

Annex A  
Statement of Findings

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# ***Statement of Findings for Wetlands and Floodplains***

***Proposed Tamiami Trail Modifications,  
Modified Water Deliveries to Everglades National Park Project,  
Limited Reevaluation Report and Environmental Assessment, U.S. Army  
Corps of Engineers, April 2008***

**Submitted by:  
South Florida Natural Resources Center  
Everglades National Park  
Homestead, FL 33030**

Recommended: \_\_\_\_\_  
Superintendent, Everglades National Park Date

Certified for Technical Adequacy  
And Servicewide Consistency: \_\_\_\_\_  
Chief, Water Resources Division Date

Approved: \_\_\_\_\_  
Southeast Regional Director Date

## Introduction

The US Army Corps of Engineers (USACE) has prepared and made available for public review a Draft Tamiami Trail Limited Reevaluation Report (LRR) to the General Reevaluation Report/Second Supplemental Environmental Impact Statement for the Tamiami Trail Modifications (DRGRR/SSEIS) project. The purpose of this project is to modify flow into and improve wetland function within the Shark River Slough (SRS) region of Everglades National Park (EVER). This Statement of Findings (SOF) documents the wetland and floodplain impacts associated with this project.

Executive Orders 11988 (“Floodplain Management”) and 11990 (“Protection of Wetlands”) require the NPS and other Federal agencies to evaluate the likely impacts of actions in floodplains and wetlands. The objectives of the Executive Orders are to avoid to the extent possible the long-term and short-term adverse impacts associated with occupancy, modification, or destruction of floodplains and wetlands and to avoid indirect support of development and new construction in such areas wherever there is a practicable alternative. The purpose of this SOF is to present the rationale for the location of the proposed plan in the floodplain/wetland area and to document the anticipated effects on these resources.

## Project Description and Benefits

The Tamiami Trail Modifications project will provide an array of environmental benefits to Everglades National Park (EVER). The project is part of the larger Modified Water Deliveries to Everglades National Park (MWD) project. The purpose of the MWD project is to restore wetland functions within the park by modifying water deliveries to the park and altering water management operations outside of the park. The project is jointly funded by the National Park Service and the US Army Corps of Engineers and is expected to be completed in FY 2012.

Hydrologic analysis has shown that the Tamiami Trail roadway and the existing culverts beneath it act to impede natural flow quantity, timing, and distribution. The proposed modifications to the Tamiami Trail will reduce these impediments, thus improving conveyance of flows and facilitating the restoration of more natural hydropatterns and sheetflow in SRS. The Tentatively Selected Plan (TSP) for the Tamiami Trail modifications proposes the addition of a one-mile long bridge at the eastern end of Tamiami Trail. The original highway and embankment, now present where the proposed bridge will be built will be removed. During construction, in accordance with USACE guidelines and in order to minimize wetland impacts, all necessary and typical construction best management practices will be employed.

Portions of the TSP are located within or immediately adjacent to the northern boundaries of EVER. Implementation of the TSP will result in impacts to EVER lands including impacts to and loss of wetlands. The TSP location, including an engineering schematic and typical cross sections of the existing roadway, proposed roadway, proposed bridge approaches, and proposed bridge, is shown in Attachment A.

### Alternatives Considered

Twenty-seven alternatives, along with the “no action” alternative, were considered in the LRR; however, only 4 alternatives were considered for detailed evaluation. Alternative 4.2.4, which included a 10-mile bridge, was environmentally preferred alternative in the RGRR, but deemed too expensive and not considered for detailed evaluation in the LRR. The TSP, as outlined in the LRR, provides approximately 28 and 46 % of the average annual environmental lift of the environmentally preferred plan and TSP, respectively, identified in the RGRR and is considered a first step in achieving the restoration objectives of the project at a reasonable cost. The LRR TSP, a one-mile long eastern bridge and road raising that allows for a stage of 8.5 ft in the L-29 canal, differs substantially from the RGRR TSP. The RGRR TSP included an additional 2.0 miles of bridges in western SRS and allows stages in the L-29 canal to rise to 9.7 ft. Other alternatives considered included combinations of bridges of different span lengths and locations. These alternatives often provided considerably more environmental benefits, but they were not considered for detailed evaluation as a result of cost and other factors. As suggested in the LRR, other projects, such as those in the Comprehensive Everglades Restoration Plan, need to be implemented to provide flows consistent with the RGRR TSP and that will result in substantial restoration of ENP wetlands.

### The Project and the Everglades National Park Boundary

The project is defined as the length of Tamiami Trail (US Highway 41) from water control structure S-334 in the east for a distance of approximately 10.9 miles west to water control structure S-333. Impacts of the project will occur because the roadway, shoulder, side-slope, and right of way (ROW) will be shifted south as for the construction of the approaches to the new eastern bridge that will be constructed just south of the existing roadway. The Florida Department of Transportation (FDOT) owns the roadway and controls an adjacent, variable-width maintenance ROW on both sides of the highway. The highway runs generally east to west. In the project area, the authorized boundary of EVER runs parallel to the southern ROW of the highway. No boundary survey for either the ROW or the authorized boundary of EVER is currently available. A boundary survey will be completed as part of the project once design drawings are refined.

The crown-elevation of the roadway is variable. Increasing the elevation of the roadway is required to accommodate the increase the stage in the L-29 canal to 8.5 ft. However this will be accomplished by building up the existing roadway in accordance with FDOT guidelines without augmenting its width outside the limits of the bridge approaches.

### Uplands, Wetlands, and Floodplains Within the Project Area

Most of EVER is situated in areas prone to frequent and continual flooding due to low elevation, lack of extensive physical relief, and freshwater hydrologic inputs (rainfall, overland sheet flow, and direct surface water discharges). The project site is thus in an area that is subject to seasonal inundation. Lands impacted by the project are described below. Floodplains have not been delineated for the park by the Federal Emergency Management Agency through the National Flood Insurance Program. The US Fish and Wildlife Service classification (Cowardin, 1992) of each wetland described below is indicated in parentheses.

The area to be affected by the physical footprint of the project (as opposed to the area to be affected by the restored flow regime) is a mix of mesic upland forest, emergent wetland including some shrub scrub and forested wetland area, and open water areas associated with existing roadway culverts. Immediately adjacent to, and south of the existing roadway for the entire project length (and located entirely on roadway spoils) is an approximately 10 to 40 foot wide strip of mesic upland forest including a number of native tree species along with some invasive Brazilian pepper (*Schinus terebinthifolius*). At several locations the forested strip is broken by open water wetlands (POW) associated with roadway culverts. South of these open water wetlands there are willow (*Salix caroliniana*) and pond apple (*Anona glabra*) "heads" and forested wetlands (PFO), also associated with flows from roadway culverts. South of this forested strip is a broad expanse of palustrine emergent wetland (PEM) dominated by sawgrass (*Cladium jamaicense*) with some extensive patches of cattail (*Typha latifolia*) located at the northern edge.

#### Functions Provided by Wetlands within the Project Area

The primary functions that are provided by the wetlands that are to be impacted by the project include, most significantly, surface and subsurface water storage, but also the support of biogeochemical processes, the presence of a characteristic plant community, and the provision of fish and wildlife habitat. All of these functions are currently degraded within the area to be impacted; the project purpose is actually to restore these functions to very similar, adjacent wetlands.

#### *Emergent Wetland Functions*

The emergent wetlands within the project area function to provide water storage, the characteristic Everglades sawgrass vegetation community, support for biogeochemical processes, and fish and wildlife habitat. The water storage function is degraded through proximity to the existing roadway and altered distribution and timing of flows to the wetland. The characteristic vegetation community is degraded through the invasion of Cattail (*Typha latifolia*) into the sawgrass community due to elevated nutrient levels. Support for biogeochemical processes occurs; nutrients flowing into the wetland from the roadway and lands outside of the park are uptaken, but high nutrient loading in the inflow have altered and degraded this function. These habitats are utilized by a variety of fishes, birds, invertebrates, reptiles, and amphibians; however, the habitat is degraded as a result of degradation of the above processes and proximity to the roadway.

#### *Forested and Open Water Wetland Functions*

The forested and open water wetlands within the project area function to provide water storage, a characteristic forested vegetation community, support for biogeochemical processes, and fish and wildlife habitat. The water storage function is degraded through proximity to the existing roadway and altered distribution and timing of flows to the wetland. The characteristic forested vegetation community is degraded through the invasion of Brazilian pepper; this invasive makes up 5 to 30 % of the forest cover in the area. Forested and open water habitats are utilized by a variety of fishes, birds, and other wildlife; however, the habitat is degraded as a result of degradation of the above processes and proximity to the roadway. The forested habitat has been degraded by the

alteration of soils via the dumping of spoils during roadway construction. Aquatic habitat in the open water areas is especially degraded by the presence of numerous exotic invasive fish species and elevated nutrient levels.

#### Floodplain Impacts

The plan will remove flow impediments to and improve water flow into SRS. Hence floodplain and floodplain processes will benefit from this project.

#### Federally Listed Threatened and Endangered Species

A total of six federally listed (five endangered, one threatened) species are known to exist in the project area: the wood stork, Cape Sable seaside sparrow, snail kite, the Florida panther, the West Indian manatee (unlikely to occur in the vicinity of the project), and the eastern indigo snake. Due to the presence of these species, and as discussed in the LRR, some special precautions will be taken, including phased implementation of construction activities. No significant impacts to any of the species are expected.

#### Wetland Impacts

Based on calculations done by the USACE using concept-level design drawings and assuming that the impacted area is wetland, the tentatively selected plan would involve an impact of 8.89 acres of wetlands. These wetland impacts are based on a permanent and temporary construction easement associated with the project. The approximate associated wetland and upland impacts are as follows:

##### Permanent Construction Easement: 9.28 acres

- Graminoid wetlands (sawgrass, cattail): 0.61 acres
- Forested wetlands: 1.38 acres
- Open water: 0.3 acres
- Uplands (road toe): 6.99 acres

##### Temporary Construction Easement: 7.13 acres

- Graminoid wetland: 3.57 acres
- Forested wetland: 2.77 acres
- Mixed forest and graminoid wetland (pond apple, willow): 0.66 acres
- Upland forest: 0.13 acres

A total of approximately 8.99 acres of wetland is expected to be impacted during implementation of this project. According to the USACE calculations, the project will also restore approximately 6 acres of wetlands where the road and road embankment is removed. Most of this area will be partially shaded, unusually deep, and possibly devoid of wetland soils; thus, only partial wetland functional value is expected.

Upon completion of bridge construction, the 7.13 acre Temporary Construction Easement (TCE) footprint will be restored by placing and grading wetland soils to restore natural contours and elevations, and removal of exotic species that may have colonized areas during or post-construction, and wetland plantings as needed.

In addition to these 6 acres of restored wetlands and the 7.13 acres of the TCE, the project has the potential to enhance function to more than 63,195 acres of wetlands in SRS through the improvement of flow (quantity, timing, and distribution), the promotion of sheet flow, and strengthened ridge and slough wetland processes. Therefore, when paired with an operational plan that allows additional water delivery to the project's full potential, all wetland and wetland function loss should be offset by both restoration of wetland acreage (under the bridge) as well as enhancement of downstream wetland function.

There are no practicable non-wetland alternatives to the selected plan because of the existing road alignment and the fact that all of the area, except some spoil areas (which are immediately adjacent to the roadway and which will all be impacted by the project), south of the roadway is wetland.

The wetlands to be enhanced or restored are primarily emergent wetlands (PEM) but also include forested, shrub scrub, and open water areas (PFO, PSS, and POW). All of the wetland types to be impacted along the project alignment are well represented within the restored area. Thus, the project will, by enhancing hydrological function, benefit all of the types of wetlands impacted by the project, in greater quantities than that impacted and restore all lost wetland functions.

### Conclusion

The National Park Service has concluded that the plan as outlined above, and in detail in the LRR, is a viable strategy to make progress towards meeting restoration goals and completing the Tamiami Trail Modifications project. Hydrologic analysis has shown that the existing roadbed and culverts beneath it act to impede natural flow quantity, timing, and distribution. The project will modify the Tamiami Trail roadway by adding 1 eastern bridge. The proposed modifications will reduce flow impediments; therefore, improving conveyance of flows and facilitating the restoration of more natural hydropatterns and sheetflow in SRS. While the project will adversely impact approximately 8.89 acres of wetlands, this impact will be outweighed by removal of road fill from the proposed bridge location, restoration of the TCE area, and by the enhancement of flow, providing long-term benefits to more than 63,195 acres of wetlands within the SRS region of EVER. Therefore, the National Park Service finds that the proposed action is consistent with the service-wide no net loss of wetlands policy and is acceptable under Executive Orders 11988 and 11990 for the protection of floodplains and wetlands.



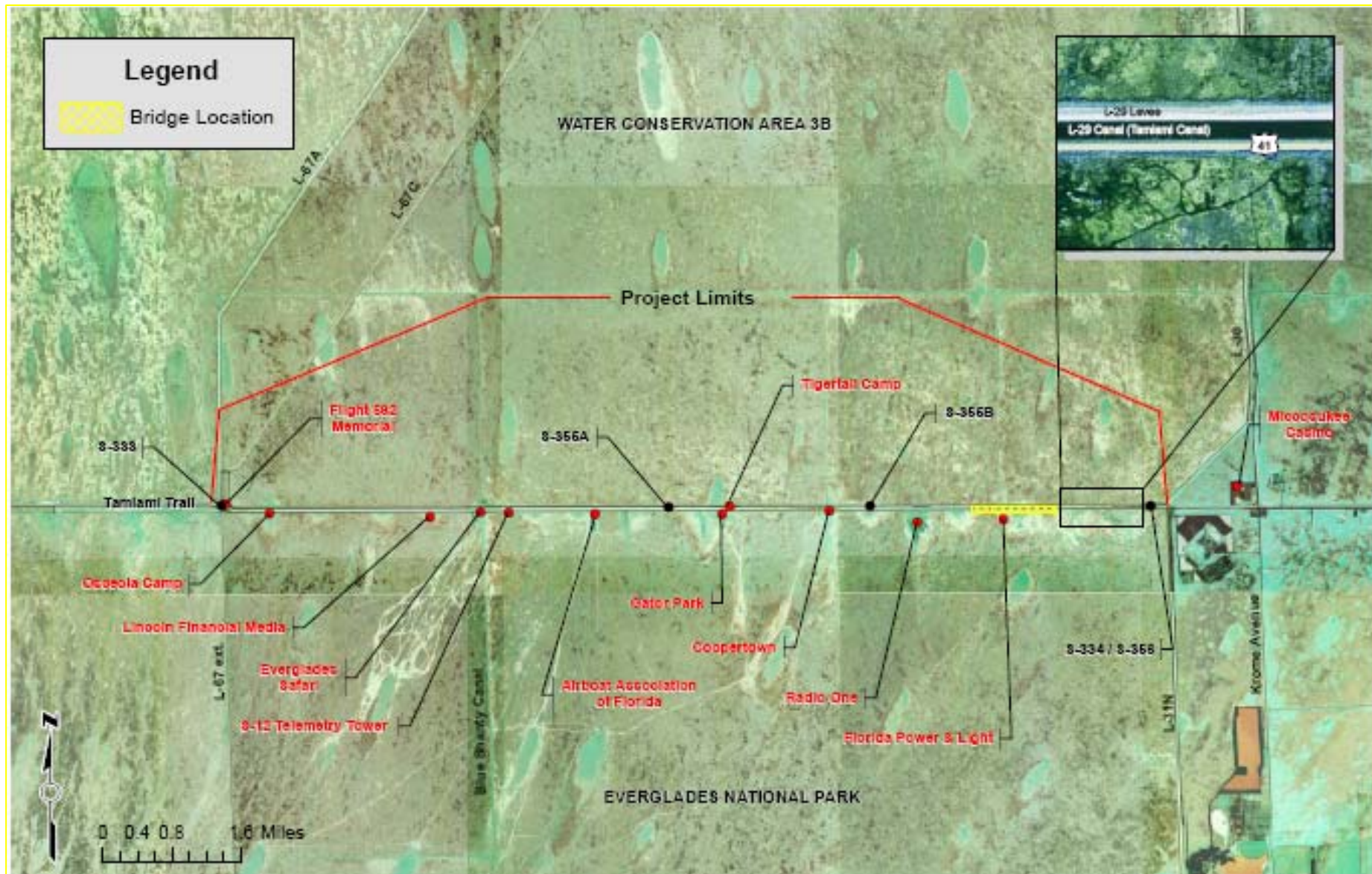
**Attachment A. Project site location, project engineering schematic, and typical cross sections of existing roadway, proposed roadway, proposed bridge approaches, and proposed bridge.** NOTE: figures are not to scale.

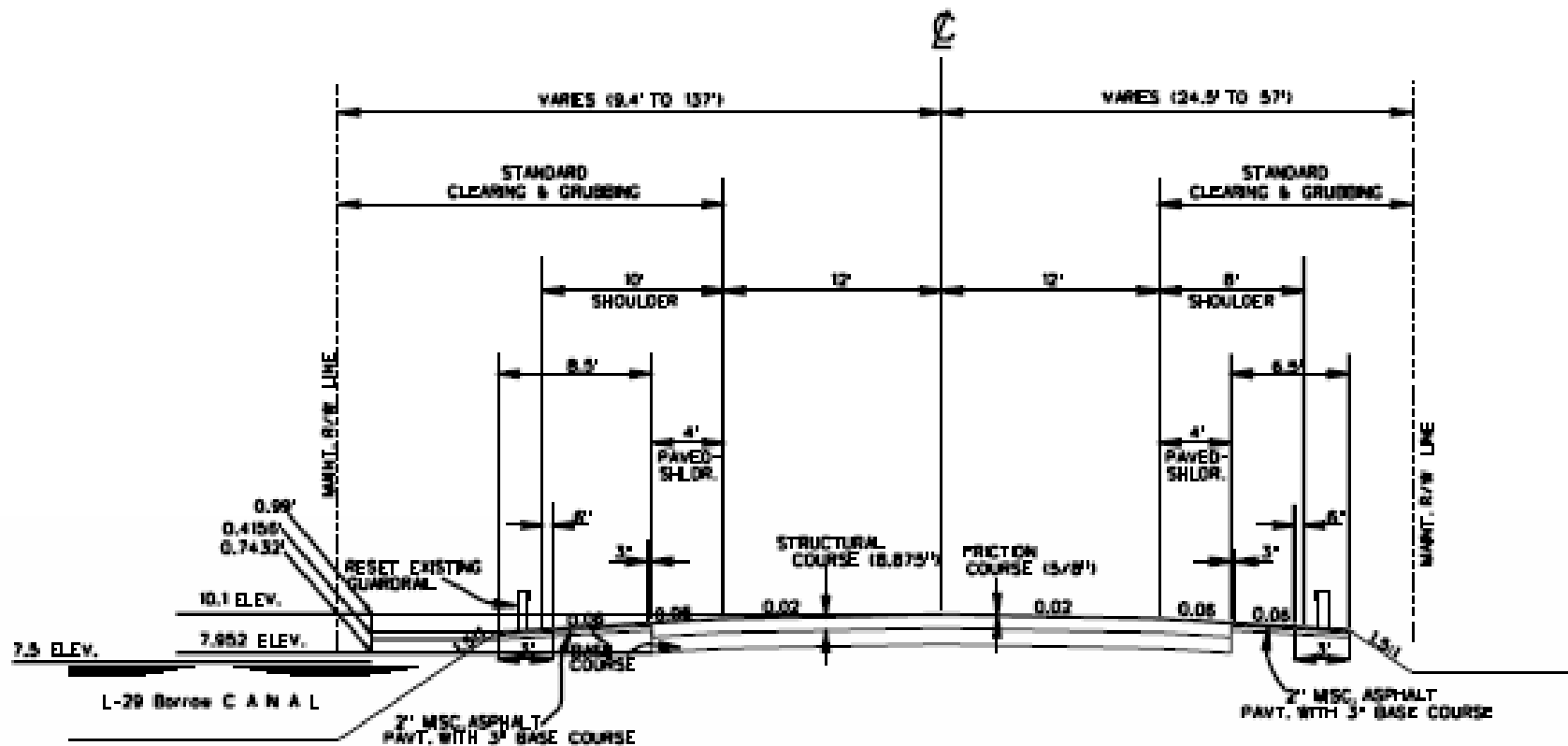
Source: Draft Limited Reevaluation Report for the Tamiami Trail Modifications Modified Water Deliveries to Everglades National Park. U.S. Army Corps of Engineers, Jacksonville District, South Atlantic Division, April 2008

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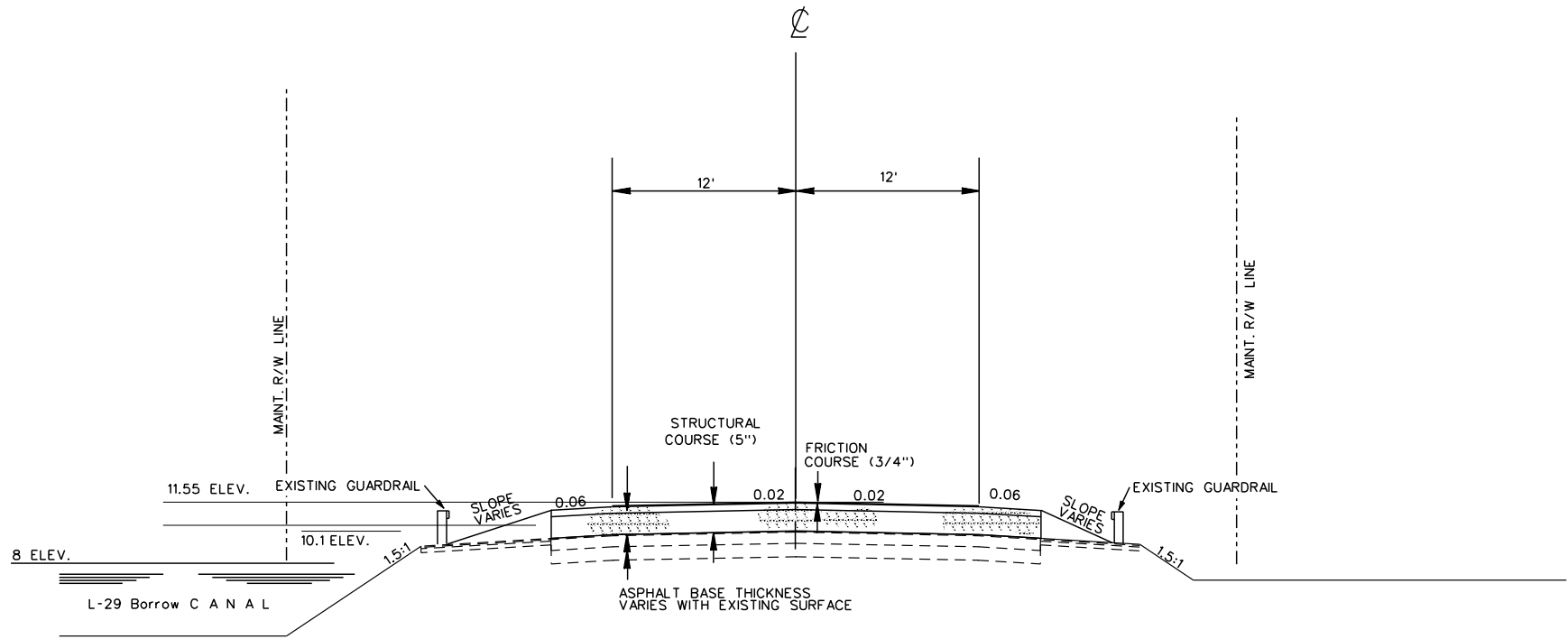
**Legend**

 Bridge Location

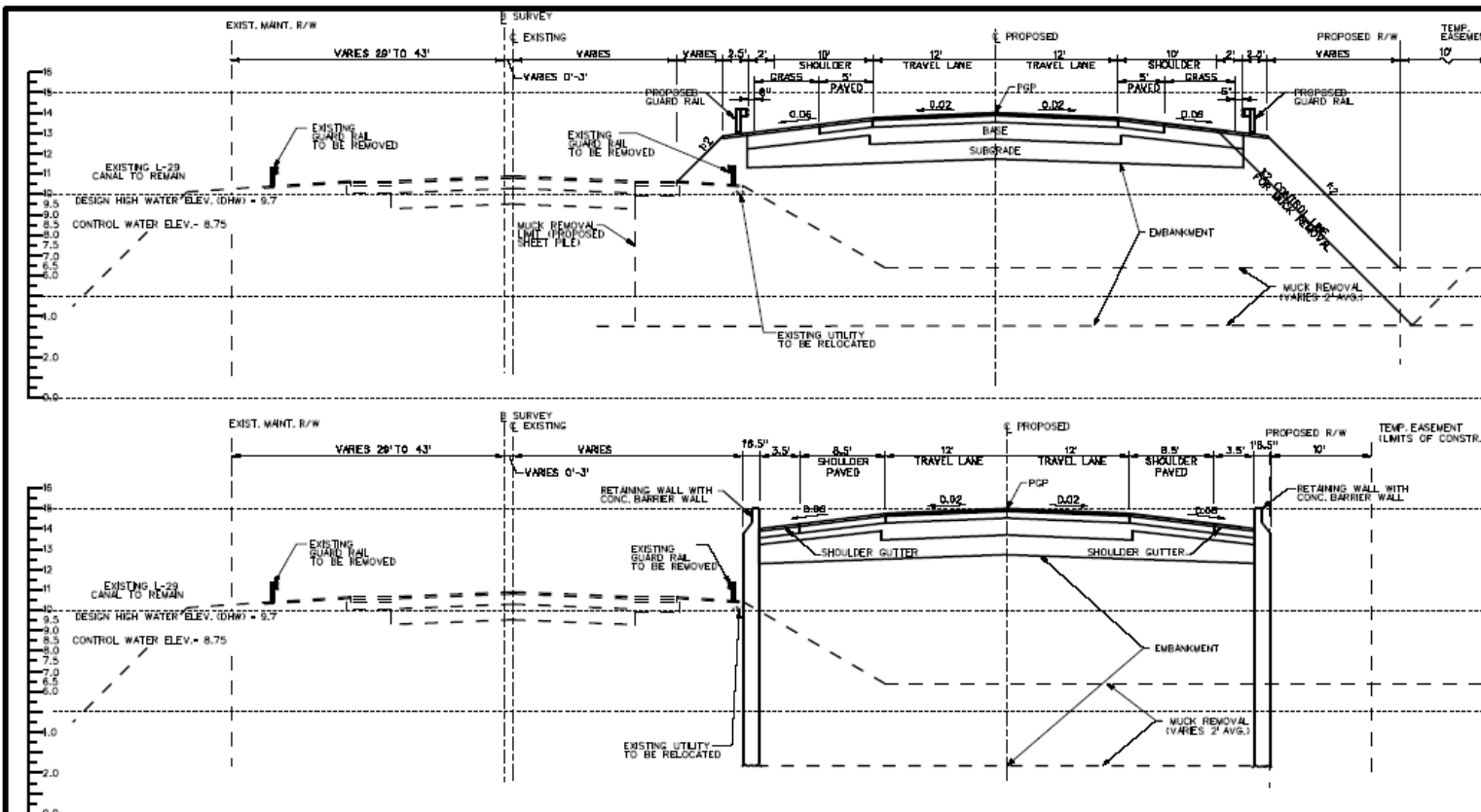




EXISTING CONDITIONS  
SCALE: 1" = 350'



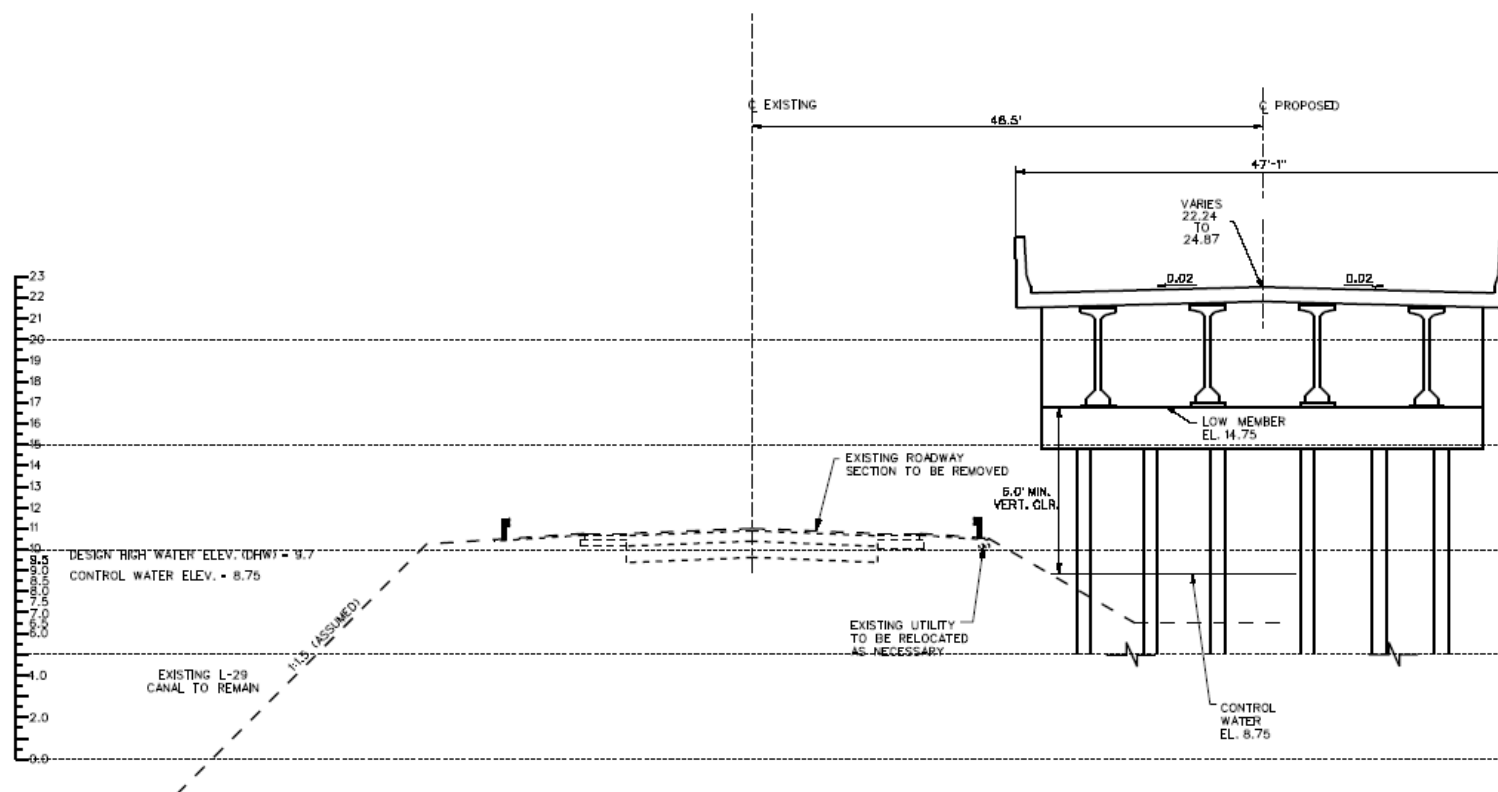
11.55 ELEVATION  
PROPOSED CROSSSECTION



TYPICAL SECTION  
TRANSITION FROM PROPOSED BRIDGE  
TO EXISTING ROADWAY  
NEW CONSTRUCTION  
OPTIONAL BASE GROUP 9 WITH  
TYPE SP STRUCTURAL COURSE (4")  
AND FRICTION COURSE (3/4")

LOOKING EAST  
SCALE = HORIZONTAL 1" = 10'  
VERTICAL 1" = 5'

 US Army Corps of Engineers Jacksonville District	
DEPARTMENT OF THE ARMY JACKSONVILLE DISTRICT, CORPS OF ENGINEERS JACKSONVILLE, FLORIDA	
Project No. _____ Design No. _____ Drawn By _____ Checked By _____ Date _____ Scale _____	D.O. FILE NO. NWR-NN, NNN (SEE MAP 1177)
MODIFIED WATER DELIVERIES TO LOCALITY FOR TAMAMI TRAIL RRR TRANSITION TYPICAL SECTION	
Scale AS SHOWN PLATE NO.	
A14-3B	



BRIDGE TYPICAL SECTION  
 STA 2071+14.78 TO STA 2176+74.70  
 STA 2472+21.69 TO STA 2525+01.63

LOOKING EAST  
 SCALE - HORIZONTAL 1" = 10'  
 VERTICAL 1" = 5'



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 JACKSONVILLE DISTRICT, CORPS OF ENGINEERS  
 JACKSONVILLE, FLORIDA

Designed by  
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 Checked by  
 D.O. FILE NO. N11N-N1, N1N  
 Date: 11/11/11

For review  
 C-100/1000  
 Reference file  
 C-100/1000

MODIFIED WATER RELIEF SYSTEMS TO  
 EXPOSED NATURAL PARK  
 DUKE COUNTY, FLORIDA  
 TAMAMI TRAIL RGR  
 BRIDGE TYPICAL SECTION

Scale: AS SHOWN

PLATE NO.  
 A14-4