70	0.36
240070	Delaney Pop-off	7.09	16.40	7.49	64.70	0.40
240080	Delaney Pop-off	7.16	16.30	7.55	64.70	0.39
240085	Delaney Pop-off	6.19	26.30	7.12	70.70	0.93
240090	Delaney Pop-off	7.40	16.10	7.78	64.50	0.38
240100	Delaney Pop-off	7.71	15.80	8.10	64.30	0.39
240110	Delaney Pop-off	9.01	14.40	9.34	63.30	0.33
240115	Delaney Pop-off	9.40	14.20	9.68	63.10	0.28
240120	Delaney Pop-off	10.02	14.00	10.27	62.70	0.25
240130	Delaney Pop-off	10.42	14.00	10.65	62.70	0.23
240135	Delaney Pop-off	10.51	14.00	10.71	62.60	0.20
240140	Delaney Pop-off	10.64	14.10	10.89	62.80	0.25

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
252000	Delaney Pop-off	28.93	18.10	29.27	67.60	0.34
252020	Delaney Pop-off	28.93	18.40	29.26	67.80	0.33
252025	Delaney Pop-off	29.20	12.90	29.27	67.90	0.07
252030	Delaney Pop-off	28.93	18.60	29.24	67.40	0.31
252040	Delaney Pop-off	29.01	15.00	29.24	67.30	0.23
252050	Delaney Pop-off	29.10	14.40	29.24	67.40	0.14
252051	Delaney Pop-off	28.61	25.40	29.15	72.00	0.54
252052	Delaney Pop-off	28.61	34.40	29.15	72.00	0.54
252053	Delaney Pop-off	28.61	32.90	29.15	72.00	0.54
252054	Delaney Pop-off	28.74	13.90	29.15	72.00	0.41
252055	Delaney Pop-off	29.74	25.10	30.26	72.00	0.52
252060	Delaney Pop-off	29.39	14.00	29.31	62.80	(0.08)
252065	Delaney Pop-off	29.96	12.80	30.26	72.00	0.30
252500	Delaney Pop-off	29.01	15.00	29.24	67.50	0.23
252505	Delaney Pop-off	69.10	14.00	60.00	63.20	(9.10)
252510	Delaney Pop-off	29.01	15.00	29.24	67.80	0.23
253000	Delaney Pop-off	28.89	19.70	29.27	67.80	0.38
253005	Delaney Pop-off	29.49	12.90	29.27	67.30	(0.22)
253010	Delaney Pop-off	28.88	19.70	29.26	67.40	0.38
253015	Delaney Pop-off	31.79	12.80	30.13	63.30	(1.66)
253020	Delaney Pop-off	28.88	19.50	29.26	67.40	0.38
253025	Delaney Pop-off	32.65	12.70	31.09	61.20	(1.56)
254000	Delaney Pop-off	29.51	17.40	29.98	65.80	0.47
254010	Delaney Pop-off	29.55	18.20	30.00	66.40	0.45
254020	Delaney Pop-off	29.55	18.10	30.00	66.40	0.45
254030	Delaney Pop-off	29.99	12.60	30.01	66.40	0.02
254040	Delaney Pop-off	30.77	12.50	30.01	66.20	(0.76)
254050	Delaney Pop-off	31.20	12.50	30.67	60.80	(0.53)
260000	North Archie Creek	1.60	0.00	1.60	0.00	0.00
260010	North Archie Creek	3.54	28.40	3.76	72.00	0.22
260020	North Archie Creek	3.83	28.40	4.08	72.00	0.25
260030	North Archie Creek	4.09	28.30	4.35	72.00	0.26
260040	North Archie Creek	4.45	27.70	4.83	72.00	0.38
260050	North Archie Creek	4.96	27.20	5.35	72.00	0.39
260060	North Archie Creek	5.92	26.60	6.75	72.00	0.83
260065	North Archie Creek	6.01	26.40	6.81	72.00	0.80
260070	North Archie Creek	6.56	27.00	7.31	72.00	0.75
260080	North Archie Creek	7.09	27.10	7.65	72.00	0.56

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
280003	Archie Creek	1.93	13.70	1.84	62.40	(0.09)
280004	Archie Creek	3.98	13.00	3.10	61.40	(0.88)
280005	Archie Creek	1.77	24.80	1.84	70.30	0.07
280006	Archie Creek	1.60	0.00	1.60	0.00	0.00
280007	Archie Creek	2.89	21.30	3.05	69.80	0.16
280008	Archie Creek	3.23	21.30	3.40	69.80	0.17
280009	Archie Creek	8.60	25.00	9.96	72.00	1.36
280010	Archie Creek	3.55	21.30	3.72	69.80	0.17
280012	Archie Creek	170.64	25.00	171.29	72.00	0.65
280015	Archie Creek	3.86	21.30	4.07	69.80	0.21
280020	Archie Creek	4.16	21.30	4.37	69.80	0.21
280030	Archie Creek	4.46	21.30	4.72	69.80	0.26
280035	Archie Creek	6.56	20.70	7.15	69.30	0.59
280040	Archie Creek	6.56	20.70	7.14	69.30	0.58
280041	Archie Creek	7.19	20.00	7.82	68.80	0.63
280042	Archie Creek	7.66	19.70	8.54	68.40	0.88
280043	Archie Creek	7.72	19.60	8.59	68.40	0.87
280044	Archie Creek	8.05	19.40	8.91	68.20	0.86
280047	Archie Creek	8.21	19.20	9.03	68.00	0.82
280050	Archie Creek	6.54	20.70	7.11	69.70	0.57
280055	Archie Creek	6.54	20.80	7.11	69.90	0.57
280060	Archie Creek	6.54	20.80	7.11	69.80	0.57
280066	Archie Creek	11.00	25.00	11.40	72.00	0.40
280067	Archie Creek	11.00	25.00	11.39	72.00	0.39
280068	Archie Creek	11.00	25.00	11.39	72.00	0.39
280069	Archie Creek	11.02	25.00	11.42	72.00	0.40
280070	Archie Creek	10.98	25.00	11.36	72.00	0.38
280071	Archie Creek	10.98	25.00	11.36	72.00	0.38
280072	Archie Creek	11.29	25.00	11.81	72.00	0.52
280080	Archie Creek	9.94	13.10	9.35	62.00	(0.59)
280081	Archie Creek	111.07	25.00	111.52	72.00	0.45
280085	Archie Creek	8.30	18.90	9.08	67.90	0.78
280086	Archie Creek	8.86	17.60	9.61	67.10	0.75
280088	Archie Creek	10.05	18.50	10.87	66.90	0.82
280089	Archie Creek	10.99	18.80	11.74	66.70	0.75
280100	Archie Creek	8.74	12.60	9.09	68.00	0.35
280104	Archie Creek	8.86	17.60	9.61	67.10	0.75
280105	Archie Creek	8.87	17.60	9.62	67.10	0.75

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	2

State Job No. 10060-1208

BEGIN PROJECT
STA. 1002+26.10
Begin 4 Lane Constr.

Sta. 1020+30.5
End 4 Lane
Begin 2 Lane Const.

Equation PT Sta 1034+11.15 Back
= Sta. 63+04.96 Ahead

Const. 15" Pipe
Sta. 1034+00
Const. Type C Inlet & Endwall
Rt. El. 5.4 -Lt., El. 5.3 -Rt

Sta. 1011+50
Const. 30" Pipe Culv.
Fl. El. 2.1 Lt
Fl. El. 1.9 Rt

Sta. 1030+06
Const. 8'x3' Box Culv.
Rt. El. 3.32 Lt
Rt. El. 2.50 Lt

H.W. 4.0

Tidewater Ditch 13' Bottom 28' Top Canal

Cleared Sandy Land

Note: During Rainy Season water will flow from West to East

Natural Stream Bed

20'x28' Conc. C.B.
Top Inlet = 7.38
Inlet No. = 4.38
Inlet So. = 4.28
Bottom C.B. = 4.83

20'x28' Conc. C.B.
Top Inlet = 7.12
Fl. Inlet No. = 4.15
Fl. Inlet So. = 4.12
Bottom C.B. = 4.13

18" Conc. P. Fl. = 2.54

18" Conc. Fl. = 4.10

42"x48" Conc. C.B. Top Inlet = 5.79
Inlet No. = 3.12
Inlet So. = 3.12
Outlet E. = 3.08 Bottom C.B. = 3.02

18" Conc. P. Fl. El. = 3.93

D.A. 11.1 Ac.

30"x30" Conc. C.B.
Top Inlet = 5.65
Inlet No. = 3.4 Inlet W. = 3.40
Bottom C.B. = 3.83

18" Conc. Fl. = 4.40

D.A. 1.8 Ac.

30" Conc. Fl. = 2.4

24" Conc. x Dr.
Fl. W. = 2.67 Fl. E. = 2.57

D.A. 2.2 Ac.

24" Conc. Fl. = 4.09

18" Conc. Fl. = 4.32

30" Conc. Fl. = 4.21

D.A. 2.7 Ac.

D.A. 13.9 Ac.

30" Conc. P.
Fl. E. End = 2.86
Fl. W. End = 2.63

2.86

Palm Flat

43"x27" C.M.P.
Fl. No. End = 1.33
Fl. So. End = 1.25

C.R.R. Borrow Pit

End 4 Lane
Begin 2 Lane

4.30" Conc. P. Fl. = 2.25

8'x3' Conc. Box Culv.
Fl. E. = 2.91 Fl. W. = 2.57
H.W. = 5.7 June 1934

2-36" Conc. P. Fl. El. = 4.52

36" Conc. P. Fl. El. = 3.73

10'x4' Conc. Culv.
Fl. El. = 4.3

P.T. STA. 1031 + 10.59
Δ = 6° 01' Lt.
D = 1° 00'
T = 301.11
L = 601.67
R = 5729.58
P.C. = STA. 1028 + 09.48
P.T. = STA. 1034 + 11.15 BACK =
STA. 63 + 04.96 AHEAD

P.T. EQUATION
1034 + 11.15 Back
63 + 04.96 Ahead

Project Survey ℄

℄ Proposed Road

Shell Rd.

Old Rd.

RIVER

ALAFIA

Scale 1" = 200'

BEGIN PROJECT
STA. 1002+26.10
BEGIN 4 Lane

1/4

4-3

10060-1208 1 of 4

10060-208

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	3

State Job No. 10060-208

Equation PT Sta 1032+11.15 Back = Sta 63+04.96 Ahead

Sta 157+00 End 2 Lane Begin 4 lane Const

Sta 96+53 Const Trip 10'x6' Box Culv't Ext Ef & Lt. F.L. El.=1.54

Sta 118+46 Const Trip 10'x6' Box Culv't Ext Ef & Lt. F.L. El.=1.54

Sta 138+73.71 Const Obl 10'x6' Box Culv't (30° Skew Rt.) Ext Ef & Lt. Fl. El.=1.00± Fl. El.=1.63±

MATCH LINE

Scale 1"=1000 Ft.

2'x2' Conc box Culv. Fl.=1.83 E. Fl.=1.25 W. E. Road=8.99 N.H.W. 4.0 E.H.W. 6.8

Double 9.4'x5.0' box Culv. Fl.=1.27 E. Road=9.14 PWL=0.51 10-22-56 N.H.W.=4.0 E.H.W.=6.0

3 Span Timber Trustle 64 Sq. Ft. Opening H.W. El.=5.7 June 1934 Fl.=2.5 Top Rail=7.76

3-10'x6' Conc. box Culv. Fl.=1.54 N.H.W.=4.0 E.H.W.=6.8

4 Span Timber Trustle Fl.=3.0 Top Rail=7.47 178 Sq. Ft. Opening N.H.W.=4.0 E.H.W.=6.0

3-10'x6' Conc. box Culv. Fl.=1.54 N.H.W.=4.0 E.H.W.=6.0

Note Equation PT Sta 1034+11.15 Back = Sta 63+04.96 Ahead

U.S. Phosphoric Plant

24" Conc. Fl. N.=4.15 Fl. S.=4.27

36" Pipe Fl. El.=2.72

10' Conc. Bridge 140 Sq. Ft. Opening Fl. El.=0.7

Paved Road

ALAFIA RIVER

10 Ft. Concrete Bridge 70 Sq. Ft. Opening Fl. El.=1.59

Double 12'x5' Conc. Box Fl El.=0.54 120 Sq. Ft. Opening

3-48" Conc. Pipes Fl.=1.09 PWL 0.66 10-29-56 Top Rail=8.67 H.W.=6.0

2-36" Pipes Fl. El.=0.4

Note: This canal will connect drainage areas at flood times

58"x36" CMP Arch P H.W. 12.3 Fl. El.=1.93

16' Timber Bridge 88 Sq. Ft. Opening Fl. El.=1.39

2-7'x5' Conc. Box Fl. El.=1.59 H.W. El.=6.7 June 1934

2-36" Conc. Pipes Fl. El.=3.52

10' Concrete Bridge 32 Sq. Ft. Opening Fl. El.=4.3

D.A. 334 Ac.

Natural Stream Bed

2-43"x27" CMP H.W. 12.0 Fl. El.=9.5

2-24" Pipe Fl. El.=10.1

5'x3' Culvert Fl. El.=10.1

Grass Pond

Improved Pasture

Pine & Pal.

D.A. 1841 Ac.

D.A. 2874 Ac.

D.A. 2481 Ac.

2-65'x40" CMP Arch P H.W. 10.8 Fl. El.=7.3

58"x36" CMP Arch P Fl. El.=11.0 H.W. 14.0

14"x10.5" CMP Arch P H.W. 17.6 Fl. El.=7.1

Note This canal will connect drainage areas at flood times.

W.W. Pond

W.W. Area

Improved Flatwoods Land

Cypress Pond

Note This bridge will connect drainage areas at flood time

2-20' Span Conc. Bridge 160 Sq. Ft. Opening Fl. El.=2.5 H.W. 30.0

12" Conc. Bridge 84 Sq. Ft. Opening Fl. El.=21.9 H.W. 25.9

5'x3' Culvert Fl. El.=29.0

18" Conc. Pipe Fl. El.=31.5

2-24" Conc. Pipes Fl. El.=30.8

10'x3' Culvert Fl. El.=27.8

18" Pipe Fl. El.=33.5

18" Pipe Fl. El.=33.7

Range 19 East Range 20 East

Twp 29 South Twp 30 South

15' Canal, 12' Canal, 6' Canal, 3' Ditch, 5' Ditch, 14' Canal, 8' Canal, 10' Canal, 18' Canal

2/4

46

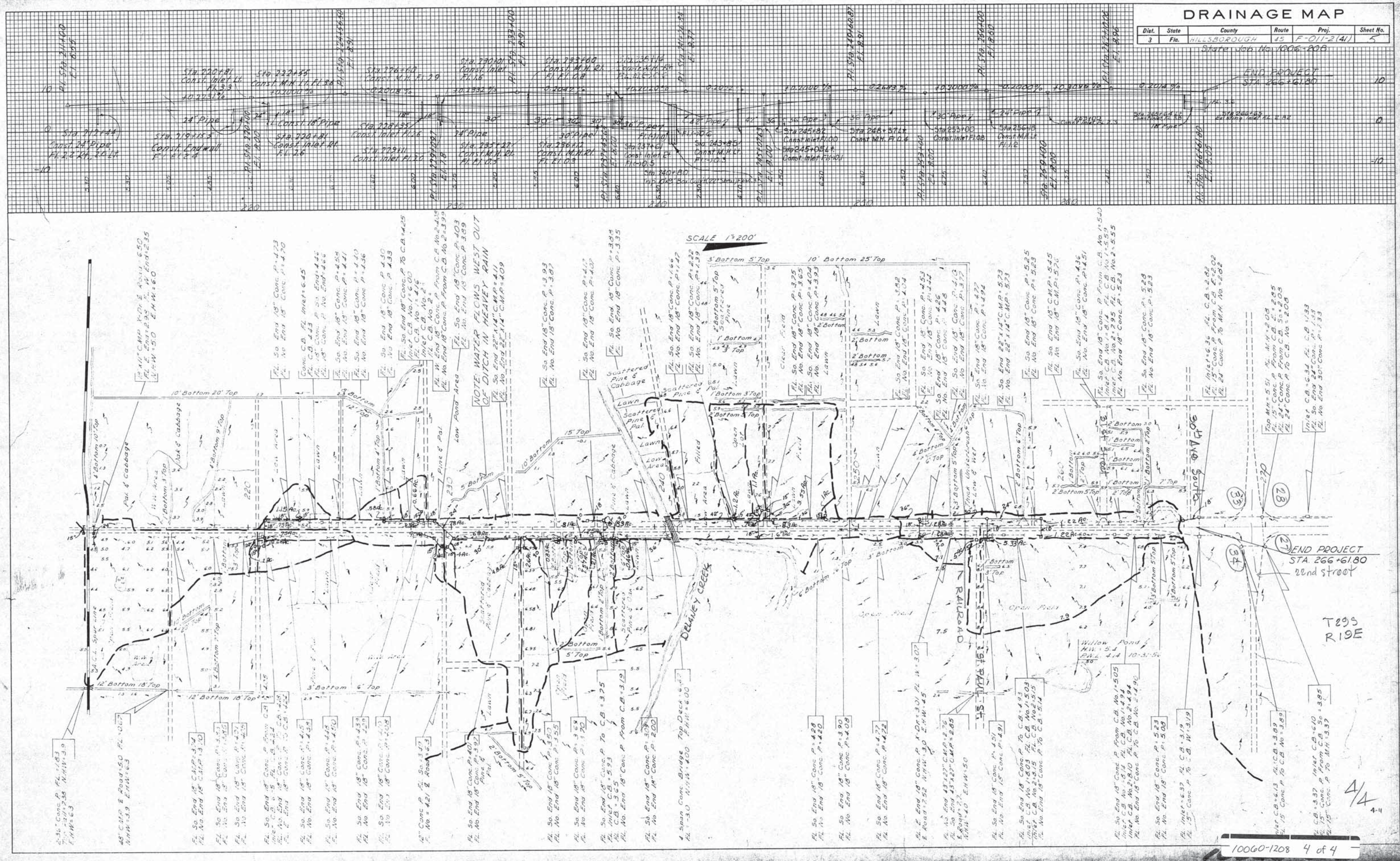
10060-1208 2 of 4

DRAINAGE MAP

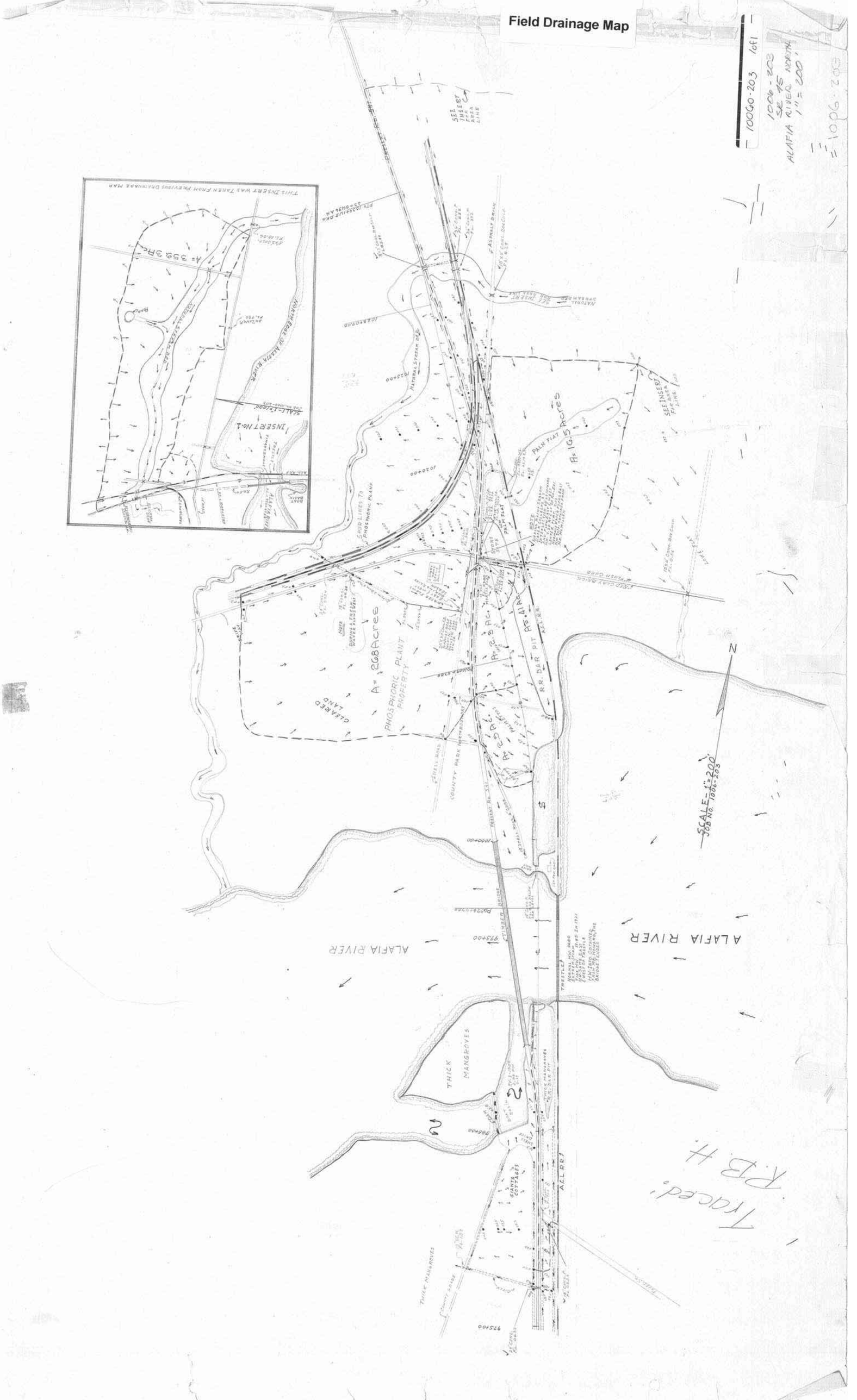
Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	4

State Job No. 10060-1208




DRAINAGE MAP
Dist. 3
State Fla.
County HILLSBOROUGH
Route 45
Proj. F-011-2(41)
Sheet No. 5
State Job No. 1006-208
END PROJECT
STA. 266+61.80
SCALE 1"=200'
NOTE: WATER FLOWS WEST OUT OF DITCH IN HEAVEY RAIN
DELANEY CREEK
RAILROAD
ST. PAUL ST.
22nd street
T29S
R19E
Willow Pond
H.W. = 5.4
P.W.L. 4.14
10-31-56
A.C.L. Spur Line
10' Bottom 20' Top
12' Bottom 18' Top
3' Bottom 6' Top
10' Bottom 25' Top
3' Bottom 5' Top
Low Pond Area
Scattered Pine & Cabbage
Open Field
Lawn
4 Span Conc. Bridge Top Deck = 6.37
FL = -3.0 N.H.W. = 4.00 E.H.W. = 6.00
10060-1208 4 of 4
4/4

Field Drainage Map



DRAINAGE MAP

Dist.	State	County	Route	Proj	Sheet No.
7	Fla.	Hillsborough	45	F-011-2(44)	2

State Job No 10060-3212

BEGIN 2-LANE HWY.
BEGIN PROJECT
STA. 737+05.21

BEGIN CONSTRUCTION
STA. 722+69.03

Sta. 725+14
CONST. DBL. 30" P.
F.L. El. Lt. 6.9; Rt. 7.1
(22° Skew Rt.)

Sta. 742+37
Const. 10'x4' Box Culv't. Ext.
F.L. El. 3.6

Sta. 755+59
Const. 36" Pipe Culv't.
F.L. El. Lt. 5.0; Rt. 5.2

Sta. 766+80
Const. 36" Pipe Culv't.
F.L. El. Lt. 3.7; Rt. 3.9

Sta. 782+65.5
Const. 36" Pipe Culv't.
F.L. El. Lt. 3.4; Rt. 3.6

Sta. 802+33
Const. 10'x4' Box Culv't. Ext.
F.L. El. Lt. 1.4

Sta. 844+26.5
Const. DBL. 10'x5' Box Culv't. Ext.
F.L. El. Lt. (-) 2.1

Sta. 848+37 Const.
10'x5' Box Culv't. Ext.
F.L. El. Lt. (-) 2.0

Sta. 874+10 Const. (22° Skew Rt.)
10'x8' Box Culv't.
F.L. El. Lt. & Rt. (-) 4.5

Sta. 894+51.3 Const.
36" Pipe Culvert
F.L. Lt. 2.4; Rt. 3.0

P.I. (4.00) El. 12.10
P.I. (4.00) El. 11.10
P.I. (4.00) El. 9.40
P.I. (4.00) El. 9.60
P.I. (4.00) El. 8.90
P.I. (4.00) El. 9.60
P.I. (4.00) El. 9.10
P.I. (4.00) El. 8.50
P.I. (4.00) El. 7.60
P.I. (4.50) El. 6.40
Prop. 21.85' Ext. Prop. Roadway
P.I. (4.00) El. 6.40
P.I. (4.00) El. 6.60
P.I. (4.00) El. 7.40
P.I. (4.50) El. 7.40
P.I. (4.00) El. 9.30
P.I. (4.50) El. 7.40
P.I. (4.50) El. 7.87

STA. 916+02.5
PROP. 202.50' CONC. BR.
STA. 918+05
END 2 LANE HWY.
BEGIN 4 LANE HWY.
STA. 918+42.50

8.82
E.H.W. 6.0
N.H.W. 4.0

SEE DRAINAGE MAP
SHEET NO. 3

END 4-LANE HWY.
END PROJECT
STA. 984+84.50

BEGIN 2 LANE HWY.
BEGIN PROJECT
STA. 737+05.21

BEGIN CONST.
STA. 722+69.03

1" = 1000'

10'x4' Conc. Box Culv't.
F.L. Rt. 6.23
F.L. Lt. 5.87
H.W. 8.8

10'x3' Box Culv't H.W. 6.0
F.L. Rt. 4.40, F.L. Lt. 3.88

10'x3.6' Box Culv't
F.L. Rt. 3.44, F.L. Lt. 3.40
H.W. 5.7

10'x4.25' Box Culv't. H.W. 7.5
F.L. Rt. 4.70, F.L. Lt. 4.71

10'x4' Box Culv't
F.L. Rt. 4.37, F.L. Lt. 4.23
H.W. 6.3

10'x4.6' Box Culv't
F.L. Rt. -1.52, F.L. Lt. -1.56
N.H.W. 4.0, E.H.W. 6.0

10'x8' Box Culv't
F.L. Rt. -2.89, F.L. Lt. -2.75
N.H.W. 4.0, E.H.W. 6.0

Dbl. 10'x4.6' Box Culv't
F.L. Rt. 4.15, F.L. Lt. 4.21
H.W. 4.0

BR. CULVT. SEE PROFILE

36" R.C.P.
F.L. Rt. 8.98
F.L. Lt. 9.27
H.W. 13.0

36" R.C.P.
F.L. Rt. 10.06
F.L. Lt. 9.27

36" R.C.P.
F.L. Rt. 9.46
F.L. Lt. 9.33
H.W. 12.5

36" R.C.P.
F.L. Rt. 8.23
F.L. Lt. 7.45

42"x27" C.M.P.

42" C.M.P.

58"x36" C.M.P.

24" Conc.

318 Ac.

35.6 Ac.

66.0 Ac.

57 Ac.

Fish Hatchery Ponds

Wooden Bridge

Rock Dam

Jackson Branch

Simms Branch

Adamsville

Tide Water South Canal

Gardenville

Bullfrog Creek

Tide N.H.W. E.H.W.

Tide Kitchens

T31S R19E

T30S R19E

Marsh Park Area

Bike Bridge

Fowell Rd.

Fowler Rd.

Tucker Rd.

Gibsonton

Atlantic Coast Line R.R.

Alafia River

Minnow Ponds

Note: High Water Elevation Was Determined By Field Evidence And Information Received From Local Citizens, February 1958. Information on High Water Elev. on R.R. Structures Received from H.H. Smith, Section Foreman A.C.L. R.R. Palm River. 7-16-58 Latest H.W. Storm 1950

H.W. 12.9
36" Conc. Pipe F.L. 9.85

H.W. 12.9
36" Conc. Pipe F.L. 7.73

36" Conc. Pipe F.L. 8.27
H.W. 11.3

36" Conc. Pipe
F.L. Rt. 9.93, F.L. Lt. 8.71
H.W. 12.9

24" Conc. Pipe
H.W. 12.3
24" Conc. Pipe F.L. 9.77

H.W. 12.3
24" Conc. Pipe F.L. 9.80

H.W. 13.1
24" Conc. Pipe F.L. 10.55

H.W. 12.9
24" Conc. Pipe F.L. 10.94

H.W. 13.7
24" Conc. Pipe F.L. 11.66

H.W. 12.8
30" Conc. Pipe F.L. 10.32

H.W. 14.0
24" Conc. Pipe F.L. 12.05

H.W. 11.7
24" Conc. Pipe F.L. 8.67

H.W. 10.7
24" Conc. Pipe F.L. 8.68

24" Conc. Pipe

58"x36" C.M.P.

24" Conc. Pipe

36" Conc. Pipe F.L. 8.67
H.W. 11.7

24" Conc. Pipe F.L. 8.68
H.W. 10.7

24" Conc. Pipe

77"x57" C.M.P.

Wooden Bridge

1167 Ac.

284 Ac.

24" Conc. Pipe

36" C.M.P.

3-54" Conc. Pipes
F.L. 0.87 H.W. 6.4

36" Conc. Pipe
F.L. 4.73
H.W. 7.7

3-48" Conc. Pipes
F.L. (-) 0.65 H.W. 3.3

36"x24" C.M.P.

44"x28" C.M.P.

AREA of OPENING
902 SQ. FT.
74"x46" C.M.P.

17 Ac.

61.3 Ac.

PROP. OUTFALL DITCH
24" Conc. Pipe

44"x68" C.M.P.

10'x26' Box Culv't.
F.L. Rt. 4.16, F.L. Lt. 4.18
N.H.W. 6.2

24" Conc. Pipe
F.L. Rt. 4.47, F.L. Lt. 4.54
N.H.W. 5.9

36" Conc. Pipe
F.L. Rt. 3.63, F.L. Lt. 3.53
N.H.W. 5.6

5'x13' Box Culv't
"C" Canal

36"x22" C.M.P.

2-36" Conc. P.
F.L. 3.94
H.W. 6.9

24" Conc. P.
18" Conc. P.

48" C.M.P.

Consider a potential 425 Ac. overflow into Simms Branch

Drainage Divide

100' Conc. Bridge

Bullfrog Creek

50' Conc. Arch Bridge

SR 672

Big Bend Rd.

Gibsonton Rd.

Simms Rd.

Nandy Rd.

END 2 LANE HIGHWAY
BEGIN 4 LANE HIGHWAY
STA. 918+42.50

FOR DETAILS SEE DRAINAGE MAP SHEET NO. 3

CURVE NO. 1
P.I. 831+09.25
Δ = 14°33'-10" RT.
D = 1° 24'
T = 522.86
L = 1040.08
R = 4092.56
P.C. 825+86.39
P.T. 836+26.47

CURVE NO. 2
P.I. 858+31.47
Δ = 14°09'05" LT.
D = 1° 00'
T = 711.19'
L = 1415.14'
R = 5729.58'
P.C. 851+20.28
P.T. 865+35.42

CURVE NO. 3
P.I. 897+03.94
Δ = 1° 10' 00" LT.
D = 0°-06'
T = 583.35
L = 1166.67
R = 57,295.78
P.C. 891+20.59
P.T. 902+87.26

CURVE NO. 4
P.I. 928+98.30
Δ = 0°38'.45" RT.
D = 0°.03'
T = 645.84'
L = 1291.67
R = 114,591.56
P.C. 922+52.46
P.T. 935+44.13

CURVE NO. 5
P.I. 957+08.70
Δ = 9° 49' 20" LT.
D = 1° 00'
T = 492.32'
L = 982.22'
R = 5729.58'
P.C. 952+16.38
P.T. 961+98.60

10060-3212 1 of 2

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-3(42)	3

State Job No. 10060-3212

Contd. Below

END 2-LANE BEGIN 4 LANE STA. 918+42.50

EXISTING GRADE

SCALE: 1" = 200'

935+44.35 BK = EQUATION 935+44.13 AHD.

BEGIN CURB & GUTTER

DROP OUTFALL DITCH

END 2 LANE BEGIN 4 LANE STA. 918+42.50

24" Conc. Pipe FL. N. 3.28, FL. S. 2.91

24" Conc. Pipe FL. N. 2.01, FL. S. 1.98

2-24" Conc. Pipes

2-36" Conc. P FL. 3.94, HW 6.9

END 4-LANE END PROJECT STA. 984+8450

STA. 985+44 CONST. ENDWALL LT. F.L. EL (-1.0)

STA. 984+70 CONST. M.H. LT. F.L. EL (-0.8)

STA. 981+48 CONST. INLET LT. F.L. EL 1.6

Pl. STA. 981+60 EL. 8.03

Pl. STA. 986+35 EL. 8.97

END 4-LANE END PROJECT STA. 984+8450

S-45

10060-3212 2 of 2

APPENDIX F

Meeting Minutes

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:

PA 400801

Date:	1/22/2014
Time:	11:00
Project Name:	FDOT US 41 PD&E Study from south of Causeway to Kracker Ave.
Attendees:	Richard Alt; Chaz LaRiche; Andrew Goldsmith, American Consulting, agoldsmith@acp-fl.com; Michael Ryan, American Consulting, Christopher Salicco, American Consulting

County:	Hillsborough	**Sec/Twp/Rge:**	Multiple
Total Land Acreage:	159	**Project Acreage:**	159 acres

Prior On-Site/Off-Site Permit Activity:

- ERP – Researching

Project Overview:

- Widen from 4 lane to 6 lane
- Wetlands/Surface Waters – Yes
- FDOT ETDM 5180

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- Review the ETDM report for specific issues associated with the potential wetland/surface water issues
- Replacement of bridges over the rivers and creeks
- Provide the limits of jurisdictional wetlands.
- Provide appropriate mitigation using UMAM for impacts, if applicable.
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections.
- Eleven WBID's - 8 are impaired for nutrients
- Discharging to impaired waters.
- Need coordination with DEP on adjacent contaminated sites.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event if the pond does not discharge to an infinite basin. Or demonstrate no adverse impacts if attenuation is not provided.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase riverine flood stages up- or down-stream of the project area(s).
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable.

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- Provide water quality treatment for the required project area.
- In addition, if the project discharges to an impaired water body, must provide a net environmental improvement.
- Applicant must demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- Any work below the MHW line will require coordination with Tampa Port Authority

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to the FDOT.
- Provide proof of ownership in the form of a deed or contract for sale.
- Provide appropriate O&M instructions.
- Provide detailed construction surface water management plan.

Application Type and Fee Required:

- SWERP – Sections A, C and E of the ERP Application.
- < 640 acres of project area and <50 acres of wetland or surface water impacts - $3,106.00 Online Submittal

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

-

Disclaimer: The District ERP pre-application meeting process is a service made available to the public to assist interested parties in preparing for submittal of a permit application. Information shared at pre-application meetings is superseded by the actual permit application submittal. District permit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.

American Consulting Engineers of Florida, LLC
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Wesley Chapel, Florida 33544
Tel 813.435.2600 • Fax 813.435.2601
american@ace-fla.com • www.ace-fla.com

SWFWMD PRE APPLICATION MEETING MINUTES

Meeting Date: January 22, 2014 **Date Issued:** January 22, 2014

Location: SWFWMD Tampa Office

Project Name: US 41 PD&E Study from Kracker Avenue to south of Causeway Blvd.

Purpose: To discuss stormwater management permitting criteria

Notes by: Michael Ryan **American Project #:** 5127041

Copies to: Attendees, Andrew Goldsmith, Christopher Salicco, File: 5127041.B.03, Bill Adams, Larry Weatherby

Attendees	Representing	Phone	Fax or e-mail
Richard Alt	SWFWMD	813-985-7481	Richard.alt@wattermaters.org
Chastity 'Chaz' LaRiche	SWFWMD	813-985-7481	Chaz.LaRiche@watermatters.org
Andrew Goldsmith	American Consulting Engineers	813-435-2602	agoldsmith@acp-fl.com
Michael Ryan	American Consulting Engineers	813-435-2623	mryan@acp-fl.com
Christopher Salicco	American Consulting Engineers	813-435-2617	csalicco@acp-fl.com

The following notes reflect our understanding of the discussions and decisions made at this meeting. If you have any questions, additions or comments, please contact us at the above address. We will consider the minutes to be accurate unless written notice is received within 10 working days of the date issued.

Water Quality Treatment:

Wet detention may not be sufficient and will only remove roughly 42% of nutrients. May require use of a treatment train with dry detention swale pretreatment. The governing water quality volume will be the greater of standard water quality (presumptive) or nutrient removal requirements.

If a WBID identifies no impairments for nutrients but is directly discharging to the impaired bay, then nutrient removal requirements will apply. The definition of directly connected is a gray area and engineering judgment should be used based on proximity to the bay. If the WBID identifies no impairments and is not within close proximity to be considered directly connected, such as WBIDs 1628A and 1632, then presumptive criteria will apply.

Compensatory treatment is allowable.

Water Quantity:

Open basin criteria. The design shall meet the 25-year 24-hour discharge attenuation, unless there exists a directly connected discharge to the bay (essentially an infinite basin). Engineering judgment will determine if the SWMF discharge is directly connected since there is no definitive definition of this. If a directly connected discharge is found to exist the 25-year attenuation criteria will not apply and the pond will be designed to release detained runoff as fast as possible. This could also apply to a SWMF located on the east side of the roadway if the SWMF discharges to a riverine system and is directly connected to the bay, the timing of the peak discharges between the onsite system and the riverine system will have to be evaluated to determine if 25-year attenuation criteria apply. For example, if the peak discharge from the onsite system occurs at hour 12 and the peak discharge from the riverine system occurs at hour 24, it will be assumed that the onsite system peak discharge will have no effect on the riverine system peak discharge.

Floodplain:

Richard Alt stated that the base flood elevations for Zone AE indicated on the FIRM are based on storm surge elevations and would not apply for floodplain encroachment estimates. Mr. Alt said to contact Dr. Sue for the riverine water surface profiles in the area. He stated that the riverine analysis used tailwaters of approximately 3 feet and the 100-year water surface profiles at U.S.41 would be significantly lower. He said that we should provide floodplain compensation based on flood elevations reported per the water surface profiles from Dr. Sue.

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:

PA 402518

Date:	8/19/2015
Time:	11:00
Project Name:	FDOT US41 S of Causeway to Kracker Ave
Attendees:	Richard Alt, Al Gagne, Andrew Goldsmith - American Consulting agoldsmith@acp-fl.com William Adams, Larry Weatherby

County:	Hillsborough	**Sec/Twp/Rge:**	
Total Land Acreage:	170	**Project Acreage:**	170 acres

Prior On-Site/Off-Site Permit Activity:

- 4 lane rural
- PA 400801, ETDM 5180

Project Overview:

- Expand to 6 lane urban and suburban

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- Project is located in both the Tampa Bay/Coastal Basin and the Alafia Basin. Impacts in the Alafia basin may be located within the service area for the Tampa Bay Mitigation Bank. Will need to verify this. If so, they may be able to use a connectivity argument to mitigate Alafia impacts at the Tampa Bay Mit Bank. Will need to submit a cumulative impact analysis using a connectivity argument for tidal systems.
- Provide the limits of jurisdictional wetlands.
- Provide appropriate mitigation using UMAM for impacts, if applicable.
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.
- If the project is located in a county which is listed as a coastal county under the Coastal Zone Management Act (CZM) and the project has wetland impacts, it will require a noticing period once the permit application is deemed complete. Wetland and/or surface waters impacts less than 1 acre in size will require a 10 day noticing period, prior to the issuance of the permit. Wetland and/or surface water impacts greater than 1 acre in size will require a 30 day noticing period, prior to the issuance of the permit. Permits could be issued as early as the 11th or 31st day, but staffs' schedule and workload will determine the actual issuance date.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections –
- WBIDs need to be independently verified by the consultant - WBID – 1682,1676, 1666A, 1664, 1621G, 1628A, 1632, 1637, and 1636
- Discharging to impaired waters in some areas.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event. Only SMF 12/13 will need to attenuate, all others (as shown during the meeting) will not require attenuation.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase flood stages up- or down-stream of the project area(s).
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable.

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- Provide water quality treatment for the required project area.
- In addition, must provide a net environmental improvement.
- Applicant must demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- N/A. Tampa Port Authority owns the bottom lands in Hillsborough County. Will need to coordinate with EPC and the Tampa Port Authority.

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to the FDOT.
- Provide proof of ownership in the form of a deed or contract for sale.
- Provide appropriate O&M instructions.
- Provide detailed construction surface water management plan.

Application Type and Fee Required:

- SWERP – Sections A, C, and E of the ERP Application.
- < 640 acres of project area and < 50 acres of wetland or surface water impacts - $3,105.75

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

- In accordance with Rule 40D-1.603(2), F.A.C., no later than 30 days after submittal of an initial application of an Individual surface water management permit the applicant shall publish at the applicant's expense a notice of the District's receipt of the application in a newspaper having general circulation as defined in Chapter 50, F.S., in the county or counties in which the activity is proposed. Please provide documentation that such noticing has been accomplished. Note that the published notices of receipt for an ERP must be in accordance with the language provided in Rule 40D-1.603(10), F.A.C., and receipt of an affidavit establishing proof of this publication will be considered a completeness item of this ERP Application. Per Rule 40D-1.603(12), F.A.C., this must be received before the application will be considered complete and the 60-day timeframe for taking agency action on the application will commence.

  40D-1.603(12) – “Applicants required to publish a notice of receipt of application must provide to the District a publisher’s affidavit establishing proof of publication pursuant to Sections 50.041and 50.051, F.S., before the application will be considered complete and the applicable timeframe for taking agency action on the application will commence.”

Disclaimer: The District ERP pre-application meeting process is a service made available to the public to assist interested parties in preparing for submittal of a permit application. Information shared at pre-application meetings is superseded by the actual permit application submittal. District permit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.

DRAFT MEETING MINUTES

Date: June 4, 2024
Location: Mosaic - FishHawk – 13830 Circa Crossing Drive, Lithia, FL 33547, Sawgrass Conf. Room
Project: **US 41 (SR 45) PD&E Study from Kracker Avenue to South of SR676 (Causeway Blvd.) WPI Segment No. 430056 1 – Hillsborough County**
Attendees: Eric Nelson (Consor), Anna Geismar (FDOT), Brad Deneve (Mosaic), David Walker (Mosaic), Shelly Thornton (Mosaic), Paul Samuels (Mosaic), Bartley Arrington

RE: Pond Siting Coordination Meeting with Mosaic

The purpose of the meeting was to coordinate the pond siting needs for the future expansion of US41 with The Mosaic Company (Mosaic). Mr. Nelson shared the conceptual 6-lane widening plans, along with the potential pond siting alternatives, with Mosaic's environmental team. Basins 7-10, as indicated on the provided pond siting maps, are completely surrounded by Mosaic properties.

Mosaic discussed their plans to expand the existing gypsum stack, which may or may not conflict with potential pond sites. Mosaic stated that they will provide a shapefile of the conceptual footprint.

Per the pond siting maps, the following are Mosaic's comments:

SMF 7A – No issues

SMF 7B – No issues

SMF 8A – Most likely no issues

SMF 8B – Most likely no issues

SMF 9A – Not available, part of the Maintenance Program for Archie Creek

SMF 9B – No issues, potentially could be increased in size to compensate for Basin 10

SMF 10A – Not available, part of the Maintenance Program for Archie Creek

SMF 10B – Not available, part of the Maintenance Program for Archie Creek

Action items:

1. Consor - Send shapefile of proposed SMF sites.
2. Mosaic - Send shapefile of gypsum stack expansion.

Date Prepared: June 4, 2024

By: Eric Nelson

DRAFT MEETING MINUTES

Date:	October 29, 2024 @ 10am
Location:	D7-HQ-Planning Conference Room, Planning and via Teams
Project:	**US 41 (SR 45) PD&E Study from Kracker Avenue to South of SR676 (Causeway Blvd.) WPI Segment No. 430056-1 – Hillsborough County**
Attendees:	**Representing FDOT:** Anna Geismar, Kirk Bogen, Robin Rhinesmith, Abdul Waris, Caroline Cation Smith, Bill McTeer, Taylor Mandalou, Amber Russo, Allison Conner, Anh-Thu Nguyen, Heather Rocha, and Melissa Mulvaney. **Element:** Richard Endrzejewski **Consor:** Jeff Novotny, Eric Nelson
RE:	430056-1/US 41 from Kracker Ave to south of US 301 - Pond Site Selection

1. **Project Overview**
    - Review of the US 41 Pond Site and the SMF/FPC Matrix associated with the PD&E Study from Kracker Avenue to South of Causeway Blvd (SR676).
2. **Preferred Alternatives and Changes**
    - Confirmed SMF/FPC preferred sites based on the updated matrix:
        - SMF 1C: Preferred due to low-moderate cultural resources impact, no relocations. Lowest overall cost after 1B dropped due to moderate risk for cultural resources, chosen as preferred option for Basin 1.
        - SMF 2A: Noted for low-moderate impact, no relocations, lowest overall cost, chosen as the preferred option for Basin 2.
        - SMF/FPC 3C: Low impacts, no relocations, lowest overall costs, chosen as the preferred option for Basin 3.
        - SMF/FPC 4B and 4C: 4B was noted as the preferred alternative in the draft matrix, but 4C remains under consideration due to zero relocations and less piping required. Eric will double-check relocation impacts before finalizing.
        - SMF 5B: Low impacts, no relocations, lowest overall cost, chosen as the preferred option for Basin 5
        - SMF 6C: 6C was noted as the preferred alternative in the draft matrix. Kirk and Bill McTeer mentioned looking the two properties on the SE and NE corners of Nundy Ave. and US41 which are on the west side of CSX RR. Consor will check to see if those areas are the appropriate size and update R/W maps to show this as another site (6D). Since the 2 separate areas may have different property owners they may show as SMF 6D1 and 6D2. One of these sites might have a business relocation involved which is still preferred over crossing the CSX RR which would incur additional R/W and permitting costs.
        - SMF 7A: Approved for Basin 7 based on low impacts, no relocations and lowest overall costs. Will need to adjust parcel boundary to accommodate proposed Mosaic pipelines and R/W area needs.

- SMF 8B and 9A: Confirmed as preferred sites for Basins 8 and 9, minimal impact. Both are on Mosaic properties and there are no relocations.
- For basins to the north:
    1. Basin 10 drainage needs are captured with SMF 9A, so there is no SMF in basin 10.
    2. For the design project at Pendola Pt, there is one SMF that covers basins 11 and 12 from the original SEIR. SMF 11 (called 1-2 in the design project) is preferred. The pond siting information for this SMF will be included in the Pond Siting Report for this PD&E study in the appendix.

3. **Cost and Area Adjustments**
    - Noted that some ponds require increased right-of-way (R/W) area to account for increased drainage required volume based on District preferences. For example:
        - Preferred SMF 2A increased to 2.02 acres – send the updated area for FDOT to update the R/W estimate
        - New SMF 6D sites under consideration in lieu of SMF 6C due to being on the west side of CSX RR.
    - Action: Recalculate R/W costs for expanded areas, refined area for SMF 7A to refine R/W costs and add cost for SMF 6D
4. **Environmental and Cultural Impact Review**
    - Wetland Mitigation Costs were highlighted for double-checking, particularly around areas SMF 3C, 6C and FPCs.
    - Action: Confirm species ratings and contamination risk adjustments as per environmental review updates.
5. **Next Steps**
    - Include any information from the flooding database around Basin 2, especially on Ohio Street.
    - Update Matrix for Pond Siting Report and submit draft PSR for District review
    - Commence environmental clearances of selected sites for documentation for cultural resources, natural resources and contamination reports.

Discussion about upcoming changes to permitting rules

- There was discussion about the upcoming permitting rule changes that will have an impact on the size and treatment requirements. Information provided indicates that the existing permitting rules will remain in place and grandfathered for PD&E Studies approved before June 2026. The latest FAQ was reviewed and confirmed this. Since this PD&E study is planned to be approved before June 2026, the assumption will remain that the existing permitting rules will be used.

Action Items:

1. Consor Engineers - Confirm the feasibility of 4C as the preferred alternative, considering it has zero relocations.
2. Consor Engineers - Provide wetland impact confirmations for designated areas and update ratings on species probability occurrence.
3. Project Team - Update cost estimates for R/W expansions in line with preferred sites.

Next Meeting: No meeting is scheduled. Consor will send updated maps and matrix to Meeting attendees.

Date Prepared: 10/31/2024

By: Eric Nelson

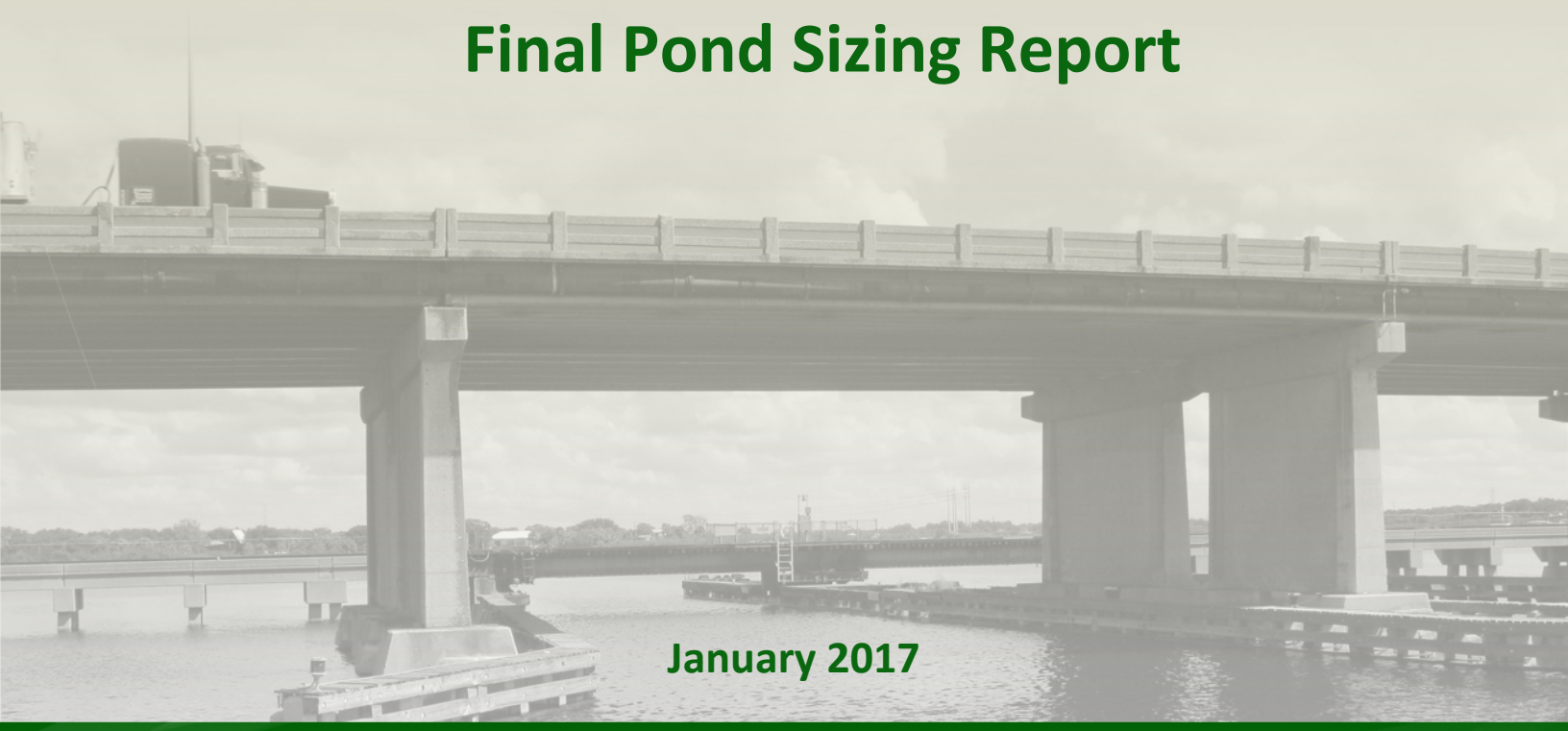
FDOT DISTRICT 7

US 41 (SR 45)

From Kracker Avenue to South of SR 676 (Causeway Boulevard)
Project Development and Environment (PD&E) Study



Final Pond Sizing Report



January 2017

Florida Department of Transportation
District Seven

Work Program Item Segment No. 430056-1
ETDM Project No. 5180
Hillsborough County

US 41 (SR 45)

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

Project Development & Environment (PD&E) Study

Final Pond Sizing Report

Work Program Item Segment No. 430056-1
ETDM Project No. 5180
Hillsborough County

Prepared for:

Florida Department of Transportation
District Seven

Prepared by:
American Consulting Engineers of Florida, LLC
2818 Cypress Ridge Boulevard, Suite 200
Wesley Chapel, FL 33544

January 2017

EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) conducted a Project Development and Environment (PD&E) Study to evaluate alternative improvements for US 41 (SR 45) from Kracker Avenue (milepoint 15.784) to south of SR 676 (Causeway Boulevard – milepoint 22.791) in Hillsborough County (**Figure 1-1)**, a distance of approximately 7.0 miles. Study objectives included: determine proposed typical sections and develop preliminary conceptual design plans for proposed improvements, while minimizing impacts to the environment; consider agency and public comments; and ensure project compliance with all applicable federal and state laws. Improvement alternatives were identified which will improve safety and satisfy future transportation demand. A *State Environmental Impact Report* (SEIR) was prepared for this study and approved on January 12, 2017.

In accordance with the FDOT's PD&E Manual, a Pond Sizing Report (PSR) was prepared for this PD&E Study. The information presented in this document is subject to change until the final Phase of the project. This Pond Sizing Report is preliminary and used as an engineering tool to identify potential stormwater management and floodplain encroachments as a result of the conceptual improvements. The calculations presented in this report are preliminary and help in estimating the preliminary size of the pond site facilities for each basin. The size requirements are preliminary based upon many assumptions and judgments. Conceptual calculations are attached in **Appendix A**.

The evaluation finds that a combination of dry retention and wet detention ponds are recommended for meeting the stormwater management requirements for the proposed roadway improvements. A preliminary right of way (ROW) cost for stormwater management facilities (ponds, etc.) and floodplain compensation sites is approximately $17 million.

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SECTION 1 INTRODUCTION

1.1 PD&E STUDY PURPOSE

The objective of this Project Development and Environment (PD&E) study was to assist the Florida Department of Transportation (FDOT) in reaching a decision on the type, location, and conceptual design of the proposed improvements for widening US 41 (SR 45) from Kracker Avenue to south of Causeway Boulevard (SR 676). The PD&E study satisfied all applicable requirements in order for this project to qualify for state funding of subsequent project development phases (design, right of way [ROW] acquisition, and construction).

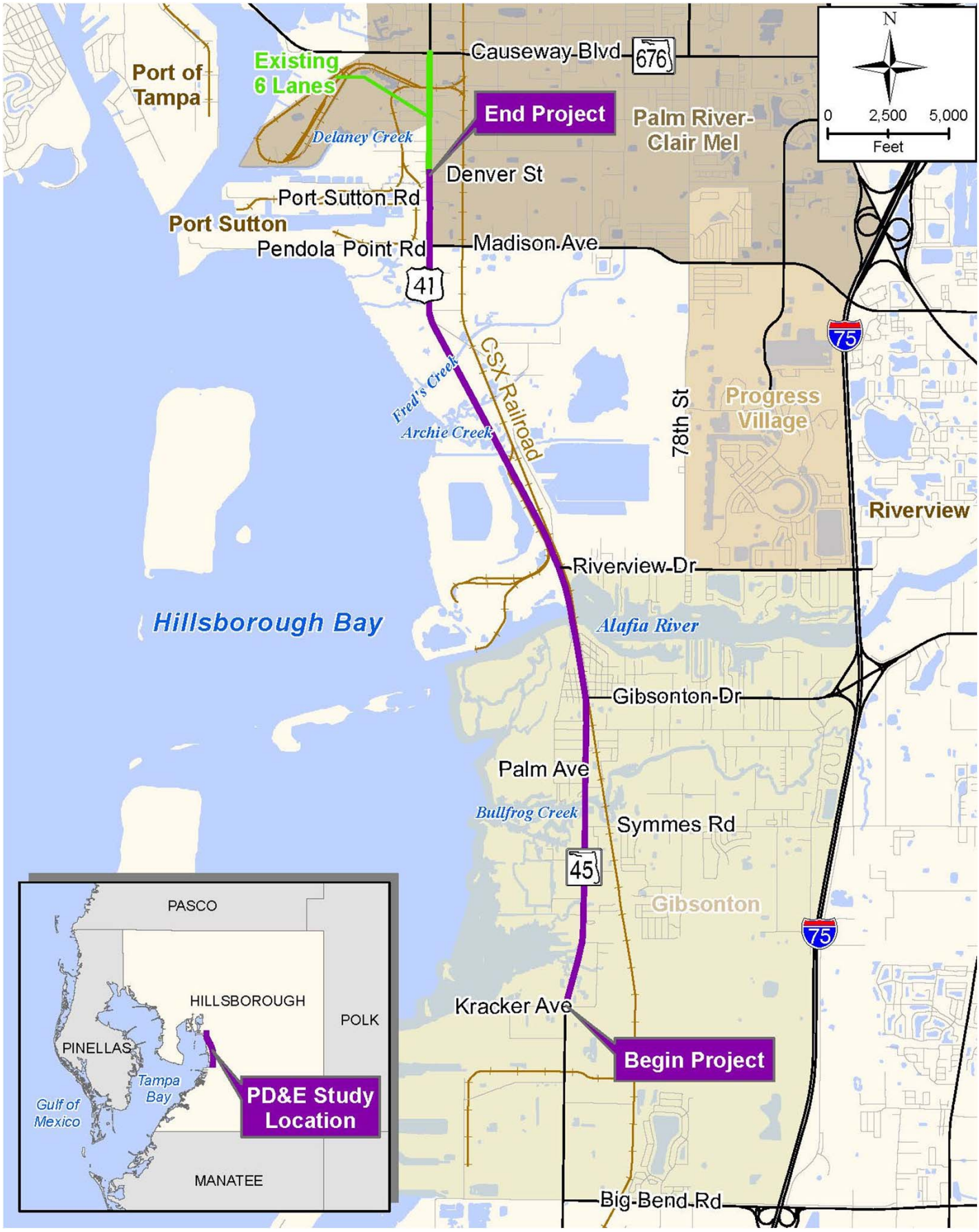
US 41 is a major north-south arterial of regional significance that parallels Interstate 75 (I-75) and US 301 in Hillsborough County. This project was screened through FDOT's Efficient Transportation Decision Making (ETDM) process as Project #5180. A *Final Programming Screen Summary Report* was published on April 10, 2013. A *State Environmental Impact Report* (SEIR) was prepared as part of this study and approved on January 12, 2017.

1.2 PROJECT DESCRIPTION

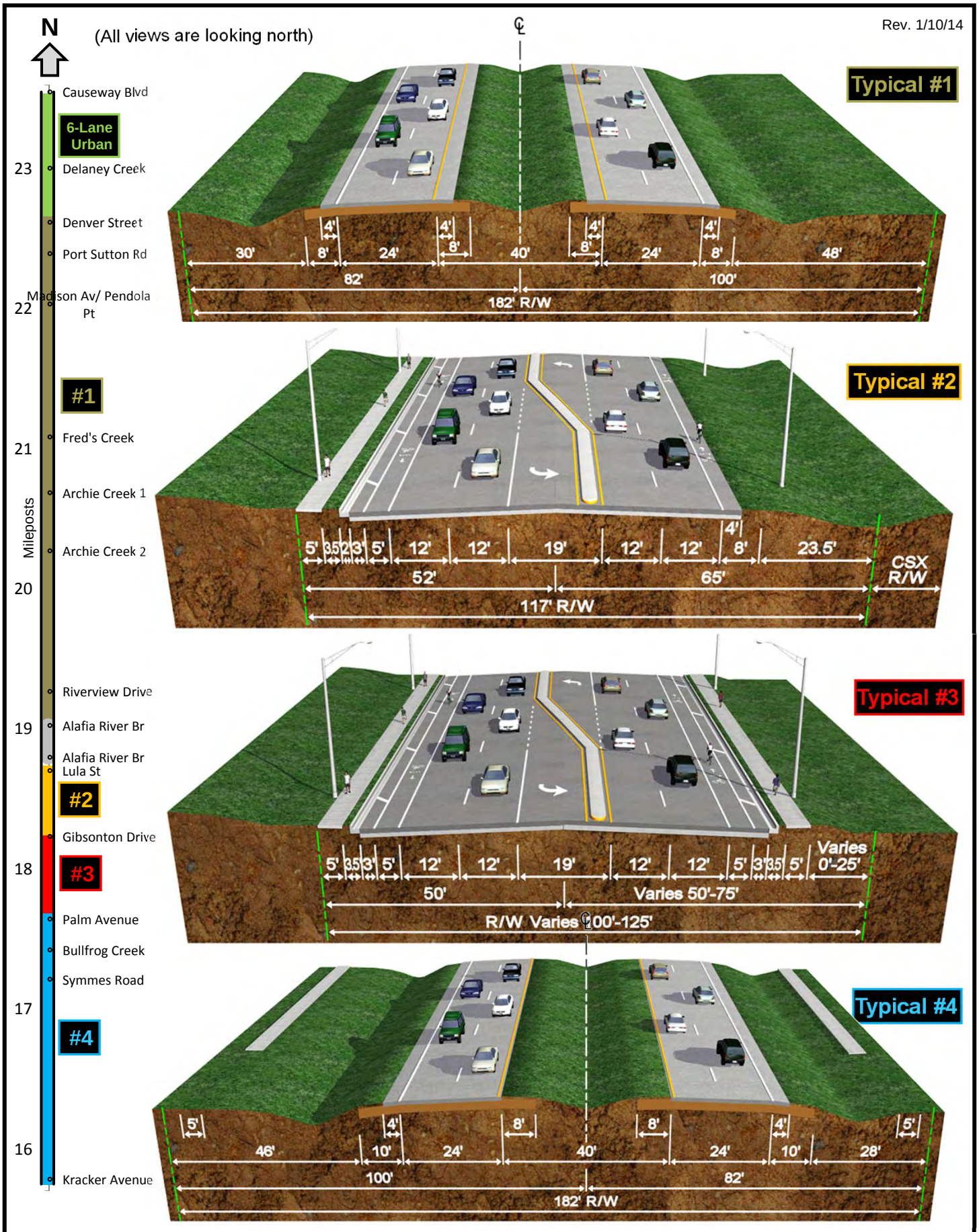
The FDOT conducted a PD&E study to evaluate alternative capacity and operational improvements to US 41 from Kracker Avenue (milepoint 15.784) to south of Causeway Boulevard (milepoint 22.791) in Hillsborough County (**Figure 1-1**), a distance of approximately 7.0 miles. The highway is to be improved from an existing, four-lane divided rural and urban facility to a six-lane divided facility. Bridges over Bullfrog Creek and the Alafia River are planned to be replaced. The planned improvements will include construction of stormwater management and floodplain compensation facilities and various intersection improvements, in addition to multimodal facilities (trail, pedestrian, bicycle and transit accommodations). However, the PD&E study for the proposed project did not evaluate specific stormwater management facilities and floodplain compensation sites as these locations will be identified during the proposed project's future design phase.

1.3 EXISTING FACILITY AND PLANNED IMPROVEMENTS

US 41 currently has both four-lane divided rural and urban typical sections (**Figure 1-2**). In addition, a 0.9-mile segment near the north end, between Denver Street and SR 676, was previously widened to a six-lane urban section. Existing lane widths vary from 11 to 12 feet and median widths vary from 19 to 40 feet. The rural typical section areas include 4-foot paved shoulders. The posted speed limit is 50 miles per hour (mph) in the north Gibsonton area and 55 mph in the areas to the south and north. The existing right of way width varies from 100 feet in north Gibsonton to 182 feet in the areas to the south and north. Existing bridge typical sections are shown in **Figure 1-3**.

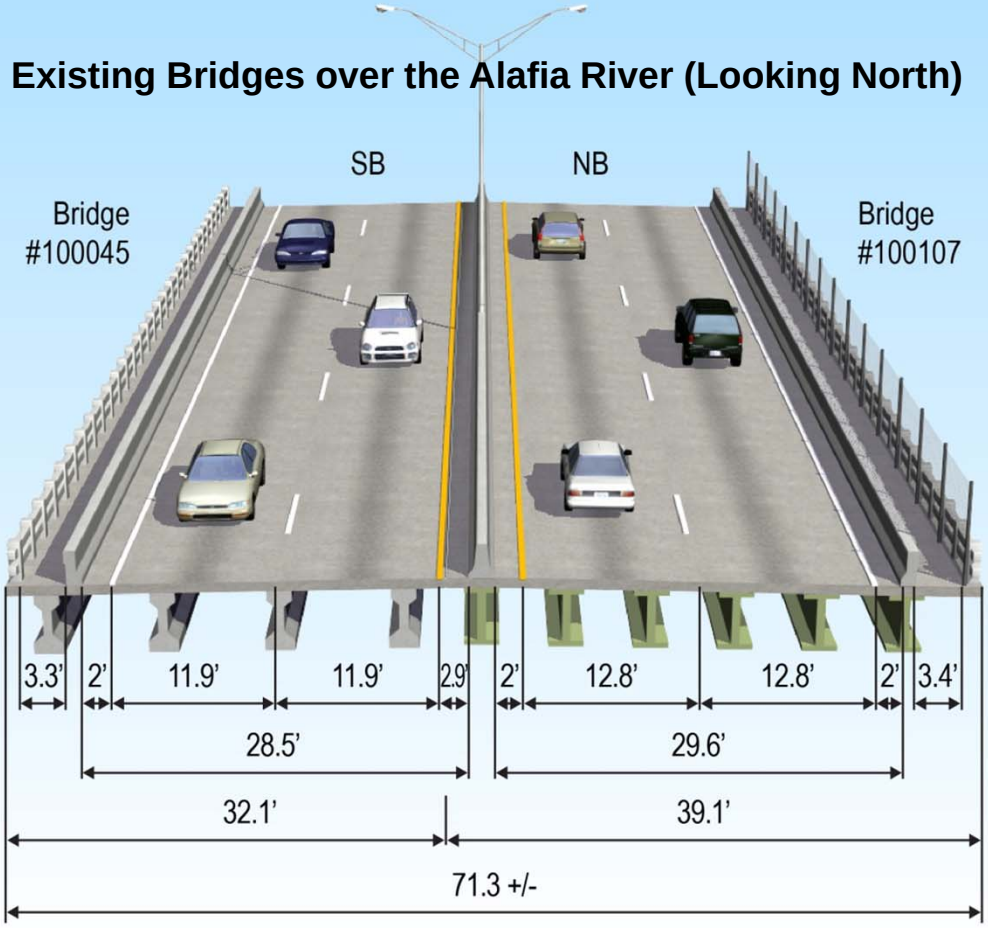


US 41(SR 45) PD&E Study *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056-1 Hillsborough County	**Location and Study Area Map**	**Figure 1-1**

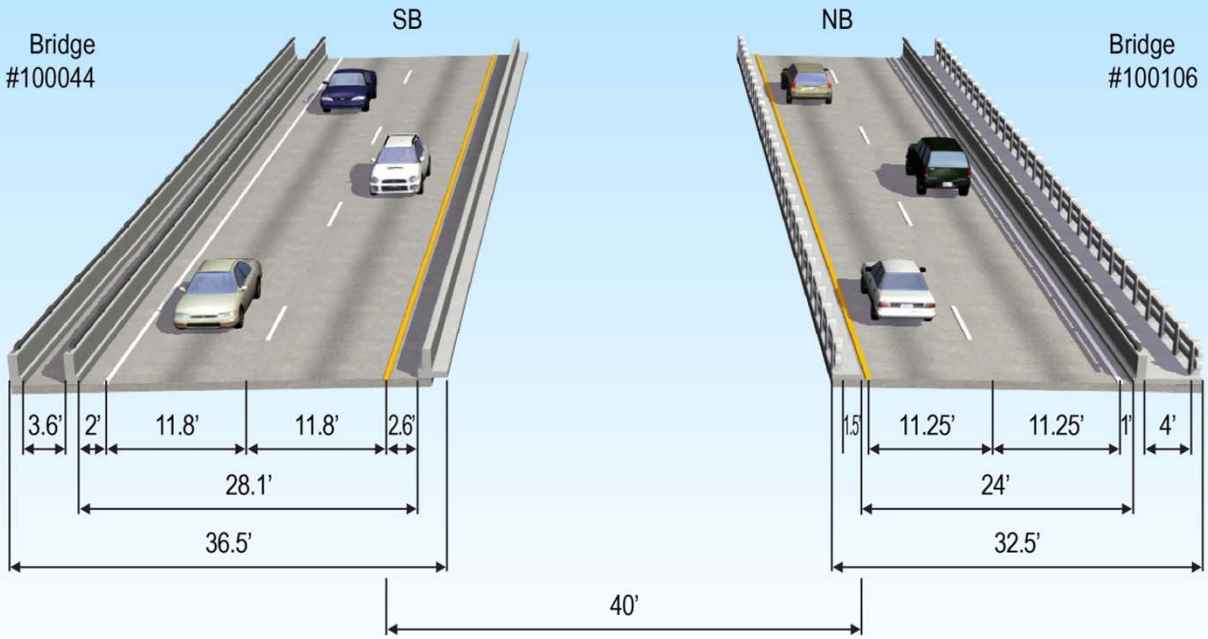


FDOT **US 41(SR 45) PD&E Study** *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Existing Roadway Typical Sections**	**Figure 1-2**

Existing Bridges over the Alafia River (Looking North)



Existing Bridges over Bullfrog Creek (Looking North)



Rev. 2/2014

US 41(SR 45) PD&E Study *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Existing Bridge Typical Sections**	**Figure 1-3**

Planned improvements include widening to six lanes as well as intersection improvements, construction of stormwater management and floodplain compensation facilities and multimodal facilities. Planned typical sections include both suburban and urban typical sections. Additional right of way will be required in the north Gibsonton area for the planned improvements. Alternatives to replace the bridges at Bullfrog Creek and the Alafia River were evaluated. Planned typical sections are shown in **Figures 1-4, 1-5** and **1-6**. A "No-Build" Alternative was also evaluated. No future phases for this proposed project are included in FDOT's current adopted 5-year work program (Fiscal Years 16/17 through 20/21).

1.4 PROJECT PURPOSE AND NEED

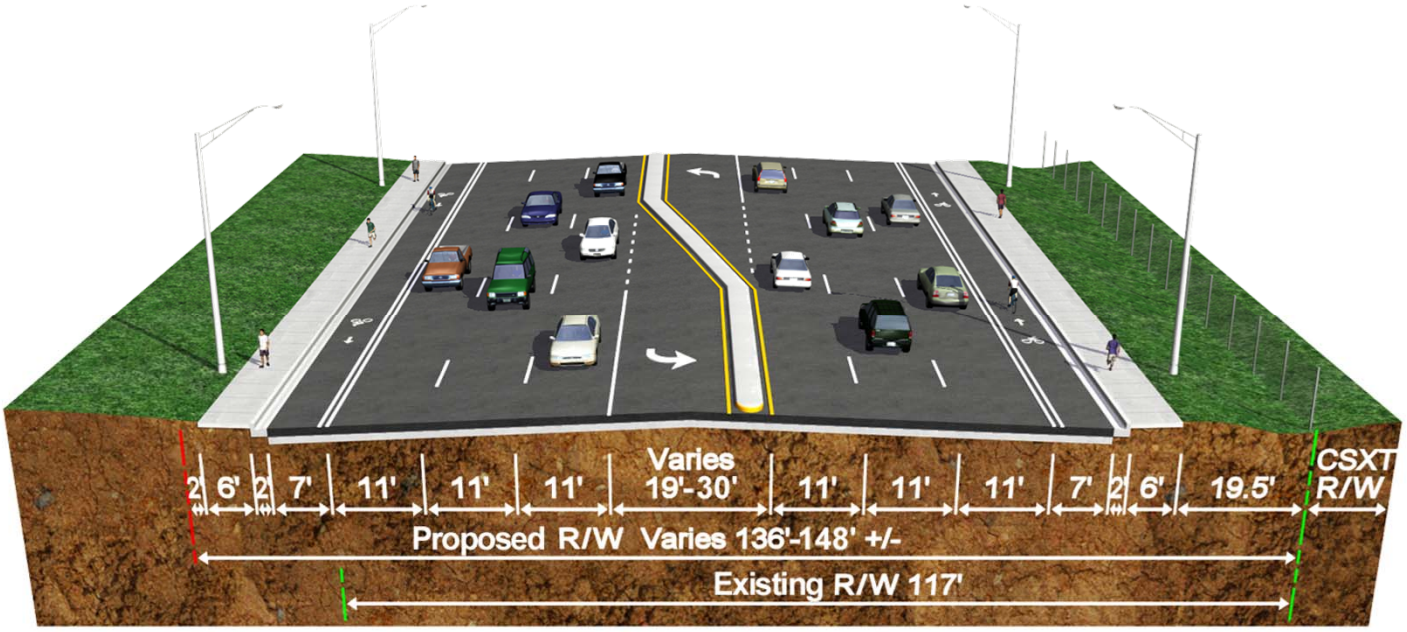
US 41 within the study area plays a significant role in connecting southern Hillsborough County to the Tampa Bay region. The purpose of the proposed project is to accommodate future traffic demands on US 41 due to growth within the project limits and surrounding areas. Segments within this corridor are projected to operate at level of service (LOS) F in the design year (2040) if no increase in capacity is provided. Additional factors which support the need for the project include:

Regional Connectivity - US 41 is a major north-south regional arterial that parallels I-75 and US 301 and connects south Hillsborough County to the Tampa Bay region. It provides connectivity between the communities of Apollo Beach, Riverview, and Gibsonton. US 41 is a "regional road" according to the West Central Florida Metropolitan Planning Organization's (MPO's) Chairs Coordinating Committee (CCC). US 41 also provides highway access to the Port of Tampa facilities at Pendola Point and Port Sutton.

Safety - With the additional capacity provided in the corridor by the widening of US 41 from four to six lanes, roadway congestion will be reduced, which will decrease potential conflicts with other vehicles and potentially increase safety. An analysis of traffic crash data for years 2008 thru 2012 revealed that the overall average crash rate within the study limits was lower than the statewide average crash rate for similar type facilities. While not structurally deficient, the bridges over both Bullfrog Creek and the Alafia River are classified as *functionally obsolete* due to substandard-width shoulders. In addition, the sidewalks on the bridges are very narrow and there are no dedicated bicycle facilities.

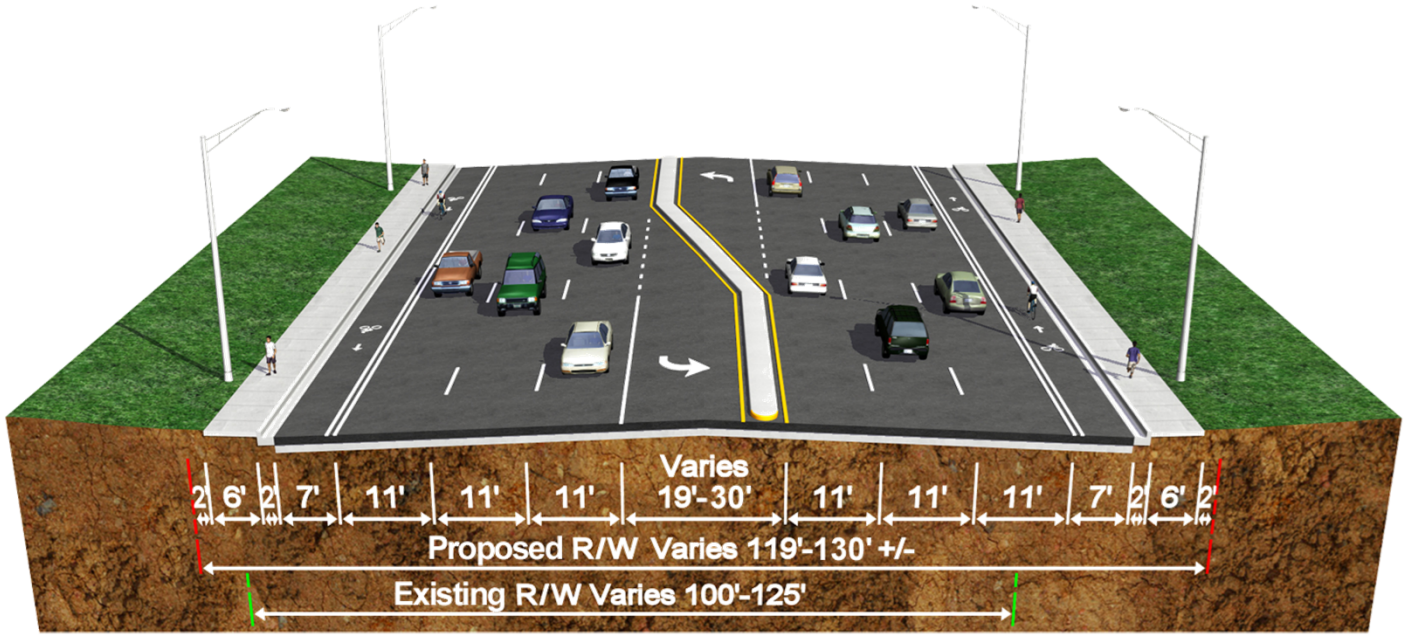
Plan Consistency - This project is consistent with the Comprehensive Plan for Unincorporated Hillsborough County. The Hillsborough County *Imagine 2040 Long-Range Transportation Plan (LRTP)* indicates a need to widen US 41 to 6-lanes from 19th Avenue to north of Madison Avenue, "beyond 2040". In addition, a short segment between Madison Avenue and Causeway Boulevard is shown as 6 lanes in the Cost Feasible FDOT Strategic Intermodal System Projects, with design after year 2026.

(All views are looking north)



From Gibsonton Drive to Lula Street

Design Speed = 45 mph



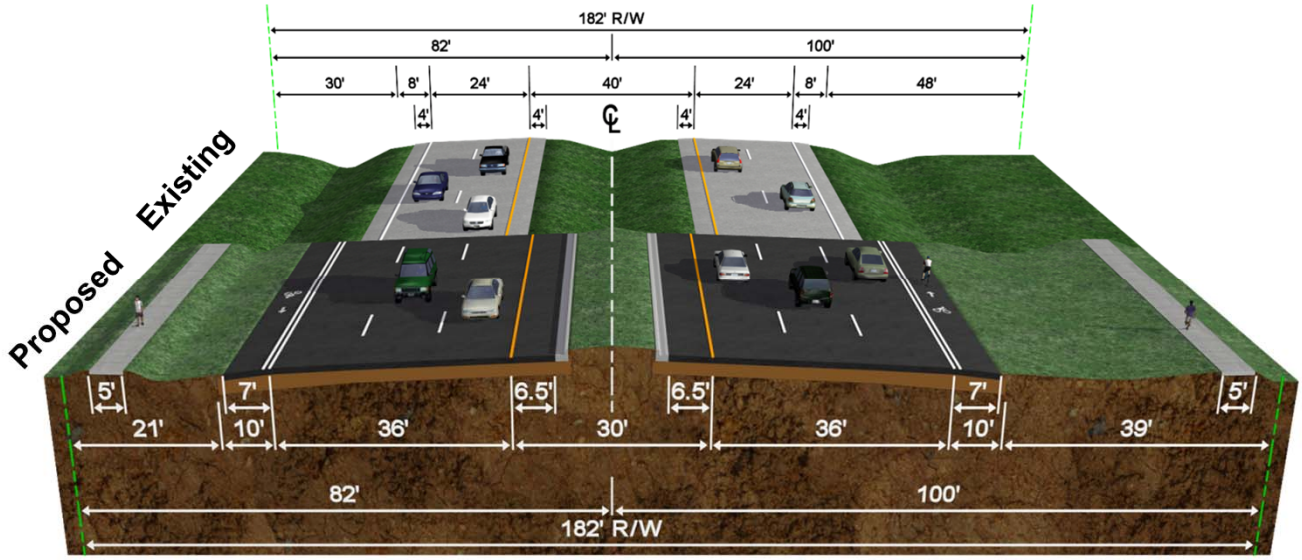
From Palm Avenue to Gibsonton Drive

Design Speed = 45 mph

Rev. 3/14/16

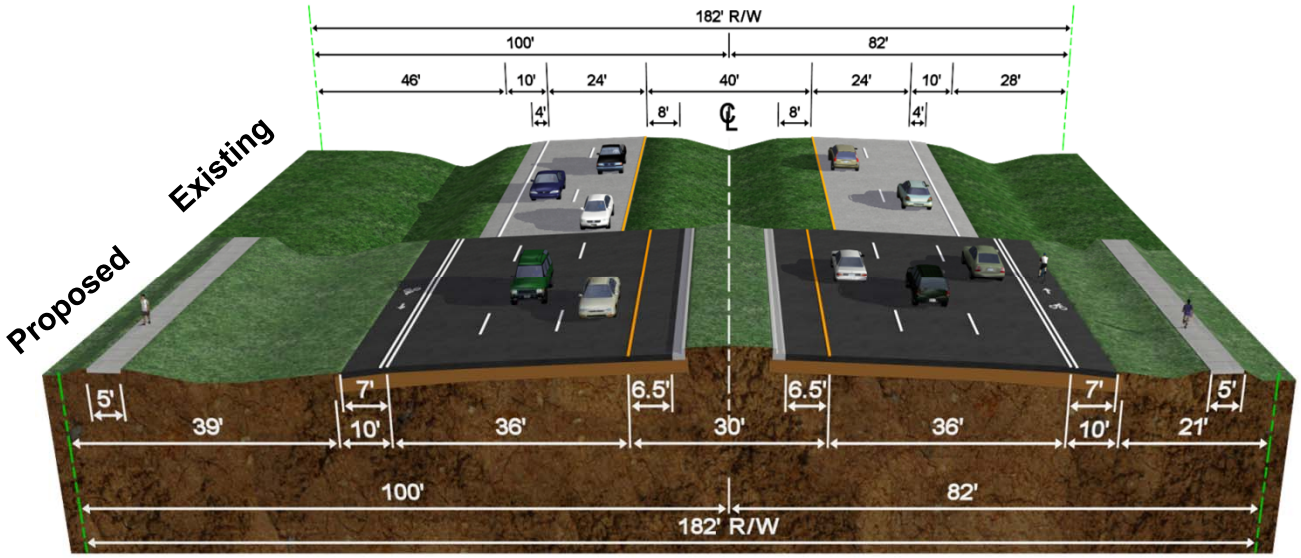
US 41(SR 45) PD&E Study *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Planned Urban Typical Sections**	**Figure 1-4**

Suburban Alternatives Utilizing the Existing Pavement



- Provides 50 mph design speed (required for SIS Connector Segment north of Pendola Point)
- Design variation for border width required
- No additional ROW required

Between Alafia River Bridge & Denver Street (Near the North End of the Project)



- Provides 50 mph design speed
- Design variation for border width required
- No additional ROW required

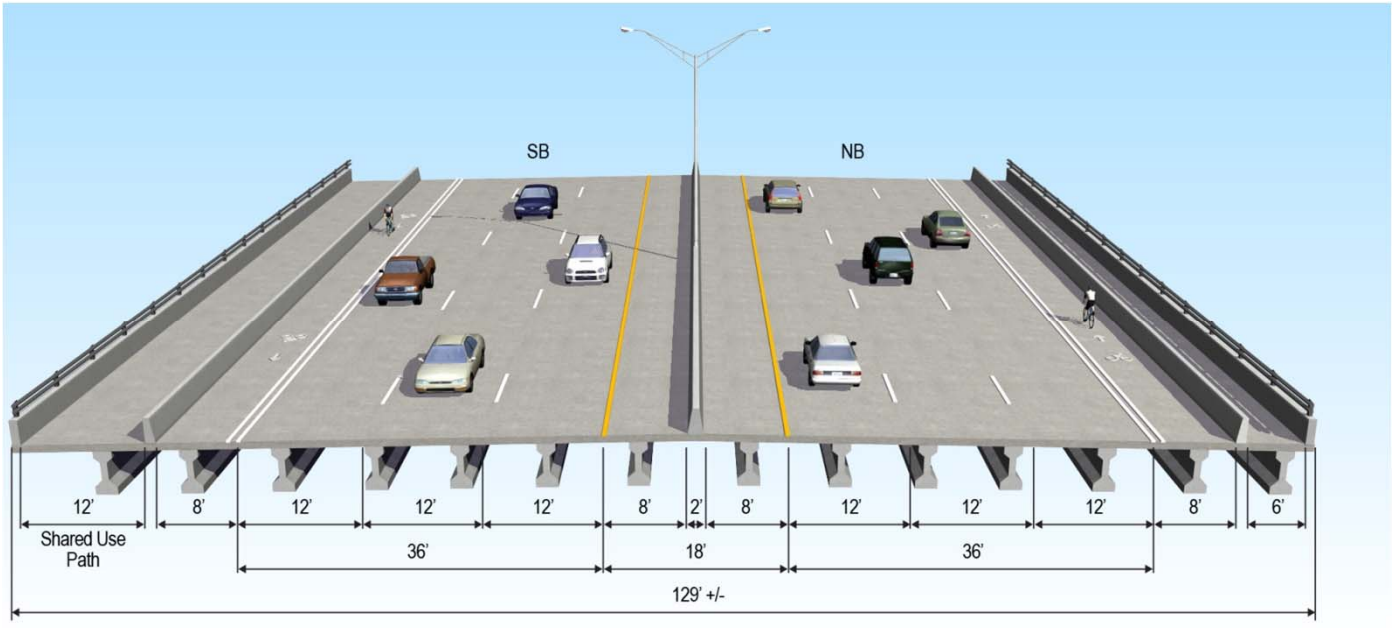
Between Kracker Ave. & Palm Ave. (Near the South End of the Project)

(All views are looking north)

Rev. 10/12/16

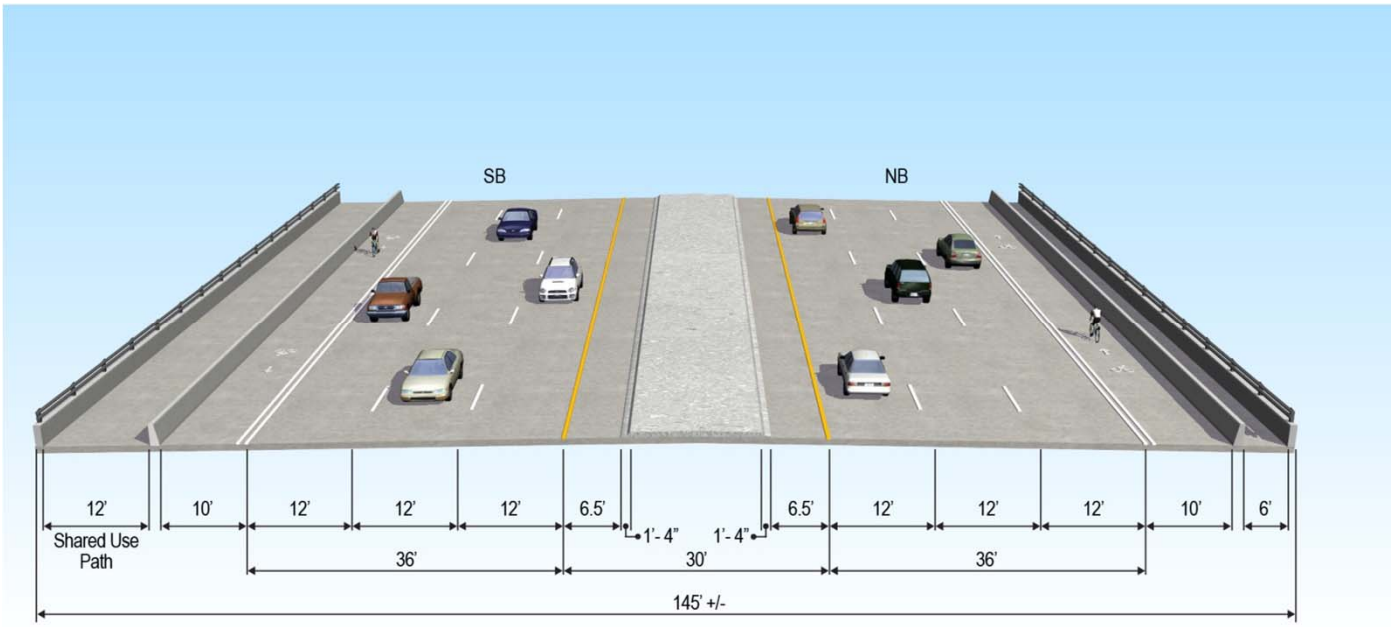
US 41(SR 45) PD&E Study *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Planned Suburban Typical Sections**	**Figure 1-5**

(All views are looking north)



Bridge at Alafia River

Design Speed = 50 mph



Bridge at Bullfrog Creek

Design Speed = 50 mph

Rev. 10/12/16

US 41(SR 45) PD&E Study *From Kracker Avenue to South of SR 676 (Causeway Blvd)* WPI Segment No. 430056 1 - Hillsborough County	**Planned Bridge Typical Sections**	**Figure 1-6**

Emergency Evacuation - US 41 is listed as an evacuation route by the Hillsborough County Emergency Management and shown on the Florida Division of Emergency Management's evacuation route network. US 41 provides access to I-75 via interchanges with east-west connections on Gibsonton Drive, Big Bend Road (CR 672) and SR 60 in close proximity to the study limits.

Current and Future Transportation Demand - Traffic in the corridor is expected to increase due to projected population and employment growth along the corridor. In 2013, the Annual Average Daily Traffic (AADT) ranged between 23,400 vehicles per day (VPD) (Level of Service [LOS] B) and 36,400 VPD (LOS B) within the study area according to the *Traffic Technical Memorandum*. With a maximum AADT of 32,350 VPD over the four lane section, US 41 is at 88 percent capacity for the adopted level of service standard of D. In 2040, AADTs are expected to range between 38,800 VPD and 61,000 VPD. The existing four lane cross section would result in a LOS F in some segments with the future projected traffic volumes. The widening of this facility is also intended to provide relief to parallel facilities such as I-75 and US 301.

Modal Interrelationships – Expansion of the existing roadway would help improve mobility for the Hillsborough Area Regional Transit (HART) Authority local bus route 31 within the corridor. Bicycle and pedestrian accommodations will also be considered as part of the proposed improvements.

US 41 is part of the highway network that provides access to regional intermodal facilities such as the Port of Tampa and Port Manatee. The segment of US 41 between Madison Avenue/Pendola Point Road and SR 676 is designated as a Strategic Intermodal System (SIS) *connector*. The SIS is a statewide network of highways, railways, waterways, and transportation hubs that handle the bulk of Florida's passenger and freight traffic. Improvements to US 41 would enhance access to activity centers in the area and would improve movement for goods and freight in the Tampa Bay region and across the State.

1.5 REPORT PURPOSE

This *Pond Sizing Report* is one of several documents prepared as part of this PD&E study. This report documents a preliminary estimate of stormwater management pond sizes required to meet current drainage design standards. The calculations presented in this report are preliminary and will help in estimating the preliminary size of the pond site facilities for each basin.

SECTION 2 HYDROLOGIC FEATURES

The study limits of the US 41 corridor are within the three watersheds: Delaney Creek, Alafia River, and Bullfrog Creek. The proposed drainage areas are divided into 13 sub-basins. The basin limits and areas are presented in **Appendix A**.

2.1 NUTRIENT LOADING

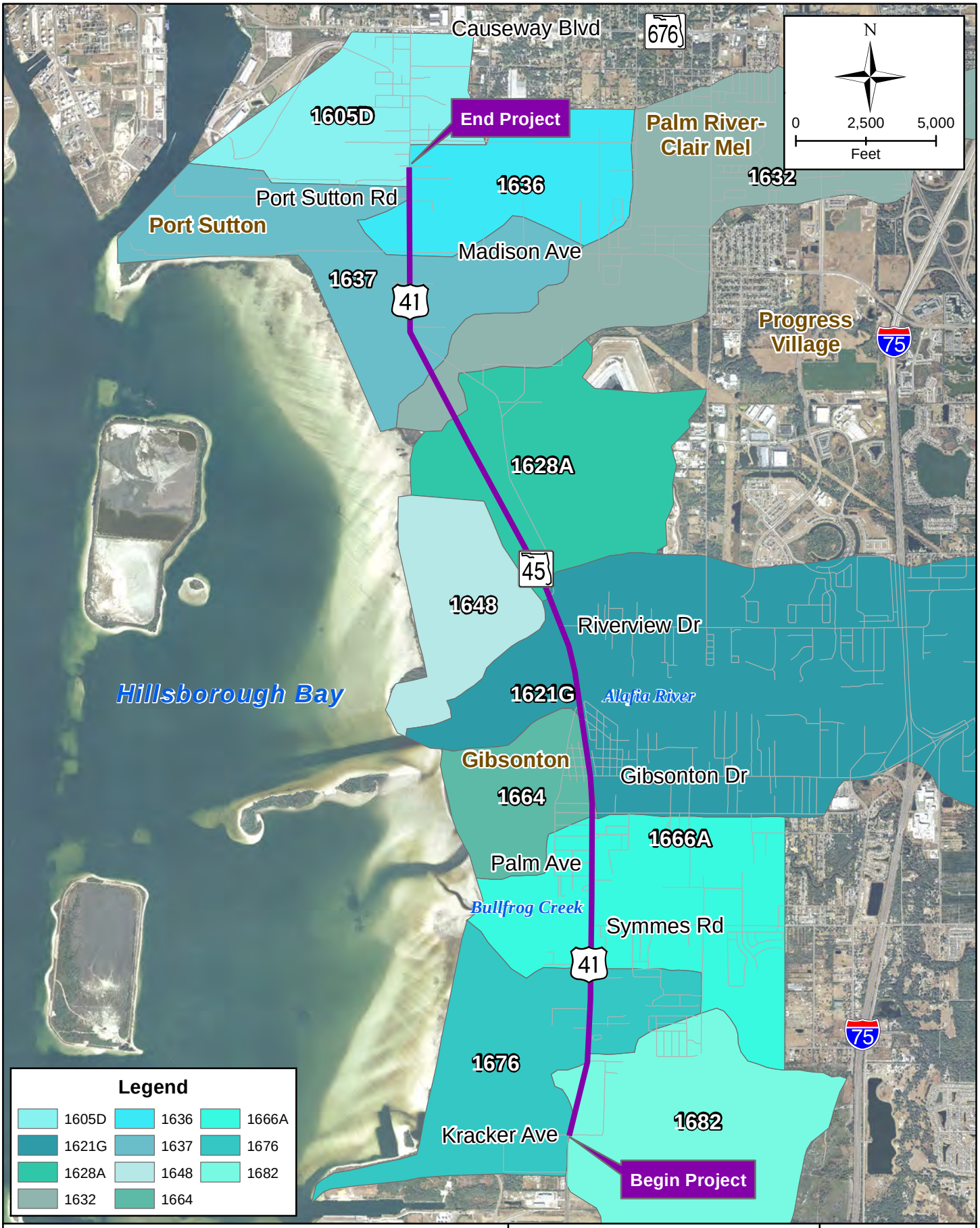
The following **Table 2-1** summarizes verified Impaired Water Body Identification (WBID) System based on Department of Environmental Protection (DEP) Geographic Information System (GIS) and **Figure 2-1** is the WBID Map.

Table 2-1 Impaired WBIDs

Regional Basins	Project Basin No.	WBID	Impairments
Kitchen Branch	1	1682	Fecal Coliform, Nutrients (Chlorophyll-a), Dissolved Oxygen (Nutrients and BOD)
	2		
Direct Runoff to Bay	3	1676	Fecal Coliform, Nutrients (Chlorophyll-a), Dissolved Oxygen (Nutrients and BOD)
Bullfrog Creek	4	1666A	Dissolved Oxygen, Nutrients (Chlorophyll-a and Historic Chlorophyll-a)
	5		
Direct Runoff to Bay	6	1664	---------(1)
North Prong Alafia R	7	1621G	Mercury (in fish tissue), Nutrients (Chlorophyll-a), Dissolved Oxygen
Archie Creek	8	1628A	Fecal Coliform (2)
Unnamed Canal	9	1632	Fecal Coliform (2)
	10		
Black Point Channel	11	1637	--------- (2)
Black Point Drain	12	1636	Fecal Coliform, Dissolved Oxygen (Nutrients and BOD)
	13		

(1) Per discussion with SWFWMD this basin requires pre vs. post nutrient loading analysis since it drains directly to the bay

(2) Per discussion with SWFWMD these basins do not require pre vs. post nutrient loading analysis



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

Water Body ID (WBID) Map

Figure 2-1

2.2 SOIL CHARACTERISTICS

Based on a review of the U.S. Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS) Soil Survey for Hillsborough County, Florida, the predominant soils within the study limits consist of Myakka fine sand, Malabar fine sand, Pinellas fine sand, and St. Johns fine sand. For the purpose of estimating the SCS runoff Curve Numbers, the Hydrologic Soil Group was retrieved from the South West Florida Water Management District (SWFWMD) Information System website. See **Table 2-2** for USDA soils and **Figure 2-2** for soils map.

Table 2-2 USDA Soils

Map #	Soil Name	Hydrologic Group	Depth to High Water Table (ft)	Soil Type	Description
5	Basinger Fine Sand, Holopaw Sand, Samsula muck	D	+2-1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
15	Felda Fine Sand	B/D	0-1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-1%
17	Floridana Sand	B/D	0-1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-1%
24	Kesson Muck	D	0-0.5	Sandy soil	Very poorly drained soil in tidal swamps, slopes 0-1%
27	Malabar Sand	B/D	0-1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
29	Myakka Sand	B/D	0-1.0	Sandy soil	Very poorly drained soil in flatwoods, slopes 0-8%
30	Myakka Sand, frequently flooded	B/D	0-1.0	Sandy soil	Very poorly drained soil in flatwoods, slopes 0-8%
38	Pinellas Fine Sand	B/D	0-1.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-2%
44	St. Augustine Fine Sand	C	1.5-3.0	Sandy and loamy soil	Very poorly drained soil in depressions, slopes 0-5%
46	St. Johns Sand	B/D	0-1.0	Sandy soil	Very poorly drained soil in broad areas, slopes 0-5%
57	Wabasso Fine Sand	B/D	0-1.0	Sandy and loamy soil	Very poorly drained soil in flatwoods, slopes 0-2%



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

NRCS Soils Map

Figure 2-2
Page 1 of 2



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

NRCS Soils Map

Figure 2-2
Page 2 of 2

2.3 HISTORY OF FLOODING

Based on correspondence with District 7 Drainage Office and District 7 Maintenance Office there are three flood investigation sites and several locations of maintenance concern within the project limits. No history of roadway flooding was identified. See **Figure 2-3** for the FEMA floodplain map.

Flood investigation sites include flood investigation Nos. 1001032008834, 1005262005805, and 1006222010925. The flood investigation inventory sheets have been included within **Appendix B**.

Maintenance related issues identified include:

- US 41 at Palm Ave M.P. 17.642 southbound complaints related to ponding issue at roadside.
- At Florence St. MP. 16.862 there is a low area that retains water during wet season due to minimal outflow.
- At Dover St. MP.21.828 there is a low area that holds water during wet season. The outfall is to a creek flowing west to Tampa Bay. The outfall ditch needs clearing. This may be a County drainage easement and may be County maintained.
- At Bullfrog Creek, MP. 17.406 the utility strip leaches water over the sidewalk area for several blocks to the north.
- At Raleigh St.MP. 23.018 the old Chloride Battery Facility site has contaminated soil and is a Superfund site. Special attention needed in this area.

These current maintenance related issues have been taken into consideration in regards to the widening of US 41.

2.4 BASE FLOODPLAIN

The FEMA FIRMs dated August 28, 2008: 12057C0484H, 12057C0482H, 12057C0369H and 12057C0367H indicate that the study limits are within Flood Zone AE (El 11.0 ft) from approx. Station 831+00 to approx. Station 840+00 and Zone AE (10.0 ft) for the remainder of the study limits. FEMA Maps are provided in **Appendix B**. Per SWFWMD the FEMA elevations are based on storm surge conditions and base floodplain impacts will be assessed based on the lower riverine floodplain elevations.

Hillsborough County provided the following studies that establish the base floodplain for the project limits:

- Bullfrog Creek/ Wolf Branch Watershed Management Plan, dated October 2000
- Countywide Masterplan Update for the Alafia River Watershed, dated November 2010
- Delany Creek Area Stormwater Master Plan Update, dated April 2007

Hillsborough County provided GIS data along with the reports that identifies model node locations as well as other information. A nodal diagram is provided in **Appendix C** along with excerpts from these reports. Floodplain elevations for each project basin are identified in **Table 2-3**. Bullfrog Creek

elevations are provided in NGVD 29, however these elevations have been converted to NAVD 88 based on a conversion factor of -0.9.

The project's drainage design will be consistent with local FEMA, FDOT, and Southwest Florida Water Management District (SWFWMD) design guidelines, which state that no net encroachment into the floodplain, up to that encompassed by the 100-year event, which will adversely affect conveyance, storage, water quality or adjacent lands will be allowed., and that any required compensating storage shall be equivalently provided. Therefore, no significant changes in base flood elevations or limits will occur.

Table 2-3 Preliminary Floodplain Encroachment Summary

Regional Basins	Project Basin No.	Project Basin Boundaries	Model Node ID	Zone AE-Hillsborough County 100 yr flood EL (ft – NAVD 88) ①
Kitchen Branch	1	Sta 831+00 to Sta 848+90	822100	2.8
	2	Sta 848+90 to Sta 869+91	822000	1.1
Kracker Ave	3	Sta 869+91 to Sta 892+40	821200	5.0
Bullfrog Creek	4	Sta 892+40 to Sta 917+37	810020,810110	5.1
	5	Sta 917+37 to Sta 946+99	810100	5.6
Gibsonton	6	Sta 946+99 to Sta 995+51	700050	1.8
North Prong Alafia R	7	Sta 995+51 to Sta 96+75	280015	3.9
Archie Creek	8	Sta 96+75 to Sta 118+66	260040	4.5
Palm River-Clair Mel	9	Sta 118+66 to Sta 139+67	240040	4.9
	10	Sta 139+67 to Sta 160+58	200305	7.4
Black Point Channel	11	Sta 160+58 to Sta 189+78	200300,200340	5.1
Black Point Drain	12	Sta 189+78 to Sta 208+79	200025	7.6
	13	Sta 208+79 to Sta 220+62	200080	5.5

①*The estimated 100-year elevations are taken from Bullfrog Creek/Wolf Branch Watershed Management Plan, Countywide Masterplan Update for the Alafia River Watershed, and the Delany Creek Area Stormwater Master Plan Update.*

2.5 CURVE NUMBERS

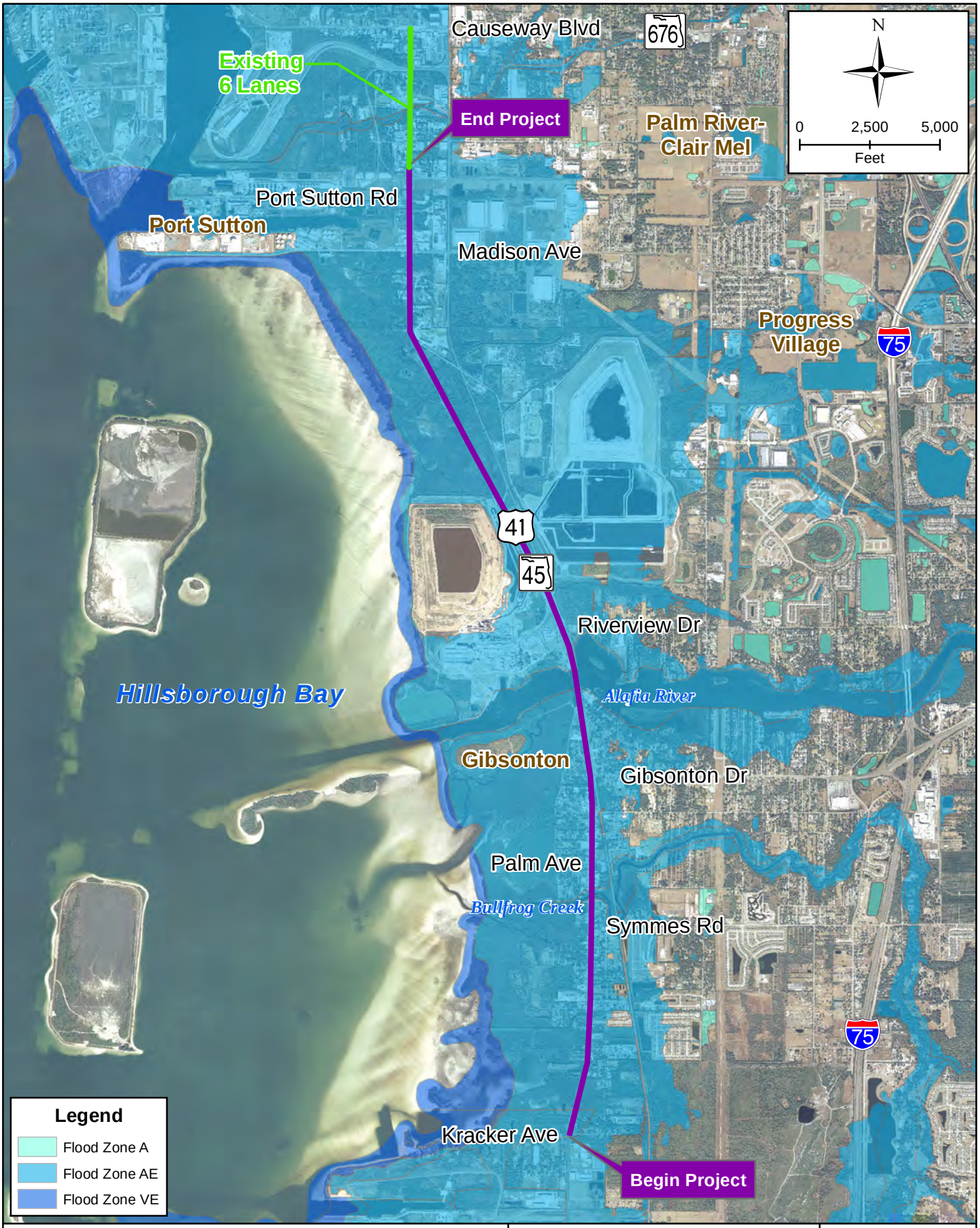
The runoff Curve Numbers (CN) were determined from Table T-7 of the FDOT Hydrology Handbook (dated February 2012) using the Hydrologic Soil Group BD.

2.6 SOIL STORAGE

The Soil storage capacity was determined using its relationship to the Curve Number using the SCS methodology.

2.7 RAINFALL INTENSITY

Rainfall intensity data were obtained from the SWFWMD's Return Period Rainfall Maps.



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

FEMA Floodplain Map

Figure 2-3

2.8 EXISTING DRAINAGE CONDITIONS

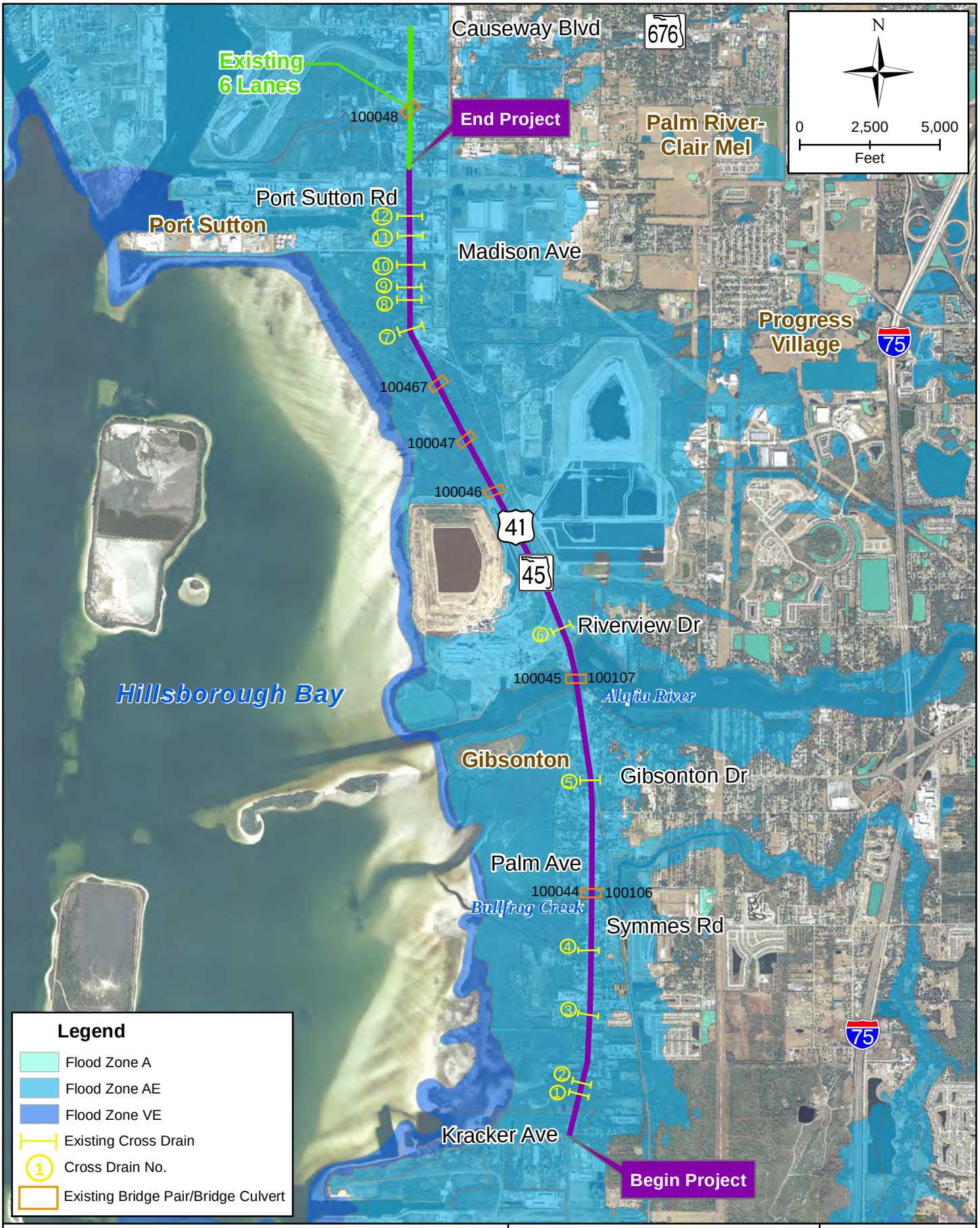
The study limits of the US 41 corridor traverses 10 regional basins with ultimate discharge to Tampa Bay. There are 12 cross drains and 6 bridge pair/bridge culverts within the study limits. See **Tables 2-4 & 2-5** for cross drain and bridge locations.

Table 2-4 Existing Cross Drains

Cross Drain No.	Mile Post	Description
1	16.038	10'x5' CBC
2	16.123	10'x5' CBC
3	16.620	10'x8' CBC
4	16.989	36" CC
5	18.160	2-36" CC
6	19.211	30" CC
7	21.423	15" CC
8	21.727	36" CC
9	21.779	2-36" CC
10	21.968	2-36" CC
11	22.166	15" CC
12	22.313	10'x7' CBC

Table 2-5 Existing Bridge Pair/Bridge Culvert

Bridge No.	Mile Post	Pipe Size/Type & Water Body
100044	17.422 (SB)	Bridge Pair (Bullfrog Creek)
100106	17.422 (NB)	Bridge Pair (Bullfrog Creek)
100045	18.914 (SB)	Bridge Pair (Alafia River)
100107	18.914 (NB)	Bridge Pair (Alafia River)
100046	20.271	36' Bridge Culvert (Archie Creek)
100047	20.686	31' Bridge Culvert (Archie Creek)
100467	21.084	26' Bridge Culvert (Fred's Creek)
100048	23.003	36' Bridge Culvert (Delaney Creek)



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

Existing Cross Drain and Bridge Locations

Figure 2-4

SECTION 3 SMF DESIGN CRITERIA AND METHODOLOGY

3.1 DISCHARGE ATTENUATION

For basins with a positive outfall, and that do not discharge to an infinite basin, SWFWMD will require the proposed discharge rate from the basin be less than or equal to the existing discharge rate for the 25-yr/24-hr SWFWMD storm event. Additionally, FDOT Criteria requires Florida Administrative Code 14-86 evaluation for closed basins or basins with historical flooding.

The majority of the basins are considered to meet the infinite basin criteria based on conceptual pond outfall locations, as discussed with SWFWMD August 19, 2015, and are not anticipated to require any discharge attenuation. The project basins within Black Point Drain will require pre vs. post discharge attenuation. See notes provided with Pond Sizing Calculations and meeting minutes.

3.2 WATER QUALITY

1. A wet detention treatment system shall treat one inch of runoff from the contributing area.
2. A manmade wet detention system shall include a minimum of 35 percent littoral zone, concentrated at the outfall, for biological assimilation of pollutants. The treatment volume shall be no greater than 18 inches above the control elevation (orifice elevation/SHWL).
3. The wet detention system's treatment volume shall be discharged in no less than 120 hours (5 days) with no more than one-half the total volume being discharged within the first 60 hours (2.5 days).

Criterion 1 was utilized to estimate the required water quality for the wet pond. Criteria 2 and 3 will be implemented in final design. Dry retention pond is provided as well for the following reason:

Due to the impaired status for many of the receiving water bodies it is necessary to demonstrate that the project will not contribute to the impairment through demonstration of no net increase in nutrient loading from the project (pre vs. post nutrient loading comparison). Based on the Nutrient Loading calculations, shown in **Appendix A**, a wet pond would not be capable of meeting requirements for nutrient loading for some basins, therefore dry detention ponds have being considered in the estimation of pond sizing requirements.

3.3 DRAINAGE AREAS

The impervious drainage areas for each basin were determined as the basin length multiply by a typical impervious width. The pervious drainage areas were subtracted from the total drainage areas calculated as the basin length multiply by a typical Right of Way width of 182 feet. The calculations presented in this report are preliminary and help in estimating the preliminary size of the pond site facilities for each basin. The size requirements are preliminary based upon many assumptions and judgments. The results are tabulated on **Table 4-1**. The drainage basin map and conceptual calculations are shown in **Appendix A**. Historical drainage maps from District 7 have been included in **Appendix D**.

3.4 FLOODPLAIN INVOLVEMENT

The project limits have been evaluated to determine potential impacts to the base floodplain. Cup for cup compensation has been programed for any fill placed within the riverine floodplain. Alternatively, per discussion with SWFWMD, modeling and documentation could be provided to demonstrate that the fill placed within the riverine floodplain will not adversely affect conveyance, storage, water quality or adjacent lands. Therefore, it is anticipated that much of the floodplain mitigation provisions identified by this evaluation could be eliminated or reduced through more detailed analysis and modeling. Floodplain compensation site requirements are identified separately and are estimated based on estimated floodplain encroachment area, estimated floodplain encroachment volume, and estimated floodplain compensation (FPC) site area. These are summarized in **Table 4-2.**

SECTION 4 SUMMARY & RECOMMENDATIONS

The evaluation finds that a combination of dry retention and wet detention ponds are recommended for providing stormwater management to serve the proposed US 41 (SR 45) improvements. **Table 4-1** classifies the SMF size requirements per basin. **Table 4-2** shows the estimated floodplain encroachment area, estimated floodplain encroachment volume, and estimated floodplain compensation (FPC) site area.

Table 4-1 Pond Sizing Areas

Regional Basins	Project Basin No.	Project Basin Boundaries	Project Basin Acreage (ac)	SMF Total Area (ac)
Kitchen Branch	1	Sta 831+00 to Sta 848+90	7.48	1.2
	2	Sta 848+90 to Sta 869+91	8.78	1.5
Direct Runoff to Bay	3	Sta 869+91 to Sta 892+40	9.40	1.6
Bullfrog Creek	4	Sta 892+40 to Sta 917+37	10.43	1.7
	5	Sta 917+37 to Sta 946+99	12.38	2.1
Direct Runoff to Bay	6	Sta 946+99 to Sta 995+51	20.27	3.4
North Prong Alafia R	7	Sta 995+51 to Sta 96+75	30.21	5.0
Archie Creek	8	Sta 96+75 to Sta 118+66	9.15	1.5
Unnamed Canal	9	Sta 118+66 to Sta 139+67	8.78	1.5
	10	Sta 139+67 to Sta 160+58	8.74	1.5
Black Point Channel	11	Sta 160+58 to Sta 189+78	12.20	2.0
Black Point Drain	12	Sta 189+78 to Sta 208+79	7.94	2.0
	13	Sta 208+79 to Sta 220+62	4.94	1.3
		Total	**150.69**	**26.3**

Table 4-2 Floodplain Encroachment and Compensation Summary

Basin #/FPC Site No.	Project Basin Boundaries	Estimated Floodplain Encroachment Area (ac) ①	Estimated Floodplain Encroachment Volume (ac-ft) ②④	Estimated Floodplain Compensation (FPC) site Area (ac) ③
1	Sta. 831+00.00 to Sta 848+90.00	Above 100 yr floodplain		
2	Sta 848+90.00 to Sta. 869+91.00	Above 100 yr floodplain		
3	Sta. 869+91.00 to Sta. 892+40.00	2.74	1.37	1.71
4	Sta. 892+40.00 to Sta. 917+37.00	0.56	0.28	0.35
5	Sta. 917+37.00 to Sta. 946+99.00	Above 100 yr floodplain		
6	Sta. 946+99.00 to Sta. 995+51.00	Above 100 yr floodplain		
7	Sta. 995+51.00 to Sta. 1034+11.00 Sta. 63+05.00 to Sta. 96+75.00	Above 100 yr floodplain		
8	Sta. 96+75.00 to Sta. 118+66.00	Above 100 yr floodplain		
9	Sta. 118+66.00 to Sta. 139+67.00	Above 100 yr floodplain		
10	Sta. 139+67.00 to Sta. 160+58.00	2.54	5.08	6.35
11	Sta. 160+58.00 to Sta. 189+78.00	3.13	1.57	1.96
12	Sta. 189+78.00 to Sta. 208+79.00	2.31	2.31	2.89
13	Sta. 208+79.00 to Sta. 220+62.00	1.44	0.72	0.90

①*The estimated floodplain encroachment area is based on a 26.5 ft width per the length of encroachment per side.*
②*An estimated fill depth based on contour data and the average depth was estimated per basin.*
③*An estimated of 1.25 determined the FPC site area.*
④*See Appendix C (Floodplain Encroachment and Compensation Calculation Summary) for Calculations.*

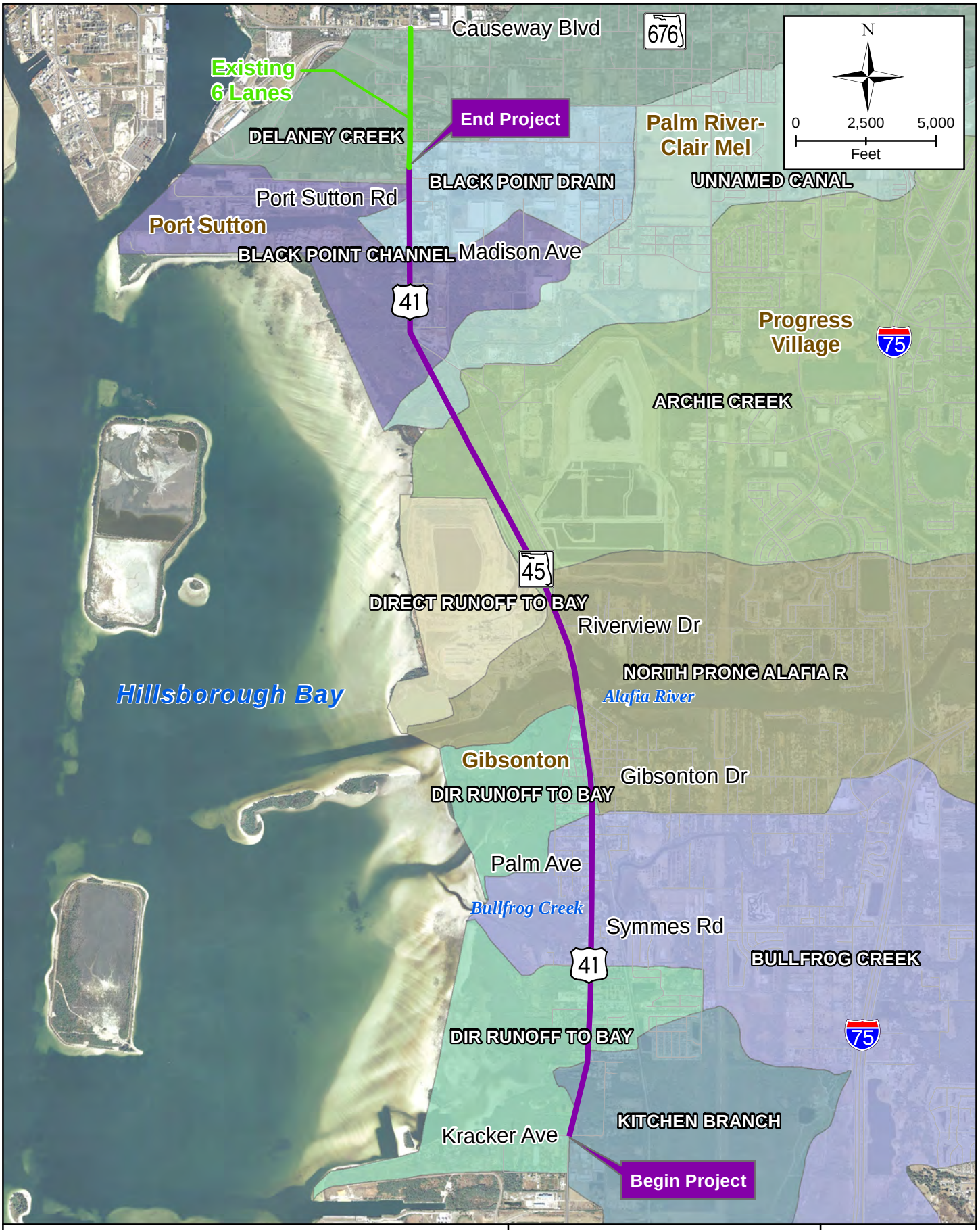
Cost Estimates

An earlier conceptual SMF/FPC Area of 67.66 acres was based on attenuation and water quality for sizing pond areas. After meeting with SWFWMD staff on August 19, 2015 (see **Appendix E**), it was determined that attenuation would not be required for most areas where a direct connection to the Bay is possible, allowing the pond sizing to decrease. FDOT's ROW staff previously provided a ROW total cost estimate of $20,502,400 for pond sites, based on 67.66 acres. Based on the new conceptual area of 55.97 acres and a factor of $303,020.99/acre, the new total estimated cost is approximately $17,000,000.

APPENDIX A

Calculations

Drainage Basin Map



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

Drainage Basin Map

EXISTING LAND USE												
Basin	Sta. From	Sta. To	Length (ft)	Typical R/W Width (ft)	Typical Imp. Width (ft)	Typical Imp. Area (ac)	Add 10% Imp. Area (ac)	Imp. Total (ac)	Pervious Area (ac)	Total Area (ac)	Exist. CN
1	831+00.00	848+90.00	1790	182	56	2.30	0.23	2.53	4.95	7.48	79
2	848+90.00	869+91.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
3	869+91.00	892+40.00	2249	182	56	2.89	0.29	3.18	6.22	9.40	79
4	892+40.00	917+37.00	2497	182	56	3.21	0.32	3.53	6.90	10.43	79
5	917+37.00	946+99.00	2962	182	56	3.81	0.38	4.19	8.19	12.38	79
6	946+99.00	995+51.00	4852	182	56	6.24	0.62	6.86	13.41	20.27	79
7	995+51.00 63+05.00	1034+11.00 96+75.00	7230	182	64	10.62	1.06	11.68	18.52	30.21	80
8	96+75.00	118+66.00	2191	182	56	2.82	0.28	3.10	6.06	9.15	79
9	118+66.00	139+67.00	2101	182	56	2.70	0.27	2.97	5.81	8.78	79
10	139+67.00	160+58.00	2091	182	56	2.69	0.27	2.96	5.78	8.74	79
11	160+58.00	189+78.00	2920	182	56	3.75	0.38	4.13	8.07	12.20	79
12	189+78.00	208+79.00	1901	182	56	2.44	0.24	2.69	5.25	7.94	79
13	208+79.00	220+62.00	1183	182	56	1.52	0.15	1.67	3.27	4.94	79

Note: The CN value used for pervious area in the calculation is 69.

PROPOSED LAND USE											
Basin	Sta. From	Sta. To	Length (ft)	Typical R/W Width (ft)	Typical Imp. Width (ft)	Typical Imp. Area (ac)	Add 15% Imp. Area (ac)	Imp. Total (ac)	Pervious Area (ac)	Total Area (ac)	Prop. CN
1	831+00.00	848+90.00	1790	182	109	4.48	0.67	5.15	2.33	7.48	89
2	848+90.00	869+91.00	2101	182	109	5.26	0.79	6.05	2.73	8.78	89
3	869+91.00	892+40.00	2249	182	109	5.63	0.84	6.47	2.92	9.40	89
4	892+40.00	917+37.00	2497	182	109	6.25	0.94	7.19	3.25	10.43	89
5	917+37.00	946+99.00	2962	182	109	7.41	1.11	8.52	3.85	12.38	89
6	946+99.00	995+51.00	4852	182	109	12.14	1.82	13.96	6.31	20.27	89
7	995+51.00 63+05.00	1034+11.00 96+75.00	7230	182	109	18.09	2.71	20.81	9.40	30.21	89
8	96+75.00	118+66.00	2191	182	109	5.48	0.82	6.30	2.85	9.15	89
9	118+66.00	139+67.00	2101	182	109	5.26	0.79	6.05	2.73	8.78	89
10	139+67.00	160+58.00	2091	182	109	5.23	0.78	6.02	2.72	8.74	89
11	160+58.00	189+78.00	2920	182	109	7.31	1.10	8.40	3.80	12.20	89
12	189+78.00	208+79.00	1901	182	109	4.76	0.71	5.47	2.47	7.94	89
13	208+79.00	220+62.00	1183	182	109	2.96	0.44	3.40	1.54	4.94	89

Note: The CN value used for pervious area in the calculation is 69.

POND SIZING CALCULATIONS												
Basin	Basin Area	Exist. CN	Exist. S (in)	Exist. 25-yr 24-hr vol. (ac-ft)	Prop. CN	Prop. S (in)	Prop. 25-yr 24-hr vol. (ac-ft)	Req. Att. Vol. (ac-ft)	Req. WQ Vol. (ac-ft)	Dry Retention Pond (ac)	Wet Retention Pond (ac)	Total Pond Area (ac)
1	7.48	79	3	4.02	89	1	4.78	0.00	0.62	1.2	0.0	1.2
2	8.78	79	3	4.71	89	1	5.61	0.00	0.73	1.5	0.0	1.5
3	9.40	79	3	5.05	89	1	6.01	0.00	0.78	1.6	0.0	1.6
4	10.43	79	3	5.60	89	1	6.67	0.00	0.87	1.7	0.0	1.7
5	12.38	79	3	6.65	89	1	7.91	0.00	1.03	2.1	0.0	2.1
6	20.27	79	3	10.89	89	1	12.96	0.00	1.69	3.4	0.0	3.4
7	30.21	80	3	16.53	89	1	19.31	0.00	2.52	5.0	0.0	5.0
8	9.15	79	3	4.92	89	1	5.85	0.00	0.76	1.5	0.0	1.5
9	8.78	79	3	4.71	89	1	5.61	0.00	0.73	1.5	0.0	1.5
10	8.74	79	3	4.69	89	1	5.58	0.00	0.73	1.5	0.0	1.5
11	12.20	79	3	6.55	89	1	7.80	0.00	1.02	2.0	0.0	2.0
12	7.94	79	3	4.27	89	1	5.08	0.81	0.66	1.3	0.7	2.0
13	4.94	79	3	2.65	89	1	3.16	0.50	0.41	0.8	0.5	1.3

Nutrient Loading Calcs

Representative Area Calculation for Nutrient Loading Concerns

Project: **US 41 (SR 45) PD&E**
FPID No. 430056-1-22-01
Hillsborough County
Project No.: **5127041**

Annual Precipitation Depth $AP := 51.50\frac{in}{yr}$

Annual Mass Loading for Highway Areas

$TNhwy := 1.64\frac{mg}{l}$ $TPhwy := 0.220\frac{mg}{l}$

Annual C values

Meteorological Zone 4

Existing loading calculation

Existing roadway DCIA = 35% NDCIA (CN) = 65

From Appendix E, FDEP Stormwater Quality Handbook (2010)

Annual curve number $CA_e := 0.323$ $CA_e = 0.32$

Existing annual runoff $QA_e := CA_e \cdot AP \cdot 1acre$ $QA_e = 1.39ft \cdot \frac{acre}{yr}$

Existing annual loading

Nitrogen loading $NA_e := TNhwy \cdot QA_e$ $NA_e = 2.80\frac{kg}{yr}$

Posphorus loading $PA_e := TPhwy \cdot QA_e$ $PA_e = 0.38\frac{kg}{yr}$

Proposed loading calculation

Proposed roadway DCIA = 70% NDCIA (CN) = 65

From Appendix E, FDEP Stormwater Quality Handbook (2010)

Annual curve number $CA_p := 0.592$

Existing annual runoff $QA_p := CA_p \cdot AP \cdot 1acre$ $QA_p = 2.54ft \cdot \frac{acre}{yr}$

Existing annual loading

Nitrogen loading $NA_p := TNhwy \cdot QA_p$ $NA_p = 5.14\frac{kg}{yr}$

Phosphorus loading $PA_p := TPhwy \cdot QA_p$ $PA_p = 0.69\frac{kg}{yr}$

Required removal efficiency calculations

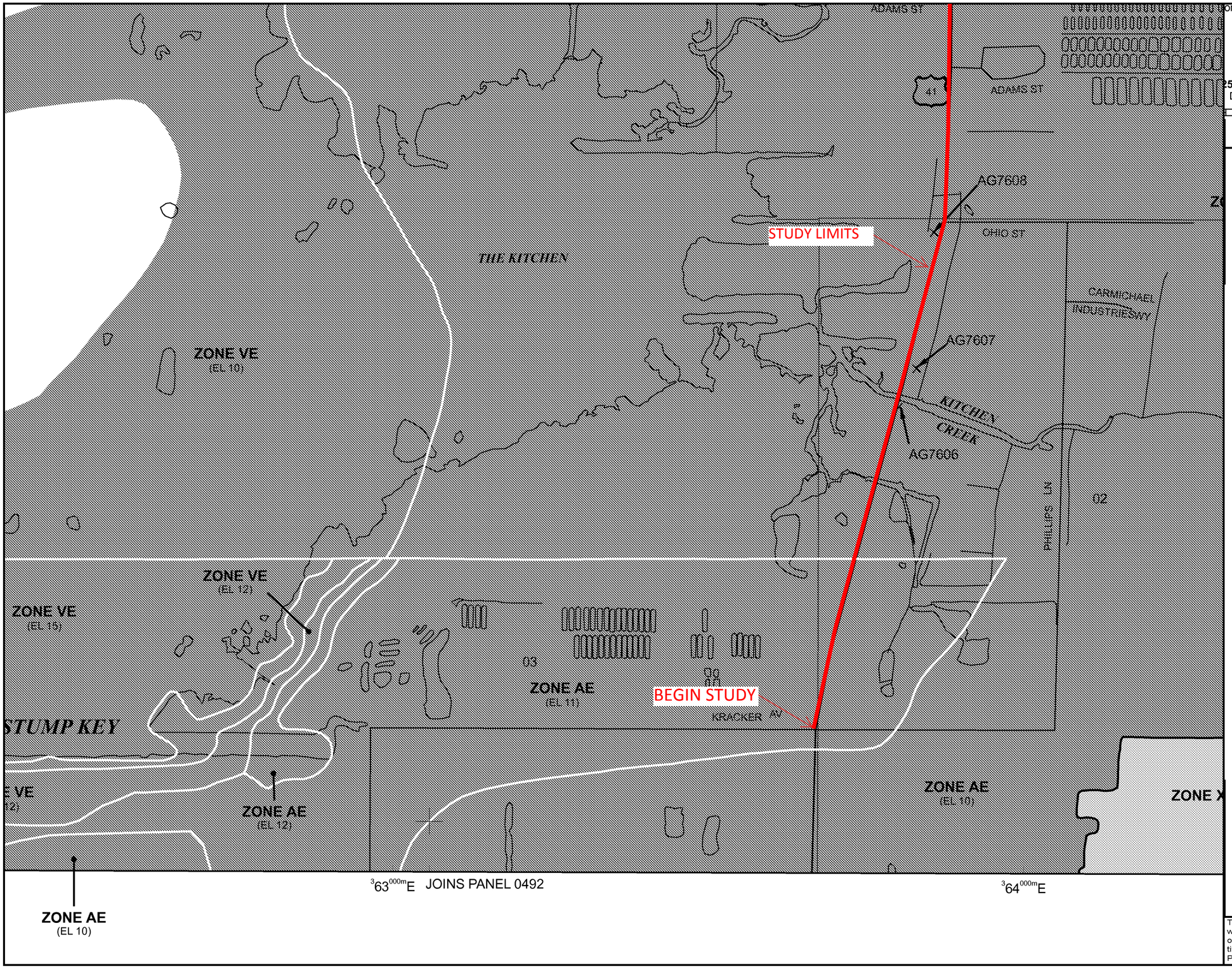
Required N removal efficiency $NRe := 1 - \frac{NA_e}{NA_p}$ $NRe = 45.4 \cdot \%$

Required P removal efficiency $PRe := 1 - \frac{PA_e}{PA_p}$ $PRe = 45.4 \cdot \%$

Based on above calculations, a wet pond would not be capable of meeting requirements for nutrient loading, since the removal efficiency of a wet pond is limited at or below 45%, therefore dry detention followed by wet detention is required.

APPENDIX B

FEMA Mapping/Flood Investigation Documentation



tional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0484H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 484 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0484	H

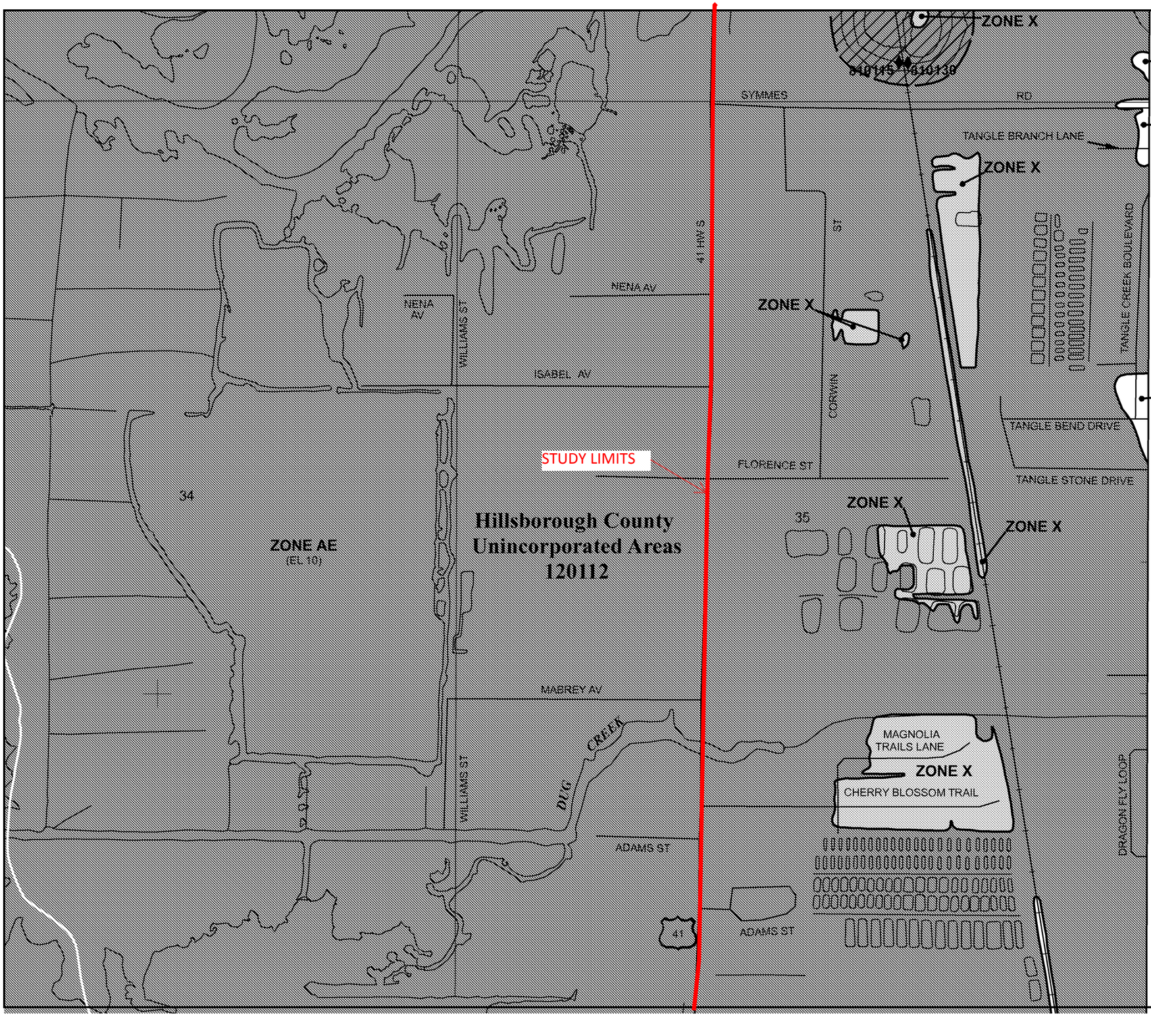
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0484H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0484H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 484 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0484	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

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onal Flood Insurance Program at 1-800-638-6620.

JOINS PANEL 0482

530000 FT

82°22'30"

27°50'37.5"

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

ZONE X

ZONE X

SHOWTOWN DR

CEDAR AV

PAYNE AV

LUCAS ST

DR

PALM AV

DOUGLASER

BEACH AV

RAILROAD

Bullfrog Creek

MARY HANCOCK DR

810300

27

26

BEACH AV

SUNSET VIEW LANE

AG7612

810100

810050

AG7610

810000

BULLFROG CREEK

810170

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

ZONE X

STUDY LIMITS

810115

810130

SYMMES RD

TANGLE BRANCH LANE

ZONE X

41 HWY S

ST

NENA AV

NENA AV

WILLIAMS ST

ISABEL AV

TANGLE CREEK BOULEVARD

ZONE X

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0484H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 484 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0484	H

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0482H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

$^{30}83^{000m}$N

JOINS PANEL 0501

$^{30}82^{000m}$N

ZONE X

STUDY LIMITS

AG7472

AG6113

RIVERVIEW DR

MEEKS ST

CROWELL DR

RD

EASEMENT

PALMER ST

HENDERSON ST

HICKORY LN

AMOS DR

ST

DAK

PALERMO ROAD

HYDA

ILLOLA

INDIANA ST

MICHIGAN ST

OHIO AV

YORK ST

CONNECTICUT STREET

GEORGIA AV

NEW JERSEY ST

MASSACHUSETTS ST

ILLINOIS AV

DAVIS ST

MAPLE ST

ZONE X

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

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MAP NUMBER
12057C0482H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

JOINS PANEL 0369 530000 FT

82°22'30"

27°52'30"

$^{30}84^{000m}$N

$^{30}83^{000m}$N

AG6115

STUDY LIMITS

RAILROAD

OLD 41 HWY

ZONE AE
(EL 10)

ZONE X

14

41

MEEKS ST

CROWELL DR

HICKORY LN N

RD

EASEMENT

PALMER ST

HENDERSON ST

RIVERVIEW DR

HICKORY LN S

AMOS DR

ST

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0482H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 482 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0482	H

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

STUDY LIMITS

AG7469

AG7466

AG7465

ZONE VE
(EL 10)

ZONE X

Tampa Bay

Hillsborough Bay

Archie Creek

BURTS RD

RAILROAD ROAD

North

10

41

15

16

1290000 FT

27°52'30"

82°24'22.5"

$^{3}62^{000m}$E

$^{3}63^{000m}$E JOINS PANEL 0482

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0369H

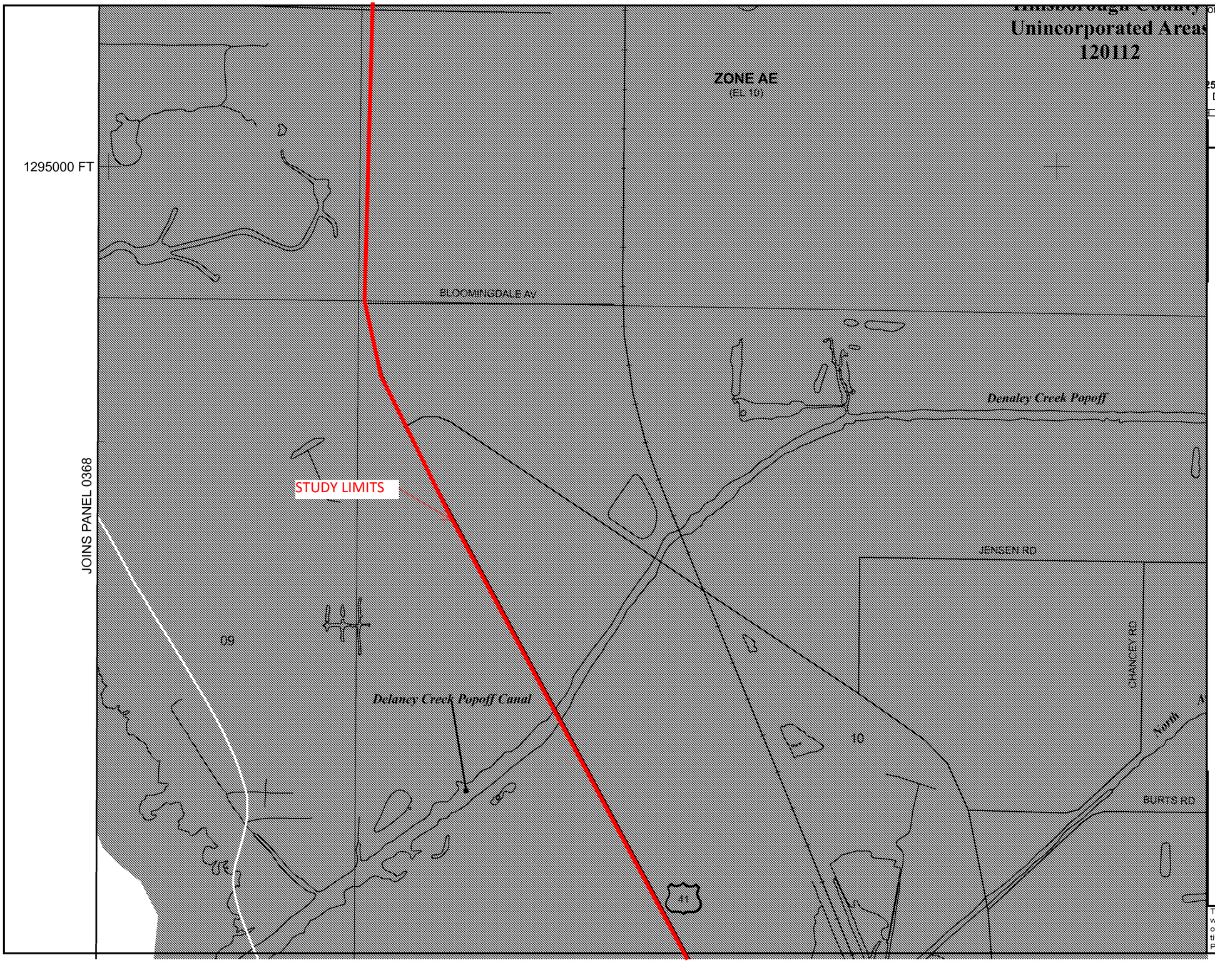
EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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...onal Flood Insurance Program at 1-800-638-6620.

Hillsborough County
Unincorporated Areas
120112



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

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MAP NUMBER
12057C0369H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

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onal Flood Insurance Program at 1-800-638-6620.

82°24'22.5"
525000 FT
27°54'22.5"

530000 FT JOINS PANEL



MAP SCALE 1" = 500'

250 0 500 1000
FEET
METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0369H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 369 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0369	H

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12057C0369H

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

RAILROAD ROAD

BOISE ST

47TH ST S

DOROTHYS DREAM PL

34TH AV S

SAGASTA STREET

TOWAWAY AV

33

47TH ST S

DIAMOND VOCAL DR

RALEIGH ST

30TH AV S

210040

210030

210020

DELANEY CREEK

210090

210100

ZONE AE

54TH ST S

34

210080

210070

36TH AV S

210050

210060

S 56TH ST

ZONE A

ZONE A

ZONE A

Hillsb

Unine

54TH ST S

TRENTON ST

TRENTON ST

STUDY LIMITS

51ST ST S

HARTFORD ST

HARTFORD ST

RAILROAD ROAD

RAILROAD ROAD

AUSTIN ST

DENVER ST

1300000 FT

ZONE AE

(EL 10)

SANTA FE RD

RAILROAD ROAD

04

03

27°54'22.5"

82°24'22.5"

362000mE

363000mE JOINS PANEL 0369

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

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MAP NUMBER
12057C0367H

EFFECTIVE DATE
AUGUST 28, 2008

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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

STUDY LIMITS

1305000 FT

JOINS PANEL 0366

ZONE A

ZONE X

ZONE AE

211010

211000

210090

210100

210080

24TH AV S

27TH AV S

30TH AV S

31ST AV S

34TH AV S

TOWAWAY AV

CAUSEWAY BL

EL CAMINO BLANCO BL

NEHAUL PL

HABERSHAM LN

22ND AV S

23RD AV S

ST PAUL ST

BOISE ST

RAILROAD ROAD

RAILROAD RD

ROCKPORT RD

VIVIAN PL

GELMAN PL S

DOROTHYS DREAM PL

SAGASTA ST

47TH ST S

48TH ST S

49TH ST S

50TH ST S

51ST ST S

54TH ST S

58TH ST S

Delaney Cree

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

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onal Flood Insurance Program at 1-800-638-6620.

82°24'22.5"
525000 FT
27°56'15"
1310000 FT
530000 FT JOINS PANEL 0359

MAP SCALE 1" = 500'
250 0 500 1000
FEET
METER

12TH AV S
BRISTOL BAY WAY
56TH ST S
STUDY LIMITS
AG6058
16TH AV S
17TH AV S
19TH AV S
46TH ST S
28
47TH ST S
ZONE AE
(EL 10)
20TH AV S
21ST AV S
NEHAUL PL
SAGASTA ST
48TH ST S
50TH ST S
HABERSHAM LN
51ST ST S
22ND AV S
23RD AV S
48TH ST S
24TH AV S

RAILROAD ROAD
TAMPA COMMERCE CT
12TH AV S
56TH ST S
58TH ST S
58TH STR
ZONE A
ZONE A

Hillsborough County
Unincorporated Areas
120112

27

ZONE X
20TH AV S
ZONE A
ZONE A
ZONE A
24TH AV S
24TH AV
Delaney Creek
ZONE A
H ST S

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0367H

FIRM
FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 367 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0367	H

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END STUDY

STUDY LIMITS

ZONE X

ZONE X

ZONE X

E WASHINGTON ST

S 55TH ST

AG7546

AG7541

AG7543

AG6055

21

PALM RIVER

22

ROSE LN

FERRY LN

CITY OF TAMPA

HILLSBOROUGH COUNTY

6TH ST S

5TH ST S

4TH ST S

3RD ST S

2ND ST S

AG6056

PALM RIVER RD

AG6057

ZONE AE
(EL 10)

10TH AV S

11TH ST S

ZONE X

Hillsborough County
Unincorporated Areas
120112

ZONE X

57TH ST S

58TH ST S

CHARLES DR

DAVIS DRIVE

DREW CT

HUGHES CT

KIRKLAND DR

COOKMAN DR

56TH ST S

HAMMON DR

ZONE AE
(EL 10)

525000 FT

4TH AV S

5TH AV S

6TH AV S

12TH AV S

27°56'15"

82°24'22.5"

$^{3}62^{000m}E$

$^{3}63^{000m}E$

JOINS PANEL 0367

onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0359H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 359 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0359	H
TAMPA, CITY OF	120114	0359	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0359H

EFFECTIVE DATE
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onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

16

15

AG6048

AG6049

City of Tampa 120114

UCETA RD

TRANSPORT DR

DISTRIBUTION DR

UCETA RD

RAILROAD

ACLINE DR E

S 71ST ST

ZONE AE
(EL 10)

ZONE AE
(EL 10)

AG6053

E ROMAN ST

JOINS PANEL 0358

ADAMO DR

ADAMO DR

ZONE X

1315000 FT

END STUDY

RAILROAD

ZONE X

ZONE X

ZONE X

E WASHINGTON ST

STUDY LIMITS

S 68TH ST

AG7548

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0359H

FIRM

FLOOD INSURANCE RATE MAP

HILLSBOROUGH COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 359 OF 801

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HILLSBOROUGH COUNTY	120112	0359	H
TAMPA, CITY OF	120114	0359	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12057C0359H

EFFECTIVE DATE
AUGUST 28, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1006222010925

Entry Date: 6/22/2010 2:06:31 PM
Revised Date:
Completed By: Stephanie Hildreth, HDR

SECTION I: LOCATION

County - Hillsborough
State Road - SR 45, SR 599
Road Description - 4 lane(s), Principal Arterial, Roadside Ditches
Roadway Separation - Divided w/Non-Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Urban
Specific Classification of Road - Principal Arterial
Roadway Drainage - Roadside Ditches

Flooding Condition - On-System

Local Road Subject to Flooding - Port Sutton Road
Business Name:
Business/Private Property Address Subject to Flooding -
4333 S 50th Street
Tampa , FL 33619

Location:
Latitude: 27.906666
Longitude: -82.402259

Section/Township/Range - 4 / 30S / 19E
Project is Active - Yes

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint - 2/16/2009
Complainant Name - Bob Greene
Problem Description - Property Flooding

Details of the Problem - Flooding problem related to the business on the northwest corner of the intersection. The ditches on US 41 are shallow and tend to pop off through the property.

The owner stated that the water gets near the floor elevation and causes problems with the septic system onsite. He believes that the problem was caused with the recent resurfacing project which added curb ramps and pedestrian signals at the intersection of Port Sutton and US 41.

Frequency of Flooding - Several times per year
Source for Frequency Data - Local Resident/Person Interviewed

Historic High Water - No historic high water data was available.
Water has come up to the building.
Flooding Event High Water - No event high water was recorded.

History of Problem - It is assumed that the problem has come up only after the widening of Port Sutton Road. Project 411276-1-52-04 (related projects 02 and 03). The project was completed in 2005 and tax records show that the property was sold in 2005.

SECTION III: PROBLEM ANALYSIS

Attachments

Attachment	Attachment Type	Attachment Description
Flooding_PortSutton.pdf	Other Data	Drainage Flooding Complaint Inventory Sheet
project_ 1.pdf	Project Plans	Roadway plans for 411276-1-52-04
project_ 2.pdf	Project Plans	Signing and Pavement Marking Plans and Signalization Plans for 411276-1-52-04
aerial view_ port sutton.pdf	Aerial Photo	Aerial view
swfwmd aerial_ port sutton.pdf	SWFWMD Contour Map	SWFWMD Contour map
cropped swfwmd_ port sutton.pdf	SWFWMD Contour Map	Cropped SWFWMD aerial
Deed_ port sutton.pdf	Other Data	Property Deed
photos_ port sutton.pdf	Site Photo	Photos

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation: It is not known for sure if the ramp work at this location caused the problem, but indications are that it may have added to a problem that already existed. The owner stated that he would be willing to provide FDOT a right of entry to install a pipe system to take water from the US 45 ditch to Port Sutton Road.

This problem cannon be adequately analyzed without a survey of the area to show flow direction and break over elevations.

Recommendation Date:

Project Ranking:

ROADWAY FLOODING MATRIX

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors.
(Weight Factor = 10) 0

Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	0
Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	0
Total Score	**0**

PRIVATE PROPERTY FLOODING MATRIX

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	0
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Total Score	**0**

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1005262005805

Entry Date: 5/26/2005 8:19:52 AM
Revised Date: 8/2/2010 12:08:12 PM
Completed By: Tom Ward, PBS&J

SECTION I: LOCATION

County - Hillsborough
State Road - SR 685
Road Description - 4 lane(s), null, Roadside Ditches
Roadway Separation - Divided w/Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Rural
Specific Classification of Road - null
Roadway Drainage - Roadside Ditches

Flooding Condition - Off-System

Local Road Subject to Flooding -
Business Name: Sandra O'Brian
Business/Private Property Address Subject to Flooding -
11860 SR 45
Gibsonton , FL 33534

Location:
Latitude: 27.828127
Longitude: -82.381384

Section/Township/Range - 35 / 30S / 19E
Project is Active - Yes

Associated Projects

Project Date	State Project Number	Financial Project ID	Work Program ID	Project Description	Attachment
10/10/1991	10060 - 3580	- - -	7113977	Resurfacing	US_41_Sec-06.pdf

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint - 9/15/2004
Complainant Name - Sandra O'Brien
Problem Description - Property Flooding

Details of the Problem - Renters complained to owner that during the heavy rains and the hurricane season of 2004, the ditch bottom inlet located near her home overtopped and flooded her front yard and the front porch of her home. The depth of flooding is not known. The water also traveled down the dirt road adjacent to her home, and impacted another home. The depth of flooding is not known. The inlet also overtopped at least one other time (exact date unknown by owner) in the past heavy rains.

Frequency of Flooding - Several times per year
Source for Frequency Data - Local Resident/Person Interviewed

Historic High Water - A historic high water of located at Unknown was documented by Local Resident/Person Interviewed.
See above
Flooding Event High Water - No event high water was recorded.

History of Problem - Runoff from the US 41 Northbound Roadway travels to the roadside ditch, and then travels to ditch bottom inlets. According to the original drainage map from State Job No. 10060-3212, the flow travels from Florence Street south to the 10 ft x 8 ft box culvert located at Station 874+10. The drainage system from these plans shows roadside ditches along US 41 within the project limits. The drainage system was altered in 1991 when US 41 was resurfaced from Symmes Road to North of Big Bend Road, State Job No. 10060-3580. Ditch bottom inlets, side drains and pipe extensions in the ditches were added along portions of US 41 with this project. The drainage documentation from this project did not have the drainage basin delineated to compare current conditions with historic drainage patterns. The drainage pipes on the east side of US 41 from near the flooding site to the flooding site to the ultimate outfall at the 10 ft x 8 ft box culvert are all 18 inches in diameter. Although the extension of several 18-inch pipes caused some increase in head loss, this did not contribute substantially to flooding. The distance between flooding sites to the box culvert is approximately 700 feet. The creek at the box culvert is tidal. Based on comments from local residents, the highest tailwater ever witnessed was approximately 5.5 ft and did not get near this elevation during the reported flooding incident. The grate elevation of the ditch bottom inlet located adjacent to the property owner is 6.6 ft. Based on comments from residents, during the flooding complaint event, the water in the creek was near the elevation of the crown of the outfall pipe at elevation 3.7 ft. Based on drainage maps, field visits and contour aerials, the overall drainage basin limits for the area that contributes flow to the ditch in front of the flooding site are Florence Street to be the north, US 41 to the west, and CSX railroad to the east. Development in the basin area consists of mobile home parks, housing developments, and a fish hatchery. Much of this area is drained to the roadside ditch via lateral ditches that extend from the railroad ditch west to US 41 and are severely overgrown. Many of these ditches can pop-off in several directions and it would be difficult to determine where runoff would flow without detailed modeling. In addition, the basin boundaries may have changed since the original US 41 project was constructed. The ditch on Florence Street is also overgrown and silted in. It is doubtful that much flow is being contributed from this ditch or the lateral inflow ditches. If ruunoff from the entire drainage area for the 10-year event is assumed to reach the pipes along US 41, the pipes are undersized. However, based on the indeterminate nature of the basin, a minimum discharge area was developed to evaluate the existing storm drain system. This area was developed by excluding areas conveyed by overgrown and silted in ditches. The drainage analysis of the existing storm drain system only includes US 41 runoff and portions of offsite runoff that run directly into the storm drain system. Based on this minimum drainage area, energy losses in the pipes associated with a 10-year event are 1.03 ft from the outfall to the subject property. There is 2.9 ft of head available between the inlet top (6.6 ft) and the tailwater elevation (3.7 ft). At the highest tailwater witnessed (5.5 ft), this would put the hydraulice grade line at the inlet top.

Persons Interviewed

Site Visit Date - 12/1/2004
Site Inspection By - Resident Last Name, Renter
Interviewee(s) - Shayne Paynter, PBSJ
Site Visit Conditions - Not Applicable

Observed High Water - No observed high water was observed on the date of the site visit.

Site Visit Details - Shayne Paynter met the residence on December 1, 2004 at the residence of the flooding and field reviewed the site on the same day. The FDOT 7 Tampa Maintenance office was visited to obtain plans and inquire as to flooding issues at this site. Maintenance personnel could not recall any

flooding problem at this location.

SECTION III: PROBLEM ANALYSIS

Attachments

Attachment	Attachment Type	Attachment Description
US_41_Sec-01.pdf	Other Data	Drainage Complaint Inventory Work Sheet
US_41_Sec-04.pdf	FDOT Drainage Map	Drainage Map (SPN: 10060-3212)
US_41_Sec-05.pdf	Other Data	FDOT Correspondence not available
US_41_Sec-06.pdf	Project Plans	Key Sheet, Qunatities Sheet & plan sheet at area of flooding.
US_41_Sec-07.pdf	Other Data	Copies of Any FDOT , County , or City Drainage Studies not available.
Review of Drainage Complaint Investigation.pdf	Other Data	Review of Drainage Complaint Investigation
US41.pdf	Site Map	Location Map
REG.pdf	Project Plans	10060-3580 partial plans
Hill_10060_3212_SR 45_US 41_Obrien.pdf	Other Data	Drainage Complaint Investigation Report

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation: The ditch from the box culvert at Station 874+00 to the mitered end section at Station 875+50 is overgrown and should be cleared to allow flow from the storm drain system to enter the outfall effectively. Also, many of the grate inlets are blocked with overgrown grass that prevents flow in the ditch from entering the inlet effectively, especially the inlet located just south of the flooding complaint at Station 881+40. From the flooding complaint site at Station 882+00, to south to the Box Culvert at Station 874+00, the existing 18" pipes should be inspected for any obstructions and all pipes should be desilted. The ditch bottom inlet located at the flooding site should be modified to include traversable slots and the immediate area should be graded to drain to these slots. The inlet elevation is currently very close to the floor elevation of the residence located adjacent to the inlet. Adding slots and grading the ground between the right-of-way and the inlet to slope the terrian towards the inlet will help to prevent water from flowing outside the right-of-way. Cleaning ditches and clearing ditch inlet grates will help alleviate the flooding problem by allowing water to enter the inlets effectively and by maximizing the capacity fo the system. All the 18" pipes carry flow south to a MES at Station 875+67.60, before entering the creek. It should be noted that the rainfall associated with the 2004 hurricane season and the resulting flooding complaint

exceeded the design parameters for the drainage system, which is estimated to be a 10-year event, and flooding will still occur as result of very large rainfall events. In summary, the following steps should be taken to address the flooding complaint: 1) Inspect all pipes from the flooding complaint site to the box culvert 2) Clear any obstructions and desilt pipes 3) Clear all inlet tops from the flooding site to the box culvert that have excessive grass growth or debris 4) Add traversable slots to the existing inlet in front of the property in question and grade the existing ground near the inlet to direct runoff to flow into the inlet.

Recommendation Date: 5/2/2005

Project Ranking:

ROADWAY FLOODING MATRIX

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors. **(Weight Factor = 10)**	0
Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	0
Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	0
Total Score	**0**

PRIVATE PROPERTY FLOODING MATRIX

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	0
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Total Score	**0**

FLOOD INVESTIGATION INVENTORY SHEET

Flood Investigation # 1001032008834

Entry Date: 1/3/2008 8:41:11 AM
Revised Date: 7/13/2010 11:29:51 AM
Completed By: Hiren Patel, PBS&J

SECTION I: LOCATION

County - Hillsborough
State Road - SR 45, SR 599
Road Description - 4 lane(s), Principal Arterial, Roadside Ditches
Roadway Separation - Divided w/Non-Traversable Median
Direction of Travel - Two-Way
Functional System of Road - Urban
Specific Classification of Road - Principal Arterial
Roadway Drainage - Roadside Ditches

Flooding Condition - Off-System

Local Road Subject to Flooding - Ohio Street
Business Name:
Business/Private Property Address Subject to Flooding -
12130 US 41
Gibsonton , FL 33534

Location:
Latitude: 27.822308
Longitude: -82.381614

Section/Township/Range - 35 / 30S / 19E
Project is Active - Yes

SECTION II: PROBLEM DESCRIPTION

Date of Original Complaint - 8/1/2007
Complainant Name - Gerry Javier
Problem Description - Unknown

Details of the Problem - 3” PVC storm drain pipe discharging onto FDOT ROW. A drainage connection permit is not currently on file.

Frequency of Flooding - Unknown
Source for Frequency Data - Unknown

Historic High Water - No historic high water data was available.

Flooding Event High Water - No event high water was recorded.

History of Problem - First reported by Gerry Javier FDOT Maintenance 08/01/2007 during routine maintenance of the right ditch fronting the property of concern.

Other Communications

Communication Date	Type	Communication From	Communication To	Communication Attachment Name
10/3/2007	Email	Mark Micikas , PBS&J	Andrew Stevens, PBS&J	25810416_Email100307.pdf
10/3/2007	Email	Mark Micikas , PBS&J	Andrew Stevens , PBS&J	258104340_EmailOct0307.pdf

SECTION III: PROBLEM ANALYSIS

Current Problem Analysis

Current Problem Analysis: Stormwater runoff for Eastwood Estates MHP is collected by storm drain and pumped to two outfall points; the FDOT R/W ditch; Ohio St. ditch. According to James Crowell (Property Maintenance), the storm drain pumps are turned on with floats once runoff depths begin to inundate the roadway within the park. The pumps appear to have been in place since the park inception prior to 1986. There is no history of apparent flooding or excessive erosion with in the S.R. 45 R/W due to the stormwater pumping.

Outfall Description: Manmade Channel or Ditch
Responsible Entity for Maintenance of Outfall: FDOT

Attachments

Attachment	Attachment Type	Attachment Description
258103627_SWFWMD023119.pdf	SWFWMD Contour Map	
25810373_SWFWMD353019.pdf	SWFWMD Contour Map	
258103858_Sitephotos.pdf	Site Photo	
258103943_Fieldnotes.pdf	Other Data	Field Notes

SECTION IV: CONCLUSIONS AND RECOMMENDATIONS

Recommendation: No action is recommended at this time due to the Eastwood Estates MHP and stormwater system being in place prior to 1986 along with the SWFWMD aerials showing historic water patterns consistent with the system in place.

Recommendation Date:

Project Ranking:

ROADWAY FLOODING MATRIX

Ranking of the roadway hazard level based on accident data, ADT, depth and location of water, and site specific factors. **(Weight Factor = 10)**	0
Ranking of the operational impacts (i.e. magnitude of vehicle speed reduction, ADT, frequency of flooding, availability of detour route, and cost to FDOT to handle problem, etc.) **(Weight Factor = 7)**	0
Ranking of the nuisance factor to the public and FDOT. **(Weight Factor = 3)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Ranking of the costs to cure the problem, if any. **(Weight Factor = 5)**	0
Total Score	**0**

PRIVATE PROPERTY FLOODING MATRIX

Ranking of the potential financial impacts versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the hazard level versus the flooding frequency that impacts the private property. **(Weight Factor = 10)**	0
Ranking of the nuisance factor to the private property as well as FDOT. **(Weight Factor = 5)**	0
Ranking of the costs to FDOT to cure the problem versus the financial impact to the private property if not cured. **(Weight Factor = 10)**	0
Ranking of the length of time before scheduled roadway improvements that will also provide remedy, are to be let to contract. **(Weight Factor = 5)**	0
Total Score	**0**

APPENDIX C

Hillsborough County Riverine Floodplain Elevations

Floodplain Encroachment and Compensation Calculation Summary
Table 4-2 Calculation Basis

Basin 3

Column 1: Length of basin times width of both sides

Column 2: Encroachment area times depth of 0.5' (Based on estimated average fill below floodplain depth)

Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

Basin 4

Column 1: Station 892+40.00 to 897+00.00 (460') times width of both sides

Column 2: Encroachment area times depth of 0.5' (Based on estimated average fill below floodplain depth)

Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

Basin 10

Column 1: Length of basin times width of both sides

Column 2: Encroachment area times depth of 2.0' (Based on estimated average fill below floodplain depth)

Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

Basin 11

Column 1: 700 ft times width of one side + rest of basin length times width of both sides

Column 2: Encroachment area times depth of 0.5' (Based on estimated average fill below floodplain depth)

Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

Basin 12

Column 1: Length of basin times width of both sides

Column 2: Encroachment area times depth of 1.0' (Based on estimated average fill below floodplain depth)

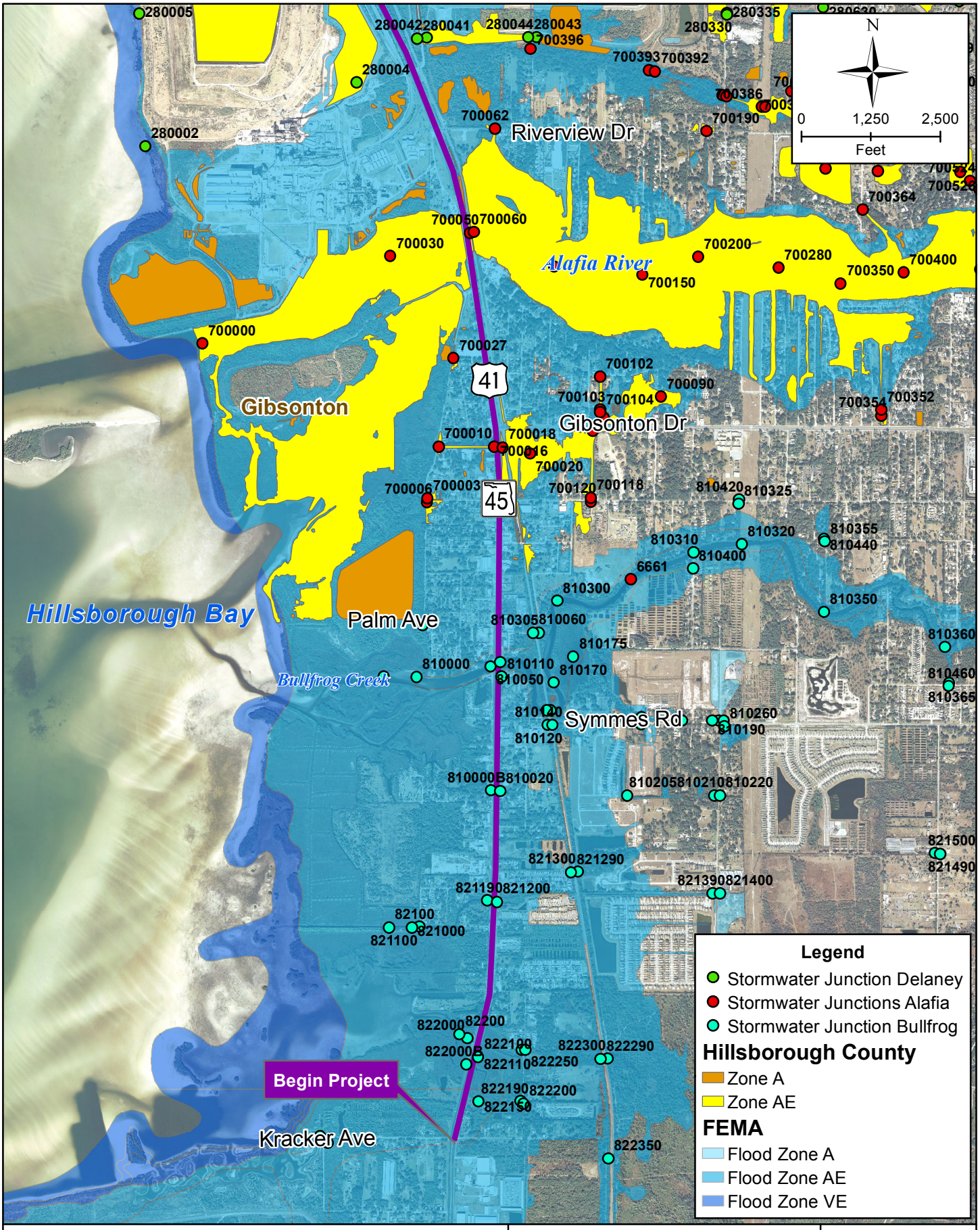
Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

Basin 13

Column 1: Length of basin times width of both sides

Column 2: Encroachment area times depth of 0.5' (Based on estimated average fill below floodplain depth)

Column 3: Encroachment volume times 1.25 (Based on 1' depth to water table and increased by 25% for grading)

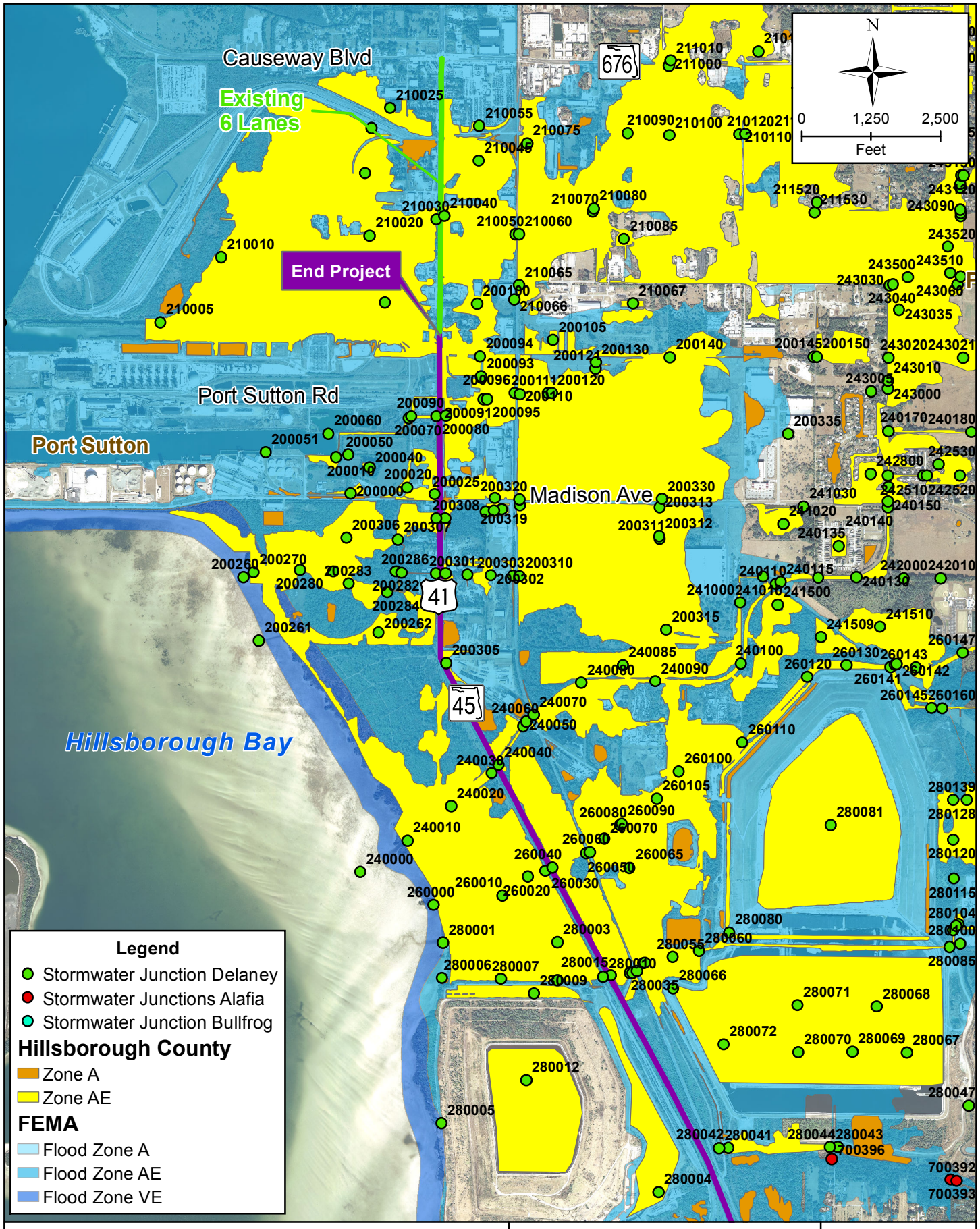


US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

FEMA Map w/ Junctions



US 41 (SR 45) PD&E Study

From Kracker Avenue to South of SR 676 (Causeway Boulevard)

WPI Segment No. 430056 1 - Hillsborough County

FEMA Map w/ Junctions

6.3 EXISTING CONDITIONS MODEL SIMULATION RESULTS

The 2.33-, 5-, 10-, 25-, 50- and 100-year design rainfall storm events, each with a design duration of 24 hours, were input to the calibrated model for simulation of peak flood elevations in channels and at structures. Water surface profiles have been generated to show maximum water level elevation for these events. These profiles are presented for each major conveyance system in Exhibits 6-1a through 6-1s. These conditions represent the existing baseline condition (no action plan) flooding response for the Bullfrog Creek/Wolf Branch watershed. A summary of simulated peak stages at all model nodes is presented in Table 6.2 for each design storm simulation.

Table 6.2
DESIGN STORM MODEL OUTPUT SUMMARY

Model Node ID	Existing Conditions Design Flood Elevations (Feet, NGVD)					
	2.33-year	5-year	10-year	25-year	50-year	100-year
Lower Bullfrog Creek						
810000	2.2	2.3	2.6	2.9	3.3	3.6
810020	4.1	4.3	4.6	4.9	5.3	5.5
810040	2.5	3.0	3.8	4.8	5.1	5.1
810050	2.9	3.4	4.1	4.6	5.5	6.1
810060	3.3	3.6	4.3	4.8	5.8	7.4
810100	2.9	3.5	4.2	4.7	5.8	6.5
810110	2.9	3.5	4.2	4.7	5.8	6.5
810115	3.6	4.2	5.1	5.7	6.7	7.4
810120	3.7	4.2	5.1	5.7	6.7	7.4
810130	3.8	4.5	5.5	6.3	7.8	7.5
810140	4.2	4.5	5.5	6.3	7.8	7.5
810170	4.0	4.8	5.8	6.6	8.0	8.0
810175	4.0	4.8	5.8	6.6	8.0	8.0
810180	4.0	4.8	5.8	6.6	8.0	8.0
810185	5.0	5.2	5.8	6.6	8.0	8.0
810190	8.7	8.9	9.3	9.5	10.0	10.2
810195	11.1	11.9	12.1	12.2	12.2	12.2
810200	5.0	5.5	6.1	6.7	8.0	8.2
810205	5.2	5.6	6.2	6.8	8.0	8.2
810210	6.9	7.2	7.4	7.6	8.0	8.4
810220	9.5	9.9	10.4	10.9	11.8	12.5
810240	11.4	12.5	13.3	13.6	13.6	13.6
810260	12.3	13.5	13.7	13.7	13.8	13.9
810300	4.4	5.2	6.3	7.1	8.5	8.6
810305	4.4	5.2	5.6	6.3	7.8	7.5
810310	5.2	6.1	7.3	8.2	9.7	10.0
810320	5.3	6.2	7.5	8.3	9.8	10.2
810325	7.7	7.8	7.9	8.3	9.8	10.2
810350	8.8	10.1	11.8	12.7	14.2	14.9
810355	10.2	10.3	11.8	12.7	14.2	14.9
810360	10.2	11.5	13.2	14.2	15.8	16.6
810365	12.6	12.8	13.2	14.2	15.8	16.6
810370	10.9	12.2	14.0	14.9	16.6	17.4
810380	11.0	12.3	14.1	15.1	16.8	17.7

Table 6.2
DESIGN STORM MODEL OUTPUT SUMMARY

Model Node ID	Existing Conditions Design Flood Elevations (Feet, NGVD)					
	2.33-year	5-year	10-year	25-year	50-year	100-year
817695	73.7	74.6	75.6	76.3	77.3	78.8
817700	73.8	74.7	75.7	76.4	77.4	79.0
817740	73.9	74.7	75.7	76.4	77.4	79.0
817750	74.1	75.1	76.3	77.2	78.5	79.7
817800	80.1	80.4	80.7	80.9	81.2	79.8
Unnamed Southern Fork - Little Bullfrog Creek						
818000	57.8	58.3	58.9	59.3	60.0	60.4
818010	67.6	68.1	68.8	69.2	70.0	70.4
818020	77.8	78.3	79.1	79.5	80.4	80.8
818100	78.6	79.8	82.4	83.8	84.6	84.8
818120	88.0	89.2	91.0	92.4	95.2	96.6
818150	90.1	90.2	91.0	92.4	95.2	96.7
818200	80.7	81.3	81.9	82.5	83.3	83.7
818250	81.6	82.0	82.6	83.5	85.5	87.2
Unnamed North Prong - Upper Bullfrog Creek						
819000	48.0	49.4	51.2	52.3	55.0	55.1
819020	48.7	49.6	51.4	52.4	55.2	55.1
819050	52.7	54.2	55.0	55.4	55.9	56.2
819060	76.5	76.7	77.0	77.2	77.5	77.6
819080	78.2	78.5	78.9	79.1	79.5	79.7
819090	85.9	86.1	86.3	86.4	86.8	86.9
819095	86.5	87.3	88.7	90.0	90.5	90.6
819100	90.7	90.9	91.1	91.3	91.5	91.6
819200	89.3	89.5	89.7	89.9	90.1	90.1
Dug Creek - Coastal						
821000	2.1	2.1	2.1	2.1	2.1	2.4
821100	2.2	2.3	2.2	2.1	2.3	2.7
821190	3.3	3.8	4.5	5.0	5.3	5.4
821200	3.3	3.9	4.7	5.3	5.8	5.9
821290	4.1	4.7	5.4	5.9	6.4	6.7
821300	4.4	5.1	6.1	6.8	7.8	8.4
821390	9.8	10.2	10.7	11.1	11.5	11.7
821400	10.3	10.5	10.9	11.2	12.0	12.7
821490	20.0	20.3	20.6	20.9	21.3	21.5
821500	22.5	22.9	23.9	25.1	26.3	26.4
Kitchen Branch - Coastal						
822000	2.0	2.0	2.0	2.0	2.0	2.0
822050	2.1	2.3	2.8	3.3	4.5	4.7
822100	2.1	2.2	2.5	2.8	3.4	3.7
822110	2.4	2.6	2.9	3.3	3.8	4.1
822150	2.1	2.3	2.5	2.8	3.4	3.8
822190	2.1	2.3	2.5	2.8	3.4	3.8
822200	2.2	2.3	2.5	2.9	3.6	4.0
822250	2.5	2.7	3.1	3.6	4.3	4.6
822290	4.2	4.6	5.2	5.6	6.0	6.2
822300	4.3	4.8	5.6	6.2	7.1	7.7
822350	4.6	5.1	5.7	6.2	6.8	7.1

TABLE 6.11-2
ALAFIA RIVER WATERSHED MANAGEMENT PLAN UPDATE
ALAFIA RIVER MAIN STEM SUBWATERSHED EXISTING CONDITIONS
FLOOD ELEVATIONS SUMMARY

MODEL JUNCTION	LOCATION DESCRIPTION	24-HOUR DURATION DESIGN STORM MAXIMUM FLOOD ELEVATION, ft NAVD 88					
		2.33-YEAR	5-YEAR	10-YEAR	25-YEAR	50-YEAR	100-YEAR
Alafia River from Hillsborough Bay to U.S. Highway 301							
700000	Hillsborough Bay	1.09	1.09	1.09	1.09	1.09	1.09
700030		1.14	1.17	1.23	1.35	1.48	1.61
700050	U.S. Highway 41 Bridge (d/s); FEMA XS No 1	1.16	1.20	1.29	1.45	1.62	1.80
700060	U.S. Highway 41 Bridge (u/s); FEMA XS No 2B	1.16	1.21	1.30	1.46	1.64	1.82
700100	FEMA XS No 5 (A)	1.17	1.22	1.32	1.50	1.69	1.89
700150	FEMA XS No 6	1.19	1.26	1.38	1.60	1.82	2.05
700200	FEMA XS No 7 (B)	1.21	1.29	1.43	1.68	1.93	2.18
700280	FEMA XS No 8	1.23	1.31	1.47	1.74	2.01	2.28
700350	FEMA XS No 9	1.26	1.36	1.56	1.88	2.19	2.48
700400	FEMA XS No 10 (C)	1.36	1.52	1.80	2.25	2.66	3.04
700500	FEMA XS No 11	1.43	1.62	1.95	2.47	2.93	3.35
700550	FEMA XS No 12	1.46	1.66	2.02	2.56	3.04	3.48
700600	FEMA XS No 13 (D)	1.50	1.72	2.10	2.68	3.19	3.64
700700	I-75 Bridge (d/s)	1.51	1.74	2.13	2.72	3.23	3.69
700750	I-75 Bridge (u/s)	1.57	1.83	2.26	2.91	3.46	3.96
700900	FEMA XS No 14	1.68	1.99	2.49	3.22	3.84	4.39
701000	FEMA XS No 15 (E)	1.76	2.10	2.64	3.43	4.09	4.66
701020	FEMA XS No 16	1.84	2.22	2.80	3.64	4.34	4.94
701100	[S-20-T30-R20]	1.91	2.32	2.94	3.82	4.54	5.16
701180	FEMA XS No 17	1.98	2.41	3.06	3.98	4.74	5.38
701200	FEMA XS No 18	2.04	2.49	3.17	4.12	4.90	5.56
701250	U.S. Highway 301 Bridge (d/s); FEMA XS No 19	2.24	2.76	3.54	4.60	5.45	6.17
Alafia River from U.S Highway 301 to Rice Creek							
701350	U.S. Highway 301 Bridge (u/s); FEMA XS No 20B (F)	2.30	2.84	3.65	4.75	5.62	6.36
701370	FEMA XS No 21	2.34	2.91	3.74	4.87	5.76	6.51
701380	FEMA XS No 22	2.36	2.93	3.76	4.89	5.78	6.54
701390	FEMA XS No 23	2.40	2.98	3.82	4.96	5.86	6.62
701400	[S17-T30-R20]	2.44	3.03	3.88	5.04	5.95	6.71
701500	FEMA XS No 24 (G)	2.68	3.36	4.33	5.61	6.60	7.41
701600	Rice Creek	2.80	3.51	4.53	5.87	6.90	7.74
Alafia River from Rice Creek to Buckhorn Creek							
701700	FEMA XS No 25	2.83	3.56	4.59	5.94	6.98	7.83
701800	FEMA XS No 26 (H)	3.05	3.85	4.95	6.39	7.49	8.39
701900		3.25	4.11	5.26	6.75	7.88	8.81
701950	FEMA XS No 27	3.32	4.19	5.37	6.88	8.02	8.95
702000		3.46	4.38	5.59	7.14	8.32	9.27
702100	FEMA XS No 28	3.71	4.70	5.95	7.54	8.73	9.71
702200	FEMA XS No 29 (I)	3.81	4.82	6.08	7.71	8.94	9.95
702205		4.02	5.07	6.34	7.96	9.19	10.19
702250	FEMA XS No 30	4.19	5.27	6.54	8.17	9.40	10.41
702400	Buckhorn Creek; FEMA XS No 31 (J)	4.77	5.99	7.37	9.11	10.40	11.44
Alafia River from Buckhorn Creek to Bell Creek							
702450	FEMA XS No 32	5.23	6.59	8.07	9.91	11.28	12.39
702500	FEMA XS No 33 (K)	5.27	6.69	8.22	10.07	11.45	12.57
702600		5.34	6.77	8.29	10.16	11.54	12.66
702650	FEMA XS No 34	5.41	6.88	8.47	10.36	11.73	12.83
702700	FEMA XS No 35 (L)	5.49	6.98	8.60	10.58	12.02	13.18
702800		5.65	7.20	8.85	10.83	12.33	13.53
702880	FEMA XS No 36	5.71	7.28	8.92	10.92	12.44	13.64
702900		5.97	7.57	9.23	11.22	12.70	13.89
702950	FEMA XS No 37	6.43	8.15	9.77	11.71	13.17	14.34
703000		6.60	8.33	9.95	11.89	13.34	14.50
703050	FEMA XS No 38	6.81	8.60	10.24	12.19	13.64	14.79
703100	FEMA XS No 39 (M)	7.26	9.21	10.97	13.02	14.53	15.73
703200		7.33	9.32	11.13	13.23	14.78	16.01
703300	FEMA XS No 40 (N)	7.34	9.35	11.19	13.33	14.91	16.15
703400	FEMA XS No 41 (O)	7.62	9.77	11.68	13.83	15.40	16.64
703500	FEMA XS No 42	8.17	10.19	12.06	14.16	15.70	16.92
703550	FEMA XS No 43	8.28	10.30	12.15	14.26	15.79	17.01
703600	FEMA XS No 44 (P)	9.20	11.04	12.83	14.88	16.35	17.53
703700	Bell Creek	9.44	11.30	13.06	15.09	16.54	17.70
Alafia River from Bell Creek to Bell Shoals Road Bridge							
703790	FEMA XS No 45	9.59	11.44	13.19	15.21	16.66	17.82
703800	FEMA XS No 46	9.62	11.47	13.23	15.26	16.72	17.89
703850	FEMA XS No 47	9.92	11.84	13.62	15.63	17.08	18.24
703900	FEMA XS No 48	10.50	12.52	14.42	16.58	18.16	19.34

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
200000	Delaney Pop-off	6.86	14.40	6.80	62.90	(0.06)
200010	Delaney Pop-off	6.77	14.30	6.72	62.90	(0.05)
200020	Delaney Pop-off	7.60	24.80	7.82	64.40	0.22
200025	Delaney Pop-off	7.60	24.80	7.83	64.40	0.23
200040	Delaney Pop-off	11.52	25.40	11.67	62.30	0.15
200050	Delaney Pop-off	3.29	13.40	3.41	62.90	0.12
200051	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200060	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200065	Delaney Pop-off	3.39	19.80	3.50	68.20	0.11
200070	Delaney Pop-off	5.49	19.80	5.86	68.30	0.37
200080	Delaney Pop-off	5.53	19.60	5.90	68.30	0.37
200090	Delaney Pop-off	5.98	19.50	6.41	68.30	0.43
200091	Delaney Pop-off	6.09	19.50	6.50	68.20	0.41
200092	Delaney Pop-off	6.09	19.50	6.50	68.20	0.41
200093	Delaney Pop-off	6.09	19.70	6.50	69.00	0.41
200094	Delaney Pop-off	6.09	19.70	6.50	68.90	0.41
200095	Delaney Pop-off	7.53	17.50	8.01	66.90	0.48
200096	Delaney Pop-off	7.61	17.50	8.09	66.80	0.48
200100	Delaney Pop-off	6.10	20.10	6.51	69.20	0.41
200105	Delaney Pop-off	9.40	13.90	9.40	61.90	0.00
200110	Delaney Pop-off	7.70	18.00	8.20	67.40	0.50
200111	Delaney Pop-off	7.73	18.30	8.22	67.60	0.49
200120	Delaney Pop-off	7.82	18.60	8.31	67.90	0.49
200121	Delaney Pop-off	7.86	18.50	8.34	67.90	0.48
200130	Delaney Pop-off	8.30	13.90	8.57	67.50	0.27
200140	Delaney Pop-off	8.91	14.30	9.05	64.20	0.14
200145	Delaney Pop-off	11.12	15.00	11.07	63.80	(0.05)
200150	Delaney Pop-off	12.98	16.00	13.02	64.80	0.04
200260	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200261	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
200262	Delaney Pop-off	2.03	13.10	1.81	61.30	(0.22)
200270	Delaney Pop-off	2.38	13.30	2.23	62.00	(0.15)
200280	Delaney Pop-off	2.80	13.40	2.68	62.20	(0.12)
200281	Delaney Pop-off	2.94	13.50	2.83	62.30	(0.11)
200282	Delaney Pop-off	2.94	13.50	2.84	62.20	(0.10)
200283	Delaney Pop-off	2.97	13.50	2.86	62.30	(0.11)
200284	Delaney Pop-off	2.97	13.50	2.86	62.30	(0.11)
200285	Delaney Pop-off	5.17	13.60	4.79	62.30	(0.38)

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
200286	Delaney Pop-off	3.01	13.50	2.90	62.20	(0.11)
200290	Delaney Pop-off	3.10	13.50	2.99	62.20	(0.11)
200300	Delaney Pop-off	5.82	13.60	5.35	62.20	(0.47)
200301	Delaney Pop-off	6.13	13.50	5.61	62.10	(0.52)
200302	Delaney Pop-off	6.23	13.40	5.71	62.10	(0.52)
200303	Delaney Pop-off	7.43	26.60	7.73	72.00	0.30
200305	Delaney Pop-off	7.43	12.80	7.14	61.10	(0.29)
200306	Delaney Pop-off	3.01	13.40	2.85	62.20	(0.16)
200307	Delaney Pop-off	3.04	13.50	2.87	62.10	(0.17)
200308	Delaney Pop-off	3.06	13.50	2.89	62.10	(0.17)
200310	Delaney Pop-off	7.47	26.60	7.81	72.00	0.34
200311	Delaney Pop-off	7.47	26.60	7.81	72.00	0.34
200312	Delaney Pop-off	7.53	26.10	7.87	72.00	0.34
200313	Delaney Pop-off	7.54	26.10	7.87	71.90	0.33
200315	Delaney Pop-off	7.47	26.70	7.80	72.00	0.33
200319	Delaney Pop-off	7.46	27.30	7.80	72.00	0.34
200320	Delaney Pop-off	6.96	64.00	7.04	72.00	0.08
200330	Delaney Pop-off	8.86	15.90	9.09	65.10	0.23
200335	Delaney Pop-off	8.94	15.30	9.15	64.60	0.21
200340	Delaney Pop-off	4.30	13.40	3.77	61.50	(0.53)
200345	Delaney Pop-off	5.45	15.30	5.44	64.30	(0.01)
200346	Delaney Pop-off	5.47	16.00	5.51	64.80	0.04
200347	Delaney Pop-off	5.49	16.10	5.52	64.90	0.03
200350	Delaney Pop-off	5.52	15.10	5.50	64.30	(0.02)
210000	Delaney Creek	1.60	0.00	1.60	0.00	0.00
210005	Delaney Creek	5.24	18.60	5.65	67.10	0.41
210010	Delaney Creek	5.49	18.50	5.89	67.10	0.40
210015	Delaney Creek	5.50	18.50	5.89	67.10	0.39
210020	Delaney Creek	5.61	18.30	6.01	66.90	0.40
210021	Delaney Creek	5.62	18.60	6.01	67.10	0.39
210022	Delaney Creek	5.61	19.20	6.01	67.10	0.40
210025	Delaney Creek	5.51	18.60	5.90	67.20	0.39
210030	Delaney Creek	5.97	17.20	6.32	66.10	0.35
210040	Delaney Creek	7.74	16.10	7.95	65.10	0.21
210045	Delaney Creek	7.76	16.60	7.98	65.50	0.22
210050	Delaney Creek	8.28	15.80	8.47	64.70	0.19
210055	Delaney Creek	7.77	16.70	7.99	65.60	0.22
210060	Delaney Creek	10.25	15.60	10.39	64.40	0.14

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
230160	Delaney Creek	33.26	45.30	35.89	72.00	2.63
230170	Delaney Creek	33.94	32.30	35.92	72.00	1.98
230175	Delaney Creek	35.67	23.30	37.04	63.60	1.37
230177	Delaney Creek	40.13	13.00	39.87	61.20	(0.26)
230178	Delaney Creek	37.87	14.30	38.18	63.80	0.31
230179	Delaney Creek	41.41	12.70	41.17	61.00	(0.24)
230180	Delaney Creek	35.69	23.20	37.20	63.50	1.51
230185	Delaney Creek	35.66	25.20	36.39	67.60	0.73
230186	Delaney Creek	35.70	23.20	37.25	63.40	1.55
230190	Delaney Creek	39.26	15.10	39.81	61.30	0.55
230195	Delaney Creek	45.97	13.50	46.00	61.60	0.03
230196	Delaney Creek	46.26	12.90	46.17	61.20	(0.09)
230197	Delaney Creek	52.89	13.10	52.59	61.30	(0.30)
230200	Delaney Creek	49.85	25.80	50.80	65.30	0.95
231000	Delaney Creek	33.52	13.80	33.55	62.80	0.03
231001	Delaney Creek	33.55	13.80	33.57	62.80	0.02
233000	Delaney Creek	43.73	24.80	44.15	63.80	0.42
233010	Delaney Creek	38.69	25.60	42.36	72.00	3.67
233015	Delaney Creek	38.69	25.60	42.36	72.00	3.67
234000	Delaney Creek	37.71	15.50	38.40	62.70	0.69
240000	Delaney Pop-off	1.60	0.00	1.60	0.00	0.00
240010	Delaney Pop-off	3.90	13.60	3.94	62.30	0.04
240020	Delaney Pop-off	4.25	14.00	4.45	63.50	0.20
240030	Delaney Pop-off	4.47	16.40	4.70	64.30	0.23
240040	Delaney Pop-off	4.90	16.50	5.22	64.50	0.32
240050	Delaney Pop-off	5.58	16.40	5.87	64.60	0.29
240060	Delaney Pop-off	6.72	16.40	7.08	64.70	0.36
240070	Delaney Pop-off	7.09	16.40	7.49	64.70	0.40
240080	Delaney Pop-off	7.16	16.30	7.55	64.70	0.39
240085	Delaney Pop-off	6.19	26.30	7.12	70.70	0.93
240090	Delaney Pop-off	7.40	16.10	7.78	64.50	0.38
240100	Delaney Pop-off	7.71	15.80	8.10	64.30	0.39
240110	Delaney Pop-off	9.01	14.40	9.34	63.30	0.33
240115	Delaney Pop-off	9.40	14.20	9.68	63.10	0.28
240120	Delaney Pop-off	10.02	14.00	10.27	62.70	0.25
240130	Delaney Pop-off	10.42	14.00	10.65	62.70	0.23
240135	Delaney Pop-off	10.51	14.00	10.71	62.60	0.20
240140	Delaney Pop-off	10.64	14.10	10.89	62.80	0.25

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
252000	Delaney Pop-off	28.93	18.10	29.27	67.60	0.34
252020	Delaney Pop-off	28.93	18.40	29.26	67.80	0.33
252025	Delaney Pop-off	29.20	12.90	29.27	67.90	0.07
252030	Delaney Pop-off	28.93	18.60	29.24	67.40	0.31
252040	Delaney Pop-off	29.01	15.00	29.24	67.30	0.23
252050	Delaney Pop-off	29.10	14.40	29.24	67.40	0.14
252051	Delaney Pop-off	28.61	25.40	29.15	72.00	0.54
252052	Delaney Pop-off	28.61	34.40	29.15	72.00	0.54
252053	Delaney Pop-off	28.61	32.90	29.15	72.00	0.54
252054	Delaney Pop-off	28.74	13.90	29.15	72.00	0.41
252055	Delaney Pop-off	29.74	25.10	30.26	72.00	0.52
252060	Delaney Pop-off	29.39	14.00	29.31	62.80	(0.08)
252065	Delaney Pop-off	29.96	12.80	30.26	72.00	0.30
252500	Delaney Pop-off	29.01	15.00	29.24	67.50	0.23
252505	Delaney Pop-off	69.10	14.00	60.00	63.20	(9.10)
252510	Delaney Pop-off	29.01	15.00	29.24	67.80	0.23
253000	Delaney Pop-off	28.89	19.70	29.27	67.80	0.38
253005	Delaney Pop-off	29.49	12.90	29.27	67.30	(0.22)
253010	Delaney Pop-off	28.88	19.70	29.26	67.40	0.38
253015	Delaney Pop-off	31.79	12.80	30.13	63.30	(1.66)
253020	Delaney Pop-off	28.88	19.50	29.26	67.40	0.38
253025	Delaney Pop-off	32.65	12.70	31.09	61.20	(1.56)
254000	Delaney Pop-off	29.51	17.40	29.98	65.80	0.47
254010	Delaney Pop-off	29.55	18.20	30.00	66.40	0.45
254020	Delaney Pop-off	29.55	18.10	30.00	66.40	0.45
254030	Delaney Pop-off	29.99	12.60	30.01	66.40	0.02
254040	Delaney Pop-off	30.77	12.50	30.01	66.20	(0.76)
254050	Delaney Pop-off	31.20	12.50	30.67	60.80	(0.53)
260000	North Archie Creek	1.60	0.00	1.60	0.00	0.00
260010	North Archie Creek	3.54	28.40	3.76	72.00	0.22
260020	North Archie Creek	3.83	28.40	4.08	72.00	0.25
260030	North Archie Creek	4.09	28.30	4.35	72.00	0.26
260040	North Archie Creek	4.45	27.70	4.83	72.00	0.38
260050	North Archie Creek	4.96	27.20	5.35	72.00	0.39
260060	North Archie Creek	5.92	26.60	6.75	72.00	0.83
260065	North Archie Creek	6.01	26.40	6.81	72.00	0.80
260070	North Archie Creek	6.56	27.00	7.31	72.00	0.75
260080	North Archie Creek	7.09	27.10	7.65	72.00	0.56

Table 6-4 Comparison of Peak WSEL for the 100-Year, 1-Day and 100-Year, 5-Day Events

Model Junction ID	Subwatershed	100-Year, 1-Day Peak WSEL (ft NAVD)	100-Year, 1-Day Time to Peak (Hr)	100-Year, 5-Day Peak WSEL (ft NAVD)	100-Year, 5-Day Time to Peak (Hr)	Z5D - Z1D (ft)
280003	Archie Creek	1.93	13.70	1.84	62.40	(0.09)
280004	Archie Creek	3.98	13.00	3.10	61.40	(0.88)
280005	Archie Creek	1.77	24.80	1.84	70.30	0.07
280006	Archie Creek	1.60	0.00	1.60	0.00	0.00
280007	Archie Creek	2.89	21.30	3.05	69.80	0.16
280008	Archie Creek	3.23	21.30	3.40	69.80	0.17
280009	Archie Creek	8.60	25.00	9.96	72.00	1.36
280010	Archie Creek	3.55	21.30	3.72	69.80	0.17
280012	Archie Creek	170.64	25.00	171.29	72.00	0.65
280015	Archie Creek	3.86	21.30	4.07	69.80	0.21
280020	Archie Creek	4.16	21.30	4.37	69.80	0.21
280030	Archie Creek	4.46	21.30	4.72	69.80	0.26
280035	Archie Creek	6.56	20.70	7.15	69.30	0.59
280040	Archie Creek	6.56	20.70	7.14	69.30	0.58
280041	Archie Creek	7.19	20.00	7.82	68.80	0.63
280042	Archie Creek	7.66	19.70	8.54	68.40	0.88
280043	Archie Creek	7.72	19.60	8.59	68.40	0.87
280044	Archie Creek	8.05	19.40	8.91	68.20	0.86
280047	Archie Creek	8.21	19.20	9.03	68.00	0.82
280050	Archie Creek	6.54	20.70	7.11	69.70	0.57
280055	Archie Creek	6.54	20.80	7.11	69.90	0.57
280060	Archie Creek	6.54	20.80	7.11	69.80	0.57
280066	Archie Creek	11.00	25.00	11.40	72.00	0.40
280067	Archie Creek	11.00	25.00	11.39	72.00	0.39
280068	Archie Creek	11.00	25.00	11.39	72.00	0.39
280069	Archie Creek	11.02	25.00	11.42	72.00	0.40
280070	Archie Creek	10.98	25.00	11.36	72.00	0.38
280071	Archie Creek	10.98	25.00	11.36	72.00	0.38
280072	Archie Creek	11.29	25.00	11.81	72.00	0.52
280080	Archie Creek	9.94	13.10	9.35	62.00	(0.59)
280081	Archie Creek	111.07	25.00	111.52	72.00	0.45
280085	Archie Creek	8.30	18.90	9.08	67.90	0.78
280086	Archie Creek	8.86	17.60	9.61	67.10	0.75
280088	Archie Creek	10.05	18.50	10.87	66.90	0.82
280089	Archie Creek	10.99	18.80	11.74	66.70	0.75
280100	Archie Creek	8.74	12.60	9.09	68.00	0.35
280104	Archie Creek	8.86	17.60	9.61	67.10	0.75
280105	Archie Creek	8.87	17.60	9.62	67.10	0.75

APPENDIX D

Historical District 7 Drainage Maps

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	2

State Job No. 10060-1208

BEGIN PROJECT
STA. 1002+26.10
Begin 4 Lane Constr.

Sta. 1020+30.5
End 4 Lane
Begin 2 Lane Const.

Equation PT Sta 1034+11.15 Back
= Sta. 63+04.96 Ahead

Const. 15" Pipe
Sta. 1034+00
Const. Type C Inlet & Endwall
Rt. El. 5.4 -Lt., El. 5.3 -Rt

Sta. 1011+50
Const. 30" Pipe Culv.
Fl. El. 2.1 Lt
Fl. El. 1.9 Rt

Sta. 1030+06
Const. 8'x3' Box Culv.
Rt. El. 3.32 Lt
Rt. El. 2.50 Lt

H.W. 4.0

Tidewater Ditch 13' Bottom 28' Top Canal

Cleared Sandy Land

Note: During Rainy Season water will flow from West to East

Natural Stream Bed

20'x28' Conc. C.B.
Top Inlet = 7.38
Inlet No. = 4.38
Inlet So. = 4.28
Bottom C.B. = 4.83

20'x28' Conc. C.B.
Top Inlet = 7.12
Fl. Inlet No. = 4.15
Fl. Inlet So. = 4.12
Bottom C.B. = 4.13

18" Conc. P. Fl. = 2.54

18" Conc. Fl. = 4.10

42"x48" Conc. C.B. Top Inlet = 5.79
Inlet No. = 3.12
Inlet So. = 3.12
Outlet E. = 3.08 Bottom C.B. = 3.02

18" Conc. P. Fl. El. = 3.93

D.A. 11.1 Ac.

30"x30" Conc. C.B.
Top Inlet = 5.65
Inlet No. = 3.4 Inlet W. = 3.40
Bottom C.B. = 3.83

18" Conc. Fl. = 4.40

D.A. 1.8 Ac.

30" Conc. Fl. = 2.4

24" Conc. x Dr.
Fl. W. = 2.67 Fl. E. = 2.57

D.A. 2.2 Ac.

24" Conc. Fl. = 4.09

18" Conc. Fl. = 4.32

30" Conc. Fl. = 4.21

D.A. 2.7 Ac.

D.A. 13.9 Ac.

30" Conc. P.
Fl. E. End = 2.86
Fl. W. End = 2.63

2.86

Palm Flat

43"x27" C.M.P.
Fl. No. End = 1.33
Fl. So. End = 1.25

C.R.R. Borrow Pit

End 4 Lane
Begin 2 Lane

4.30" Conc. P. Fl. = 2.25

8'x3' Conc. Box Culv.
Fl. E. = 2.91 Fl. W. = 2.57
H.W. = 5.7 June 1934

2-36" Conc. P. Fl. El. = 4.52

36" Conc. P. Fl. El. = 3.73

10'x4' Conc. Culv.
Fl. El. = 4.3

P.T. STA. 1031 + 10.59
Δ = 6° 01' Lt.
D = 1° 00'
T = 301.11
L = 601.67
R = 5729.58
P.C. = STA. 1028 + 09.48
P.T. = STA. 1034 + 11.15 BACK =
STA. 63 + 04.96 AHEAD

P.T. EQUATION
1034 + 11.15 Back
63 + 04.96 Ahead

Project Survey ℄

℄ Proposed Road

Shell Rd.

Old Rd.

RIVER

ALAFIA

Scale 1" = 200'

BEGIN PROJECT
STA. 1002+26.10
BEGIN 4 Lane

1/4

4-3

10060-1208 1 of 4

10060-208

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	3

State Job No. 10060-208

Equation PT Sta 1032+11.15 Back = Sta 63+04.96 Ahead

Sta 157+00 End 2 Lane Begin 4 lane Const

Sta 96+53 Const Trip 10'x6' Box Culv't Ext Ef & Lt. F.L. El.=1.54

Sta 118+46 Const Trip 10'x6' Box Culv't Ext Ef & Lt. F.L. El.=1.54

Sta 138+73.71 Const Obl 10'x6' Box Culv't (30° Skew Rt.) Ext Ef & Lt. Fl. El.=1.00± Fl. El.=1.63±

MATCH LINE

Scale 1"=1000 Ft.

2'x2' Conc box Culv. Fl.=1.83 E. Fl.=1.25 W. E. Road=8.99 N.H.W. 4.0 E.H.W. 6.8

Double 9.4'x5.0' box Culv. Fl.=1.27 E. Road=9.14 PWL=0.51 10-22-56 N.H.W.=4.0 E.H.W.=6.0

3 Span Timber Trustle 64 Sq. Ft. Opening H.W. El.=5.7 June 1934 Fl.=2.5 Top Rail=7.76

3-10'x6' Conc. box Culv. Fl.=1.54 N.H.W.=4.0 E.H.W.=6.8

4 Span Timber Trustle Fl.=3.0 Top Rail=7.47 178 Sq. Ft. Opening N.H.W.=4.0 E.H.W.=6.0

3-10'x6' Conc. box Culv. Fl.=1.54 N.H.W.=4.0 E.H.W.=6.0

Note Equation PT Sta 1034+11.15 Back = Sta 63+04.96 Ahead

U.S. Phosphoric Plant

24" Conc. Fl. N.=4.15 Fl. S.=4.27

36" Pipe Fl. El.=2.72

10' Conc. Bridge 140 Sq. Ft. Opening Fl. El.=0.7

Paved Road

ALAFIA RIVER

10 Ft. Concrete Bridge 70 Sq. Ft. Opening Fl. El.=1.59

Double 12'x5' Conc. Box Fl El.=0.54 120 Sq. Ft. Opening

3-48" Conc. Pipes Fl.=1.09 PWL 0.66 10-29-56 Top Rail=8.67 H.W.=6.0

2-36" Pipes Fl. El.=0.4

Note: This canal will connect drainage areas at flood times

58"x36" CMP Arch P H.W. 12.3 Fl. El.=1.93

16' Timber Bridge 88 Sq. Ft. Opening Fl. El.=1.39

2-7'x5' Conc. Box Fl. El.=1.59 H.W. El.=6.7 June 1934

2-36" Conc. Pipes Fl. El.=3.52

10' Concrete Bridge 32 Sq. Ft. Opening Fl. El.=4.3

D.A. 334 Ac.

Natural Stream Bed

2-43"x27" CMP H.W. 12.0 Fl. El.=9.5

2-24" Pipe Fl. El.=10.1

5'x3' Culvert Fl. El.=10.1

Grass Pond

Improved Pasture

Pine & Pal.

D.A. 1841 Ac.

D.A. 2874 Ac.

D.A. 2481 Ac.

2-65'x40" CMP Arch P H.W. 10.8 Fl. El.=7.3

58"x36" CMP Arch P Fl. El.=11.0 H.W. 14.0

14"x10.5" CMP Arch P H.W. 17.6 Fl. El.=7.1

Note This canal will connect drainage areas at flood times.

W.W. Pond

W.W. Area

Improved Flatwoods Land

Cypress Pond

Note This bridge will connect drainage areas at flood time

2-20' Span Conc. Bridge 160 Sq. Ft. Opening Fl. El.=2.5 H.W. 30.0

12" Conc. Bridge 84 Sq. Ft. Opening Fl. El.=21.9 H.W. 25.9

5'x3' Culvert Fl. El.=29.0

18" Conc. Pipe Fl. El.=31.5

2-24" Conc. Pipes Fl. El.=30.8

10'x3' Culvert Fl. El.=27.8

18" Pipe Fl. El.=33.5

18" Pipe Fl. El.=33.7

Range 19 East Range 20 East

Twp 29 South Twp 30 South

15' Canal, 12' Canal, 6' Canal, 3' Ditch, 5' Ditch, 14' Canal, 8' Canal, 10' Canal, 18' Canal

2/4

46

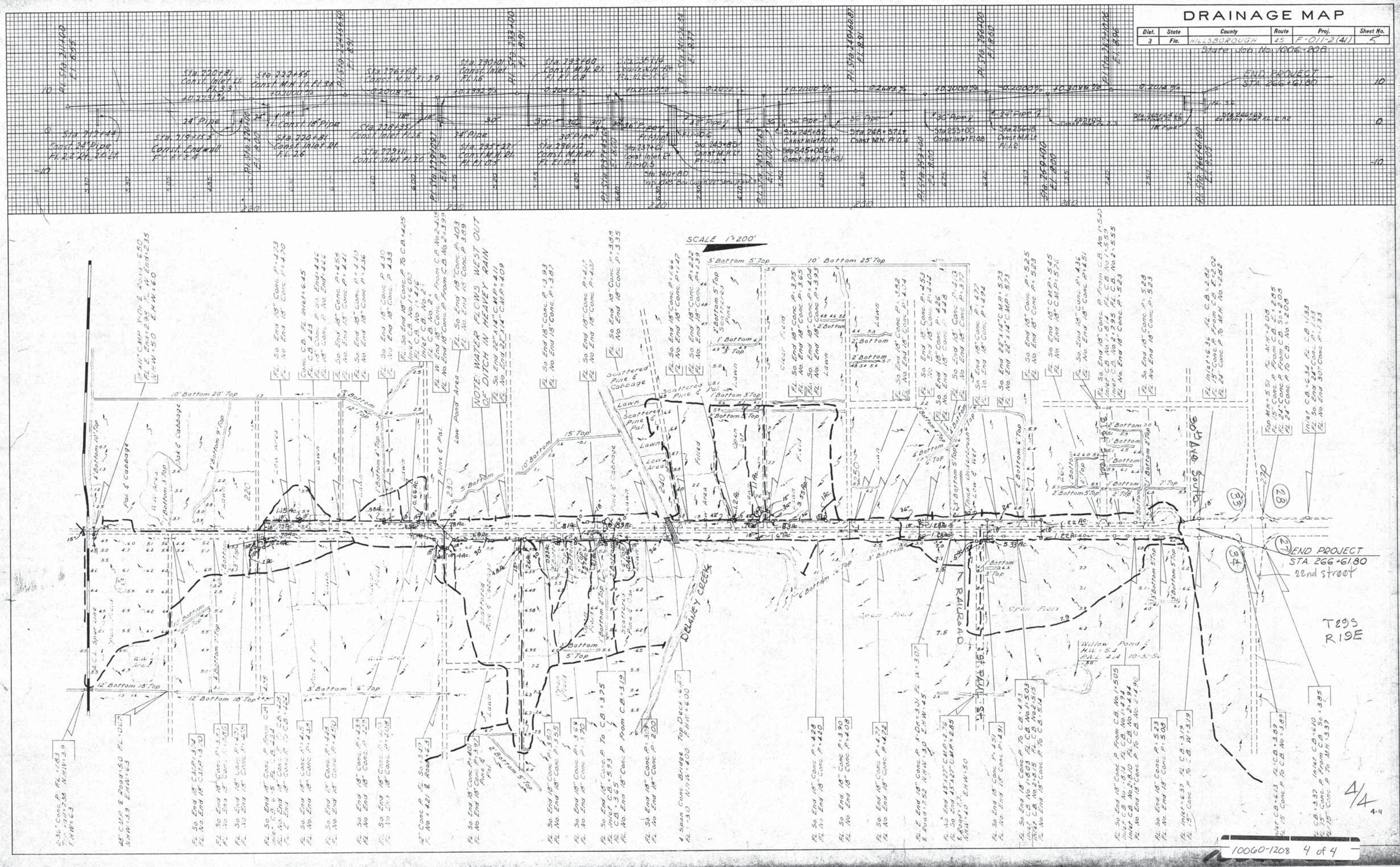
10060-1208 2 of 4

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-2(41)	4

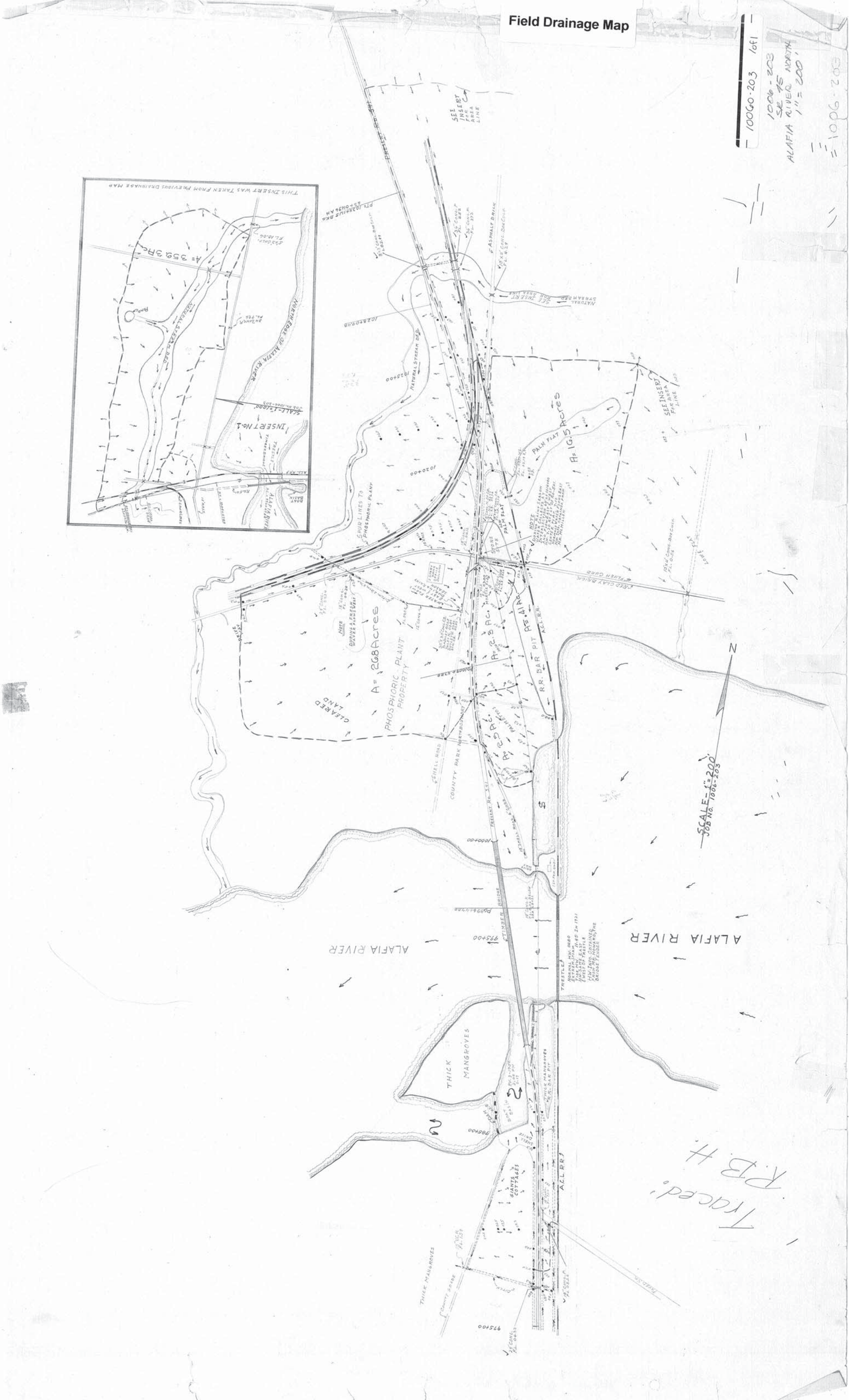
State Job No. 10060-1208





DRAINAGE MAP
Dist. 3 | State Fla. | County HILLSBOROUGH | Route 45 | Proj. F-011-2(41) | Sheet No. 5
State Job No. 1006-208
END PROJECT STA. 266+61.80
SCALE 1"=200'
NOTE: WATER FLOWS WEST OUT OF DITCH IN HEAVEY RAIN
DELANEY CREEK
RAILROAD
22nd street
T29S R19E
4/4
10060-1208 4 of 4

Field Drainage Map



DRAINAGE MAP

Dist.	State	County	Route	Proj	Sheet No.
7	Fla.	Hillsborough	45	F-011-2(44)	2

State Job No 10060-3212

BEGIN 2-LANE HWY.
BEGIN PROJECT
STA. 737+05.21

BEGIN CONSTRUCTION
STA. 722+69.03

Sta. 725+14
CONST. DBL. 30" P.
F.L. El. Lt. 6.9; Rt. 7.1
(22° Skew Rt.)

Sta. 742+37
Const. 10'x4' Box Culv't. Ext.
F.L. El. 3.6

Sta. 755+59
Const. 36" Pipe Culv't.
F.L. El. Lt. 5.0; Rt. 5.2

Sta. 766+80
Const. 36" Pipe Culv't.
F.L. El. Lt. 3.7; Rt. 3.9

Sta. 782+65.5
Const. 36" Pipe Culv't.
F.L. El. Lt. 3.4; Rt. 3.6

Sta. 802+33
Const. 10'x4' Box Culv't. Ext.
F.L. El. Lt. 1.4

Sta. 844+26.5
Const. DBL. 10'x5' Box Culv't. Ext.
F.L. El. Lt. (-) 2.1

Sta. 848+37 Const.
10'x5' Box Culv't. Ext.
F.L. El. Lt. (-) 2.0

Sta. 874+10 Const. (22° Skew Rt.)
10'x8' Box Culv't.
F.L. El. Lt. & Rt. (-) 4.5

Sta. 894+51.3 Const.
36" Pipe Culvert
F.L. Lt. 2.4; Rt. 3.0

P.I. (4.00) El. 12.10
P.I. (4.00) El. 11.10
P.I. (4.00) El. 9.40
P.I. (4.00) El. 9.60
P.I. (4.00) El. 8.90
P.I. (4.00) El. 9.60
P.I. (4.00) El. 9.10
P.I. (4.00) El. 8.50
P.I. (4.00) El. 7.60
P.I. (4.50) El. 6.40
Prop. 21.85' Ext. Prop. Roadway
P.I. (4.00) El. 6.40
P.I. (4.00) El. 6.60
P.I. (4.00) El. 7.40
P.I. (4.50) El. 7.40
P.I. (4.00) El. 9.30
P.I. (4.50) El. 7.40
P.I. (4.50) El. 7.87

STA. 916+02.5
PROP. 202.50' CONC. BR.
STA. 918+05
END 2 LANE HWY.
BEGIN 4 LANE HWY.
STA. 918+42.50

8.82
E.H.W. 6.0
N.H.W. 4.0

SEE DRAINAGE MAP
SHEET NO. 3

END 4-LANE HWY.
END PROJECT
STA. 984+84.50

BEGIN 2 LANE HWY.
BEGIN PROJECT
STA. 737+05.21

BEGIN CONST.
STA. 722+69.03

1" = 1000'

10'x4' Conc. Box Culv't.
F.L. Rt. 6.23
F.L. Lt. 5.87
H.W. 8.8

10'x3' Box Culv't H.W. 6.0
F.L. Rt. 4.40, F.L. Lt. 3.88

10'x3.6' Box Culv't
F.L. Rt. 3.44, F.L. Lt. 3.40
H.W. 5.7

10'x4.25' Box Culv't. H.W. 7.5
F.L. Rt. 4.70, F.L. Lt. 4.71

10'x4' Box Culv't
F.L. Rt. 4.37, F.L. Lt. 4.23
H.W. 6.3

10'x4.6' Box Culv't
F.L. Rt. -1.52, F.L. Lt. -1.56
N.H.W. 4.0, E.H.W. 6.0

10'x8' Box Culv't
F.L. Rt. -2.89, F.L. Lt. -2.75
N.H.W. 4.0, E.H.W. 6.0

Dbl. 10'x4.6' Box Culv't
F.L. Rt. 4.15, F.L. Lt. 4.21
H.W. 4.0

BR. CULVT. SEE PROFILE

36" R.C.P.
F.L. Rt. 8.98
F.L. Lt. 9.27
H.W. 13.0

36" R.C.P.
F.L. Rt. 10.06
F.L. Lt. 9.27

36" R.C.P.
F.L. Rt. 9.46
F.L. Lt. 9.33
H.W. 12.5

36" R.C.P.
F.L. Rt. 8.23
F.L. Lt. 7.45

42"x27" C.M.P.

42" C.M.P.

58"x36" C.M.P.

24" Conc.

318 Ac.

35.6 Ac.

66.0 Ac.

57 Ac.

Fish Hatchery Ponds

Wooden Bridge

Rock Dam

Jackson Branch

Simms Branch

Adamsville

Tide Water South Canal

Gardenville

Bullfrog Creek

Tide N.H.W. E.H.W.

Tide Kitchens

T31S R19E

T30S R19E

Marsh Park Area

Bike Bridge

Fowell Rd.

Fowler Rd.

Tucker Rd.

Gibsonton

Atlantic Coast Line R.R.

Alafia River

Minnow Ponds

Note: High Water Elevation Was Determined By Field Evidence And Information Received From Local Citizens, February 1958. Information on High Water Elev. on R.R. Structures Received from H.H. Smith, Section Foreman A.C.L. R.R. Palm River. 7-16-58 Latest H.W. Storm 1950

H.W. 12.9
36" Conc. Pipe F.L. 9.85

H.W. 12.9
36" Conc. Pipe F.L. 7.73

36" Conc. Pipe F.L. 8.27
H.W. 11.3

36" Conc. Pipe
F.L. Rt. 9.93, F.L. Lt. 8.71
H.W. 12.9

24" Conc. Pipe
H.W. 12.3
24" Conc. Pipe F.L. 9.77

H.W. 12.3
24" Conc. Pipe F.L. 9.80

H.W. 13.1
24" Conc. Pipe F.L. 10.55

H.W. 12.9
24" Conc. Pipe F.L. 10.94

H.W. 13.7
24" Conc. Pipe F.L. 11.66

H.W. 12.8
30" Conc. Pipe F.L. 10.32

H.W. 14.0
24" Conc. Pipe F.L. 12.05

H.W. 11.7
24" Conc. Pipe F.L. 8.67

H.W. 10.7
24" Conc. Pipe F.L. 8.68

24" Conc. Pipe

58"x36" C.M.P.

24" Conc. Pipe

36" Conc. Pipe F.L. 8.67
H.W. 11.7

24" Conc. Pipe F.L. 8.68
H.W. 10.7

24" Conc. Pipe

77"x57" C.M.P.

Wooden Bridge

1167 Ac.

284 Ac.

24" Conc. Pipe

36" C.M.P.

3-54" Conc. Pipes
F.L. 0.87 H.W. 6.4

36" Conc. Pipe
F.L. 4.73
H.W. 7.7

3-48" Conc. Pipes
F.L. (-) 0.65 H.W. 3.3

36"x24" C.M.P.

44"x28" C.M.P.

AREA of OPENING
902 SQ. FT.
74"x46" C.M.P.

17 Ac.

61.3 Ac.

PROP. OUTFALL DITCH
24" Conc. Pipe

44"x68" C.M.P.

10'x26' Box Culv't.
F.L. Rt. 4.16, F.L. Lt. 4.18
N.H.W. 6.2

24" Conc. Pipe
F.L. Rt. 4.47, F.L. Lt. 4.54
N.H.W. 5.9

36" Conc. Pipe
F.L. Rt. 3.63, F.L. Lt. 3.53
N.H.W. 5.6

5'x13' Box Culv't
"C" Canal

36"x22" C.M.P.

2-36" Conc. P.
F.L. 3.94
H.W. 6.9

24" Conc. P.
18" Conc. P.

48" C.M.P.

Consider a potential 425 Ac. overflow into Simms Branch

Drainage Divide

100' Conc. Bridge

Bullfrog Creek

50' Conc. Arch Bridge

SR 672

Big Bend Rd.

Gibsonton Rd.

Simms Rd.

Nandy Rd.

END 2 LANE HIGHWAY
BEGIN 4 LANE HIGHWAY
STA. 918+42.50

FOR DETAILS SEE DRAINAGE MAP SHEET NO. 3

CURVE NO. 1
P.I. 831+09.25
Δ = 14°33'-10" RT.
D = 1° 24'
T = 522.86
L = 1040.08
R = 4092.56
P.C. 825+86.39
P.T. 836+26.47

CURVE NO. 2
P.I. 858+31.47
Δ = 14°09'05" LT.
D = 1° 00'
T = 711.19'
L = 1415.14'
R = 5729.58'
P.C. 851+20.28
P.T. 865+35.42

CURVE NO. 3
P.I. 897+03.94
Δ = 1° 10' 00" LT.
D = 0°-06'
T = 583.35
L = 1166.67
R = 57,295.78
P.C. 891+20.59
P.T. 902+87.26

CURVE NO. 4
P.I. 928+98.30
Δ = 0°38'.45" RT.
D = 0°.03'
T = 645.84'
L = 1291.67
R = 114,591.56
P.C. 922+52.46
P.T. 935+44.13

CURVE NO. 5
P.I. 957+08.70
Δ = 9° 49' 20" LT.
D = 1° 00'
T = 492.32'
L = 982.22'
R = 5729.58'
P.C. 952+16.38
P.T. 961+98.60

10060-3212 1 of 2

DRAINAGE MAP

Dist.	State	County	Route	Proj.	Sheet No.
3	Fla.	Hillsborough	45	F-011-3(42)	3

State Job No. 10060-3212

Contd. Below

END 2-LANE BEGIN 4 LANE STA. 918+42.50

EXISTING GRADE

SCALE: 1" = 200'

935+44.35 BK = EQUATION 935+44.13 AHD.

BEGIN CURB & GUTTER

DROP OUTFALL DITCH

END 2 LANE BEGIN 4 LANE STA. 918+42.50

24" Conc. Pipe FL. N. 3.28, FL. S. 2.91

24" Conc. Pipe FL. N. 2.01, FL. S. 1.98

2-24" Conc. Pipes

2-36" Conc. P FL. 3.94, HW 6.9

END 4-LANE END PROJECT STA. 984+8450

STA. 985+44 CONST. ENDWALL LT. F.L. EL (-1.0)

STA. 984+70 CONST. M.H. LT. F.L. EL (-0.8)

STA. 981+48 CONST. INLET LT. F.L. EL 1.6

Pl. STA. 981+60 EL. 8.03

Pl. STA. 986+35 EL. 8.97

END 4-LANE END PROJECT STA. 984+8450

S-45

10060-3212 2 of 2

APPENDIX E

Agency Coordination

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:

PA 400801

Date:	1/22/2014
Time:	11:00
Project Name:	FDOT US 41 PD&E Study from south of Causeway to Kracker Ave.
Attendees:	Richard Alt; Chaz LaRiche; Andrew Goldsmith, American Consulting, agoldsmith@acp-fl.com; Michael Ryan, American Consulting, Christopher Salicco, American Consulting

County:	Hillsborough	**Sec/Twp/Rge:**	Multiple
Total Land Acreage:	159	**Project Acreage:**	159 acres

Prior On-Site/Off-Site Permit Activity:

- ERP – Researching

Project Overview:

- Widen from 4 lane to 6 lane
- Wetlands/Surface Waters – Yes
- FDOT ETDM 5180

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- Review the ETDM report for specific issues associated with the potential wetland/surface water issues
- Replacement of bridges over the rivers and creeks
- Provide the limits of jurisdictional wetlands.
- Provide appropriate mitigation using UMAM for impacts, if applicable.
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections.
- Eleven WBID's - 8 are impaired for nutrients
- Discharging to impaired waters.
- Need coordination with DEP on adjacent contaminated sites.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event if the pond does not discharge to an infinite basin. Or demonstrate no adverse impacts if attenuation is not provided.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase riverine flood stages up- or down-stream of the project area(s).
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable.

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- Provide water quality treatment for the required project area.
- In addition, if the project discharges to an impaired water body, must provide a net environmental improvement.
- Applicant must demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- Any work below the MHW line will require coordination with Tampa Port Authority

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to the FDOT.
- Provide proof of ownership in the form of a deed or contract for sale.
- Provide appropriate O&M instructions.
- Provide detailed construction surface water management plan.

Application Type and Fee Required:

- SWERP – Sections A, C and E of the ERP Application.
- < 640 acres of project area and <50 acres of wetland or surface water impacts - $3,106.00 Online Submittal

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

-

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SWFWMD PRE APPLICATION MEETING MINUTES

Meeting Date: January 22, 2014 **Date Issued:** January 22, 2014

Location: SWFWMD Tampa Office

Project Name: US 41 PD&E Study from Kracker Avenue to south of Causeway Blvd.

Purpose: To discuss stormwater management permitting criteria

Notes by: Michael Ryan **American Project #:** 5127041

Copies to: Attendees, Andrew Goldsmith, Christopher Salicco, File: 5127041.B.03, Bill Adams, Larry Weatherby

Attendees	Representing	Phone	Fax or e-mail
Richard Alt	SWFWMD	813-985-7481	Richard.alt@wattermaters.org
Chastity 'Chaz' LaRiche	SWFWMD	813-985-7481	Chaz.LaRiche@watermatters.org
Andrew Goldsmith	American Consulting Engineers	813-435-2602	agoldsmith@acp-fl.com
Michael Ryan	American Consulting Engineers	813-435-2623	mryan@acp-fl.com
Christopher Salicco	American Consulting Engineers	813-435-2617	csalicco@acp-fl.com

The following notes reflect our understanding of the discussions and decisions made at this meeting. If you have any questions, additions or comments, please contact us at the above address. We will consider the minutes to be accurate unless written notice is received within 10 working days of the date issued.

Water Quality Treatment:

Wet detention may not be sufficient and will only remove roughly 42% of nutrients. May require use of a treatment train with dry detention swale pretreatment. The governing water quality volume will be the greater of standard water quality (presumptive) or nutrient removal requirements.

If a WBID identifies no impairments for nutrients but is directly discharging to the impaired bay, then nutrient removal requirements will apply. The definition of directly connected is a gray area and engineering judgment should be used based on proximity to the bay. If the WBID identifies no impairments and is not within close proximity to be considered directly connected, such as WBIDs 1628A and 1632, then presumptive criteria will apply.

Compensatory treatment is allowable.

Water Quantity:

Open basin criteria. The design shall meet the 25-year 24-hour discharge attenuation, unless there exists a directly connected discharge to the bay (essentially an infinite basin). Engineering judgment will determine if the SWMF discharge is directly connected since there is no definitive definition of this. If a directly connected discharge is found to exist the 25-year attenuation criteria will not apply and the pond will be designed to release detained runoff as fast as possible. This could also apply to a SWMF located on the east side of the roadway if the SWMF discharges to a riverine system and is directly connected to the bay, the timing of the peak discharges between the onsite system and the riverine system will have to be evaluated to determine if 25-year attenuation criteria apply. For example, if the peak discharge from the onsite system occurs at hour 12 and the peak discharge from the riverine system occurs at hour 24, it will be assumed that the onsite system peak discharge will have no effect on the riverine system peak discharge.

Floodplain:

Richard Alt stated that the base flood elevations for Zone AE indicated on the FIRM are based on storm surge elevations and would not apply for floodplain encroachment estimates. Mr. Alt said to contact Dr. Sue for the riverine water surface profiles in the area. He stated that the riverine analysis used tailwaters of approximately 3 feet and the 100-year water surface profiles at U.S.41 would be significantly lower. He said that we should provide floodplain compensation based on flood elevations reported per the water surface profiles from Dr. Sue.

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:

PA 402518

Date:	8/19/2015
Time:	11:00
Project Name:	FDOT US41 S of Causeway to Kracker Ave
Attendees:	Richard Alt, Al Gagne, Andrew Goldsmith - American Consulting agoldsmith@acp-fl.com William Adams, Larry Weatherby

County:	Hillsborough	**Sec/Twp/Rge:**	
Total Land Acreage:	170	**Project Acreage:**	170 acres

Prior On-Site/Off-Site Permit Activity:

- 4 lane rural
- PA 400801, ETDM 5180

Project Overview:

- Expand to 6 lane urban and suburban

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- Project is located in both the Tampa Bay/Coastal Basin and the Alafia Basin. Impacts in the Alafia basin may be located within the service area for the Tampa Bay Mitigation Bank. Will need to verify this. If so, they may be able to use a connectivity argument to mitigate Alafia impacts at the Tampa Bay Mit Bank. Will need to submit a cumulative impact analysis using a connectivity argument for tidal systems.
- Provide the limits of jurisdictional wetlands.
- Provide appropriate mitigation using UMAM for impacts, if applicable.
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.
- If the project is located in a county which is listed as a coastal county under the Coastal Zone Management Act (CZM) and the project has wetland impacts, it will require a noticing period once the permit application is deemed complete. Wetland and/or surface waters impacts less than 1 acre in size will require a 10 day noticing period, prior to the issuance of the permit. Wetland and/or surface water impacts greater than 1 acre in size will require a 30 day noticing period, prior to the issuance of the permit. Permits could be issued as early as the 11th or 31st day, but staffs' schedule and workload will determine the actual issuance date.

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections –
- WBIDs need to be independently verified by the consultant - WBID – 1682,1676, 1666A, 1664, 1621G, 1628A, 1632, 1637, and 1636
- Discharging to impaired waters in some areas.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event. Only SMF 12/13 will need to attenuate, all others (as shown during the meeting) will not require attenuation.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase flood stages up- or down-stream of the project area(s).
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable.

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- Provide water quality treatment for the required project area.
- In addition, must provide a net environmental improvement.
- Applicant must demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- N/A. Tampa Port Authority owns the bottom lands in Hillsborough County. Will need to coordinate with EPC and the Tampa Port Authority.

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to the FDOT.
- Provide proof of ownership in the form of a deed or contract for sale.
- Provide appropriate O&M instructions.
- Provide detailed construction surface water management plan.

Application Type and Fee Required:

- SWERP – Sections A, C, and E of the ERP Application.
- < 640 acres of project area and < 50 acres of wetland or surface water impacts - $3,105.75

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

- In accordance with Rule 40D-1.603(2), F.A.C., no later than 30 days after submittal of an initial application of an Individual surface water management permit the applicant shall publish at the applicant's expense a notice of the District's receipt of the application in a newspaper having general circulation as defined in Chapter 50, F.S., in the county or counties in which the activity is proposed. Please provide documentation that such noticing has been accomplished. Note that the published notices of receipt for an ERP must be in accordance with the language provided in Rule 40D-1.603(10), F.A.C., and receipt of an affidavit establishing proof of this publication will be considered a completeness item of this ERP Application. Per Rule 40D-1.603(12), F.A.C., this must be received before the application will be considered complete and the 60-day timeframe for taking agency action on the application will commence.

  40D-1.603(12) – “Applicants required to publish a notice of receipt of application must provide to the District a publisher’s affidavit establishing proof of publication pursuant to Sections 50.041and 50.051, F.S., before the application will be considered complete and the applicable timeframe for taking agency action on the application will commence.”

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