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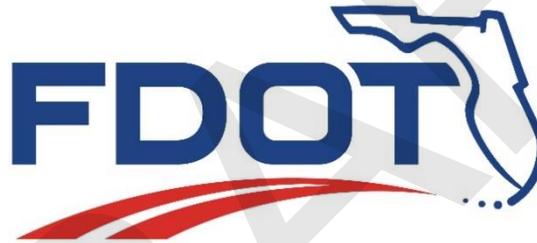
PRELIMINARY ENGINEERING REPORT

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

State Road 60 Grade Separation Over CSX Railroad

Polk County, Florida

Financial Project ID: 436559-1-22-01



This preliminary engineering report contains detailed engineering information that fulfills the purpose and need for SR 60 from 3,900 feet west of, to 2,700 feet east of the CSX railroad crossing #625419N, a distance of 6,600 feet (1.25 mile), within Polk County, Florida.

October 2016

Date

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Prepared for:



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October 2016

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SECTION 1.0

PROJECT SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate costs and impacts of constructing a new overpass to carry State Road (SR) 60 over the CSX railroad (milepost 25.544, crossing #625419N) approximately eleven (11) miles east of Bartow and four (4) miles west of Lake Wales in Polk County, Florida. The project location map (**Figure 1-1**) illustrates the location and limits of the study. The Design and permitting phase is overlapping with the PD&E phase to facilitate a quicker delivery process.

1.1. PROJECT DESCRIPTION

The PD&E study limits are SR 60 from 3,900 feet (ft) west of CSX railroad crossing #625419N to 2,700 ft east of the CSX railroad crossing #625419N, a distance of 6,600 ft (1.25 miles). The project is located within Section 01, Township 30 South, Range 26 East, and Section 6, Township 30 South, Range 27 East, within the Eloise United States Geological Survey (USGS) 7.5-minute (1:24,000) quad map and the USGS “Fort Pierce” 1 x 2 degree (1:250,000) topographic map. The project is a 1.25-mile-long segment of SR 60 that includes elevating the SR 60 roadway over the existing CSX railroad at-grade crossing. The roadway will be elevated using permanent retaining walls (i.e. MSE walls). Three new pairs of SR 60 bridge structures are proposed over the existing CSX railroad, over an existing underground petroleum pipeline, over a proposed frontage road, and over the Peace Creek Drainage Canal. The existing eastbound SR 60 bridge over the Peace Creek Drainage Canal will be rehabilitated and reused for frontage road access and the westbound bridge will be removed. Sidewalks, bicycle lanes, and three new frontage roads will be included in the improvements. Two off-site stormwater management facilities (SMFs) are proposed.

SR 60 is an existing four-lane divided rural arterial which is part of the State Highway System (SHS) and the Strategic Intermodal System (SIS). SR 60 is designated as an evacuation route by the Florida State Emergency Response Team, and is identified as an evacuation route in the Polk County Comprehensive Plan. SR 60 is classified by FDOT as a rural principal arterial – other. Existing land uses in the project area consist of transportation (highway and railroad right-of-way/ROW), agricultural (passive and active); vacant (residential and non-residential), public/semi-public utility ROW, light commercial, light industrial and limited single-family residential. The Access Classification is Access Class 3. There are no connecting roads within the project area, but access to SR 60 from adjacent properties is currently provided by driveway connections. In addition to the proposed bridges over the CSX railroad, new bridges will be provided over the Peace Creek Drainage Canal, west of the railroad. While the purpose and need for this project is not to add capacity, an ultimate six-lane facility for the bridge structures was evaluated in order to accommodate future widening along SR 60, eliminate the future need to

Figure 1-1: Project Location Map



	<p>SR 60 Grade Separation over CSX Railroad Polk County, Florida</p> <p>Financial Project ID: 436559-1-22-01</p>	
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reconstruct the bridges and minimize the potential for multiple ROW acquisitions from the same property owners.

1.2. PURPOSE AND NEED

The purpose of the project is to replace the existing SR 60 at-grade railroad crossing with a grade separation. The need for the project is not based on the need for additional capacity. It is based on improving safety; to provide a grade separation of the railroad crossing to separate vehicle traffic from the train traffic. The project will also reduce travel delays by removing the need to stop traffic for trains. The purpose of the PD&E study is to provide documented environmental and engineering analyses to assist the FDOT in reaching a decision on the location and conceptual design of the new railroad overpass and associated improvements in order to accommodate future traffic demand in a safe and efficient manner. This PD&E study satisfies the FDOT requirements and follows the process outlined in the FDOT *Project Development and Environment Manual, Part 1 Chapter 10: State, Local, or Privately Funded Projects*.

This PD&E study documents the need for the improvements and presents the procedures utilized to develop and evaluate the overpass concept. Information relating to the engineering, environmental, and social characteristics essential for development of the railroad overpass concept was collected. Design criteria were established and a preliminary alternative was developed. The evaluation of the overpass concept was based on a variety of parameters utilizing a matrix format. This process identifies the Recommended Alternative that minimizes the socio-cultural, economic, natural, and physical impacts while providing the necessary future transportation improvements. The study also solicits input from the community and users of the facility. The design year for the analysis is 2040.

1.3. COMMITMENTS

FDOT has made the following commitments:

- 1) The USFWS' August 2013 Standard Protection Measures for the Eastern Indigo Snake will be adhered to throughout project construction.
- 2) Due to the presence of active gopher tortoise burrows within and adjacent to the project footprint, a gopher tortoise survey within construction limits (including roadway footprint, construction staging areas, and stormwater management ponds) will be performed prior to construction commencement per FWC's Gopher Tortoise Permitting Guidelines. The FDOT will secure an FWC relocation permit and relocate gopher tortoises to an approved long-term, recipient site prior to construction. If present, commensal species will be handled in accordance with the FWC's Gopher Tortoise Permitting Guidelines.
- 3) The FDOT commits to resurvey the project area for Sherman's fox squirrels, bald eagles, ospreys, Florida sandhill cranes and Southeastern American kestrels prior to construction

commencement. If active nests are observed, the FDOT will coordinate with FWC and USFWS (as necessary) to secure proper permits concerning these species.

- 4) Level II testing identified soil, immediately adjacent to the east of the CSX Railway corridor that exhibits elevated levels of arsenic and polycyclic aromatic hydrocarbons. The contaminant concentrations are above their respective Residential Direct Exposure Soil Cleanup Target Levels, but below the Commercial/Industrial Soil Cleanup Target Levels (Table II of Chapter 62-777, Florida Administrative Code). As such, soil in this area will be marked in the Final Design Plans as “contaminated.” Soil from this marked area will either remain within the project limits or be properly transported for disposal at an appropriately licensed facility.

1.4. DESCRIPTION OF RECOMMENDED ALTERNATIVE

As discussed in Section 5.1 of this document, the No-Build Alternative has been evaluated. This alternative would not construct the SR 60 grade separation and would leave the existing roadway in its current configuration. Although, the No-Build Alternative option fails to fulfill the project’s purpose and need to improve safety or reduce travel delay at the railroad crossing, it remains a viable alternative throughout the PD&E study.

While the Build Alternative (SR 60 grade separation) has costs associated with design, ROW acquisition, and construction, it would result in a four-lane facility that meets established Level of Service (LOS) standards while safely accommodating expected future traffic growth. Therefore, the Build Alternative has been selected as the Recommended Alternative. Following the Public Hearing and once approved by the FDOT, the Recommended Alternative may become the Preferred Alternative.

SECTION 2.0

EXISTING CONDITIONS

2.1. EXISTING TYPICAL SECTIONS

SR 60 is a four-lane divided rural roadway within the study area as shown in **Figure 2-1**. Two 12-ft lanes, an 8-ft inside shoulder and a 10-ft outside shoulder (5-ft paved) are provided in each direction, separated by a 40-ft depressed, grassed median. Exclusive right turn lanes are provided at the median openings serving C&J Trucking, Peterson Industries and the former International Paper property. No sidewalks are present. Bicyclists are accommodated on the 5-ft paved outside shoulders. The existing westbound roadway is crowned in the center, whereas the eastbound roadway slopes to the outside.

2.2. EXISTING RIGHT OF WAY

The typical existing controlled access right of way (ROW) width varies, typically 182 ft wide; however, some wider areas exist throughout the study area, up to 232 ft wide. Existing ROW lines are illustrated with width dimensions on the preliminary conceptual design plans for the Build Alternative Concept Plans included in **Appendix A**. Property lines, specific land uses, and other features along the corridor are also illustrated on the Concept Plans.

2.3. ROADWAY CLASSIFICATIONS AND DESIGNATIONS

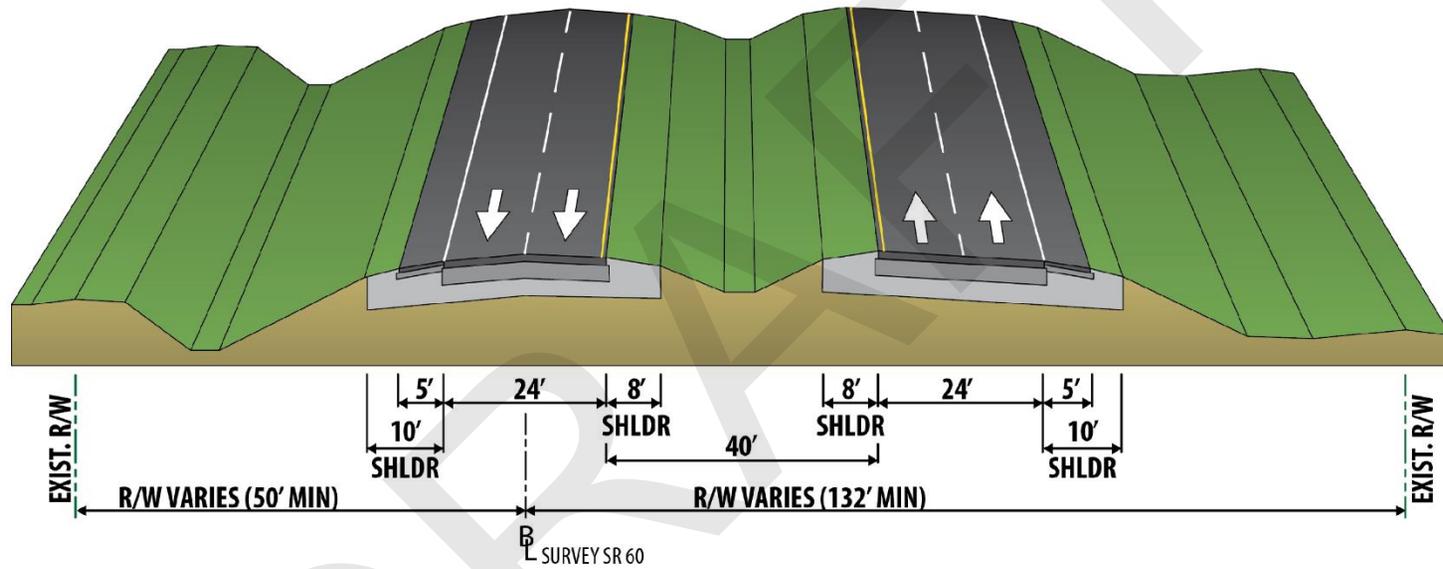
SR 60 is part of the State Highway System (SHS) and SIS and has a Functional Classification of Rural Principal Arterial - Other. There are no grade separations along the project. The facility's access management classification is Access Class 3, Restrictive. In addition, the entire length of SR 60 within Polk County has been designated as a hurricane evacuation route by the Florida State Emergency Response Team (SERT), and is identified as an evacuation route in the Polk County Comprehensive Plan¹.

2.4. HORIZONTAL AND VERTICAL ALIGNMENT

The existing horizontal alignment was derived from the Resurfacing plans (FPID 425248-1-52-01). The project is on a tangent at bearing S 71° 57' 41" E

The existing vertical alignment was obtained from the same resurfacing plans. The project area is flat with elevations along the roadway profile grade line ranging between elevations 116 and 118 ft above sea level.

Figure 2-1: Existing SR 60 Mainline Roadway Typical Section



SR 60 Grade Separation over CSX Railroad
Polk County, Florida

Financial Project ID's: 436559-1-22-01



Existing Typical Section



2.5. PEDESTRIAN AND BICYCLE ACCOMMODATIONS

There are no sidewalks within the study area. Bicyclists are accommodated on the 5-ft paved outside shoulders. There are no large residential developments or public schools within the study area.

2.6. LIGHTING

There is no roadway lighting within the study area.

2.7. TRAFFIC SIGNALS

There are no traffic signals, other than the railroad crossing, within the study area.

2.8. DESIGN AND POSTED SPEEDS

SR 60 has a design speed of 70 miles per hour (mph) within the study area. The posted speed is 65 mph.

2.9. RAILROAD CROSSINGS

The CSX Railroad crosses SR 60 within the project limits. The purpose of the Recommended Alternative is to provide a grade-separated overpass for SR 60 over the existing CSX Railroad. USDOT Crossing Inventory information indicates there are 10 trains crossing each day, with a typical speed of 74 to 79 mph. The CSX railroad at this location is currently one set of tracks, but widens to two separate tracks north of the project (just south of Old Bartow-Lake Wales Road) and just south of SR 60. Based on this track configuration and the recent CSX ILC construction, the FDOT expects that these will become two separate tracks at a future time. The Recommended Alternative has been designed to accommodate a future two-track configuration with the full required 23.5-foot minimum vertical clearance.

The Recommended Alternative is expected to result in minor impacts to the CSX railroad corridor during construction within the project corridor. The FDOT will continue to coordinate further with CSX during the project Design and Construction phases to ensure that associated impacts/service disruption is not substantial. Ultimately, this project was requested by CSX and will serve as a net enhancement to rail service by minimizing potential train delays and train/vehicle conflicts.

2.10. PAVEMENT CONDITIONS

The FDOT Pavement Condition GIS layer (pavement_condition.shp) dated 7/8/2016 from the FDOT GIS website indicates a pavement condition of “Good” for the roadway surface within the project limits.

2.11. DRAINAGE SYSTEM INVENTORY

A *Drainage Design Concept Report*² and a *Location Hydraulics Report*³ were prepared for this study. These documents were subsequently updated/superseded by the *Alternative Pond Siting Memorandum*⁴ (dated October 2015). The existing drainage patterns were determined using U.S. Geological Service (USGS) quadrangle maps, Southwest Florida Water Management District (SWFWMD) LiDAR elevations, field review, FDOT survey from previous Resurface, Restoration, and Rehabilitation (RRR) projects, FDOT drainage maps for SR 60, and topographic survey. In the existing condition, the stormwater runoff from the roadway sheet flows offsite and into roadside ditches to the Peace Creek Drainage Canal (PCDC) without receiving any formal treatment.

Although the construction of the overpass will be striped as a four-lane typical mimicking the present conditions, the SMFs have been evaluated for an ultimate six-lane configuration. In the proposed condition drainage concept, roadway runoff will be piped or conveyed in ditches to two SMFs where the water will be treated and attenuated. Stormwater runoff from the roadway on the proposed bridge decks will drain to inlets at the bridge approach and then be conveyed to the respective stormwater ponds. Stormwater runoff from the sidewalk on the proposed bridge decks will drain directly into the PCDC through slots in the parapet. The frontage road bridge (bridge number 160133) will continue to maintain scuppers and deck runoff will drain directly into the PCDC. Stormwater west of the CSX overpass will be collected in roadside swales west of the PCDC bridges and routed to a new SMF (Pond 1, approximately 2.93 acres on the north side of SR 60 west of the PCDC). Stormwater east of the CSX overpass will likewise be collected in roadside swales and discharged to a new SMF (Pond 3, approximately 3.79 acres on a vacant parcel already owned by FDOT on the north side of SR 60 east of the CSX railroad). A minor amount (0.03 acre) of drainage easements will be needed for pond inflow/outfall facilities and maintenance ingress/egress to the ponds. The SMFs have sufficient capacity to provide water quality and water quantity for the proposed project. Due to the soils present and the seasonal high groundwater table (SHGWT) both SMFs will be proposed as wet detention.

2.12. SEASONAL HIGH WATER TABLE ELEVATIONS

The Seasonable High Water Table (SHWT) elevations for the project area are tabulated in the *Alternative Pond Siting Memorandum*. The elevations were estimated from the Natural Resources Conservation Service's (NRCS) *Soils Survey for Polk County*. When using the NRCS Soils Survey, the median value in the SHWT depth range given in the Soils Survey was used along with the approximate ground level elevations from the SWFWMD LiDAR data to calculate the SHWT elevation. Excerpts of the NRCS report can be found in the *Preliminary Stormwater Management Facility Report*.

2.13. EXISTING STORMWATER MANAGEMENT FACILITIES

There are two bridges and one cross drain located at the Peace Creek Drainage Canal. The existing cross drain has been identified and shown in the *Location Hydraulics Report*. A cross drain analysis was determined not to be commensurate with the purpose of the study as the length of the cross drain will be approximately the same as the existing, and much of the FDOT roadway runoff will be diverted to the SMF instead of to this existing cross drain. A cross drain analysis and a *Bridge Hydraulics Report* have been completed as part of the final design.

2.14. TRAFFIC DATA

The 2013 existing traffic data along SR 60 was obtained from the FDOT Florida Traffic Online database. Specifically, from portable monitoring site # 16110000, SR 60 east of County Road (CR) 655, Rifle Range Road serves 23,000 annual average daily trips. **Table 2-1** below lists the other available existing traffic factors.

Table 2-1: 2013 Existing Traffic Data

AADT	23,000
Observed K Factor	9%
Observed D Factor	55.9%
T ₂₄ Factor	20.72%
DHT Factor	10.55%

Based on review of the 2013 Polk County Roadway Network Database and 2013 FDOT Quality/Level of Service (LOS) Handbook, the LOS Standard for this section of SR 60 is LOS C. The Roadway Network Database also states that the existing peak hour-peak season level of service for this four-lane section of SR 60 is LOS B. The projected peak hour LOS for a four-lane SR 60 in five years is also LOS B.

2.15. CRASH DATA AND SAFETY ANALYSIS

In order to obtain a better understanding of the safety concerns within the study area, an analysis of crash data was conducted within the study area. Crash reports for a five year period (2009-2013) were provided by FDOT within the study area segment and summarized. The crash data were then analyzed for segments following the procedures provided in the FDOT Highway Safety Improvement Guideline, which defines a segment as 0.101 to 3.0 miles in length. The study area where crash data was collected is between mile post 24.974 and 26.114, or approximately 1.14 miles.

An initial breakdown of crash data based on the crash data indicated that of the 18 total crashes, the highest type was rear end (seven crashes or approximately 39 percent), the next highest was

sideswipe vehicle crashes (four crashes or approximately 22 percent) and the third highest was overturn vehicle crashes (three crashes or approximately 17 percent).

Of the 18 crashes that occurred along SR 60 within the study area, only four crashes or approximately 22 percent were a direct cause of the at-grade rail road crossing. Two of the crashes occurred because a vehicle struck a fixed object on the side of the roadway to avoid hitting a truck that was stopped at the railroad tracks. One of these crashes one was a rear end crash when a car could not completely stop for a truck that had stopped on at the railroad crossing to check for oncoming trains. The fourth crash that occurred was an overturn vehicle crash because of a car that swerved to avoid a truck stopped at the railroad crossing to look for an oncoming train.

There were a total of 12 injuries due to crashes during the five year period within the study area and one fatality. Property losses due to crashes within the study area over the five year analysis period totaled approximately \$98,100.

An additional breakdown of the types of crashes that occurred on the segment of SR 60 within the study area is shown in **Table 2-2**.

Safety ratios were also computed in order to identify locations with safety concerns. The guideline methodology was used to calculate safety ratios for all segment locations within the study area. Safety ratios above 1.000 indicate that the segment location experienced vehicle collisions at an above average rate and, therefore, traffic safety at these locations may need to be improved. The analysis indicates that the segment of SR 60 within the study area has an average crash rate of 3.157 during the five year analysis period compared to a statewide average of 0.551 for the same time period for this classification of roadway.

Table 2-2: Summary of Crash Data

Type	Year					Total
	2009	2010	2011	2012	2013	
Rear Ends	3	2	2	0	0	7
Overturn Vehicle	0	1	0	0	2	3
Sideswipe	0	0	0	2	2	4
Struck a Fixed Object	0	0	1	1	0	2
Struck an Animal	0	1	0	0	0	1
Struck an Object from Another Vehicle	0	0	0	1	0	1
Total	3	4	3	4	4	18
Injuries	0	8	1	1	2	12
Fatalities	0	0	1	0	0	1
Property Loss	\$7600	\$11,200	\$36,500	\$20,600	\$22,200	\$98,100

2.16. UTILITIES

In order to evaluate potential surface and subsurface utility conflicts associated with the proposed project, information was collected concerning the location and characteristics of the existing utilities within the study area. A list of the utility providers in the vicinity of the project was obtained by calling Call Sunshine (1-800-432-4770, design ticket #303403695). Base maps were sent to utility providers in accordance with Part 2, Chapter 10 of the FDOT *Project Development and Environment Manual*⁵ with a request to provide information on the location and type of any facilities owned, leased, maintained, or planned. Utility providers and contacts are included in **Table 2-3**. Maps that were returned by each utility provider, showing specific locations of each utility, are included in the project files. Utilities are included on the Concept Plans in **Appendix A**.

Table 2-3: Utilities

Utility Provider	Contact	Utility and Location*
Florida Public Utilities Company (formerly known as Central Florida Gas)	Tim O’Conner (863) 292-2933 toconnor@chpk.com	3-inch steel Gas Main, north side of SR 60, east end of project
Kinder Morgan/Central Florida Pipeline	Mark Clark (813) 781-1718 mark.clark@kindermorgan.com	16-inch gas transmission. Easement information provided in February 2016. Forwarded to Kim Strickland.
Comcast Cablevision	Gary Hill 239-252-8260 gary_hill@cable.comcast.com	No active facilities in area
Florida Gas Trans – Lakeland	Joseph E Sanchez (407) 838-7171 Joseph.E.Sanchez@energytransfer.com	Approx. 160 ft from proposed SW frontage road ROW line to FGT 8-inch steel GM. GM parallel to CSX south of SR 60.
Duke Energy (Distribution)	Mark Manner 863-678-4476 Mark.Manner@duke-energy.com	12.47 kV OH line, south side of SR 60
Duke Energy (Transmission)	Scott VanVelzon UC Synergetic 20525 Amberfield Drive, Suite 201 Land O’Lakes, FL 34638-4381 (813) 909-1241 Svanvelzor@ucseng.com	Multiple 69 kV to 230 kV OH lines. Easement information provided 2/11/16 and 8/17/16.
Frontier (formerly known as Verizon)	Fred Valdes 863-688-9714 fred.n.valdes@ftr.com	Buried telephone and fiber optic on north side of SR 60.
Level 3 Communications	Mark Mathis 813-464-2947 Mark.mathis@level3.com	No facilities in area
Verizon Business (formerly known as MCI)	John McNeil 863-965-6438 john.mcneil@verizon.com (Investigations@ verizon.com)	No Conflict (Buried fiber optic lines parallel to RR tracks and within RR ROW)

*Utility update as of October 19, 2016.

2.17. EXISTING STRUCTURES

SR 60 is carried over the Peace Creek Drainage Canal on two bridges; eastbound bridge number 160133 and westbound bridge number 160045 (**Figure 2-2**).

Eastbound Bridge 160133

This bridge was built in 1965 and last inspected on August 26, 2014. The bridge has no fracture critical components and is not rated as being scour critical or structurally deficient. It is rated functionally obsolete. There are 8, 34-ft wide, 20-ft long spans, for a total structure length of 160 ft, with no skew. The concrete cast-in-place slab is supported by 14-inch-square precast concrete piles. The National Bridge Inventory (NBI) ratings are as follows:

- Deck: Good
- Superstructure: Good
- Substructure: Good
- Sufficiency Rating: 79.9
- Health Index: 84.68

Westbound Bridge 160045

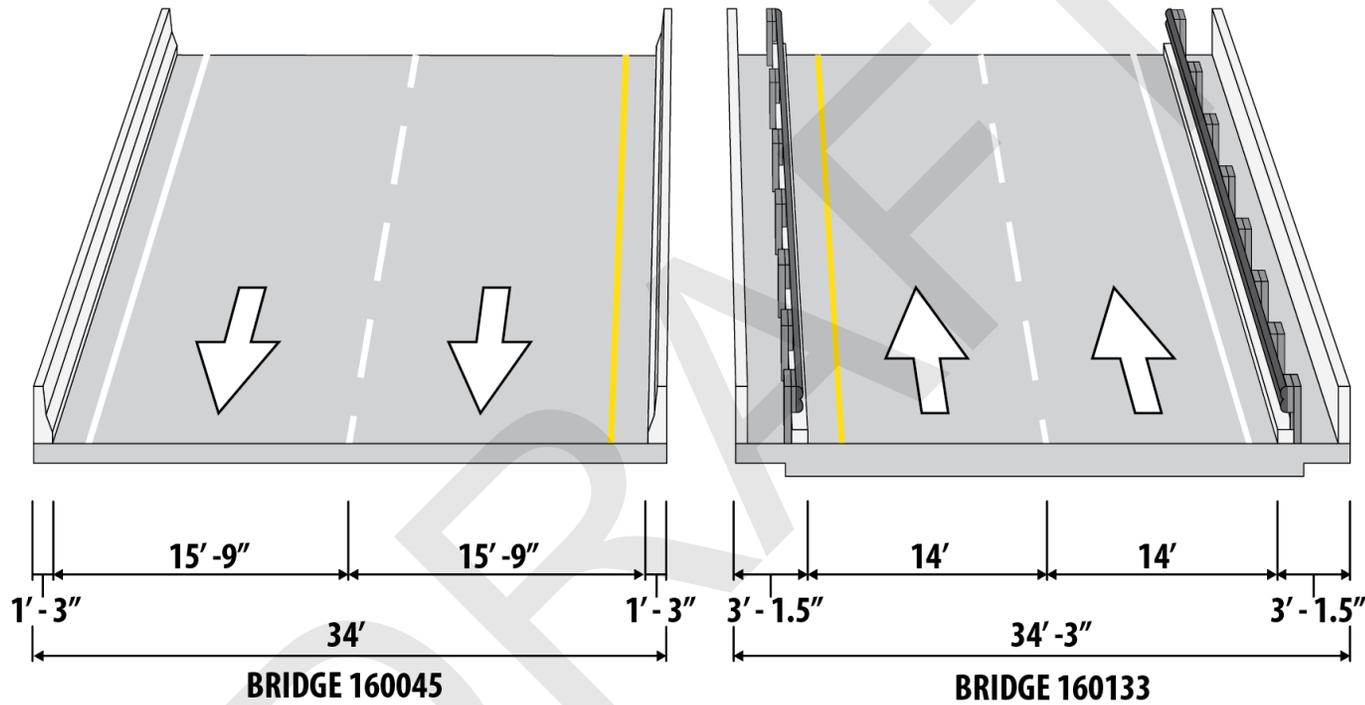
This bridge was built in 1951 and last inspected on August 26, 2014. The bridge has no fracture critical components and is rated as being scour critical but is not rated as structurally deficient. Also it is not rated as functionally obsolete. There are 10, 34-ft-wide, 15-ft-long spans, for a total structure length of 150 ft, with no skew. The concrete cast-in-place slab is supported by timber piles (unknown size). The NBI ratings are as follows:

- Deck: Good
- Superstructure: Good
- Substructure: Good
- Sufficiency Rating: 79.5
- Health Index: 84.67

2.18. NAVIGATION

The Peace Creek Drainage Canal is not included in the Florida Geographic Data Library (FGDL) Geographic Information System (GIS) data layer of navigable waterways, *Navigable Waterway Network in Florida – 2013* (filename: btsww_2013.shp). Therefore, the waterway is not considered navigable.

Figure 2-2: Existing Roadway Typical Section for the WB and EB Bridges over the Peace Creek Drainage Canal



 <p>DISTRICT ONE</p>	<p>SR 60 Grade Separation over CSX Railroad Polk County, Florida</p> <p>Financial Project ID: 436559-1-22-01</p> <p style="text-align: right;">Existing Bridge Typical Section</p>	
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2.19. REFERENCES

1. *Polk County 2030 Comprehensive Plan*; Polk County Planning Commission; Bartow, Florida; August, 2013.
2. *Drainage Design Concept Report*; Atkins North America Inc.; Tampa, Florida; January 2015.
3. *Location Hydraulics Report*; Atkins North America Inc.; Tampa, Florida; January 2015.
4. *Alternative Pond Siting Memorandum*; Faller, Davis and Associates, Inc.; Tampa, Florida; December, 2015.
5. *Project Development and Environment Manual*; Florida Department of Transportation; Tallahassee, Florida; 2016. <http://www.dot.state.fl.us/emo/pubs/pdeman/pdeman1.shtm>

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SECTION 3.0

DESIGN CONTROLS AND CRITERIA

3.1. DESIGN CRITERIA

In order for the proposed roadway and bridge improvements to fulfill the objective of accommodating motorized vehicles, and where appropriate, pedestrians and bicyclists in a safe and efficient manner, the proposed typical sections must adhere to specific design standards. The *FDOT Plans Preparation Manual*¹ and the District One Straight Line Diagrams (SLD) were used as references in the development of proposed design criteria for this project. **Table 3-1** presents the minimum design criteria used for this effort and their respective values or designations.

3.2. LEVEL OF SERVICE STANDARD

According to the *FDOT 2013 Quality/Level of Service Handbook*², the LOS standard for SR 60 is LOS C. The Polk TPO Roadway Network Database has also established LOS C as the minimum standard.

3.3. FUNCTIONAL CLASSIFICATION

The functional classification of a roadway affects elements of design such as design speed, LOS requirements, and local access accommodations. SR 60 is classified as a rural principal arterial – other, and is designated a SIS facility.

3.4. ACCESS CLASSIFICATION

SR 60 is classified by FDOT as Access Classification 3, and there are no plans to change it. These facilities are controlled access facilities where direct access to abutting land will be controlled to maximize the operation of the through traffic movement. This class is used where existing land use and roadway sections have not completely built out to the maximum land use or roadway capacity or where the probability of significant land use change in the near future is high. These highways are distinguished by existing or planned restrictive medians and maximum distance between traffic signals and driveway connections. Local land use planning, zoning and subdivision regulations should be such to support the restrictive spacings of this designation. **Table 3-2** shows access Classification 3 standards for facilities with a posted speed greater than 45 mph.

Table 3-2: Access Class 3 Standards

Standard Facility Design Features	Access Class 3
Median Treatment	Restrictive
Minimum Connection Spacing	660 ft
Minimum Directional Median Opening Spacing	1320 ft
Minimum Full Median Opening Spacing	1/2 mile
Minimum Signal Spacing	1/2 mile

The current PD&E study proposes that the current access classification will remain unchanged throughout this corridor.

3.5. REFERENCES

1. *Plans Preparation Manual*; Florida Department of Transportation; Tallahassee, Florida; January 2016.
2. *2013 Quality/Level of Service Handbook*; Florida Department of Transportation; Tallahassee, Florida; 2013.

SECTION 4.0

ALTERNATIVES ANALYSIS

A new grade separation is planned to carry SR 60 over the CSX railroad tracks. While no new capacity is currently proposed, the project will accommodate future widening of SR 60 to six lanes. As such, the proposed roadway must meet certain design and operational criteria as established by the Florida Legislature. The focus of the alternative alignment analysis is to identify the best alignment, typical section, and other major design features to safely accommodate traffic within the corridor and how to best avoid and minimize effects to natural and social resources. The Build Alternative is then evaluated with regards to needs, criteria, costs, and impacts, and compared to the No-Build Alternative.

4.1. NO-BUILD ALTERNATIVE

The No-Build Alternative would not construct the SR 60 grade separation. It would leave the existing roadway in its current configuration.

However, the No-Build Alternative option fails to fulfill the project's purpose and need to improve safety at the railroad crossing. The advantages and disadvantages of the No-Build Alternative are as follows:

Advantages

- No expenditure of public funds for design, ROW acquisition, utility relocation, or construction would be required.
- Traffic would not be disrupted due to construction, thus avoiding inconveniences to local businesses and residences.
- No environmental degradation or disruption of natural resources.

Disadvantages

- Does not meet the established purpose and need for the project.
- Reduced economic mobility due to traffic delay.
- Deterioration of air quality caused by traffic congestion and delays.

The No-Build Alternative remained a viable alternative throughout the PD&E study.

4.2. TRANSPORTATION SYSTEMS MANAGEMENT

Transportation Systems Management (TSM) alternatives include those activities that maximize the efficiency of the existing system. Possible options include ride-sharing, fringe parking, the addition of turn lanes, traffic signal timing optimization, and access management measures. TSM improvements would provide little to no contributions to meeting the project's purpose and need.

Multi-modal solutions to substandard roadways are generally only effective within highly urbanized or constrained corridors. Specific examples of multi-modal alternatives are mass transit systems such as bus or rail options.

While the TSM alternative can provide improved traffic operations, the TSM alternative on its own fails to fulfill the purpose and need for the project. Therefore, the TSM alternative was not considered as a solution to improve safety at the railroad crossing.

4.3. MULTI-MODAL ALTERNATIVES

4.3.1. Transit Alternatives

The CSX railroad offers service to Amtrak trains from stops in South Florida reporting to the Winter Haven terminal and locations beyond. However, there are currently no fixed bus or other transit routes within the corridor. The Polk County 2030 Comprehensive Plan identifies the project as a “Transit Corridor” (primarily for trucking).

4.3.2. Non-Motorized Transportation

Existing 5-ft paved shoulders functioning as undesignated bike lanes provide some utility for bicyclists. The Polk County 2030 Comprehensive Plan identifies the project as a “Future Sidewalk Priority”. The existing rural cross-section does not include sidewalks. However, sidewalks, 8-ft 3-in wide (8-ft 2-in on the bridges) are proposed in each direction throughout the project.

4.3.3. Multi-Modal Alternative Conclusion

While the multi-modal and transit alternatives also have the potential to improve traffic operations along the corridor, these alternatives fail to fulfill the needs and goals of the project on their own. Planned projects to add transit systems, sidewalks and shoulders for bicycles will not eliminate the need for a grade separation. While multi-modal features are integral parts of the Build Alternative in the form of roadway lanes and shoulders for bicyclists, the multi-modal alternative fails to fulfill the purpose and need for the project. Therefore, multi-modal/transit alternatives were not considered as stand-alone solutions for the existing and expected deficiencies within the study area.

4.4. ALTERNATIVE EVALUATION

One Build Alternative was considered and evaluated as described in the following sections.

4.4.1. Design Criteria

In order for the proposed roadway improvements to fulfill the objective of accommodating motorized vehicles, and where appropriate, pedestrians and bicyclists in a safe and efficient manner, the proposed typical sections must adhere to specific design standards. The minimum design criteria used for this effort and their respective values or designations was presented previously in Table 3-1.

4.4.2. Typical Sections

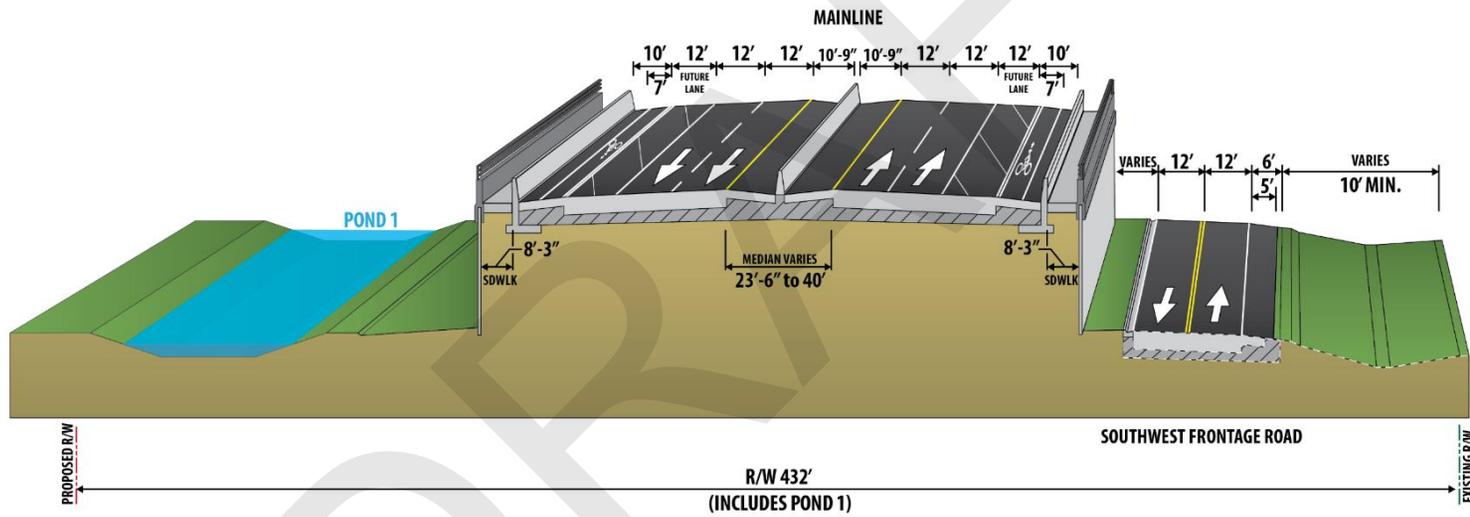
A rural typical section was considered throughout the project limits due to the nature of the study area. In general, construction costs are higher for urban typical sections than rural typical sections. All three alternative typical sections evaluated (discussed below and on the following pages) would fit within the existing ROW. An urban typical section is not appropriate in rural areas where there is a high degree of access control, and where the land is mostly vacant, low-density rural residential or agricultural and industrial in nature. In addition, there is little existing or planned commercial development in this area, and travel speeds are higher.

Figures 4-1 and 4-2 show the proposed typical sections that were evaluated for the Build Alternative, where there is a frontage road on the south side and north side, respectively. These typical sections are identified as Proposed Typical Section A-A and B-B, respectively, on the Concept Plans in Appendix A. The proposed SR 60 typical section is a four-lane divided rural roadway with a 23.5-ft median that varies from 23.5 ft to 40 ft, which includes two 10-ft 9-inch paved inside shoulders and a center barrier wall. Two 12-ft travel lanes, 12-ft of additional pavement for a future lane, and a 10-ft flush outside paved shoulders are provided in each direction. Bicyclists will be accommodated on 7-ft buffered bike lanes within the outside 10-ft paved shoulder in each direction. An 8-ft 3-inch sidewalk, barrier-separated from the shoulder, is also provided in each direction. The travel lanes are on embankment with mechanically stabilized earth (MSE) walls approaching the bridges over the railroad. The proposed design speed for this typical section is 70 mph. A frontage road is required on the south side (Figure 4-1), west of the railroad tracks, which will utilize the existing eastbound roadway pavement. Another frontage road is required on the north side (Figure 4-2), east of the railroad tracks, which will utilize new pavement. A frontage road is provided on the north side to provide access to adjacent parcels, as shown in the Concept Plans. ROW acquisition will be required to accommodate the driveways. These typical sections require between 267-ft and 432 ft of ROW, with ROW being acquired on both sides of SR 60, as shown in the Concept Plans in Appendix A.

There are three pairs of new bridges proposed to carry SR 60 over the Peace Creek Drainage Canal, the driveway, and the railroad. **Figure 4-3** shows the proposed typical section for these bridges. The proposed bridge typical section closely matches the SR 60 mainline roadway typical sections.

Figure 4-4 shows that the existing eastbound SR 60 bridge will be modified to remove the outer portion of the deck to replace the barrier walls so the bridge can continue in use to carry the low-volume frontage road over the Peace Creek Drainage Canal. The bridge will carry two 12-ft lanes with two 4-ft shoulders. Design Variations will be needed for shoulder and border widths since they do not meet the standards indicated in the FDOT *Plans Preparation Manual*¹ Figure 2.0.2 (See Notes to Reviewer in the September 2016 Phase II Final Design Plans).

Figure 4-1: Proposed Roadway Typical Section West of the Peace Creek Drainage Canal



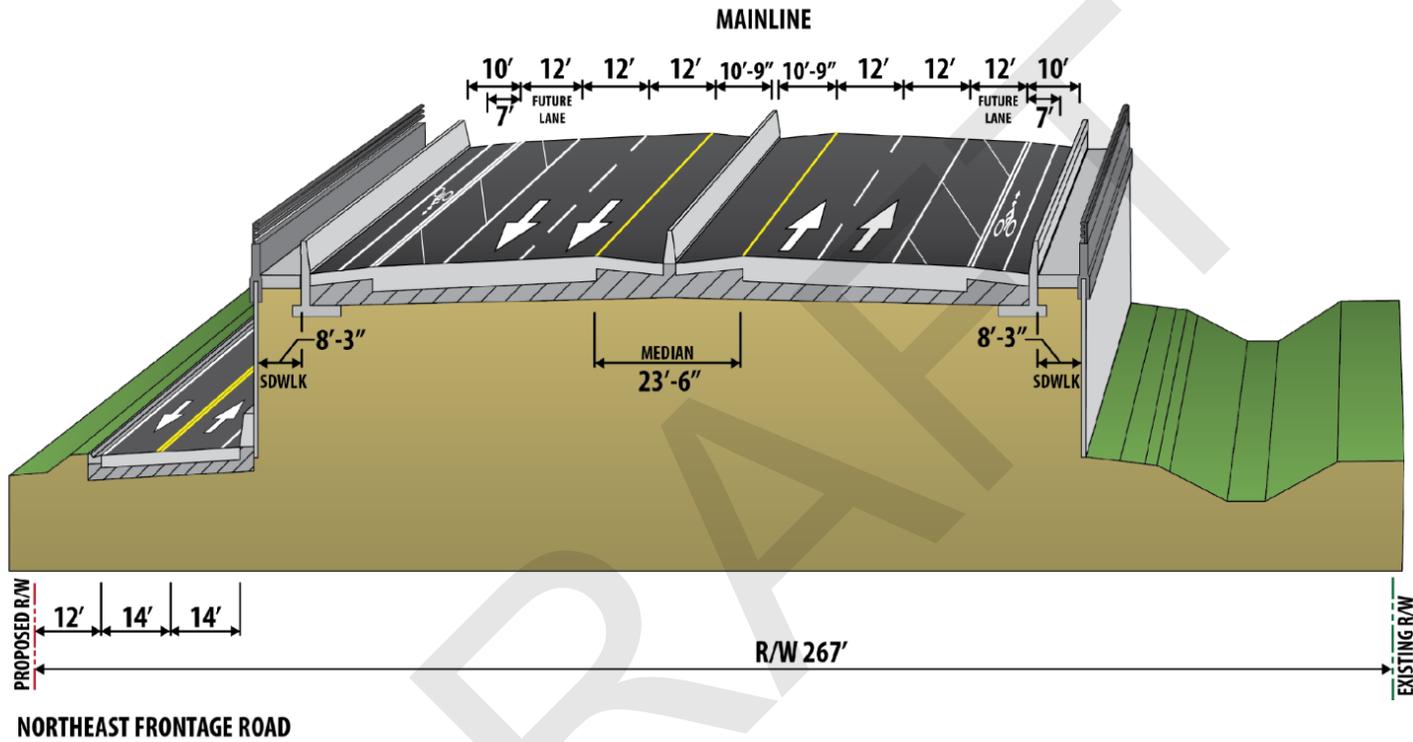
SR 60 Grade Separation over CSX Railroad
Polk County, Florida

Financial Project ID: 436559-1-22-01

Proposed Typical Section

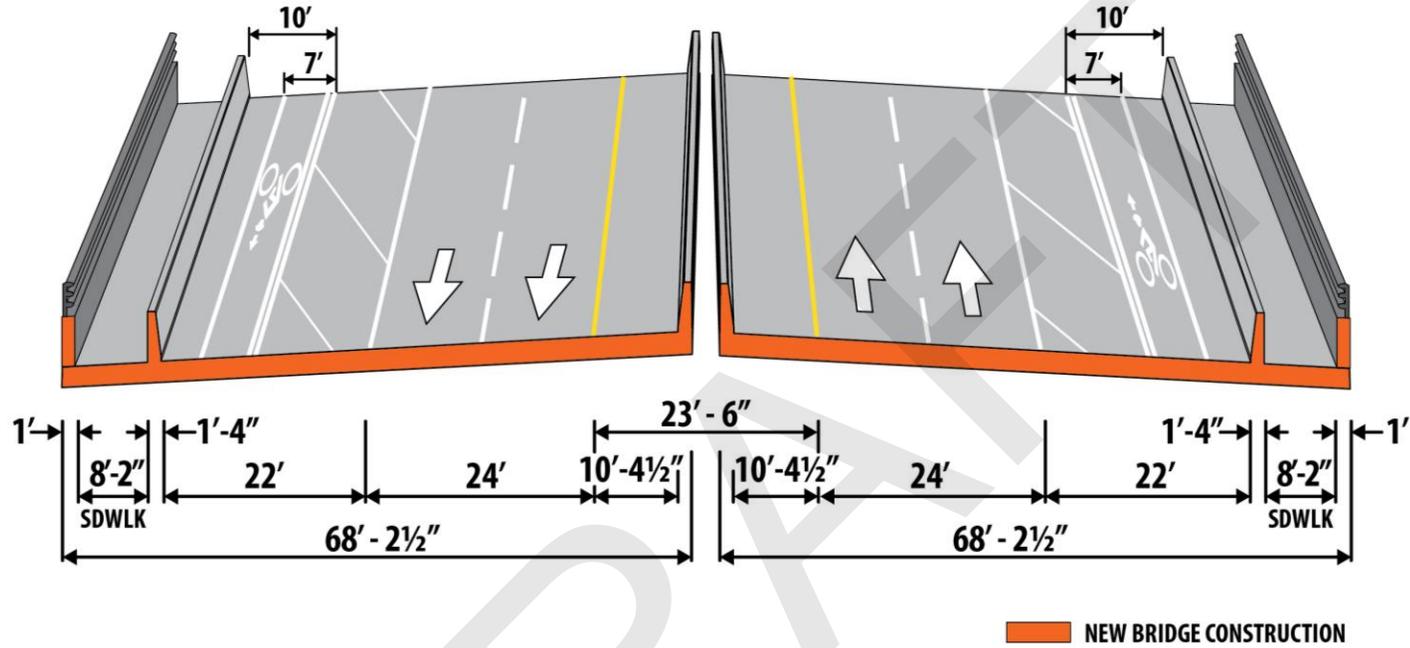


Figure 4-2: Proposed Roadway Typical Section East of the CSX Railroad



 <p>FDOT DISTRICT ONE</p>	<p>SR 60 Grade Separation over CSX Railroad Polk County, Florida</p>	
<p>Financial Project ID: 436559-1-22-01</p>	<p>Proposed Typical Section</p>	

Figure 4-3: Proposed SR 60 Bridge Typical Section



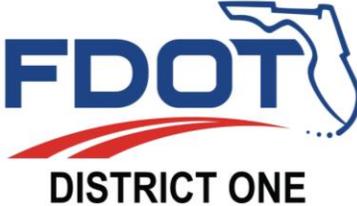
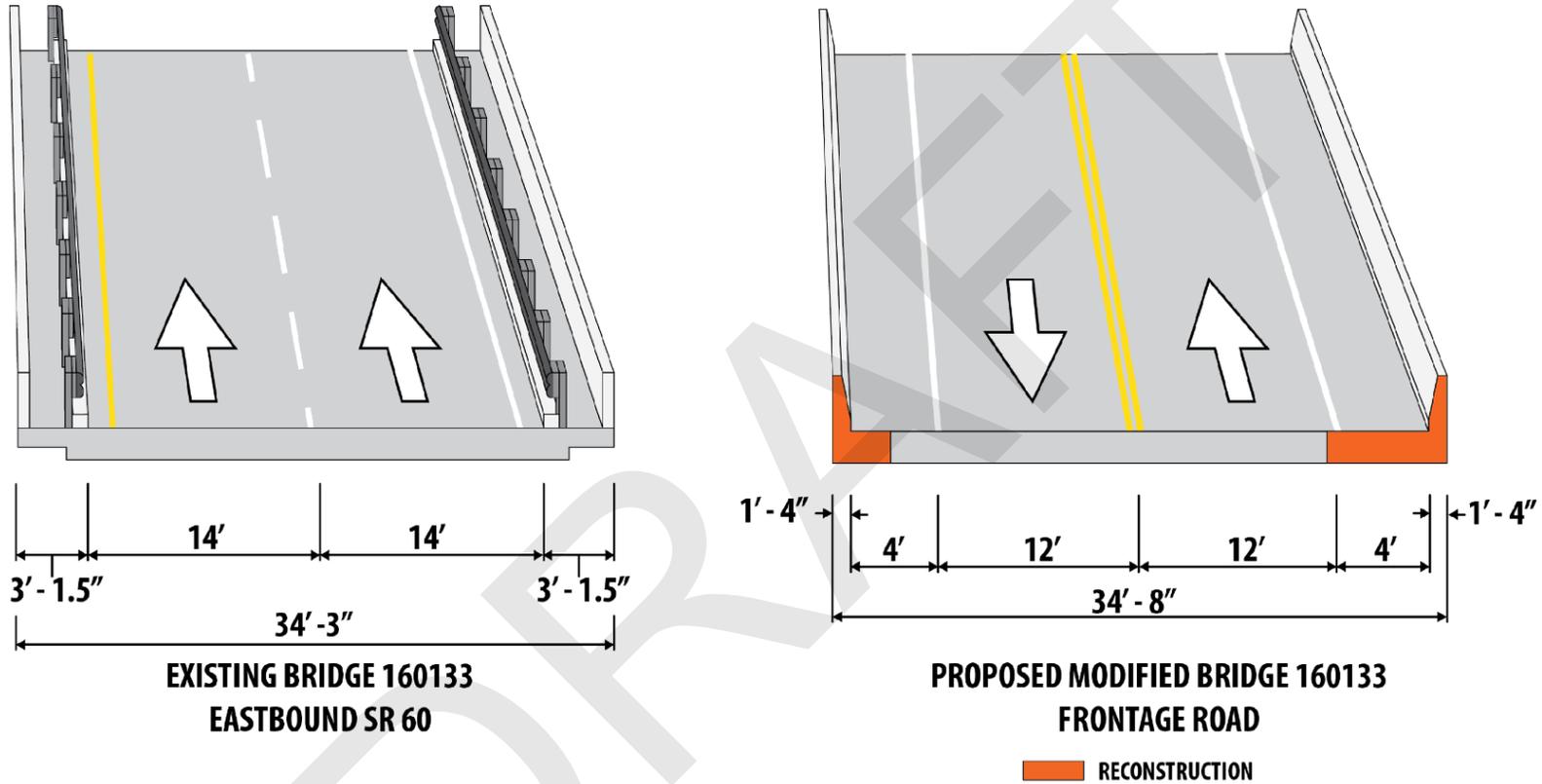
	<p>SR 60 Grade Separation over CSX Railroad Polk County, Florida</p> <p>Financial Project ID: 436559-1-22-01</p> <p>Proposed Bridge Typical Section</p>	
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Figure 4-4: Frontage Road Bridge Typical Sections



	<p>SR 60 Grade Separation over CSX Railroad Polk County, Florida</p> <p>Financial Project ID: 436559-1-22-01</p> <p style="text-align: right;">Proposed Bridge Typical Section</p>	
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4.4.3. Horizontal and Vertical Alignment

Since the improvements are proposed to an existing facility, the Build Alternative will generally follow the existing horizontal alignment. A northern alignment shift was developed in order to save the existing eastbound bridge for the frontage road, and to facilitate maintenance of traffic during construction. A printout of the new proposed centerline geometry is included in **Appendix B**.

The proposed vertical profile includes two sag curves and a crest curve. **Appendix C** includes a printout of the vertical alignment.

4.5. RIGHT OF WAY

Outside the areas of milling and resurfacing, which fits within the existing 182 to 232-ft of ROW, the Build Alternative requires between 267 and 432 ft of ROW. ROW acquisition along both sides of SR 60 is needed as shown in the Concept Plans in Appendix A. Two offsite SMFs will be required, as shown in the September 2016 Phase II Final Design Plans and the Concept Plans: Pond 1 and Pond 3.

Adverse property effects were quantified with two measures: number of parcels being affected and acreage of ROW to be acquired. No relocations are anticipated due to the ROW acquisition.

4.6. PRELIMINARY DRAINAGE

The *Drainage Design Concept Report*² and the *Alternative Pond Siting Memorandum*³ were prepared to determine the feasibility of using two existing FDOT-owned parcels as the SMF sites. Both parcels were evaluated to verify that they are suitable for the hydraulics, hydrology, potential hazardous material contamination, potential wetland impacts and mitigation, and potential impacts to threatened and endangered species. Further analysis eliminated the existing parcel (labelled “FDOT Property”) on the west side of the PCDC. The construction of the overpass will be striped as a four lane; however the SMF will be evaluated for an ultimate six lane configuration. Currently, stormwater on SR 60 within the project limits either sheet flows offsite or is conveyed in ditches to the PCDC without receiving any formal treatment.

The project has been delineated into two basins, Basin 1 and Basin 3, which discharge to the PCDC. Basin 1 is from the beginning of the project to the high point over the CSX railroad. Basin 3 is from the high point over the CSX railroad to the end of the project to the east. Basin 1 will discharge to SMF 1, which is a new pond west of the PCDC. Basin 3 will discharge to SMF 3, which is a remnant borrow pit east of the CSX railroad. Basin 2 is a sub-basin of Basin 1, which drains from the east end of the PCDC Bridge to the high point of the CSX railroad. Basin 2 will be drained directly to the PCDC with compensation treatment within SMF 1.

The Florida Department of Environmental Protection (FDEP) has classified the PCDC as an impaired waterbody (IWB) (WBID 1539). The impairments to the PCDC are for Biochemical

Oxygen Demand (BOD), historic Chlorophyll-A, and Dissolved Oxygen. The SMFs within this project will demonstrate a net improvement to pollutant loading. Both basins are considered open basins and outfall to the PCDC, which is not considered an Outstanding Florida Waters (OFW).

Due to the soils present and the seasonal high groundwater table (SHGWT) both SMFs are proposed as wet detention. Basin 1 will treat one inch of the project's directly connected impervious area (DCIA) to meet SWFWMD presumptive criteria. Portions of the frontage roads that are not hydraulically feasible to drain to SMF 1 will discharge directly to the PCDC and treated by compensation. Existing pavement area on SR 60 west of the project limits equal to the frontage road new impervious area will be collected with shoulder gutter and shoulder gutter inlets and drained to SMF 1. Basin 1 will attenuate stormwater in the post condition to match the pre-condition for the 25-yr 24-hr event to meet SWFWMD requirements. SMF 1 falls within proposed FDOT right-of-way.

Basin 3 will treat one inch of the project's new DCIA to meet SWFWMD presumptive criteria, and pollutant loading will be evaluated during the design phase to ensure that there is net improvement to the PCDC. Basin 3 will attenuate stormwater in the post condition to match the pre-condition for the 25-yr 24-hr event to meet SWFWMD requirements. SMF 3 falls within FDOT parcel 273006000000032010, which was purchased as a borrow pit for the original SR 60 construction. A 30-foot perpetual easement within parcel 273006000000032060 was acquired to route stormwater into the facility along with providing access.

During the design phase, pond sizes can be reduced in size by establishing a lower pond control elevation based on survey of wetland elevations and analysis of wetland impacts, or utilizing pond liners. This will increase the efficiency of pond area and potentially reduce pond excavation requirements. Additional treatment of pavement is also possible by increasing the existing SR 60 roadway profile grade line. The design phase pond selection will consider these drainage design concepts and additional alternatives, and evaluate the natural, physical, and socio-economic impacts at the potential pond locations.

The proposed improvements within Basin 1 and Basin 3 have less than 0.2 acres of floodplain impact. This volume (cup for cup) will be compensated with the regrading of the outfall ditch. The SWFWMD PCDC Interconnected Pond Routing (ICPR) model may be updated during the design phase to verify that the 100-year floodplain elevation remains unchanged.

A *Location Hydraulic Report*⁴ for this project was prepared in accordance with 23 Code of Federal Regulations (CFR) 650 Subpart A, Section 650.111. The report utilized the Federal Emergency Management Agency (FEMA) National Flood Insurance Program maps to determine highway location encroachments. Portions of the study area for the proposed improvement of SR 60 are located within the floodplain limits shown on the Flood Insurance Rate Map (FIRM) Community Panels 12105C0545 G, as compiled by FEMA. The roadway is located in Zone X, areas within the 500-year floodplain. Portions of the roadside ditches and the FDOT parcels for the proposed

SMFs are in Zone AE, areas within the 100-year floodplain, with a base flood elevation (BFE) of 112.081 (NAVD 88 conversion). FEMA completed the Flood Insurance Study (FIS) for Polk County that became effective November 19, 2003. According to the local FEMA office coordination, no changes to the FIS have been made at this location since 2003.

At the time the *Location Hydraulic Report* was prepared, the SWFWMD ICPR watershed model was being reviewed by FEMA and may be incorporated into the updated FIRM. The ICPR watershed model is based off the 100-year 5 day event whereas the existing FIRM is based off the 100-year 24-hour event. The amount of floodplain within the project is minimal and will be compensated by the reconstruction of the outfall ditch. The construction of this project will not affect the 100 year flood stage, therefore there is no adverse effect on the floodplain.

The PCDC is designated as a FEMA floodway in the FIS for Polk County effective September 28, 2012 (FEMA FIS Polk County, Florida, Table 7, Page 62 and 63). There are two existing bridges within the project limits over the PCDC. The SR 60 westbound bridge is considered functionally obsolete and will be removed during construction. The eastbound bridge is still within its design life and will be repurposed as the frontage road bridge over the PCDC. A new bridge will be constructed to carry the eastbound and westbound mainline traffic over the PCDC. A FEMA no-rise certification and bridge hydraulics report (BHR) will be conducted in the design phase for the mainline PCDC bridge. The proposed CSX railroad overpass bridge is outside the 500-year floodplain and will not be evaluated for conveyance.

4.7. UTILITIES

In order to evaluate potential surface and subsurface utility conflicts associated with the proposed project, information must be obtained concerning the location and characteristics of the existing utilities within the SR 60 corridor. A list of the utility providers in the vicinity of the project was obtained by calling Call Sunshine (1-800-432-4770, design ticket #303403695). Base maps were sent to utility providers in accordance with Part 2, Chapter 10 of the FDOT *Project Development and Environment Manual* with a request to provide information on the location and type of any facilities owned, leased, maintained or planned. Utility providers and contacts were provided previously in Table 2-3. Maps that were returned by each utility provider, showing specific locations of each utility, are included in the project files.

A gas line crosses SR 60 west of the railroad tracks. A bridge has been provided over the gas line to prevent any impacts, including over-compaction of the soil around the gas line. The bridge also allows future ease of maintenance for the gas line.

Overhead electric lines originating at the substation on the south side of SR 60 and cross to the north side may be required to be raised in the vicinity of the proposed grade separation.

4.8. LIGHTING

Street lighting is not proposed along the project.

4.9. TRAFFIC CONTROL CONCEPTS

A Traffic Control Plan has been developed as part of the Phase II Final Plans (September 2016). Maintenance of traffic (MOT) and sequence of construction was planned and scheduled to minimize traffic delays throughout the project. Signs will be used to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of lane closings and other construction-related activities, which could excessively inconvenience the community so that motorists, residents, and business persons can make other accommodations. The existing number of travel lanes will be maintained to the maximum extent possible. Lane closures, if necessary, should occur during off-peak hour be followed.

Detailed maintenance of traffic plans will be developed during final design phase. However; the following conceptual construction sequence will help maintain traffic operations:

- Relocate existing utilities within the ROW.
- Construct SMFs.
- Construct the new westbound lanes and overpass while maintaining existing two-way traffic on the existing pavement.
- Move westbound traffic to the new roadway and overpass.
- Construct eastbound roadway and overpass along the existing westbound roadway.
- Shift eastbound traffic to the new eastbound overpass.
- The existing eastbound lanes will become the new frontage road for access to the businesses and electric substation on the south side of SR 60.

4.10. BICYCLE AND PEDESTRIAN ACCOMMODATIONS

The Build Alternative will result in improved accommodations for bicyclists with the addition of 10-ft paved shoulders. In addition, at-grade crossing of the railroad tracks, which can be dangerous for bicyclists, will be changed to a grade separation. The Polk County Comprehensive Plan identifies SR 60 in the study area as a Future Sidewalk Priorities facility; therefore, sidewalks, 8-ft 3-in wide (8-ft 2-in on the bridges) are proposed in each direction throughout the project.

4.11. MULTI-MODAL ACCOMMODATIONS

The proposed Build Alternative includes 10-ft paved outside shoulders to accommodate bicyclists and pedestrians in each direction throughout the project area.

4.12. ACCESS MANAGEMENT

SR 60 is currently Access Class 3. The Access Classification is not proposed to be changed. There are five existing median openings that will be closed at the following locations:

- Station 3369+80 baseline construction
- Station 3391+40 baseline construction
- Station 3396+40 baseline construction
- Station 3405+10 baseline construction
- Station 3427+00 baseline construction

In addition, a new median opening is proposed at station 3375+20 baseline construction.

The proposed changes to the median openings are illustrated on the Concept Plans in Appendix A as well as the Phase 2 design plans.

4.13. BRIDGE ANALYSIS

SR 60 is currently carried over the Peace Creek Drainage Canal on two bridges; eastbound bridge number 160133 and westbound bridge number 160045 (See Figure 2-2). The existing condition of the eastbound bridge is good; therefore, in the proposed concept, it will remain in service to carry the frontage road over the Peace Creek Drainage Canal.

There are six new bridges proposed to carry SR 60 over the various crossings. These include twin bridges over the Peace Creek Drainage Canal, twin bridges over the driveway and the gas line, and the twin bridges over CSX railroad. Figure 4-2 shows the typical section at each crossing. The *Final Bridge Development Report*⁵ was prepared to evaluate structural alternatives.

The new bridges over the Peace Creek Drainage Canal will be two-span bridges. Florida I-Beams (FIB 45) will support the bridge deck for these bridges. The foundations will be 24-in square prestressed concrete pile bents with a bent cap to support the superstructure. This alternative is recommended as it best accommodates transportation and construction of the beam elements, while minimizing the number of piles obstructing the Peace Creek Drainage Canal.

The span arrangement of the new bridges over the driveway and the gas line will be a single-span bridge. Again, Florida I-Beams (FIB 45) will support the bridge deck for these bridges. The foundations will be 24-in square prestressed concrete piles behind MSE walls.

The span arrangement of the new bridges over CSX railroad will be single-span bridge. Steel plate girders were selected to support the bridge deck for these bridges. The foundations will be 24-in square prestressed concrete piles behind MSE walls.

The construction of the new bridges can be done while maintaining traffic. The construction cost to construct all six bridges is estimated at \$6,229,873.

4.14. NAVIGATION

SR 60 crosses the Peace Creek Drainage Canal; however, this creek is not included in the FGDL GIS data layer of navigable waterways, *Navigable Waterway Network in Florida – 2013* (filename: btsww_2013.shp). Therefore, the waterway is not considered navigable, and a US Coast Guard Permit is not required for the new bridges.

4.15. ALTERNATIVE EVALUATION MATRIX

In order to evaluate the study alternatives, a qualitative and quantitative evaluation matrix (**Table 4-1**) was prepared using criteria from a multitude of categories including socioeconomic, environmental, cultural, potential hazardous material/petroleum contamination, and costs (design, ROW, construction, and construction engineering inspection). The initial design concept was developed utilizing raster-based aerial photography depicting the proposed roadway and ROW needs. The evaluation matrix summarizes the environmental impacts for each alternative. A brief description of these qualitative and quantifiable evaluation criteria follows.

Right-of-Way Impacts

- **Number of Parcels Affected:** The number of private property parcels (residential, business, and vacant) affected by the proposed roadway improvements. ROW acquisition is proposed from these parcels along SR 60.
- **ROW Acquisition - Roadway:** the acreage of ROW proposed for purchase needed to construct the roadway along SR 60
- **ROW Acquisition – SMF:** The estimated acreage of ROW needed to construct the SMFs. No floodplain compensation sites are needed for the project. The specific SMF parcels have been identified on the Concept Plans in Appendix A.
- **Business Relocations:** The number of businesses estimated to be relocated by the Build Alternative was identified by reviewing the Concept Plans. Other business effects expected to be sustained by businesses which will not require relocation, such as signs or parking losses, etc., were considered in the ROW acquisition cost estimates. There are no business relocations expected.
- **Residential Relocations:** The number of existing residences estimated to be relocated by the Build Alternative was assessed by determining the number of residences that exist within the proposed ROW. There are no residential relocations expected.
- **Natural, Environmental, and Physical Impacts:**
 - **Species Habitat:** A qualitative measure (none, low, moderate, high) of expected impacts to protected species or habitat.

Table 4-1: Alternative Comparative Evaluation Matrix

Evaluation Factors	No-Build Alternative	Recommended Build Alternative
Right-of-Way Impacts		
Number of Parcels Affected	0	11
ROW Acquisition – SR 60 Roadway (acres [ac])	0	6.0
ROW Acquisition – Stormwater Management Facilities (ac)	0	6.72
ROW Easements – Stormwater Management Facilities (ac)	0	0.03
Business Relocations	0	0
Residential Relocations	0	0
Natural, Environmental and Physical Effects		
Species/Habitat (Potential Impacts)	None	Low
Potential Contamination Sites (Low/Medium/High risk)	0	9/1/1
Wetland Impacts (ac)	0	1.14
Noise Sensitive Sites (within 66 dB(A) isopleth)	0	2
Community Facilities (schools, police, fire, medical, etc.)	0	0
Historic/Archaeological Sites	0	0
Utility Conflicts	No	Yes
Estimated Costs (2016 Dollars)		
Design (Actual)	\$0	\$3,460,000
ROW	\$0	\$1,305,000
Roadway Construction*	\$0	\$36,216,222
Bridge Construction	\$0	\$13,180,656
Utilities and Railroad	\$0	\$630,000
Wetland Mitigation	\$0	\$61,950
Construction Engineering and Inspection (CEI) (12% of Construction)	\$0	\$5,927,625
Total Cost (Present Day Cost)	\$0	\$60,781,453

* Includes roadway, earthwork, shoulder, median, drainage, signing, retaining walls, mobilization, maintenance of traffic, project unknowns, and initial contingency

- **Potential Contamination Sites (Medium and High Risk):** The number of potentially hazardous material and/or petroleum contaminated sites ranked medium or high risk along the project. The specific sites have been identified on the Concept Plans in Appendix A.
- **Wetlands within Proposed ROW:** The acreage of wetlands within the existing and proposed ROW that could be impacted by the roadway improvements (including SMFs).
- **Noise Sensitive Sites:** The number of noise sensitive sites that would approach or exceed the Noise Abatement Criteria (NAC). Noise levels are predicted at one receptor point representing two residences in a duplex. Exterior noise levels are predicted to approach the NAC for design year (2035) build conditions at the two residences.
- **Community Facilities:** The project involvement with existing community facilities such as churches, schools, child care facilities, nursing homes, hospitals, cemeteries, fire stations, etc. were assessed. No impacts are expected.
- **Historic/Archaeological Sites:** A thorough investigation was undertaken to determine if there are any National Register of Historic Places (NRHP)-listed or eligible historic sites and structures along the project corridor.

Estimated Costs

Preliminary cost estimates were prepared for the alternatives, including separate estimates of design, ROW, construction, and construction engineering inspection. These project costs are presented in 2016 dollars.

- **ROW acquisition** cost includes the cost to purchase private property. Cost of ROW acquisition is related to the number parcels affected, the amount of acreage required, and any other damages, such as impacted signs, structures, etc. Since administrative costs are incurred with each land parcel impacted, regardless of the acreage, costs will be greater when parcel count increases. In addition, the greater the acreage required and the more improvements which are affected within the proposed ROW, the higher the costs will be. A combination of these factors produces the total estimated ROW costs. The ROW costs were determined using 2016 dollars and include all estimated ROW costs for the roadway and SMFs. It is important to note that the ROW cost estimates were prepared as an evaluation tool to compare alternatives. The estimates are also a budget tool used by FDOT to estimate total acquisition costs associated with the proposed ROW. A ROW cost estimate does not reflect an opinion of market value and is not a real estate appraisal; and is subject to change as the project progresses.
- **Construction** costs of each alternative were calculated using FDOT's Long Range Estimates (LRE) pay item database. Construction cost estimates include all roadway and

drainage items, stormwater management systems, signing and marking, embankment, bridge structures, and all other major construction components.

- **Other Costs** include utility adjustments, environmental costs, mobilization, maintenance of traffic, initial contingency, and project unknowns.
- **Design** (final design) and **CEI** costs were each included in the total cost.

4.16. SELECTION OF RECOMMENDED ALTERNATIVE

The No-Build Alternative does not meet any of the goals of the project. The No-Build Alternative fails to fulfill the project's purpose and need to remove the at-grade railroad crossing. The No-Build Alternative will not result in improved safety or reduced delay.

While the Build Alternative has costs associated with design, ROW acquisition, and construction, it would result in a four-lane facility that meets established LOS standards while safely accommodating expected future traffic growth. Therefore, the Build Alternative has been selected as the Recommended Alternative.

4.17. PREFERRED ALTERNATIVE

Following the Public Hearing and once approved by the Florida Department of Transportation, the Recommended Alternative becomes the Preferred Alternative.

4.18. REFERENCES

1. *Plans Preparation Manual*; Florida Department of Transportation; Tallahassee, Florida; January 2016.
2. *Drainage Design Concept Report*; Atkins North America, Inc.; Tampa, Florida; January 2015.
3. *Alternative Pond Siting Memorandum*; Faller, Davis & Associates, Inc.; Tampa, Florida; October 2015.
4. *Location Hydraulics Report*; Atkins North America, Inc.; Tampa, Florida; January 2015.
5. *Final Bridge Development Report*; Kisinger Campo and Associated, Corp.; Tampa, Florida; July 2016.

SECTION 5.0

PUBLIC INVOLVEMENT/PROJECT COORDINATION

FDOT conducted a Public Involvement Program for this project's PD&E study. The program is in compliance with the FDOT *Project Development and Environment Manual*, Section 339.155, Florida Statutes; Executive Orders 11990 and 11988; Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA); and 23 CFR 771.

On January 22, 2015, FDOT project manager Amy Setchell gave a PowerPoint presentation to the Polk Transportation Planning Organization (TPO) Technical Advisory Committee (TAC) about the initiation of the PD&E study.

In April 2015, the district mailed a newsletter to property owners and sent e-mails to elected and appointed officials about the study. The newsletter included a project location map, proposed typical section and FDOT work program schedule.

On December 3, 2015 and December 10, 2015, Ms. Setchell presented a PowerPoint show to the TAC and TPO board, respectively. She provided an update on the study's progress and announced an upcoming meeting with project stakeholders.

The district held a stakeholders meeting from 5 p.m. to 7 p.m. on Tuesday, December 15, 2015 at Polk State College Advanced Technology Center in Bartow. FDOT mailed a newsletter to property owners and sent e-mails to elected and appointed officials inviting them to the meeting. Five people attended the meeting to review preliminary design plans and discuss the project with department representatives. FDOT did not receive any written comments or e-mail comments during the comment period ending December 28, 2015.

FDOT will hold a public hearing on November 17, 2016, at Polk State College Advanced Technology Center in Bartow.

This section will be completed after the Public Hearing.

SECTION 6.0

RECOMMENDED ALTERNATIVE

6.1. TYPICAL SECTION PACKAGE

The Typical Section Package is included in **Appendix D**.

6.2. INTERSECTION CONCEPTS AND SIGNAL ANALYSIS

As shown in the Concept Plans in Appendix A, each median opening includes a left turn lane. SR 60 is designated as an SIS Facility. The LOS Standard is "C". There are no signalized intersections, crosswalks, or pedestrian signals. Non-signalized frontage road connection includes a stop control.

6.3. DESIGN TRAFFIC VOLUMES

A *Traffic Technical Memorandum*¹ was prepared to document the traffic evaluations. The memo is summarized in Section 3 of this report.

6.4. RIGHT OF WAY NEEDS AND RELOCATION

The proposed roadway improvements will require 232 ft of ROW, with ROW being acquired on both sides of SR 60 (predominantly on the north side). The proposed roadway improvements will require additional ROW acquisition along the north side of SR 60 to accommodate the ultimate six-lane roadway, frontage road, and driveways. Additional ROW is also required along the south side of SR 60 to accommodate the frontage road connection to serve business parcels west of the CSX railroad. The proposed improvements will require a total of 6.0 acres of new ROW along the SR 60 mainline. Two off-site stormwater management facilities (ponds) are needed. Pond 1, on the north side of SR 60 west of the Peace Creek Drainage Canal, will require approximately 2.93 acres of new ROW that will be obtained via a land swap with a private land owner for comparable acreage of land owned by FDOT (a former borrow pit). Pond 3 is approximately 3.79 acres on the north side of SR 60 east of the CSX railroad and will not require ROW acquisition as it is located on a parcel already owned by FDOT. A minor amount (0.03 acre) of drainage easements will be needed for pond inflow/outfall facilities and maintenance ingress/egress to the ponds. These typical sections require between 267-ft and 432 ft of ROW, with ROW being acquired on both sides of SR 60, as shown in the Concept Plans in Appendix A.

The project will affect eleven (11) parcels, but will not require any business or residential relocations. As a result, a *Conceptual Stage Relocation Plan* was not prepared in accordance with the provisions set forth in 49 CFR, Part 24.4 of the Uniform Relocation Assistance and Acquisition Act of 1970, since no residential or business relocations are anticipated for this project, and access

is maintained to all parcels. Should this change, the Florida Department of Transportation will carry out a Right of Way and Relocation Program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17).

6.5. COST ESTIMATES

The estimated construction costs for the Recommended Alternative are summarized in **Table 6-1**. The costs were calculated using the FDOT’s LRE method. The estimated total construction cost for the roadway and bridge improvements is \$49,396,877. The construction costs were generated using January, 2016 dollars and include MOT, mobilization, and unknowns/initial contingency costs.

The Final Design cost (actual) is \$3,460,000. CEI is estimated at 12% of the construction costs for a total of \$5,927,625.

ROW costs were estimated at \$1,305,000.

Table 6-1: Estimated Project Costs

Component	Total
Earthwork	\$6,719,912
Roadway	\$6,045,253
Shoulder	\$414,120
Median	\$1,296,413
Drainage	\$2,342,840
Signing	\$94,174
Signalization	\$0
Bridges	\$13,180,656
Retaining Wall	\$5,297,848
Subtotal	\$35,391,216
MOT (15%)	\$5,308,682
Mobilization (10%)	\$4,069,990
Project Unknowns (10%)	\$4,476,989
Initial Contingency	\$150,000
Construction Cost Total	\$49,396,877
Design (Actual)	\$3,460,000
CEI (12%)	\$5,927,625
Wetland Mitigation	\$61,950

Component	Total
Utilities and Railroad	\$630,000
ROW	\$1,305,000
Total Project Cost	\$60,781,453

6.6. SCHEDULE

Final design is underway and ROW is identified in the FDOT's current Five-Year Work Program for fiscal year 2016/2017. A construction phase is not programmed in the current Tentative Five Year Work Program through fiscal year 2021/2022.

6.7. PEDESTRIAN AND BICYCLE FACILITIES

The Recommended Alternative will result in improved accommodations for bicyclists and pedestrians with the addition of 10 ft outside paved shoulders in both directions within the project. Sidewalks, 8-ft 3-in wide (8-ft 2-in on the bridges) are proposed in each direction throughout the project. At-grade sidewalks can be accommodated in the future widening project.

6.8. UTILITY IMPACTS

Existing utilities will likely be impacted by the project. The type, location, and ownership of existing and proposed utilities were summarized previously in Table 2-3. Depending on the location and depth of the utilities, implementation of the recommended improvements for the project may require adjustment of some of these facilities. Impacts resulting from utility adjustments were considered in the selection of the Recommended Alternative; however, utility relocation costs are not included in the total estimated project costs.

6.9. TEMPORARY TRAFFIC CONTROL PLAN

MOT and sequence of construction will be planned and scheduled to minimize traffic delays throughout the project. Signs will be used to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction-related activities, which could excessively inconvenience the community so that motorists, residents, and business persons can make other accommodations. The existing number of travel lanes on existing roads should be maintained to the maximum extent possible. Lane closures, if necessary, should occur during off-peak hour be followed.

Detailed maintenance of traffic plans have been developed during final design phase. However; the following conceptual construction sequence will help maintain traffic operations:

- Relocate existing utilities within the ROW.
- Construct SMFs.

- Construct the new westbound lanes and overpass while maintaining existing two-way traffic on the existing pavement.
- Move westbound traffic to the new roadway and overpass.
- Construct eastbound roadway and overpass along the existing westbound roadway.
- Shift eastbound traffic to the new eastbound overpass.
- The existing eastbound lanes will become the new frontage road for access to the businesses and electric substation on the south side of SR 60.

6.10. DRAINAGE AND FLOODPLAINS

A *Location Hydraulic Report*², dated January 2015, was completed in accordance with 23 CFR 650 Subpart A, Section 650.111. This document was updated/superseded by the *Final Bridge Hydraulics Report* (BHR), dated July 2016. These reports utilized the National Flood Insurance Program maps to determine highway location encroachments. These reports evaluated risks associated with the implementation of the project, impacts on natural and beneficial floodplain values, the support of incompatible floodplain development, and measures to minimize floodplain impacts. Local, state, and federal water resources and floodplain management agencies were consulted to determine that the proposed project is consistent with existing floodplain management programs.

The project impacts the PCDC and falls within the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) community panel 120261 0545 G. This FIRM panel became effective November 19, 2003. No changes to the FIRM have been made since 2003 according to the local FEMA office. The roadway falls within Zone X, areas within the 500-year floodplain. The roadside ditches and the proposed SMF locations fall in Zone AE, areas within the 100-year floodplain with a base flood elevation of 113 NGVD 29, or 112.081 NAVD 88.

The SWFWMD is also conducting a study of this watershed with an Interconnected Pond Routing (ICPR) model of the PCDC. The PCDC ICPR watershed model is currently being reviewed by FEMA and after review, may be adopted into the updated Flood Insurance Study (FIS) and FIRM. The model is based off the 100-year, 5-day event where the existing FIRM is based off the 100-year, 24-hour event. This model has been reviewed during the design phase for the PCDC Bridge configuration to demonstrate a no change condition for the 100-year and lesser events for the SWFWMD.

The proposed improvements within Basin 1 and Basin 3 have less than 0.2 acres of floodplain impact. This volume (cup for cup) will be compensated with the regrading of the outfall ditch. The amount of floodplain within the project is minimal and will be compensated for in the reconstruction of the outfall ditches. The construction of this project will not affect the 100-year flood stage; therefore have no adverse effect on the floodplain.

The PCDC is classified as a FEMA floodway in the Flood Insurance Study (FIS) for Polk County effective September 28, 2012 (FEMA FIS Polk County, Florida, Table 7, Page 62 and 63). There are two existing bridges within the project limits over the PCDC. The westbound bridge is considered functionally obsolete and will be removed during construction. The eastbound bridge is still within its design life and will be repurposed as the frontage road with the northern alignment shift. The new bridge will be constructed to carry the mainline traffic over the PCDC. The PCDC is not navigable; therefore, the horizontal clearance provided shall be consistent with debris conveyance needs, and structure economics. A FEMA “no-rise” certification (BHR Appendix M) has been completed as part of project the design phase.

Based on the information collected during this study, the proposed improvement can be categorized as a Type 4 project (i.e., projects on existing alignment involving replacement of existing drainage structures with no record of drainage problems).

The proposed structure will perform hydraulically in a manner equal to or greater than the existing structure, and backwater surface elevations are not expected to increase. Project design has avoided or offset floodplain encroachments within the project corridor to the maximum extent practicable. As a result, there will be no substantial adverse impacts on natural and beneficial floodplain values. There will be no substantial change in flood risk, and there will not be a substantial change in the potential for interruption or termination of emergency service or emergency evacuation routes.

6.11. BRIDGE ANALYSIS

SR 60 is currently carried over the Peace Creek Drainage Canal on two bridges; eastbound bridge number 160133 and westbound bridge number 160045 (See Figure 2-2). The existing condition of the eastbound bridge is good; therefore, in the proposed concept, it will continue in service to carry the frontage road over the Peace Creek Drainage Canal.

There are six new bridges proposed to carry SR 60 over the various crossings. Twin bridges over the Peace Creek Drainage Canal, twin bridges over the driveway and the gas line, and the twin bridges over CSX railroad. Figure 5-3 shows the typical section at each crossing.

The span arrangement of the new bridges over the Peace Creek Drainage Canal will be likely be a 3 span bridge. Florida I-Beams will support the bridge deck for these bridges. The foundations will be prestressed concrete pile bents with a bent cap to support the superstructure.

The span arrangement of the new bridges over the driveway and the gas line will be a single span bridge. Florida I-Beams will support the bridge deck for these bridges. The foundations will be prestressed concrete piles behind MSE walls.

The span arrangement of the new bridges over CSX railroad will be single span bridge. Florida I-Beams or steel plate girders will support the bridge deck for these bridges. The foundations will be prestressed concrete piles behind MSE walls.

Figure 5-4 shows the existing eastbound SR 60 bridge will be modified to remove the outer portion of the deck to replace the barrier walls so the bridge can continue in use to carry the low-volume frontage road over the Peace Creek Drainage Canal. The bridge will carry two 12-ft lanes with two 3.5-ft shoulders. A Design Variation will be needed since the shoulder width does not meet the standard 8-ft shoulder width indicated in the FDOT *Plans Preparation Manual*¹ Figure 2.0.2.

The construction of the new bridges can be done while maintaining traffic. The construction cost to construct all six bridges and replace the traffic barrier on the frontage road bridge over the Peace Creek Drainage Canal is estimated at \$6,435,082.

6.12. SPECIAL FEATURES

FDOT may consider context sensitive solutions such as aesthetic features and landscaping during the design phase so that the project is in harmony with the community and preserves and/or enhances the natural, environmental, scenic and aesthetic values of the area. The placement and maintenance of any landscaping shall comply with the required clear zone and sight distance at intersections. No other provisions or commitments were made regarding special aesthetic features, lighting, or noise walls.

6.13. ACCESS MANAGEMENT

SR 60 is currently Access Class 3 (Restrictive) within the study area. The Access Classification is not proposed to be changed. As discussed previously in Section 4.12, five existing median openings are proposed for closure, and a new full median opening is proposed at the location of the frontage road connection (to the west of Pond 1 at station 3375+20 baseline construction). Proposed changes to median openings are illustrated on the Concept Plans in Appendix A. In compliance with Section 335.199 F.S. (*Transportation projects modifying access to adjacent property*), this change was presented on the concepts shown at the Public Hearing.

6.14. VARIATIONS AND EXCEPTIONS

Design Variations are required when design standards do not meet *Plans Preparation Manual (PPM)*³, but meet *A Policy on Geometric Design of Highways and Streets (AASHTO)*⁴ standards. Design Variation Requests have been approved for base clearance, border width, inside shoulder width, and median width. These Design Variation Requests are in the project file, and are summarized below.

Base Clearance

The *PPM* Table 2.6.3 requires the base clearance for a rural multilane mainline roadway to be three ft. AASHTO does not directly address this element. Base clearance deviations are due to the deficient base clearances on the existing roadway where the connections to this project occur. Within the short segments where base clearance is deficient, a thicker pavement design to offset the resilient modulus reduction may be required. The existing pavement design does not indicate

any allowances for reduced base clearances. Profile grade changes to mitigate the elevated water table would require costly changes, with little or no benefit. A Design Variation was approved by the District Design Engineer on November 2, 2015.

Border Width

The *PPM* Table 2.5.1 requires a 40-ft border width for arterials and collectors (flush shoulders, design speed greater than 45 mph). *AASHTO* does not directly address this element. A Design Variation was requested to provide a minimum 20.5 ft of border along short segments of the roadway in the area at permanent retaining wall on the north side and a short segment with a border width of 28 ft along the existing SR 60 that is to remain in its current configuration. The border was evaluated for safety and operations, cost, and ROW and relocation impacts. The proposed border width is sufficient to provide space for maintenance and construction access, drainage, and permitted public utilities. Acquiring additional ROW solely to meet border width criteria would be costly with little or no benefit. A Design Variation was approved by the District Design Engineer on October 30, 2015.

Median and Shoulder Width

The *PPM* Table 2.2.1 requires a 40-ft median for arterials and collector roads with a design speed greater than 45 mph. For a six-lane facility with “normal” traffic volumes, the total median or left shoulder width is ten ft, with zero paved. Based on *AASHTO*, the minimum median width is 4 ft. A Design Variation was requested to provide a minimum 23.5-ft median width. The *PPM* Table 2.5.2 requires the shoulder width for an auxiliary lane be the same as the travel lane, or 12-ft. A Design Variation was requested to provide a left turn lane inside shoulder width that will vary from 4-ft to 10-ft. Concrete barrier and Mechanically Stabilized Earth (MSE) walls have been incorporated to minimize the footprint of the grade separation along with a narrower median. The narrower median is also necessary to match the bridge median width, which is 23.5 ft. The westbound left turn lane overlaps the median width transition to minimize the limits of SR 60 reconstruction. Avoiding the overlap would extend the project an additional 600 ft. Using a 40-ft median would greatly increase the footprint of the grade separation, require substantially more ROW, and impact additional wetlands, a billboard, and require a relocation, at an estimated increased cost of \$950,000. Acquiring additional ROW solely to meet median and shoulder width criteria would be costly with little or no benefit. A Design Variation was approved by the District Design Engineer on October 30, 2015.

6.15. REFERENCES

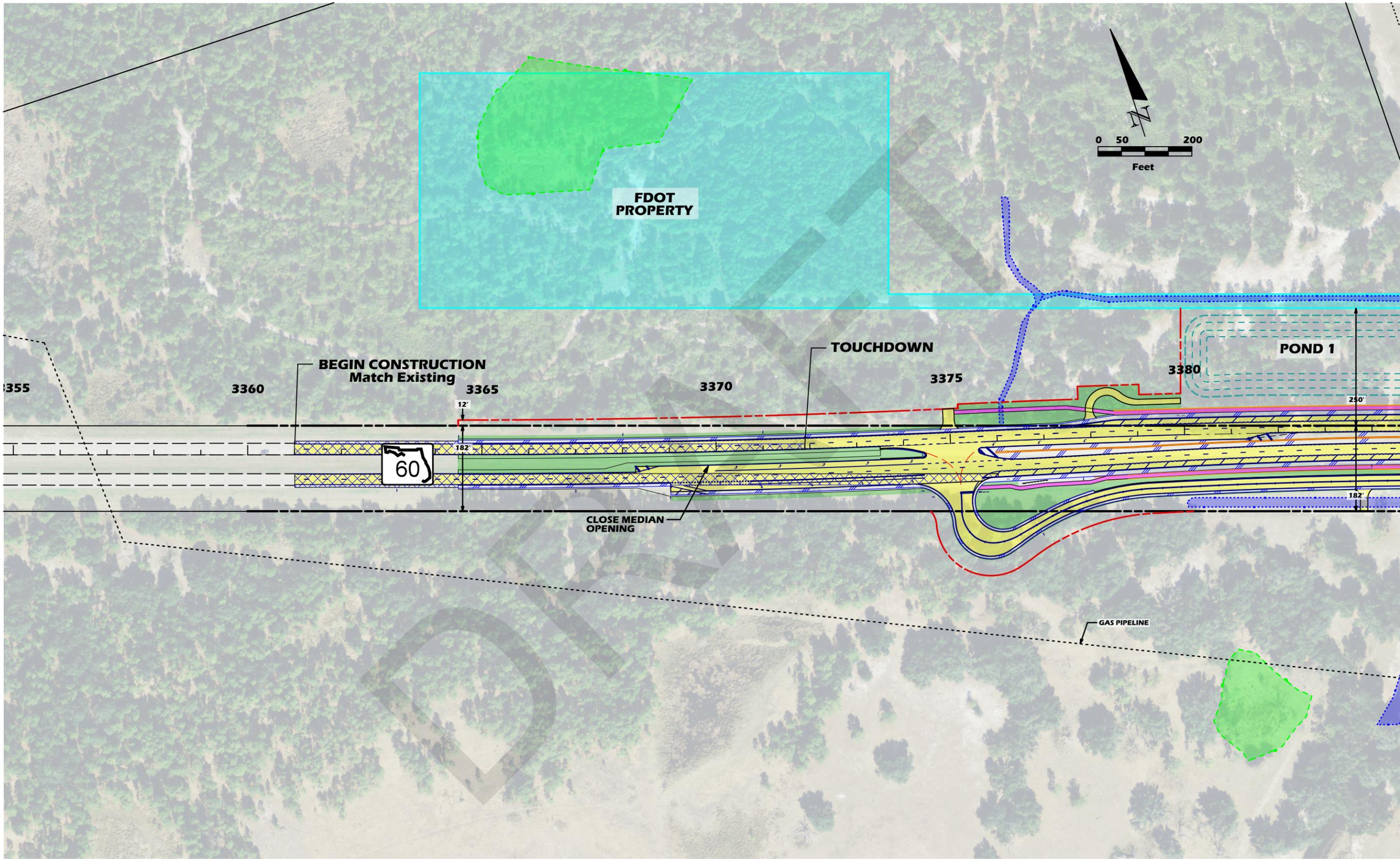
1. *Traffic Technical Memorandum*; Atkins North America, Inc.; Bartow, Florida; November 25, 2014.
2. *Location Hydraulics Report*, Atkins North America, Inc.; Tampa, Florida; January 2015.
3. *Plans Preparation Manual*; Florida Department of Transportation; Tallahassee, Florida; January 2016.

4. *A Policy on Geometric Design of Highways and Streets (ASSHTO)*; American Association of State Highway and Transportation Officials (AASHTO)

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APPENDIX A
CONCEPT PLANS

DRAFT



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PRELIMINARY

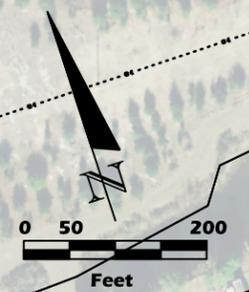
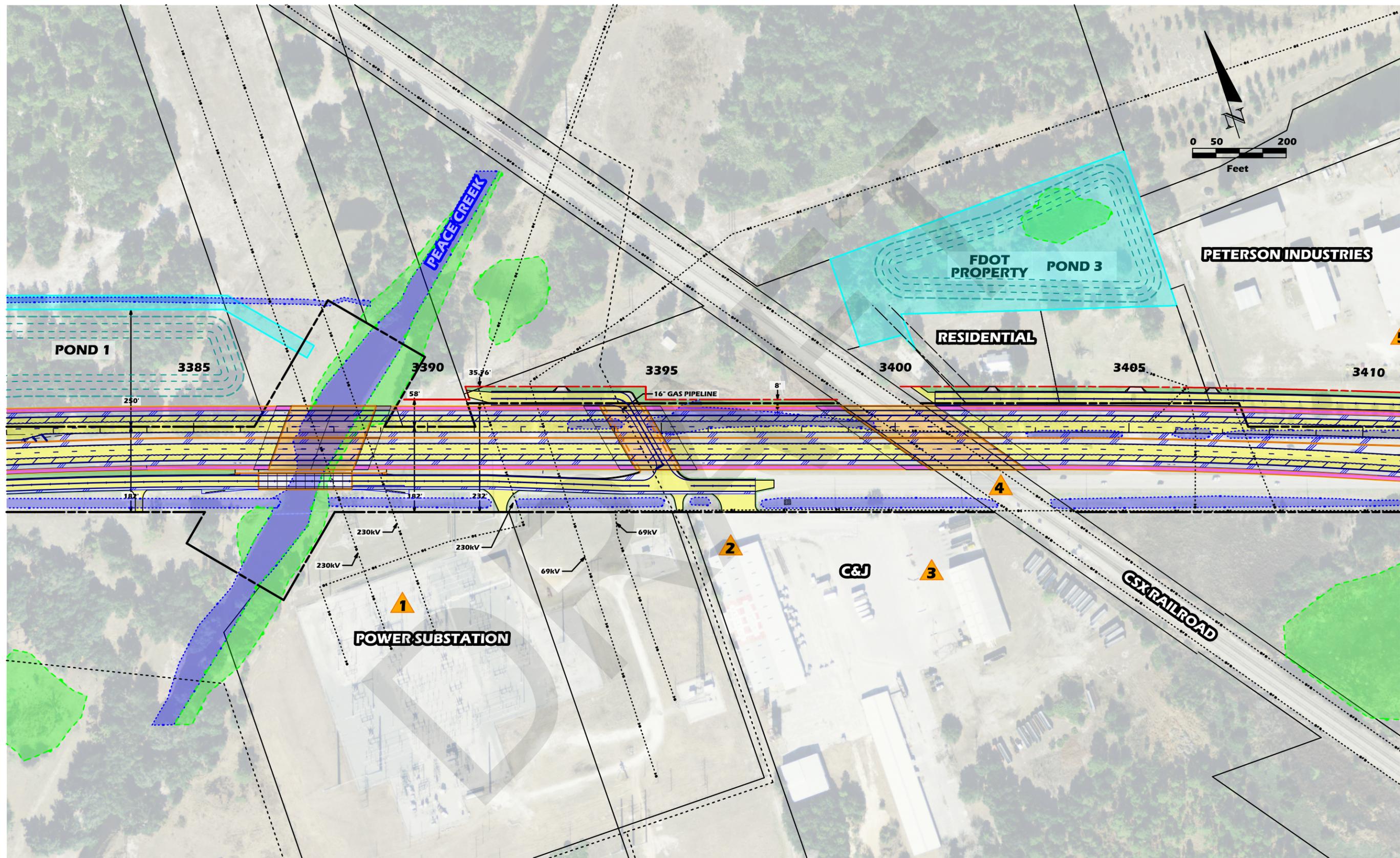
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	PROPERTY LINE		PROPOSED BRIDGE		FDOT PROPERTY		STORMWATER MANAGEMENT PONDS
	EXISTING R/W LINE		POTENTIAL CONTAMINATION SITE				
	PROPOSED R/W LINE		PROPOSED SIDEWALK				
	PROPOSED EASEMENT						

ATKINS NORTH AMERICA, INC.
 4030 WEST BOY SCOUT BLVD
 SUITE 700
 TAMPA, FL 33607

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	POLK	436599-1-22-01

**SR 60 GRADE SEPARATION
 OVER CSX RAILROAD
 PLAN SHEET**

SHEET NO.
01



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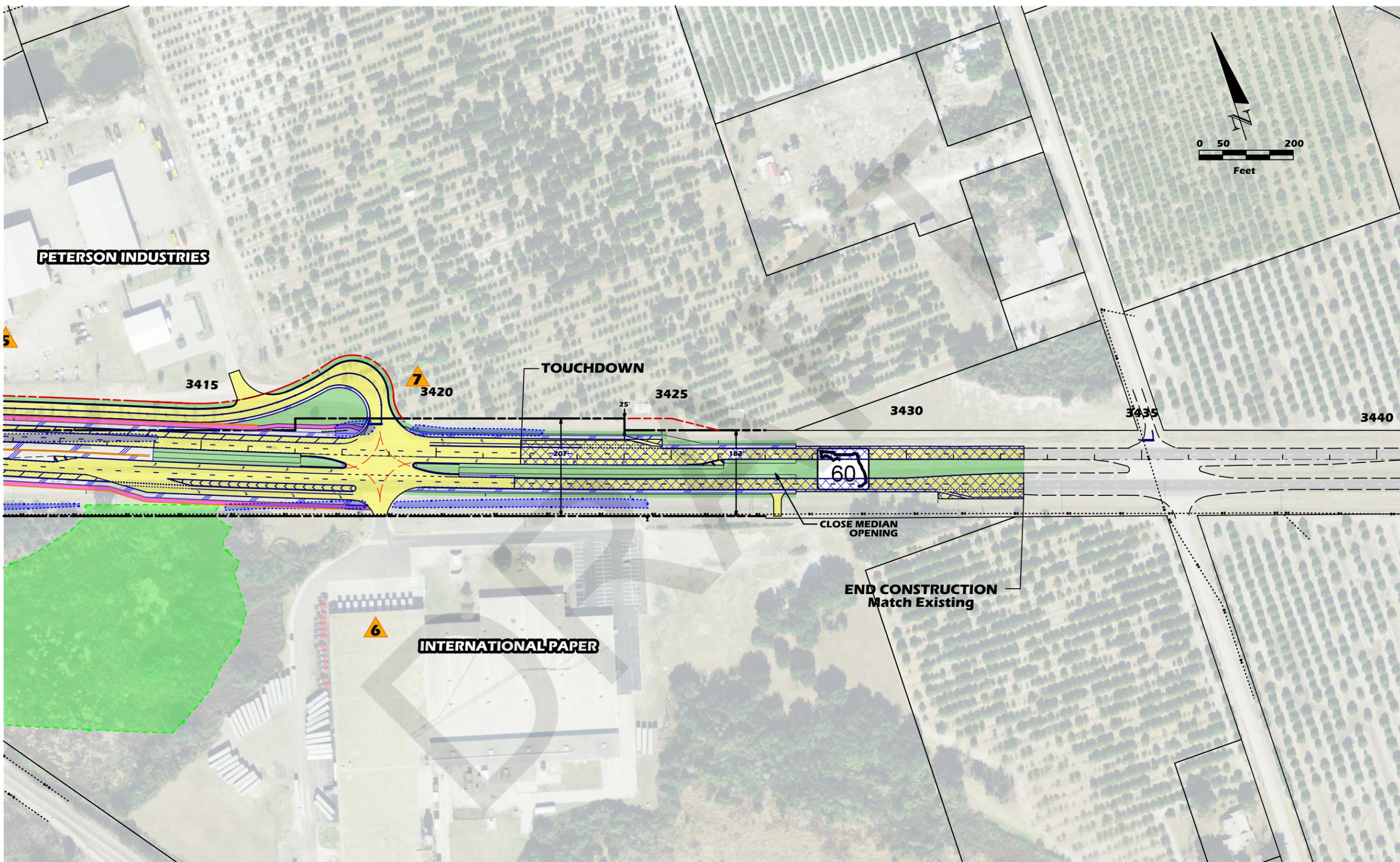
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	PROPERTY LINE		PROPOSED BRIDGE		FDOT PROPERTY		STORMWATER MANAGEMENT PONDS
	EXISTING R/W LINE		POTENTIAL CONTAMINATION SITE				
	PROPOSED R/W LINE		PROPOSED SIDEWALK				
	PROPOSED EASEMENT						

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SR 60	POLK	436599-1-22-01

SR 60 GRADE SEPARATION
 OVER CSX RAILROAD
 PLAN SHEET

SHEET NO.
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	PROPERTY LINE		PROPOSED BRIDGE		FDOT PROPERTY		
	EXISTING R/W LINE		POTENTIAL CONTAMINATION SITE		STORMWATER MANAGEMENT PONDS		
	PROPOSED R/W LINE		PROPOSED SIDEWALK				
	PROPOSED EASEMENT						

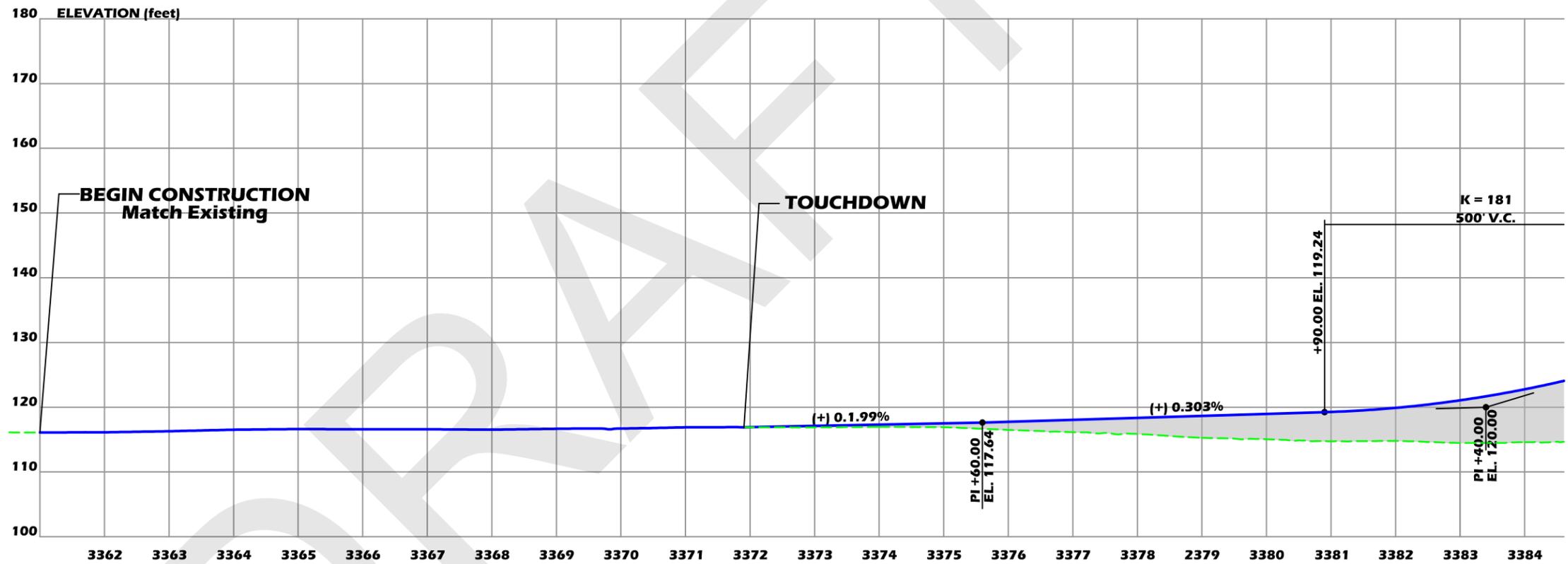
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 SUITE 700
 TAMPA, FL 33607

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	POLK	436599-1-22-01

**SR 60 GRADE SEPARATION
 OVER CSX RAILROAD
 PLAN SHEET**

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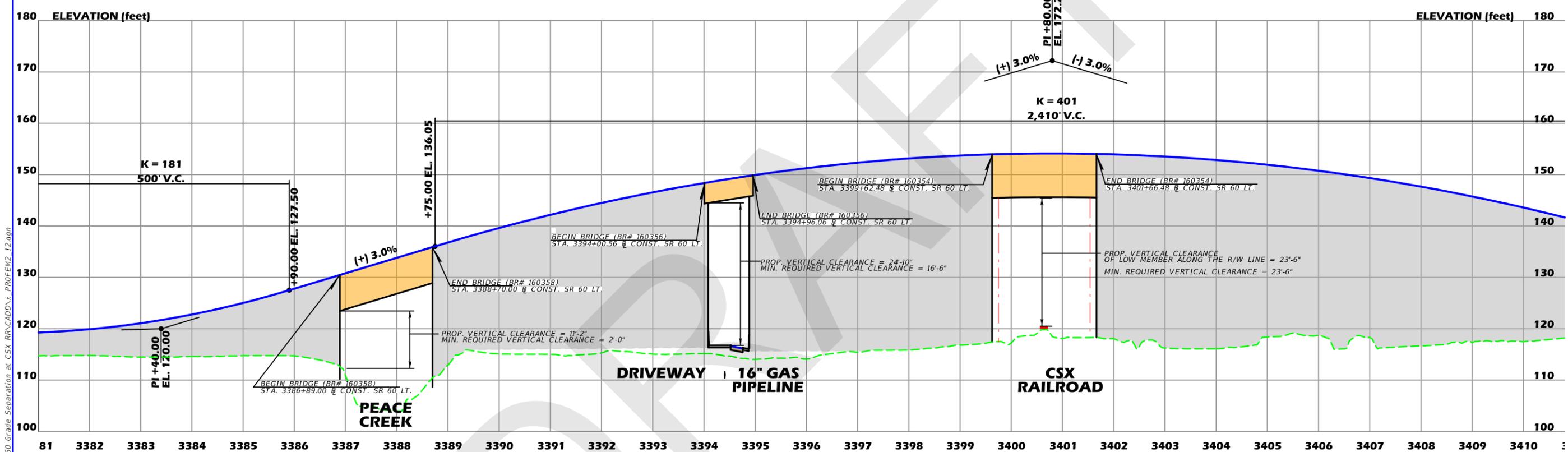
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**SR 60 GRADE SEPARATION
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	PROPERTY LINE		PROPOSED BRIDGE		FDOT PROPERTY		
	EXISTING R/W LINE		POTENTIAL CONTAMINATION SITE		STORMWATER MANAGEMENT PONDS		
	PROPOSED R/W LINE		PROPOSED SIDEWALK				
	PROPOSED EASEMENT						

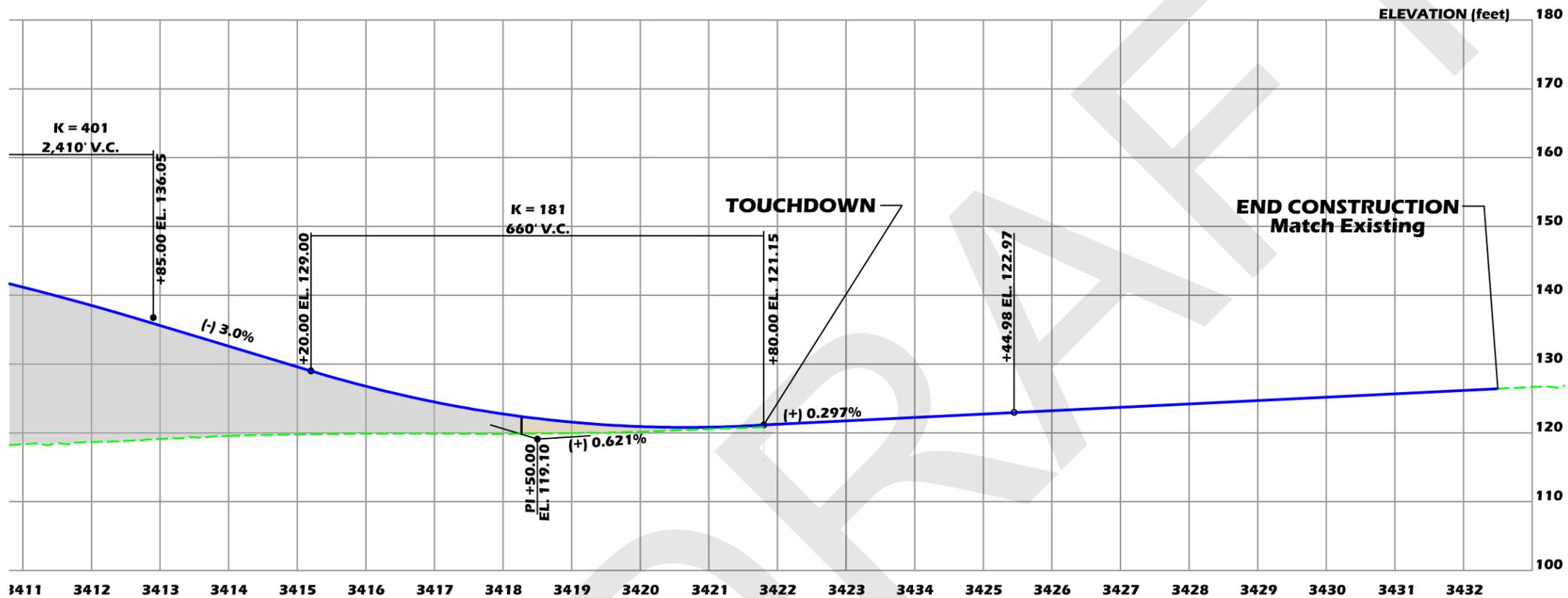
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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 PROFILE SHEET**

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PRELIMINARY

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	PROPERTY LINE		PROPOSED BRIDGE		FDOT PROPERTY		
	EXISTING R/W LINE		POTENTIAL CONTAMINATION SITE		STORMWATER MANAGEMENT PONDS		
	PROPOSED R/W LINE		PROPOSED SIDEWALK				
	PROPOSED EASEMENT						

ATKINS NORTH AMERICA, INC.
 4030 WEST BOY SCOUT BLVD
 SUITE 700
 TAMPA, FL 33607

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 60	POLK	436599-1-22-01

**SR 60 GRADE SEPARATION
 OVER CSX RAILROAD
 PROFILE SHEET**

SHEET NO.
06

APPENDIX B
HORIZONTAL GEOMETRY

DRAFT

<* 2 Describe Chain BLPGLLT

Chain BLPGLLT contains:

1000 CUR BLPGLLT1 CUR BLPGLLT2 CUR BLPGLLT3 CUR BLPGLLT4 1001

Beginning chain BLPGLLT description

=====

Point 1000 N 1,300,175.5262 E 758,514.9631 Sta 3320+00.00

Course from 1000 to PC BLPGLLT1 S 71° 57' 41.00" E Dist 4,449.3380

Curve Data

Curve BLPGLLT1

P. I. Station	3369+84.37	N	1,298,632.0778	E	763,254.3391
Delta	=	2° 40' 37.31"	(LT)		
Degree	=	0° 15' 00.80"			
Tangent	=	535.0292			
Length	=	1,069.8637			
Radius	=	22,898.0000			
External	=	6.2498			
Long Chord	=	1,069.7664			
Mi d. Ord.	=	6.2481			
P. C. Station	3364+49.34	N	1,298,797.7538	E	762,745.6076
P. T. Station	3375+19.20	N	1,298,490.3435	E	763,770.2534
C. C.		N	1,320,570.2726	E	769,836.1526
Back	=	S 71° 57' 41.00"	E		
Ahead	=	S 74° 38' 18.31"	E		
Chord Bear	=	S 73° 17' 59.66"	E		

Curve Data

BLPGL_LT_Alignment.txt

Curve BLPGLLT2

P. I. Station	3380+54.70	N	1,298,348.4853	E	764,286.6184
Delta	=	2° 40' 37.32"	(RT)		
Degree	=	0° 15' 00.01"			
Tangent	=	535.4965			
Length	=	1,070.7982			
Radius	=	22,918.0000			
External	=	6.2553			
Long Chord	=	1,070.7008			
Mi d. Ord.	=	6.2536			
P. C. Station	3375+19.20	N	1,298,490.3435	E	763,770.2534
P. T. Station	3385+90.00	N	1,298,182.6646	E	764,795.7942
C. C.		N	1,276,391.1289	E	757,699.0560
Back	= S	74° 38' 18.31"	E		
Ahead	= S	71° 57' 41.00"	E		
Chord Bear	= S	73° 17' 59.66"	E		

Course from PT BLPGLLT2 to PC BLPGLLT3 S 71° 57' 41.00" E Dist 1,730.0000

Curve Data

Curve BLPGLLT3

P. I. Station	3408+55.50	N	1,297,481.1359	E	766,949.9372
Delta	=	2° 40' 37.31"	(RT)		
Degree	=	0° 15' 00.01"			
Tangent	=	535.4965			
Length	=	1,070.7982			
Radius	=	22,918.0000			
External	=	6.2553			
Long Chord	=	1,070.7008			
Mi d. Ord.	=	6.2536			

BLPGL_LT_Alignment.txt

P. C. Station	3403+20.00	N	1,297,646.9566	E	766,440.7614
P. T. Station	3413+90.80	N	1,297,291.7146	E	767,450.8125
C. C.		N	1,275,855.4208	E	759,344.0232
Back	= S	71° 57' 41.00"	E		
Ahead	= S	69° 17' 03.69"	E		
Chord Bear	= S	70° 37' 22.34"	E		

Curve Data

Curve BLPGLLT4

P. I. Station	3419+25.83	N	1,297,102.4586	E	767,951.2508
Delta	=	2° 40' 37.31"	(LT)		
Degree	=	0° 15' 00.80"			
Tangent	=	535.0292			
Length	=	1,069.8637			
Radius	=	22,898.0000			
External	=	6.2498			
Long Chord	=	1,069.7664			
Mid. Ord.	=	6.2481			
P. C. Station	3413+90.80	N	1,297,291.7146	E	767,450.8125
P. T. Station	3424+60.66	N	1,296,936.7826	E	768,459.9822
C. C.		N	1,318,709.3014	E	775,550.5273
Back	= S	69° 17' 03.69"	E		
Ahead	= S	71° 57' 41.00"	E		
Chord Bear	= S	70° 37' 22.34"	E		

Course from PT BLPGLLT4 to 1001 S 71° 57' 41.00" E Dist 1,800.7240

Point 1001	N	1,296,379.1743	E	770,172.1972	Sta 3442+61.39
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DRAFT

APPENDIX C
VERTICAL GEOMETRY

DRAFT

<* 1 Print Profile BLPGL_LT

Beginning profile BLPGL_LT description:

=====

		STATION	ELEV	GRADE	TOTAL L	BACK L	AHEAD L
VPI	1	3371+90.00	116.9050				
VPI	2	3375+60.00	117.6400	0.1986			
VPC		3380+90.00	119.2436	0.3026	K = 185.4		
VPI	3	3383+40.00	120.0000		500.0000	250.0000	250.0000
VPT		3385+90.00	127.5000	3.0000			
VPC		3388+75.00	136.0500	3.0000	K = 401.7 SSD = 931.0		
High Point		3400+80.00	154.1250				
VPI	4	3400+80.00	172.2000		2,409.9979	1,204.9989	1,204.9989
VPT		3412+85.00	136.0500	-3.0000			
VPC		3415+20.00	129.0000	-3.0000	K = 182.3		
VPI	5	3418+50.00	119.1000		660.0000	330.0000	330.0000
Low Point		3420+66.78	120.7983				
VPT		3421+80.00	121.1500	0.6212			

=====

Ending profile BLPGL_LT description

APPENDIX D
TYPICAL SECTION PACKAGE

DRAFT

TYPICAL SECTION PACKAGE

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

FINANCIAL PROJECT ID 436559-1-52-01

POLK COUNTY (16110)

STATE ROAD NO. 60

GRADE SEPARATION OVER CSX RAILROAD



END BRIDGE
PEACE CREEK
DRAINAGE CANAL
STA. 3388+57.93

TO
HAINES
CITY

BEGIN BRIDGE
CSX RAILROAD
STA. 3399+62.48

BEGIN BRIDGE
PEACE CREEK
DRAINAGE CANAL
STA. 3386+97.93

END BRIDGE
CSX RAILROAD
STA. 3401+66.48

END PROJECT
STA. 3427+65.44
MP 25.991

TO
BARTOW

T-29-S
T-30-S

T-29-S
T-30-S

TO
VERO
BEACH

BEGIN PROJECT
STA. 3364+49.34
MP 24.849

BEGIN BRIDGE
NW FRONTAGE RD
FUEL LINE
STA. 3394+00.56

R-26-E
R-27-E

CSX RAILROAD
STA. 3400+64.19
RR# 625419 N
RR MP #SX 834.53

TO
AVON
PARK

END BRIDGE
NW FRONTAGE RD
FUEL LINE
STA. 3394+96.06

PREPARED BY

FALLER, DAVIS & ASSOCIATES, INC.
5525 W. CYPRESS ST.
TAMPA, FLORIDA 33607-1707
CERTIFICATE OF AUTHORIZATION NO.: 5864
KENNETH R. MUZYK, JR., P.E. NO.: 44076



PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 436559-1-52-01 COUNTY (SECTION) POLK (16110)
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROJECT CONTROLS - SR 60

FUNCTIONAL CLASSIFICATION

- () RURAL
 (X) URBAN
 () FREEWAY/EXPWY. () MAJOR COLL.
 (X) PRINCIPAL ART. () MINOR COLL.
 () MINOR ART. () LOCAL

HIGHWAY SYSTEM

- Yes No
 () (X) NATIONAL HIGHWAY SYSTEM
 (X) () FLORIDA INTRASTATE HIGHWAY SYSTEM
 (X) () STRATEGIC INTERMODAL SYSTEM
 (X) () STATE HIGHWAY SYSTEM
 () (X) OFF STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

- () 1 - FREEWAY
 () 2 - RESTRICTIVE w/Service Roads
 (X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
 () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
 () 5 - RESTRICTIVE w/440 ft. Connection Spacing
 () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
 () 7 - BOTH MEDIAN TYPES

TRAFFIC

SR 60	YEAR	AADT
CURRENT	2015	23000
OPENING	2020	26400
DESIGN	2040	40300

DISTRIBUTION

DESIGN SPEED	70	K	9.0%
POSTED SPEED	65	D	55.9%
		T24	21.1%

CRITERIA

- (X) NEW CONSTRUCTION / RECONSTRUCTION
 () RRR INTERSTATE / FREEWAY
 () RRR NON-INTERSTATE / FREEWAY
 () TDLC / NEW CONSTRUCTION / RECONSTRUCTION
 () TDLC / RRR
 () MANUAL OF UNIFORM MINIMUM STANDARDS
 (FLORIDA GREENBOOK)(OFF-STATE HIGHWAY SYSTEM ONLY)

DESIGN SPEED APPROVALS

B.A. Masing 11-24-15
 DISTRICT DESIGN ENGINEER DATE
[Signature] 11/24/15
 DISTRICT TRAFFIC OPERATIONS ENGINEER DATE

LIST ANY POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION ELEMENTS:

BORDER WIDTH
 MEDIAN WIDTH
 BASE CLEARANCE

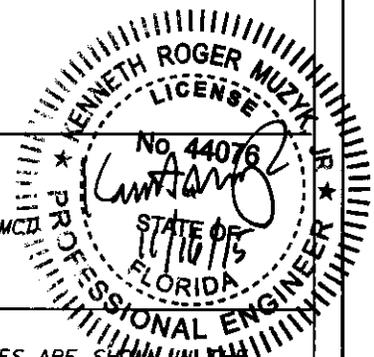
LIST MAJOR STRUCTURES LOCATION/DESCRIPTION - REQUIRING INDEPENDENT STRUCTURE DESIGN:

SR 60 BRIDGE OVER PEACE CREEK DRAINAGE CANAL (NEW)
 SR 60 BRIDGE OVER NW FRONTAGE ROAD/FUEL LINE (NEW)
 SR 60 BRIDGE OVER CSX RAILROAD (NEW)

LIST MAJOR UTILITIES WITHIN PROJECT CORRIDOR:

CENTRAL FLORIDA GAS
 KINDER - MORGAN/CENTRAL FLORIDA PIPELINE
 COMCAST CABLEVISION
 FLORIDA GAS TRANSMISSION LAKE LAND
 DUKE ENERGY - TRANSMISSION
 DUKE ENERGY - DISTRIBUTION

VERIZON FLORIDA INC.
 LEVEL 3 COMMUNICATION
 VERIZON BUSINESS (FORMERLY MCI)



LIST OTHER INFORMATION PERTINENT TO DESIGN OF PROJECT:

CONSTRUCTING 6-LANES AND STRIPING THE INSIDE 4-LANES FOR TRAFFIC. THE FUTURE LANES ARE SHOWN IN THE TYPICAL SECTIONS.
 REDUCED MEDIAN WIDTH TO MINIMIZE THE GRADE SEPARATION OVER CSX RAILROAD FOOTPRINT.
 8' SIDEWALKS ARE PROVIDED TO ACCOMMODATE PEDESTRIAN AND BICYCLE TRAFFIC.

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 436559-1-52-01 COUNTY (SECTION) POLK (16110)
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROJECT CONTROLS - FRONTAGE ROADS

FUNCTIONAL CLASSIFICATION

- () RURAL
 (X) URBAN
 () FREEWAY/EXPWY. () MAJOR COLL.
 () PRINCIPAL ART. () MINOR COLL.
 () MINOR ART. (X) LOCAL

HIGHWAY SYSTEM

- Yes No
 () (X) NATIONAL HIGHWAY SYSTEM
 () (X) FLORIDA INTRASTATE HIGHWAY SYSTEM
 () (X) STRATEGIC INTERMODAL SYSTEM
 () (X) STATE HIGHWAY SYSTEM
 (X) () OFF STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION (N/A)

- () 1 - FREEWAY
 () 2 - RESTRICTIVE w/Service Roads
 () 3 - RESTRICTIVE w/660 ft. Connection Spacing
 () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
 () 5 - RESTRICTIVE w/440 ft. Connection Spacing
 () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
 () 7 - BOTH MEDIAN TYPES

TRAFFIC

FRONTAGE ROADS

	YEAR	AADT
CURRENT	2015	≤ 400
OPENING	2020	≤ 400
DESIGN	2040	≤ 400

DISTRIBUTION

DESIGN SPEED	30	K	N/A
POSTED SPEED	25	D	N/A
		T ₂₄	N/A

CRITERIA

- () NEW CONSTRUCTION / RECONSTRUCTION
 () RRR INTERSTATE / FREEWAY
 () RRR NON-INTERSTATE / FREEWAY
 () TDLC / NEW CONSTRUCTION / RECONSTRUCTION
 () TDLC / RRR
 (X) MANUAL OF UNIFORM MINIMUM STANDARDS
 (FLORIDA GREENBOOK)(OFF-STATE HIGHWAY SYSTEM ONLY)

DESIGN SPEED APPROVALS

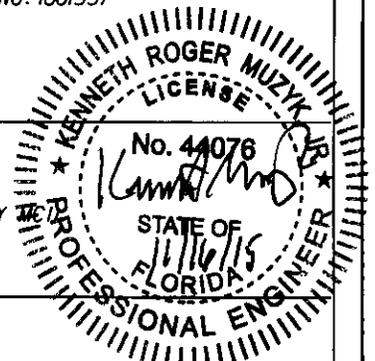
B.A. Manning 11-24-15
 DISTRICT DESIGN ENGINEER DATE
Robert 11/24/15
 DISTRICT TRAFFIC OPERATIONS ENGINEER DATE

LIST ANY POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION ELEMENTS:
 NONE

LIST MAJOR STRUCTURES LOCATION/DESCRIPTION - REQUIRING INDEPENDENT STRUCTURE DESIGN:
 SW FRONTAGE ROAD BRIDGE (EXISTING) OVER THE PEACE CREEK DRAINAGE CANAL (BRIDGE NO. 160133)

LIST MAJOR UTILITIES WITHIN PROJECT CORRIDOR:
 CENTRAL FLORIDA GAS
 KINDER - MORGAN/CENTRAL FLORIDA PIPELINE
 COMCAST CABLEVISION
 FLORIDA GAS TRANSMISSION LAKELAND
 DUKE ENERGY - TRANSMISSION
 DUKE ENERGY - DISTRIBUTION

VERIZON FLORIDA INC.
 LEVEL 3 COMMUNICATION
 VERIZON BUSINESS (FORMERLY

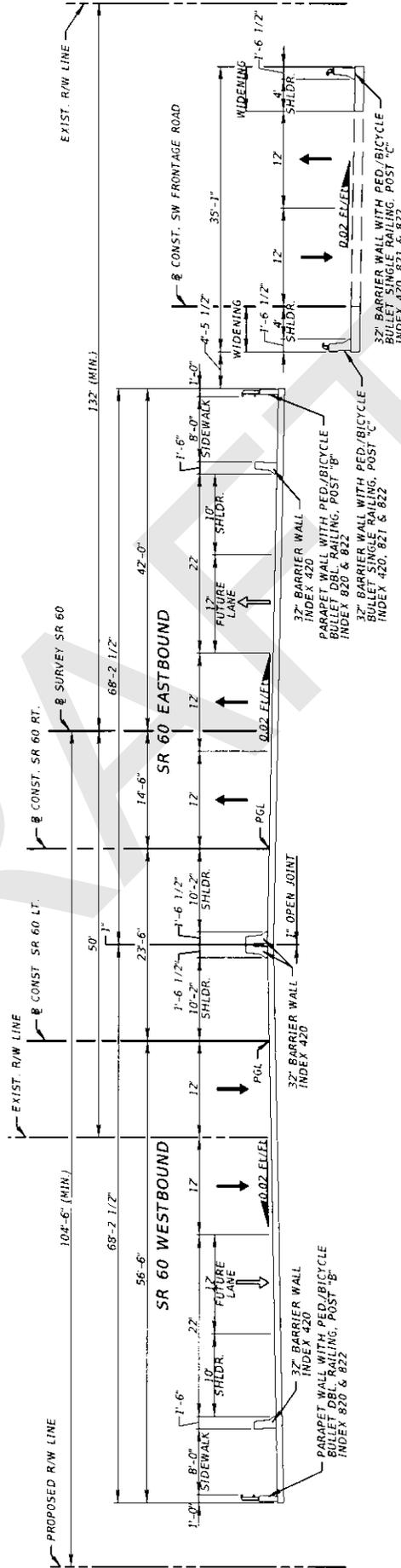


LIST OTHER INFORMATION PERTINENT TO DESIGN OF PROJECT:
 THREE FRONTAGE ROADS ARE PROVIDED FOR RESIDENTIAL AND BUSINESS ACCESS.
 SW FRONTAGE ROAD - HIGH TRUCK PERCENTAGE ANTICIPATED.
 NW AND NE FRONTAGE ROAD - VERY LOW-VOLUME TRAFFIC ANTICIPATED.

PROJECT IDENTIFICATION

FINANCIAL PROJECT ID 436559-1-52-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK
 SECTION NO. 16110 ROAD DESIGNATION SR 60 LIMITS/MILEPOST MP 24.849 TO MP 25.991
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROPOSED STRUCTURE TYPICAL SECTION



SR 60 BRIDGES
 OVER PEACE CREEK DRAINAGE CANAL

STA. 3388+35.75 TO 3388+89.37 & CONST. SR 60 LT. STA. 4386+89.37 TO STA. 4388+49.37 & CONST. SR 60 RT.

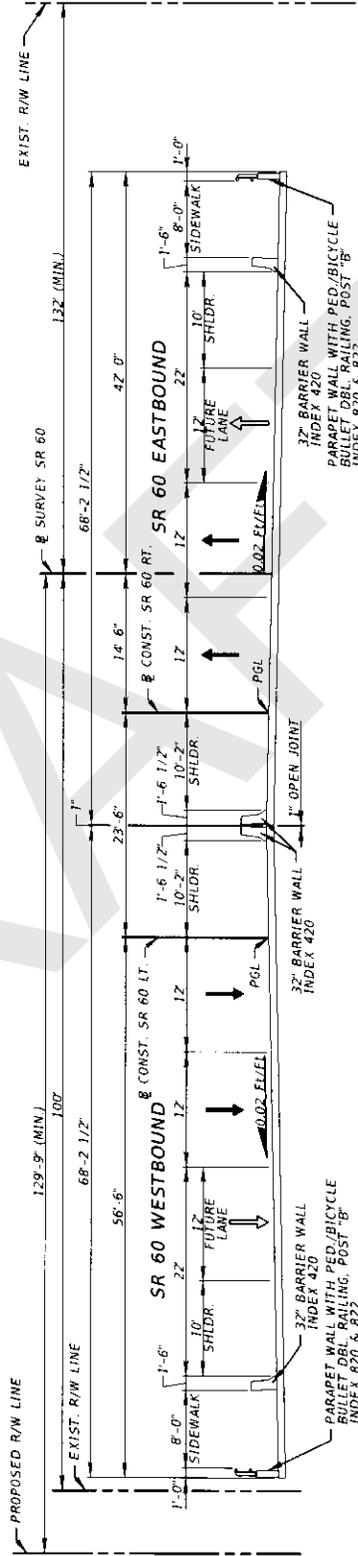
SW FRONTAGE ROAD BRIDGE NO. 160133
 OVER PEACE CREEK DRAINAGE CANAL

APPROVED BY	STATE OF FLORIDA	FDOT CONCURRENCE	FHWA CONCURRENCE
<i>Kenneth R. Muzyk, Jr.</i>	PROFESSIONAL ENGINEER	11-24-15	N/A
Kenneth R. Muzyk, Jr. Engineer of Record	Bernie Masing, P.E. FDOT District Design Engineer	Date	Mahmud Yousef-Saleh FHWA Transportation Engineer
		Date	Date

PROJECT IDENTIFICATION

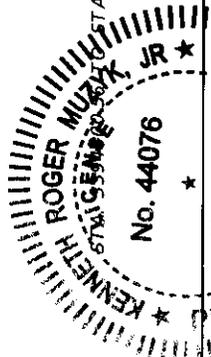
FINANCIAL PROJECT ID 436559-1-52-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK
 SECTION NO. 16110 ROAD DESIGNATION SR 60 LIMITS/MILEPOST MP 24.849 TO MP 25.991
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROPOSED STRUCTURE TYPICAL SECTION



SR 60 BRIDGES
 OVER NW FRONTAGE ROAD / FUEL LINE

STA. 3394+96.06 @ CONST. SR 60 LT. STA. 4394+14.14 TO STA. 4395+09.63 @ CONST. SR 60 RT.

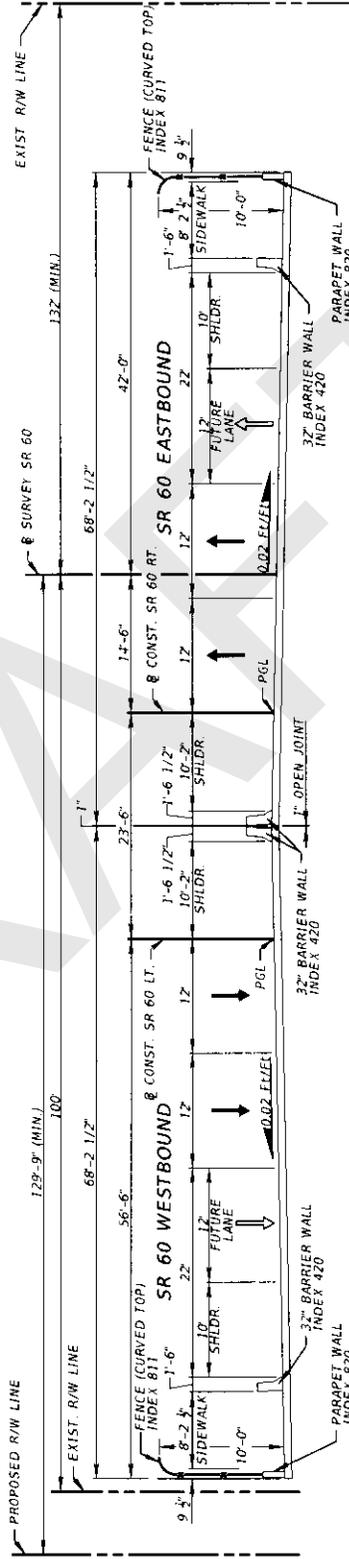


APPROVED BY	FDOT CONCURRENCE	FHWA CONCURRENCE
<i>Kenneth R. Muzyk, Jr.</i>	<i>D.A. Manning</i>	<i>N/A</i>
Kenneth R. Muzyk, Jr. Engineer of Record	Bernie Masing, P.E. FDOT District Design Engineer	Mahmud Yousef-Saleh FHWA Transportation Engineer
11/5/2015	11-24-15	
Date	Date	Date

PROJECT IDENTIFICATION

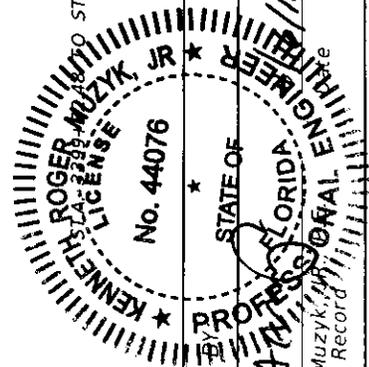
FINANCIAL PROJECT ID 436559-1-52-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK
 SECTION NO. 16110 ROAD DESIGNATION SR 60 LIMITS/MILEPOST MP 24.849 TO MP 25.991
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROPOSED STRUCTURE TYPICAL SECTION



SR 60 BRIDGES OVER CSX RAILROAD

STA. 3401+66.48 @ CONST. SR 60 LT. STA. 4399+96.04 TO STA. 4402+00.00 @ CONST. SR 60 RT.

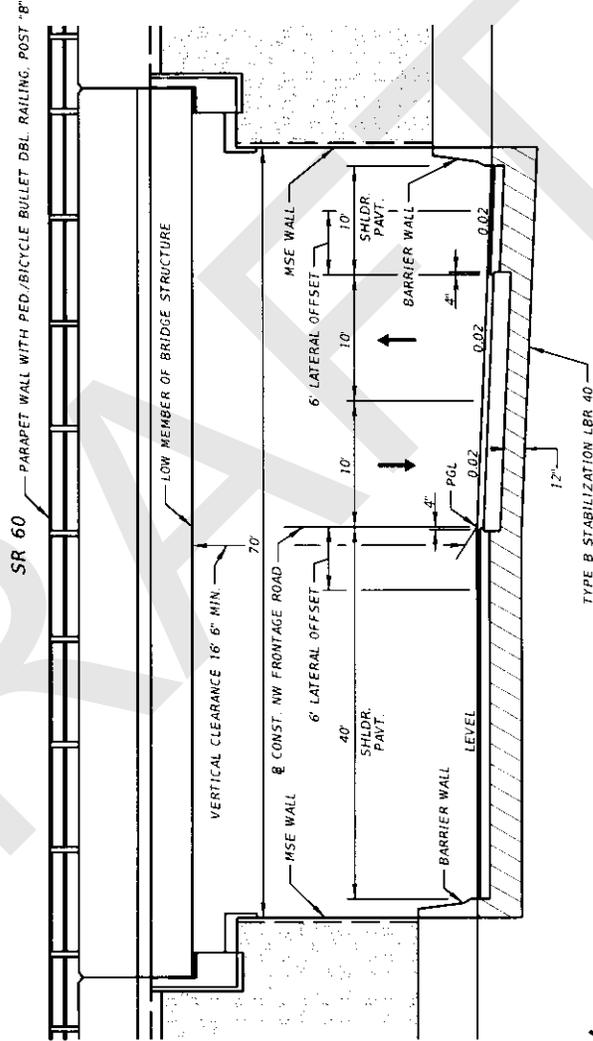


APPROVED BY	FDOT CONCURRENCE	FHWA CONCURRENCE
<i>Kenneth R. Muzzyk</i>	<i>B.A. Manning</i>	<i>N/A</i>
Kenneth R. Muzzyk, P.E. Engineer of Record	Bernie Masing, P.E. FDOT District Design Engineer	Mahmud Yousef-Saleh FHWA Transportation Engineer
11/5/2015	11-24-15	
Date	Date	Date

PROJECT IDENTIFICATION

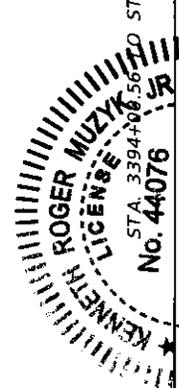
FINANCIAL PROJECT ID 436559-1-52-01 FEDERAL AID PROJECT NO. N/A COUNTY NAME POLK
 SECTION NO. 16110 ROAD DESIGNATION SR 60 LIMITS/MILEPOST MP 24.849 TO MP 25.991
 PROJECT DESCRIPTION GRADE SEPARATION OVER CSX RAILROAD

PROPOSED ROADWAY TYPICAL SECTION



NW FRONTAGE ROAD
UNDER SR 60 BRIDGES

STA. 3394+96.06 @ CONST. SR 60 LT. STA. 4394+14.14 TO STA. 4395+09.63 @ CONST. SR 60 RT.



APPROVED BY: <u>Kenneth R. Muzyk</u> Kenneth R. Muzyk, Engineer of Record	DATE: <u>11-24-15</u> Date	CONCURRENCE: <u>N/A</u> Date	FHWA CONCURRENCE
APPROVED BY: <u>B. A. Masing</u> Bernie Masing, P.E. FDOT District Design Engineer	DATE: <u>11-24-15</u> Date	CONCURRENCE: <u>N/A</u> Date	FHWA CONCURRENCE

APPENDIX E
LONG RANGE ESTIMATE

DRAFT

Date: 2/24/2016 8:21:05 AM

FDOT Long Range Estimating System - Production

R3: Project Details by Sequence Report

Project: 436559-1-52-01 **Letting Date:** 05/2019

Description: SR60 GRADE SEPARATION OVER CSX RAILROAD

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English
Contract Class: 4 **Lump Sum Project:** N **Design/Build:** N **Project Length:** 0.786 MI

Project Manager: CES-KSI-AES

Version 5 Project Grand Total **\$49,396,877.25**

Description: January 2016 Unit Cost Updates with PM Mark Ups from Version 4 - 1/27/2016

Sequence: 1 NDR - New Construction, Divided, Rural **Net Length:** 0.983 MI
5,188 LF

Description: SR 60 MAILINE, INCLUDING AT GRADE, AND EMBANKMENT SECTIONS.

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	132.00 / 100.00
Incidental Clearing and Grubbing Area	17.68
Alignment Number	1
Distance	0.983
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Median Slope L/R	6 to 1 / 6 to 1
Median Shoulder Cross Slope L/R	5.00 % / 5.00 %
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	27.64	AC	\$15,000.00	\$414,600.00
110-1-1	CLEARING & GRUBBING	17.68	AC	\$15,000.00	\$265,200.00
120-6	EMBANKMENT	97,272.79	CY	\$14.75	\$1,434,773.65

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	292,900.82	CY	\$14.75	\$4,320,287.10

Earthwork Component Total **\$6,434,860.75**

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	6
Roadway Pavement Width L/R	36.00 / 36.00
Structural Spread Rate	330
Friction Course Spread Rate	80

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	65,428.06 SY	\$4.77	\$312,091.85
285-709	OPTIONAL BASE,BASE GROUP 09	42,265.95 SY	\$18.37	\$776,425.50
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	6,848.33 TN	\$99.70	\$682,778.50
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	1,660.20 TN	\$143.33	\$237,956.47

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	3,712.00 SY	\$9.57	\$35,523.84
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	7,897.00 SY	\$8.47	\$66,887.59
339-1	MISCELLANEOUS ASPHALT PAVEMENT	20.00 TN	\$247.04	\$4,940.80
515-1-2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM	50.00 LF	\$86.29	\$4,314.50
515-4-2	BULLET RAIL, DOUBLE RAIL	7,000.00 LF	\$51.70	\$361,900.00
521-6-31	CONC PARAPET, RETAINING WALL SYS, 27"	7,000.00 LF	\$208.54	\$1,459,780.00
521-72-3	SHLDR CONC BARRIER WALL, RIGID-SHLDR	7,242.00 LF	\$163.04	\$1,180,735.68
536-1-1	GUARDRAIL - ROADWAY	400.00 LF	\$17.53	\$7,012.00
536-8	GUARDRAIL - BRIDGE ANCHORAGE ASSEM, F&I	2.00 EA	\$2,388.62	\$4,777.24
536-73	GUARDRAIL REMOVAL	400.00 LF	\$2.66	\$1,064.00
536-85-24	GUARDRAIL END ANCHORAGE ASSEM- PARALLEL	2.00 EA	\$1,795.00	\$3,590.00
544-75-1	CRASH CUSHION	2.00 EA	\$18,601.48	\$37,202.96

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	4
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	4

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT	663.00 EA	\$3.66	\$2,426.58

MARKERS				
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	3.93 NM	\$999.71	\$3,928.86
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	3.93 GM	\$411.70	\$1,617.98
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	3.93 NM	\$4,003.24	\$15,732.73
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	3.93 GM	\$1,091.08	\$4,287.94
Roadway Component Total				\$5,204,975.02

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	10.00 / 10.00
Total Outside Shoulder Perf. Turf Width L/R	0.00 / 0.00
Paved Outside Shoulder Width L/R	10.00 / 10.00
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	11,909.64	SY	\$9.57	\$113,975.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	634.10	TN	\$99.70	\$63,219.77
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	461.17	TN	\$143.33	\$66,099.50
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	1.97	PM	\$1,415.50	\$2,788.54

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
520-1-7	CONCRETE CURB & GUTTER, TYPE E	600.00	LF	\$25.40	\$15,240.00
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	850.00	SY	\$35.69	\$30,336.50

Erosion Control

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	13,489.13	LF	\$1.00	\$13,489.13
104-11	FLOATING TURBIDITY BARRIER	245.65	LF	\$8.32	\$2,043.81
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	245.65	LF	\$3.94	\$967.86
104-15	SOIL TRACKING PREVENTION DEVICE	1.00	EA	\$1,748.01	\$1,748.01
104-18	INLET PROTECTION SYSTEM	6.00	EA	\$76.13	\$456.78

107-1	LITTER REMOVAL	23.82 AC	\$44.38	\$1,057.13
107-2	MOWING	23.82 AC	\$53.09	\$1,264.60
Shoulder Component Total				\$312,686.88

MEDIAN COMPONENT**User Input Data**

Description	Value
Total Median Width	23.50
Performance Turf Width	5.34
Total Median Shoulder Width L/R	10.75 / 10.75
Paved Median Shoulder Width L/R	10.75 / 10.75
Structural Spread Rate	110
Friction Course Spread Rate	80
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	12,774.32	SY	\$9.57	\$122,250.24
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	681.66	TN	\$99.70	\$67,961.50
337-7-22	ASPH CONC FC,INC BIT,FC- 5,PG76-22,PMA	495.75	TN	\$143.33	\$71,055.85
521-1	MEDIAN CONC BARRIER WALL	3,285.00	LF	\$147.91	\$485,884.35
546-72-51	RUMBLE STRIPS, GROUND-IN, 16" MIN. WIDTH	2.00	PM	\$1,415.50	\$2,831.00
570-1-1	PERFORMANCE TURF	3,078.29	SY	\$1.41	\$4,340.39
Median Component Total					\$754,323.33

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	17.69	CY	\$1,273.08	\$22,520.79
425-1-551	INLETS, DT BOT, TYPE E, <10'	6.00	EA	\$4,697.73	\$28,186.38
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	792.00	LF	\$64.79	\$51,313.68
430-175-124	PIPE CULV, OPT MATL, ROUND, 24"S/CD	344.00	LF	\$90.88	\$31,262.72
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	296.00	LF	\$113.04	\$33,459.84
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	40.00	EA	\$1,237.09	\$49,483.60
524-1-1	CONCRETE DITCH PAVT, NR, 3"	1,965.20	SY	\$93.01	\$182,783.25
570-1-1	PERFORMANCE TURF	691.75	SY	\$1.41	\$975.37

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
----------	-------------	----------	------	------------	-----------------

425-1-551	INLETS, DT BOT, TYPE E, <10'	2.00 EA	\$4,697.73	\$9,395.46
425-1-841	INLETS, MED BARRIER, TYPE 3, <10'	14.00 EA	\$4,927.05	\$68,978.70
425-1-891	INLETS, BARRIER WALL, <10'	28.00 EA	\$4,157.69	\$116,415.32

Retention Basin 1

Description	Value
Size	1.5 AC
Multiplier	2
Depth	8.00
Description	Retention Basin 1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	6.00	AC	\$15,000.00	\$90,000.00
120-1	REGULAR EXCAVATION	38,720.00	CY	\$8.32	\$322,150.40
400-2-2	CONC CLASS II, ENDWALLS	72.00	CY	\$1,273.08	\$91,661.76
425-1-541	INLETS, DT BOT, TYPE D, <10'	4.00	EA	\$2,484.17	\$9,936.68
425-2-71	MANHOLES, J-7, <10'	4.00	EA	\$4,474.17	\$17,896.68
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	224.00	LF	\$102.75	\$23,016.00
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	800.00	LF	\$215.23	\$172,184.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	4,100.00	LF	\$12.21	\$50,061.00
550-60-234	FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN	4.00	EA	\$1,843.77	\$7,375.08
570-1-1	PERFORMANCE TURF	29,040.00	SY	\$1.41	\$40,946.40

Retention Basin 2

Description	Value
Size	1.5 AC
Multiplier	2
Depth	7.50
Description	Retention Basin 2

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	6.00	AC	\$15,000.00	\$90,000.00
120-1	REGULAR EXCAVATION	36,300.00	CY	\$8.32	\$302,016.00
400-2-2	CONC CLASS II, ENDWALLS	72.00	CY	\$1,273.08	\$91,661.76
425-1-541	INLETS, DT BOT, TYPE D, <10'	4.00	EA	\$2,484.17	\$9,936.68
425-2-71	MANHOLES, J-7, <10'	4.00	EA	\$4,474.17	\$17,896.68
430-175-142	PIPE CULV, OPT MATL, ROUND, 42"S/CD	224.00	LF	\$102.75	\$23,016.00
430-175-160	PIPE CULV, OPT MATL, ROUND, 60"S/CD	800.00	LF	\$215.23	\$172,184.00
550-10-220	FENCING, TYPE B, 5.1-6.0', STANDARD	4,100.00	LF	\$12.21	\$50,061.00
550-60-234	FENCE GATE, TYP B, SLIDE/CANT, 18.1-20' OPEN	4.00	EA	\$1,843.77	\$7,375.08

570-1-1	PERFORMANCE TURF	29,040.00 SY	\$1.41	\$40,946.40
Drainage Component Total				\$2,225,096.71

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	2.00	AS	\$281.24	\$562.48
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	24.00	AS	\$1,164.22	\$27,941.28
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	2.00	AS	\$3,816.76	\$7,633.52
700-2-15	MULTI- POST SIGN, F&I GM, 51-100 SF	6.00	AS	\$5,101.38	\$30,608.28
Signing Component Total					\$66,745.56

Sequence 1 Total **\$14,998,688.25**

Sequence: 2 NUR - New Construction, Undivided, Rural	Net Length:	0.114 MI 600 LF
Description: S.W. Frontage Road		

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	2.68
Alignment Number	1
Distance	0.114
Top of Structural Course For Begin Section	104.00
Top of Structural Course For End Section	104.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	2.68	AC	\$15,000.00	\$40,200.00
120-6	EMBANKMENT	4,483.19	CY	\$14.75	\$66,127.05
Earthwork Component Total					\$106,327.05

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	15.50 / 15.50
Structural Spread Rate	165
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	3,132.33	SY	\$4.77	\$14,941.21
285-709	OPTIONAL BASE,BASE GROUP 09	2,109.99	SY	\$18.37	\$38,760.52
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	170.45	TN	\$99.70	\$16,993.87
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	113.63	TN	\$135.40	\$15,385.50

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	4,408.00	SY	\$4.77	\$21,026.16
285-704	OPTIONAL BASE,BASE GROUP 04	2,708.00	SY	\$9.57	\$25,915.56
285-709	OPTIONAL BASE,BASE GROUP 09	1,700.00	SY	\$18.37	\$31,229.00
327-70-1	MILLING EXIST ASPH PAVT, 1" AVG DEPTH	2,833.00	SY	\$2.83	\$8,017.39
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	234.00	TN	\$99.70	\$23,329.80
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	250.00	TN	\$135.40	\$33,850.00
339-1	MISCELLANEOUS ASPHALT PAVEMENT	12.00	TN	\$247.04	\$2,964.48
536-1-1	GUARDRAIL - ROADWAY	250.00	LF	\$17.53	\$4,382.50
536-6	PIPE RAIL FOR GUARDRAIL	250.00	LF	\$11.63	\$2,907.50
536-8	GUARDRAIL - BRIDGE ANCHORAGE ASSEM, F&I	2.00	EA	\$2,388.62	\$4,777.24
536-73	GUARDRAIL REMOVAL	1,000.00	LF	\$2.66	\$2,660.00
536-85-24	GUARDRAIL END ANCHORAGE ASSEM- PARALLEL	2.00	EA	\$1,795.00	\$3,590.00

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended
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				Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	15.00 EA	\$3.66	\$54.90
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.23 NM	\$999.71	\$229.93
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.11 GM	\$411.70	\$45.29
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.23 NM	\$4,003.24	\$920.75
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.11 GM	\$1,091.08	\$120.02
Roadway Component Total				\$252,101.62

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	8.00 / 8.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 2.67
Paved Outside Shoulder Width L/R	5.00 / 5.00
Structural Spread Rate	110
Friction Course Spread Rate	110
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	710.44 SY	\$9.57	\$6,798.91
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	36.65 TN	\$99.70	\$3,654.00
337-7-43	ASPH CONC FC,TRAFFIC C,FC-12.5,PG 76-22	36.65 TN	\$135.40	\$4,962.41
570-1-1	PERFORMANCE TURF	355.89 SY	\$1.41	\$501.80

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,559.50 LF	\$1.00	\$1,559.50
104-11	FLOATING TURBIDITY BARRIER	28.40 LF	\$8.32	\$236.29
104-12	STAKED TURBIDITY BARRIER-NYL REINF PVC	28.40 LF	\$3.94	\$111.90
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$1,748.01	\$1,748.01
107-1	LITTER REMOVAL	1.38 AC	\$44.38	\$61.24
107-2	MOWING	1.38 AC	\$53.09	\$73.26

Shoulder Component Total **\$19,707.33**

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	2.04	CY	\$1,273.08	\$2,597.08
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	96.00	LF	\$64.79	\$6,219.84
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	24.00	LF	\$113.04	\$2,712.96
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	5.00	EA	\$1,237.09	\$6,185.45
570-1-1	PERFORMANCE TURF	79.97	SY	\$1.41	\$112.76

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
425-1-541	INLETS, DT BOT, TYPE D, <10'	1.00	EA	\$2,484.17	\$2,484.17
Drainage Component Total					\$20,312.26

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00	AS	\$281.24	\$281.24
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	3.00	AS	\$1,164.22	\$3,492.66
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00	AS	\$3,816.76	\$3,816.76
Signing Component Total					\$7,590.66

Sequence 2 Total \$406,038.92

Sequence: 3 NUR - New Construction, Undivided, Rural **Net Length:** 0.088 MI
464 LF

Description: NW Frontage Road

Special Conditions: Clearing and Grubbing Included in Sequence 1

EARTHWORK COMPONENT

User Input Data

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	0.00

Alignment Number 1

Distance	0.088
Top of Structural Course For Begin Section	105.00
Top of Structural Course For End Section	105.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
120-6	EMBANKMENT	4,029.12 CY	\$14.75	\$59,429.52
Earthwork Component Total				\$59,429.52

ROADWAY COMPONENT

User Input Data

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,370.16 SY	\$4.77	\$6,535.66
285-709	OPTIONAL BASE,BASE GROUP 09	1,065.39 SY	\$18.37	\$19,571.21
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	85.09 TN	\$99.70	\$8,483.47
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	56.72 TN	\$135.40	\$7,679.89

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	920.00 SY	\$4.77	\$4,388.40
285-704	OPTIONAL BASE,BASE GROUP 04	920.00 SY	\$9.57	\$8,804.40
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	50.60 TN	\$99.70	\$5,044.82
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	36.80 TN	\$135.40	\$4,982.72
521-72-21	SHLDR CONC BAR WALL,F SHAPE,10' SND WALL	560.00 LF	\$472.57	\$264,639.20

Comment: this pay item fits the barrier wall for bridges.

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y

Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	2
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	12.00 EA	\$3.66	\$43.92
710-11-111	PAINTED PAVT MARK,STD,WHITE,SOLID,6"	0.18 NM	\$999.71	\$179.95
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.09 GM	\$411.70	\$37.05
711-15-111	THERMOPLASTIC, STD-OP, WHITE, SOLID, 6"	0.18 NM	\$4,003.24	\$720.58
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.09 GM	\$1,091.08	\$98.20
Roadway Component Total				\$331,209.47

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	2.57 / 4.00
Total Outside Shoulder Perf. Turf Width L/R	2.57 / 0.00
Paved Outside Shoulder Width L/R	0.00 / 4.00
Structural Spread Rate	110
Friction Course Spread Rate	110
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	223.29 SY	\$9.57	\$2,136.89
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	11.34 TN	\$99.70	\$1,130.60
337-7-43	ASPH CONC FC, TRAFFIC C,FC-12.5,PG 76-22	11.34 TN	\$135.40	\$1,535.44
570-1-1	PERFORMANCE TURF	132.53 SY	\$1.41	\$186.87

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
520-1-10	CONCRETE CURB & GUTTER, TYPE F	330.00 LF	\$20.56	\$6,784.80

Erosion Control

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	1,206.69 LF	\$1.00	\$1,206.69
104-11	FLOATING TURBIDITY BARRIER	21.98 LF	\$8.32	\$182.87
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	21.98 LF	\$3.94	\$86.60
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$1,748.01	\$1,748.01
107-1	LITTER REMOVAL	1.07 AC	\$44.38	\$47.49
107-2	MOWING	1.07 AC	\$53.09	\$56.81
Shoulder Component Total				\$15,103.07

DRAINAGE COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	1.58 CY	\$1,273.08	\$2,011.47
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	72.00 LF	\$64.79	\$4,664.88
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	16.00 LF	\$113.04	\$1,808.64
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	4.00 EA	\$1,237.09	\$4,948.36
570-1-1	PERFORMANCE TURF	61.88 SY	\$1.41	\$87.25
Drainage Component Total				\$23,457.28

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-541	INLETS, DT BOT, TYPE D, <10'	4.00 EA	\$2,484.17	\$9,936.68

SIGNING COMPONENT

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$281.24	\$281.24
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	2.00 AS	\$1,164.22	\$2,328.44
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$3,816.76	\$3,816.76
Signing Component Total				\$6,426.44

Sequence 3 Total

\$435,625.78

Sequence: 4 NUR - New Construction, Undivided, Rural**Net Length:** 0.350 MI
1,850 LF**Description:** Single - NE Frontage Road**EARTHWORK COMPONENT****User Input Data**

Description	Value
Standard Clearing and Grubbing Limits L/R	0.00 / 0.00
Incidental Clearing and Grubbing Area	1.58
Alignment Number	1
Distance	0.350
Top of Structural Course For Begin Section	103.00
Top of Structural Course For End Section	103.00
Horizontal Elevation For Begin Section	100.00
Horizontal Elevation For End Section	100.00
Front Slope L/R	6 to 1 / 6 to 1
Outside Shoulder Cross Slope L/R	6.00 % / 6.00 %
Roadway Cross Slope L/R	2.00 % / 2.00 %

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-1-1	CLEARING & GRUBBING	1.58	AC	\$15,000.00	\$23,700.00
120-6	EMBANKMENT	6,481.00	CY	\$14.75	\$95,594.75
Earthwork Component Total					\$119,294.75

ROADWAY COMPONENT**User Input Data**

Description	Value
Number of Lanes	2
Roadway Pavement Width L/R	10.00 / 10.00
Structural Spread Rate	165
Friction Course Spread Rate	110

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	5,482.50	SY	\$4.77	\$26,151.52
285-709	OPTIONAL BASE,BASE GROUP 09	4,247.03	SY	\$18.37	\$78,017.94
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	339.19	TN	\$99.70	\$33,817.24
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	226.12	TN	\$135.40	\$30,616.65

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
160-4	TYPE B STABILIZATION	1,233.00	SY	\$4.77	\$5,881.41

285-704	OPTIONAL BASE,BASE GROUP 04	825.00 SY	\$9.57	\$7,895.25
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	46.00 TN	\$99.70	\$4,586.20
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	46.00 TN	\$135.40	\$6,228.40

Pavement Marking Subcomponent

Description	Value
Include Thermo/Tape/Other	Y
Pavement Type	Asphalt
Solid Stripe No. of Paint Applications	1
Solid Stripe No. of Stripes	0
Skip Stripe No. of Paint Applications	1
Skip Stripe No. of Stripes	1

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	47.00	EA	\$3.66	\$172.02
710-11-131	PAINTED PAVT MARK,STD,WHITE,SKIP, 6"	0.35	GM	\$411.70	\$144.10
711-15-131	THERMOPLASTIC, STD-OP, WHITE, SKIP, 6"	0.35	GM	\$1,091.08	\$381.88
Roadway Component Total					\$193,892.62

SHOULDER COMPONENT

User Input Data

Description	Value
Total Outside Shoulder Width L/R	2.67 / 4.00
Total Outside Shoulder Perf. Turf Width L/R	2.67 / 0.00
Paved Outside Shoulder Width L/R	0.00 / 4.00
Structural Spread Rate	110
Friction Course Spread Rate	110
Total Width (T) / 8" Overlap (O)	T
Rumble Strips No. of Sides	0

Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
285-704	OPTIONAL BASE,BASE GROUP 04	890.11	SY	\$9.57	\$8,518.35
334-1-13	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	45.22	TN	\$99.70	\$4,508.43
337-7-43	ASPH CONC FC,TRAFFIC C,FC- 12.5,PG 76-22	45.22	TN	\$135.40	\$6,122.79
570-1-1	PERFORMANCE TURF	548.87	SY	\$1.41	\$773.91

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
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520-1-10	CONCRETE CURB & GUTTER, TYPE F	1,880.00 LF	\$20.56	\$38,652.80
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Erosion Control**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
104-10-3	SEDIMENT BARRIER	4,810.29 LF	\$1.00	\$4,810.29
104-11	FLOATING TURBIDITY BARRIER	87.60 LF	\$8.32	\$728.83
104-12	STAKED TURBIDITY BARRIER- NYL REINF PVC	87.60 LF	\$3.94	\$345.14
104-15	SOIL TRACKING PREVENTION DEVICE	1.00 EA	\$1,748.01	\$1,748.01
107-1	LITTER REMOVAL	4.25 AC	\$44.38	\$188.62
107-2	MOWING	4.25 AC	\$53.09	\$225.63
Shoulder Component Total				\$66,622.80

DRAINAGE COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-2	CONC CLASS II, ENDWALLS	6.31 CY	\$1,273.08	\$8,033.13
430-174-124	PIPE CULV, OPT MATL, ROUND,24"SD	288.00 LF	\$64.79	\$18,659.52
430-175-136	PIPE CULV, OPT MATL, ROUND, 36"S/CD	64.00 LF	\$113.04	\$7,234.56
430-984-129	MITERED END SECT, OPTIONAL RD, 24" SD	15.00 EA	\$1,237.09	\$18,556.35
570-1-1	PERFORMANCE TURF	246.68 SY	\$1.41	\$347.82

X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
425-1-361	INLETS, CURB, TYPE P-6, <10'	5.00 EA	\$3,234.78	\$16,173.90
425-1-541	INLETS, DT BOT, TYPE D, <10'	2.00 EA	\$2,484.17	\$4,968.34
Drainage Component Total				\$73,973.62

SIGNING COMPONENT**Pay Items**

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
700-1-11	SINGLE POST SIGN, F&I GM, <12 SF	1.00 AS	\$281.24	\$281.24
700-1-12	SINGLE POST SIGN, F&I GM, 12-20 SF	8.00 AS	\$1,164.22	\$9,313.76
700-2-14	MULTI- POST SIGN, F&I GM, 31-50 SF	1.00 AS	\$3,816.76	\$3,816.76

Signing Component Total

\$13,411.76

Sequence 4 Total

\$467,195.55

Sequence: 5 MIS - Miscellaneous Construction **Net Length:** 0.000 MI
0 LF
Description: Bridge and Retaining Walls Mark Ups

ROADWAY COMPONENT

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
515-4-2	BULLET RAIL, DOUBLE RAIL Comment: Bridges S-1+ S-2 + S-3 + S-4 + 160133	1,220.00	LF	\$51.70	\$63,074.00
Roadway Component Total					\$63,074.00

MEDIAN COMPONENT

User Input Data

Description **Value**

X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
521-1	MEDIAN CONC BARRIER WALL Comment: SW Frontage Road - Half section barrier wall against MSE retaining wall. NW Frontage Road - Half Section barrier wall against MSE retaining wall (560 LF). NE Frontage road - Half section barrier wall	3,665.00	LF	\$147.91	\$542,090.15
Median Component Total					\$542,090.15

BRIDGES COMPONENT

Bridge S-1

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	181.00
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000001
Removal of Existing Structures area	5,146.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$153.56
Basic Bridge Cost	\$0.00

Description EB OVER PEACE CREEK

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURE	5,146.00 SF	\$33.33	\$171,516.18
400-2-10	CONC CLASS II, APPROACH SLABS	151.58 CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50 LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	331.00 CY	\$1,389.80	\$460,023.80
400-2-5	CONC CLASS II, SUBSTRUCTURE	151.90 CY	\$793.36	\$120,511.38
400-9	BRIDGE DECK GROOV & PLANING, DECK 8.5" GR	1,372.00 SY	\$9.89	\$13,569.08
400-147	COMPOSITE NEOPRENE PADS	9.90 CF	\$1,587.16	\$15,712.88
415-1-4	REINF STEEL- SUPERSTRUCTURE	67,856.00 LB	\$1.21	\$82,105.76
415-1-5	REINF STEEL- SUBSTRUCTURE	21,010.00 LB	\$1.21	\$25,422.10
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	1,254.00 LF	\$275.12	\$345,000.48
455-35-22	STEEL PILING, 24" DIA. PIPE	3,803.00 LF	\$163.97	\$623,577.91
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	301.00 LF	\$197.95	\$59,582.95
458-1-11	BRIDGE DECK EXPANSION JNT, NEW, POURED	146.00 LF	\$41.60	\$6,073.60
521-5-1	CONC TRAF RAIL, BRG, 32" F-SHAPE	490.00 LF	\$79.78	\$39,092.20
521-6-11	CONC PARAPET, PED/BIKE, 27"	245.00 LF	\$59.02	\$14,459.90

Bridge S-1 Total \$2,067,390.08

Bridge S-2

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	181.00
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000002
Removal of Existing Structures area	0.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$146.91
Basic Bridge Cost	\$0.00

Description WB OVER PEACE CREEK

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.58 CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50 LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	331.00 CY	\$1,389.80	\$460,023.80
400-2-5	CONC CLASS II, SUBSTRUCTURE	151.90 CY	\$793.36	\$120,511.38
400-9	BRIDGE DECK GROOV & PLANING, DECK 8.5" GR	1,372.00 SY	\$9.89	\$13,569.08
400-147	COMPOSITE NEOPRENE PADS	9.90 CF	\$1,587.16	\$15,712.88
415-1-5	REINF STEEL- SUBSTRUCTURE	21,010.00 LB	\$1.21	\$25,422.10
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	1,254.00 LF	\$275.12	\$345,000.48
455-35-22	STEEL PILING, 24" DIA. PIPE	3,803.00 LF	\$163.97	\$623,577.91
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	301.00 LF	\$197.95	\$59,582.95
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	146.00 LF	\$41.60	\$6,073.60
521-5-1	CONC TRAF RAIL, BRG, 32" F-SHAPE	490.00 LF	\$79.78	\$39,092.20
521-6-11	CONC PARAPET, PED/BIKE, 27"	245.00 LF	\$59.02	\$14,459.90

Bridge S-2 Total

\$1,813,768.14

Bridge S-3

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	95.50
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000003
Removal of Existing Structures area	0.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$197.80
Basic Bridge Cost	\$0.00

Description EB OVER ACCESS ROAD AND 16" GAS PIPELINE

Bridge Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.58 CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50 LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	176.90	CY	\$1,389.80	\$245,855.62
400-2-5	CONC CLASS II, SUBSTRUCTURE	120.80	CY	\$793.36	\$95,837.89
400-9	BRIDGE DECK GROOV & PLANING, DECK 8.5" GR	724.00	SY	\$9.89	\$7,160.36
400-147	COMPOSITE NEOPRENE PADS	4.00	CF	\$1,587.16	\$6,348.64
415-1-4	REINF STEEL- SUPERSTRUCTURE	36,265.00	LB	\$1.21	\$43,880.65
415-1-5	REINF STEEL- SUBSTRUCTURE	16,308.00	LB	\$1.21	\$19,732.68
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	651.00	LF	\$275.12	\$179,103.12
455-35-22	STEEL PILING, 24" DIA. PIPE	2,961.00	LF	\$163.97	\$485,515.17
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	362.00	LF	\$197.95	\$71,657.90
458-1-11	BRIDGE DECK EXPANSION JNT, NEW, POURED	158.00	LF	\$41.60	\$6,572.80
521-5-1	CONC TRAF RAIL, BRG, 32" F-SHAPE	330.00	LF	\$79.78	\$26,327.40
521-6-11	CONC PARAPET, PED/BIKE, 27"	165.00	LF	\$59.02	\$9,738.30
Bridge S-3 Total					\$1,288,472.39

Bridge S-4

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	92.50
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000004
Removal of Existing Structures area	0.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$204.44
Basic Bridge Cost	\$0.00
Description	WB OVER ACCESS ROAD AND 16" GAS PIPELINE

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.58	CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50	LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II,	176.90	CY	\$1,389.80	\$245,855.62

SUPERSTRUCTURE				
400-2-5	CONC CLASS II, SUBSTRUCTURE	120.80 CY	\$793.36	\$95,837.89
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	724.00 SY	\$9.89	\$7,160.36
400-147	COMPOSITE NEOPRENE PADS	4.90 CF	\$1,587.16	\$7,777.08
415-1-4	REINF STEEL- SUPERSTRUCTURE	36,265.00 LB	\$1.21	\$43,880.65
415-1-5	REINF STEEL- SUBSTRUCTURE	16,308.00 LB	\$1.21	\$19,732.68
450-2-45	PREST BEAMS: FLORIDA-I BEAM 45"	651.00 LF	\$275.12	\$179,103.12
455-35-22	STEEL PILING, 24" DIA. PIPE	2,961.00 LF	\$163.97	\$485,515.17
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	362.00 LF	\$197.95	\$71,657.90
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	158.00 LF	\$41.60	\$6,572.80
521-5-1	CONC TRAF RAIL, BRG, 32" F- SHAPE	330.00 LF	\$79.78	\$26,327.40
521-6-11	CONC PARAPET, PED/BIKE, 27"	165.00 LF	\$59.02	\$9,738.30
Bridge S-4 Total				\$1,289,900.83

Bridge S-5

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	204.00
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000005
Removal of Existing Structures area	0.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$232.61
Basic Bridge Cost	\$0.00

Description EB OVER CSX RAILROAD

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.58	CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50	LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	368.10	CY	\$1,389.80	\$511,585.38
400-2-5	CONC CLASS II, SUBSTRUCTURE	213.40	CY	\$793.36	\$169,303.02
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	1,546.00	SY	\$9.89	\$15,289.94
400-147	COMPOSITE NEOPRENE PADS	8.80	CF	\$1,587.16	\$13,967.01

415-1-4	REINF STEEL- SUPERSTRUCTURE	75,461.00 LB	\$1.21	\$91,307.81
415-1-5	REINF STEEL- SUBSTRUCTURE	28,810.00 LB	\$1.21	\$34,860.10
455-35-22	STEEL PILING, 24" DIA. PIPE	3,411.00 LF	\$163.97	\$559,301.67
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	284.00 LF	\$197.95	\$56,217.80
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	238.00 LF	\$41.60	\$9,900.80
460-2-20	STRUCT STEEL - NEW/WIDENING, WEATHERING	747,362.00 LB	\$2.12	\$1,584,407.44
521-5-1	CONC TRAF RAIL, BRG, 32" F- SHAPE	617.00 LF	\$79.78	\$49,224.26
521-6-11	CONC PARAPET, PED/BIKE, 27"	309.00 LF	\$59.02	\$18,237.18
550-10-344	FENCING, TYPE R, 7.1-8.0, W/PART ENCLOS	309.00 LF	\$104.60	\$32,321.40
Bridge S-5 Total				\$3,236,665.67

Bridge S-6

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	204.00
Width (LF)	68.21
Type	Low Level
Cost Factor	0.00
Structure No.	000006
Removal of Existing Structures area	0.00
Default Cost per SF	\$114.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$232.60
Basic Bridge Cost	\$0.00

Description WB OVER CSX RAILROAD

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-10	CONC CLASS II, APPROACH SLABS	151.58	CY	\$365.89	\$55,461.61
415-1-9	REINF STEEL- APPROACH SLABS	26,526.50	LB	\$1.33	\$35,280.25

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	368.10	CY	\$1,389.80	\$511,585.38
400-2-5	CONC CLASS II, SUBSTRUCTURE	213.40	CY	\$793.36	\$169,303.02
400-9	BRIDGE DECK GROOV &PLANING, DECK 8.5" GR	1,546.00	SY	\$9.89	\$15,289.94
400-147	COMPOSITE NEOPRENE PADS	8.80	CF	\$1,587.16	\$13,967.01
415-1-4	REINF STEEL- SUPERSTRUCTURE	75,416.00	LB	\$1.21	\$91,253.36

415-1-5	REINF STEEL- SUBSTRUCTURE	28,810.00 LB	\$1.21	\$34,860.10
455-35-22	STEEL PILING, 24" DIA. PIPE	3,411.00 LF	\$163.97	\$559,301.67
455-144-22	TEST PILES - STEEL, 24" DIA PIPE	284.00 LF	\$197.95	\$56,217.80
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	238.00 LF	\$41.60	\$9,900.80
460-2-20	STRUCT STEEL - NEW/WIDENING, WEATHERING	747,362.00 LB	\$2.12	\$1,584,407.44
521-5-1	CONC TRAF RAIL, BRG, 32" F- SHAPE	617.00 LF	\$79.78	\$49,224.26
521-6-11	CONC PARAPET, PED/BIKE, 27"	309.00 LF	\$59.02	\$18,237.18
550-10-344	FENCING, TYPE R, 7.1-8.0, W/PART ENCLOS	309.00 LF	\$104.60	\$32,321.40
Bridge S-6 Total				\$3,236,611.22

Bridge 160133

Description	Value
Estimate Type	SF Estimate
Primary Estimate	YES
Length (LF)	160.00
Width (LF)	4.75
Type	Low Level, Widen
Cost Factor	0.00
Structure No.	160133
Removal of Existing Structures area	1,000.00
Default Cost per SF	\$120.00
Factored Cost per SF	\$0.00
Final Cost per SF	\$282.26
Basic Bridge Cost	\$0.00
Description	

Bridge Pay Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
110-3	REMOVAL OF EXISTING STRUCTURE	1,000.00	SF	\$33.33	\$33,330.00
400-2-10	CONC CLASS II, APPROACH SLABS	10.56	CY	\$365.89	\$3,863.80
415-1-9	REINF STEEL- APPROACH SLABS	1,848.00	LB	\$1.33	\$2,457.84

Bridge X-Items

Pay item	Description	Quantity	Unit	Unit Price	Extended Amount
400-2-4	CONC CLASS II, SUPERSTRUCTURE	48.80	CY	\$1,389.80	\$67,822.24
400-2-5	CONC CLASS II, SUBSTRUCTURE	8.20	CY	\$793.36	\$6,505.55
400-7	BRIDGE DECK GROOVING, LESS THAN 8.5"	128.00	SY	\$4.73	\$605.44
415-1-4	REINF STEEL- SUPERSTRUCTURE	10,736.00	LB	\$1.21	\$12,990.56
415-1-5	REINF STEEL- SUBSTRUCTURE	1,164.00	LB	\$1.21	\$1,408.44
415-1-9	REINF STEEL- APPROACH SLABS	2,120.00	LB	\$1.33	\$2,819.60

455-34-3	PRESTRESSED CONCRETE PILING, 18" SQ	509.00 LF	\$163.00	\$82,967.00
458-1-11	BRIDGE DECK EXPANSION JNT,NEW,POURED	28.00 LF	\$41.60	\$1,164.80
521-5-1	CONC TRAF RAIL, BRG, 32" F- SHAPE	400.00 LF	\$79.78	\$31,912.00
Bridge 160133 Total				\$247,847.27
Bridges Component Total				\$13,180,655.60

RETAINING WALLS COMPONENT

Retaining Wall 1

Description	Value
Length	1,454.50
Begin height	10.57
End Height	10.57
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	15,374.06 SF	\$28.67	\$440,774.30

Retaining Wall 2

Description	Value
Length	1,413.80
Begin height	27.84
End Height	27.84
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	39,360.19 SF	\$28.67	\$1,128,456.65

Retaining Wall 3

Description	Value
Length	1,383.20
Begin height	34.40
End Height	34.40
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX	47,582.08 SF	\$28.67	\$1,364,178.23

BARRIER

Retaining Wall 4

Description	Value
Length	3,287.00
Begin height	25.09
End Height	25.09
Multiplier	1

Pay Items

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
548-12	RET WALL SYSTEM, PERM, EX BARRIER	82,470.83 SF	\$28.67	\$2,364,438.70
Retaining Walls Component Total				\$5,297,847.88

Sequence 5 Total **\$19,083,667.63**

Date: 2/24/2016 8:21:08 AM

FDOT Long Range Estimating System - Production
R3: Project Details by Sequence Report

Project: 436559-1-52-01 **Letting Date:** 05/2019

Description: SR60 GRADE SEPARATION OVER CSX RAILROAD

District: 01 **County:** 16 POLK **Market Area:** 08 **Units:** English
Contract Class: 4 Lump Sum Project: N **Design/Build:** N **Project Length:** 0.786 MI

Project Manager: CES-KSI-AES

Version 5 Project Grand Total **\$49,396,877.25**

Description: January 2016 Unit Cost Updates with PM Mark Ups from Version 4 - 1/27/2016

Project Sequences Subtotal **\$35,391,216.13**

102-1	Maintenance of Traffic	15.00 %	\$5,308,682.42
101-1	Mobilization	10.00 %	\$4,069,989.86

Project Sequences Total **\$44,769,888.41**

Project Unknowns	10.00 %	\$4,476,988.84
Design/Build	0.00 %	\$0.00

Non-Bid Components:

Pay item	Description	Quantity Unit	Unit Price	Extended Amount
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	LS	\$150,000.00	\$150,000.00

Project Non-Bid Subtotal

\$150,000.00

Version 5 Project Grand Total

\$49,396,877.25

DRAFT

Alternative 2: Six Bridges at Three Locations

FDOT LRE Version 2/24/16 from Faller Davis Associates

<u>LRE Component</u>	<u>Sequence 1</u>	<u>Sequence 2 and 5</u>	<u>Sequence 3</u>	<u>Sequence 4</u>	<u>Sequence 5</u>	<u>Total Cost</u>
	SR 60 Mainline: 6-Lane Divided Rural	2-Lane 24-ft Undivided Rural Frontage Road	NW Frontage Road		Bridges	
Earthwork						
Clearing and Grubbing	\$679,800	\$40,200	\$0	\$23,700	\$0	
Embankment	\$5,755,061	\$66,127	\$59,430	\$95,595	\$0	
Total Earthwork	\$6,434,861	\$106,327	\$59,430	\$119,295	\$0	\$6,719,912
Roadway	\$5,204,975	\$252,102	\$331,209	\$193,893	\$63,074	\$6,045,253
Shoulder	\$312,687	\$19,707	\$15,103	\$66,623	\$0	\$414,120
Median	\$754,323	\$0	\$0	\$0	\$542,090	\$1,296,413
Drainage	\$2,225,097	\$20,312	\$23,457	\$73,974	\$0	\$2,342,840
Signing	\$66,746	\$7,591	\$6,426	\$13,412	\$0	\$94,174
Bridges	\$0	\$0	\$0	\$0	\$13,180,656	\$13,180,656
Retaining Walls	\$0	\$0	\$0	\$0	\$5,297,848	\$5,297,848
Subtotal	\$14,998,688	\$406,039	\$435,626	\$467,196	\$19,083,668	\$35,391,216
Maintenance of Traffic (15%)						\$5,308,682
Mobilization (10%)						\$4,069,990
Project Unknowns (10%)						\$4,476,989
Initial Contingency						\$150,000
Construction Cost Total						\$49,396,877
Design (Actual)						\$3,460,000
CEI (12%)						\$5,927,625
Utilities (Work Program)						\$630,000
Wetland Mitigation						\$61,950
Right-of-Way (Work Program)						\$1,305,000
Total Project Cost						\$60,781,453

Check: \$35,391,216.13

Roadway \$36,216,222
Bridge \$13,180,656