

To: Louis G. Reis, P.E.  
Turnpike Enterprise Design Engineer

Date: February 18, 2009

Financial Project ID: 422349-1-52-01 New Const. (X) RRR ( )  
Federal Aid No: N/A  
Project Description: Replacement of the PGA Boulevard Ramp Bridge and Required Interchange Improvements  
State Road Number: SR 91 Co./ Sect./ Sub. 93470000  
Begin Project MP: 109.165 End Project MP: 109.165  
Full Federal Oversight: Yes ( ) No (X)  
Request for Design Exception ( ), Design Variation (X)  
Resubmittal: Yes ( ) No (X) Original Reference No:     -    -    .

Requested for the following element:

- |                           |                          |                        |                             |
|---------------------------|--------------------------|------------------------|-----------------------------|
| ( ) Design Speed          | ( ) Lane Widths          | ( ) Shoulder Widths    | ( ) Bridge Widths           |
| ( ) Structural Capacity   | ( ) Vertical Clearance   | ( ) Grades             | ( ) Cross Slope             |
| ( ) Superelevation        | ( ) Horizontal Alignment | ( ) Vertical Alignment | ( ) Stopping Sight Distance |
| (✓) Horizontal Clearance* | ( ) Other _____          |                        |                             |
- \* Border Width

The scope of work for this project consists of replacing the existing PGA Boulevard Ramp Bridge (Bridge No. 930148) due to existing substandard vertical clearance, and the inability of the existing ramp bridge to span the future 8-lane mainline section of the Florida's Turnpike and existing utilities located to the east of the mainline. Additionally, the design includes the reconstruction and/or widening of portions of the NB Off-Ramp and NB On-Ramp, which are required to realign the interchange with the proposed PGA Boulevard Ramp Bridge.

Within the limits of this project there is one location where standard border width requirements, according to FDOT criteria, cannot be achieved. This location however, does comply with AASHTO border width requirements based on future widening considerations at this interchange. Please find attached the supporting documentation for this design variation request.

**Approvals:**

<u><i>Louis G. Reis</i></u> Date <u>2-25-09</u> Turnpike Enterprise Design Engineer	<u>NA</u> Date _____ Turnpike Enterprise Structures Design Engineer
<u>NA</u> Date _____ State Roadway Design Engineer	<u>NA</u> Date _____ State Structures Design Engineer
<u>NA</u> Date _____ State Chief Engineer	<u>NA</u> Date _____ FHWA Division Administrator

**SR-91 (Florida's Turnpike)  
Replacement of the PGA Boulevard Ramp Bridge  
and Required Interchange Improvements  
Palm Beach County  
FPID No.: 422349-1-52-01**

**HORIZONTAL CLEARANCE (BORDER WIDTH)  
VARIATION REPORT**

**Prepared for:**



## Table of Appendices

APPENDIX A – Location Map

APPENDIX B – Typical Section

APPENDIX C – Substandard Border Width Limits

### Project Description:

This project will consist of the construction of a new ramp bridge over the Florida's Turnpike at the PGA Boulevard Interchange. The proposed bridge will be located to the north of the existing ramp bridge, and is needed primarily to correct the substandard vertical clearance of the existing ramp bridge. In addition, the proposed ramp bridge will accommodate future widening of the Turnpike mainline and span existing utilities located to the east of the mainline. Other improvements associated with this project include reconstruction and/or widening of the NB On/Off Ramps, which are required to realign the interchange with the proposed ramp bridge location.

### Minimum Design Criteria:

FDOT design criteria requires a 94' border width from the edge of the outside through travel lane or interchange ramp to the right-of-way (FDOT 2009 PPM Table 2.5.3). AASHTO's 2004 Edition of "A Policy on Geometric Design of Highways and Streets" suggests that the typical range for border width is 80' to 150' but much more narrower widths may be used in urban areas if retaining walls are provided (Page 508 of AASHTO).

### Proposed Design:

The objective of this project is to meet standard vertical clearance at the PGA Boulevard Interchange of Florida's Turnpike and to accommodate future widening of the Turnpike mainline through the interchange. The proposed ramp bridge will be located to the north of the existing bridge in order to maintain interchange traffic during construction. As a result, geometry required to realign the proposed NB Off-Ramp will push the entire ramp to the outside of existing NB-Off-Ramp. Therefore, at points along this ramp the proposed edge of travel will move closer to the right-of-way thereby reducing border widths. This occurs specifically at:

Sta. 116+80.00 LT to Sta. 119+13.00 LT. (Border width varies from 60.3' to 94')

Within the station range above, border widths of less than 94' will be present following construction of proposed improvements. In this area, some form of barrier protection will be provided thus avoiding the potential for errant vehicles to leave the roadway and traverse outside of Right-of-Way.

### Reason Design Criteria is Not Appropriate:

The 94' border width criteria is based upon providing, at a minimum, a 300' mainline Right-of-Way corridor (half of the Right-of-Way minus half of a standard 64' median and minus two 12' lanes) for interstates and freeways. It is intended to enable the designer, with little consideration of the actual area topography or possible design considerations, to establish a uniform Right-of-Way limit in a new corridor or interchange that will provide sufficient room for the facility's present construction and potential future expansion. This section of Florida's Turnpike however, is an established highway in an urban area that is undergoing expansion and should therefore not be subject to this design criteria. Furthermore, the existing border width available also provides sufficient room for the future expansion of the Turnpike and the future widening of the northbound exit ramp to two lanes.

The fundamental purpose of border width is to accommodate roadside safety, routine maintenance of the facility and permitted public utilities. In the proposed design, roadside safety is maintained through the use of guardrail. Routine maintenance of the facility has been accommodated in the proposed design by maintaining a minimum of 10 ft. of natural ground area between the existing Right-of-Way line and the

toe of slope or face of retaining wall when the ramp is widened in the future. Public utilities can still be easily accommodated in the proposed design as well.

The proposed border width (albeit substandard) achieves the goals set forth by PPM and AASHTO. Obtaining full border width in compliance with applicable criteria would require the acquisition of a 233' long strip of land varying in width from 0' to 34'. This acquisition would affect only one landowner, Old Palm Golf Club, of a multimillion dollar golf course community. Impacts would be limited to "common areas" of the community.

Conclusion and Recommendation:

Based on the information evaluated, [redacted] recommends the border widths as outlined in the Proposed Design section of this report. Accommodations have been made in the proposed design for roadside safety, routine maintenance and public utilities, which are the primary objectives of border width. Therefore, [redacted] sees no reason to acquire additional Right-of-Way for the sole purpose of achieving a desired border width as set by the Plans Preparation Manual.

**DESIGN VARIATION  
FOR  
HORIZONTAL CLEARANCE (BORDER WIDTH)**

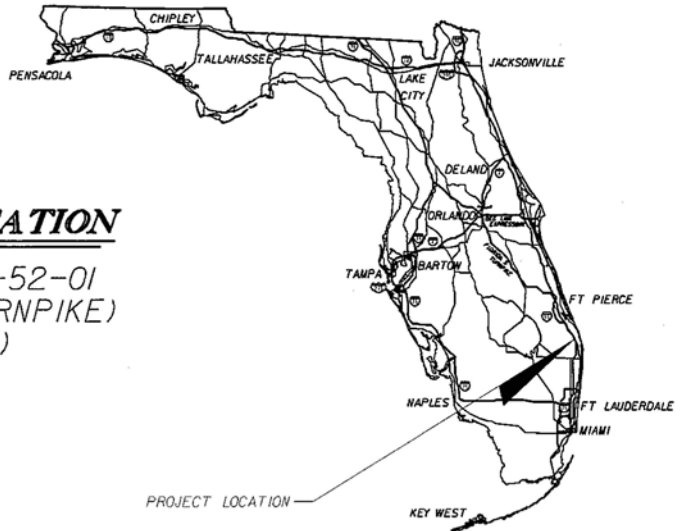
**SR 91 (FLORIDA'S TURNPIKE)  
FINANCIAL PROJECT ID 422349-1-52-01**

**APPENDICES**

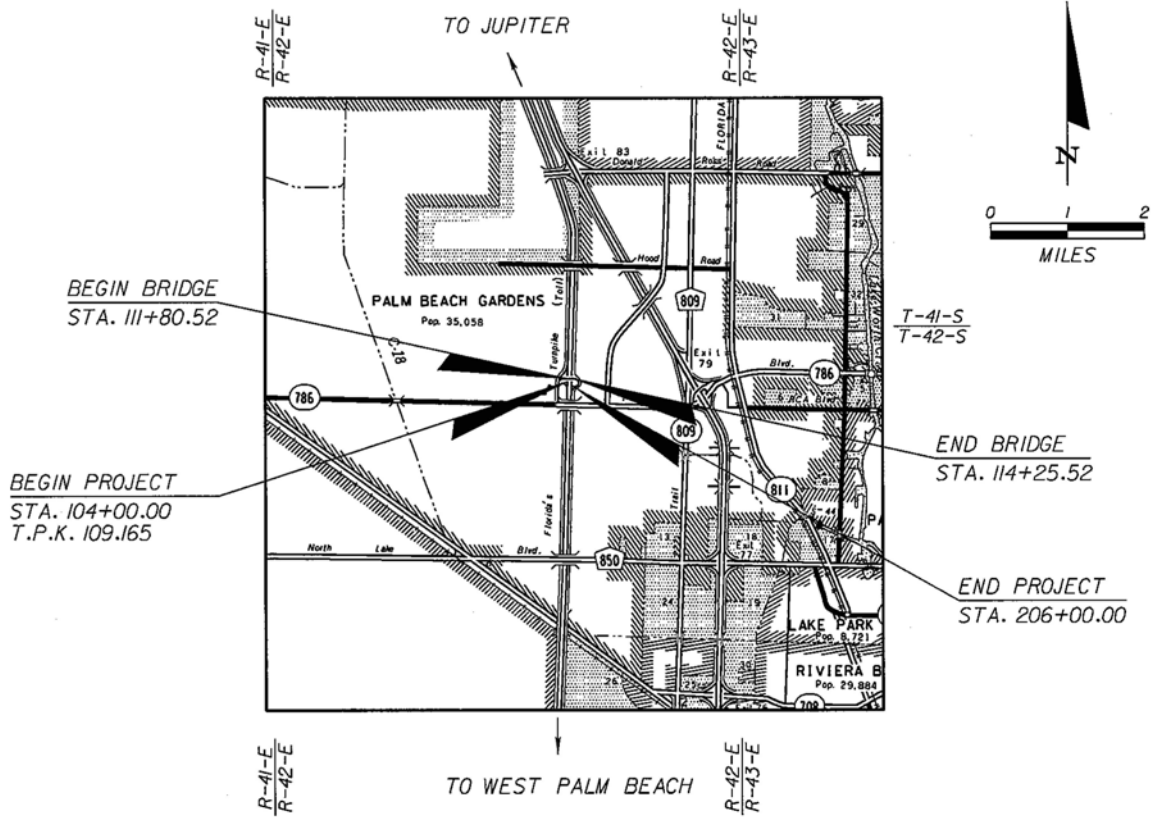
**APPENDIX A**  
**LOCATION MAP**

**STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION**

FINANCIAL PROJECT ID 422349-1-52-01  
STATE ROAD No. 91 (FLORIDA'S TURNPIKE)  
PALM BEACH COUNTY (93470)



LOCATION MAP



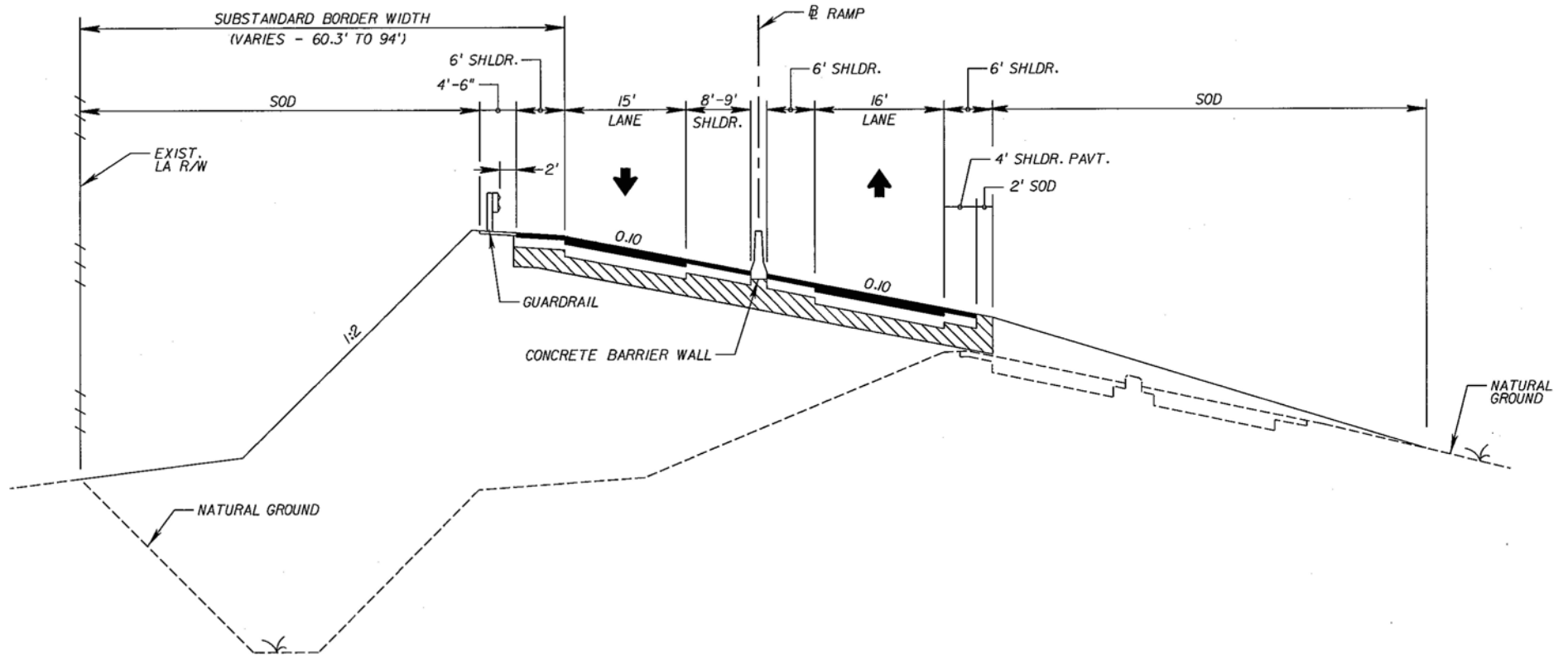
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DESIGNED	
SHEET	1

LOCATION MAP

**APPENDIX B**

**TYPICAL SECTION**

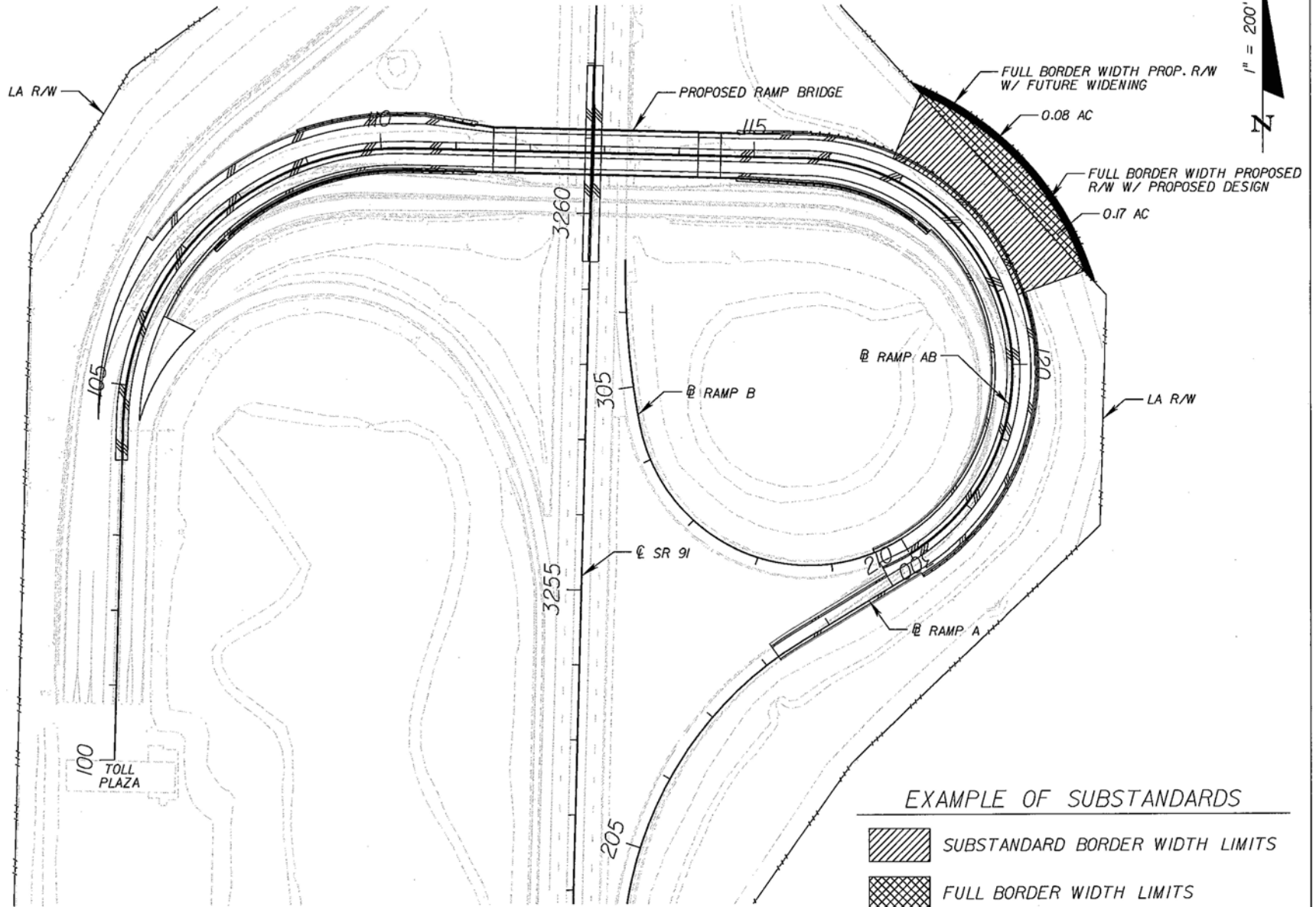
# TYPICAL SECTION






EXAMPLE OF SUBSTANDARDS  
 BORDER WIDTH  
 RAMP A-B  
 STA. 116+80.00 TO STA. 119+13.00

## **APPENDIX C**

### **SUBSTANDARD BORDER WIDTH LIMITS**



EXAMPLE OF SUBSTANDARDS

-  SUBSTANDARD BORDER WIDTH LIMITS
-  FULL BORDER WIDTH LIMITS
-  FUTURE WIDENING FULL BORDER WIDTH LIMITS

RAMP A-B  
 STA. 116+80.00 TO STA. 119+13.00