Picciola Bridge Improvements Project

Alternative Analysis Report

Submitted to:

Lake County Department of Public Works

by:

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December 2004

EXECUTIVE SUMMARY

Picciola Road (CR 466A), located in Lake County, Florida, connects US 27/411 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island. In this report, issues associated with the existing conditions from Sable Palm Drive to Lake Unity Road are identified and engineering solutions are developed that provide an economical and safe facility while minimizing disruption to the motoring public and impacts to the environment.

The existing roadway typical section consists of two 12'-0" lanes with no paved shoulders. The bridge typical section consist of two 11'-6" lanes and 6" shoulders. The existing bridge is located on a tangent segment of roadway between two tight horizontal curves with steep superelevation. Since the existing bridge is tangent and crowned, it does not match the approach roadway and has resulted in accidents. The existing bridge Inventory Load Rating is less than required for the HS20 design vehicle and the bridge railing is not rated to resist the impact of the current design vehicle.

The proposed roadway typical section consists of two 12'-0" lanes with 2'-0" paved shoulders and 6'-0" sodded shoulders. The proposed bridge consists of two 12'-0" lanes with 8'-0" shoulders and 1'-61/2" traffic railing barriers along each side.

Two roadway alignment alternatives, based on a 40 mph design speed, are selected for further study. In Alternative A (Phased Construction), the alignment is shifted north to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. Alternative B (Build-in-Place) realigns the existing roadway with only minor lateral adjustments.

SUMMARY OF ROADWAY ALTERNATIVES		
Issue	**Alternative A (Phased Construction)**	**Alternative B (Build-in-Place)**
*Estimated Probable Cost	$1,250,000	$775,000
Traffic Control	• 4 Phases of construction • Two -10'-0" lanes maintained • Periodic lane closures	5.2 mile detour
Construction Duration	14 months	6 months
Right-of-Way Acquisition	0.21 acres (9,150 square feet)	None
Wetlands Impact	0.16 acres (6,970 square feet)	0.01 acres (435 square feet)

*Total Project Cost Inclusive of Bridge Cost and Drainage Cost

Evaluation criteria used to compare the two roadway alternatives include public opinion, cost, constructability, disruption to traffic, right-of-way impact and environmental impacts. **The recommendation for the roadway alignment is Alternative A (Phased Construction).**

Three drainage design alternatives, exfiltration, swales, and ponds are investigated. An exfiltration system consists of perforated pipe surrounded by crushed stone aggregate wrapped in filter fabric.
Swales would be located adjacent to the roadway in areas where the groundwater levels are low enough to permit infiltration. Ponds to treat stormwater generated from the new roadway are impractical since the only available parcels are at the higher elevations within the project limits. Ponds would be used to treat runoff generated from another section of the roadway that is currently not treated.

SUMMARY OF DRAINAGE ALTERNATIVES			
Issue	**Exfiltration**	**Roadside Swales**	**Ponds**
Estimated Probable Cost	$84,000	$70,300 (Alt. A) $82,400 (Alt. B)	$100,000
Right-of-Way Acquisition	*None	0.35 Acres (Alt. A) 0.58 Acres (Alt. B)	2 Acres
Wetlands Impact	*None	0.07 Acres (Alt. A) 0.13 Acres (Alt. B)	None
Maintenance	May involve excavation of this buried system	Includes only debris removal and mowing	Includes only debris removal and mowing

*This system is contained within the Roadway Typical Section.

Evaluation criteria for the three drainage alternatives include cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impacts. **The recommendation for the drainage is to install an exfiltration system under the 6 foot sodded shoulder.**

Due to the age of the existing structure and its geometric incompatibility with the existing roadway's curved and superelevated geometry, widening the existing is not viable. It is recommended that the existing structure be replaced.

The required bridge length to span the Dead River is approximately 81 feet. One, two or three span arrangements are viable. The single-span structure uses precast prestressed AASHTO Type III beams which support an 8" concrete deck. The increased structure depth requires a higher roadway profile to maintain the same underclearance as the shallower three-span alternative. The AASHTO beams are supported by two end bents founded on 18" prestressed piles. The two span alternative requires a support at the centerline of channel, which would impede boat traffic, and was eliminated from further consideration. The three-span structure consists of a flat slab superstructure, 1'-6" thick, which is approximately equal to the existing structure depth. The flat slab is supported by two end bents and two intermediate bents founded on 18" prestressed concrete piles.

The estimated comparative cost of the structure is higher for roadway Alternative A due to the phased construction. Wall cost includes temporary walls, which are required for phased construction, and permanent walls, which are required to limit right-of-way and wetlands encroachment.

SUMMARY OF BRIDGE ALTERNATIVES		
Issue	**Three-Span Flat Slab**	**Single-Span AASHTO Type III**
Estimated Probable Cost (including walls)	$677,000 (Alt. A) $387,000 (Alt. B)	$734,000 (Alt. A) $388,000 (Alt. B)
Constructability	• Piles driving in channel • Channel impeded during construction	All construction occurs from approaches
Aesthetics	Piling in waterway	No visible foundations supporting superstructure
Maintenance	Piling subject to corrosion and impact damage	Negligible

Evaluation criteria for the bridge alternatives include cost, constructability, aesthetics and maintenance. **The recommendation for the bridge is the Single-Span AASHTO Type III Beam Alternative.**

Public Information Meetings were held on June 15, 2004 at the Fruitland Park Casino, in Fruitland Park and November 4, 2004 at the Leesburg Community Center, in Leesburg. During the meetings, the alternatives and recommendations discussed in this report were presented to the public. Over 70% of the respondents prefered the phased construction option citing concerns over a delay in emergency response time, concerns of safety and delay at the intersection of Eagles Nest and US 27/411, driving extra miles, shopping inconvenience, impact to local businesses and increase travel to work or school. Other comments unrelated to the alternative selection included seven residents who wanted the bridge built higher to provide additional underclearance, five who wanted pedestrian facilities and one who wanted lighting added to the bridge.

A Public Hearing was held on December 7, 2004, during a regular meeting of the Lake County Board of County Commissioners. All of those who spoke at the hearing supported Roadway Alternative A (Phased Construction). Following the public comments, the Board of County Commissioners voted unanimously for Roadway Alternative A.

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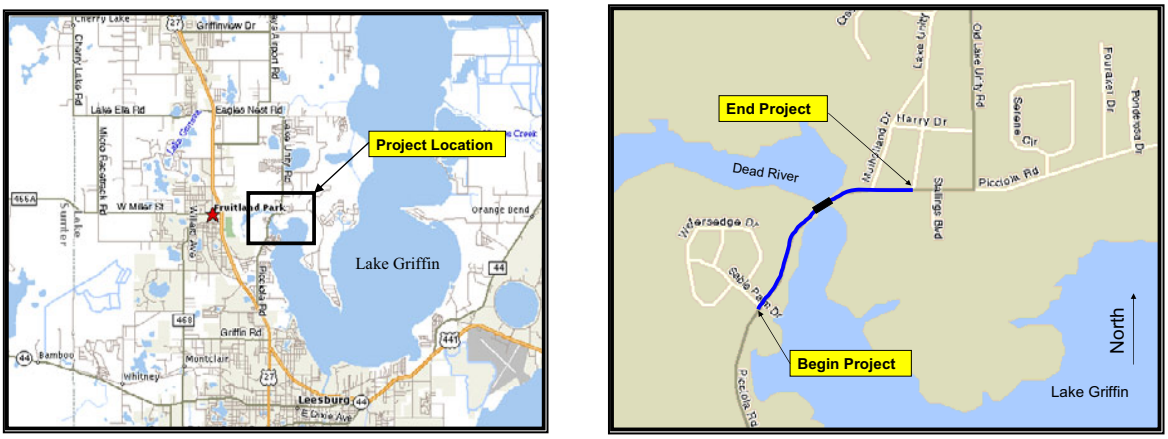
1.0 INTRODUCTION

1.1 Project Location

Picciola Road (CR 466A) is located in Lake County, Florida, east of the City of Fruitland Park. The roadway connects US 27/411 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island.

Figure 1-1
Project Location Map



1.2 Scope of Report

The segment of Picciola Road from Sable Palm to Lake Unity Road has been the site of many injury accidents over the past several years. In this report, issues associated with the existing conditions are identified and engineering solutions are developed that provide a functional and safe facility.

Alternative roadway designs, drainage designs, and bridge designs are studied and optimal solutions identified. Alternative roadway alignments are evaluated with the goal of identifying a cost-effective, safe alignment that has the least negative impacts on the surrounding residents and the environment. The roadway alternatives are compared based on cost, constructability disruption to traffic, right of way impact and environmental impact. The drainage alternatives are compared based on cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impact. The existing structure is evaluated for its suitability for rehabilitation and widening. Horizontal and vertical clearance requirements are identified and viable superstructure and substructure alternatives are investigated. The optimal span arrangement, substructure type and superstructure type, are selected based on cost, constructability, maintenance and aesthetics.

1.3 Project Goals

The specific project goals are identified in **Table 1-1**.

Table 1-1
Project Goals

- Provide an Alignment with a 40 mph Design Speed
- Provide a Structure with a 75-year Service Life
- Provide 2'-0" of Additional Vertical Clearance over the Dead River
- Minimize Disruption to the Motoring Public during Construction
- Minimize Environmental Impacts
- Minimize Cost

1.4 Evaluation Matrix

It is recognized that alternative selection is based on an evaluation that includes criteria other than just cost. Throughout this report, the Evaluation Matrix is used to consider multiple selection criteria. In the matrices, "Importance Factors" are assigned to "Evaluation Criteria" (e.g. cost, constructability, maintenance etc.). Each competing alternative is assigned a rating from 1 (Low) to 10 (High) for each evaluation criteria in the evaluation matrix. The rating is based on the alternatives relative merits with respect to each criterion. A weighted score (the sum of the Importance Factor x Ratings) for each alternative is compiled and used in recommending the preferred alternative. The maximum possible score for each alternative is 100. The alternative with highest score is the recommended alternative.

2.0 EXISTING CONDITIONS

2.1 Roadway Characteristics

Existing Picciola Road, within the study limits, is a two lane roadway. The posted speed limit varies from 35 mph west of the Picciola Bridge to 45 mph just east of the bridge. In the vicinity of Sable Palm Drive there is an advisory speed sign of 25 miles per hour. This sign is in place due to pedestrian traffic crossing the road from a residential area north of the roadway to Lake Griffin on the south. This segment of Picciola Road serves residential and community based land use, and is an important element of Lake County's roadway network.

2.1.1 Functional Classification

Picciola Road connects U.S. 27/441 to Lake Unity Road (C.R. 466B) and provides access to Picciola Island. It is classified as a collector roadway. U.S. 27/441 is classified as a principle urban arterial while C.R. 466B is classified as a minor collector.

2.1.2 Typical Section

The typical section of Picciola Road consists of two 12'-0" wide travel lanes with no paved shoulders. There is no well defined stormwater collection system along the corridor. Guardrail exists at the bridge approaches and in areas where the fill slopes are steep. There are no sidewalks or designated bicycle facilities along the corridor.

2.1.3 Right-of-Way

The county owned right-of-way along this portion of Picciola Road is 80 feet wide. Detailed right-of-way maps were prepared by Southeastern Surveying as part of this study and are located in the project file.

2.1.4 Horizontal Alignment

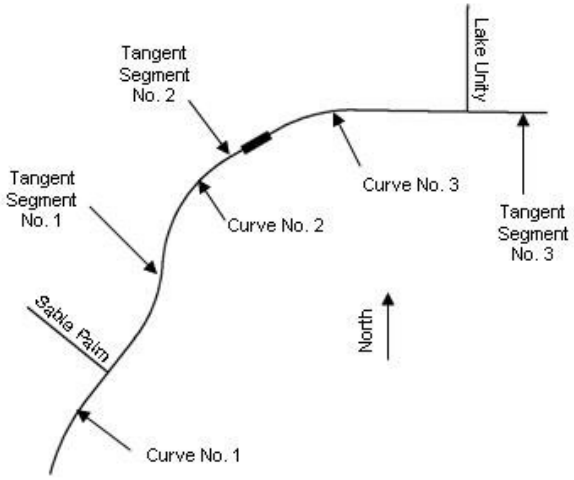
The existing roadway consists of three horizontal curves within the limits of the project separated by tangent segments. Existing curve data can be found in **Table 2-1**.

Table 2-1
Existing Curve Data

Curve No.	Radius	Superelevation
1	410'	9%
2	410'	10%
3	478'	5%

The curve radii are very tight and have a steep superelevation. The bridge is situated within a 165 foot tangent segment between Curve Nos. 2 and 3. There is no superelevation across the bridge. When traveling at the posted speed limit of 35 mph, the transition from curve to tangent to curve occurs in 3.2 seconds. The roadway geometry limits both horizontal sight distance and reaction time. The driver expectation is a continuous curve at a constant

Figure 2-1
Existing Curve Locations



superelevation though Curve Nos. 2 and 3 and across the bridge. This unexpected geometric deficiency has contributed to many accidents on Picciola Road as evidenced by eyewitness accounts and collision damage to the guardrail.

2.1.5 Vertical Alignment

The vertical profile of Picciola Road is relatively flat at Sable Palm Drive. The profile grade increases to approximately 1.20% along Horizontal Curve No. 2 at the west approach to the bridge. The profile over the bridge is flat and increases to approximately 1.86% along Horizontal Curve No. 3. These vertical grades are adequate to facilitate drainage of the roadway runoff and present no obstruction to the vertical sight distance.

2.1.6 Intersection and Signalization

There are a total of four intersections on Picciola Road within the project limits: Sable Palm Drive, Mulholland Drive, Stallings Boulevard and Lake Unity Road. The first and last intersections define the project limits. Traffic is controlled at all intersections with stop signs.

2.1.7 Crash Data

Crash data for this segment of Picciola Road was assembled and reviewed. The 1995 through 2002 data was obtained from the Lake County Traffic Engineering Department. The majority of the accidents occurred near Lake Unity Road. See **Table 2-2**, for a summary of the data described by location and year of accident.

Table 2-2
1995 Thru 2002 Crash Data Summary

Year	Sable Palm Drive	Mulholland Drive	Stallings Boulevard	Lake Unity Road	Totals
1995	0	0	0	3	**3**
1996	2	1	0	4	**7**
1997	1	0	0	3	**4**
1998	1	0	0	2	**3**
1999	1	0	0	3	**4**
2000	1	0	0	1	**2**
2001	0	0	0	4	**4**
2002	2	0	0	1	**3**
Total	**8**	**1**	**0**	**21**	**30**

2.2 Stormwater Management

This project lies within the St. John's Water Management District (SJRWMD). The portion of the Dead River located north of the project and adjacent to the Lake Griffin State Recreation Area is designated as "Outstanding Florida Waters." The waters located in Lake Griffin to the south of the project are Class III waters.

There is no stormwater treatment system provided within the project limits. The stormwater currently runs off the existing roadway and into roadside ditches that flow into Lake Griffin or the Dead River. There are scuppers on bridge that discharge stormwater directly into the Dead River.

2.3 Environmental Characteristics

Lotspeich and Associates conducted a preliminary ecological assessment of the study area. Their findings are documented in the "Preliminary Ecological Assessment Report for Picciola Bridge Improvements", dated July 21, 2004. The referenced report contains a complete discussion of the existing environmental characteristics and regulatory considerations. The following is a summary.

> The study area is bordered by undeveloped land, a mobile home park, single family residences, Lake Griffin State Park, and Lake Griffin. The residential land uses occur on both the east and west sides of the existing bridge and a small mobile home park is situated on the southwest side of the bridge. The existing roadway is the primary upland land use within the study area. One wetland and one surface water community occur within the study area. The vast remainder of the study area is dominated by Lake Griffin to the south of Picciola Road and the Dead River to the north of Picciola Road. No threatened or endangered species were observed during the field investigation. The closest bald eagle nest is located approximately 3,500 feet north of the study area near Windy Way - well beyond the 1,500 foot protection zone.

2.4 Geotechnical Characteristics

DEVO Engineering conducted a preliminary geotechnical investigation to evaluate viable foundation and wall types for this project. Their findings are documented in the "Preliminary Geotechnical Structures Report for Picciola Bridge Improvements" dated June 5, 2003, and two letter reports dated July 28, 2003, and March 18, 2004. The following information was obtained from those reports.

> The geotechnical investigation included Standard Penetration Test Borings, Power Auger Borings, Hand Augers and Muck Probes. Surficial muck was identified along the edges of the water. The muck thickness ranged from four inches to two feet. Buried Peat was identified on the western approach to the bridge. The pocket begins approximately 17'-6" below the existing roadway and is up to 6 feet in depth. The extent of the buried peat is bounded laterally by the existing roadway embankment. At elevations below the muck and peat, the upper 65 feet is composed of loose to medium dense fine sands and slightly silty fine sands with varying transitions to silty, silty and clayey fine sands. From a depth of 65 feet to the termination of the borings the soil is predominately sandy clays and clays.
>
> Corrosion testing was performed on soil samples obtained from the site. Based on the criteria presented in the Florida Department of Transportation's Structures Design Guidelines, the environment is classified as "*Slightly Aggressive*" for both superstructure and substructure.

2.5 Existing Bridge Characteristics

The existing bridge (Bridge No. 114044) is on the tangent segment of roadway that crosses the Dead River perpendicular to the channel. The bridge riding surface is crowned at the centerline and cross-sloped at 3/16" per foot. The existing 75'-0" long structure is comprised of three 25'-0" spans. The first and last spans are constructed over the spill slopes and the center span is over the channel. The cast-in-place concrete T-beam superstructure

is founded on timber pile bents with concrete caps. The overall structure depth, measured from the top of deck to the bottom of the T-Beam, is approximately 2'-6". The bridge deck accommodates two 11'-6" lanes with 6" shoulders. A raised curb, 9" in width, runs along the outside edges of the bridge and a guardrail is mounted to the outside fascia of the bridge deck. The total bridge width is 25'-6". The existing lane widths and shoulders widths are less than current standard and the existing bridge railing is not rated to resist the impact load of the current design vehicle.

2.5.1 Bridge Inspection

We have reviewed the Bridge Inspection Report and conducted a field evaluation. The Bridge Inspection Report dated October 11, 2001, indicates that the main load carrying elements of the bridge are in, at least, satisfactory condition. We confirmed this assessment in our field evaluation. **Table 2-4** highlights some of the deficiencies noted in the report.

2.5.2 Load Rating

We have reviewed the latest bridge Load Rating dated May 25, 1994. The Load Rating is a measure of the structural capacity of the bridge to carry the Florida Legal Vehicles which provide both an Operating Rating and an Inventory Rating. The Operating Rating represents the absolute maximum permissible load to which a structure may be subjected. The Inventory Rating represents the load level which can safely utilize an existing structure for an indefinite period of time. Typically, only the HS20 Vehicle is load rated for Inventory.

Table 2-3 lists the Operating Rating for all the Legal Trucks and both the Operating Rating and Inventory Rating for the HS20 vehicle. No load restrictions are currently mandated for this bridge since all of the Operating Load Ratings exceed the permissible vehicle weights. However, the table shows an inventory load rating less than the vehicle weight for the HS20 vehicle. This indicates that the bridge is not structurally sufficient to safely carry the HS20 vehicle for an indefinite period of time. The beam distress noted in the Bridge Inspection Report may be due to repetitive loading that exceeds the Inventory Rating of the bridge.

Table 2-3
Load Rating Summary

Vehicle Designation	Vehicle Weight (U.S. Tons)	Moment Rating Factor	Shear Rating Factor	Load Rating
SU2	17.0	2.290	2.267	38.539
SU3	33.0	1.314	1.287	42.471
SU4	35.0	1.167	1.238	40.845
C3	28.0	2.095	2.150	58.660
C4	36.7	1.384	1.543	50.793
C5	36.6	1.384	1.513	50.654
ST5	40.0	1.672	1.587	63.480
HS20	36.0	1.574	1.365	49.140
HS20 (Inventory)	36.0	0.945	0.819	29.484

Table 2-4
Summary of Structural Deficiencies

SUMMARY OF STRUCTURAL DEFICIENCIES (Excerpts from Bridge Inspection Report dated October 11, 2001)		
Deck Surface	The Asphalt Overlay Exhibits $^{1}/_{8}$" to ½" wide transverse cracks over the expansion joints.	
Joint Seals	The expansion joints appear to be leaking as evidenced by water stains on the caps.	
Superstructure	The lower left face of Beam 1-1 exhibits an 8" long, $^{1}/_{16}$" wide diagonal crack above the Bent No. 2 cap, which propagates upwards. The lower right face of Beam 2-4 exhibits a beam height $^{1}/_{32}$" wide vertical crack above the Bent 3 cap, which is located 4" west of the east end of the beam propagating upwards. The vertical faces of the beams exhibit beam height, $^{1}/_{64}$" wide vertical cracks at 7" to 11" intervals.	

Table 2-4 (Continued)
Summary of Structural Deficiencies (Continued)

SUMMARY OF STRUCTURAL DEFICIENCIES (CONTINUED) (Excerpts from Bridge Inspection Report dated October 11, 2001)		
Substructure	Bent Caps: The top east face of the Bent 3 cap exhibits a 1.4' L x 1.1' H x 1" D spall, with no exposed reinforcing. Piling: Pile 3-1 exhibits a 2.5' H x 4" W x 2" D area of decay. Pile 3-2 exhibits a 4' H x 10" W x 5" deep area of delaminating. The intermediate bent piling typically exhibit moderate water saturation from the high water mark to the mudline. The intermediate bent piling typically exhibit soft sections up to $^{3}/_{8}$" deep in the splash zone and ¼" deep from the waterline to the mudline.	
Slope Protection	The slope protection has failed and collapsed at the waterline. The west slope exhibits erosion underneath the slope protection 12" high and 5' deep. The lower 6' of slope pavement is separating from the rest.	

2.5.3 Sufficiency Rating

The Bridge Sufficiency Rating is a numerical indicator of the adequacy of a bridge to remain in service. The rating combines structural adequacy, serviceability, functional obsolescence and essentiality for public use. Valid ratings range from 0 (most deficient) to 100 (most sufficient). The Sufficiency Rating for this structure, as listed on the Bridge Inspection Report dated October 11, 2001, is 50. This low sufficiency rating results from the insufficient load carrying capacity and the substandard lane widths, shoulder widths and barriers.

2.6 Utilities

Table 2-5 is a list of the utility companies that have facilities that may pose a conflict with this project. These companies were from the Sunshine State One Call of Florida.

Table 2-5
Utility Contact Information

Utility Name	Contact Name	Phone Number
City of Leesburg – Electric	Bob Brook	(352) 729-9830
City of Leesburg – Gas	Jack Rogers	(352) 729-9830
Progress Energy	Douglass Ellerbe (Distribution) Rosemary Gruebaum (Transmition)	(352) 694-8520 (407) 475-2471
Comcast Communications	Ed Horton	(352) 728-9755
Sprint Florida	Doug Van Cleave	(352) 326-1263

2.7 Establishment of Project Need

The segment of Picciola Road from Sable Palm Drive to Lake Unity Road has been the site of many injury accidents over the past several years. The existing roadway geometry, lane widths, shoulder widths and sight distances are substandard. Likewise, the existing bridge lane widths and shoulders widths are less than current standard. The load carrying capacity of the structure and the bridge railing are not rated to resist the loads of the current design vehicles. Based on these concerns combined with the age and level of deterioration of the existing bridge, improvements to this corridor are warranted.

3.0 DESIGN CRITERIA

3.1 Roadway Design Criteria

The roadway design criteria utilized is based on the Florida Department of Transportation's Plans Preparation Manual in conjunction with the Florida Department of Transportation's Design Standards (2002) and the Florida Green Book.

3.1.1 Traffic Data

The traffic data was provided to HNTB by Lake County Public Works from the two permanent traffic count stations located within the project limits. Station 117, is located just north of Picciola Cutoff Road on Picciola Road. Station 167, is located 0.2 miles south of Eagles Nest Road on Lake Unity Road. **Table 3-1** summarizes the traffic data.

Table 3-1
Traffic Counts

Year	Station # 117 AADT	Station # 167 AADT
2000	8,279	N/A
2001	8,186	4,606
2002	7,880	4,419
2003	8,179	4,622

3.1.2 Geometric Criteria

Table 3-2
Roadway Design Criteria

Design Element	Design Standard	Sources
	General	
Roadway Classification	Collector	
Design Vehicle	HS20	
Design Year	2025	Per Scope of Services
Design Speed	40 mph	PPM, Vol. I, Section 1.9, page 1-15
	Horizontal Alignment	
Maximum Curvature	10°45'00"	PPM, Vol. I, Table 2.8.3
Maximum Deflection w/o Horizontal Curve	2°00'00"	PPM, Vol. I, Table 2.8.1a
Minimum Length of Horizontal Curve	600 ft	PPM, Vol. I, Table 2.8.2a
Minimum Stopping Sight Distance	305 ft	PPM, Vol. I, Table 2.7.1 (Adjustments for grades will be made during design.)

Design Element	Design Standard	Sources
	Vertical Alignment	
Maximum Profile Grade	7.0%	PPM, Vol. I, Table 2.6.1 PPM, Vol. I, Page's 8-11 PPM, Vol. I, Table 8.6.4
Maximum Change in Grade w/o Vertical Curve	0.80%	PPM, Vol. I, Table 2.6.2
Crest Vertical Curve	K=70, Min. Length 120 ft	PPM, Vol. I, Table 2.8.5
Sag Vertical Curve	K=64, Min. Length 120 ft	PPM, Vol. I, Table 2.8.6
	Cross Section	
Lane Widths	12 ft – Tangent	PPM, Vol. I, Table 2.1.1, Table 2.1.2, Table 2.1.3 PPM, Vol. I, Page 8-3
Shoulder Width - Roadway	Total: 8 ft Paved: 2 ft	
Typical Roadway Cross Slopes	0.02 to 0.03	PPM, Vol. I, Figure 2.1.1
Clear Zone (Min. from edge of travel way)	18 ft	PPM, Vol. I, Table 2.11.9 (See Table 2.11.10 for adjustments in curves) PPM, Vol. I, Table 2.11.1 thru Table 2.11.8
Border Width	Minimum 12 ft from Edge of Travel	PPM, Vol. I, Table 2.5.2
Roadside Slopes	Front Slope 1:2 not flatter than 1:6 Back Slope 1:2 not flatter than 1:6 Transverse Slopes 1:4	PPM, Vol. I, Fig. 2.4.1
Maximum Shoulder "Roll-Over"	7%	2000 FDOT Roadway and Traffic Design Standard Index No. 510, 1 of 2
Maximum Lane "Roll-Over"	4%	PPM, Vol. I, Section 2.1.5
Superelevation Transition Non-Spiral Tangent Curve	Standard Minimum/Maximum 80%/50% 20%/50%	AASHTO (2001) pgs.176-183 PPM, Vol. I, Section 2.9
Maximum Superelevation	0.10	PPM, Vol. I, Section 2.9.1
Superelevation Transition Slope Rates	Minimum 1:100	PPM, Vol. I, Table 2.9.3 PPM, Vol. I, Table 2.9.4

The proposed typical section will be comprised of two 12'-0" lanes two 2'-0" paved shoulders with Type F curb and gutter and a 6'-0" grassed shoulder behind the curb and gutter. The additional grassed shoulder will allow the guardrail to attach to the bridge without transitioning. See **APPENDIX B** for the Proposed Roadway Typical Section.

3.2 Drainage Design Criteria

The stormwater management design utilizes FDOT Stormwater Design Criteria and meets the regulations of the Saint John's River Water Management District (SJRWMD). A summary of the criteria used can be seen in **Tables 3-3 and 3-4.**

Table 3-3
SJWMD Treatment Volume Criteria

Design Element	Design Standard
Wet Detention Volume	The greater of: First inch of runoff from the developed project -Or- 2.5 inches over the impervious area * If directly discharging to Class I, II, III or OFW provide an additional 50% of applicable treatment volume and permanent pool volume.
Dry Detention Volume	The greater of: First inch of runoff from the developed project -Or- 2.5 inches over the impervious area * If directly discharging to Class I, II, III or OFW provide an additional 50% of applicable treatment volume.
Off-Line Wet Retention Volume	The greater of: First 1/2 " from the developed project -Or- 1.25" over the impervious area
Off-Line Dry Retention	First 1/2" runoff from the developed project -Or- 1.25" over the impervious area * If directly discharging to Class I, II, III or OFW provide an additional 50% of applicable treatment volume.
Off-Line Exfiltration Trench Volume	The greater of: First 1/2" from the developed project -Or- 1.25" over the impervious area
On-Line Exfiltration Trench Volume	Off-Line Volume plus an additional 1/2" over project area * If directly discharging to Class I, II, III or OFW provide an additional 50% of applicable treatment volume.

Table 3-4
SJWMD Recovery Criteria

Design Element	Design Standard
Wet Detention Volume	Drawdown 1/2 treatment volume between 48 and 60 hours.
Dry Detention Volume	Drawdown 1/2 treatment volume between 24 and 30 hours.
Off-Line Wet Retention Volume	Drawdown treatment volume within 72 hours.
Off-Line Dry Retention	Drawdown treatment volume within 72 hours.
Off-Line Exfiltration Trench Volume	Drawdown treatment volume within 72 hours.
On-Line Exfiltration Trench Volume	Drawdown treatment volume within 72 hours.

3.3 Structural Design Criteria

The design of the structural elements of this project will be in accordance with the FDOT Structures Design Guidelines and the Detailing Manual. This section includes design data and criteria for the evaluation of bridge superstructures and substructures.

3.3.1 Design Specifications

Structures shall be designed in accordance with FDOT standard practices and procedures. The design is governed by the following design specifications.

1. FDOT Standard Specifications for Road and Bridge Construction (2004 Edition).
2. AASHTO LRFD Bridge Design Specifications (Second Edition, 1998) including interims through 2002.
3. FDOT Structures Design Guidelines (LRFD), Topic No. 625-020-154-b, effective July 2004.
4. FDOT Detailing Manual for Load and Resistance Factor Design, Topic No. 625-020-200-e, effective July 2004.
5. FDOT Plans Preparation Manual (PPM) English, Topic No. 625-000-007, January 2003, Third Edition, updated January 2004.

3.3.2 Design Loads

The following design loads are utilized in superstructure and substructure alternative investigations:

1. Dead Loads:

Unit weight of structural concrete:	150	pcf
Future Wearing Surface	15	psf
Stay-In-Place Forms:	20	psf
Traffic Railing Barrier:	421	plf

2. Live Loads:
   Vehicle: HL93 (HS20 Vehicle)

3. Wind Loads:
   Design wind loads on bridges shall be per LRFD 3.8.

4. Thermal Forces:
   Movements of bridge structures shall be calculated assuming the following temperature ranges:

Superstructure Material	Mean	Rise	Fall

Concrete Only	70°F	+25°F	-25°F

The coefficients of thermal expansion for concrete shall be taken as 6 x 10^{-6}/°F

5. Seismic Design:
   The connections between the superstructure and substructure shall be designed in accordance with the requirements of the FDOT SDG Section 2.3.

3.3.3 Environment

Based on the "Preliminary Geotechnical Structures Report for Picciola Bridge Improvements" dated June 5, 2003, by DEVO Engineering, environmental classifications are as follows:

Superstructure:	Slightly Aggressive
Substructure:	Slightly Aggressive

3.3.4 Materials

The following material properties shall be utilized:

1. Concrete:

Concrete shall be in accordance with FDOT Standard Specifications for Road and Bridge Construction, Section 346.

The following concrete properties with Florida Limerock are utilized:

Element	Concrete Class	28-day Strength (psi)	Modulus of Elasticity (psi x 10^6)
Superstructure (CIP)	II (Bridge Deck)	4,500	3.5
Substructure (CIP)	II	3,400	3.0
Prestressed Piles	V (Special)	6,000	4.0
Prestressed Beams	VI	8,500	4.8

2. Reinforcing Steel:

   Reinforcement shall be ASTM A615, Grade 60. Concrete cover shall be per Table 1.2 of the FDOT Structures Design Guidelines.

3. Prestressing Strands:

Prestressing strands shall be ASTM A416, Grade 270, low-relaxation.

3.3.5 Aesthetic Design Criteria

It is our opinion that Level One Aesthetic Criteria would apply to this structure. The FDOT Plans Preparation Manual describes Level One Aesthetics as follows:

"…consist of cosmetic improvements to conventional Department bridge types, such as use of color pigments in the concrete, texturing the surfaces, modifications to fascia walls, beams or more pleasing shapes for columns and/or caps".

This bridge will be seen by minimal boat traffic traveling through the channel; therefore, additional

aesthetic considerations beyond Level One are not warranted.

3.3.6. Geometric Criteria

The critical geometric design criteria elements affecting the bridge configurations are as follows:

Horizontal Alignment:

The bridge is located on a curved alignment in all the alternatives considered. The bridge length is governed by the dimensions of the existing trapezoidal channel which measures approximately 25' along the bottom. The sides of the channel are sloped at a grade of $1.^{1}/_{2}$ (horizontal):1 (vertical). The riprap intended to protect existing slopes is failing. It is recommended that the side slopes be flattened to the current standard of 2' (horizontal) to 1' (vertical). This increases the required bridge length from the existing 75 feet to approximately 81 feet.

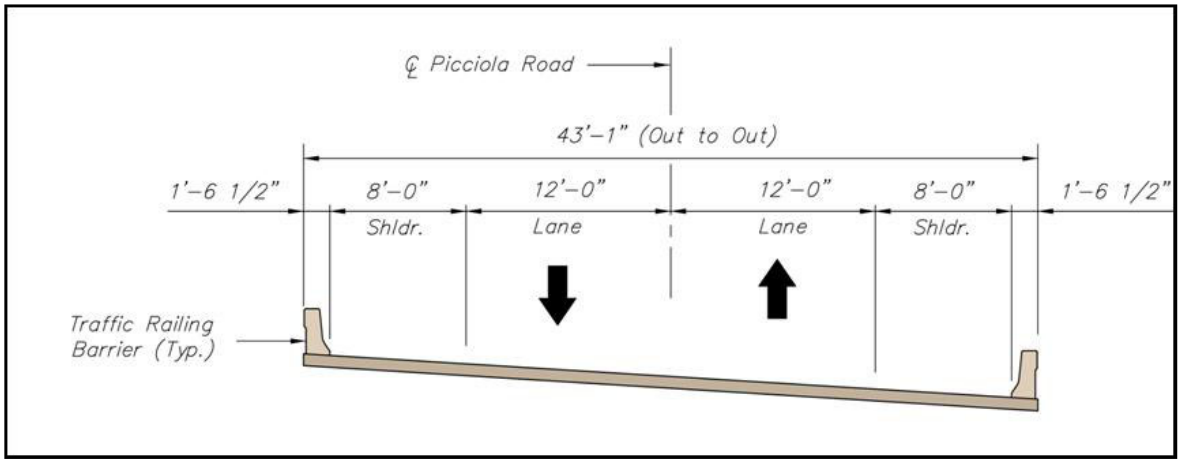
Vertical Alignment:

The roadway profile at the bridge location is established to provide a minimum vertical clearance 2'-0" greater than the existing clearance. This criterion was established by Lake County Public Works and has the support of the Lake County Water Authority. This results in a Low Member Elevation of 68.0 NAVD which is 8'-0" above the 100 year Flood Elevation of 60.0 NAVD.

Bridge Typical Section:

For this type of facility, the Florida Department of Transportation Plans Preparation Manual recommends a bridge section with two 12'-0" lanes, 8'-0" shoulders and 1'-6 ½" Traffic Railing Barriers along the edge of the deck. The total bridge deck width required for Picciola Road is 43'-1".

Figure 3-1
Proposed Bridge Typical Section



4.0 COST ESTIMATION

4.1 Historical Price Information

An appropriate method for preparing estimates of probable construction cost is essential to the economic analysis performed for each alternative. Preliminary quantities were developed for each alternative and unit prices applied to determine the estimated probable construction costs of the structure.

The unit prices for the roadway and drainage elements are based on FDOT Historic Unit Costs. To standardize the cost estimation process, the roadway items that do not vary between alignment alternatives investigated are combined to establish a roadway linear foot cost that will apply to both alternatives investigated. The costs of the items that vary are then added to the alternative to which they apply. The unit prices for the bridge elements are based on the FDOT Structures Design Guideline Chapter 11 titled "Bridge Development Report Cost Estimating". A complete listing of the estimated quantities and probable cost estimates are contained in **Appendix A** of this document.

4.2 Proposed Unit Prices

Table 4-1
Roadway Linear Foot Cost

Item Description	Unit	Unit Cost	Comment
Control and Abatement of Erosion and Water Pollution	LF	$18.82	$9.41 per LF x 2 sides
Clearing and Grubbing	LF	$16.08	Entire 80'of ROW
Type B Stabilization (Min LBR 40) (12")	LF	$6.86	31' Wide Section
Base Optional (10 in Limerock Base) (Min LBR 100)	LF	$27.71	28' Wide Section
Asphalt Concrete Type S-1 (Inc Bit) (2")	LF	$15.00	28' Wide Section
Curb and Gutter (Type F)	LF	$19.44	$9.72 per LF x 2 sides
Guardrail	LF	$23.60	$11.80 per LF x 2 sides
Removal of Existing Guardrail	LF	$4.60	$2.30 per LF x 2 sides
Striping	LF	$9.00	2 - Shldrs. And Centerline
Total Linear Foot Cost		**$141.11**	

Table 4-2
Other Roadway Unit Costs

Item Description	Unit	Unit Cost
Right of Way	Acre	$50,000
Wetlands Impacts	Acre	$80,000
Roadway Fill	CY	$6.00

Table 4-3
Bridge Unit Costs

Item Description	Unit	Unit Cost
Superstructure:		
Superstructure Concrete	CY	$425.00
Approach Slab Concrete	CY	$275.00
AASHTO Type III Beam	LF	$86.00
Reinforcing Steel (Superstructure)	LB	$0.46
Reinforcing Steel (Approach Slab)	LB	$0.46
Traffic Railing Barrier	LF	$44.00
Expansion Joint (Strip Seal)	LF	$106.00
Bridge Floor Grooving	SY	$2.50
Substructure:		
Prestressed Concrete Piles (18")	LF	$38.00
Prestressed Concrete Piles (24")	LF	$53.00
HP 14 X 89 H-Piles	LF	$38.00
16" Pipe Piles – Closed End	LF	$80.00
Substructure Concrete	CY	$550.00
Reinforcing Steel (Substructure)	LB	$0.46
Miscellaneous:		
Permanent Retaining Walls	SF	$23.00

The quantity of reinforcing steel is based on the ratio of pounds of reinforcing per cubic yard of concrete for each of the concrete elements, as shown in the table below:

Table 4-4
Estimate of Reinforcing Weights

Element Description	Pounds per Cubic Yard
Pile Abutment	135
Deck Slab, Standard	205
Approach Slab	195

5.0 ROADWAY ALTERNATIVES

Two alignment alternatives were selected for further study. In Alternative A, the alignment is shifted north of the existing to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. Alternative B realigns the existing roadway with only minor lateral adjustments. The Preliminary Roadway Plans are included in **Appendix B**.

5.1 Alternative A (Phased Construction)

In Alternative A, the alignment is shifted north of the existing alignment to permit phased construction of the roadway and bridge while maintaining traffic on Picciola Road. The new alignment is comprised of two curves, both with a radius of 600 feet and a superelevation of 6.0%. This provides a design speed of 40 mph.

5.1.1 Right of Way Impacts

Alternative A will require approximately 9,150 square feet or 0.21 acres of right-of-way acquisition. The encroachment beyond the existing right-of-way results from the alignment shift and wider typical section. Retaining walls are used to minimize the encroachment.

5.1.2 Environmental Impacts

The combination of a wider typical section and northern alignment shift will result in approximately 6,970 square feet or .16 acres of wetland impact. As with the right-of-way, retaining walls are used to minimize encroachment into the wetlands.

5.1.3 Traffic Control Plan

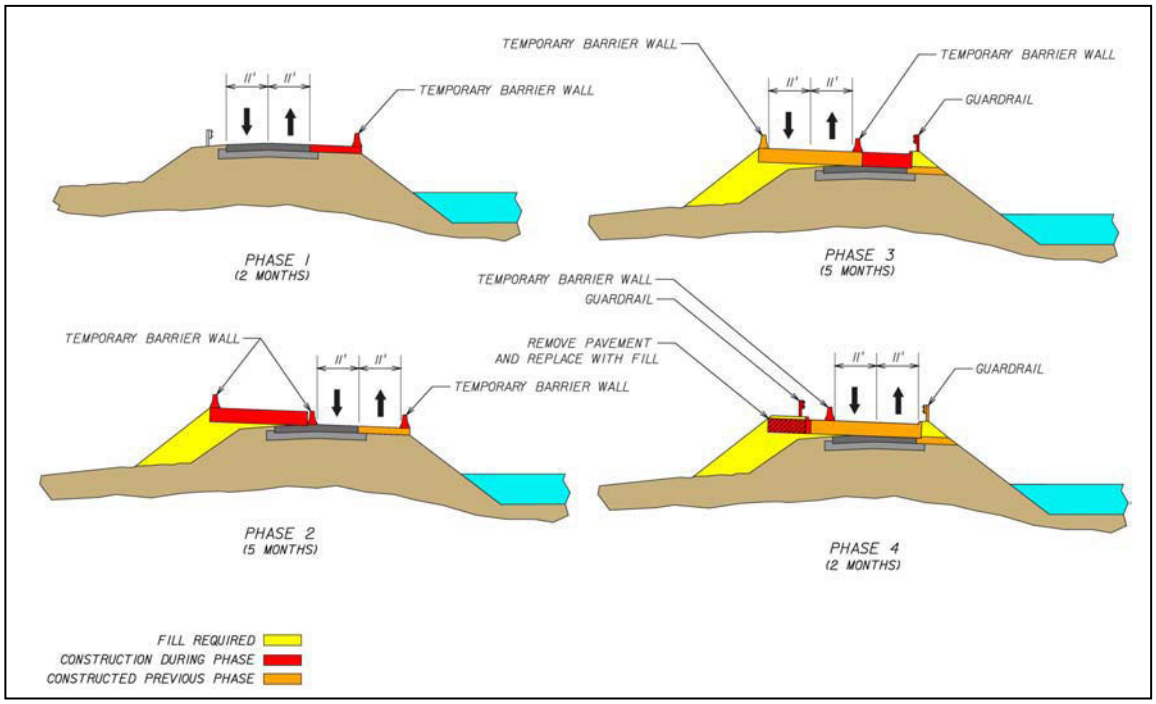
The maintenance of traffic is comprised of four phases with the goal of providing two travel lanes throughout construction of the roadway and bridge. Particular construction activities will require that the existing roadway and bridge be closed for short periods of time.

In Phase 1, traffic will be maintained on the existing roadway while a temporary lane is constructed to the south. In Phase 2, traffic will be shifted to the south with eastbound traffic on the newly constructed temporary lane and westbound traffic on former eastbound lane. With the traffic shifted to the south, the permanent westbound lane and temporary pavement just north of the permanent westbound lane will be constructed. In Phase 3, the traffic is shifted to the newly constructed northern portion. The temporary pavement south of the existing alignment will be removed and permanent pavement constructed along with the type F curb and gutter. In Phase 4, traffic will be shifted to the south onto the permanent eastbound shoulder, eastbound lane and a portion of the westbound lane. With the traffic shifted to the south, the temporary pavement to the north will be removed and the curb and gutter constructed. Finally, traffic is then shifted to the permanent eastbound and westbound lanes. See **Figure 5-1** for a graphical representation of the Traffic Control and Construction Phasing.

5.1.4 Construction Schedule

The construction schedule for this alternative is lengthed by the maintenance of traffic on Picciola Road during construction. The contractor must operate in confined work spaces immediately adjacent to an active roadway and materials must be stored off-site. It is estimated that the phased construction will take approximately 14 months to complete. The estimated duration of each phase is shown in **Figure 5-1**.

Figure 5-1
Alternative A
Phased Construction Scheme



5.2 Alternative B (Build-in-Place)

Alternative B involves a realignment of the existing roadway with only minor lateral adjustments. Construction of Alternative B requires closure of Picciola Road in the vicinity of the bridge for the duration of construction. The proposed roadway will be constructed over the existing roadway except where the horizontal curvature deviates from the existing. The bridge will be constructed in the footprint of the existing bridge. The new alignment is comprised of two curves; both with a radius of 660' and superelevation of 5.8% which provides a design speed of 40 mph.

5.2.1 Right-of-Way Impacts

No additional right-of-way will be required to accommodate Alternative B. The horizontal curves have been designed such that the roadway side slopes stay within the right-of-way limits. Retaining walls are used in the vicinity of the bridge to eliminate encroachment of embankment fill beyond the existing right-of-way limits.

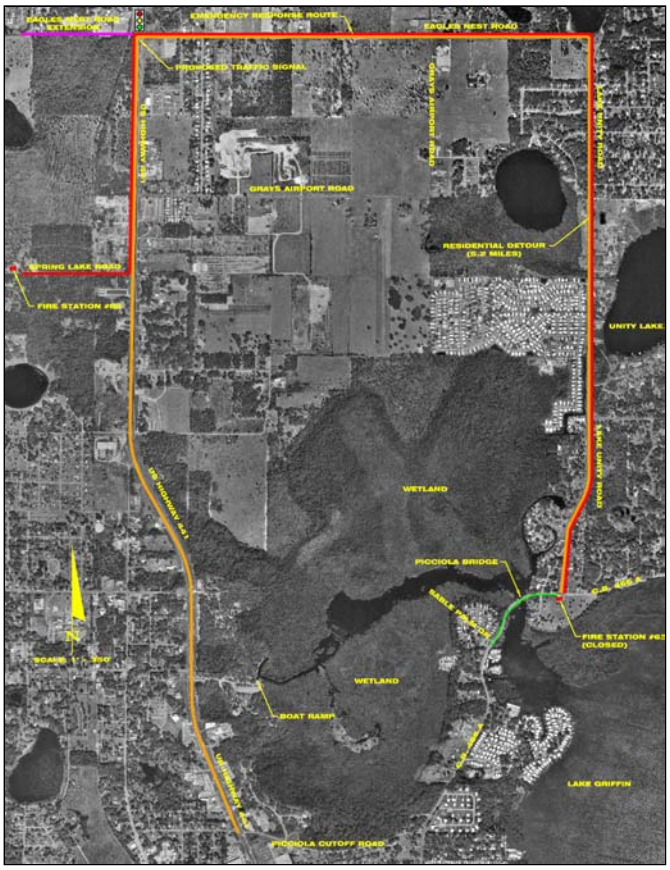
5.2.2 Environmental Impacts

There are minimal impacts associated with this alternative due to the similarity of this to the existing. Wetland impacts will be approximately 435 square feet or 0.01 acres due to the widened footprint of the typical section and curve adjustments that were made to the alignment. As with the right-of-way, retaining walls are used to minimize wetlands encroachment.

5.2.3 Traffic Control Plan

The construction of Alternative B will require that the existing Picciola Bridge and adjoining roadways be closed for the duration of construction. **Figure 5-2** illustrates the detour plan required for the closure. The length of the detour for traffic originating at the intersection of Picciola Road and Lake Unity Road, requiring access to southbound US 27/411, is approximately 5.2 miles in length.

Figure 5-2
Proposed Detour



Fire response to Picciola Island (east of the bridge) will most likely be dispatched from Fire Station No. 64, located on Spring Lake Road. Given the location of the station relative to the Picciola Island, the detour should have no impact on fire response time.

According to Lake County Emergency Medical Services (EMS), Emergency Medical could be dispatched from either the Villages Regional Hospital to the north or Leesburg Regional Hospital to the south. Travel length to and from the Villages Regional Hospital will not be impacted by the detour. However, the travel distance to, or from, Leesburg Regional Hospital will be increased from approximately 6.3 miles to approximately 11.5 miles.

5.2.4 Construction Schedule

Since the bridge and roadway will be closed during construction, the contractor has uninterrupted access to the site for construction activities, staging and storage of materials. It is estimated that the build-in-place alternative can be constructed in approximately 6 months.

5.3 Evaluation Matrix

Evaluation criteria for the two roadway alternatives includes public opinion, cost, constructability, disruption to traffic, right-of-way impact and environmental impacts.

Table 5-1
Comparative Evaluation of Roadway Alternatives

PICCIOLA BRIDGE IMPROVEMENTS PROJECT COMPARATIVE EVALUATION OF ALTERNATIVES								
Alternative	**EVALUATION CRITERIA**						**Score (I.F.X Rating)**	**Ranking**
	Public Opinion	**Cost**	**Construct-ability**	**Disruption to Traffic**	**ROW Impact**	**Environmental Impact**		
Importance Factor (I.F.)	**3.0**	**3.0**	**1.5**	**1.5**	**0.5**	**0.5**		
Alternative A (Phased Construction)	8.5	6	5	8	5	5	68	**1**
Alternative B (Build-in-Place)	1.5	10	10	5	10	8	66	2

5.3.1 Public Opinion

Public Information Meetings were held on June 15, 2004, at the Fruitland Park Casino and on November 4, 2004, at the Leesburg Community Center. The public was offered an opportunity to comment verbally or to document their comments on Public Comment Forms that were provided. Comments from 78 area residents were received. Of those that expressed an alternative preference, 85% supported Alternative A and 15% supported Alternative A. Therefore, a value of 8.5 is assigned to Alternative A and 1.5 to Alternative B (Build-in-Place). (For a more complete description of the public involvement process, see Section 9 of this report.)

5.3.2 Construction Cost

The cost of the alignment alternatives cannot be compared without consideration of drainage and bridge costs that will be discussed in sections 6 and 7 of this report. The roadway alternatives are coupled with the recommended drainage alternative and bridge alternative to establish total estimated construction costs. The estimated probable construction cost to reconstruct Picciola Road from Sable Palm to Lake Unity is $1,250,000 for Alternative A and $775,000 for Alternative B. A complete listing of costs is included in **Appendix A**. A value of 10 is assigned to the least cost option, Alternative B (Build-in-Place). The ranking for the other alternative is proportionally lower based on that alternative's cost.

5.3.3 Constructability

Alternative A must be constructed with a cumbersome maintenance of traffic scheme. Phased construction must occur in a confined work area immediately adjacent to active an active Picciola Road. Material must be stored off-site and material deliveries will be slowed. In Alternative B, the roadway will be closed during construction. The contractor will have uninterrupted access to the site for construction activities, staging and storage of materials. Ratings have been applied accordingly.

5.3.4 Disruption to Traffic

Disruption to traffic will occur regardless of the alternative selected. In Alternative A, traffic will be maintained in very narrow lanes without shoulders. This will reduce the capacity of roadway and result in delays. Additionally, periodic roadway closures will occur throughout the anticipated fourteen month construction schedule. Alternative B will require a 5.2 mile detour for traffic seeking southbound access to US 27/441. Ratings have been applied accordingly.

5.3.5 Right-of-Way Impact

Ratings were assigned based on the degree of impact. Alternative B received a 10 since the roadway and bridge can be reconstructed in the existing right-of-way. Alternative A received a lower rating since that alignment requires additional right-of-way to construct.

5.3.6 Environmental Impact

Ratings were assigned based on the degree of impact. Alternative A and B received ratings of 5 and 8 since both involved some degree of wetlands impact.

5.4 Roadway Recommendation

The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. Alternative A (Phased Construction) received the highest score and is the recommended alternative.

6.0 DRAINAGE ALTERNATIVES

A thorough review of the existing topography and geotechnical data provided indicate mostly sandy surficial soils that will allow for infiltration. Three drainage design alternatives were investigated: These include exfiltration, roadside swales, and ponds. Preliminary Drainage Plans depicting these alternatives are included in **Appendix C**.

6.1 Exfiltration System

An exfiltration system consists of perforated pipe surrounded by crushed stone aggregate wrapped in filter fabric. The roadway stormwater is collected by inlets located in the curb and gutter, passed through the pipe and infiltrated through the stone and fabric and into the soil. Most applications of exfiltration systems occur when space is limited and land costs are high. Our typical section shows the trench located within the 6'sodded shoulder along the roadway. The approximate length of trench needed to treat the entire roadway is 700 linear feet using an 18" pipe. Overflow structures would be provided to prevent the water from backing up in the pipe and onto the roadway. Since the system is contained within the typical section, there is no right-of-way or wetland impacts beyond that discussed in the roadway section of this report.

6.2 Swales

In this alternative, the roadway stormwater would be collected by inlets and discharged into dry retention swales. These swales would be located adjacent to the roadway in areas where the groundwater levels are low enough to permit infiltration. The water would percolate into the ground keeping the swale dry most of the time. There would be overflow structures to prevent the water from backing up in the swale and spilling onto the roadway.

The typical section of the required swale is shown with a 6' bottom width and 5' maintenance berm. The footprint of this typical section is larger than what is required for the roadway and shoulder. Therefore, there will be additional wetland impacts and right-of-way required. A summary of these impacts is shown in **Table 6-1**.

Table 6-1
Swale Impacts

Roadway Alternative A	Right-of-Way	0.35 Acres
	Wetlands	0.07 Acres
Roadway Alternative B	Right-of-Way	0.58 Acres
	Wetlands	0.13 Acres

6.3 Ponds

The survey indicates that the ground elevations drop from east to west along the full length of the project. Limited right-of-way and a lack of suitable property at the west end of the project preclude the use of ponds to treat the stormwater that falls within the improved roadway. In cases like this, where right-of-way is limited and site conditions are inadequate, compensating stormwater treatment is an option. By capturing and treating an area currently untreated it may be possible to allow runoff from this project to remain untreated. Two possible pond sites were located on field visits. Both locations are at east end of the project and near the highest point of the project. Treatment could be provided for a portion of Picciola Road and/or Lake Unity Drive. By collecting and treating stormwater that falls outside the limits of the project, roadway runoff from within the project would be collected by inlets and discharged into adjacent ditches and into Lake Griffin. There are no environmental impacts associated with this alternative beyond those discussed in the roadway section of this report. Right-of-way to construct the ponds would need to

be acquired.

6.4 Evaluation Matrix

Evaluation criteria for the three drainage alternatives include cost, constructability, aesthetics, maintenance, right-of-way impact and environmental impacts. Separate matrices developed to evaluate the drainage alternatives for both roadway alternatives varied minimally. The matrix presented below is for roadway Alternative B.

Table 6-2
Comparative Evaluation of Stormwater Alternatives

PICCIOLA ROAD BRIDGE IMPROVEMENTS PROJECT COMPARATIVE EVALUATION OF STORMWATER ALTERNATIVES								
Alternative	**EVALUATION CRITERIA**						**Score (I.F. x Rating)**	**Rank**
	Cost	**Construct-ability**	**Aesthetics**	**Maintenance**	**Right-of-Way Impact**	**Environmental Impact**		
Importance Factor (I.F.)	**2.0**	**1.0**	**2.0**	**1.0**	**1.0**	**2.0**		
Exfiltration Trench	8	8	10	7	10	10	81	**1**
Roadside Swales	10	8	7	9	9	8	76	2
Ponds	7	8	6	8	6	10	68	3

6.4.1 Total Cost

For total cost, a value of 10 is assigned to the least cost option, Roadside Swales. The rankings for the other alternatives are proportionally distributed based on the estimated probable costs of each alternative options. A complete listing of costs is included in **Appendix A**.

6.4.2 Constructability

No alternative has a measurable advantage over another.

6.4.3 Aesthetics

Aesthetics is a very subjective criterion to rank with potential for large differences depending on individual preferences and opinions. The highest ranking goes to the exfiltration system which is a buried system. Both roadside swales and pond are open systems and received lesser ratings.

6.4.4 Maintenance

Both roadside swales and ponds are relatively easy to maintain and received relatively high ratings. Maintenance for these systems normally includes debris removal and mowing. Since the exfiltration system is below ground, if maintenance were required, it would involve an excavation.

6.4.5 Right-of-Way and Environmental Impact

Ratings were assigned based on the degree of impact. Exfiltration received a 10 since the entire system is contained within the roadway typical section. Both other alternative reviewed lower ratings since they required additional right-of-way and involve wetland impacts.

6.5 Drainage Recommendation

The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. The exfiltration system received the highest score and is the recommended alternative.

7.0 BRIDGE ALTERNATIVES

As discussed in Section 3, the Florida Department of Transportation Plans Preparation Manual recommends a bridge section consisting of two 12'-0" lanes, 8'-0" shoulders and 1'-6 ½" Traffic Railing Barriers along the edge of the deck. The total bridge deck width required for Picciola Road is 43'-1"or nearly twice as wide as the existing structure. The proposed bridge width can be obtained in one of two ways - by widening the existing structure or by replacing the existing structure.

Due to the age of the existing structure and the timber foundation, it is difficult to accurately assess the load carrying capacity and remaining service life. Additionally, the existing bridge has a crowned section located on a tangent segment of the roadway. Both roadway alternatives located the proposed bridge on a curved alignment with a section that is superelevated. Given the age of the structure and the proposed geometric improvements, it is recommended that the existing structure be replaced.

The factors effecting the selection of bridge alternatives include the required bridge length, available support locations and channel characteristics. These site specific constraints have been identified and the required bridge length and span arrangement have been established for each alternative. Furthermore, we have determined the most cost effective substructure and superstructure type for each span arrangement. Preliminary bridge plans that depict the alternatives studied are included in **Appendix D**.

In roadway alignment Alternative A, the bridge is constructed in two phases while in Alternative B, the bridge is constructed in a single phase. The bridge types considered for this project are compatible with a single phase or dual phase construction.

7.1 Span Arrangements

The required bridge length to carry Picciola Road over the Dead River is approximately 81 feet (see section 3.3.6). The bridge length is similar for both Roadway Alternative A and B. Viable bridge alternatives for a structure of this length include one, two or three span arrangements. The two span alternative is eliminated from further consideration since it would require a support at the centerline of channel which would impede boat traffic. The three span structure consists of three 27'-0" spans for a total bridge length of 81'-0". The single span structure consists of one 81'-0" span.

7.2 Substructure Types

DEVO Engineering evaluated the viable foundation types and sizes for this project as part of their study referenced in Section 2.4. Many foundation types can feasibly support the proposed bridge. Square precast prestressed concrete piles are the most widely used deep foundation system for short to medium span structures in central Florida. Concrete piles are a cost effective and constructible solution for this project. Both 18" and 24" piles were evaluated. When comparing pile lengths required to carry the design loads, the 24" piles are from 10% to 25% shorter than the 18" piles. The cost to supply and install 24" piles, however, is 50% greater than 18" piles. Therefore, 18" precast prestressed concrete piles are the recommended foundation type.

7.3 Superstructure Types

For the three-span alternative, both precast and cast-in-place flat slab superstructures are evaluated. For the single span alternative, AASHTO Type III beams with a cast-in-place deck are evaluated.

7.3.1 Three-Span Alternative (Flat Slab)

The flat slab superstructure necessary for the 27'-0" spans of this alternative can be constructed as either precast or cast-in-place. Precast construction is most cost effective when the application involves the fabrication of many similar structural elements. The precast slab option is eliminated from further consideration since it is less cost effective than the cast-in-place alternative due to the horizontal curvature and superelevation required on the proposed bridge.

The required thickness of the three-span cast-in-place flat slab is 1'-6" which is approximately equal to the existing structure depth. Therefore, selection of this alternative would have minimal impact on the vertical roadway geometry. The flat slab is supported by two end bents and two intermediate bents. Each of these bents is founded on four 18" prestressed piles.

The estimated comparative construction cost of the structure varies based on the roadway alignment due to the phased construction required for Alternative A. The bridge cost, excluding walls, for roadway Alternatives A and B are $337,000 ($96.57 per square foot) and $270,000 ($77.37 per square foot), respectively. The costs, including walls, for the alignment alternatives A and B, are $677,000 and $387,000, respectively. The wall cost includes temporary walls which are required for phased construction and permanent walls which are required to limit right-of-way and wetlands encroachment.

7.3.2 Single-Span Alternative (AASHTO Type III)

The single-span structure is composed of precast prestressed AASHTO Type III beams. This beam type results in a bridge with a greater structure depth than the existing bridge. The increased depth requires a higher roadway profile to maintain the same underclearance as the shallower three-span alternative resulting in additional embankment and wall heights. The AASHTO Type III beams are spaced at 7'-3" with 3'-5" cantilevers. The beams support an 8" cast-in-place concrete deck. The superstructure is supported by two end bents founded on seven 18" prestressed piles.

As with the three-span alternative, the estimated comparative construction cost varies based on phased construction. The bridge cost, excluding walls, for roadway Alternatives A and B are $290,000 ($83.10 per square foot) and $232,000 ($66.48 per square foot), respectively. The costs, including walls, for the alignment alternatives A and B, are $734,000 and $388,000, respectively. The wall cost includes temporary walls which are required for phased construction and permanent walls which are required to limit right-of-way and wetlands encroachment.

7.4 Evaluation Matrix

Evaluation criteria for the bridge alternatives include cost, constructability, aesthetics and maintenance.

Table 7-1
Comparative Evaluation of Bridge Alternatives

PICCIOLA BRIDGE IMPROVEMENTS PROJECT COMPARATIVE EVALUATION OF BRIDGE ALTERNATIVES						
Alternative	**EVALUATION CRITERIA**				**Score**	**Ranking**
	Cost	**Constructability**	**Aesthetics**	**Maintenance**	**(I.F. x Rating)**	
Importance Factor (I.F.)	**4.0**	**3.0**	**2.0**	**1.0**		
Alt. A - Flat Slab	5.7	6	8	8	64.8	4
Alt. A - AASHTO Type III	5.3	8	9	10	73.2	3
Alt. B - Flat Slab	10	8	8	8	88.0	2
Alt. B - AASHTO Type III	10	10	9	10	98.0	**1**

7.4.1 Construction Cost

For total cost, a value of 10 is assigned to the least cost option. The cast-in-place flat slab and the AASHTO Type III alternative with Alignment B were approximately the same least cost. The rankings for the other alternatives are proportionally distributed based on the estimated probable costs of each of the options. A complete listing of costs is included in **Appendix A**.

7.4.2 Constructability

Construction of the flat slab alternative involves driving piling in the channel. The piles are placed in the exact design location using a template made of welded steel members that is driven into the channel

bottom. A crane, located on the embankment, would "reach" out over the water to drive the piling. The construction of the flat slab would also require falsework to support the deck reinforcing and concrete during placement. The falsework would likely be supported by the newly placed channel bents and would constrict the navigable envelope during construction of the bridge.

The construction of the AASHTO beam bridge will occur from the roadway approaches since no piles are driven in the channel. The beams are delivered and lifted into place over the channel directly from the delivery trailer on the bank. The forms for the deck are supported on the beams and will have no impact on the channel below.

Constructability for both alternatives would be adversely impacted if roadway Alternative A was selected. Phased construction must occur in a confined work area immediately adjacent to active traffic on Picciola Road. Material must be stored offsite and deliveries will be slowed. Periodic lanes closures would be required to deliver all precast elements. Both bridge types received proportionately lower ratings for Alternative A.

7.4.3 Aesthetics

Aesthetics is a very subjective criterion to rank with potential for large differences depending on individual preferences and opinions. The aesthetics of the flat slab and AASHTO beams options are comparable. Since, the AASHTO beam alternative will span the Dead River with no obstructions in waterway, it is given a higher rating.

7.4.4 Maintenance

The AASHTO Type III alternative received a 10 due to minimal future maintenance concerns. The flat slab alternative was rated lower due to the piles in the water. Although the water is considered "slightly aggressive", concrete piling located in similar locations have experienced some level of deterioration due to environment. Additionally, the piles are an obstruction to boat traffic and could experience impact damage.

7.5 Bridge Type Recommendation

The evaluation matrix provides an overall ranking for the alternatives evaluated. A score of 100 is the maximum possible value. The Single-Span (AASHTO Type III Beam) option received the highest score and is the recommended alternative.

8.0 RETAINING WALLS

8.1 Wall Parameters

Retaining walls will be used on this project to minimize the encroachment of the roadway embankment into wetlands and to contain the typical section footprint within the limits of the existing right-of-way.

8.2 Wall Type Study

Two types of walls are considered feasible, conventional cast-in-place (CIP) walls, which can be a gravity type or cantilever, and proprietary walls. The required wall height and area, as well as the foundation soil conditions, determine what type of wall is best suited for this application.

Gravity walls are most cost effective for wall heights less than or equal to 5 feet. Otherwise, a conventional cantilever or proprietary wall should be used. Proprietary walls are traditionally more economical than cantilever walls for heights in excess of 5 feet and when the wall area exceeds 1000 square feet. Additionally, proprietary walls offer an aesthetic advantage, require less maintenance, are easier to construct than conventional walls and can accommodate some differential settlement of the foundation soil.

8.3 Wall Recommendations

The maximum height of the walls for this project exceeds 5 feet and the total area of wall exceeds1000 square feet. Furthermore, differential settlement of the embankment along the west bridge approach is anticipated. Therefore, proprietary walls are recommended on this project. The aesthetic surface treatment will be selected during final design.

9.0 PUBLIC INVOLVEMENT

Public Information Meetings were held on June 15, 2004 at the Fruitland Park Casino, in Fruitland Park and November 4, 2004 at the Leesburg Community Center, in Leesburg. The meetings were advertised in the print media and by placing signage at the existing bridge. Each meeting was attended by over 150 citizens as well as Lake County and consultant staff. During the meetings, the alternatives presented in this report were presented to the public. The public was offered an opportunity to comment verbally or to document their comments on Public Comment Forms that were provided. We received comments from 78 area residents. Copies of the completed forms are included in **Appendix F**. In addition to the Public Information Meetings, a Public Hearing was held on December 7, 2004.

9.1 Summary of Public Comments

The comments from the public are summarized by whether Roadway Alternative A (phased construction) or Roadway Alternative B (build-in-place) is prefered. As shown in the following figures, 68% of the respondents prefered phased construction. The reason given most often was concern over a delay in emergency response time. Others cited concerns of safety and delay at the intersection of Eagles Nest and US 27/411, driving extra miles, shopping inconvenience, impact to local businesses and increase travel to work or school. Other comments unrelated to the alternative selection included seven residents who wanted the bridge built higher to provide additional underclearance, five who wanted pedestrian facilities and one who wanted lighting added to the bridge.

Figure 9-1
Alignment Alternative Preference

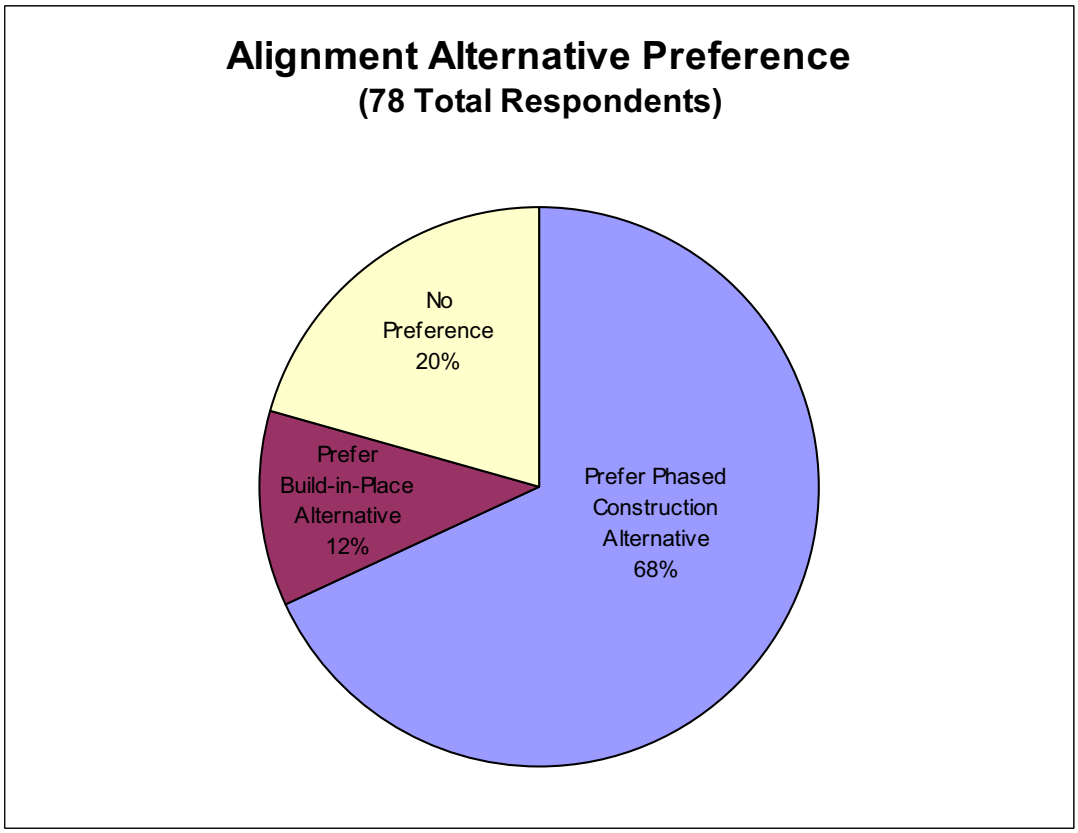
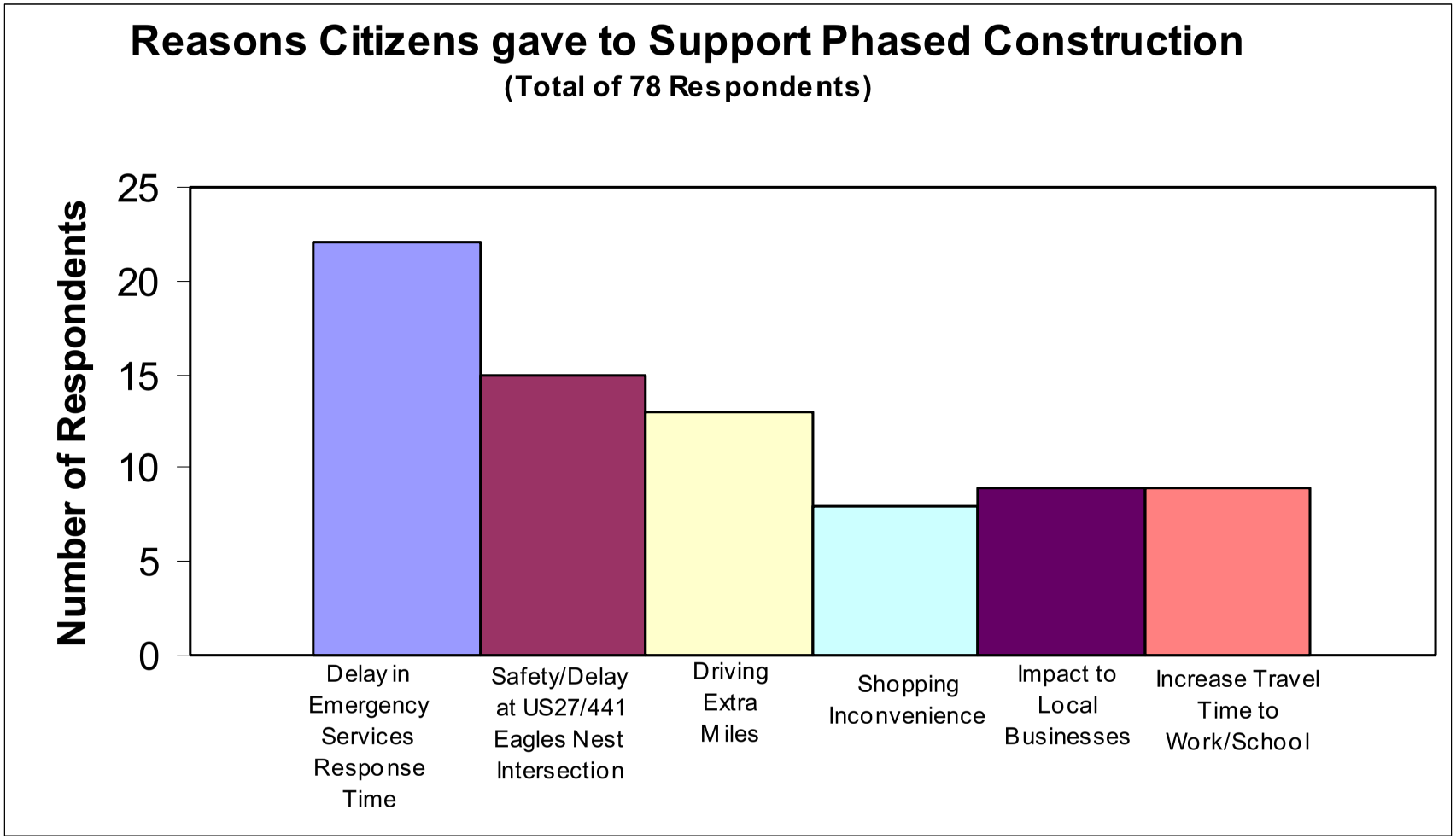


Figure 9-2
Reasons Citizens gave to Support Phased Construction



9.2 Petition

Subsequent to the first Public Information Meeting, a petition with 486 signatures was forwarded to the Lake County Department of Public Works, the Lake County Board of County Commissioners and HNTB Corporation. The petition statement is as follows:

> *"This petition represents the objections of the Lake County property owners listed below that will potentially be negatively impacted if both lanes of the "Picciola Bridge" are simultaneously closed. Local business within 100 ft of the bridge could face severe financial difficulties. One lane should remain open during construction allowing traffic to alternately flow both directions. Emergency vehicles (fire, ambulances) would be significantly delayed, possibly putting lives at risk. School busses would be adversely affected. The petitioners below request this document became a permanent part of the records with all governmental agencies involved as well as HNTB. Please refer to the map reflecting the specific location of the bridge."*

9.3 Public Hearing

A Public Hearing was held on December 7, 2004, during a regular meeting of the Lake County Board of County Commissioners. All of those who spoke at the hearing supported Roadway Alternative A (phased construction). Following the public comments, the Board of County Commissioners voted unanimously for Roadway Alternative A (phased construction).

10.0 CONCLUSION

In this report, issuies associated with the segment of Picciola Road from Sable Palm to Lake Unity Road have been identified. Typical sections were developed for both the roadway and the bridge. Roadway, drainage and structural alterantives were evaulated with the goal of providing a functionally safe, low maintenance facility while minimizing distruption to the motoring public and impacts to the environment.

The recommendations are to construct Roadway Alternative A (Phased Construction) using exfiltration to treat the stormwater and a single-span AASHTO Type III Bridge to span the Dead River. It is estimated that this alternative can be constructed in 14 months at an estimated probable construction cost of $1,250,000.

APPENDIX A

ESTIMATED COMPARATIVE CONSTRUCTION COST

Estimated Probable Construction Cost
Alternative A

Alternative A (Phased Construction)

Item Description	Unit	Unit Cost	
Control and Abatement of Erosion and Water Pollution	LF	$18.82	$9.41 per lf x 2 sides
Clearing and Grubbing	LF	$16.08	Entire 80' of ROW
Type B Stabilization (min LBR 40) (12")	LF	$6.86	31' Wide Section
Optional Base (10 in Limerock Base) (Min LBR 100)	LF	$27.71	28' Wide Section
Asphalt Concrete Type S-1 (Inc Bit) (2")	LF	$15.00	28' Wide Section
Curb and Gutter (Type F)	LF	$19.44	$9.72 per LF x 2 sides
Guardrail	LF	$23.60	$11.80 per LF x 2 sides
Guardrail Removal	LF	$4.60	$2.30 per LF x 2 sides
Striping	LF	$9.00	2- Shoulders and Centerline
Subtotal Linear Foot Cost =		**$ 141.11**	Cost per linear foot of roadway

Alternative A (Phased Construction)

Roadway	$200,376	$141.11 x 1,420 Linear Feet of Roadway
Right of Way	$17,500	$50,000 per acre, total of .35 acres (43,560 sf/ac)
Drainage (Exfiltration)	$84,000	$120.00 per foot for 700 feet
Wetland Impacts	$5,600	$80,000 per acre, total of .07 acres
Fill	$96,600	16,100 cy x 6.00 / cy
Structures (AASHTO Type III)	$290,000	
Walls (Temp. and Perm.)	$443,700	
MOT	$101,000	Temp pavement, barrier wall, plus 40% for misc. appertances.
Total Cost =	$1,238,776	
Rounded Total Cost =	**$1,250,000**	

Estimated Probable Construction Cost
Alternative B

Alternative B (Build in Place)

Item Description	Unit	Unit Cost	
Control and Abatement of Erosion and Water Pollution	LF	$18.82	$9.41 per lf x 2 sides
Clearing and Grubbing	LF	$16.08	Entire 80' of ROW
Type B Stabilization (min LBR 40) (12")	LF	$6.86	31' Wide Section
Optional Base (10 in Limerock Base) (Min LBR 100)	LF	$27.71	28' Wide Section
Asphalt Concrete Type S-1 (Inc Bit) (2")	LF	$15.00	28' Wide Section
Curb and Gutter (Type F)	LF	$19.44	$9.72 per LF x 2 sides
Guardrail	LF	$23.60	$11.80 per LF x 2 sides
Guardrail Removal	LF	$4.60	$2.30 per LF x 2 sides
Striping	LF	$9.00	2- Shoulders and Centerline
Subtotal Linear Foot Cost =		**$ 141.11**	Cost per linear foot of roadway

Alternative B (Build in Place)

Roadway	$200,376	$141.11 x 1,420 Linear Feet of Roadway
Right of Way	$29,000	$50,000 per acre, total of .58 acres (43,560 sf/ac)
Drainage (Exfiltration)	$84,000	$120.00 per foot for 700 feet
Wetland Impacts	$10,400	$80,000 per acre, total of .13 acres
Fill	$61,200	10,200 cy x 6.00 / cy
Structures (AASHTO Type III)	$232,000	
Walls (Temp. and Perm.)	$156,000	
MOT	$2,000	Signs for 6 months
Total Cost =	$774,976	
Rounded Total Cost =	**$775,000**	

Estimated Comparitive Construction Cost
Picciola Bridge Improvements
Drainage Alternatives

Alternative A

Total Cost

Exfiltration Trench	$84,000	
Roadside Swales	$47,200	
ROW	$17,500	(.35 Ac * 50,000/Ac)
Wetland	$5,600	(0.07 Ac * 80,000/Ac)
Total	$70,300	
Pond	$100,000	

Alternative B

Total Cost

Exfiltration Trench	$84,000	
Roadside Swales	$43,000	
ROW	$29,000	(0.58Ac * 50,000/Ac)
Wetland	$10,400	(0.13 Ac * 80,000/Ac)
Total	$82,400	
Pond	$100,000	

PHASE 1 - ESTIMATED COMPARATIVE CONSTRUCTION COST

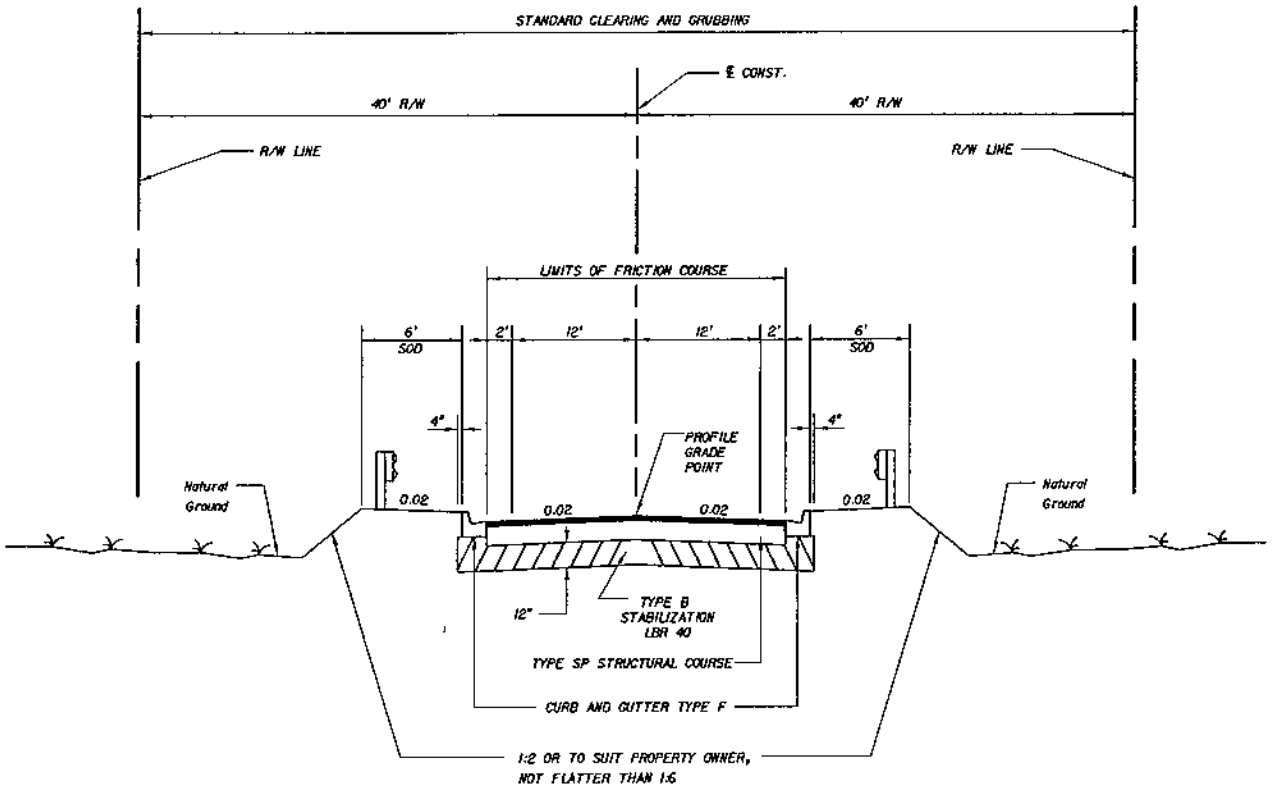
PICCIOLA BRIDGE IMPROVEMENTS

Item Description	Unit	*Unit Cost	Alternate A CIP Flat Slab on Pile Bents		Alternate A AASHTO Type III Beams (Single Span)		Alternate B CIP Flat Slab on Pile Bents		Alternate B AASHTO Type III Beams (Single Span)	
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
SUPERSTRUCTURE:										
Superstructure Concrete	CY	$425.00	193.9	$82,396.87	99.1	$42,113.96	193.9	$82,396.87	99.1	$42,113.96
Approach Slab Concrete	CY	$275.00	95.7	$26,328.70	95.7	$26,328.70	95.7	$26,328.70	95.7	$26,328.70
AASHTO Type II Beam	LF	$80.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type III Beam	LF	$86.00		$0.00	486.0	$41,796.00		$0.00	486.0	$41,796.00
AASHTO Type IV Beam	LF	$100.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type V Beam	LF	$120.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type VI Beam	LF	$130.00		$0.00		$0.00		$0.00		$0.00
Florida Bulb-T 72 Beam	LF	$120.00		$0.00		$0.00		$0.00		$0.00
Florida Bulb-T 78 Beam	LF	$135.00		$0.00		$0.00		$0.00		$0.00
Florida U 48 Beam	LF	$300.00		$0.00		$0.00		$0.00		$0.00
Florida U 54 Beam	LF	$330.00		$0.00		$0.00		$0.00		$0.00
Florida U 72 Beam	LF	$400.00		$0.00		$0.00		$0.00		$0.00
Structural Steel Plate Girders(Grade 50)	LB	$1.04		$0.00		$0.00		$0.00		$0.00
Structural Steel Box Girders (Grade 50)	LB	$1.32		$0.00		$0.00		$0.00		$0.00
Structural Steel (Grade 36)	LB	$0.90		$0.00		$0.00		$0.00		$0.00
Reinforcing Steel (Superstr.)	LB	$0.46	39,744	$18,282.41	20,314	$9,344.34	39,744	$18,282.41	20,314	$9,344.34
Reinforcing Steel (Appr. Slab)	LB	$0.46	18,669	$8,587.94	18,669	$8,587.94	18,669	$8,587.94	18,669	$8,587.94
Traffic Railing Barrier	LF	$44.00	162	$7,128.00	162	$7,128.00	162	$7,128.00	162	$7,128.00
Expansion Joint (Strip Seal)	LF	$106.00		$0.00		$0.00		$0.00		$0.00
Bridge Floor Grooving	SY	$2.50	361	$901.87	361	$901.87	361	$901.87	361	$901.87
Neoprene Pads	CF	$500.00	0.249	$124.66	0.625	$312.50	0.249	$124.66	0.625	$312.50
TOTAL (Superstructure)				$143,750.47		$136,513.32		$143,750.47		$136,513.32
SUBSTRUCTURE:										
Prestessed Concrete Piles (18")	LF	$38.00	1,265	$48,070.00	934	$35,484.40	1,265	$48,070.00	934	$35,484.40
Prestressed Concrete Piles (24")	LF	$53.00		$0.00		$0.00		$0.00		$0.00
HP 14 X 89 H-Piles	LF	$38.00		$0.00		$0.00		$0.00		$0.00
16" Pipe Piles - Closed End	LF	$80.00		$0.00		$0.00		$0.00		$0.00
Substructure Concrete	CY	$425.00	66.8	$28,398.10	44.0	$18,711.66	66.8	$28,398.10	44.0	$18,711.66
Substructure Mass Concrete	CY	$315.00	0.0	$0.00	0.0	$0.00	0.0	$0.00	0.0	$0.00
Reinforcing Steel (Substr.)	LB	$0.46	9,351	$4,301.40	5,944	$2,734.10	9,351	$4,301.40	5,944	$2,734.10
Post-Tensioning Steel (Strand)	LB	$2.00		$0.00		$0.00		$0.00		$0.00
TOTAL (Substructure)				$80,769.50		$56,930.17		$80,769.50		$56,930.17
MISCELLANEOUS:										
Permanent & Temporary Walls	LS			$339,900.00		$443,700.00		$117,200.00		$155,700.00
Mobilization (10%)	LS			$22,452.00		$19,344.35		$22,452.00		$19,344.35
Contingency (10%)	LS			$22,452.00		$19,344.35		$22,452.00		$19,344.35
Phased Construction (30%)	LS			$67,355.99		$58,033.05				
TOTAL (Miscellaneous)				$452,159.99		$540,421.75		$162,104.00		$194,388.70
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST			**$677,000.00**		**$734,000.00**		**$387,000.00**		**$388,000.00**	
COST FACTOR FOR MATRIX			**5.7**		**5.3**		**10.0**		**10.0**	
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST - BRIDGE ONLY			**$337,000.00**		**$290,000.00**		**$270,000.00**		**$232,000.00**	
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION UNIT COST - BRIDGE ONLY			**$96.57 /SF**		**$83.10 /SF**		**$77.37 /SF**		**$66.48 /SF**	

* Unit Costs Based on SDG BDR Est. Guide

APPENDIX B

PRELIMINARY ROADWAY PLANS



TYPICAL SECTION
PICCIOLA ROAD

STA. XX+XX.XX TO STA. XX+XX.XX

TRAFFIC DATA

CURRENT YEAR ESTIMATE = 2003 AADT = XX
OPENING YEAR ESTIMATE = 2005 AADT = XX
DESIGN YEAR ESTIMATE = 2025 AADT = XX
K = X % D = X % T = X % (24 HOUR)
DESIGN HOUR T = X %
DESIGN SPEED = 40 MPH

NEW CONSTRUCTION

OPTIONAL BASE GROUP XX WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC X) (XXX LBS/SY)
AND FRICTION COURSE FC-5 (XX LBS/SY) (RUBBER)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 659-8380 FAX (407) 317-9016

PICCIOLA ROAD
TYPICAL SECTION

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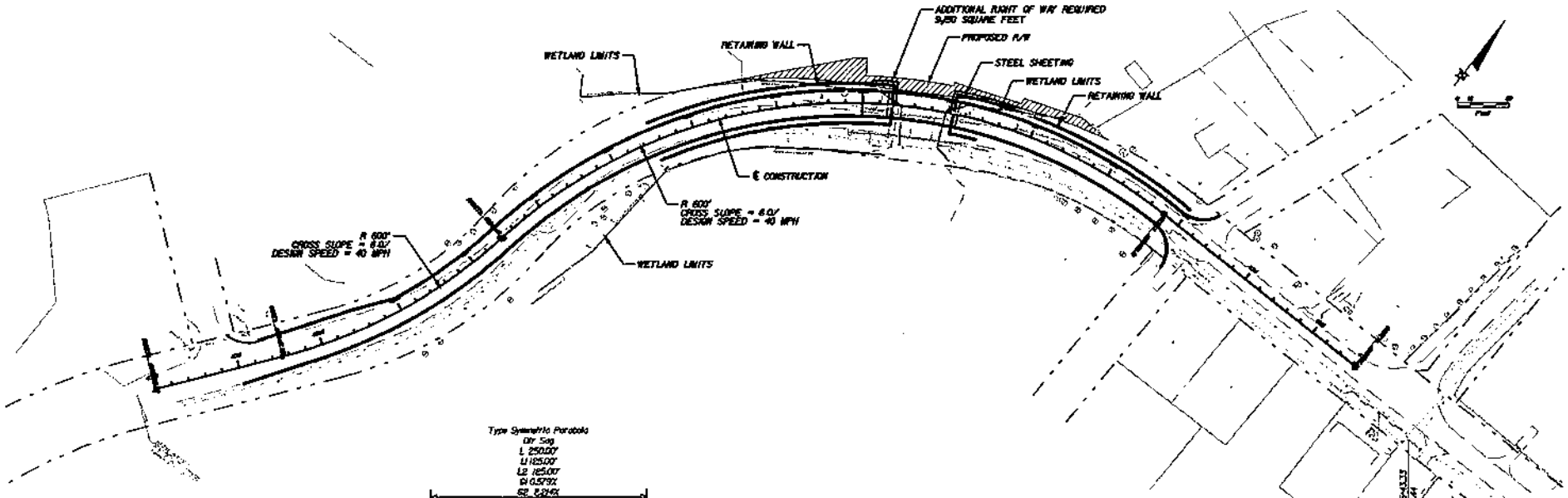

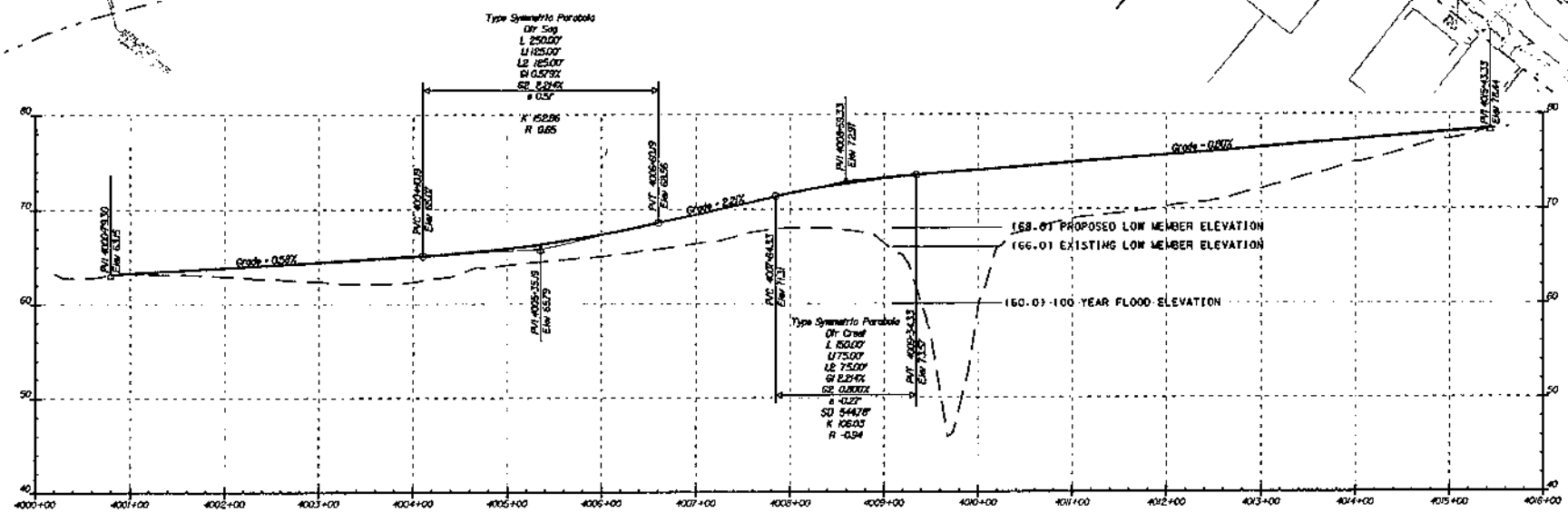

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 659-8380 FAX (407) 317-9016

PICCIOLA ROAD
ALTERNATIVE A

SHEET NO.

18-OCT-2004 14:44

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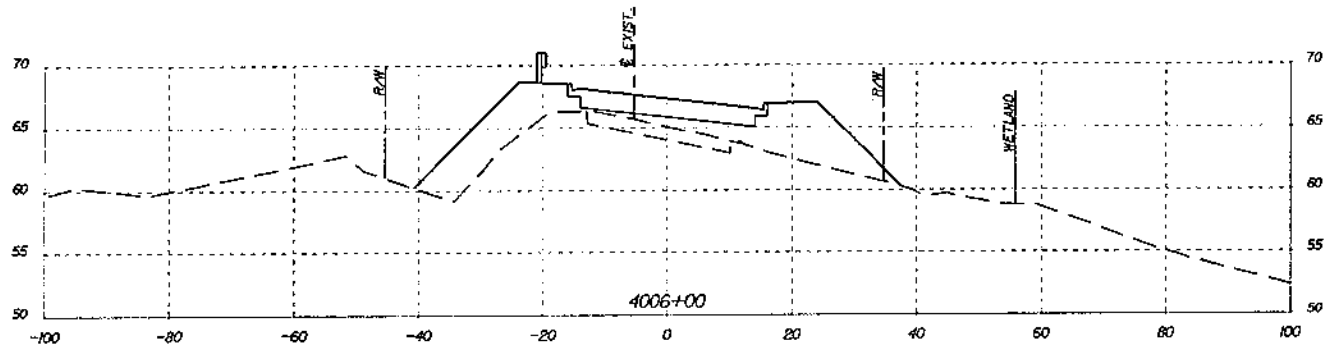

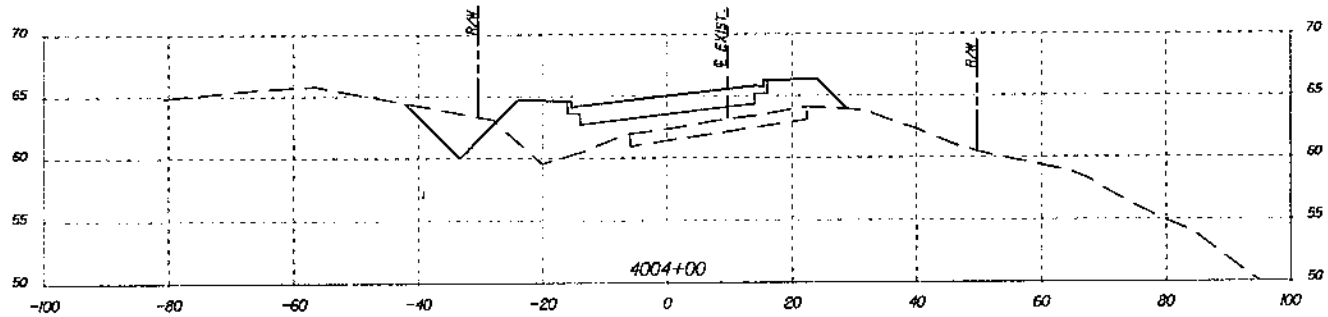

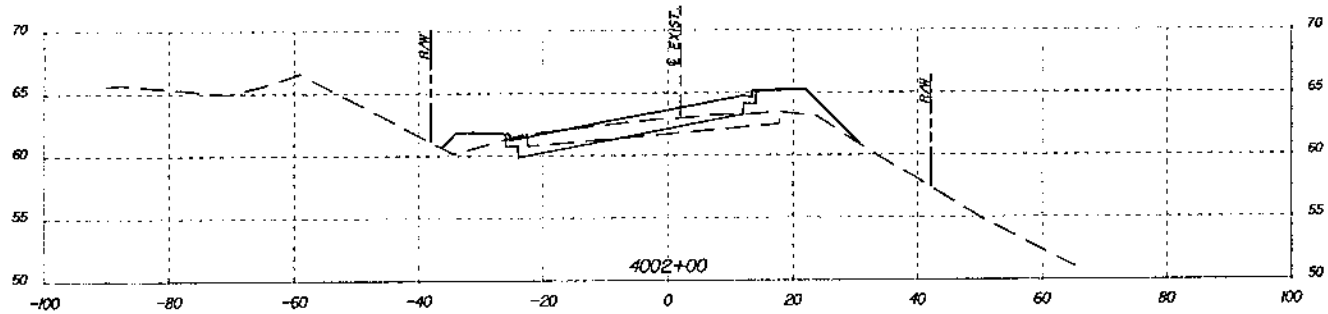

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-8380 FAX (407) 317-9016

ALTERNATIVE A CROSS SECTIONS

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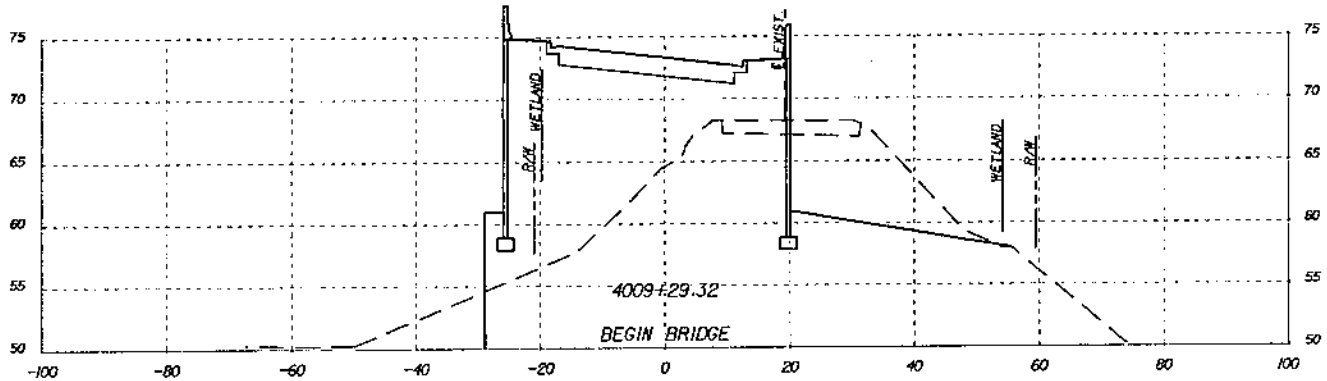

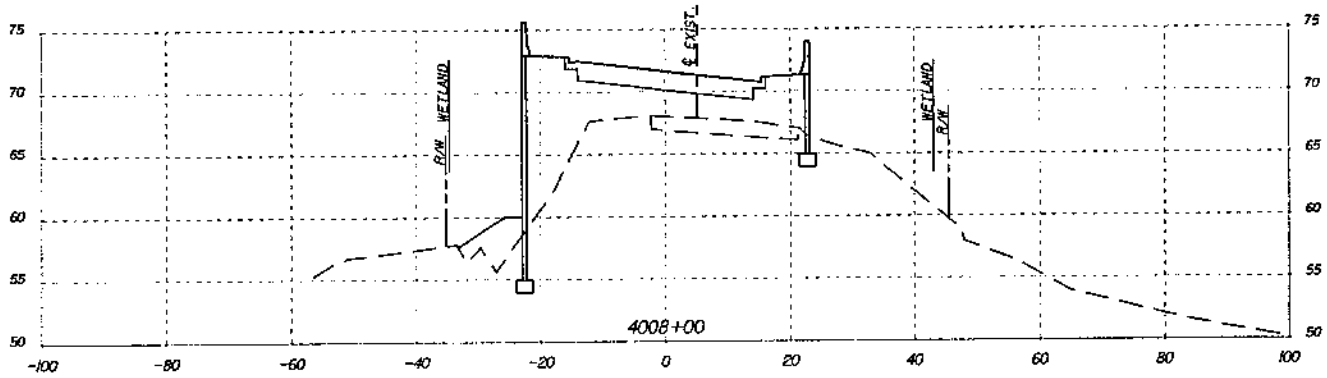

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-8380 FAX (407) 317-9046

ALTERNATIVE A CROSS SECTIONS

SHEET NO.

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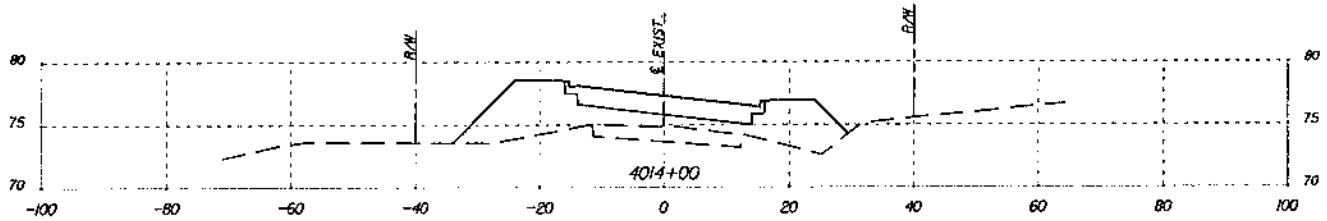
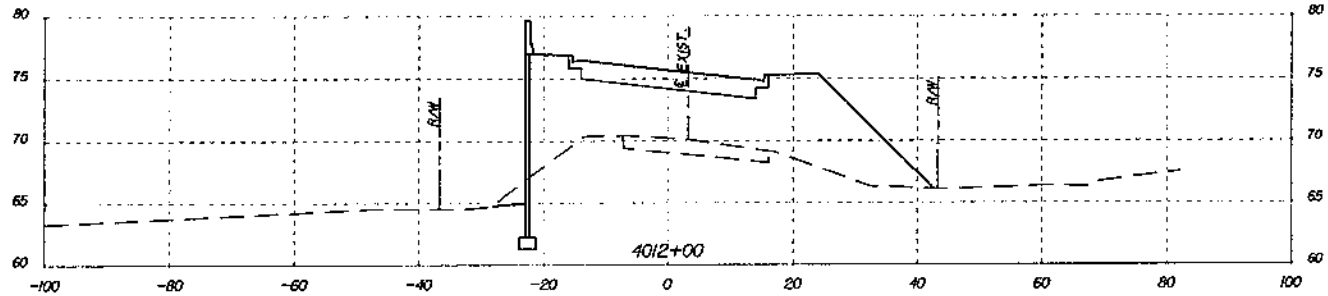
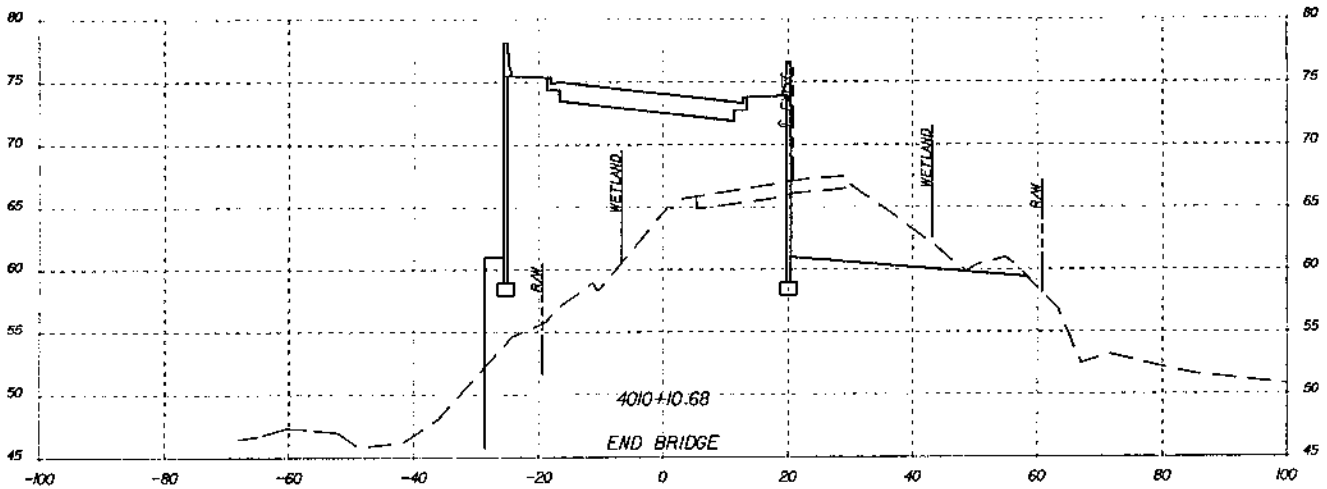






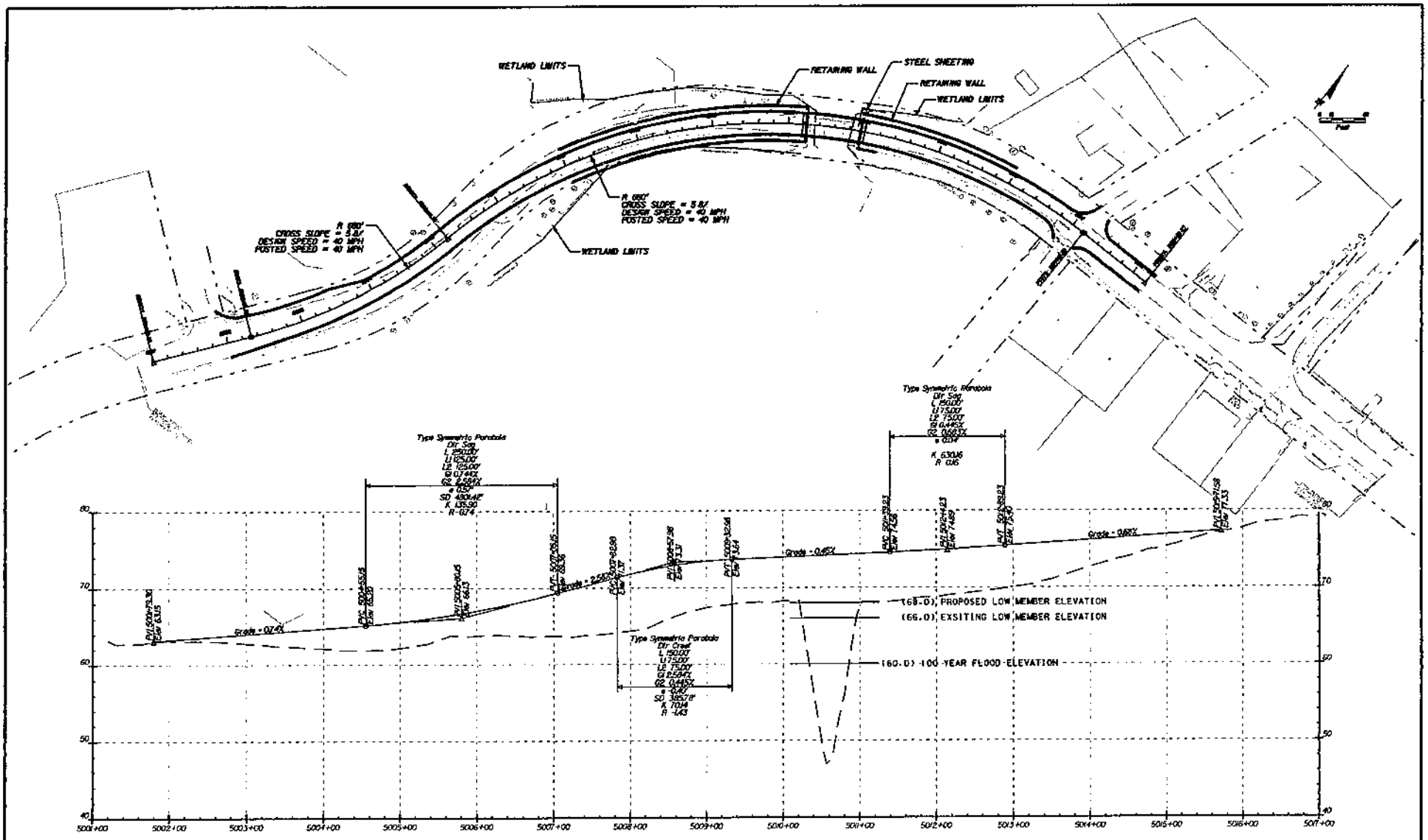
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 300
ORLANDO, FL 32804
CA # 6500
PH (407) 859-6380 FAX (407) 317-9016

ALTERNATIVE A CROSS SECTIONS

SHEET NO.

01-OCT-2004 13:03



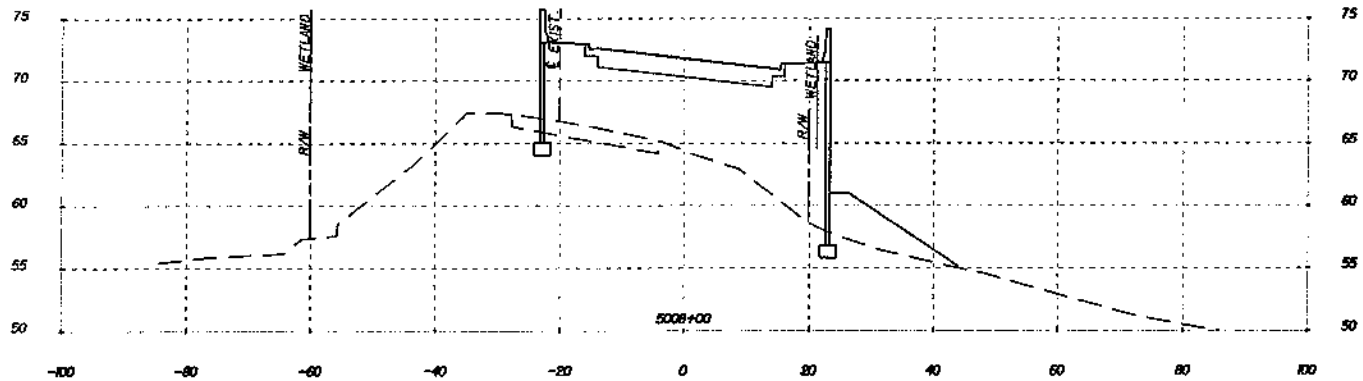
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

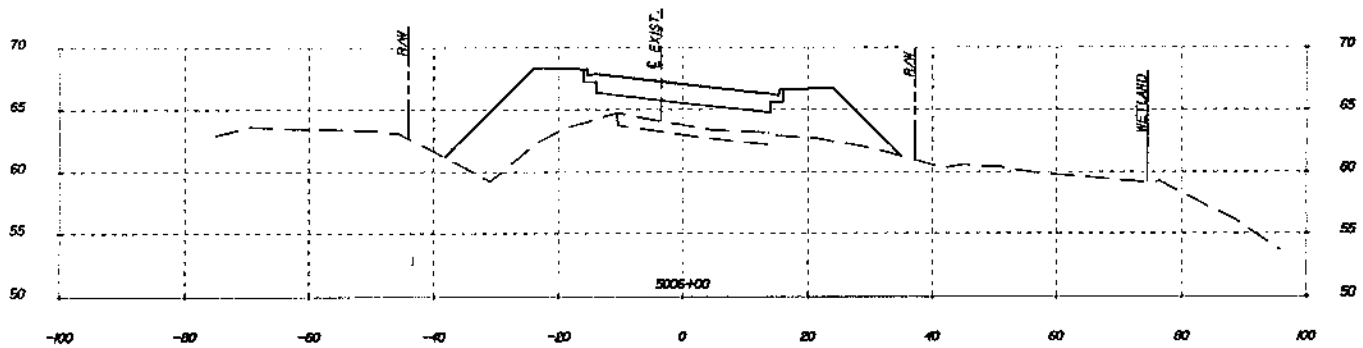
HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 659-8380 FAX (407) 317-9016

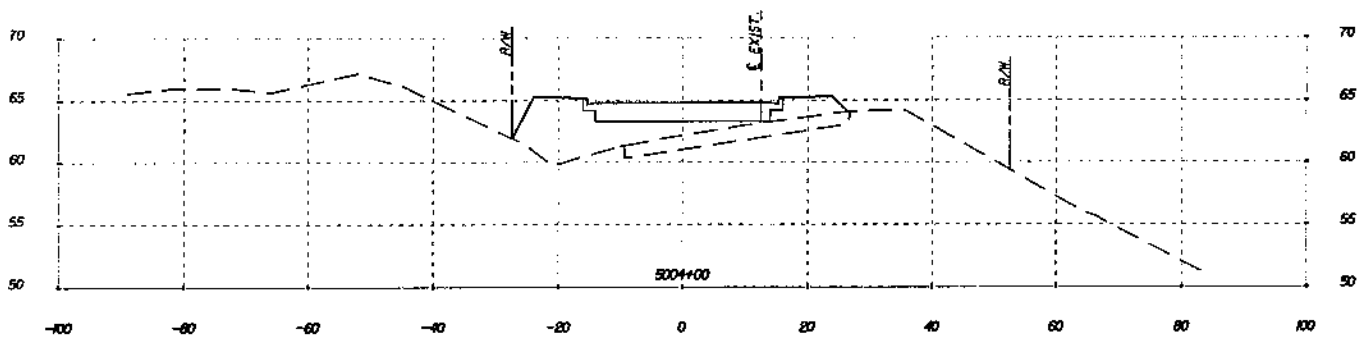
PICCIOLA ROAD
ALTERNATIVE B

SHEET NO.

18-OCT-2004 14:46







REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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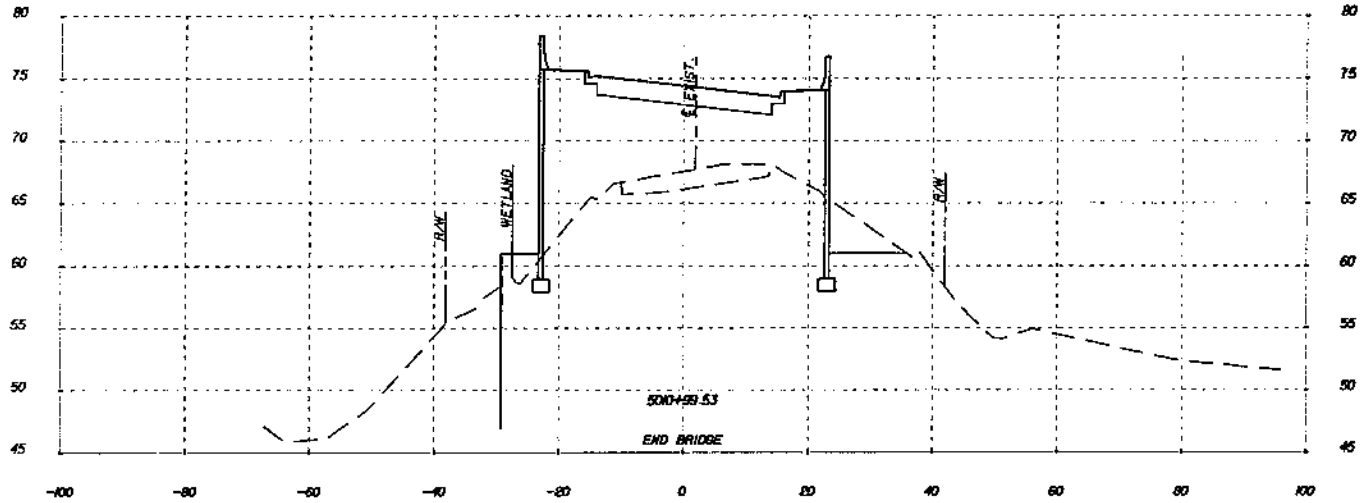
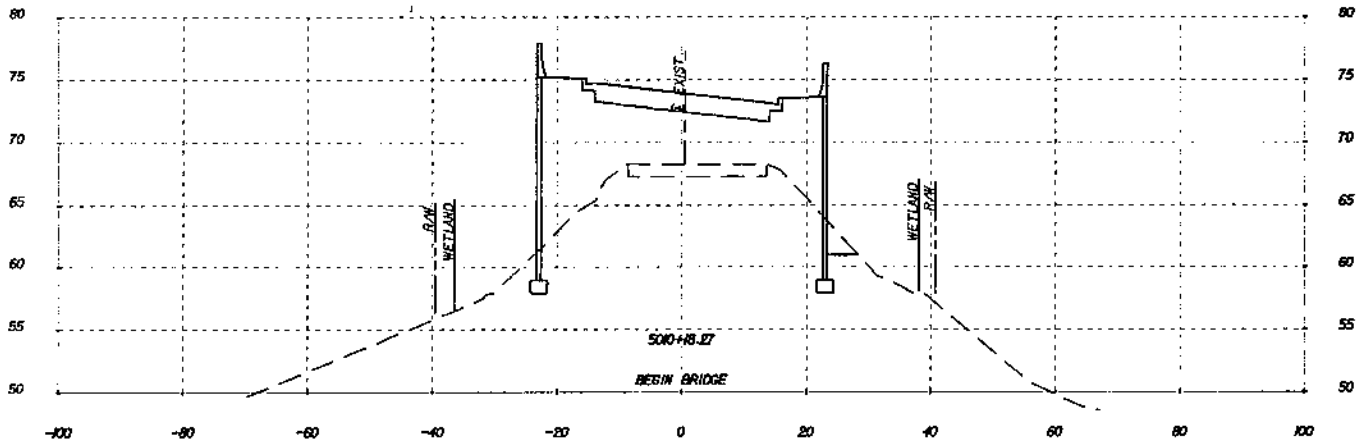
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-6390 FAX (407) 317-9016

ALTERNATIVE B
CROSS SECTIONS

SHEET NO.



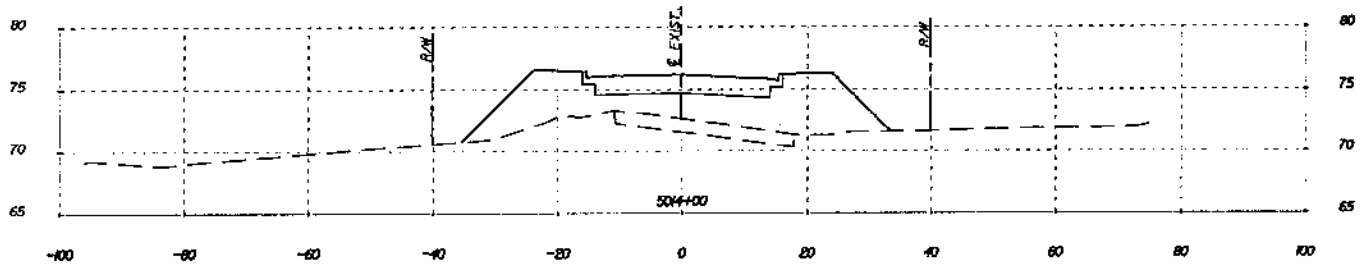


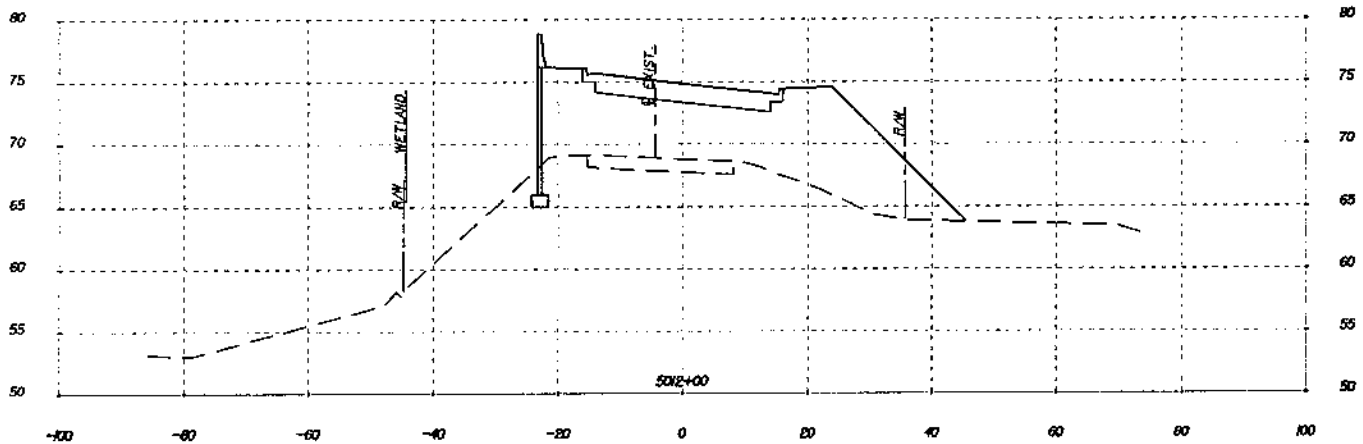
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 858-8380 FAX (407) 317-9016

ALTERNATIVE B
CROSS SECTIONS

SHEET NO.





REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
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ORLANDO, FL 32804
CA # 6500
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ALTERNATIVE B
CROSS SECTIONS

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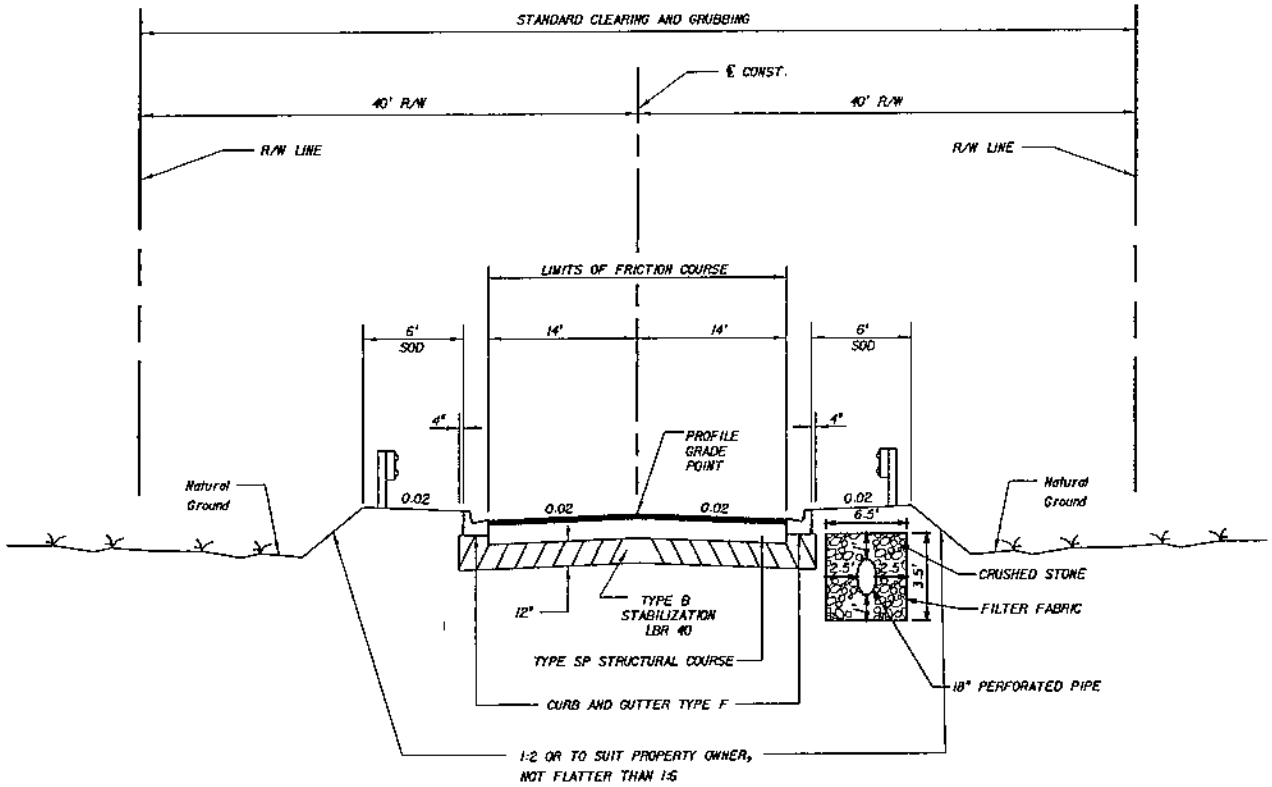
04-OCT-2004 15:31

APPENDIX C

PRELIMINARY DRAINAGE PLANS



TYPICAL SECTION
PICCIOLA ROAD

STA. XX+XX.XX TO STA. XX+XX.XX

TRAFFIC DATA

CURRENT YEAR ESTIMATE = 2003 AADT = XX
OPENING YEAR ESTIMATE = 2005 AADT = XX
DESIGN YEAR ESTIMATE = 2025 AADT = XX
K = X % D = X % T = X % (24 HOUR)
DESIGN HOUR T = X %
DESIGN SPEED = 35-50 MPH

NEW CONSTRUCTION

OPTIONAL BASE GROUP XX WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC X) (XXX LBS/SY)
AND FRICTION COURSE FC-5 (XX LBS/SY) (RUBBER)

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-6380 FAX (407) 317-9016

PICCIOLA ROAD
TYPICAL SECTION
EXFILTRATION

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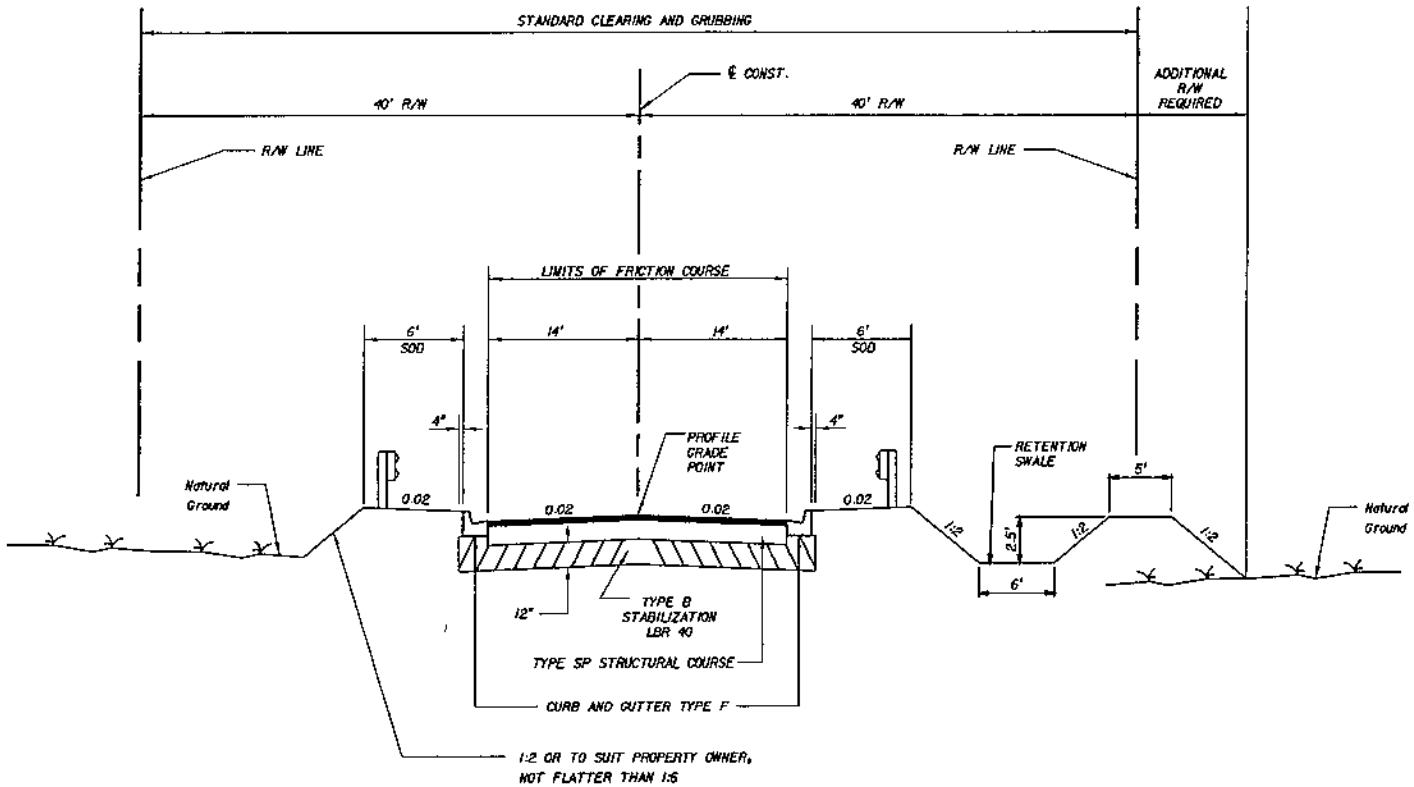


TYPICAL SECTION
PICCIOLA ROAD

STA. XX+XX.XX TO STA. XX+XX.XX

TRAFFIC DATA

CURRENT YEAR ESTIMATE = 2003 AADT = XX
OPENING YEAR ESTIMATE = 2005 AADT = XX
DESIGN YEAR ESTIMATE = 2025 AADT = XX
K = X % D = X % T = X % (24 HOUR)
DESIGN HOUR T = X %
DESIGN SPEED = 40 MPH

NEW CONSTRUCTION

OPTIONAL BASE GROUP XX WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC X) (XXX LBS/SY)
AND FRICTION COURSE FC-5 (XX LBS/SY) (RUBBER)

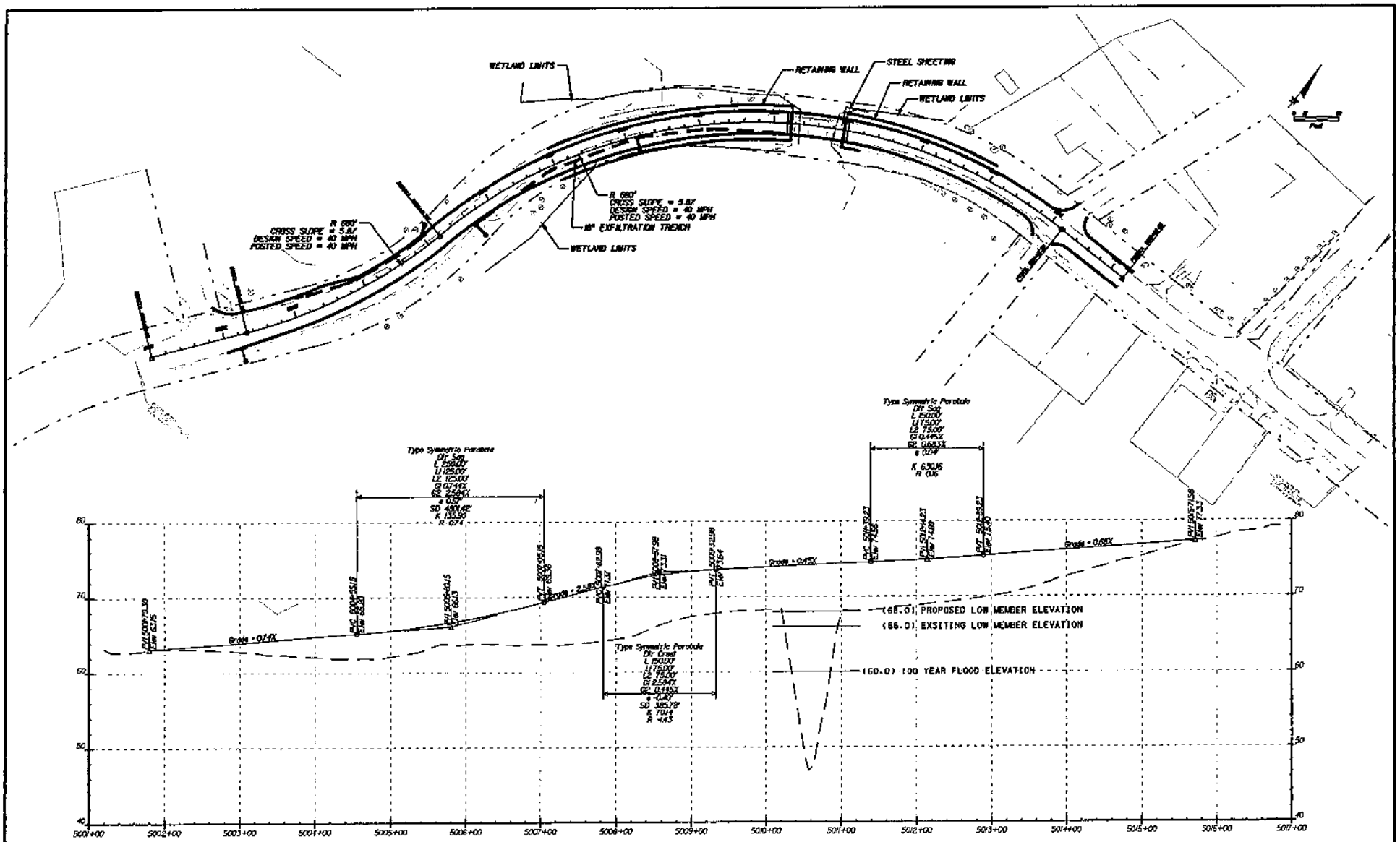
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 659-8380 FAX (407) 317-9016

PICCIOLA ROAD
TYPICAL SECTION - SWALE

SHEET NO.

18-OCT-2004 14:59 \\orlw00\pnwork\Jobs\37485\Technical\Cad\Roadway\typical04.dgn



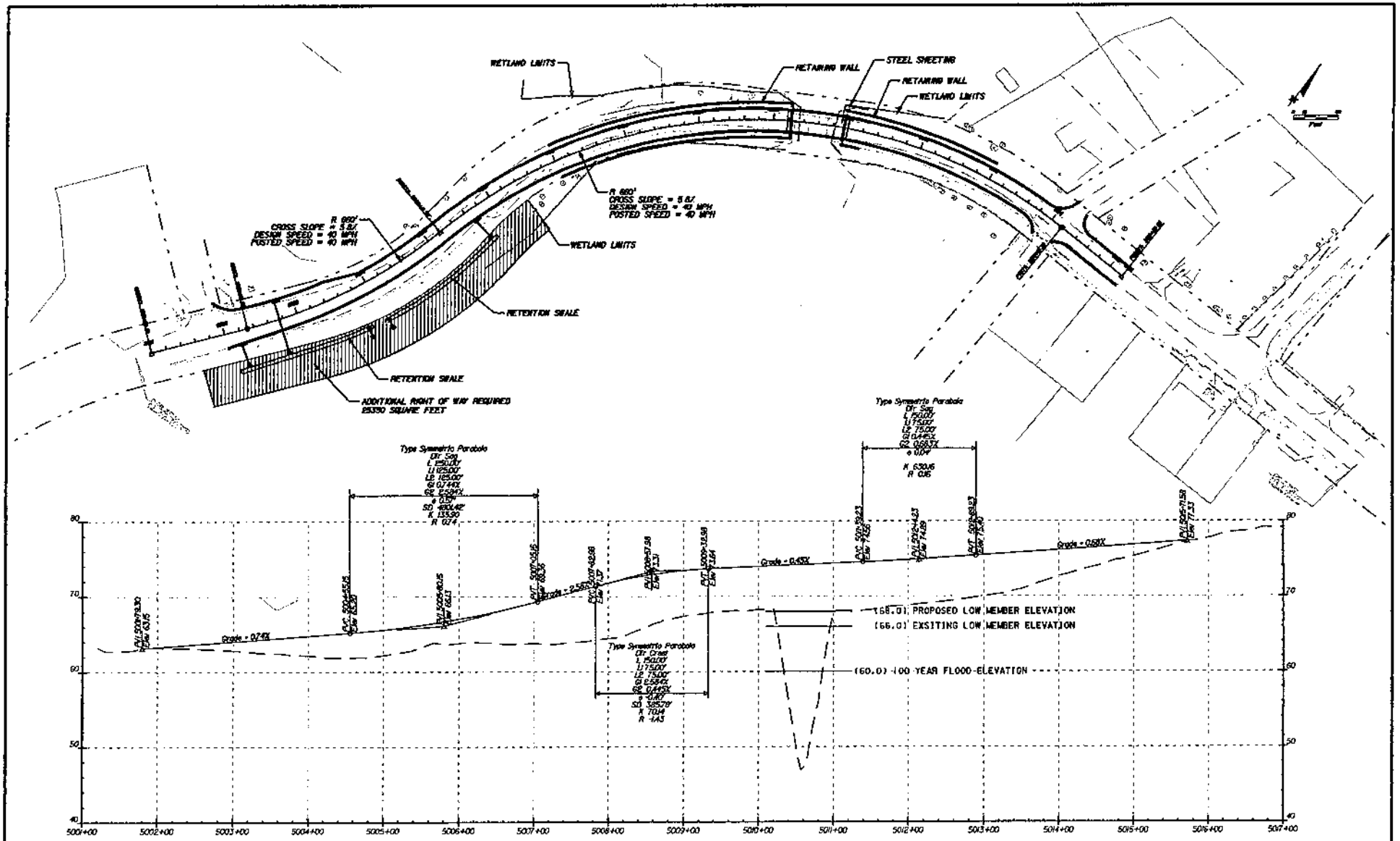
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-8380 FAX (407) 317-9016

PICCIOLA ROAD
ALTERNATE B - EXFILTRATION

SHEET NO.

18-OCT-2004 14:55



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-8380 FAX (407) 317-9016

PICCIOLA ROAD
ALTERNATE B - SWALE

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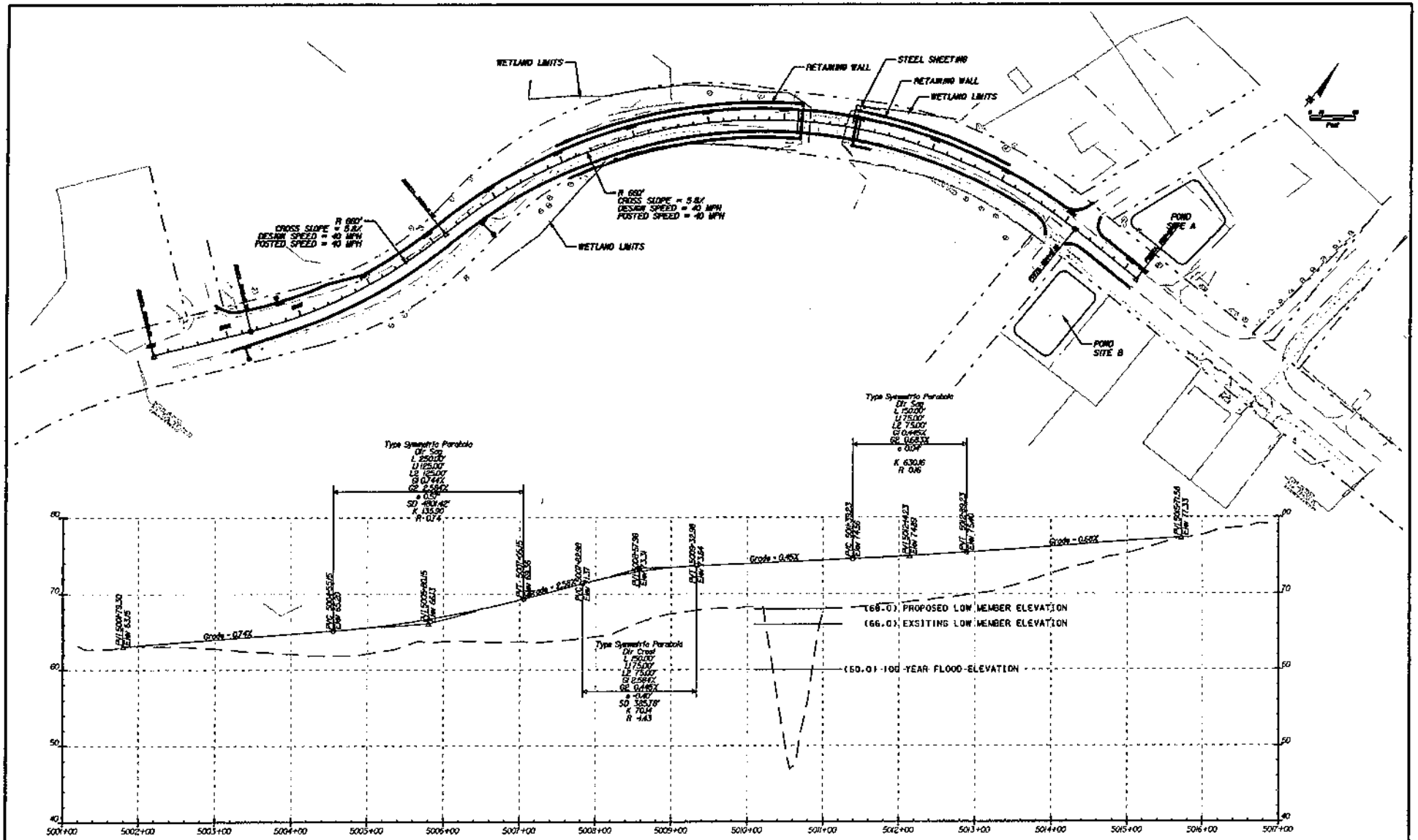


REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

HNTB
1615 EDGEWATER DR., SUITE 200
ORLANDO, FL 32804
CA # 6500
PH (407) 859-8380 FAX (407) 317-9016

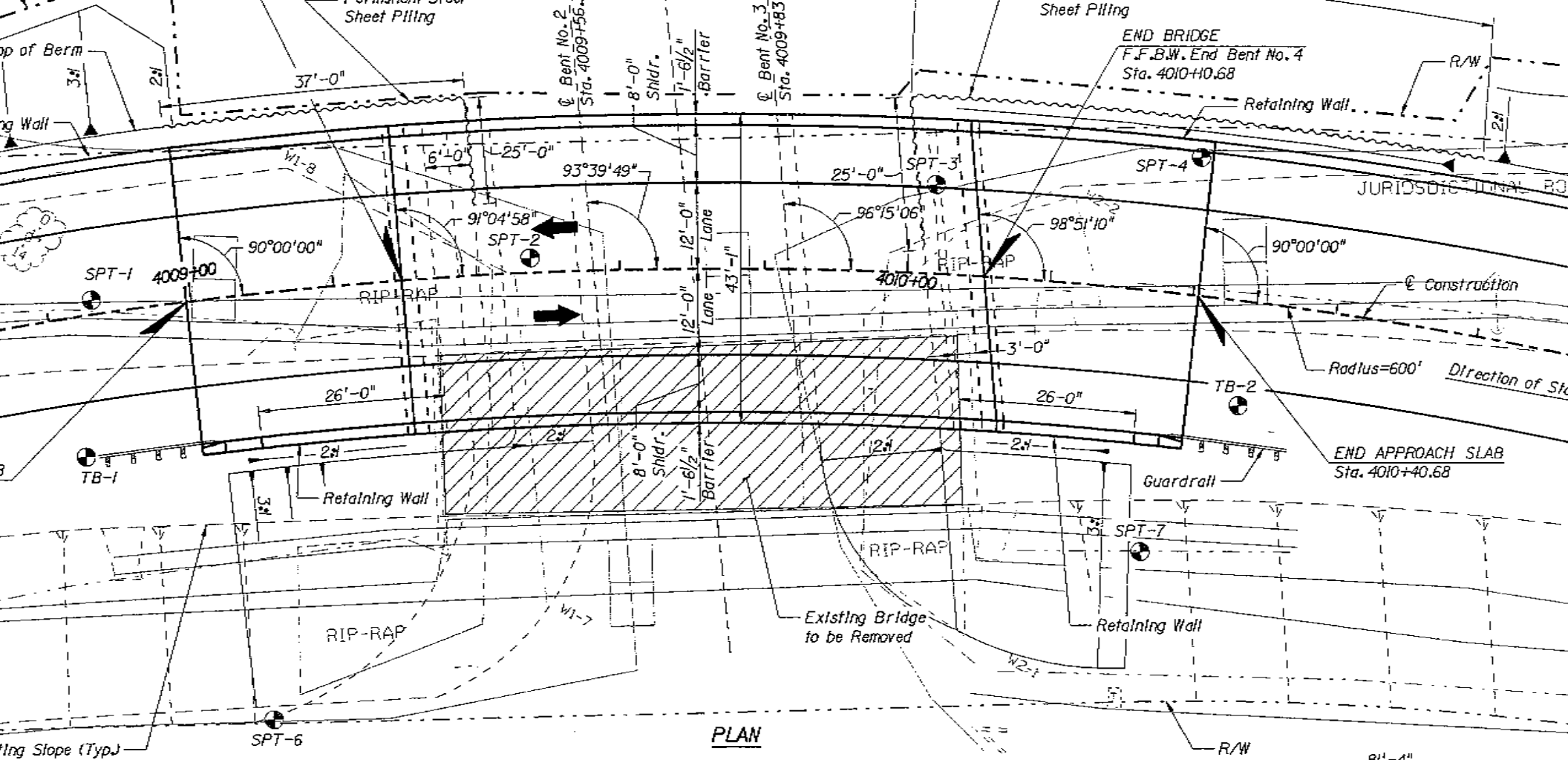
PICCIOLA ROAD
ALTERNATE B - PONDS

SHEET NO.

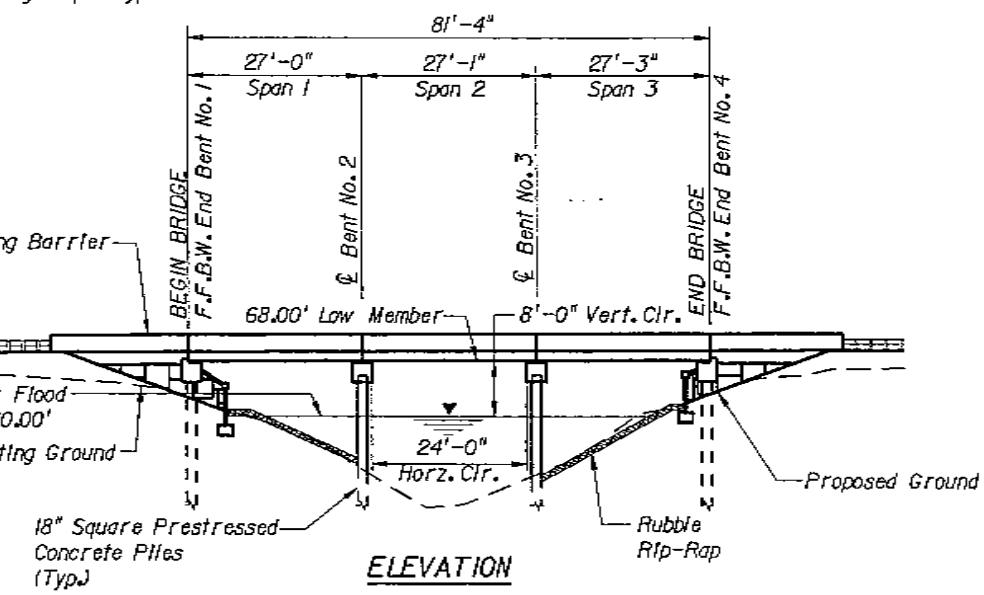
18-OCT-2004 14:56

APPENDIX D

PRELIMINARY BRIDGE PLANS

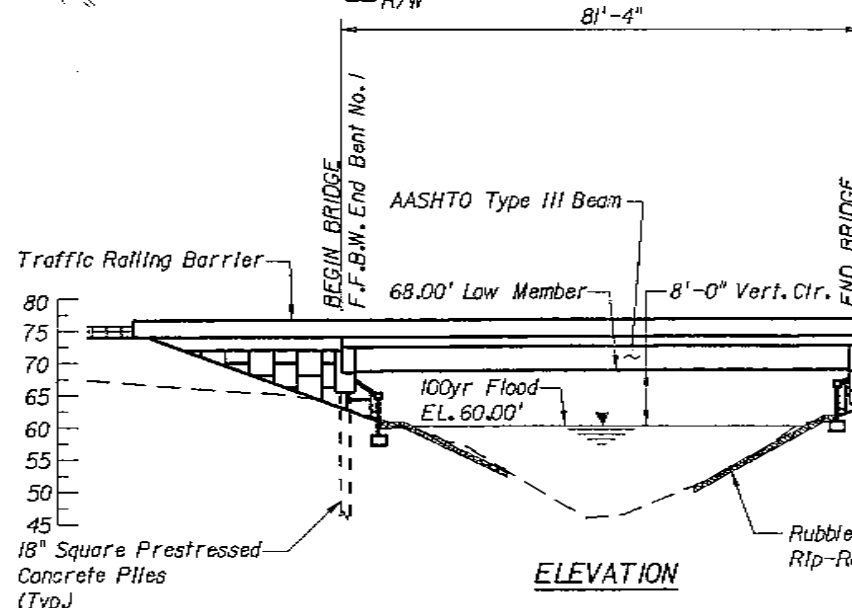


PLAN



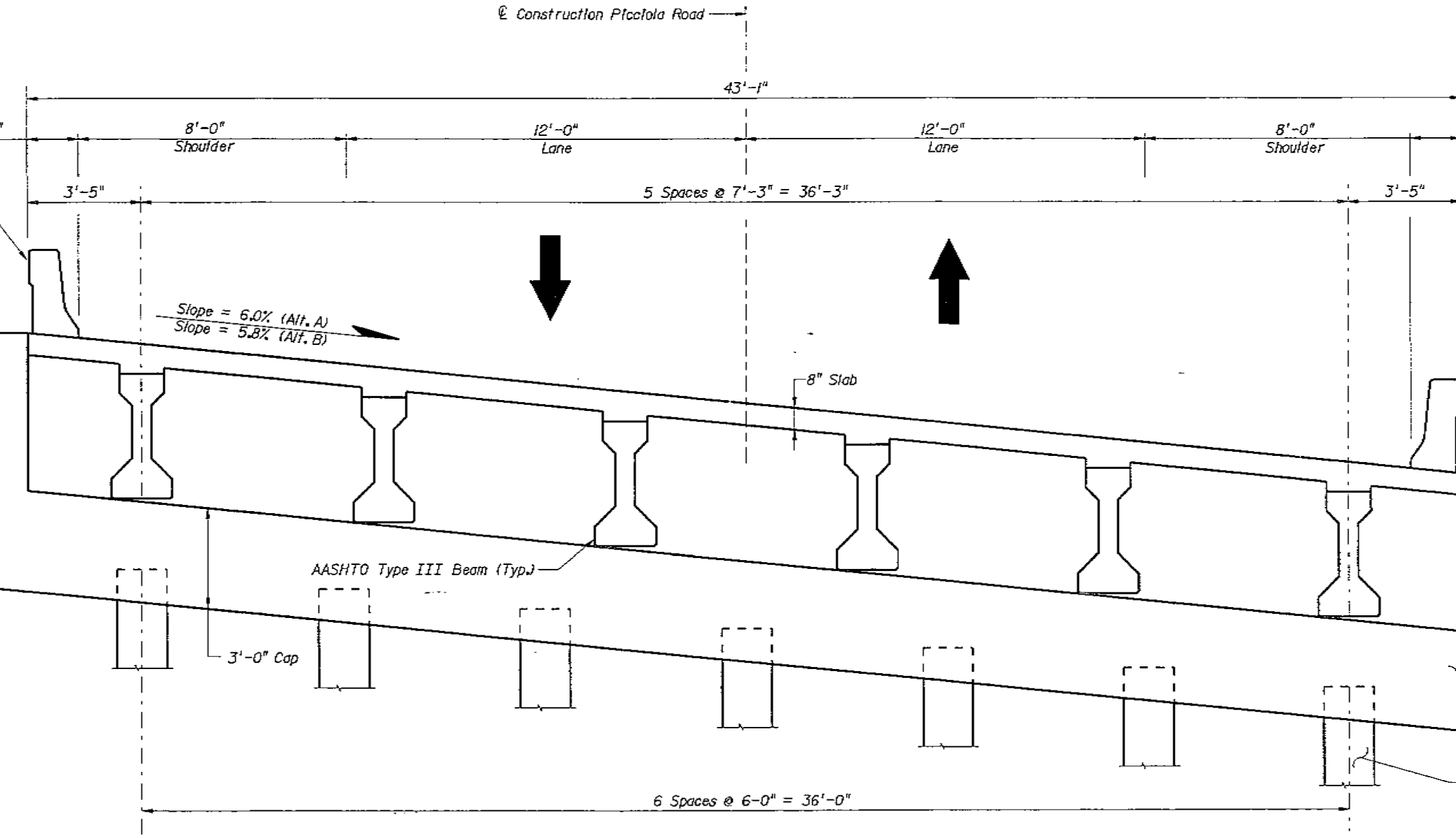
ELEVATION

FLAT SLAB ALTERNATIVE



ELEVATION

AASHTO ALTERNATIVE



AASHTO TYPE III ALTERNATIVE

BEGIN BRIDGE
F.F.B.W. End Bent No. 1
Sta. 5010+18.27

SPT-1

SPT-2

℄ Bent No. 2
Sta. 5010+45.28

8'-0" Shldr.

1'-6½" Barrier

℄ Bent No. 3
Sta. 5010+72.35

Steel Sheeting

SPT-3

17'-0"

END BRIDGE
F.F.B.W. End Bent No. 4
Sta. 5010+99.53

8'-0"

2:1

92°56'11"

90°35'28"

90°00'00"

5010+00

TB-1

12'-0" Lane

43'-1"

95°17'11"

5011+00

97°38'44"

90°00'00"

TB-2

Direction of Stationing

℄ Construction

Front Face of Retaining Wall

3'-0"

26'-0"

Top of Berm

RIP-RAP

SPT-7

26'-0"

16'-6"

2:1

RIP-RAP

Retaining Wall

8'-0" Shldr.

1'-6½" Barrier

Existing Bridge to be Removed

Retaining Wall

END APPROACH SLAB
Sta. 5011+29.53

SPT-6

R/W

PLAN

81'-3"

27'-0" Span 1

27'-1" Span 2

27'-2" Span 3

BEGIN BRIDGE F.F.B.W. End Bent No. 1

℄ Bent No. 2

℄ Bent No. 3

END BRIDGE F.F.B.W. End Bent No. 4

68.00' Low Member

8'-0" Vert. Clr.

24'-1" Horz. Clr.

Proposed Ground

Existing Ground

Rubble Rip-Rap

ELEVATION

FLAT SLAB ALTERNATIVE

81'-3"

BEGIN BRIDGE F.F.B.W. End Bent No. 1

END BRIDGE

AASHTO Type III Beam

Traffic Railing Barrier

100yr Flood EL. 60.00'

8'-0" Vert. Clr.

68.00' Low Member

80
75
70
65
60
55
50
45

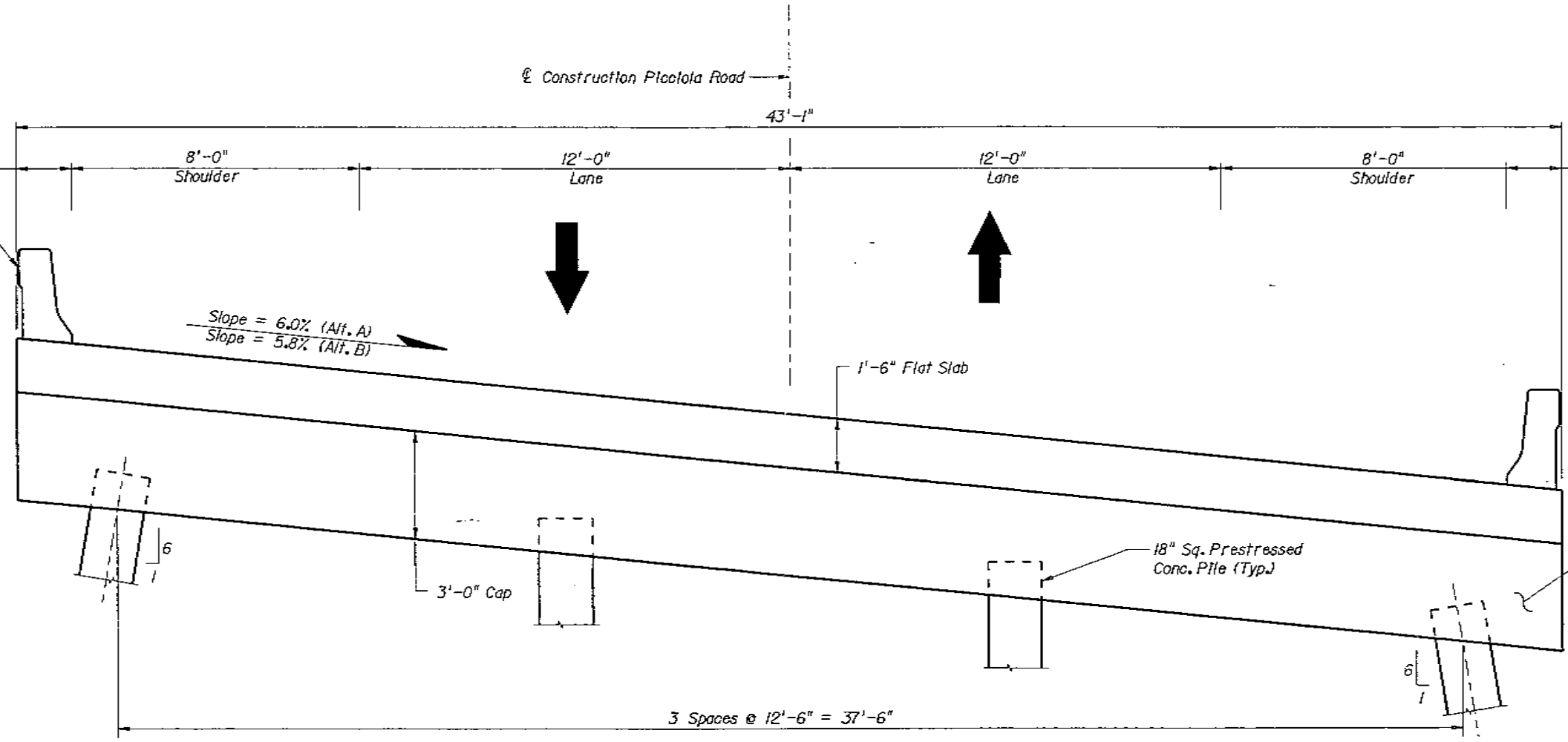
18" Square Prestressed Concrete Piles (Typ.)

Existing Ground

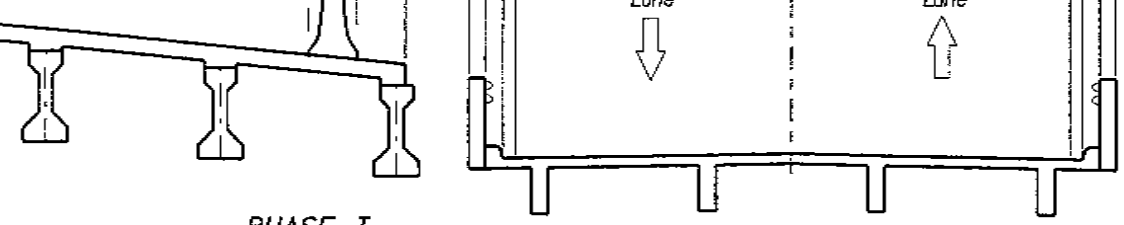
Rubble Rip-Rap

ELEVATION

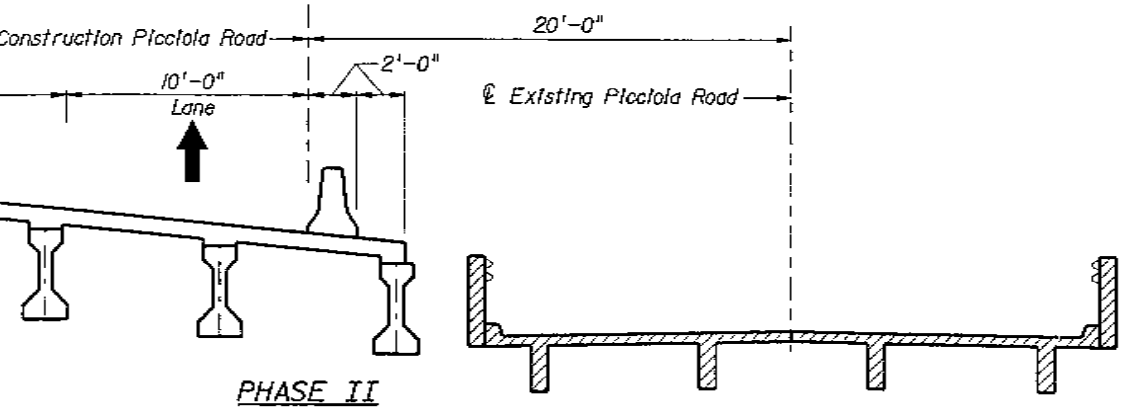
AASHTO ALTERNATIVE



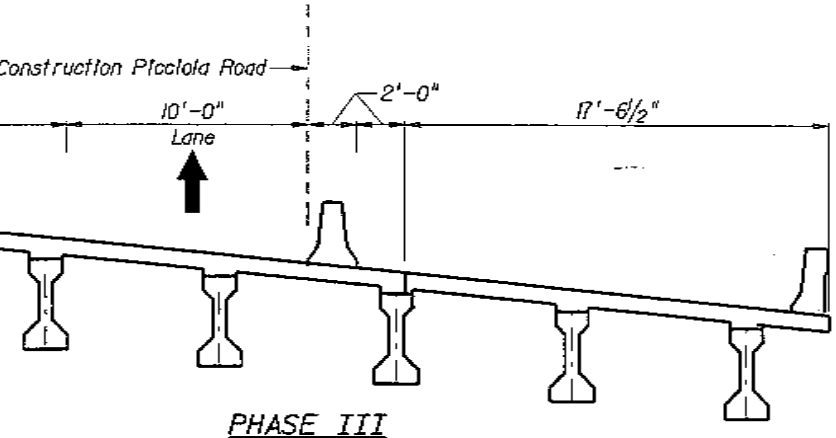
FLAT SLAB ALTERNATIVE



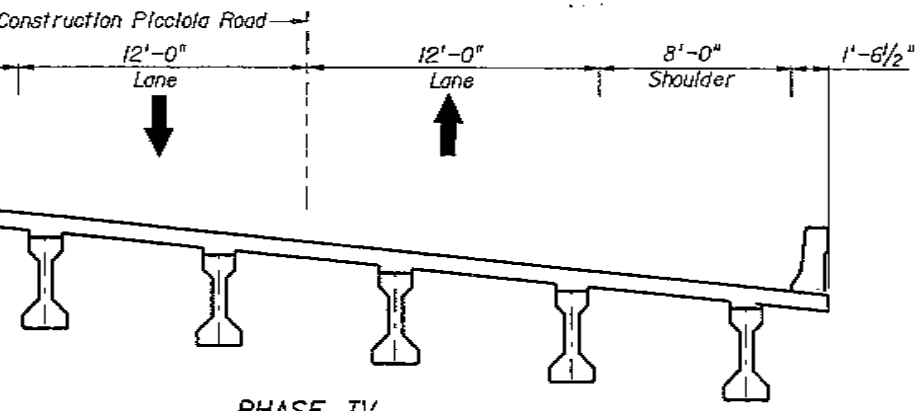
PHASE I



PHASE II



PHASE III



PHASE IV

PHASE I

- Maintain Traffic on the Existing Structure
- Partially Construct Proposed Structure

PHASE II

- Shift Traffic onto Partially Constructed New
- Remove Existing Bridge

PHASE III

- Complete Construction of New Bridge

PHASE IV

- Shift Traffic to Final Location

APPENDIX E

CALCULATIONS

Picciola Bridge Improvements

Quantity & Cost Calculations for
Bridge Alternatives and Walls

HNTB
The HNTB Companies

1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016

PHASE 1 - ESTIMATED COMPARATIVE CONSTRUCTION COST

PICCIOLA BRIDGE IMPROVEMENTS

Item Description	Unit	*Unit Cost	Alternate A CIP Flat Slab on Pile Bents		Alternate A AASHTO Type III Beams (Single Span)		Alternate B CIP Flat Slab on Pile Bents		Alternate B AASHTO Type III Beams (Single Span)	
			Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
SUPERSTRUCTURE:										
Superstructure Concrete	CY	$425.00	193.9	$82,396.87	99.1	$42,113.96	193.9	$82,396.87	99.1	$42,113.96
Approach Slab Concrete	CY	$275.00	95.7	$26,328.70	95.7	$26,328.70	95.7	$26,328.70	95.7	$26,328.70
AASHTO Type II Beam	LF	$80.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type III Beam	LF	$86.00		$0.00	486.0	$41,796.00		$0.00	486.0	$41,796.00
AASHTO Type IV Beam	LF	$100.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type V Beam	LF	$120.00		$0.00		$0.00		$0.00		$0.00
AASHTO Type VI Beam	LF	$130.00		$0.00		$0.00		$0.00		$0.00
Florida Bulb-T 72 Beam	LF	$120.00		$0.00		$0.00		$0.00		$0.00
Florida Bulb-T 78 Beam	LF	$135.00		$0.00		$0.00		$0.00		$0.00
Florida U 48 Beam	LF	$300.00		$0.00		$0.00		$0.00		$0.00
Florida U 54 Beam	LF	$330.00		$0.00		$0.00		$0.00		$0.00
Florida U 72 Beam	LF	$400.00		$0.00		$0.00		$0.00		$0.00
Structural Steel Plate Girders(Grade 50)	LB	$1.04		$0.00		$0.00		$0.00		$0.00
Structural Steel Box Girders (Grade 50)	LB	$1.32		$0.00		$0.00		$0.00		$0.00
Structural Steel (Grade 36)	LB	$0.90		$0.00		$0.00		$0.00		$0.00
Reinforcing Steel (Superstr.)	LB	$0.46	39,744	$18,282.41	20,314	$9,344.34	39,744	$18,282.41	20,314	$9,344.34
Reinforcing Steel (Appr. Slab)	LB	$0.46	18,669	$8,587.94	18,669	$8,587.94	18,669	$8,587.94	18,669	$8,587.94
Traffic Railing Barrier	LF	$44.00	162	$7,128.00	162	$7,128.00	162	$7,128.00	162	$7,128.00
Expansion Joint (Strip Seal)	LF	$106.00		$0.00		$0.00		$0.00		$0.00
Bridge Floor Grooving	SY	$2.50	361	$901.87	361	$901.87	361	$901.87	361	$901.87
Neoprene Pads	CF	$500.00	0.249	$124.66	0.625	$312.50	0.249	$124.66	0.625	$312.50
TOTAL (Superstructure)				$143,750.47		$136,513.32		$143,750.47		$136,513.32
SUBSTRUCTURE:										
Prestessed Concrete Piles (18")	LF	$38.00	1,265	$48,070.00	934	$35,484.40	1,265	$48,070.00	934	$35,484.40
Prestressed Concrete Piles (24")	LF	$53.00		$0.00		$0.00		$0.00		$0.00
HP 14 X 89 H-Piles	LF	$38.00		$0.00		$0.00		$0.00		$0.00
16" Pipe Piles - Closed End	LF	$80.00		$0.00		$0.00		$0.00		$0.00
Substructure Concrete	CY	$425.00	66.8	$28,398.10	44.0	$18,711.66	66.8	$28,398.10	44.0	$18,711.66
Substructure Mass Concrete	CY	$315.00	0.0	$0.00	0.0	$0.00	0.0	$0.00	0.0	$0.00
Reinforcing Steel (Substr.)	LB	$0.46	9,351	$4,301.40	5,944	$2,734.10	9,351	$4,301.40	5,944	$2,734.10
Post-Tensioning Steel (Strand)	LB	$2.00		$0.00		$0.00		$0.00		$0.00
TOTAL (Substructure)				$80,769.50		$56,930.17		$80,769.50		$56,930.17
MISCELLANEOUS:										
Permanent & Temporary Walls	LS			$339,900.00		$443,700.00		$117,200.00		$155,700.00
Mobilization (10%)	LS			$22,452.00		$19,344.35		$22,452.00		$19,344.35
Contingency (10%)	LS			$22,452.00		$19,344.35		$22,452.00		$19,344.35
Phased Construction (30%)	LS			$67,355.99		$58,033.05				
TOTAL (Miscellaneous)				$452,159.99		$540,421.75		$162,104.00		$194,388.70
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST				**$677,000.00**		**$734,000.00**		**$387,000.00**		**$388,000.00**
COST FACTOR FOR MATRIX				**5.7**		**5.3**		**10.0**		**10.0**
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION COST - BRIDGE ONLY				**$337,000.00**		**$290,000.00**		**$270,000.00**		**$232,000.00**
TOTAL ESTIMATED COMPARATIVE CONSTRUCTION UNIT COST - BRIDGE ONLY				**$96.57 /SF**		**$83.10 /SF**		**$77.37 /SF**		**$66.48 /SF**

* Unit Costs Based on SDG BDR Est. Guide

TABLE A

Made by: CJM 03/29/04
Checked by:
Backchecked by:

HNTB

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *AASHTO Type III Beams*
Pile Bent
18" Square Prestressed Concrete Piles

Span Arrangement:

No. of Spans:	1
Span Length:	81.0 ft
No. of Bms per Span:	6
Bridge Compliment of Skew:	0.0000 degrees
Superstructure Type:	4
Pier Type:	3
Foundation Type:	1

Superstructure Type:
1 Precast Slabs
2 CIP Flat Slab
3 AASHTO Type II Beams
4 AASHTO Type III Beams
5 AASHTO Type IV Beams
6 AASHTO Type V Beams
7 AASHTO Type VI Beams
8 Florida Bulb-T 72 Beams
9 Florida Bulb-T 78 Beams
10 Florida U 48 Beams
11 Florida U 54 Beam
12 Florida U 72 Beam
13 Steel Plate Girder
14 Steel Box Girders

Pier Type:
1 Multi-Column Pier
2 Aesthetically Enhanced Pier
3 Pile Bent

Foundation Type:
1 18" Square Prestressed Concrete Piles
2 24" Square Prestressed Concrete Piles

Deck:

Bridge Length:	81.0 ft
Bridge Width:	43.1 ft
Deck Thickness:	8.0 in
Diaphr., Haunch & Misc.	15%
Deck Volume:	2675.5 cf
Raised Median Width:	0.0 ft
Raised Median Depth:	0.0 in
Raised Median Volume:	0.0 cf

Total Volume Superstructure Concrete: **2675.5 cf**
99.1 cy

Rebar (Lbs per cy): 205 lbs/cy

Reinforcing Steel (Superstr.) **20,314 lbs**

Barriers:

No.of S/W Parapets:	0	**S/W Parapet Length:**	**0.0 ft**
No.of Trf. Rlg. Barriers:	2	**Traffic Railing Barrier Length:**	**162.0 ft**

Made by: CJM 03/29/04
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *AASHTO Type III Beams*
Pile Bent
18" Square Prestressed Concrete Piles

Floor Grooving:

Bridge Width: 43.1 ft

Portions omitted from grooving:

ITEM	No.	Width
S/W Parapet:	0	1.0 ft
Sidewalk:	0	6.0 ft
Sidewalk:	0	10.0 ft
Barrier:	2	1.5 ft
Raised Median:	0	17.0 ft
Width to be grooved:		40.1 ft

Bridge Floor Grooving: 3246.7 sf
360.7 sy

Expansion Joint:

No. of Joints: 0

Expansion Joint Length: ft
(Include in Cost for Strip Seal Only)

Neoprene Bearing Pads:

Equivalent No. of Beams: 6 total
No. of Pads: 2 (2 per beam)

Length: 10.0 in
Width: 18.0 in
Depth: 3.000 in

Volume (each): 0.31 cf

Neoprene Pads: 0.63 cf

Precast Flat Slabs:

No. of Panels: 0 per span
Size of Panels: 0.0 ft X
0 in

Length: 0 ft

Approach Slabs:

No. per Bridge: 2
Length: 30 ft
Thickness 12 in
Width= 43.0833 ft

Total Volume Appraoch Slab Concrete: 2585 cf
95.74074 cy

Rebar (Lbs per cy): 195 lbs/cy

Reinforcing Steel (Appr. Slab): 18,669 lbs

Made by: CJM 03/29/04
Checked by:
Backchecked by:

HNTB

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *AASHTO Type III Beams*
Pile Bent
18" Square Prestressed Concrete Piles

Prestressed Beams:

No. of Beams:	6 per span	**AASHTO Type III Beams**	**486.0 ft**

Structural Steel Girders:

No of Girders	6		
Weight of Girder	0 lbs/girder	**Structural Steel (Grade 50):**	**0.0 lbs**
Weight of Details	15% lbs/girder	**Structural Steel (Grade 36):**	**0.0 lbs**

End Bent:

No. of End Bents: 2

End Bent Cap:

Footing Width:	0.0 ft	Area of Footing=	0.00
Footing Depth:	0.0 ft	Perimeter of Footing=	0.00
Cap Width:	3.0 ft	V/S=	N/A
Average Cap Depth:	3.0 ft		
Cap Length:	43.1 ft	Footing Concrete	0.00
Average Backwall Height:	3.5 ft	Footing Mass Concrete	0.00
Backwall Width:	1.0 ft		
Backwall Length:	43.1 ft	Cap and Backwall Concrete	540.337 cf -- ea End Bent Cap

Left Wing:

Footing Width:	0.0	Area of Footing=	0.00
Footing Depth:	0.0	Perimeter of Footing=	0.00
Cap Width:	0.0	V/S=	N/A
Average Cap Depth:	0.0		
Cap Length:	0.0	Footing Concrete	0.00
Wingwall Height:	0.0	Footing Mass Concrete	0.00
Wingwall Width:	0.0		
Wingwall Length:	0.0	Cap and Wingwall Concrete	0.000 cf -- ea Left Wing

Right Wing:

Footing Width:	0.0	Area of Footing=	0.00
Footing Depth:	0.0	Perimeter of Footing=	0.00
Cap Width:	0.0	V/S=	N/A
Average Cap Depth:	0.0		
Cap Length:	0.0	Footing Concrete	0.00
Wingwall Height:	0.0	Footing Mass Concrete	0.00
Wingwall Width:	0.0		
Wingwall Length:	0.0	Cap and Wingwall Concrete	0.000 cf -- ea Right Wing

Peds Cheeks & Misc. 10%

Concrete+Mass Concrete Volume: 594.37 cf -- ea End Bent
22.0 cy -- ea End Bent
44.0 cy -- total All Bents

End Bent Rebar (Lbs per cy): 135 lbs/cy

Weight: 2,972 lbs -- ea 5,944 lbs -- total all Bents

Made by: CJM 03/29/04
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *AASHTO Type III Beams*
Pile Bent
18" Square Prestressed Concrete Piles

Piers

No. of Piers: 0

Cap:
Cap Width: 0.0 ft
Cap Heigth 0.0 ft
Cap Length 0.00 ft

Check for Mass Concrete:
Volume= 0.00
Surface Area= 0.00
V/S=

Peds & Misc (add'l): 15%

Volume Increase for Non Standard Shape: 0%

Volume Concrete: 0.00 cf -- ea Pier
Volume Mass Concrete: 0.00 cf -- ea Pier

Pier Rebar (Lbs per cy): 145 lbs/cy — 0.00 cy -- ea Pier — 0.0 cy -- total
Weight: 0 Lbs -- ea Pier — 0 lbs -- total

Total Substructure Concrete:

Total Volume Concrete: 1188.74 cf
Total Volume Mass Concrete: 0.00 cf

Total Volume Substructure Concrete: 44.0 cy
Total Volume Substructure Mass Concrete: 0.0 cy

Total Substructure Reinforcing:

Total Weight Substructure Reinforcing: 5,944 lbs

Made by: CJM 03/29/04
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *AASHTO Type III Beams*
Pile Bent
18" Square Prestressed Concrete Piles

Piles:

End Bent:

Piles:	7	No. 18" Prestr. Concr. Piles per End Bent
Approximate Cut-Off=	67	NAVD
Approximate Tip=	9	NAVD
Length:	58	18" Prestr. Concr. Piles (each)

Tot Length: 812.0 ft, 18" Prestr. Concr. Piles (Total All End Bents)

Pier:

Piles:	0	No. of 18" Prestr. Concr. Piles per Pier
Approximate Cut-Off=	0	NAVD
Approximate Tip=	0	NAVD
Length:	0.0	ft, 18" Prestr. Concr. Piles (each)

Tot Length: 0.0 ft, 18" Prestr. Concr. Piles (Total All Int. Bents)

Additional For Preformed and Splices 15%

18" Prestr. Concr. Piles (TOTAL): 933.8 ft

Made by: CJM 08/27/03
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *CIP Flat Slab*
Pile Bent
18" Square Prestressed Concrete Piles

Span Arrangement:

No. of Spans:	3	
Span Length:	27.0	ft
No. of Bms per Span:	0	
Bridge Compliment of Skew:	0.0000	degrees
Superstructure Type:	2	
Pier Type:	3	
Foundation Type:	1	

Superstructure Type:
1 Precast Slabs
2 CIP Flat Slab
3 AASHTO Type II Beams
4 AASHTO Type III Beams
5 AASHTO Type IV Beams
6 AASHTO Type V Beams
7 AASHTO Type VI Beams
8 Florida Bulb-T 72 Beams
9 Florida Bulb-T 78 Beams
10 Florida U 48 Beams
11 Florida U 54 Beam
12 Florida U 72 Beam
13 Steel Plate Girder
14 Steel Box Girders

Pier Type:
1 Multi-Column Pier
2 Aesthetically Enhanced Pier
3 Pile Bent

Foundation Type:
1 18" Square Prestressed Concrete Piles
2 24" Square Prestressed Concrete Piles

Deck:

Bridge Length:	81.0	ft
Bridge Width:	43.1	ft
Deck Thickness:	18.0	in
Diaphr., Haunch & Misc.	0%	
Deck Volume:	5234.6	cf
Raised Median Width:	0.0	ft
Raised Median Depth:	0.0	in
Raised Median Volume:	0.0	cf

** Note: Min thickness = 8.0 in
(8 in. Min, 8.5 in. Req'd for bridges > 300')

Total Volume Superstructure Concrete: **5234.6 cf**
193.9 cy

Rebar (Lbs per cy): **205** lbs/cy

Reinforcing Steel (Superstr.) **39,744 lbs**

Barriers:

No.of S/W Parapets:	0	**S/W Parapet Length:**	**0.0 ft**
No.of Trf. Rlg. Barriers:	2	**Traffic Railing Barrier Length:**	**162.0 ft**

Made by: CJM 08/27/03
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *CIP Flat Slab*
Pile Bent
18" Square Prestressed Concrete Piles

Floor Grooving:

Bridge Width: 43.1 ft

Portions omitted from grooving:

ITEM	No.	Width
S/W Parapet:	0	1.0 ft
Sidewalk:	0	6.0 ft
Sidewalk:	0	10.0 ft
Barrier:	2	1.5 ft
Raised Median:	0	17.0 ft
Width to be grooved:		40.1 ft

Bridge Floor Grooving: **3246.7 sf**
360.7 sy

Expansion Joint:

No. of Joints: 0 **Expansion Joint Length:** **ft**
(Include in Cost for Strip Seal Only)

Neoprene Bearing Pads:

No. of Beams: 0 total
No. of Pads: **2** (2 per beam)

Length: **43.1** in
Width: **10.0** in
Depth: **0.500** in

Volume (each): 0.12 cf

Neoprene Pads: **0.25 cf**

Precast Flat Slabs:

No. of Panels: 0 per span
Size of Panels: **0.0** ft X
0 in
Length: 0 ft

Approach Slabs:

No. per Bridge: **2**
Length: **30** ft
Thickness **12** in
Width= 43.0833 ft

Total Volume Appraoch Slab Concrete: **2585 cf**
95.74074 cy

Rebar (Lbs per cy): **195** lbs/cy

Reinforcing Steel (Appr. Slab): **18,669 lbs**

Made by: CJM 08/27/03
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate:	*CIP Flat Slab*
	Pile Bent
	18" Square Prestressed Concrete Piles

Prestressed Beams:

No. of Beams:	0 per span	**Not a Beam Bridge**	**0.0 ft**

Structural Steel Girders:

No of Girders	0		
Weight of Girder	0 lbs/girder	**Structural Steel (Grade 50):**	**0.0 lbs**
Weight of Details	15% lbs/girder	**Structural Steel (Grade 36):**	**0.0 lbs**

End Bent:

No. of End Bents: **2**

End Bent Cap:

Footing Width:	0.0 ft	Area of Footing=	0.00
Footing Depth:	0.0 ft	Perimeter of Footing=	0.00
Cap Width:	3.0 ft	V/S=	N/A
Average Cap Depth:	3.0 ft		
Cap Length:	43.1 ft	Footing Concrete	0.00
Average Backwall Height:	0.6 ft	Footing Mass Concrete	0.00
Backwall Width:	1.0 ft		
Backwall Length:	43.1 ft	Cap and Backwall Concrete	414.677 cf -- ea End Bent Cap

Left Wing:

Footing Width:	0.0	Area of Footing=	0.00
Footing Depth:	0.0	Perimeter of Footing=	0.00
Cap Width:	0.0	V/S=	N/A
Average Cap Depth:	0.0		
Cap Length:	0.0	Footing Concrete	0.00
Wingwall Height:	0.0	Footing Mass Concrete	0.00
Wingwall Width:	0.0		
Wingwall Length:	0.0	Cap and Wingwall Concrete	0.000 cf -- ea Left Wing

Right Wing:

Footing Width:	0.0	Area of Footing=	0.00
Footing Depth:	0.0	Perimeter of Footing=	0.00
Cap Width:	0.0	V/S=	N/A
Average Cap Depth:	0.0		
Cap Length:	0.0	Footing Concrete	0.00
Wingwall Height:	0.0	Footing Mass Concrete	0.00
Wingwall Width:	0.0		
Wingwall Length:	0.0	Cap and Wingwall Concrete	0.000 cf -- ea Right Wing

Peds Cheeks & Misc. **10%**

Concrete+Mass Concrete Volume:	456.14 cf -- ea End Bent	
	16.9 cy -- ea End Bent	
		33.8 cy -- total All Bents
End Bent Rebar (Lbs per cy): **135** lbs/cy		
Weight:	2,281 lbs -- ea	4,561 lbs -- total all Bents

Made by: CJM 08/27/03
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate:	*CIP Flat Slab*
	Pile Bent
	18" Square Prestressed Concrete Piles

Piers

No. of Piers: **2**

Cap:

Cap Width:	**3.0**	ft
Cap Heigth	**3.0**	ft
Cap Length	**43.08**	ft

Check for Mass Concrete:

Volume=	**387.75**	
Surface Area=	**535.00**	
V/S=	**0.72**	**(Not Mass Concrete)**

Peds & Misc (add'l): **15%**

Volume Increase for Non Standard Shape: 0%

Volume Concrete:	445.91 cf -- ea Pier
Volume Mass Concrete:	0.00 cf -- ea Pier

Pier Rebar (Lbs per cy):	**145** lbs/cy		16.52 cy -- ea Pier	33.0 cy -- total
		Weight:	2,395 Lbs -- ea Pier	4,789 lbs -- total

Total Substructure Concrete:

Total Volume Concrete:	1804.11 cf
Total Volume Mass Concrete:	0.00 cf

Total Volume Substructure Concrete:	**66.8 cy**
Total Volume Substructure Mass Concrete:	**0.0 cy**

Total Substructure Reinforcing:

Total Weight Substructure Reinforcing: **9,351 lbs**

Made by: CJM 08/27/03
Checked by:
Backchecked by:

Picciola Bridge Improvement Project
Picciola Road over the Dead River
Estimated Quantities

Alternate: *CIP Flat Slab*
Pile Bent
18" Square Prestressed Concrete Piles

Piles:

End Bent:

Piles:	**5**	No. 18" Prestr. Concr. Piles per End Bent
Approximate Cut-Off=	**67**	NAVD
Approximate Tip=	**18**	NAVD
Length:	49	18" Prestr. Concr. Piles (each)
Tot Length:	490.0 ft,	18" Prestr. Concr. Piles (Total All End Bents)

Pier:

Piles:	**5**	No. of 18" Prestr. Concr. Piles per Pier
Approximate Cut-Off=	**67**	NAVD
Approximate Tip=	**6**	NAVD
Length:	**61.0** ft,	18" Prestr. Concr. Piles (each)
Tot Length:	610.0 ft,	18" Prestr. Concr. Piles (Total All Int. Bents)

Additional For Preformed and Splices **15%**

18" Prestr. Concr. Piles (TOTAL): 1265.0 ft

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Picciola Bridge Replacement
Phase 1 Study
Alternate A - Retaining Wall Quantities
AASHTO Type III Alternate

Retaining Wall Information Free Height Scaled from Roadway Typical Sec.

$h_{Level\ Pad}$ = 2 ft

Left Wall

Station	Free Height H Left ft	H_{AVG} Left ft	Approx. MSE Wall Ht. $H_{AVG}+h_{Level\ Pad}$ ft	Wall Length ft	Wall Area sf
4006+00.00	0.00				
4007+00.00	7.00	3.50	5.50	100.00	550.00
4008+00.00	13.00	10.00	12.00	100.00	1200.00
4009+00.00	15.00	14.00	16.00	100.00	1600.00
4009+29.3200	*15.59*	15.29	17.29	29.32	507.04
4010+00.00					
4010+10.6800	*17.00*	17.00	19.00	10.68	202.92
4011+00.00	16.00	16.50	18.50	89.32	1652.42
4012+00.00	12.00	14.00	16.00	100.00	1600.00
4013+00.00	0.00	6.00	8.00	100.00	800.00
				TOTALS:	8112.38
	Additonal MSE Wall in Front of End Bent =				1375.00
			Total MSE Wall =		9487.38

Station	Free Height H Left ft	H_{AVG} Left ft	Approx. Steel Sheet Pile Wall $3*H_{AVG}$ ft	Wall Length ft	Wall Area sf
4003+00.00	2.00				
4004+00.00	2.00	2.00	6.00	100.00	600.00
4005+00.00	2.00	2.00	6.00	100.00	600.00
4006+00.00	3.00	2.50	7.50	100.00	750.00
4007+00.00	7.00	5.00	15.00	100.00	1500.00
4008+00.00	13.00	10.00	30.00	100.00	3000.00
4009+00.00	15.00	14.00	42.00	100.00	4200.00
4009+29.3200	*15.59*	15.29	45.88	29.32	1345.19
4010+00.00				70.68	0.00
4010+10.6800	*17.00*	17.00	51.00	10.68	544.68
4011+00.00	16.00	16.50	49.50	89.32	4421.34
4012+00.00	13.00	14.50	43.50	100.00	4350.00
4013+00.00	4.50	8.75	26.25	100.00	2625.00
4014+00.00	2.00	3.25	9.75	100.00	975.00
4015+00.00	1.00	1.50	4.50	100.00	450.00
				TOTALS:	25361.21
		Permanent Cantilever Wall (Steel) =			3666.00 SF

Wall Quantity Summary

Permanent MSE Wall =	9487	SF
Temporary Cantilever Wall (Steel) =	25361	SF
Permanent Cantilever Wall (Steel) =	3666	SF

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Picciola Bridge Replacement
Phase 1 Study
Alternate A - Retaining Wall Quantities
Flat Slab Alternate

Retaining Wall Information	Free Height Scaled from Roadway Typical Sec.						
$h_{Level\ Pad}$ =	2	ft					
h_{adj} =	3.167	ft					
				Left Wall			
				Approx.			
	Free Height			MSE Wall Ht.			
	H	H_{AVG}	$H'_{AVG} = H_{AVG}-h_{adj}$	$H'_{AVG}+h_{Level\ Pad}$	Wall Length	Wall Area	
Station	Left	Left					
	ft	ft	ft	ft	ft	sf	
4006+00.00	0.00						
4007+00.00	7.00	3.50	0.33	2.33	100.00	233.33	
4008+00.00	13.00	10.00	6.83	8.83	100.00	883.33	
4009+00.00	15.00	14.00	10.83	12.83	100.00	1283.33	
4009+25.500	*15.51*	15.26	12.09	14.09	25.50	359.25	
4010+00.00							
4010+14.500	*17.00*	17.00	13.83	15.83	14.50	229.58	
4011+00.00	16.00	16.50	13.33	15.33	85.50	1311.00	
4012+00.00	12.00	14.00	10.83	12.83	100.00	1283.33	
4013+00.00	0.00	6.00	2.83	4.83	100.00	483.33	
					TOTALS:	6066.50	
		Additonal MSE Wall in Front of End Bent =				1375.00	
				Total MSE Wall =		7441.50	
				Approx. Steel			
	Free Height			Sheet Pile Wall			
	H	H_{AVG}	$H'_{AVG} = H_{AVG}-h_{adj}$	$3*H'_{AVG}$	Wall Length	Wall Area	
Station	Left	Left					
	ft	ft	ft	ft	ft	sf	
4003+00.00	2.00						
4004+00.00	2.00	2.00	0.00	0.00	100.00	0.00	
4005+00.00	2.00	2.00	0.00	0.00	100.00	0.00	
4006+00.00	3.00	2.50	0.00	0.00	100.00	0.00	
4007+00.00	7.00	5.00	1.83	5.50	100.00	550.00	
4008+00.00	13.00	10.00	6.83	20.50	100.00	2050.00	
4009+00.00	15.00	14.00	10.83	32.50	100.00	3250.00	
4009+25.500	*15.51*	15.26	12.09	36.27	25.50	924.76	
4010+00.00					74.50	0.00	
4010+14.500	*17.00*	17.00	13.83	41.50	14.50	601.75	
4011+00.00	16.00	16.50	13.33	40.00	85.50	3420.00	
4012+00.00	13.00	14.50	11.33	34.00	100.00	3400.00	
4013+00.00	4.50	8.75	5.58	16.75	100.00	1675.00	
4014+00.00	2.00	3.25	0.08	0.25	100.00	25.00	
4015+00.00	1.00	1.50	0.00	0.00	100.00	0.00	
			Total Temporary Steel Wall =			15896.51	SF
			Permanent Cantilever Wall (Steel) =			3666.00	SF

Wall Quantity Summary		
Permanent MSE Wall =	7442	SF
Temporary Cantilever Wall (Steel) =	15897	SF
Permanent Cantilever Wall (Steel) =	3666	SF

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Picciola Bridge Replacement

Phase 1 Study

Alternate B - Retaining Wall Quantities

AASHTO Type III Alternate

Retaining Wall Information	Free Height Scaled from Roadway Typical Sec.				
$h_{Level\ Pad}$ =	2	ft			

Left Wall

Station	Free Height H Left ft	H_{AVG} Left ft	Approx. MSE Wall Ht. $H_{AVG}+h_{Level\ Pad}$ ft	Wall Length ft	Wall Area sf
5007+00.00	0.00				
5008+00.00	6.00	3.00	5.00	100.00	500.00
5009+00.00	7.00	6.50	8.50	100.00	850.00
5010+00.00	11.00	9.00	11.00	100.00	1100.00
###########	*11.73*	11.37	13.37	18.27	244.19
###########	*17.00*				
5011+00.00	16.00	16.50	18.50	0.47	8.69
5012+00.00	12.00	14.00	16.00	100.00	1600.00
5013+00.00	0.00	6.00	8.00	100.00	800.00
				TOTALS:	5102.88
	Additonal MSE Wall in Front of End Bent =				1406.00
			Total MSE Wall =		6508.88

Wall Quantity Summary		
Permanent MSE Wall =	6509	SF
Temporary Cantilever Wall (Steel) =	0	SF
Permanent Cantilever Wall (Steel) =	300	SF

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Picciola Bridge Replacement
Phase 1 Study
Alternate B - Retaining Wall Quantities
AASHTO Type III Alternate

Retaining Wall Information	Free Height Scaled from Roadway Typical Sec.						
$h_{Level\ Pad}$ =	2	ft					
h_{adj} =	3.167	ft					
				Left Wall			
				Approx.			
	Free Height			MSE Wall Ht.			
	H	H_{AVG}	$H'_{AVG} = H_{AVG}-h_{adj}$	$H_{AVG}+h_{Level\ Pad}$	Wall Length	Wall Area	
Station	Left	Left					
	ft	ft	ft	ft	ft	sf	
5007+50.00	0.00						
5008+00.00	6.00	3.00	1.00	3.00	50.00	150.00	
5009+00.00	7.00	6.50	3.33	5.33	100.00	533.33	
5010+00.00	11.00	9.00	5.83	7.83	100.00	783.33	
###########	*11.73*	11.37	8.20	10.20	18.27	186.33	
				2.00			
###########	*17.00*						
5011+00.00	16.00	16.50	13.33	15.33	0.47	7.21	
5012+00.00	12.00	14.00	10.83	12.83	100.00	1283.33	
5013+00.00	0.00	6.00	2.83	4.83	100.00	483.33	
					TOTALS:	3426.87	
			Additonal MSE Wall in Front of End Bent =			1406.00	
				Total MSE Wall =		4832.87	

Wall Quantity Summary		
Permanent MSE Wall =	4833	SF
Temporary Cantilever Wall (Steel) =	0	SF
Permanent Cantilever Wall (Steel) =	300	SF

Picciola Bridge Over the Dead River				
Retaining Wall Quantities and Costs				
Alternate A				
AASHTO Type III Alternate				
Permanent MSE Wall	SF	$23.00	9487	$218,200.00
Temporary Cantilever Wall (Steel)	SF	$6.00	25361	$152,200.00
Permanent Cantilever Wall (Steel)	SF	$20.00	3666	$73,300.00
			Total	$443,700.00
Flat Slab Alternate				
Permanent MSE Wall	SF	$23.00	7442	$171,200.00
Temporary Cantilever Wall (Steel)	SF	$6.00	15897	$95,400.00
Permanent Cantilever Wall (Steel)	SF	$20.00	3666	$73,300.00
			Total	$339,900.00
Alternate B				
AASHTO Type III Alternate				
Permanent MSE Wall	SF	$23.00	6509	$149,700.00
Temporary Cantilever Wall (Steel)	SF	$6.00	0	$0.00
Permanent Cantilever Wall (Steel)	SF	$20.00	300	$6,000.00
			Total	$155,700.00
Flat Slab Alternate				
Permanent MSE Wall	SF	$23.00	4833	$111,200.00
Temporary Cantilever Wall (Steel)	SF	$6.00	0	$0.00
Permanent Cantilever Wall (Steel)	SF	$20.00	300	$6,000.00
			Total	$117,200.00

Picciola Bridge Improvements

Bridge Design Calculations

HNTB
The HNTB Companies

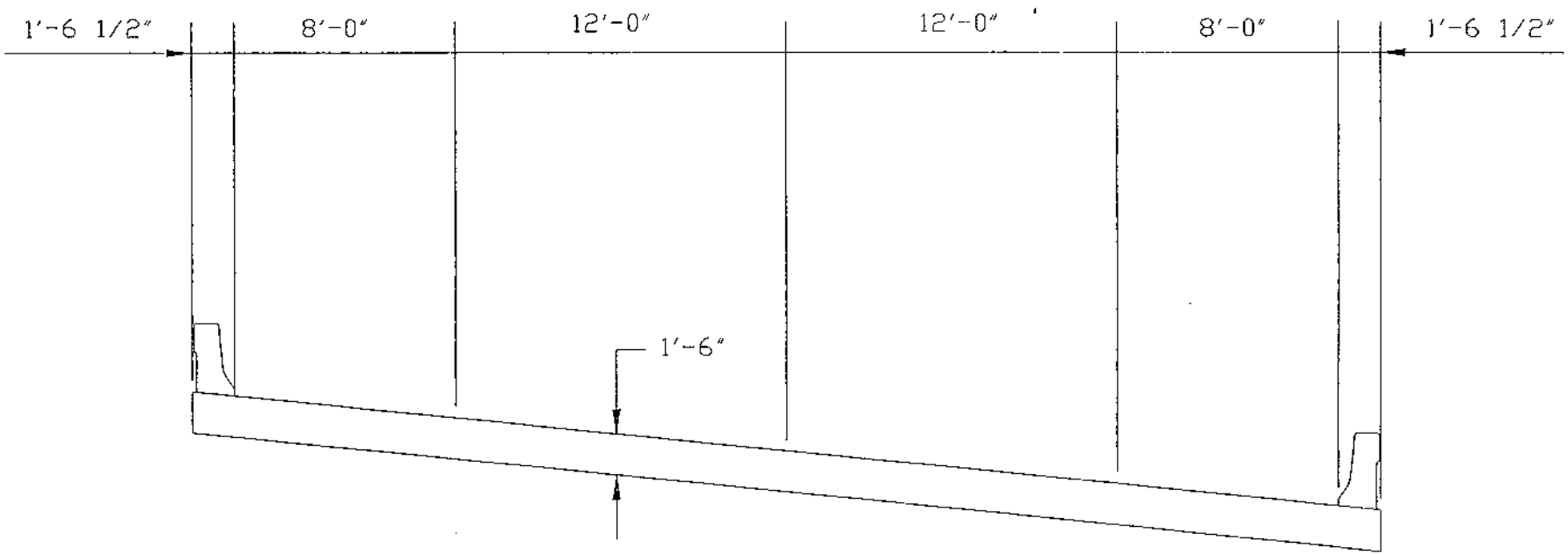
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016

Picciola Bridge Improvements

C.I.P. Flat Slab Alternative
Slab Design

HNTB
The HNTB Companies

1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016



Flat Slab Alternative

Slab Section Properties:

$f_y := 60ksi$

$f'_c := 4500psi$ $\quad E_c := 0.9 \cdot 1820 \cdot \sqrt{f'_c \cdot ksi}$ $\quad E_c = 3475\,ksi$

$h_{slab} := 18 \cdot in$

$Bridge_Width := 43.0833 \cdot ft$ (Use for Longitudinal Design)

$Cover_{Top} := 2 \cdot in$ $\quad Cover_{Bottom} := 2 \cdot in$

$E_s := 29000ksi$ $\quad n := \frac{E_s}{E_c}$ $\quad n = 8.346$

$Span_Length := 27 \cdot ft$

$Number_of_Spans := 3$

$Z := 170 \frac{kip}{in}$ (Slightly Aggressive Superstructure)

$$\beta_1 := \begin{cases} 0.85 & \text{if } f'_c \le 4ksi \\ \left[0.85 - \left[\frac{0.05}{ksi} \cdot (f'_c - 4ksi)\right]\right] & \text{if } 8ksi > f'_c > 4ksi \\ 0.65 & \text{if } f'_c \ge 8ksi \end{cases}$$

$\beta_1 = 0.825$

$\phi := 0.9$ (Phi factor - 0.9 for flexure AASHTO LRFD 5.5.4.2.1)

Traditional Minimum Depths for Constant Depth Superstructure (AASHTO LRFD 2.5.2.6.3)

$$h_{min} := if\left[\left[\frac{\left(\frac{Span_Length}{ft} + 10\right)}{30}\right] \cdot ft \ge .54 \cdot ft, \frac{\left(\frac{Span_Length}{ft} + 10\right)}{30} \cdot ft, .54 \cdot ft\right]$$

$h_{min} = 14.8\,in$

$check := if(h_{slab} \ge h_{min}, \text{"OK"}, \text{"Increase Slab Depth"})$ $\quad$ check = "OK"

Equivalent Strip Width for Slab-Type Bridges (AASHTO LRFD 4.6.2.3):

For More Than One Lane Loaded

$W := Bridge_Width$ $\qquad W = 43.083\,ft$

$W_1 := if(W < 60ft, W, 60 \cdot ft)$ $\qquad W_1 = 43.083\,ft$

$N_L := 3$

$L := Span_Length$ $\qquad L = 27\,ft$

$L_1 := if(L < 60ft, L, 60 \cdot ft)$ $\qquad L_1 = 27\,ft$

$$E := 84.0 \cdot in + 1.44 \cdot in \cdot \sqrt{\frac{(L_1 \cdot W_1)}{ft^2}} \qquad E = 133.113\,in$$

$$E := if\left(E \le 12.0 \cdot \frac{W}{N_L}, E, 12.0 \cdot \frac{W}{N_L}\right) \qquad E = 133.113\,in$$

$b := E$ $\qquad b = 133.113\,in$

E is the equivalent strip of concrete that resists one lane of live-load

Slab:

$$DL_{Slab} := b \cdot h_{slab} \cdot \left(.150 \cdot \frac{kip}{ft^3}\right) \qquad DL_{Slab} = 2.496\,\frac{kip}{ft}$$

Traffic Railing Barrier:

$$DL_{TRB} := \frac{\left[(2) \cdot (.421) \cdot \frac{kip}{ft}\right]}{Bridge_Width} \cdot b \qquad DL_{TRB} = 0.217\,\frac{kip}{ft}$$

Future Wearing Surface:

$$DL_{FWS} := \frac{\left[(Bridge_Width - 3.0833 \cdot ft) \cdot \left(.015 \cdot \frac{kip}{ft^2}\right)\right]}{Bridge_Width} \cdot b \qquad DL_{FWS} = 0.154\,\frac{kip}{ft}$$

Dead Load of Structual Components:

$\omega_{DC} := DL_{Slab} + DL_{TRB}$

$M_{DC.Pos} := 0.08 \cdot \omega_{DC} \cdot Span_Length^2$ $\qquad M_{DC.Neg} := 0.1\omega_{DC} \cdot Span_Length^2$

$M_{DC.Pos} = 158.203\,ft\,\frac{ft \cdot kip}{ft}$ $\qquad M_{DC.Neg} = 197.753\,ft\,\frac{ft \cdot kip}{ft}$

Dead Load of Wearing Surfaces:

$\omega_{DW} := DL_{FWS}$

$M_{DW.Pos} := 0.08 \cdot \omega_{DW} \cdot Span_Length^2$ $\qquad$ $M_{DW.Neg} := 0.1\omega_{DW} \cdot Span_Length^2$

$M_{DW.Pos} = 9.009\,ft \frac{ft \cdot kip}{ft}$ $\qquad$ $M_{DW.Neg} = 11.262\,ft \frac{ft \cdot kip}{ft}$

Live Load:

Truck Load (See AISC Table 3.0):

$M_{Truck.Pos} := 228.1 \cdot ft \cdot kip$ $\qquad$ $M_{Truck.Neg} := 184.4 \cdot ft \cdot kip$

Lane Load (AASHTO LRFD 3.6.1.2.4):

$\omega_{Lane} := .640 \cdot \frac{kips}{ft}$ (AASHTO LRFD 3.6.1.2.4)

$M_{Lane.Pos} := .1013 \cdot \omega_{Lane} \cdot Span_Length^2$ $\qquad$ $M_{Lane.Neg} := .1167 \cdot \omega_{Lane} \cdot Span_Length^2$ (AISC Beam Tables)

$M_{Lane.Pos} = 47.263\,ft \cdot kip$ $\qquad$ $M_{Lane.Neg} = 54.448\,ft \cdot kip$

Combine Lane and Truck w/Impact and Multiple Presence Factor (AASHTO LRFD Table 3.4.1-1):

(Assumes that maximum truck and lane loads occur at the same location along the span)

$M_{LL.Pos} := 1.33 \cdot M_{Truck.Pos} + M_{Lane.Pos}$ $\qquad$ $M_{LL.Pos} = 350.636\,ft \cdot kip$

$M_{LL.Neg} := 1.33 M_{Truck.Neg} + M_{Lane.Neg}$ $\qquad$ $M_{LL.Neg} = 299.7\,ft \cdot kip$

Factored Positive Moment:

$M_{u.Pos} := 1.25 \cdot M_{DC.Pos} + 1.5 \cdot M_{DW.Pos} + 1.75 \cdot M_{LL.Pos}$ $\qquad$ $M_{u.Pos} = 824.88\,ft \cdot kip$ (Strength-I)

Factored Negative Moment:

$M_{u.Neg} := 1.25 \cdot M_{DC.Neg} + 1.5 \cdot M_{DW.Neg} + 1.75 \cdot M_{LL.Neg}$ $\qquad$ $M_{u.Neg} = 788.559\,ft \cdot kip$ (Strength-I)

Service Load Positive Moment:

$M_{s.Pos} := M_{DC.Pos} + M_{DW.Pos} + M_{LL.Pos}$ $\quad M_{s.Pos} = 517.848\ ft \cdot kip$ (Service-I)

Service Load Negative Moment:

$M_{s.Neg} := M_{DC.Neg} + M_{DW.Neg} + M_{LL.Neg}$ $\quad M_{s.Neg} = 508.715\ ft \cdot kip$ (Service-I)

Design Positive Moment Reinforcing

$Long_{Bottom} := 8$ (Trial Bar Size)

$Long_{Bottom.Spacing} := 6 \cdot in$ (Trial Bar Spacing)

$$A_{s.Long.Bottom} := \frac{abar_{Long_{Bottom}}}{Long_{Bottom.Spacing}} \qquad A_{s.Long.Bottom} = 1.58\ \frac{in^2}{ft}$$

$$d_{Bottom} := h_{slab} - Cover_{Bottom} - .5 \cdot dbar_{Long_{Bottom}} \qquad d_{Bottom} = 15.5\ in$$

$$M_{n.Pos} := \frac{|M_{u.Pos}|}{\phi \cdot b} \qquad M_{n.Pos} = 82.624\ \frac{ft \cdot kip}{ft}$$

$$M_{Prov.Pos} := A_{s.Long.Bottom} \cdot f_y \cdot \left(d_{Bottom} - \frac{A_{s.Long.Bottom} \cdot f_y}{2 \cdot 0.85 \cdot f'_c} \right) \qquad M_{Prov.Pos} = 114.292\ \frac{ft \cdot kip}{ft}$$

$check := if(M_{Prov.Pos} > M_{n.Pos}, "OK", "No\ Good!")$ $\quad$ $\boxed{check = "OK"}$

Check Maximum Reinforcement (AASHTO LRFD 5.7.3.3.1)

$$a := \frac{A_{s.Long.Bottom} \cdot f_y}{0.85 \cdot f'_c} \qquad a = 2.065\ in \qquad c := \frac{a}{\beta_1} \qquad c = 2.503\ in \qquad \frac{c}{d_{Bottom}} = 0.162$$

$check := if\left(\frac{c}{d_{Bottom}} \le 0.42, "OK", "Max\ reinforcement\ exceeded" \right)$ $\quad$ $\boxed{check = "OK"}$

Check Minimum Reinforcement (AASHTO LRFD 5.7.3.3.2)

$f_r := 0.24 \cdot \sqrt{f'_c \cdot ksi}$ $\quad f_r = 0.509\,ksi$

$I_g := \frac{1}{12} \cdot h_{slab}^3$ $\quad I_g = 5.832 \times 10^3 \frac{in^4}{ft}$ $\quad y_t := \frac{h_{slab}}{2}$ $\quad y_t = 9\,in$

$M_{cr} := f_r \cdot \frac{I_g}{y_t}$ $\quad M_{cr} = 27.492 \frac{kip \cdot ft}{ft}$

$check := if\left[\left(M_{Prov.Pos} > 1.2 \cdot M_{cr}\right) \vee \left(M_{Prov.Pos}\right) > 1.33 \left|M_{n.Pos}\right|, \text{"OK"}, \text{"Need more steel"}\right]$ $\quad$ check = "OK"

Check Crack Control (AASHTO LRFD 5.3.4)

$d_c := if\left(Cover_{Bottom} \le 2in, Cover_{Bottom} + \frac{dbar_{Long_{Bottom}}}{2}, 2in + \frac{dbar_{Long_{Bottom}}}{2}\right)$ $\quad d_c = 2.5\,in$

$A := \frac{2 \cdot d_c \cdot b}{\left(\frac{b}{Long_{Bottom.Spacing}}\right)}$ $\quad A = 30\,in^2$

$f_{sa.allow} := \frac{Z}{(d_c \cdot A)^{\frac{1}{3}}}$ $\quad f_{sa.allow} = 40.311\,ksi$ $\quad f_{sa.allow} := if\left(f_{sa.allow} \le 0.6 f_y, f_{sa.allow}, 0.6 f_y\right)$

$f_{sa.allow} = 36\,ksi$

$\rho := \frac{A_{s.Long.Bottom}}{d_{Bottom}}$ $\quad \rho = 0.00849$ $\quad k := \sqrt{2 \cdot \rho \cdot n + (\rho \cdot n)^2} - \rho \cdot n$ $\quad k = 0.312$ $\quad j := 1 - \frac{k}{3}$ $\quad j = 0.896$

$f_{s.actual} := \frac{\left|M_{s.Pos}\right|}{A_{s.Long.Bottom} \cdot j \cdot d_{Bottom} \cdot b}$ $\quad f_{s.actual} = 25.532\,ksi$

$check := if\left(f_{s.actual} < f_{sa.allow}, \text{"OK"}, \text{"No Good!"}\right)$ $\quad$ check = "OK"

Design Negative Moment Reinforcing

$Long_{Top} := 8$ (Trial Bar Size)

$Long_{Top.Spacing} := 6 \cdot in$ (Trial Bar Spacing)

$A_{s.Long.Top} := \frac{abar_{Long_{Top}}}{Long_{Top.Spacing}}$ $A_{s.Long.Top} = 1.58 \frac{in^2}{ft}$

$d_{Top} := h_{slab} - Cover_{Top} - .5 \cdot dbar_{Long_{Top}}$ $d_{Top} = 15.5\,in$

$M_{n.Neg} := \frac{|M_{u.Neg}|}{\phi \cdot b}$ $M_{n.Neg} = 78.986 \frac{ft \cdot kip}{ft}$

$M_{Prov.Neg} := A_{s.Long.Top} \cdot f_y \cdot \left(d_{Top} - \frac{A_{s.Long.Top} \cdot f_y}{2 \cdot 0.85 \cdot f'_c} \right)$ $M_{Prov.Neg} = 114.292 \frac{ft \cdot kip}{ft}$

$check := if(M_{Prov.Neg} > M_{n.Neg}, "OK", "No Good!")$ $\boxed{check = "OK"}$

Check Maximum Reinforcement (AASHTO LRFD 5.7.3.3.1)

$a := \frac{A_{s.Long.Top} \cdot f_y}{0.85 \cdot f'_c}$ $a = 2.065\,in$ $c := \frac{a}{\beta_1}$ $c = 2.503\,in$ $\frac{c}{d_{Top}} = 0.162$

$check := if\left(\frac{c}{d_{Top}} \le 0.42, "OK", "Max\ reinforcement\ exceeded" \right)$ $\boxed{check = "OK"}$

Check Minimum Reinforcement (AASHTO LRFD 5.7.3.3.2)

$f_r := 0.24 \cdot \sqrt{f'_c \cdot ksi}$ $f_r = 0.509\,ksi$

$I_g := \frac{1}{12} \cdot h_{slab}^3$ $I_g = 5.832 \times 10^3 \frac{in^4}{ft}$ $y_t := \frac{h_{slab}}{2}$ $y_t = 9\,in$

I_g kip·ft

$M_{cr} := f_r \cdot \frac{I}{y_t}$ $\qquad M_{cr} = 27.492 \frac{kip \cdot ft}{ft}$

$check := if\left[M_{Prov.Neg} > 1.2 \cdot M_{cr} \vee \left(M_{Prov.Neg}\right) > 1.33 \left|M_{n.Neg}\right| \cdot b, "OK", "Need\ more\ steel"\right]$ $\qquad$ check = "OK"

Check Crack Control (AASHTO LRFD 5.7.3.4)

$$d_c := if\left(Cover_{Top} \le 2in, Cover_{Top} + \frac{dbar_{Long_{Top}}}{2}, 2in + \frac{dbar_{Long_{Top}}}{2}\right) \qquad d_c = 2.5\,in$$

$$A := \frac{2 \cdot d_c \cdot b}{\left(\frac{b}{Long_{Top.Spacing}}\right)} \qquad A = 30\,in^2$$

$$f_{sa.allow} := \frac{Z}{\left(d_c \cdot A\right)^{\frac{1}{3}}} \qquad f_{sa.allow} = 40.311\,ksi \qquad f_{sa.allow} := if\left(f_{sa.allow} \le 0.6 f_y, f_{sa.allow}, 0.6 f_y\right)$$

$$f_{sa.allow} = 36\,ksi$$

$$\rho := \frac{A_{s.Long.Top}}{d_{Top}} \qquad \rho = 0.00849 \qquad k := \sqrt{2 \cdot \rho \cdot n + (\rho \cdot n)^2} - \rho \cdot n \qquad k = 0.312 \qquad j := 1 - \frac{k}{3}$$

$$f_{s.actual} := \frac{\left|M_{s.Neg}\right|}{A_{s.Long.Top} \cdot j \cdot d_{Top} \cdot b} \qquad f_{s.actual} = 25.082\,ksi$$

$check := if\left(f_{s.actual} < f_{sa.allow}, "OK", "No\ Good!"\right)$ $\qquad$ check = "OK"

Check Deflection (AASHTO 2.5.2.6.2)

Load Lanes Gutter to Gutter Use Service I w/Impact (IM) and Multiple Presence Factor:
(Conservatively assume 3 axles at midspan of a simple span model)

$Gutter_to_Gutter_Width := 40 \cdot ft$

$$No_Lanes := floor\left(\frac{Gutter_to_Gutter_Width}{12 \cdot ft}\right) \qquad No_Lanes = 3$$

$MPF_{No_Lanes} = 0.85$ (Multiple Presence Factor)

$Truck_Load := (32 + 32 + 16) \cdot kips$

$$P := 1.33(Truck_Load) \cdot \left(MPF_{No_Lanes}\right) \cdot (No_Lanes) \qquad P = 271.32\,kips$$

$I_g := \left(\frac{1}{12}\right) \cdot Bridge_Width \cdot h_{slab}^3$ $\qquad I_g = 2.513 \times 10^5\ in^4$

$\Delta_{max} := \frac{P \cdot Span_Length^3}{48 \cdot E_c \cdot I_g}$ $\qquad \Delta_{max} = 0.22\ in$

$\Delta_{Allowable} := \frac{Span_Length}{800}$ $\qquad \Delta_{Allowable} = 0.405\ in$

$check := if\left(\Delta_{Allowable} \geq \Delta_{max}, "OK", "No\ Good!"\right)$ $\qquad \boxed{check = "OK"}$

Reinforcement Summary:

Top Longitudinal Reinforcing:

$Long_{Top} = 8$ (Bar Size)

$Long_{Top.Spacing} = 6\ in$ (Bar Spacing)

Bottom Longitudinal Reinforcing:

$Long_{Bottom} = 8$ (Bar Size)

$Long_{Bottom.Spacing} = 0.5\ ft$ (Bar Spacing)

Picciola Bridge Improvements

C.I.P. Flat Slab Alternative
Int. and End Bent Design

HNTB
The HNTB Companies

1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016

HNTB

Picciola Bridge Replacement
Determination of Maximum Pile Reactions for End Bent Design

Pile Information

Pile No.	Dist Btwn Piles	Dist from Pile 1	c	DC
	ft	ft	ft	kips
1	0	0	-20	44
2	10	10	-10	55
3	10	20	0	59
4	10	30	10	60.1
5	10	40	20	57.6

Pile Group Properties

cg PG = 20 ft

$I = \Sigma d_i^2$ 1000 ft^2

n = 5

Reaction Due to One Design Truck & Lane Load on Two Spans

R_{LL+IM} = 70.0 kips

LL Cases	No. of Trk Lanes	R_{LL+IM} kips	e_{LL+IM} ft	M_{LL+IM} k*ft	MPF	$R_{LL+IM+PL}$ kips	$M_{LL+IM+PL}$ k*ft
A	1	70.0	15.000	1050.0	1.2	84.0	1260.0
B	2	140.0	9.000	1260.0	1	140.0	1260.0
C	3	210.0	3.000	630.0	0.85	178.5	535.5

LL Case A P = $R_{LL+IM+PL}$ 84.0 kips

M = $M_{LL+IM+PL}$ 1260.0 k*ft

γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	44	-20.00	-8.40	40.30
2	55	-10.00	4.20	76.10
3	59	0.00	16.80	103.15
4	60.1	10.00	29.40	126.58
5	57.6	20.00	42.00	145.50
				145.50

LL Case B P = $R_{LL+IM+PL}$ 140.0 kips

M = $M_{LL+IM+PL}$ 1260.0 k*ft

γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	44	-20.00	2.80	59.90
2	55	-10.00	15.40	95.70
3	59	0.00	28.00	122.75
4	60.1	10.00	40.60	146.18
5	57.6	20.00	53.20	165.10
				165.10

LL Case C P = $R_{LL+IM+PL}$ 178.5 kips

M = $M_{LL+IM+PL}$ 535.5 k*ft

γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	44	-20.00	24.99	98.73
2	55	-10.00	30.35	121.85
3	59	0.00	35.70	136.23
4	60.1	10.00	41.06	146.97
5	57.6	20.00	46.41	153.22
				153.22

Overall Max Pile Reaction

P_{U_Max} = 165.10 kips

ϕ = 0.65

Downdrag = 0

UBC = 254 kips

UBC = 127 Tons

HNTB

Picciola Bridge Replacement
Determination of Maximum Pile Reactions for Intermediate Bent Design

Pile Information

Pile No.	Dist Btwn Piles	Dist from Pile 1	c	DC
	ft	ft	ft	kips
1	0	0	-20	86.8
2	10	10	-10	88
3	10	20	0	87.5
4	10	30	10	88
5	10	40	20	86.8

Pile Group Properties

cg PG = 20 ft

$I = \Sigma d_i^2$ 1000 ft^2

n = 5

Reaction Due to One Design Truck & Lane Load on Two Spans

R_{LL+IM} = 105.0 kips

LL Cases	No. of Trk Lanes	R_{LL+IM} kips	e_{LL+IM} ft	M_{LL+IM} k*ft	MPF	$R_{LL+IM+PL}$ kips	$M_{LL+IM+PL}$ k*ft
A	1	105.0	15.000	1575.0	1.2	126.0	1890.0
B	2	210.0	9.000	1890.0	1	210.0	1890.0
C	3	315.0	3.000	945.0	0.85	267.8	803.3

LL Case A

P = $R_{LL+IM+PL}$ 126.0 kips

M = $M_{LL+IM+PL}$ 1890.0 k*ft

γ_{DC} = 1.25

Pile	DC	c	LL+IM+PL P/n+Mc/I	1.25*DC+1.75(LL+IM+PL)
	kips	ft	kips	kips
1	86.8	-20.00	-12.60	86.45
2	88	-10.00	6.30	121.03
3	87.5	0.00	25.20	153.48
4	88	10.00	44.10	187.18
5	86.8	20.00	63.00	218.75
				218.75

LL Case B

P = $R_{LL+IM+PL}$ 210.0 kips

M = $M_{LL+IM+PL}$ 1890.0 k*ft

γ_{DC} = 1.25

Pile	DC	c	LL+IM+PL P/n+Mc/I	1.25*DC+1.75(LL+IM+PL)
	kips	ft	kips	kips
1	86.8	-20.00	4.20	115.85
2	88	-10.00	23.10	150.43
3	87.5	0.00	42.00	182.88
4	88	10.00	60.90	216.58
5	86.8	20.00	79.80	248.15
				248.15

LL Case C

P = $R_{LL+IM+PL}$ 267.8 kips

M = $M_{LL+IM+PL}$ 803.3 k*ft

γ_{DC} = 1.25

Pile	DC	c	LL+IM+PL P/n+Mc/I	1.25*DC+1.75(LL+IM+PL)
	kips	ft	kips	kips
1	86.8	-20.00	37.49	174.10
2	88	-10.00	45.52	189.66
3	87.5	0.00	53.55	203.09
4	88	10.00	61.58	217.77
5	86.8	20.00	69.62	230.33
				230.33

Overall Max Pile Reaction

P_{U_Max} = 248.15 kips

ϕ = 0.65

Downdrag = 0

UBC = 382 kips

UBC = 191 Tons

```
IDENTIFICATION Picciola Bridge Flat Slab Alt.

$This T187 files models the variable depth End Bent Cap
$to determine pile reactions due to DC and DW.

$File:  Preliminary-Picciola-EB-Flat-Slab Alt.in

$Made by: CJM 08-20-03

$Checked by:

$Backchecked by:

UNITS FEET KIPS DAY DEG FAHRENHEIT

GENERATE NODES
     1 0.0 0.0 0.0 REPEAT 89 INCR 1 0.5 0.0 0.0

TYPE PLANE FRAME

MESH INCIDENCES
     1 1 2 REPEAT 88 INCR 1 1 1

UNITS INCHES

MATERIAL PROPERTIES
     1 EM 3841. $ E=0.9*1820*SQRT(5.5)=3841ksi
     1 DENS 8.68E-5

UNITS FEET KIPS DAY DEG FAHRENHEIT

SECTION PROPERTIES
       TABLE 1 RECT WIDT 3.0 DEPTH 3.000
       TABLE 2 RECT WIDT 3.0 DEPTH 3.051
       TABLE 3 RECT WIDT 3.0 DEPTH 3.102
       TABLE 4 RECT WIDT 3.0 DEPTH 3.153
       TABLE 5 RECT WIDT 3.0 DEPTH 3.205
       TABLE 6 RECT WIDT 3.0 DEPTH 3.256
       TABLE 7 RECT WIDT 3.0 DEPTH 3.307
       TABLE 8 RECT WIDT 3.0 DEPTH 3.358
       TABLE 9 RECT WIDT 3.0 DEPTH 3.409
       TABLE 10 RECT WIDT 3.0 DEPTH 3.460
       TABLE 11 RECT WIDT 3.0 DEPTH 3.511
       TABLE 12 RECT WIDT 3.0 DEPTH 3.563
       TABLE 13 RECT WIDT 3.0 DEPTH 3.614
       TABLE 14 RECT WIDT 3.0 DEPTH 3.665
       TABLE 15 RECT WIDT 3.0 DEPTH 3.716
       TABLE 16 RECT WIDT 3.0 DEPTH 3.767
       TABLE 17 RECT WIDT 3.0 DEPTH 3.818
       TABLE 18 RECT WIDT 3.0 DEPTH 3.869
       TABLE 19 RECT WIDT 3.0 DEPTH 3.920
       TABLE 20 RECT WIDT 3.0 DEPTH 3.972
       TABLE 21 RECT WIDT 3.0 DEPTH 4.023
       TABLE 22 RECT WIDT 3.0 DEPTH 4.074
       TABLE 23 RECT WIDT 3.0 DEPTH 4.125
       TABLE 24 RECT WIDT 3.0 DEPTH 4.176
       TABLE 25 RECT WIDT 3.0 DEPTH 4.227
       TABLE 26 RECT WIDT 3.0 DEPTH 4.278
       TABLE 27 RECT WIDT 3.0 DEPTH 4.330
       TABLE 28 RECT WIDT 3.0 DEPTH 4.381
       TABLE 29 RECT WIDT 3.0 DEPTH 4.432
       TABLE 30 RECT WIDT 3.0 DEPTH 4.483
       TABLE 31 RECT WIDT 3.0 DEPTH 4.534
       TABLE 32 RECT WIDT 3.0 DEPTH 4.585
       TABLE 33 RECT WIDT 3.0 DEPTH 4.636
       TABLE 34 RECT WIDT 3.0 DEPTH 4.688
       TABLE 35 RECT WIDT 3.0 DEPTH 4.739
       TABLE 36 RECT WIDT 3.0 DEPTH 4.790
       TABLE 37 RECT WIDT 3.0 DEPTH 4.841
       TABLE 38 RECT WIDT 3.0 DEPTH 4.892
       TABLE 39 RECT WIDT 3.0 DEPTH 4.943
       TABLE 40 RECT WIDT 3.0 DEPTH 4.994
       TABLE 41 RECT WIDT 3.0 DEPTH 5.045
       TABLE 42 RECT WIDT 3.0 DEPTH 5.097
       TABLE 43 RECT WIDT 3.0 DEPTH 5.148
       TABLE 44 RECT WIDT 3.0 DEPTH 5.199
       TABLE 45 RECT WIDT 3.0 DEPTH 5.250
       TABLE 46 RECT WIDT 3.0 DEPTH 5.301
       TABLE 47 RECT WIDT 3.0 DEPTH 5.352
       TABLE 48 RECT WIDT 3.0 DEPTH 5.403
       TABLE 49 RECT WIDT 3.0 DEPTH 5.455
       TABLE 50 RECT WIDT 3.0 DEPTH 5.506
       TABLE 51 RECT WIDT 3.0 DEPTH 5.557
       TABLE 52 RECT WIDT 3.0 DEPTH 5.608
       TABLE 53 RECT WIDT 3.0 DEPTH 5.659
       TABLE 54 RECT WIDT 3.0 DEPTH 5.710
       TABLE 55 RECT WIDT 3.0 DEPTH 5.761
       TABLE 56 RECT WIDT 3.0 DEPTH 5.813
       TABLE 57 RECT WIDT 3.0 DEPTH 5.864
       TABLE 58 RECT WIDT 3.0 DEPTH 5.915
       TABLE 59 RECT WIDT 3.0 DEPTH 5.966
       TABLE 60 RECT WIDT 3.0 DEPTH 6.017
       TABLE 61 RECT WIDT 3.0 DEPTH 6.068
       TABLE 62 RECT WIDT 3.0 DEPTH 6.119
       TABLE 63 RECT WIDT 3.0 DEPTH 6.170
       TABLE 64 RECT WIDT 3.0 DEPTH 6.222
       TABLE 65 RECT WIDT 3.0 DEPTH 6.273
       TABLE 66 RECT WIDT 3.0 DEPTH 6.324
       TABLE 67 RECT WIDT 3.0 DEPTH 6.375
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TABLE 68 RECT WIDT 3.0 DEPTH 6.426
TABLE 69 RECT WIDT 3.0 DEPTH 6.477
TABLE 70 RECT WIDT 3.0 DEPTH 6.528
TABLE 71 RECT WIDT 3.0 DEPTH 6.580
TABLE 72 RECT WIDT 3.0 DEPTH 6.631
TABLE 73 RECT WIDT 3.0 DEPTH 6.682
TABLE 74 RECT WIDT 3.0 DEPTH 6.733
TABLE 75 RECT WIDT 3.0 DEPTH 6.784
TABLE 76 RECT WIDT 3.0 DEPTH 6.835
TABLE 77 RECT WIDT 3.0 DEPTH 6.886
TABLE 78 RECT WIDT 3.0 DEPTH 6.938
TABLE 79 RECT WIDT 3.0 DEPTH 6.989
TABLE 80 RECT WIDT 3.0 DEPTH 7.040
TABLE 81 RECT WIDT 3.0 DEPTH 7.091
TABLE 82 RECT WIDT 3.0 DEPTH 7.142
TABLE 83 RECT WIDT 3.0 DEPTH 7.193
TABLE 84 RECT WIDT 3.0 DEPTH 7.244
TABLE 85 RECT WIDT 3.0 DEPTH 7.295
TABLE 86 RECT WIDT 3.0 DEPTH 7.347
TABLE 87 RECT WIDT 3.0 DEPTH 7.398
TABLE 88 RECT WIDT 3.0 DEPTH 7.449
TABLE 89 RECT WIDT 3.0 DEPTH 7.500

MEMBER PROPERTIES
    1 AVERAGE 1 2
    2 AVERAGE 2 3
    3 AVERAGE 3 4
    4 AVERAGE 4 5
    5 AVERAGE 5 6
    6 AVERAGE 6 7
    7 AVERAGE 7 8
    8 AVERAGE 8 9
    9 AVERAGE 9 10
    10 AVERAGE 10 11
    11 AVERAGE 11 12
    12 AVERAGE 12 13
    13 AVERAGE 13 14
    14 AVERAGE 14 15
    15 AVERAGE 15 16
    16 AVERAGE 16 17
    17 AVERAGE 17 18
    18 AVERAGE 18 19
    19 AVERAGE 19 20
    20 AVERAGE 20 21
    21 AVERAGE 21 22
    22 AVERAGE 22 23
    23 AVERAGE 23 24
    24 AVERAGE 24 25
    25 AVERAGE 25 26
    26 AVERAGE 26 27
    27 AVERAGE 27 28
    28 AVERAGE 28 29
    29 AVERAGE 29 30
    30 AVERAGE 30 31
    31 AVERAGE 31 32
    32 AVERAGE 32 33
    33 AVERAGE 33 34
    34 AVERAGE 34 35
    35 AVERAGE 35 36
    36 AVERAGE 36 37
    37 AVERAGE 37 38
    38 AVERAGE 38 39
    39 AVERAGE 39 40
    40 AVERAGE 40 41
    41 AVERAGE 41 42
    42 AVERAGE 42 43
    43 AVERAGE 43 44
    44 AVERAGE 44 45
    45 AVERAGE 45 46
    46 AVERAGE 46 47
    47 AVERAGE 47 48
    48 AVERAGE 48 49
    49 AVERAGE 49 50
    50 AVERAGE 50 51
    51 AVERAGE 51 52
    52 AVERAGE 52 53
    53 AVERAGE 53 54
    54 AVERAGE 54 55
    55 AVERAGE 55 56
    56 AVERAGE 56 57
    57 AVERAGE 57 58
    58 AVERAGE 58 59
    59 AVERAGE 59 60
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    61 AVERAGE 61 62
    62 AVERAGE 62 63
    63 AVERAGE 63 64
    64 AVERAGE 64 65
    65 AVERAGE 65 66
    66 AVERAGE 66 67
    67 AVERAGE 67 68
    68 AVERAGE 68 69
    69 AVERAGE 69 70
    70 AVERAGE 70 71
    71 AVERAGE 71 72
    72 AVERAGE 72 73
    73 AVERAGE 73 74
    74 AVERAGE 74 75
    75 AVERAGE 75 76
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     76 AVERAGE 76 77
     77 AVERAGE 77 78
     78 AVERAGE 78 79
     79 AVERAGE 79 80
     80 AVERAGE 80 81
     81 AVERAGE 81 82
     82 AVERAGE 82 83
     83 AVERAGE 83 84
     84 AVERAGE 84 85
     85 AVERAGE 85 86
     86 AVERAGE 86 87
     87 AVERAGE 87 88
     88 AVERAGE 88 89

     ALL MATE 1

SUPPORT JOINTS S DX
SUPPORT JOINTS 25 45 65 85

TYPE SUPPORT
MEMBER INCIDENCE
     1005 5
     1025 25
     1045 45
     1065 65
     1085 85

SECTION PROPERTIES
$ Springs are used to simulate rigid cap behavior
$k = AE/L = (2.25ft2)*(577728ksf)/(50ft) = 26000kips/ft
     TABLE 1000 KFY 26000.00

MEMBER PROPERTIES
     1005 TO 1085 BY 20 TABLE 1000

ASSEMBLE STIFFNESS MATRIX

LOADING 1 DC
     DEAD LOADING
     ALL FY -1.0

     MEMBER LOAD
     $SLAB WEIGHT=0.4*0.15kcf*1.5ft*29.67ft=2.67kips/ft
     1 TO 88 FY UNIF GLOB W -2.67

     $TWO BARRIERS=0.4*2*.418k/ft*29.67ft=9.92kips
     JOINT LOADS
     2 88 FY -9.92

     MEMBER LOAD
     $5 FT OF APPROACH SLAB=5ft*1.125ft*.15kcf=0.844kips/ft
     4 TO 85 FY UNIF GLOB W -0.844

LOADING 2 DW
     MEMBER LOAD
     $FWS=0.4*0.015ksf*29.67ft=0.178kips/ft
     4 TO 85 FY UNIF GLOB W -0.178

SOLVE

OUTPUT

FINISH
```

TAKEN FROM Preliminary-Picciola-EB-Flat-Slab Alt-89ft Bridge.out

RESULTS OF LATEST ANALYSIS

LOAD NO. 1 DC STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
5	0.000	0.000	0.000	0.000	0.000	0.000	DX
5	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
25	0.000	0.000	0.000	0.000	0.000	0.000	
25	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
45	0.000	0.000	0.000	0.000	0.000	0.000	
45	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
65	0.000	0.000	0.000	0.000	0.000	0.000	
65	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
85	0.000	0.000	0.000	0.000	0.000	0.000	
85	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
5	0.000	43.987	0.000	0.000	0.000	0.000	SPRING GLO
5	0.000	43.987	0.000	0.000	0.000	0.000	SPRING LOC
25	0.000	54.677	0.000	0.000	0.000	0.000	SPRING GLO
25	0.000	54.677	0.000	0.000	0.000	0.000	SPRING LOC
45	0.000	59.477	0.000	0.000	0.000	0.000	SPRING GLO
45	0.000	59.477	0.000	0.000	0.000	0.000	SPRING LOC
65	0.000	60.135	0.000	0.000	0.000	0.000	SPRING GLO
65	0.000	60.135	0.000	0.000	0.000	0.000	SPRING LOC
85	0.000	57.592	0.000	0.000	0.000	0.000	SPRING GLO
85	0.000	57.592	0.000	0.000	0.000	0.000	SPRING LOC
TOTAL	0.000	275.868	0.000				

INPUT FILE: Preliminary-Picciola-EB-Flat-Slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 19
RUN 09:09:44 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

RESULTS OF LATEST ANALYSIS

LOAD NO. 2 DW STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
5	0.000	0.000	0.000	0.000	0.000	0.000	DX
5	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
25	0.000	0.000	0.000	0.000	0.000	0.000	
25	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
45	0.000	0.000	0.000	0.000	0.000	0.000	
45	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
65	0.000	0.000	0.000	0.000	0.000	0.000	
65	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
85	0.000	0.000	0.000	0.000	0.000	0.000	
85	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
5	0.000	1.060	0.000	0.000	0.000	0.000	SPRING GLO
5	0.000	1.060	0.000	0.000	0.000	0.000	SPRING LOC
25	0.000	1.717	0.000	0.000	0.000	0.000	SPRING GLO
25	0.000	1.717	0.000	0.000	0.000	0.000	SPRING LOC
45	0.000	1.815	0.000	0.000	0.000	0.000	SPRING GLO
45	0.000	1.815	0.000	0.000	0.000	0.000	SPRING LOC
65	0.000	1.577	0.000	0.000	0.000	0.000	SPRING GLO
65	0.000	1.577	0.000	0.000	0.000	0.000	SPRING LOC
85	0.000	1.130	0.000	0.000	0.000	0.000	SPRING GLO
85	0.000	1.130	0.000	0.000	0.000	0.000	SPRING LOC
TOTAL	0.000	7.298	0.000				

INPUT FILE: Preliminary-Picciola-EB-Flat-Slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 20
RUN 09:09:44 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

```
IDENTIFICATION Picciola Bridge Flat Slab Alt.

$File:  Preliminary-Picciola-IB-Flat-Slab Alt.in

$Made by: CJM 03-29-04

$Checked by:

$Backchecked by:

UNITS FEET KIPS DAY DEG FAHRENHEIT

GENERATE NODES
     1 0.0 0.0 0.0 REPEAT 89 INCR 1 0.5 0.0 0.0

TYPE PLANE FRAME

MESH INCIDENCES
     1 1 2 REPEAT 88 INCR 1 1 1

UNITS INCHES

MATERIAL PROPERTIES
     1 EM 3841. $ E=0.9*1820*SQRT(5.5)=3841ksi
     1 DENS 8.68E-5

UNITS FEET KIPS DAY DEG FAHRENHEIT

SECTION PROPERTIES
      TABLE 1 RECT WIDT 3.0 DEPTH 3.000

MEMBER PROPERTIES
     ALL TABLE 1
     ALL MATE 1

SUPPORT JOINTS 5 DX
SUPPORT JOINTS 25 45 65 85

TYPE SUPPORT
MEMBER INCIDENCE
     1005 5
     1025 25
     1045 45
     1065 65
     1085 85

SECTION PROPERTIES
$ Springs are used to simulate rigid cap behavior
$k = AE/L = (2.25ft2)*(577728ksf)/(50ft) = 26000kips/ft
     TABLE 1000 KPY 26000.00

MEMBER PROPERTIES
     1005 TO 1085 BY 20 TABLE 1000

ASSEMBLE STIFFNESS MATRIX

LOADING 1 DC
     DEAD LOADING
     ALL FY -1.0

     MEMBER LOAD
     $SLAB WEIGHT=1.1*0.15kcf*1.5ft*29.67ft=7.34kips/ft
     1 TO 88 FY UNIF GLOB W -7.34

     $TWO BARRIERS=1.1*2*.418k/ft*29.67ft=27.28kips
     JOINT LOADS
     2 88 FY -27.28

LOADING 2 DW
     MEMBER LOAD
     $FWS=1.1*0.015ksf*29.67ft=0.49kips/ft
     4 TO 85 FY UNIF GLOB W -0.49

SOLVE

OUTPUT

FINISH
```

TAKEN FROM preliminary-picciola-ib-flat-slab alt-89ft bridge.out

RESULTS OF LATEST ANALYSIS

LOAD NO. 1 DC STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
5	0.000	0.000	0.000	0.000	0.000	0.000	DX
5	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
25	0.000	0.000	0.000	0.000	0.000	0.000	
25	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
45	0.000	0.000	0.000	0.000	0.000	0.000	
45	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
65	0.000	0.000	0.000	0.000	0.000	0.000	
65	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
85	0.000	0.000	0.000	0.000	0.000	0.000	
85	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
5	0.000	86.760	0.000	0.000	0.000	0.000	SPRING GLO
5	0.000	86.760	0.000	0.000	0.000	0.000	SPRING LOC
25	0.000	87.954	0.000	0.000	0.000	0.000	SPRING GLO
25	0.000	87.954	0.000	0.000	0.000	0.000	SPRING LOC
45	0.000	87.488	0.000	0.000	0.000	0.000	SPRING GLO
45	0.000	87.488	0.000	0.000	0.000	0.000	SPRING LOC
65	0.000	87.954	0.000	0.000	0.000	0.000	SPRING GLO
65	0.000	87.954	0.000	0.000	0.000	0.000	SPRING LOC
85	0.000	86.760	0.000	0.000	0.000	0.000	SPRING GLO
85	0.000	86.760	0.000	0.000	0.000	0.000	SPRING LOC
TOTAL	0.000	436.916	0.000				

INPUT FILE: preliminary-picciola-ib-flat-slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 16
RUN 09:39:28 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

RESULTS OF LATEST ANALYSIS

LOAD NO. 2 DW STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
5	0.000	0.000	0.000	0.000	0.000	0.000	DX
5	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
25	0.000	0.000	0.000	0.000	0.000	0.000	
25	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
45	0.000	0.000	0.000	0.000	0.000	0.000	
45	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
65	0.000	0.000	0.000	0.000	0.000	0.000	
65	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
85	0.000	0.000	0.000	0.000	0.000	0.000	
85	0.000	0.000	0.000	0.000	0.000	0.000	LOCAL
5	0.000	2.562	0.000	0.000	0.000	0.000	SPRING GLO
5	0.000	2.562	0.000	0.000	0.000	0.000	SPRING LOC
25	0.000	4.831	0.000	0.000	0.000	0.000	SPRING GLO
25	0.000	4.831	0.000	0.000	0.000	0.000	SPRING LOC
45	0.000	5.303	0.000	0.000	0.000	0.000	SPRING GLO
45	0.000	5.303	0.000	0.000	0.000	0.000	SPRING LOC
65	0.000	4.831	0.000	0.000	0.000	0.000	SPRING GLO
65	0.000	4.831	0.000	0.000	0.000	0.000	SPRING LOC
85	0.000	2.562	0.000	0.000	0.000	0.000	SPRING GLO
85	0.000	2.562	0.000	0.000	0.000	0.000	SPRING LOC
TOTAL	0.000	20.090	0.000				

INPUT FILE: preliminary-picciola-ib-flat-slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 17
RUN 09:39:28 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

```
IDENTIFICATION Picciola Bridge Flat Slab Alt.

$This T187 files models calculates the live load
$reactions for a three 3 continuous structure.

$File:  Preliminary-Picciola-EB-Flat-Slab Alt-89ft Bridge.in

$Made by: CJM 03-20-03

$Checked by:

$Backchecked by:

UNITS FEET KIPS DAY DEG FAHRENHEIT

GENERATE NODES
     1 0.0 0.0 0.0 REPEAT 61 INCR 1 1.483 0.0 0.0

SUPPORT JOINTS 1 DX DY
$UPPORT JOINTS 21 41 61 DY

TYPE PLANE FRAME

MESH INCIDENCES
     1 1 2 REPEAT 60 INCR 1 1 1

UNITS INCHES

MATERIAL PROPERTIES
     1 EM 3475. $ E=0.9*1820*SQRT(4.5)=3475ksi

UNITS FEET KIPS DAY DEG FAHRENHEIT

SECTION PROPERTIES
      TABLE 1 RECT WIDT 43.08 DEPTH 1.500

MEMBER PROPERTIES
     ALL TABLE 1
     ALL MATE 1

ASSEMBLE STIFFNESS MATRIX

TABULATE 50 $ Removes impact from results

$For Live Load File
PATH 1 TO 61

PIER 1 21 41 61

TRUCK HL93

LANE LOAD 0.00 0.00 1.0 $ 1 LANE

ADVANCE TRUCK

SOLVE

FINISH
```

TAKEN FROM preliminary-picciola-ll-flat-slab alt-89ft bridge.out

RESULTS OF LATEST ANALYSIS

LOAD NO. 22 LANE LOAD - MAXIMUM REACTION FORCE-Y STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
1	0.000	8.544	0.000	0.000	0.000	0.000	DX DY
21	0.000	22.769	0.000	0.000	0.000	0.000	DY
41	0.000	22.769	0.000	0.000	0.000	0.000	DY
61	0.000	8.544	0.000	0.000	0.000	0.000	DY
TOTAL	0.000	62.628	0.000				

INPUT FILE: preliminary-picciola-ll-flat-slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 30
RUN 09:21:49 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

LOAD NO. 4 DESIGN TRUCK - MAXIMUM REACTION FORCE-Y STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
1	0.000	46.003	0.000	0.000	0.000	0.000	DX DY
21	0.000	62.062	0.000	0.000	0.000	0.000	DY
41	0.000	62.062	0.000	0.000	0.000	0.000	DY
61	0.000	46.003	0.000	0.000	0.000	0.000	DY
TOTAL	0.000	216.129	0.000				

INPUT FILE: preliminary-picciola-ll-flat-slab HNTB

PROGRAM T187PC 2.0 (STANDARD) PAGE 55
RUN 09:21:49 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT

LOAD NO. 4 DOUBLE TRUCK - MAXIMUM REACTION FORCE-Y STRUCTURE 1

SUPPORT REACTIONS - GLOBAL COORDINATE SYSTEM

JOINT	FORCE-X	FORCE-Y	FORCE-Z	MOMENT-X	MOMENT-Y	MOMENT-Z	RESTRAINTS
1	0.000	47.170	0.000	0.000	0.000	0.000	DX DY
21	0.000	62.062	0.000	0.000	0.000	0.000	DY
41	0.000	62.062	0.000	0.000	0.000	0.000	DY
61	0.000	47.170	0.000	0.000	0.000	0.000	DY
TOTAL	0.000	218.464	0.000				

INPUT FILE: preliminary-picciola-ll-flat-slab HNTB

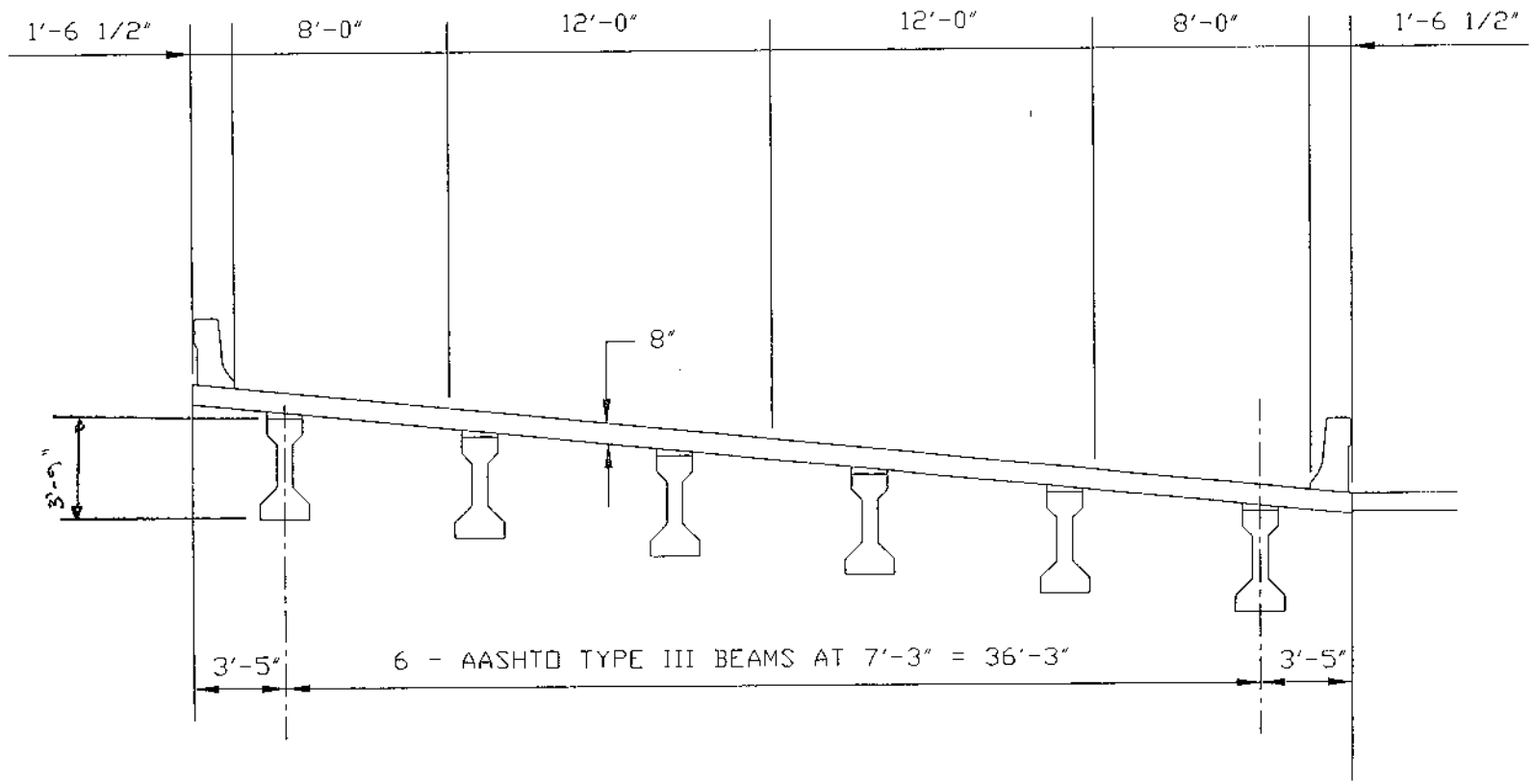
PROGRAM T187PC 2.0 (STANDARD) PAGE 93
RUN 09:21:49 03/29/04 PICCIOLA BRIDGE FLAT SLAB ALT.

Picciola Bridge Improvements

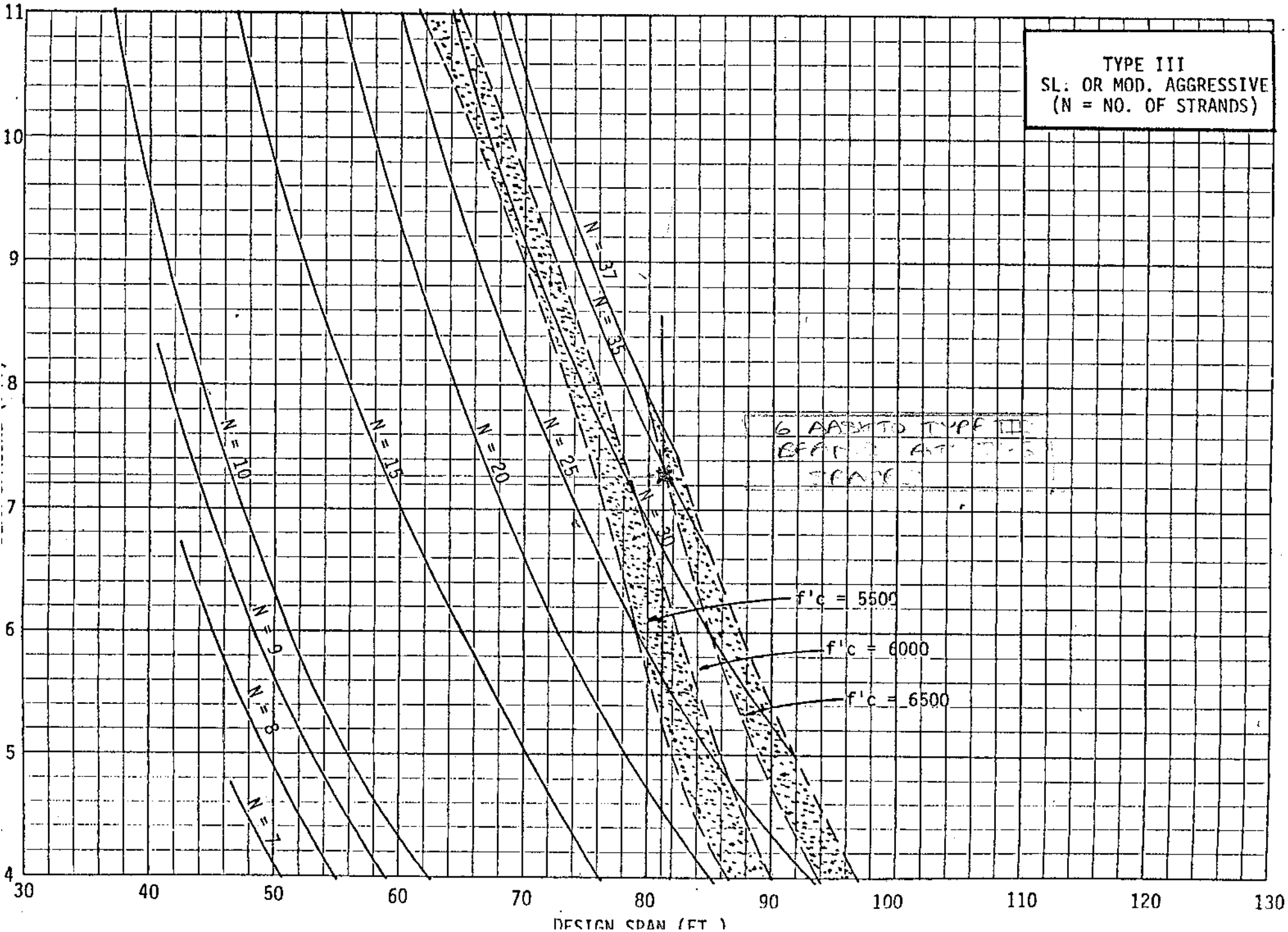
AASHTO Type III Alternative
Girder Design

HNTB
The HNTB Companies

1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016



AASHTO TYPE III ALTERNATIVE


TYPE III
SL: OR MOD. AGGRESSIVE
(N = NO. OF STRANDS)
N = 37
N = 35
N = 30
N = 25
N = 20
N = 15
N = 10
N = 9
N = 8
N = 7
f'c = 5500
f'c = 6000
f'c = 6500
11
10
9
8
7
6
5
4
30
40
50
60
70
80
90
100
110
120
130
DESIGN SPAN (FT.)

Picciola Road Improvements							
Input Values for AASHTO Type III Alternative							
Span Length =	89	ft		**Input Values for Edit.mcd**	Interior	Exterior	
Bearing Width =	14	in		*Material Properties -*	*Concrete*		
Dist. EofB to FFBW =	5.5	in		AggregateType =	Florida	Florida	
Dist. EofB to FFBW =	5.5	in		$f_{c.slab}$ =	4.5	4.5	ksi
Dist. EofB to EdgeOfPad =	2.5	in		$f_{c.beam}$ =	8.5	8.5	ksi
K = Dist CL Brg to FFBW =	15	in		$f_{ci.beam}$ =	6.5	6.5	ksi
K = Dist CL Brg to FFBW =	15	in		γ_{slab} =	0.15	0.15	ksi
J = Dist CL Brg to EofB =	9.5	in		γ_{beam} =	0.15	0.15	ksi
J = Dist CL Brg to EofB =	9.5	in		Environment =	slightly	slightly	
Input Values for Edit.mcd	Interior	Exterior		*Material Properties -*	*Prestressing Tendons*		
L_{Beam} =	88.083	88.083	ft	f_{pu} =	270	270	ksi
Bearing Distance =	9.5	9.5	in	E_p =	28500	28500	ksi
PadWidth =	14	14	in				
Beam Spacing =	7.25	7.25	ft	*Material Properties -*	*Mild Steel*		
Overhang =	3.417	3.417	ft	f_y =	60	60	ksi
t_{slab} =	7.75	7.75	in	E_s =	29000	29000	ksi
$h_{buildup}$ =	0	0	in	H =	75%	75%	
d_e =	1.9583	1.9583	ft	t_i =	1.5	1.5	days
Beam Position =	Interior	Exterior		$A_{slab.rebar}$ =	0	0	in^2
BeamType =	Type III	Type III		$d_{slab.rebar}$ =	0	0	in
tintergral.ws =	0.25	0.25	in	$A_{s.long}$ =	0	0	in^2
Weight FWS =	0.015	0.015	ksf	d_{long} =	0	0	in
Number of Beams =	6	6		BarSize =	6	6	
SectionType =	transformed	transformed					
Skew =	0	0	deg	**Input Values for abridged.mcd**	Interior	Exterior	
				user_g_{mom} =	Default	Default	
				user_g_{shear} =	Default	Default	
				Add_$w_{noncomp}$ =	0.05	0.05	k/ft
				Add_w_{comp} =	0	0	k/ft

Looked at
Int. Beam only.

HNTB
The HNTB Companies
1615 Edgewater Drive-Suite 200
Orlando, FL 32804
Phone:407-859-8380

Made By: CJM Date: 03 / 26 / 04 Project Number:
Checked By: Date: / / 37485
Bk.Chk. By: Date: / / Sheet Number:

Calculations For: Preliminary - Picciloa Bridge Improvements

Calculation of the Dimensions J and K at End Bents

$L_{Pad} := 14 \cdot in$ L_{Pad} is the Length of the Bearing along the CL Beam. Assume Type B Pad Type.

$BeamEnd := 2.5 \cdot in$ BeamEnd is the distance from edge of bearing to end of beam and is a minimum of 2.5".

$StrandExt := 2.5 \cdot in$ StrandExt is the distance the prestressed strand extend beyond the concrete.

$ConcCover := 2 \cdot in$ ConcCover is the required cover for the end diaphragms

$JointWidth := 1 \cdot in$ JointWidth is the assumed width of the expansion joint.

$$J := \frac{L_{Pad}}{2} + BeamEnd \qquad J = 9.5\,in$$

$$K := J + StrandExt + ConcCover + JointWidth \qquad K = 15\,in$$

$$ClearDistBehindBeam := K - J \qquad ClearDistBehindBeam = 5.5\,in$$

LRFD English Prestressed Beam Design Program

Project = "37485"
DesignedBy = "CJM"
Date = "03-26-04"

Legend Tan = DataEntry Yellow = CheckValues Grey = Comments + Graphs

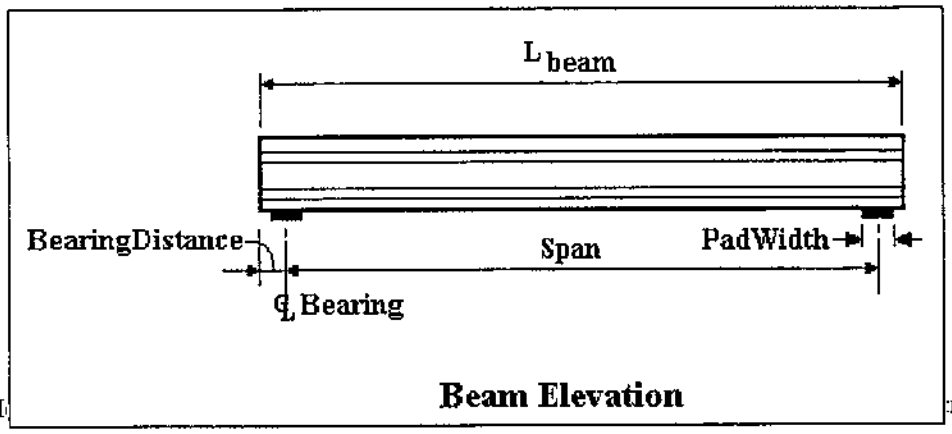
The CR values displayed are Capacity Ratios which give the ratio of the provided capacity divided by the required

Bridge Layout and Dimensions Reference:C:\FDOT_STR\Programs\LRFDPbeamE1.85\ProgramFiles\section1.mcd(R)

Comment = **"Picciola Bridge - Prelimianry Design AASHTOType III Interior 89 ft spans and 7.25 ft spacing"**

filename = **"C:\CJM\FDOT Beam Runs\Prelim-Picciola-T3-Int-89.dat"**

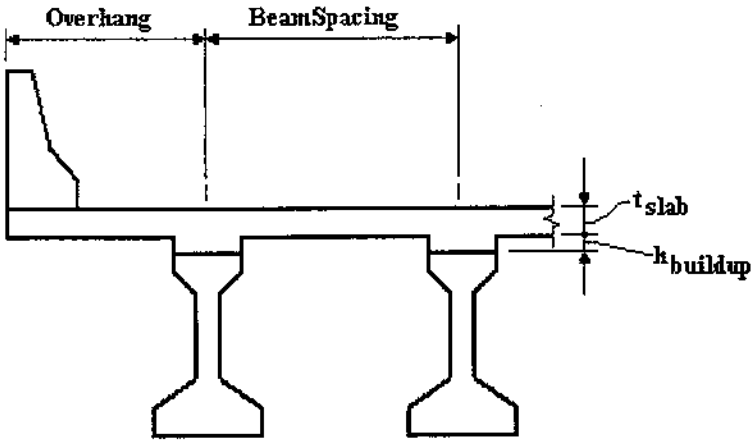
The top of the precast beam is the location of the origin



Beam Elevation

DataM ribution Factors "

L_{beam} = **89** ft BearingDistance = **9.5** in Span = **87.42** ft PadWidth = **14** in



Partial Section

$Picture_{section}$

Overhang = **3.417** ft BeamSpacing = **7.25** ft t_{slab} = **7.75** in $h_{buildup}$ = **0** in

Skew = **0** deg $t_{integral.ws}$ = **0.25** in NumberOfBeams = **6** $t_{slab.delta}$ = **0** in

BeamTypeTog = **"III"**

These are typically the FDOT designations found in our standards. The user can also create a coordinate file for a custom shape. In all cases the top of the beam is at the y=0 ordinate.

BeamPosition = **"interior"**

For calculating distribution factors must be either interior or exterior

SectionType = **"transformed"**

$b_e = 7.25\,\text{ft}$

effective slab width

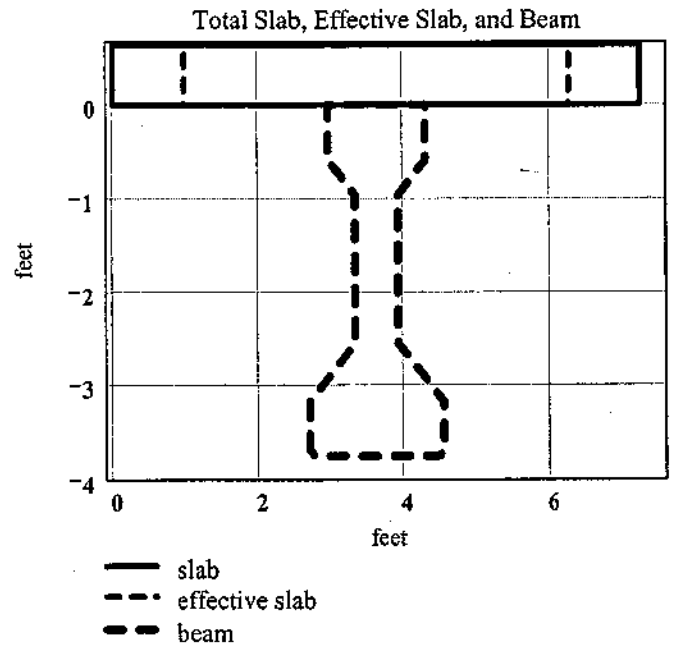
LRFD 4.6.2.6

$user_g_{mom} = 0$

$user_g_{shear} = 0$

If $user_g_{mom}$ *(the moment distribution factor) or* $user_g_{shear}$ *(the shear distribution factor) is set to zero the program's calculated value will be used. If they are other than zero then this user inputed value will be used.*

Section Properties - Beam and Slab



Material Properties - Concrete

Corrosion Classification — Environment = **"slightly"**

strength of slab concrete — $f_{c.slab} = 4.5\,\text{ksi}$

strength of beam concrete — $f_{c.beam} = 8.5\,\text{ksi}$

release beam strength — $f_{ci.beam} = 6.5\,\text{ksi}$

initial conc. modulus of elasticity — $E_{ci} = 4176\,\text{ksi}$

concrete modulus of elasticity — $E_c = 4776\,\text{ksi}$

type of course aggregate, either **"Florida"** *or* **"Standard"** — AggregateType = **"Florida"**

density of slab concrete — $\gamma_{slab} = 0.15\,\frac{\text{kip}}{\text{ft}^3}$

density of beam concrete — $\gamma_{beam} = 0.15\,\frac{\text{kip}}{\text{ft}^3}$

weight of future wearing surface — $Weight_{future.ws} = 0.015\,\frac{\text{kip}}{\text{ft}^2}$

used in distribution calculation — $n_d = 1.374$

relative humidity — $H = 75$

Material Properties - Prestressing Tendons and Mild Steel

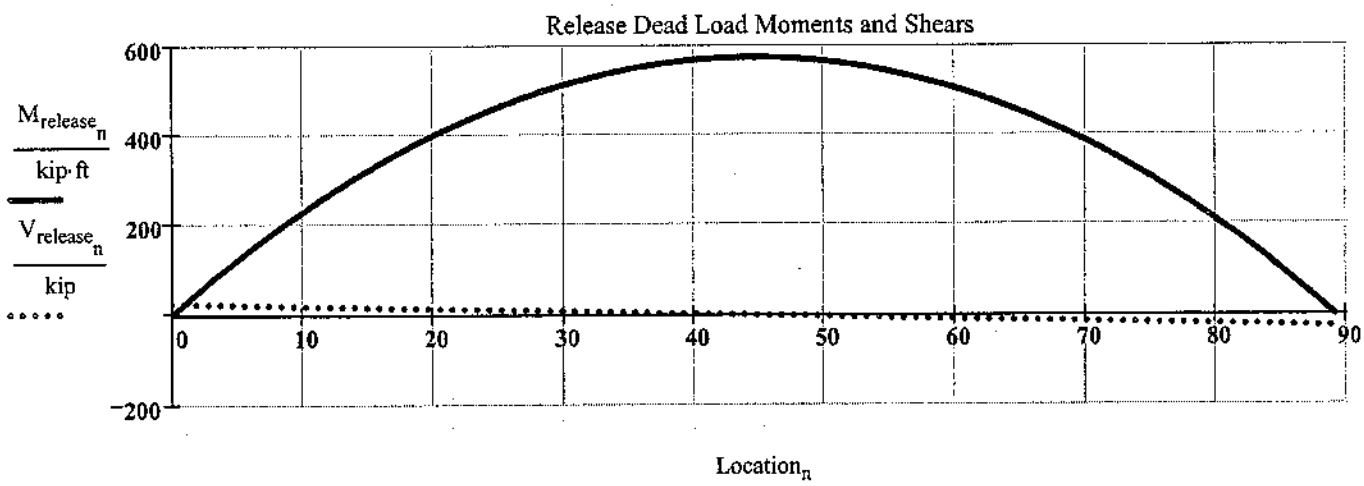
tendon ultimate tensile strength	$f_{pu} = 270\,\text{ksi}$	*tendon modulus of elasticity*	$E_p = 28500\,\text{ksi}$
time in days between jacking and transfer	$t_j = 1.5$	*ratio of tendon modulus to beam concrete modulus*	$n_p = 5.968$
mild steel yield strength	$f_y = 60\,\text{ksi}$	*mild steel modulus of elasticity*	$E_s = 29000\,\text{ksi}$
ratio of rebar modulus to beam concrete modulus	$n_m = 6.073$		
d distance from top of slab to centroid of slab reinf.	$d_{slab.rebar} = 0\,\text{in}$	*area per unit width of longitudinal slab reinf.*	$A_{slab.rebar} = 0\,\frac{\text{in}^2}{\text{ft}}$
d distance from top of beam to centroid of mild flexural tension reinf.	$d_{long} = 0\,\text{in}$	*area of mild reinf lumped at centroid of bar locations*	$A_{s.long} = 0\,\text{in}^2$

Permit Loads

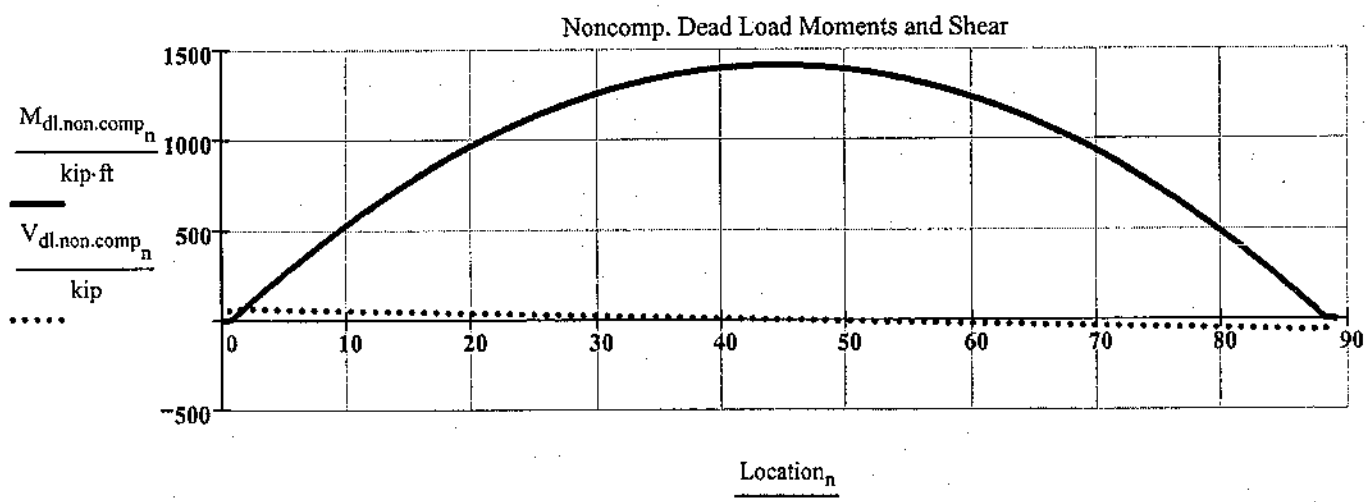
Number of wheel loads that comprise the permit truck $\quad PermitAxles = 2 \quad PermitUniformLoad = 0\,\frac{\text{lbf}}{\text{ft}}$

$PermitAxleLoad^T = (8\ \ 32)\,\text{kip} \qquad PermitAxleSpacing^T = (0\ \ 14\ \ 0)\,\text{ft}$

Loads - Release, Non composite, Composite, and Live Load (truck and lane)



$w_{beam} = 0.583\,\frac{\text{kip}}{\text{ft}} \qquad \max(M_{release}) = 577.3\,\text{kip}\cdot\text{ft}$ *note: at release, span length is the full length of the beam*

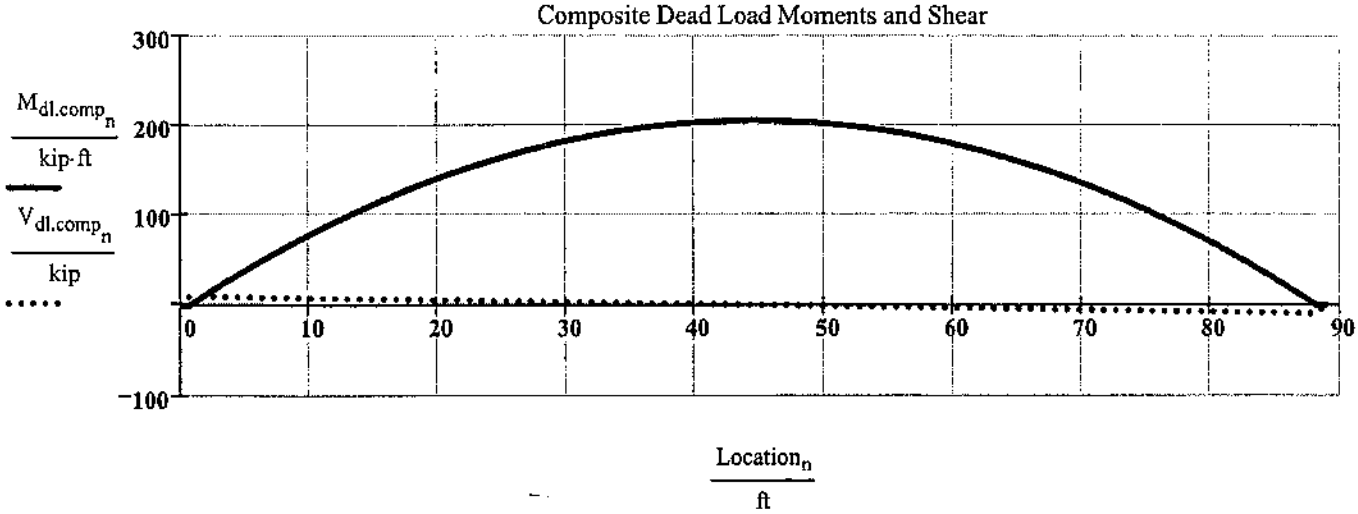


ft

$w_{slab} = 0.725 \frac{kip}{ft}$ $w_{beam} = 0.583 \frac{kip}{ft}$ $w_{forms} = 0.118 \frac{kip}{ft}$ $w_{noncomposite} = 1.476 \frac{kip}{ft}$ $Add_w_{noncomp} = 0.05 \cdot \frac{kip}{ft}$

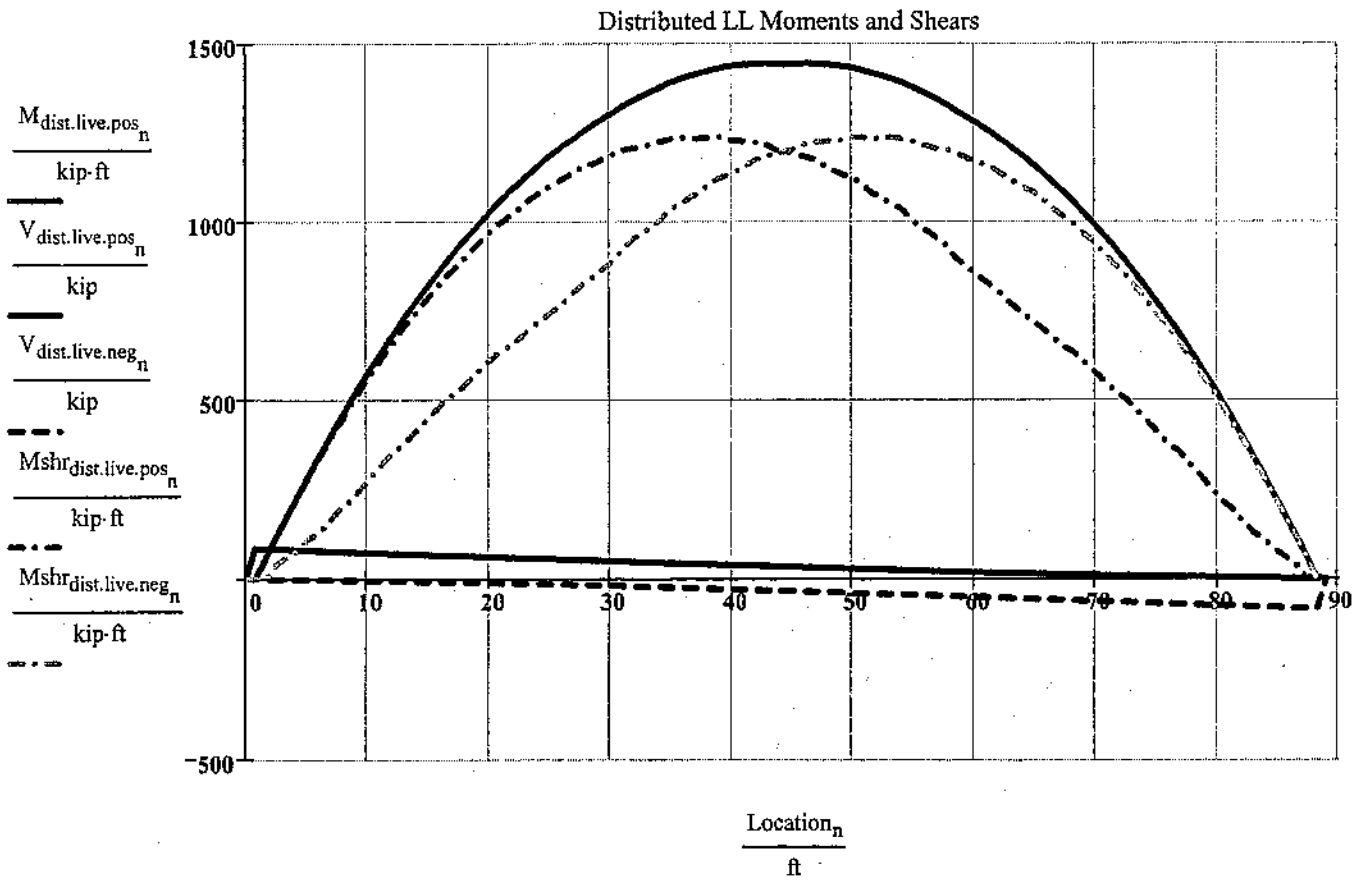
(w_{slab} incluaes buildup)

$\max(M_{dl.non.comp}) = 1409.9\,kip \cdot ft$ $\max(V_{dl.non.comp}) = 64.5\,kip$



$w_{barrier} = 0.108 \frac{kip}{ft}$ $w_{future.ws} = 0.109 \frac{kip}{ft}$ $w_{composite} = 0.22 \frac{kip}{ft}$ $Add_w_{comp} = 0 \cdot \frac{kip}{ft}$

$\max(M_{dl.comp}) = 207\,kip \cdot ft$ $\max(V_{dl.comp}) = 9\,kip$



Live load distribution factors Beam position = interior $g_{shear} = 0.701$ $g_{mom} = 0.618$

$Reaction_{LL} = 87.46\,kip$ *(service value includes truck impact)* $Reaction_{DL} = 75.345\,kip$ *(service value)*

A suggested method of iteration is to fill the beam with tendons beginning in the middle of the bottom row, filling the row outward, then continuing on to the middle of the next lowest row. Typically ,the minimum number of tendon is reached when midspan tensile stress is below the LRFD Service III Limit stress. Next, tendons should be debonded in pairs according to the Structures Design Guidelines until the end compression stress are below the LRFD Service I Limit stress. These two limits typically control the design (see graph below).

Design Prestress Tendon Geometry

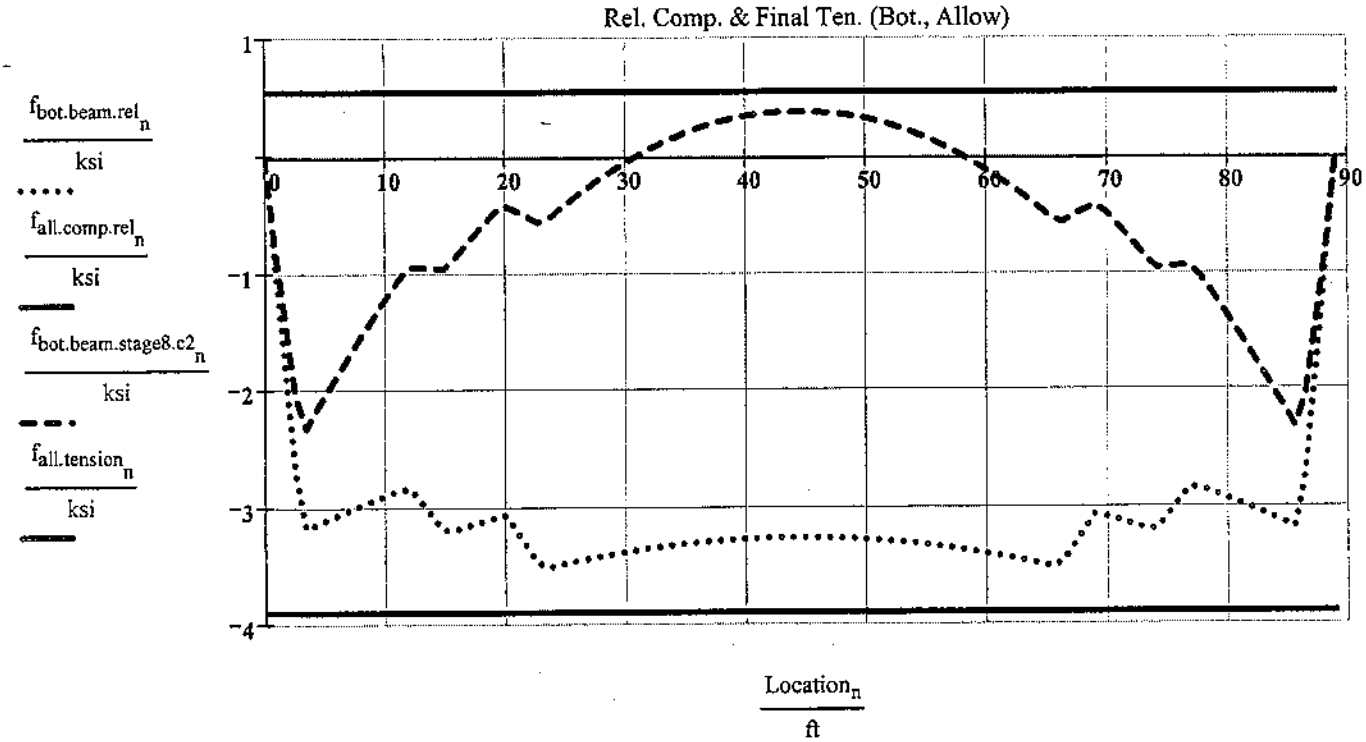
Double click on the **Strand Geometry** icon to specify type, location, size, and debonding of strands. Then click on Stranddata and press F9 to read in the data.

Strand Geometry

```
Stranddata := | a ← READPRN("tendsect.dat")
              | w ← READPRN("strand.dat")
              | x ← READPRN("area.dat")
              | y ← READPRN("shield.dat")
              | z ← READPRN("distance.dat")
              | (w x y z a)
```

Reference:C:\FDOT_STR\Programs\LRFDPbeamE1.85\ProgramFiles\sectio

Summary of Initial Compression and Final Tension Prestress for Iteration Purposes. These two stress checks usually control . See graphs in proceeding sections for full details.



$\min(CR_f_{tension.stage8}) = 1.451$ $\quad$ $Check_f_{tension.stage8} =$ **"OK"**

check strand pattern for debonding limits (per row and total) and for debonded strands on outside edge of strand pattern Check0 - No Debonded tendon on outside row, Check1 - less than 40% Debonded in any row, Check2 - less than 25% Debonded total

$CheckPattern_0 =$ **"OK"**

$CheckPattern_1 =$ **"OK"**

$CheckPattern_2 =$ **"OK"**

Section and tendon properties

$A_{beam} = 3.887\,ft^2$	*Concrete area of beam*	$I_{beam} = 1.252 \times 10^5\,in^4$	*Gross Moment of Inertia of Beam*
$y_{comp} = -11.367\,in$	*Dist. from top of beam to CG of composite section*	$I_{comp} = 3.415 \times 10^5\,in^4$	*Gross Moment of Inertia Composite Section*
$A_{deck} = 3.407\,ft^2$	*Concrete area of deck slab*	$A_{ps} = 5.6\,in^2$	*total area of strands*
$d_{b.ps} = 0.6\,in$	*diameter of Prestressing strand*	$\min(PrestressType) = 0$	*0 - low lax 1 - stress relieved*
$f_{py} = 243\,ksi$	*tendon yield strength*	$f_{pj} = 203\,ksi$	*prestress jacking stress*

$L_{shielding}^T = (20\ \ 0\ \ 12\ \ 0\ \ 0\ \ 0)\,ft$

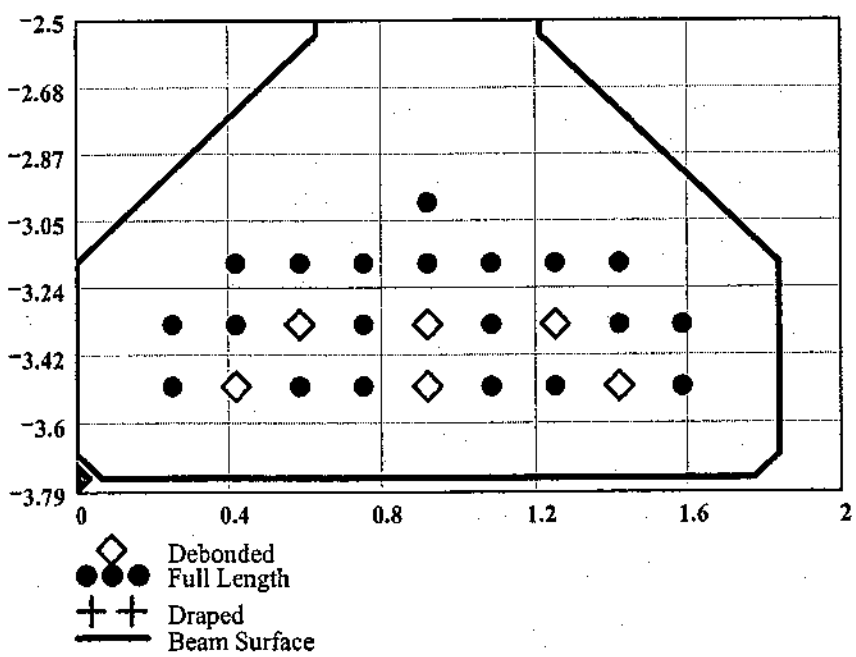
$A_{ps.row}^T = (0.7\ \ 1.3\ \ 0.7\ \ 1.3\ \ 1.5\ \ 0.2)\,in^2$

$d_{ps.row} =$

	0	1	2	3	4	5	6	7	8
0	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5
1	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5	-3.5
2	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333
3	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333	-3.333
4	-3.167	-3.167	-3.167	-3.167	-3.167	-3.167	-3.167	-3.167	-3.167
5	-3	-3	-3	-3	-3	-3	-3	-3	-3

ft

Tendon Layout



$TotalNumberOfTendons = 26$

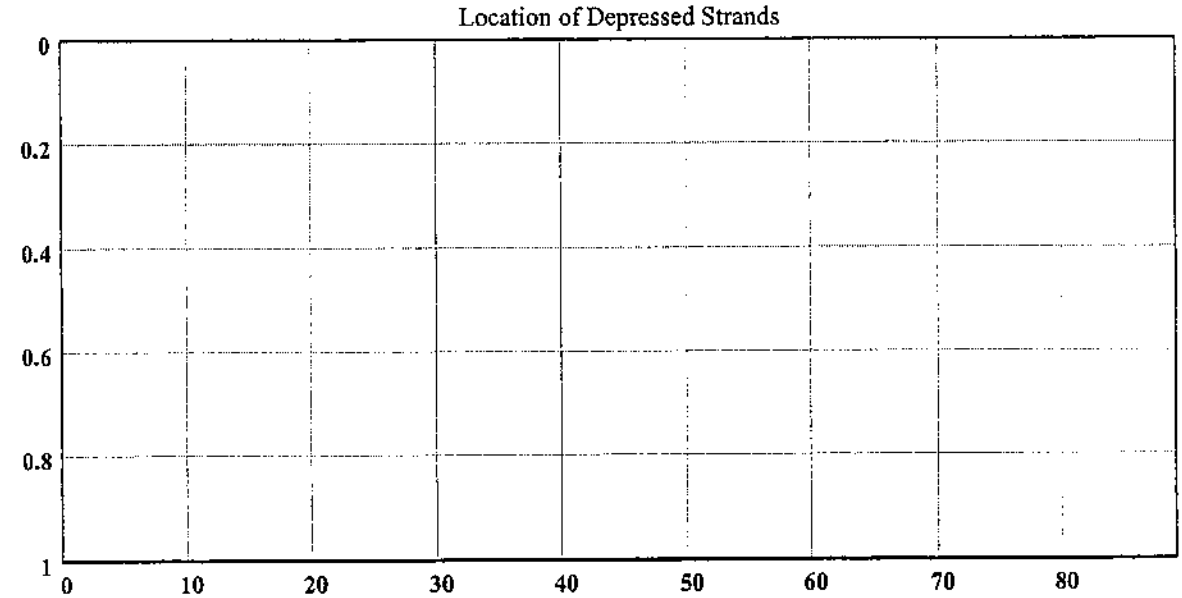
$NumberOfDebondedTendons = 6$

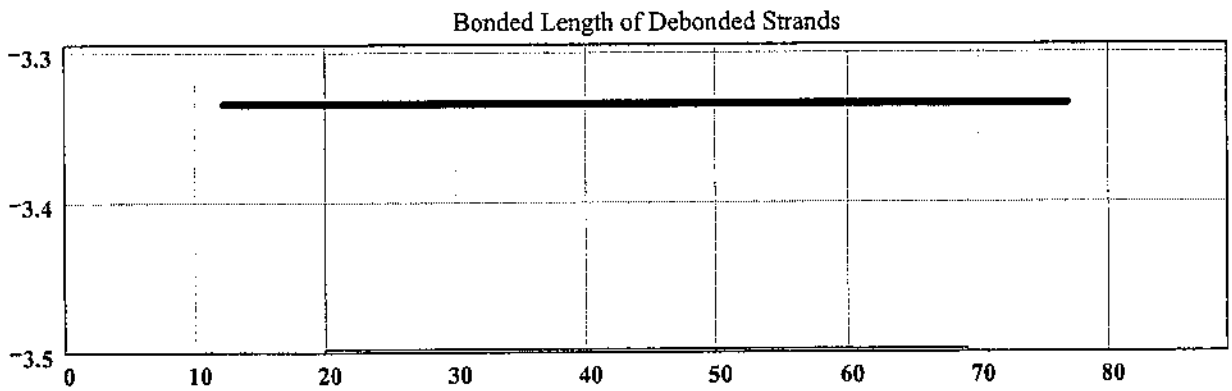
$NumberOfDrapedTendons = 0$

$StrandSize = \text{"0.6 in low lax"}$

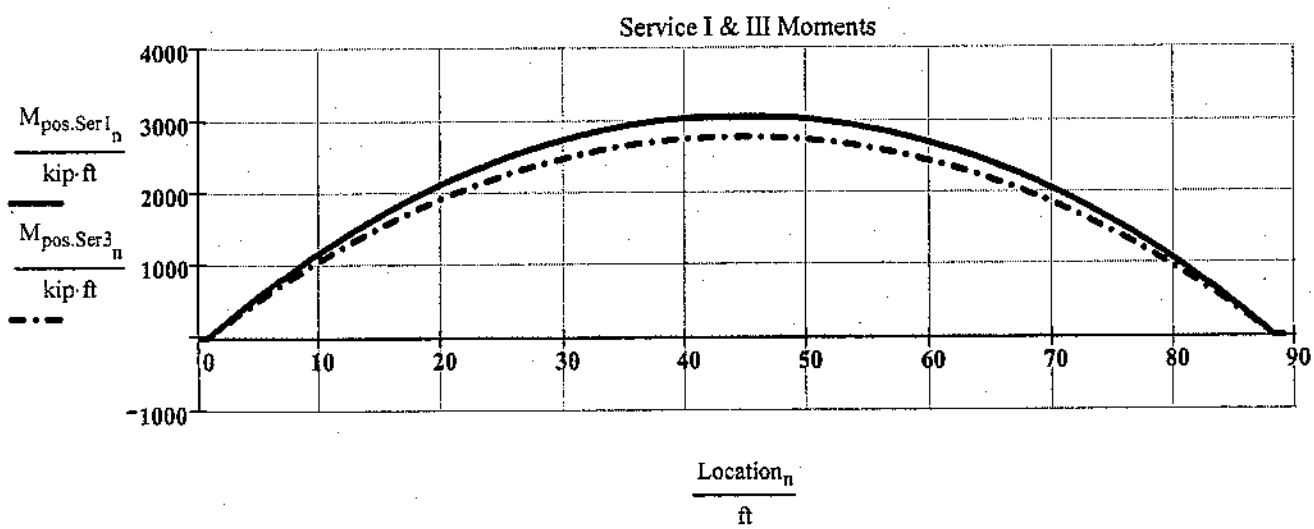
$StrandArea = 0.217\,in^2$

$JackingForce_{per.strand} = 43.943\,kip$





SERVICE LIMIT STATE



$\max(M_{pos.Ser1}) = 3059\ kip \cdot ft$ $\max(M_{pos.Ser3}) = 2770\ kip \cdot ft$

Prestress Losses (LRFD 5.9.5)

$f_{pj} = 202.5\,ksi$ $\Delta f_{pR1} = -2.2\,ksi$ $\Delta f_{pES} = -19.4\,ksi$ $\Delta f_{pi} = -22\,ksi$ $f_{pi} = 181\,ksi$

$\Delta f_{pCR} = -25.2\,ksi$ $\Delta f_{pSR} = -5.8\,ksi$ $\Delta f_{pR2} = -1.8\,ksi$ $\Delta f_{pTot} = -54\,ksi$ $f_{pe} = 148\,ksi$

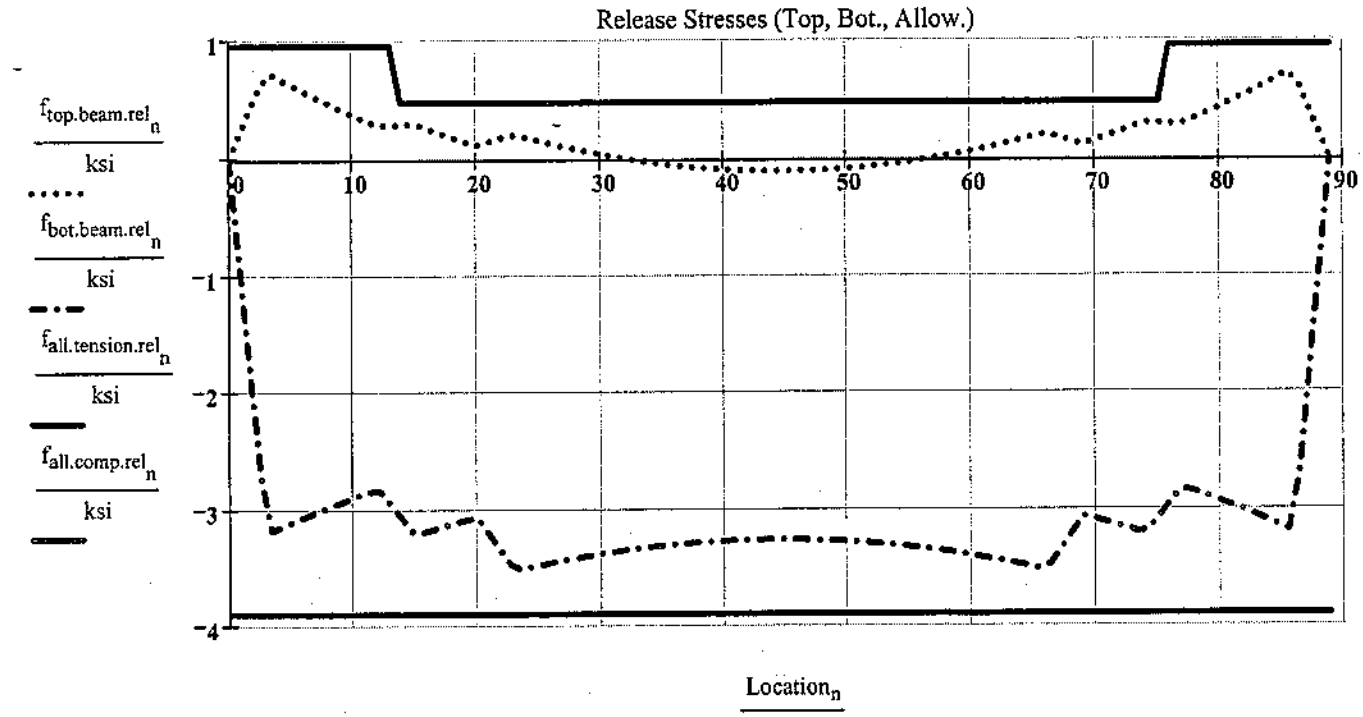
percentages $\frac{\Delta f_{pi}}{f_{pj}} = -10.698\,\%$ $\frac{f_{pi}}{f_{pj}} = 89.302\,\%$ $\frac{\Delta f_{pTot}}{f_{pj}} = -26.873\,\%$ $\frac{f_{pe}}{f_{pj}} = 73.127\,\%$

Stress Limitations for P/S tendons (LRFD 5.9.3)

$Check_f_{pt}$ = **"OK"** $0.8 \cdot f_{py} = 194\,ksi$ $Check_f_{pe}$ = **"OK"**

Stress Limitations for Concrete - Release and Final (LRFD 5.9.4)

Release



$\min(CR_f_{tension.rel}) = 1.331$ $Check_f_{tension.rel}$ = **"OK"**

$\min(CR_f_{comp.rel}) = 1.111$ $Check_f_{comp.rel}$ = **"OK"**

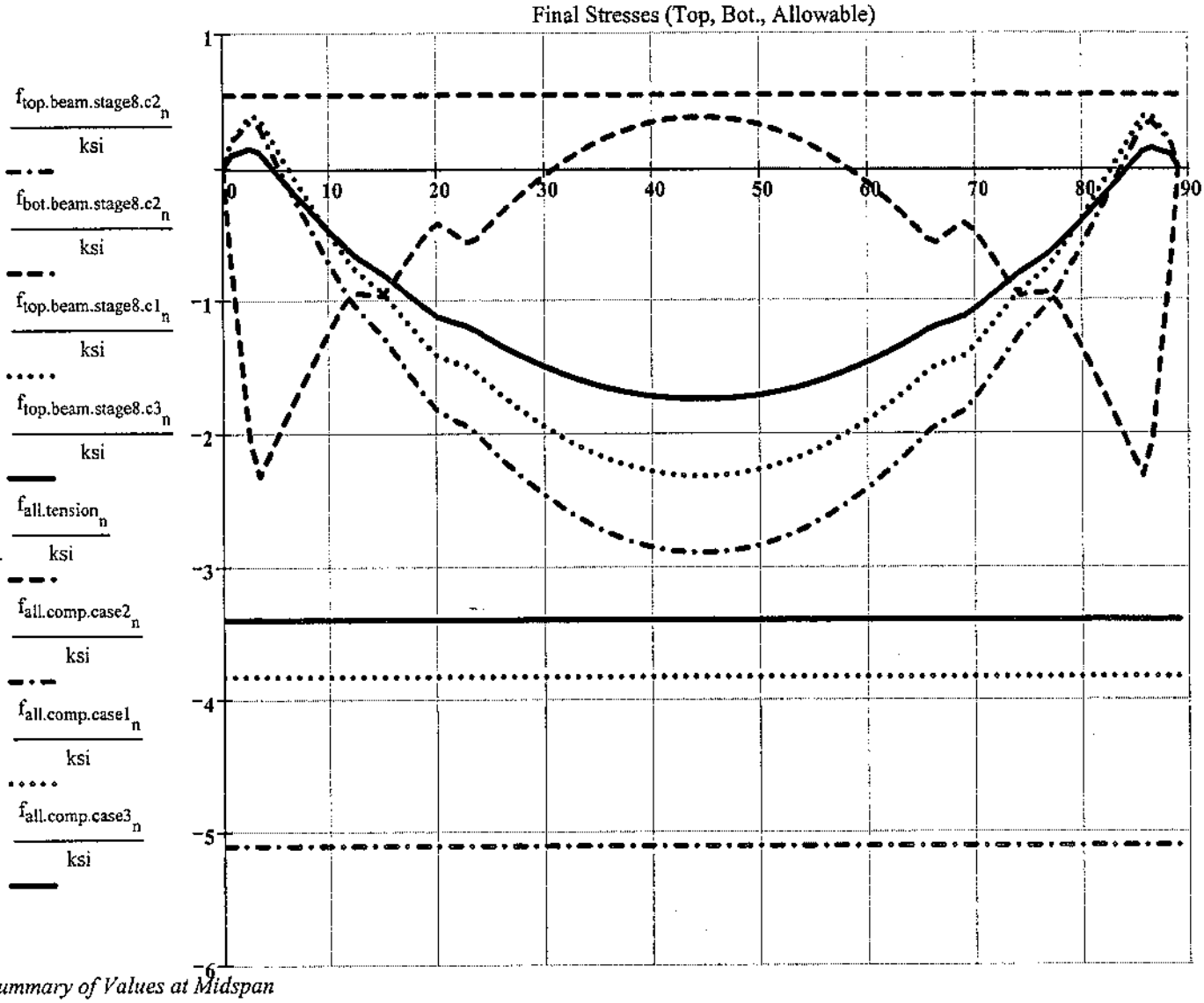
Final

$\min(CR_f_{tension.stage8}) = 1.451$ $Check_f_{tension.stage8}$ = **"OK"** *(Service III , PS + DL +LL*0.8)*

$\min(CR_f_{comp.stage8.c1}) = 1.652$ $Check_f_{comp.stage8.c1}$ = **"OK"** *(Service I , PS + DL)*

$\min(CR_f_{comp.stage8.c2}) = 1.764$ $Check_f_{comp.stage8.c2}$ = **"OK"** *(Service I , PS + DL +LL)*

$\min(CR_f_{comp.stage8.c3}) = 1.962$ $Check_f_{comp.stage8.c3}$ = **"OK"** *(Service I , (PS + DL)*0.5 +LL)*



Summary of Values at Midspan

$$\text{Stresses} = \begin{array}{c} \text{Location}_n \\ \begin{pmatrix} \text{"Stage "} & \text{"Top of Beam (ksi) "} & \text{"Bott of Beam (ksi)"} \\ 1 & -0.104 & -3.258 \\ 2 & -0.3 & -2.577 \\ 4 & -0.252 & -2.614 \\ 6 & -2.233 & -1.093 \\ 8 & -2.891 & 0.381 \end{pmatrix} \end{array}$$

Compression stresses are negative and tensile stresses are positive

Stage 1 ---> At release with the span length equal to the length of the beam. Prestress losses are elastic shortening and overnight relax

Stage 2 ---> Same as release with the addition of the remaining prestress losses applied to the transformed beam

Stage 4 ---> Same as stage 2 with supports changed from the end of the beam to the bearing locations

Stage 6 ---> Stage 4 with the addition of non-composite dead load excluding beam weight which has been included since Stage 1

Stage 8 ---> Stage 6 with the addition of composite dead load and live loads applied to the composite section

$$\text{PrestressForce} = \begin{pmatrix} \text{"Condition "} & \text{"Axial (kip)"} & \text{"Moment (kip*ft)"} \\ \text{"Release"} & -1011.694 & -1300.8739 \\ \text{"Final (about composite centroid)"} & -835.4864 & -1941.7541 \end{pmatrix}$$

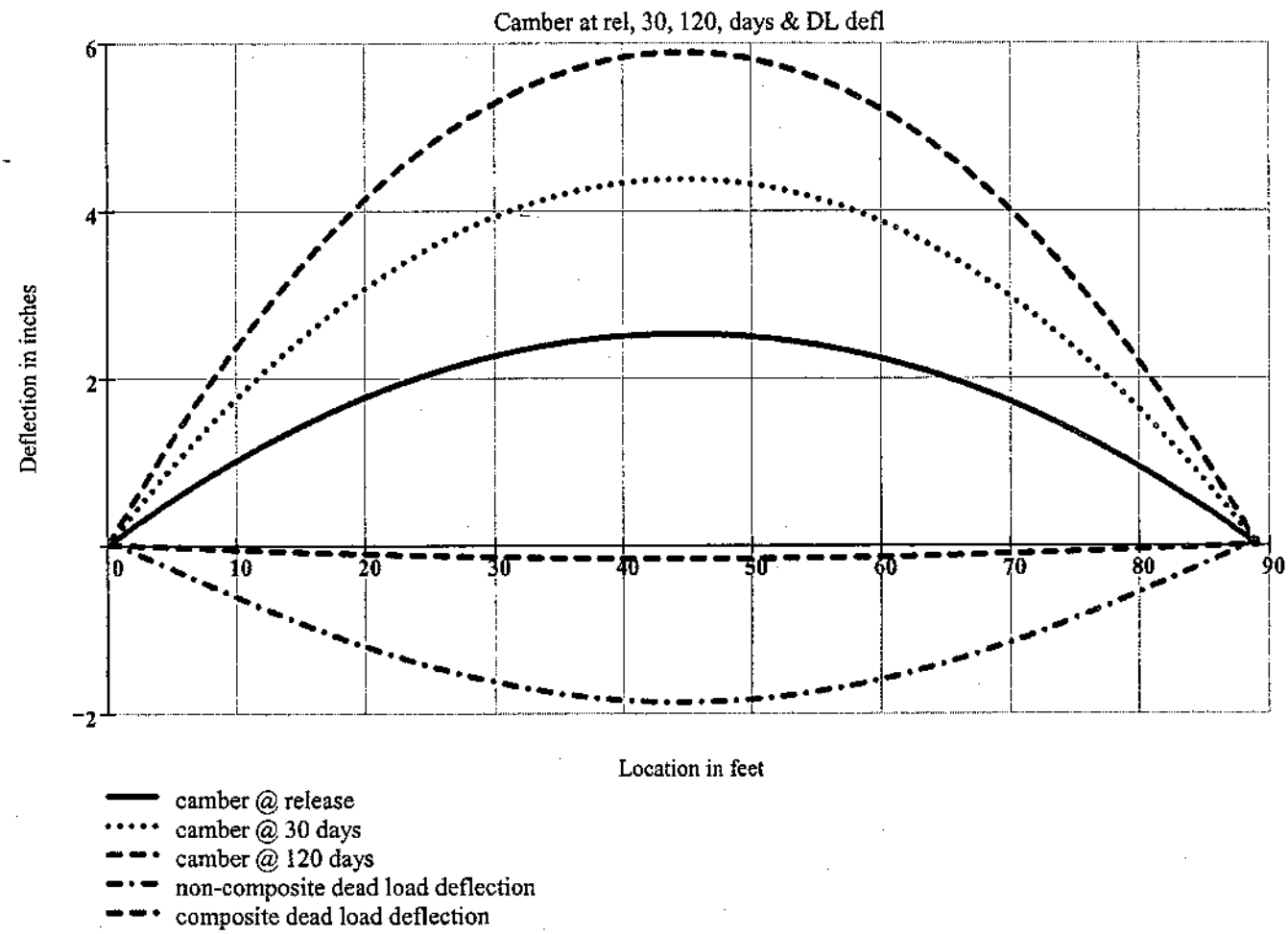
Properties =

"Section "	"Area (in^2) "	"Inertia (in^4) "	"distance to centroid from top of bm (in)"
"Net Beam "	554.08	123891.09	−24.57
"Transformed Beam "	587.75	131552.03	−25.45
"Composite "	1078.34	364018.1	−12.11

ServiceMoments =

"Type "	"Value (kip*ft)"
"Release"	577.3
"Non-composite (includes bm wt.)"	1409.9
"Composite"	206.9
"Distributed Live Load"	1440.3

Camber and Shrinkage and dead Load Deflections

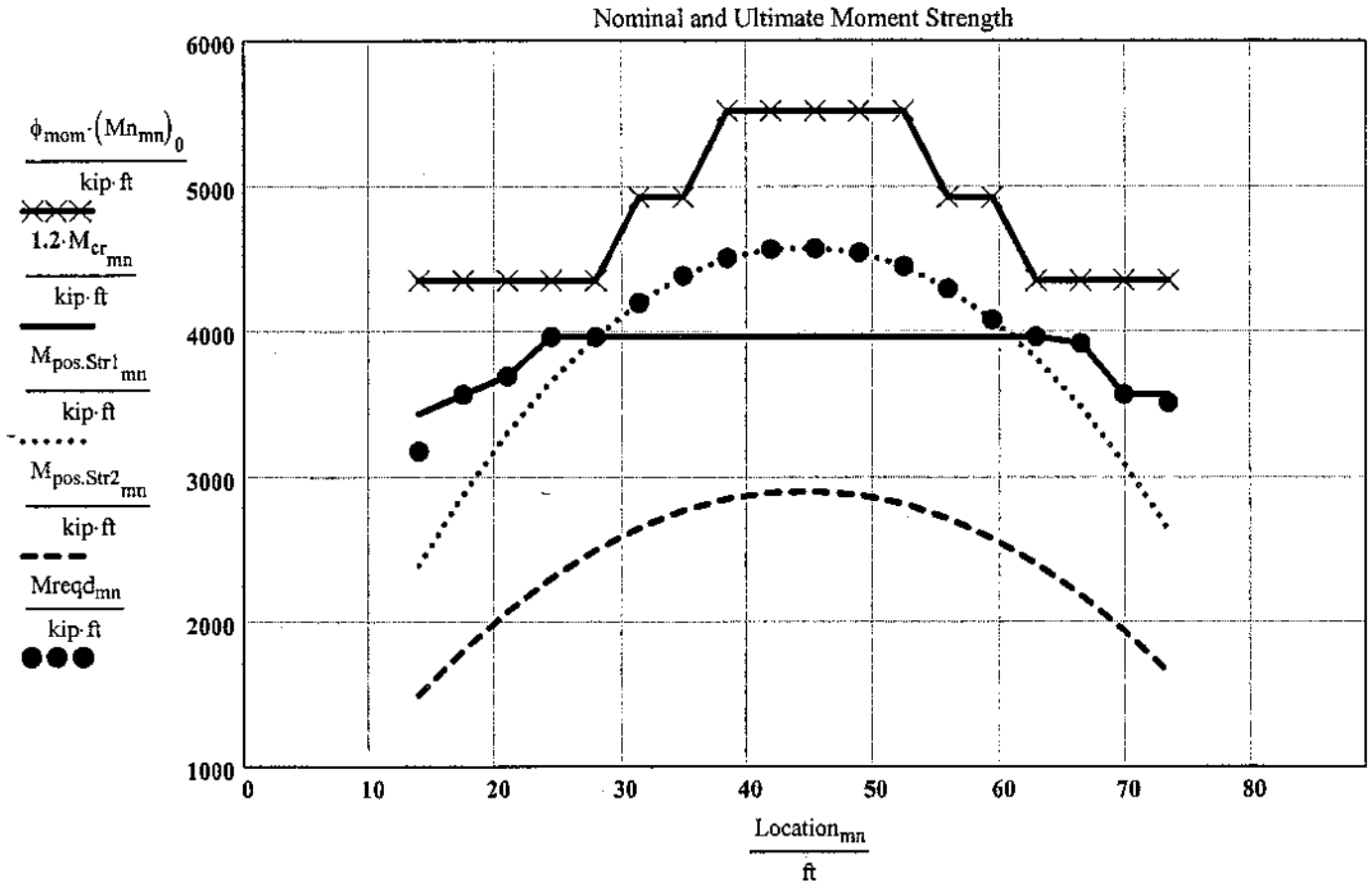


SlopeData =

"Stage"	"Change in L @ Top (in)"	"Change in L @ Bot. (in)"	"Slope at End (deg)"	"midspan defl (i
"Release"	0.047	−0.794	0.536	2.529
"30 Days"	−0.033	−1.488	0.928	4.375
"60 Days"	−0.085	−1.768	1.073	5.058
"120 Days"	−0.145	−2.105	1.25	5.892
"240 Days"	−0.198	−2.469	1.448	6.828
"non-comp DL"	−0.29	0.224	−0.327	−1.87
"comp DL"	−0.012	0.033	−0.029	−0.164

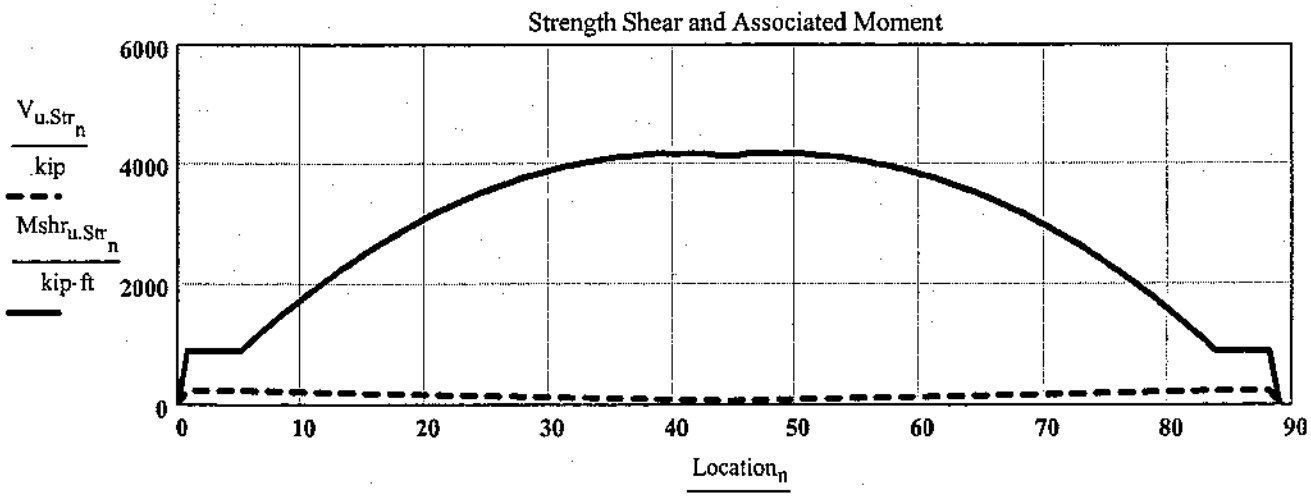
Reference:C:\FDOT_STR\Programs\LRFDPbeamE1.85\ProgramFiles\section3.mcd(R)

Moment Nominal Resistance versus Ultimate Strength Cases I and II



$\max(M_{pos.Str1}) = 4571\ \text{kip}\cdot\text{ft}$ $\min(CR_{str1.mom}) = 1.098$ CheckMomentCapacity = "OK"

Strength Shear and Associated Moment



$\max(V_{u.Str}) = 225\ \text{kip}$ $\max(Mshr_{u.Str}) = 4186\ \text{kip}\cdot\text{ft}$

Check and Design Shear, Interface and Anchorage Reinforcement

Locally assigned stirrup sizes and spacings (Values less than 0 are ignored) To change the values from the input file enter the new values into the vectors below. Input only those that you wish to change, values that are less than one will not alter the original input values.

The interface_factor accounts for situations where not all of the shear reinforcing is embedded in the poured in place slab

	$user_s_{nspacings} :=$	$user_NumberSpaces_{nspacings} :=$	$user_A_{stirrup_{nspacings}} :=$	$interface_factor_{nspacings} :=$
A stirrup	XX·in	XX	XX·in^2	1
S1 stirrup	XX·in	XX	XX·in^2	1
S2 stirrup	XX·in	XX	XX·in^2	1
S3 stirrup	XX·in	XX	XX·in^2	1
S4 stirrup	XX·in	XX	XX·in^2	1

Reference:C:\FDOT_STR\Programs\LRFDPbeamE1.85\ProgramFiles\section4.mcd(R)

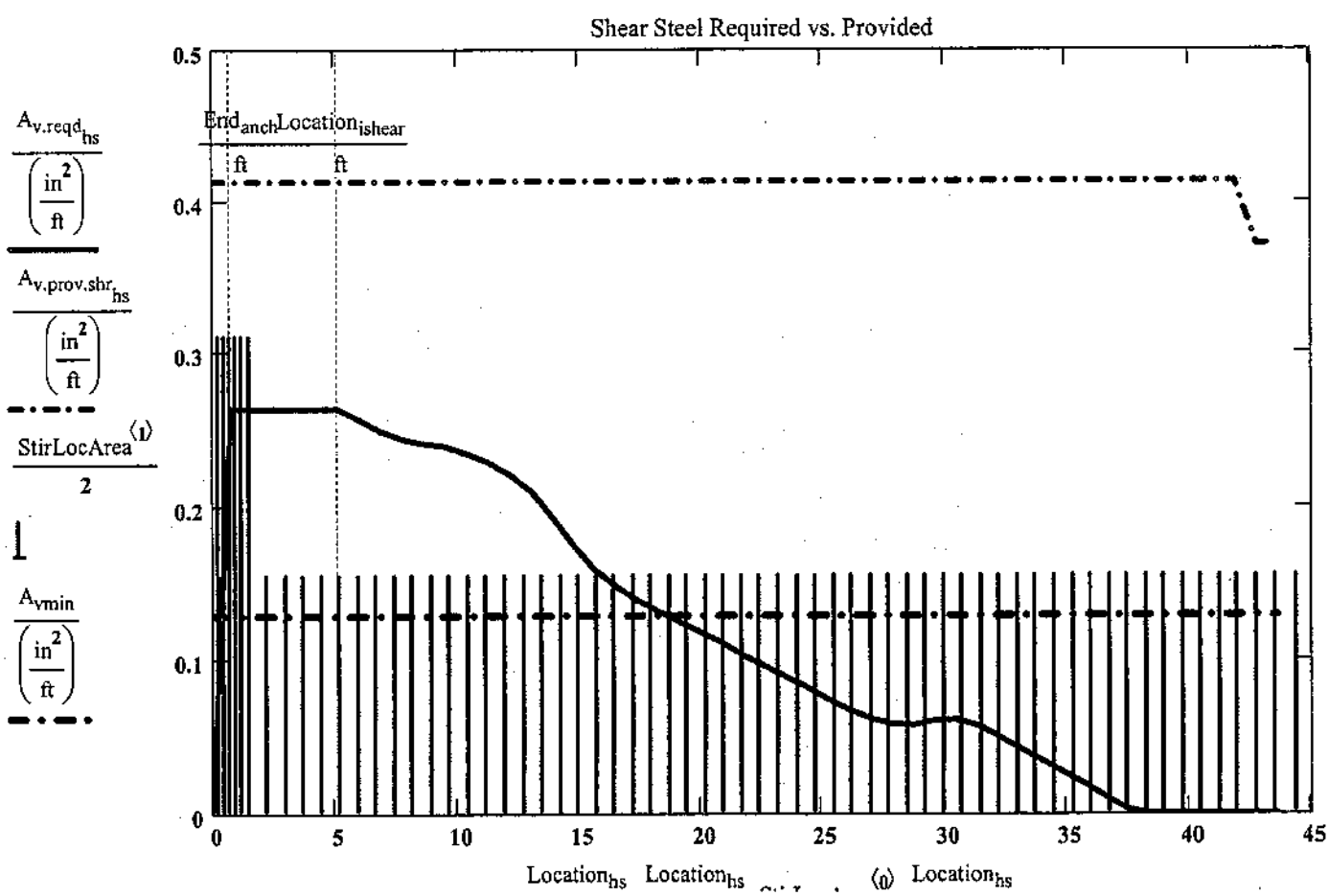
Stirrup sizes and spacings used in analysis

Assumed all shear steel was interface steel, may need to add interface steel for Final.

	$s =$ (in)	$NumberSpaces =$	$A_{stirrup} =$ (in^2)
A stirrup	3	5	0.62
S1 stirrup	9	10	0.31
S2 stirrup	9	10	0.31
S3 stirrup	9	35	0.31
S4 stirrup	10	2.2	0.31

EndCover = 2 in

The number of spaces for the S4 stirrup is calculated by the program to complete the half beam length

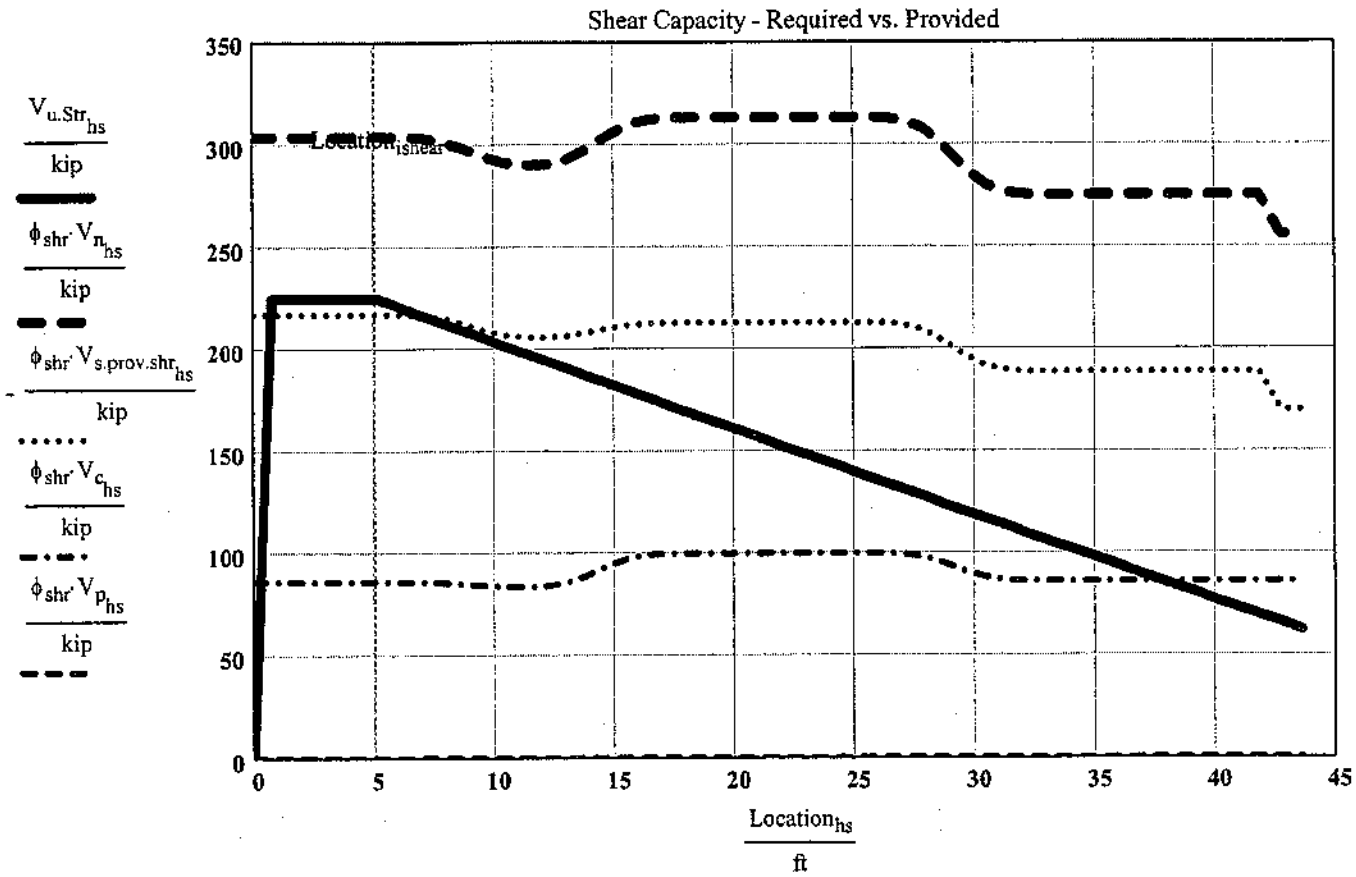


$\min(CR_{ShearCapacity}) = 1.348$ CheckShearCapacity = "OK"

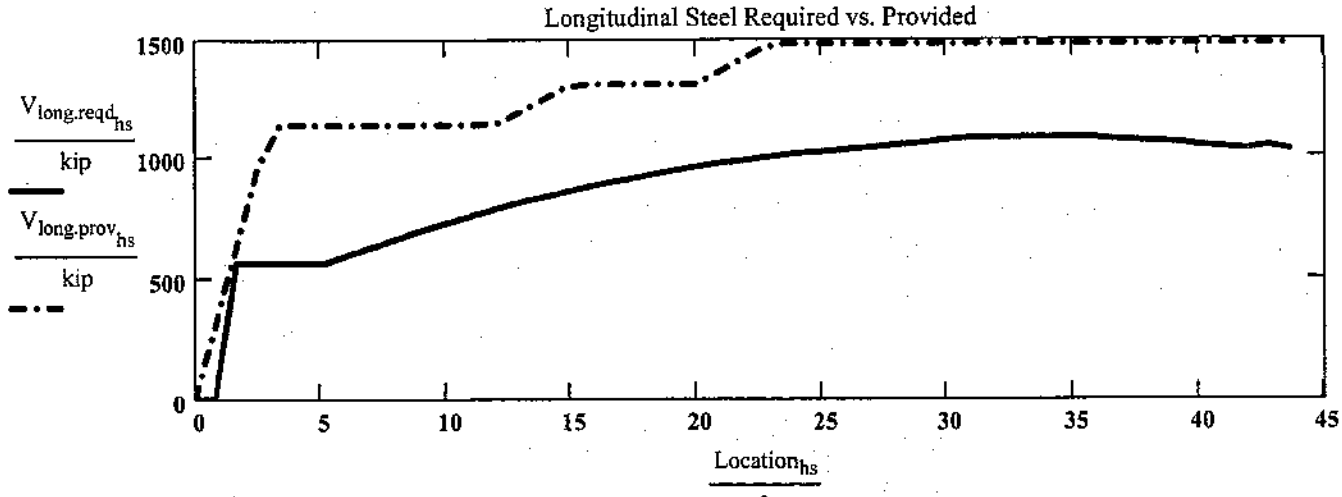
$\min(CR_{StirArea}) = 1.564$ CheckStirArea = "OK"

$\min(CR_{StirrupArea}) = 2.881$ CheckMinStirArea = "OK"

CheckMaxStirSpacing = "OK" CheckAnchorageSteel = "OK"



Check Longitudinal Steel



$\min(CR_{LongSteel}) = 1.123$ CheckLongSteel = "OK" *If NG can also adjust with shear reinforcing*

Check Interface Steel

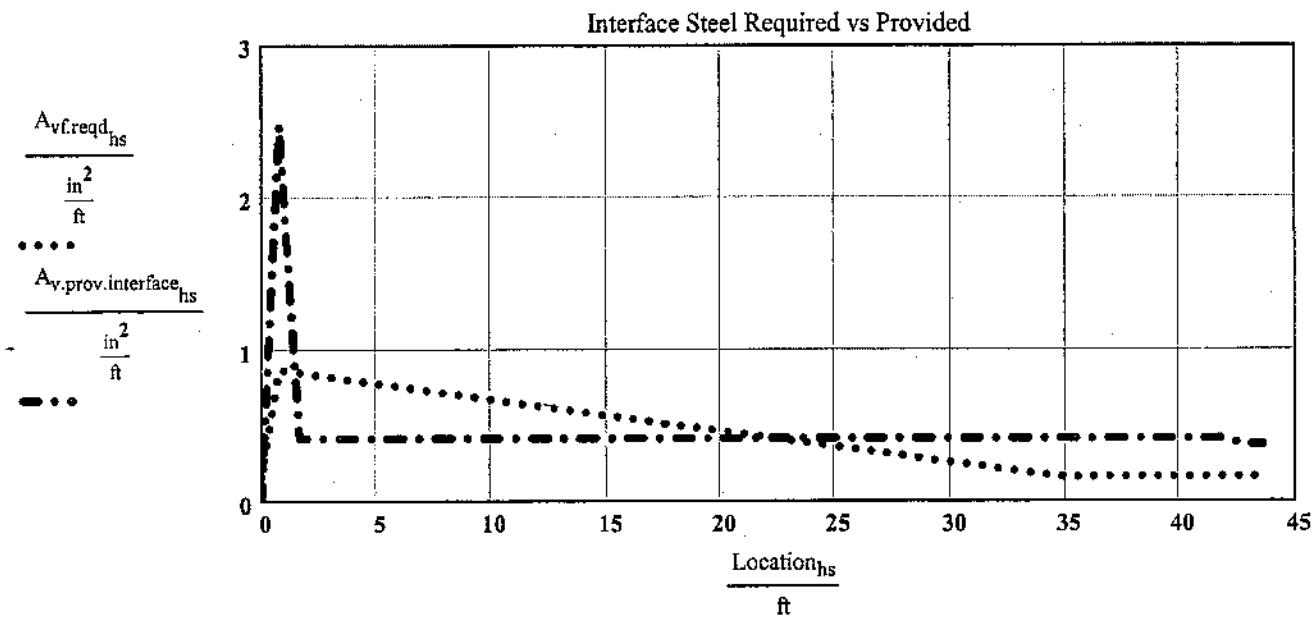
Typically shear steel is extended up into the deck slab. These calculations are based on that assumption that the shear steel functions as interface reinforcing. The interface_factor *can be used to adjust this assumption*

MinInterfaceReinfReqd = **"Yes"**

$A_{vf.min} = 0.16 \frac{in^2}{ft}$ $\max(A_{vf.des}) = 0.9 \frac{in^2}{ft}$

If Avf.design or Avf.min is greater than 0 in²/ft, interface steel is required.

MinLegsPerRow = 0 CheckInterfaceSpacing = **"OK"**



$$CheckInterfaceSteel := if\left(\frac{TotalInterfaceSteelProvided}{TotalInterfaceSteelRequired + 0.001 \cdot in^2} \geq 1, \text{"OK"}, \text{"No Good"}\right) \quad CheckInterfaceSteel = \text{"OK"}$$

Check Anchorage Steel for Bursting and Calculate Confinement Steel

CheckAnchorageSteel = **"OK"**

use #3 bars @ 6 in for confinement TotalNoConfineBars = **24** *value includes bars at both ends*

Summary of Design Checks

AcceptInteriorM = **"OK"**	AcceptExteriorM = **"OK"**	AcceptInteriorV = **"OK"**
Check_f_{pt} = **"OK"**	Check_f_{pe} = **"OK"**	Check_$f_{tension.rel}$ = **"OK"**
Check_$f_{comp.rel}$ = **"OK"**	Check_$f_{tension.stage8}$ = **"OK"**	Check_$f_{comp.stage8.c1}$ = **"OK"**
Check_$f_{comp.stage8.c2}$ = **"OK"**	Check_$f_{comp.stage8.c3}$ = **"OK"**	CheckMomentCapacity = **"OK"**
CheckMaxCapacity = **"OK"**	CheckStirArea = **"OK"**	CheckShearCapacity = **"OK"**
CheckMinStirArea = **"OK"**	CheckMaxStirSpacing = **"OK"**	CheckLongSteel = **"OK"**
CheckInterfaceSpacing = **"OK"**	CheckAnchorageSteel = **"OK"**	CheckMaxReinforcement = **"OK"**
CheckInterfaceSteel = **"OK"**	CheckStrandFit = **"OK"**	
TotalCheck = **"OK"**		

PCL XL error

Warning: IllegalMediaSource

Picciola Bridge Improvements

AASHTO Type III Alternative
End Bent Design

HNTB
The HNTB Companies

1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
(407) 859-8380
FAX (407) 317-9016

Input:

$t_{slab} := 8 \cdot in$

$\omega_{DC_Beam} := 0.584 \cdot \frac{kip}{ft}$

$Cap_Depth_Add := 4.5 \cdot ft$

$\gamma_{conc} := 0.150 \cdot kcf$

$Cap_{Width} := 3 \cdot ft$

$t_{bw} := 1 \cdot ft$

$Bridge_width := 43 \cdot ft + 1 \cdot in$

$Cap_Depth := 3 \cdot ft$

$BW_Ht := \left(3.75 + .25 + \frac{8}{12} - 1.125\right) \cdot ft$

$Span_Length := 89 \cdot ft$

$Cap_{Length} := 44 \cdot ft$

$BW_Ht = 3.542\,ft$

$No_of_Beams := 6$

Dead Load:

$DC_{Slab} := t_{slab} \cdot \gamma_{conc} \cdot Bridge_width \cdot \frac{Span_Length}{2}$ $\qquad DC_{Slab} = 191.721\,kip$

$DC_{Beams} := No_of_Beams \cdot \omega_{DC_Beam} \cdot \frac{Span_Length}{2}$ $\qquad DC_{Beams} = 155.928\,kip$

$DC_{Cap} := Cap_{Length} \cdot Cap_{Width} \cdot Cap_Depth \cdot \gamma_{conc}$ $\qquad DC_{Cap} = 59.4\,kip$

$DC_{Cap_Add} := \frac{Cap_Depth_Add \cdot Cap_{Length} \cdot Cap_{Width} \cdot \gamma_{conc}}{2}$ $\qquad DC_{Cap_Add} = 44.55\,kip$

$DC_{BW} := BW_Ht \cdot t_{bw} \cdot Cap_{Length} \cdot \gamma_{conc}$ $\qquad DC_{BW} = 23.375\,kip$

$M_{DC_Cap_Add} := DC_{Cap_Add} \cdot Cap_{Length} \cdot \left(\frac{1}{2} - \frac{1}{3}\right)$ $\qquad M_{DC_Cap_Add} = 326.7\,kip \cdot ft$

$DC_{Appr_Slab} := 1.125 \cdot ft \cdot 5 \cdot ft \cdot Cap_{Length} \cdot \gamma_{conc}$ $\qquad DC_{Appr_Slab} = 37.125\,kip$

$P_{DC} := DC_{Slab} + DC_{Beams} + DC_{Cap} + DC_{Cap_Add} + DC_{Appr_Slab} + DC_{BW}$ $\qquad \boxed{P_{DC} = 512.099\,kip}$

$M_{DC} := M_{DC_Cap_Add}$ $\qquad \boxed{M_{DC} = 326.7\,kip \cdot ft}$

Live Load:

$\omega_{LL} := 0.64 \cdot \frac{kip}{ft}$ $\qquad$ $IM := 1.33$

$P_{LL_Axle_1} := 32 \cdot kip$ $\qquad$ $d_1 := 1$

$P_{LL_Axle_2} := 32 \cdot kip$ $\qquad$ $d_2 := \frac{Span_Length - 14 \cdot ft}{Span_Length}$ $\qquad$ $d_2 = 0.843$

$P_{LL_Axle_3} := 8 \cdot kip$ $\qquad$ $d_3 := \frac{Span_Length - 28 \cdot ft}{Span_Length}$ $\qquad$ $d_3 = 0.685$

$P_{LL_Lane} := \frac{\omega_{LL} \cdot Span_Length}{2}$ $\qquad$ $P_{LL_Lane} = 28.48\,kip$

$P_{LL_Truck} := P_{LL_Axle_1} \cdot d_1 + P_{LL_Axle_2} \cdot d_2 + P_{LL_Axle_3} \cdot d_3$ $\qquad$ $P_{LL_Truck} = 64.449\,kip$

$P_{LL_IM} := P_{LL_Truck} \cdot IM + P_{LL_Lane}$ $\qquad$ $\boxed{P_{LL_IM} = 114.198\,kip}$

HNTB

Picciola Bridge Replacement
Determination of Maximum Pile Reactions for End Bent Design

P_{DC} = 512 kip
M_{DC} = 327 k*ft

Pile Information

Pile No.	Dist Btwn Piles	Dist from Pile 1	c	DC
	ft	ft	ft	kips
1	0.00	0.00	-20.00	67.89
2	6.67	6.67	-13.33	69.64
3	6.67	13.33	-6.67	71.39
4	6.67	20.00	0.00	73.14
5	6.67	26.67	6.67	74.89
6	6.67	33.33	13.33	76.65
7	6.67	40.00	20.00	78.40

Pile Group Properties

cg PG = 20 ft
$I = \Sigma d_i^2$ 1244.444444 ft^2
n = 7

Reaction Due to One Design Truck & Lane Load on Two Spans

R_{LL+IM} = 115.0 kips

LL Cases	No. of Trk Lanes	R_{LL+IM} kips	e_{LL+IM} ft	M_{LL+IM} k*ft	MPF	$R_{LL+IM+PL}$ kips	$M_{LL+IM+PL}$ k*ft
A	1	115.0	15.000	1725.0	1.2	138.0	2070.0
B	2	230.0	9.000	2070.0	1	230.0	2070.0
C	3	345.0	3.000	1035.0	0.85	293.3	879.8

LL Case A
P = $R_{LL+IM+PL}$ 138.0 kips
M = $M_{LL+IM+PL}$ 2070.0 k*ft
γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	67.8875	-20.00	-13.56	81.14
2	69.639286	-13.33	-2.46	82.74
3	71.391071	-6.67	8.63	104.33
4	73.142857	0.00	19.71	125.93
5	74.894643	6.67	30.80	147.52
6	76.646429	13.33	41.89	169.12
7	78.398214	20.00	52.98	190.72
				190.72

LL Case B
P = $R_{LL+IM+PL}$ 230.0 kips
M = $M_{LL+IM+PL}$ 2070.0 k*ft
γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	67.8875	-20.00	-0.41	84.14
2	69.63928571	-13.33	10.68	105.74
3	71.39107143	-6.67	21.77	127.33
4	73.14285714	0.00	32.86	148.93
5	74.89464286	6.67	43.95	170.52
6	76.64642857	13.33	55.04	192.12
7	78.39821429	20.00	66.13	213.72
				213.72

LL Case C
P = $R_{LL+IM+PL}$ 293.3 kips
M = $M_{LL+IM+PL}$ 879.8 k*ft
γ_{DC} = 1.25

Pile	DC kips	c ft	LL+IM+PL P/n+Mc/I kips	1.25*DC+1.75(LL+IM+PL) kips
1	67.8875	-20.00	27.75	133.43
2	69.639286	-13.33	32.47	143.87
3	71.391071	-6.67	37.18	154.30
4	73.142857	0.00	41.89	164.74
5	74.894643	6.67	46.61	175.18
6	76.646429	13.33	51.32	185.62
7	78.398214	20.00	56.03	196.05
				196.05

Overall Max Pile Reaction
P_{U_Max} = 213.72 kips
ϕ = 0.65
Downdrag = 0
UBC = 329 kips
UBC = 164 Tons

		Pile Tip Elev.	Est. Dax. Cap
From	TB-1	-1	170 T
SPT 97	TB-2	+19	145 T
Output			

Use Avg. + 9

APPENDIX F

PUBLIC COMMENT FORMS

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

Single lane with stop/go light system.

The reroute is adverse:
(1) longer emergency service responce time xtra 5.2 miles
(2) dangerous intersection @ 27
(3) 5.2 X 2 = 10 extra miles - not feel effect

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Helene & John Alexander

Address: 5342 Kings Ct
Fruitland Pk, FL 34731

(4) JR's would suffer.

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

Picciola Bridge Need to Alway Have Access to at Least one Lane. We can Post Signs for Closed Road or only open for Local Traffic. We need to have the Safest & most Efficient access to ~~Ambulance~~ Ambulance & Police & ~~Fire~~ Fire Depart. Also would like to know where & who is Paying for this Project. Will the People of Picciola Rd be Charged a Special Assessment for the Bridge.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Cheri ~~[illegible]~~ Autrmna

Address: 5145 Sydney Rd
Fruitland Pk 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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PUBLIC COMMENT FORM

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JUN 18 2004
HNTB ORLANDO

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Please share your ideas concerning the project plans:

It would be very inconvenience for me & my wife for shopping & going to work, not counting the time spent & extra mi. each day to work.
It would also hurt alot of businesses in the area, also boating & fishing

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: DAVID Bustillo

Address: 04610 Sunnyside Side Dr.
Fruitland Pk, Fl. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

I'm all for improving the bridge but for those of us that work in Leesburg & live in Fruitland Park it makes it hard for us to get there. When we work in leesburg on 441 it makes for problems As long as the bridge has a one lane forcus to get threw it will be great also if in case of a fire we in the Park may suffer worse.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Rena Brackin

Address: 4705 Pine St Fruitland Pk
Fl 34731

For more information contact:

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HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

_____

_____

_____

_____

_____

_____

_____

_____

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: _____

Address: _____

_____

For more information contact:

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Please share your ideas concerning the project plans:

I am opposed to the closing of the bridge completely because:
1) People would use OLD LAKE UNITY Rd. as a shortcut to LAKE UNITY Rd
Most of the homes on OLD LAKE UNITY Rd. have families with children and it would be TOO dangerous for them with all the traffic.
2) Even with a traffic light on HWY 27 and EAGLES NEST RD., traffic would be dangerous especially when school is in session.
3. Lives would be at risk when needing emergency care (POLICE, FIRE, AMBULANCE)

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JERRELL BRASHER

Address: 04320 HARRY DRIVE
Fruitland Park, Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Keep traffic flowing at Picciola Bridge for emergency vehicles, etc.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Joseph E. Becker

Address: 3316 E. Picciola Dr.
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

Richard R. Coon
5117 Albert Rd.
Fruitland Park, FL 34731

My reasons not to close the bridge.

1. Open for emergency use.
2. No traffic light at 27/eagle nest Rd.
3. Add 12 miles to every trip to Leesburg. 2 trips each day = 24 extra miles and 168 miles a week.

We have about 200 cars & trucks on Picciola Island. Just in our subdivision that would be about 17600 additional miles a week.

This does not even count the life enrichment cennter or Kings Cove.

4. The county has known for over 10 years that something had to be done at the bridge. There could have been weight limits put on the bridge then and the bridge could still function.

As a member of PISHA I am for keeping the bridge open during construction.

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Please share your ideas concerning the project plans:

KEEP ONE LANE OPEN FOR EMERGENCY VECHILES
SEEMS LIKE A LONG TIME TO CLOSE BRIDGE COMPLETELY.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: STEVEN L. COTNER

Address: 05524 OAK LANE
FRUITLAND PK. FL. 34731

For more information contact:

Michael J. Leo, P.E.
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Please share your ideas concerning the project plans:

Thank you for your well prepared presentation.

I am wondering if there are any plans to widen Picciola Rd. Has there been any long term thought to this. There are a lot of homes out there.

Thanks

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Karen D'Annecy

Address: Po Box 896

Fruitland Pk FL 34731

For more information contact:

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Please share your ideas concerning the project plans: I PROPOSE PLAN D USE A SINGLE SPAN STRUCTURE, BUILT ON SITE. USING A BAILEY BRIDGE TO CARRY TRAFFIC, THE BAILEY BR MAY BE POSSIBLY A EMERGENCY EQUIPMENT STORED BY FLDOT. IF USING A BAILEY BRIDGE OF 2TH 2 TRAFFIC LANES. IF NECESSARY TO USE A 1 LANE BAILEY, INSTALL TRAFFIC ACTUATED & TIMED TEMPORARY 3 COLOR TRAFFIC SIGNAL @ THE BRIDGE

ADD WEIGHT RESTRICTIONS ON THE TEMPORARY BRIDGE

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: CLIFFORD DYKE PHONE 352-326-5744

Address: 04344 SUNNY SIDE DRIVE

FRUITLAND PARK 34731-5689

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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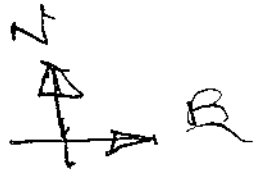
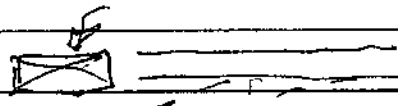
Please share your ideas concerning the project plans:





Why not? Would replace Bridge & straighten out dangerous curve. 90% could be constructed without closure. Would cost more but it is our tax dollars!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: William G. Gudd

Address: 35533 Crescent Dr
Fruitland Park, Fl 34731
(352) 728-6483

For more information contact:

Michael J. Leo, P.E.
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1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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mleo@hntb.com

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Please share your ideas concerning the project plans:

Considering the approx. 1 year lead time — please be proactive & improve Eagles' Nest / Lk Unity Rd to accomodate increased traffic if opt B (bridge close down @ 6 mo) is selected.

Thank you!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: SANDRA GINN

Address: 5540 OAK LN

FRUITLAND PARK FL 34731-6027

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

We feel that at Least one Lane should be kept open at all times to allow access to the ambulance & the Sheriff to emergency vehicals, also to cut milage for those People Living in the area north of the bridge.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Robert & Martha Glass

Address: 05148 Twin Palms Rd
Fruitland Park FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

I favor keeping our low open all the time.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ken Graves

Address: 34240 Rose Row
Ft Park Fl 34731

For more information contact:

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HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

If this Bridge is rebuilt
Put Right —
High enough for Boat Traffic
to State Park and the rest
of Lake Chain —

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Andrew Hamand

Address: 93 Rose Dr.
Fruitland Park FLA 34731

For more information contact:

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HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Please raise the bridge at least 2 feet higher
Thank you Geraldine Hamman

FOR BOAT TRAFFIC – CONSIDER
TRAFFIC THAT CROSSES
UNDER THE BRIDGE

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Geraldine Hamann

Address: 93 Rose Dr
Fruitland Pk 34731 352-314-0287

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

① If bridge is structurally sound - leave well enough alone
② Bridge to 1 lane during construction - detour to Eagles Nest to 27 is too long + unsafe in an emergency - too much time to retrieve patient
③ Major bottleneck at Eagles Nest + 27 - even with light.
④ Detour - costs citizens - time, increased taxes + much more gas at inflated prices we can't afford now
⑤ Money + effeciency - only criteria - resident access to fire, ambulance, sheriff sacrificed

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Don + Sandy Hayes

Address: 35234 Queens Way
Fruitland Park, Fl. 34731

For more information contact:

Michael J. Leo, P.E.
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Claire Hedgcock

Address: 05445 East Harbor Drive
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
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Orlando, Florida 32804
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PICCIOLA BRIDGE REPAIR

In giving careful consideration to the projected ramifications of closing the main access to the City of Leesburg for residents beyond the bridge, several concerns have risen.

Should the Bridge Be Closed Entirely one of the most serious concerns is the flow of the number of vehicles in the daily traffic that would attempt to exit Eagles Nest Road at Hwy 27/441. Each vehicle exiting would be entering the break in the median in order to join the South bound traffic. With the crest of the hill to the South on 27/441, the speed of oncoming traffic would not give an adequate break for the number of vehicles to cross to the median. Should a traffic light be anticipated at the intersection, the speed of the vehicles coming over the rise would not allow for adequate stopping distance nor warning before their contact with the North bound vehicles stopped at the light. The crest is such that you cannot see what is beyond for the through traffic lanes.

It would be prudent that One Lane of The Bridge Remain Open for South bound traffic during construction. This would allow those individuals going in to Leesburg for their medical and other services, as well as those employed individuals, to continue on Picciola Road with a sensible and much safer exit on to Hwy 27/441 at the existing traffic light. We now have more employed individuals living North of the Bridge making this drive every day. The traffic tallies should give a good indication of the times of day of the peak or heaviest travel, as well as the number of vehicles on the road at any given time.

The Return Trip from Leesburg/South, would then be directed to go North on Hwy 27/441 with a right turn on Eagles Nest Road. The length of the Decel lane on 27/441appears to be adequate to handle the traffic turning right. This is a more sensible approach rather than closing the road at the bridge entirely.

One concern that was voiced was how the Emergency 911 calls would be handled without the quick, ready access as they come out from Leesburg. We had three Emergency Medical calls in one weekend to our neighborhood. Speed was most important. The Fire Service Station has been closed on Picciola at the Lake Unity Road intersection. All Fire service to the area beyond the bridge has been coming out from Fruitland Park. Their Fire Rescue truck accompanies the Emergency vehicles.

Thank you for giving consideration to these concerns.

Claire Hedgcock

Claire Hedgcock

HNTB

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Please share your ideas concerning the project plans:

"Indicated at meeting"

~~WILL A TRAFFIC LIGHT BE INSTALLED AT THE INTERSECTION OF 441 & EAGLES NEST~~ ?
+27

1) IF YOU "ONE-LANE" WHILE BRIDGE IS UNDER CONSTRUCTION, WHAT WILL BE THE APPROX. WAIT TIME TO CROSS ?
2) WHAT ARE THE HOURS OF CONSTRUCTION ?
3) IS NIGHTIME CONSTRUCTION AN ALTERNATIVE ?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JORDAN & DEBBIE HYPES

Address: 5102 ALBERT ROAD
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Major Concern is for MOST written at least one lane for ambulance access plus a number of the ideas as indicated at tonight's meeting

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Helen E. Jacobs

Address: 5202 Sydney Road
Fruitland Park, FL 34731-6105

For more information contact:

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HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

The Picciola Bridge has thousands of vehicles travelling per day. The best alternative is to keep the bridge open - at least one lane.

Some of us still work & have deadlines to meet. I would have to increase my travel time by 20 minutes to go the extra 10 miles to get back to my origination point.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Shutting the bridge down is not a viable option.

Please provide your name and address below if you would like to receive future information about this project:

Name: Dianne Jones

Address: 05443 Royal Oak Dr
Fruitland PK FL 34731

For more information contact:

See BACK

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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

The Picciola Bridge has thousands of vehicles per day and the best alternative is to keep the bridge open even if traffic is restricted.
Eagles Nest road at Hwy 441 has no traffic signal and there will be terrible congestion if the bridge is closed.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: John E Jorn Jorn

Address: 5443 Royal Oak Dr
Fruitland Pk Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Everytime we need to go to town we have to make out of town & have experience with the sight of you. Not enough for road 3 feet attach and we need room across & left. Make one lane so you can get thru. I'm I'm concerned for bridge above the old, what have our taxes.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Tom & Gwendolyn Lewis

Address: 35437 Willow Circle
Fruitland Pk. Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

A single span raised 2' above the present clearance seems good. Plan A keeping the road "partially" open sounds good. Until people realize "long" waits will often happen while heavy equipment has preference. Overall, plan "B" is best if emergency vehicles are placed in the old firehouse WITH drivers. I believe the well there can be cleaned and the firehouse

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. Larry C. Lipps

Address: 35322 Lake Unity RD
Fruitland Pk FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Bridge proposal for height OKay
I have largest Trailerable Boat back
there and Clear at high water by 1"
with extra 2' feet so problem for
Park.
Leave traffic flow or you'll kill JR
Store on Westside.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Frank Fogel

Address: 35411 Crescent Dr. FP. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

MY MAIN CONCERN FOR THIS PROPOSED PROJECT WAS THE SAFETY OF THOSE EXITING THE THE ~~PICIOLA~~ AREA. THE LIGHT AT EAGLES NEST ROAD/441 IS DEFINITELY A MUST.

~~ARE~~ WILL THE LIGHT BE PUT ON EAGLES NEST INTERSECTION IF PROPOSAL 4 IS USED?

ALSO THERE IS A CONCERN ABOUT THE AWKWARD INTERSECT AT LAKE UNITY ROAD AND EAGLES NEST.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Debbie Lynch

Address: 4200 Bair Avenue
Fruitland Park FL 34731

For more information contact:

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HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

What about the school bus times & will they have to be rerouted? Does the school board know about the project & when do you think the project will start?

I think that the bridge should be closed to do the project.

The Emerg. eqip. already parks in different places - so why can't they Park in the old Fire Station lot?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Walter E Mackey Jr.

Name: Suzanne B. Mackey

Address: 28 Rose Dr.

F. P, FL 34731

For more information contact:

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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: James H. Marshell Jr.

Address: 37049 Shadow Wood Ln

Fruitland Park Fla. 34731

For more information contact:

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HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

MAKE THE BRIDGE HIGHER THAN 8FT.
KEEP THE ROAD OPEN 1 LANE OR MORE

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JOHN R MASLER

Address: 35545 LK UNITY RD.
FRUITLAND PK FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Orlando, Florida 32804
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Please share your ideas concerning the project plans:

There should be a traffic light put up at Eagles Nest Road to facilitate traffic flow and for safety. Also, Bridge should probably be done 1 lane at a time. I have seen temporary bridges put up in the past and that may also be a solution

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Steve M Mercer

Address: 35850 Unity Drive
Fruitland Park, FL 34731

For more information contact:

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Please share your ideas concerning the project plans:

closing the bridge would be bad it would put the last small Home-base business out of business that we don't even know that they exist.

J.R. Food Store would just turn out business 93% of his business is on the other side of bridge

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Cal Meyer

Address: 33720 Picciola Dr.
Fruitland Park, Fl 34731

For more information contact:

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Please share your ideas concerning the project plans:

There should be sidewalks included in the design of the bridge and the approaches.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Gregory D. Moody

Address: 3545 Queen's Way
Fruitland Park, FL, 34731

For more information contact:

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Please share your ideas concerning the project plans:

Closing the bridge totally is rediculous. The extra 15 Minutes will be more like 25 to 30 with the traffic. School Bus routes, Fire, Police, Ambulance, People who work South, East of Fruitland Park. leaving a lane open is the only reasonable traffic.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Scott & Julie Moss

Address: 05321 Royal Oak Drive
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
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Please share your ideas concerning the project plans:

Close it down.
TRAFFIC Light at Hayes WEST 441.
Get it done quickly
Save TAX payers money.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Tom Newman

Address: 4132 Bair Ave
Fruitland Park Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Bridge Clearance needs to be at least 9' at High water level. Keep in mind the Lake County Water Authority has established Lake fluctuations of 1½'.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: DON NICHOLSON

Address: 35703 LAKE UNITY ROAD
Fruitland Park Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

(1) FULL VIEW PRIME TO BE OF NEW - TRANSITED AVENUE - DOES OUR ROAD WORK FOR PEDESTRIANS OUR PRIME NOT TORN DOWN TO NEW ONE IS DONE. ROAD TOO NARROW FOR CERTAIN HEAVY TRAFFIC

OPTION 2

(2) ADDITIONAL FUEL LANES TO PROVIDE = $655,000

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: FRED O'BRIEN

Address: 3417 CRESCENT DR
FRUITLAND PARK FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

It will be a great hardship for me to drive the long way to get to 27 South. The extra time and cost of gas will be too great for my budget. I drive my husband to Dialysis 3 times a week and come Home for the 4 hours he's there and then drive back for him. The extra gas and mileage will be too great. Also having to go way out of my way to shop will be a definate

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JOYCE M. ONEIL

Address: 604 ROSE DRIVE
FRUITLAND PARK, FL. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

I will have a great hardship if you decide to close the Picciola Bridge Completely. I am a Diabetic on a limited budget and I go to Dialasi 3 times a week. The extra time traveling and cost of gas will harm my budget. Also the increased traffic past our Retirement Park will be so great we will have a hard time crossing over to the lane to head the other way. Also →

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: THOMAS J. ONEIL JR

Address: 64 ROSE DR.
FRUITLAND PARK, FL. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

#1 KEEP THE ORIGINAL BRIDGE AS IS.

#2 STRAIGHTEN THE ROAD - ADD A NEW BRIDGE to the SOUTH of PRESENT BRIDGE. USE PRESENT BRIDGE TILL NEW ONE IS COMPLETED

#3 DO NOT CLOSE COMPLETELY WHILE OLD BRIDGE IS UNDER CONSTRUCTION

#4 DO IT YOUR WAY. USE THE DETOUR

P.S. WE LIVE IN KINGS COVE

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name:

Address: MILO/EMILY PALMATEER
05350 TWIN PALMS RD.
FRUITLAND, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Phased construction is most important, regardless of bridge design, height, or span.

Core lighting in guard rails would be helpful.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: William A. POPE

Address: 35542 DOGWOOD DRIVE
FRUITLAND PARK FL 34731-5903

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

June 17, 2004

Mr. Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, FL 32804

Dear Sir,

I attended the Picciola Bridge information meeting last Tuesday evening. After a couple of days of thoughts, I decided to share them with you.
First, as you probably sensed at the meeting, most everyone there was not at all concerned with the engineering technicalities of the project. Whether a single span, or three spans, was irrelevant. So were your concerns about width of project, wetlands encroachment, retaining wall design, and the like. For the resident and driver, the road surface of the bridge is the primary concern. Below and from the side are not in the mix.

Yet, for the boater, the clearance is of great concern. I am not a boater, but the question remains, "Why have a bridge at all?" Because boat traffic is a consideration, and must be accommodated. Fifty years ago, when the bridge was built, boats were generally smaller than those of today. And today's boats are probably smaller than those of the next seventy-five years. So, size does matter. And boat traffic does matter. Otherwise, you could just fill in the site, make a causeway, and have done with it. That would be really nice. But you don't have that as an option, so you must accommodate the concerns of the boaters. Apparently eight feet is not enough. Something for you to work on.

The primary concern of everyone at the meeting was the accessibility of bridge use during construction. It was quite evident that the residents of the area want very much to be able to cross the bridge during the construction project. So, your option A (phased construction) is the apparent desire of the bridge users. Cost is a factor, but the whole project is to provide easier, safer usage for the present and the future. Since property taxes are not used to fund highway construction, the cost is not an immediate concern of the users. Extra distance, and therefore, extra time is a concern. Police, Ambulance, Fire services prompt access are a great concern. School bus access is of great concern, and the resulting change in route scheduling will throw a lot of families off, in addition to parent's drive to work schedules. Children waiting for the bus in the dark

should be seriously considered, as well. The detour route on Lake Unity Road and Eagle's Nest Road is not really satisfactory, but there really is no other choice. Adding all the Picciola traffic to the detour roads would surely cause problems to them.

To sum up, the engineering and technical concerns are of little importance to the residents. The social and daily living concerns greatly outweigh the technical. So, one must conclude that bridge usage is more important than bridge appearance. Access during phased construction is much more important than the time required to do the job.

I hope these thoughts are helpful to you, and that you will carefully consider the social desires of the users of the bridge. After all, they are the ones for whom the work is being undertaken.

Very truly yours,

William A. Pope
35542 Dogwood Drive
Fruitland Park, FL 34731-5903

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Fruitland Park Casino
June 15, 2004

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Please share your ideas concerning the project plans:

If there happens to be a accidentil fire the fire Department needs a easy and faster way to get to us. The Buses 4 the local schools will have longer routes and the school Day will Off.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Beverly Radiff

Address: 4705 Pine St
Fruitland Park

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
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Please share your ideas concerning the project plans:

Currently fishermen illegally park (and launch small boats) on the right of way approaches to the existing bridge. This needs to be eliminated or fully developed as a parking area (for pedestrian and vehicular safety). It is assumed that the proposed plan does not provide for fishing "from" or "under" the bridge -- This also is currently a safety issue both pedestrian and vehicular wise.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: BOB RATLIFF

Address: 05302 MAGNOLIA TERRACE
FRUITLAND PARK, FL 34731

(352) 787-0552

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

Overall, we prefer a totally new bridge (demolish old one). Community will use the proposed detour during this time.

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Please share your ideas concerning the project plans:

COMPLETE CLOSURE OF BRIDGE IS A
BAD IDEA.

COST TO RESIDENTS IN TIME DELAY. GAS.
COST TRAFFIC & ALSO
SAFETY ISSUES WITH SCHOOL BUSSES ETC
UNITS FIRE & POLICE SHOULD MAKE THIS
A NO BRAINER ISSUE AGAINST CLOSURE.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: James Riedetich

Address: 33614 Picciola Dr.
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
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Please share your ideas concerning the project plans:

Please keep a thru traffic lane open.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Wanda K. Robbins

Address: 5250 Frederick Rd
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: _____

Address: _____

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Keep one lane of the bridge open.
Set up a temporary stop light to control traffic.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Larry & Valery Silha

Address: 51 Rose Drive
Fruitland Park, FL 34731-6711

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

Closing off both lanes would be dangerous for emergencies in case of fire or an ambulance.
Going to Eagle's Nest road would be dangerous to get out on 441/27 plus cost of gas going out of our way

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: FRED SOPOTNICK

Address: 5424 E HARBOR DR
FRUITLAND PARK

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Fruitland Park Casino
June 15, 2004

RECEIVED
JUN 21 2004
HNTB ORLANDO

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the work shop or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

We were unable to attend the meeting, but would like to urge you to not close the bridge. Safety is our concern with all our elderly population. Many in our area drive golf carts & being that we live in the mining school bus would have to go out all around. Inconvenience for all involved. Right now road is rough around bridge, at least we will get out to the main highway at least twice a day. Please use a temporary bridge!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Bob & Joyce St. Clair

Address: 05225 Twin Palms Rd.
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

(1) Pedestrian and bike path Side walk should be considered on new bridge

(2) New colvert Pipe is needed on Stellings Blvd. approach to bridge

(3) Eagles nest and 441/27 intersection must have a light and left turn lane.

(4) lighting on bridge would make the bridge safer for pedestrians

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

(5) I favor keeping one lane open for emergency vehicles.

Please provide your name and address below if you would like to receive future information about this project:

Name: Robert E. Taylor

Address: 4126 Picciola Rd (Stellings Blvd)
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Provide walkway on bridge

Mature Area Around bridge for people to fish & park near bridge.

leave one lane open if possible during construction.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: George Utz

Address: 36049 Lake Unity Nursery Rd
Fruitland Park FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Provide one lane of traffic during construction for continuous service on Picciola Road at the bridge.

Why are the fire station closed?

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Virginia L. Utz

Address: 36049 Lake Unity Aux. Rd.
FP, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ron Walters

Address: 5295 Buckeye Rd
Fruitland Pk Fl 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

July 21, 2004

HNTB Architects Engineers Planners
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804

RE: Piccolla Bridge Improvements

Dear Mr. Micheal J. Leo, Jr.

Thank Your for your letter in reply to our concerns regarding the improvements of the Piccolla Bridge.

It was only after we had written our concerns regarding the bridge, that we realized that, if the choice was to keep the bridge open during construction, you intended to maintain 2-way traffic during construction. Therefore, that concern becomes a non-issue.

However, we do strongly urge you to consider maintaining traffic while constructing the bridge.

Let me give you a true example as why we think it is necessary to keep the bridge open during construction:

On Saturday, July10th about 4:00 PM it was necessary for my wife to take me to LRMC emergency with classic Heart Attack Symptoms. If the bridge were closed, the time to get there would have been at least 8 more minutes, probably 10 minutes longer if we had had to wait for the proposed stop light at Eagles Nest road to change. If it in fact had been a heart attack, the difference in time could have been serious.

It is for this reason that we think the bridge should remain open during construction.

I am sure you will give consideration to our suggestion.

Sincerely yours;

Robert S Glass
Martha L. Glass

Robert and Martha Glass
05148 Twin Palms Road
Fruitland Park, FL 34731

CC: Mr. Juan Chan (Lake County Department of Public Works)

July 19. 2004

MILO/EMILY PALMATEER
05350 TWIN PALMS RD.
FRUITLAND, FL 34731

HNTB
ARCHITECT'S ENGINEERS PLANNERS

DEAR MICHAEL:

I HAVE ANOTHER QUESTION.
IF THE BRIDGE IS CLOSED - YOU ESTIMATE A YEAR - AND SOME CATASTROPHIC EVENT CAUSES THE CLOSURE OF THE DETOUR, WHAT, IF ANY, EXIT ARE WE TO USE. I LIVE IN KINGS COVE ADDITION ON PICCIOLA RD. MY ONLY WAY OUT WOULD BE BY BOAT - WHICH I DO NOT HAVE.

SINCERELY
Milo & Palmateer

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Leesburg Community
November 4, 2004

Thank you for attending the Public Information Meeting to review the Plans for the Picciola Bridge Improvement Project on Picciola Road between Sable Palm and Lake Unity Road. The Lake County Department of Public works seeks your comments and concerns regarding these improvements. Please complete this form prior to leaving the meeting or send the completed form to HNTB Corporation (see contact information below). Your written comments will become part of the project record and will be given proper consideration.

Please share your ideas concerning the project plans:

My husband's parents lived off Unity Rd. at Lake Idlewild since 1947. This bridge was there then - 57 years ago. A new bridge would straighten out a dangerous road and an old bridge. We need a NEW bridge & keep the old one open to traffic. Thank you.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: MRS. RICHARD E. BAIR

Address: 04116 BAIR AVE.
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

HNTB

PUBLIC COMMENT FORM

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Leesburg Community
November 4, 2004

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Please share your ideas concerning the project plans:

I THINK THE CO. SHOULD HAVE ONE LANE OPEN DURING BRIDGE CONST. (BECAUSE GOING ALL THE WAY TO GRAYS AIR PORT RD. WOULD MAKE TO A DISADVANTAGE TO ME & MY WIFE DRIVING TO & FROM THE STORE SINCE WE AR OVER 70 YRS OLD. THANK YOU

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: BRANSON COMBS

Address: 05220 MAGNOLIA RIDGE RD.
FRUITLAND PARK FLA. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Leesburg Community
November 4, 2004

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Please share your ideas concerning the project plans:

See Attached

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: James P. Duncan

Address: 4304 Emmans Road
Fruitland Park, FL 34731 jim.duncan@secureweb.com

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

Subj: **Disappointed**
Date: 11/5/2004 9:22:30 AM Eastern Standard Time
From: JPDunc
To: jhill@co.lake.fl.us
CC: mleo@hntb.com, Jim.Duncan@secoenergy.com

Based upon the map on the Lake County web site, I believe your District includes the Piccola Road area and the location of a proposed bridge replacement.

Last night, there was a public meeting in Leesburg to again discuss options on how to handle the replacement--close the bridge or replace it while maintaining traffic flow. The disappointment reflected in my subject line is the fact that none of the County Commissioners bothered to attend and hear the input generated by this public meeting. We understand that this issue will be heard by the Commission on December 7 while most of us are at work. I will be in Washington, DC on company business or I would be there. How can I get my comments included in that hearing?

Based totally on flawed analysis, the engineering firm is recommending the option of closing the bridge for six to eight months and to hell with the 8,000 cars a day that will have to drive an additional six miles each way. Apparently, based upon the comments from the first meeting, the County has agreed to pave Eagles Nest Road, the detour route, and to place a full traffic signal at it's intersection with Hwy 27/441. This is like putting lipstick on a pig. It's still a pig! The light and the paving are needed anyway and don't change the rest of the concerns.

I say the analysis is flawed because it looks only at the cost of the bridge and gives no financial weighting to the additional financial costs, lost time, and health and safety risks posed by the detour. I stated this last night and am quoted on page one of today's *Daily Commercial*. The additional drive time also significantly delays needed emergency services, etc. Also, our only convenience store will be devastated by the bridge closing and likely will be unable to survive. Someone needs to do the math on the costs of 8,000 cars a day having to drive an extra 12 to 14 miles and the value of the lost time relative to an extra 30 to 40 minutes of commuting.

Last night's meeting was the second and the public response has been overwhelmingly against the bridge closing. Will these opinions be given appropriate consideration or are these meetings just a "PR thing" that have no real impact? I have never been a "political activist," but the absurdity of the bridge closing option is too much to ignore.

I said last night and I repeat.."It is incomprehensible to me that closing the bridge is even an option!"

I will very much appreciate hearing your position on this issue. You can call me at SECO, (352) 793-3801 extension 1000, or email me at jim.duncan@secoenergy.com or jpdunc@aol.com. I respectfully solicit your support on this issue. The affected citizens are at least 95% in favor of keeping the bridge open during construction and, frankly, those who aren't can still take the proposed detour route.

Thank you in advance for your response,

Jim Duncan
4304 Emmaus Road
Fruitland Park, FL 34731

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Leesburg Community
November 4, 2004

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Please share your ideas concerning the project plans:

MY COMMENTS ARE ON THE ATTACHED SHEET

Clifford A Dyke

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. Clifford & Jane Dyke

Address: 4344 Sunnyside Dr.
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

PUBLIC COMMENT FORM
Piccola Bridge Improvement Project
RFP No. 002-129
Leesburg Community
November 22, 2004

November 4, 2004 after making my comments at the meeting, I thought I should clarify some points I may not have addressed properly.

I liked your slide show presentation, however due to the speed of the slide show, I did not have enough time to completely read the data presented, or understand it.

I support the build in place with the detour plan, providing the proposed three color traffic signal and turning lanes, located at the junction of Eagles Nest road and State road 441/27 would be permanent. This proposal appears to one half million dollars cheaper, with less construction time.

The proposal said Eagle's nest road would be paved, Lake Unity road should be paved also, the pavement is at the point it must be paved to provide a smooth riding surface and above all stop further deterioration of the existing pavement, which has out lived it's useful life. The pavement has wheel ruts, apparently about 1/2 inch deep, which during a rain would hold water and could cause hydroplaning. This condition would also provide water that would enter in the many centerline longitudinal and mid lane cracks. There is an old saying in road building, if it don't drain it won't remain. This pavement does not provide a smooth riding surface, and has some potholes. Dodging these potholes has helped me to remember to write this letter..

The vertical under clearance of the bridge, is of concern, how much space is required by a pontoon boat, remember the required white light (usually located above the roof) on the rear of the water craft, when doing the vertical clearance study.

Thank You,

Clifford A. Dyke
04344 Sunnyside Drive
Fruitland Park FL 34731-5689
Phone 352-326-5744

Mike Leo

From: Jim Duncan [jim.duncan@secoenergy.com]
Sent: Tuesday, November 09, 2004 10:21 AM
To: jhill@co.lake.fl.us
Cc: Mike Leo
Subject: Picciola Bridge

I appreciate your efforts to call me yesterday. Unfortunately, later in the evening we discovered that one of our phones was off the hook. I look forward to discussing this issue with you. Feel free to call me at the work number listed below.

In my first email, I complained that the public's costs of the detour were not considered and compared to the "savings" of closing the bridge. I suggested that "someone should do the math." Well, I now have and the numbers are astounding!

First, my assumptions:

- 8,000 cars per day --provided by the engineers at the meeting
- 4,000 round trips per day--my assumption
- 6 round trips per week--my guess—could be higher or lower
- 5 miles extra each way--in dispute at the meeting, but this is QUITE conservative.
- 15 extra minutes each way--my guess, but conservative
- 10 miles extra per round trip--per above
- $2.00 per gallon--very conservative
- $10.00 per hour--very subjective but, probably, conservative
- 26 weeks--MINIMUM duration of closing, probably more like 36 or more

Using the above assumptions, let's look at the numbers:

- Additional fuel costs: 4,000 round trips per day X 10 miles = 40,000 extra miles per day X 6 days per week= 240,000 extra miles per week X 26 weeks= 6,240,000 extra miles divided by 20 MPG = 312,000 gallons of fuel X $2.00 per gallon = $624,000 in additional fuel costs.

- Value of Lost Time: 8,000 people per day (minimum) X .5 hours per day= 4,000 hours per day X 6 days per week = 24,000 hours per week X 26 weeks= 624,000 hours X $10.00 per hour = $6,240,000 in lost time.

These are the two quantifiable components. Many of the potentially affected citizens are also legitimately concerned about the additional time to get emergency services and with the

impact on our only convenience store.

So, to plagiarize the MasterCard commercials;

- Additional fuel cost, $624,000
- Value of lost time, $6,240,000
- Value of one lost life due to delayed emergency services—PRICELESS!

Commissioner Hill, I have provided this email in advance of our conversation to give us some specifics to discuss.

Jim Duncan
CEO & General Manager
Sumter Electric Cooperative, Inc.
jim.duncan@secoenergy.com
(352) 793-3801 Extension 1000

HNTB

PUBLIC COMMENT FORM

Picciola Bridge Improvements Project
RFP No. 02-129

Leesburg Community
November 4, 2004

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Please share your ideas concerning the project plans:

I would appreciate the work being done in the shortest time span even though I feel I am in the minority

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: BEVERLY FETZER

Address: 35135 STALLINGS BLVD
F. P. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

RE: Emergency EMT Service:
BRIDGE CLOSED: = EMT service in firehouse
Problem: - Longer route to reach hospital
in event of stroke, heart attack, bleed out or accident -
* added delay would mean increased heart muscle
damage, increased brain damage
& complications.
This is unacceptable!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: JOYCE FULLINGTON - DAVID FULLINGTON

Address: 33609 PICCIOLA DRIVE
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

I am in favor of Alternative A (Phased Construction) for the Picciola Bridge Improvements Project
I am greatly against Alternative B (Build in Place)
I live on Picciola Island and use the bridge everyday - the detour would be too much of a hardship for both myself and my son, Dan Loomis, both of whom use the bridge often: my son often works night shifts and it would be especially hard for him. We also greatly depend on the Convenience Store

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Continued on back → Please see back (Continued)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ann Wettstein Griffin

Address: 33428 Picciola Dr
Fruitland Park, Fl. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Right now, I do not like any option that is currently on the table. I understand that this bridge is "Functional Obsolete" which I understand to believe that the bridge does NOT currently present a safety hazard but it is outdated by today's standard. If the pilings are slowly rotting; why can't we replace the pilings, leave the bridge intact? My family and I on average cross that bridge 4-8 times per day. Shutting the bridge down →

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Kevin Crowdahl

Address: 5241 Magnolia Terrace
Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Post Meeting
Concerns
1) Are you Listening
a) 2 other options given
2) No Community Reps (?) Why.
3) Perhaps you folks Need to Re-evaluate.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Terry Grondahl

Address: 5241 Magnolia Terrace
Fruitland Park.

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

CLOSING THE BRIDGE COMPLETELY IS A BAD ALTERNATIVE FOR THE FOLLOWING REASONS:

1. EMERGENCY RESPOND TIMES MAY NOT BE SUFFICIENT EVEN WITH THE MANNED FIRE STATION.
2. ADDITIONAL COST IN FUEL CONSUPTION FOR RESIDENTS
3. ADDITIONAL TRAVEL TIME FOR RESIDENTS.

A MORE REASONARLE ALTERNATIVE IS TO KEEP BRIDGE OPEN TO ONE-WAY TRAFFIC CONTROLLED BY TRAFFIC LIGHT.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: MR. + MRS. GERRY F. HOERNIS

Address: 5246 MAGNOLIA TERR (KING'S COVE)
FRUITLAND PARK, FL. 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

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Please share your ideas concerning the project plans:

AS A BUSINESS OWNER IN LEESBURG IT IS VERY IMPORTANT FOR ME TO BE able to get to my business as soon as possible in case of EMERGENCY.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: GREGORY MONEY

Address: 05742 TWIN PALMS ROAD (KINGS COVE)

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

Mike Leo

From: Wapfla@aol.com

Sent: Monday, November 08, 2004 6:13 PM

To: Mike Leo

Subject: Picciolan bridge improvement

I was not able to get to the second community meeting about this project. However, press coverage indicated that there wasn't much new from the first meeting at the Fruitland Park Casino building. But what was eminently clear was that the residents wished for the bridge to stay open during the project. this was made clear at the first meeting. So, it doesn't seem as if the residents' wishes have changed. But you knew that after the first meeting.

Yes, you have made some efforts at ambulance response, and intersection work at 441/27 and Eagles nest road. But they aren't needed if you keep the bridge open during construction.

What are the improvements for, and whom do they serve? The are to make the road safer for the residents who live on the East side of the bridge. And not the people on the West side of the bridge. It is not for the Lake County Commissioners, or your engineering firm. It is for the residents on the East side of the bridge. So, it would seem that they are the ones you ought to listen to, and to accommodate in preparing your project.

From an engineering standpoint, the construction in place is desirable. But from the point of view of those who actually use the bridge, the residents, the phased construction is far preferable.

I don't see why you have a problem with that. Why do you keep proposing the "in place" work when the "phased" work is what the users want? Whom are you serving? I know you are paid by Lake County Commissioners, but whom are they serving? The residents on the East side of the bridge. Very simple.

William A. Pope, jr.
35542 Dogwood Drive
Fruitland Park, FL 34731-5903

HNTB

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Please share your ideas concerning the project plans:

On our way home Thursday night, we were talking about the project. We noted that no one suggested a third alternative. How about a temporary bridge to parallel the old one. How about a floating pontoon bridge such as the Military has used many times. The bridge could be obtained through the Army Corps of Engineers, and returned to them after the project is done. This should be minimum additional cost to the County; not disrupt traffic flow, cause no additional expense to the citizens of the area, no loss of business income; no interruption or added costs to utility services. To me this looks like a win/win solution.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Ralph and Cheryl Quimby

Address: 472 Petunia Drive.

Fruitland Park, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

We live immediately to the right abutting the bridge (inside the chain link fence). Request following points for your consideration:

- approach lights or some warning indicator prior to bridge though much needed immediately for the old bridge.
- recommend a blind sign for hidden drive, etc. because our access road (Stallings Blvd.) is very dangerous even now. Expect more hazardous conditions as increased traffic + growth increases residents.
- we endorse absolutely no accommodations for fishermen for reasons too numerous to mention here.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Are gas/water pipelines in the plans?

Please provide your name and address below if you would like to receive future information about this project:

Name: Mr. + Mrs. Robert E. Taylor (352) 787-7108

Address: 4126 Picciola Rd.
Fruitland Park, FL 34731

Suggestion: How about a toll on bridge to help collect more $$ to speed up the construction process by closing the bridge.

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

We strongly endorse closing the bridge

PUBLIC COMMENT FORM

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Please share your ideas concerning the project plans:

Do not close the Bridge!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: VIRGINIA UTE

Address: 36049 LAKE DONITY NUR. RD.
FP. FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

Keep the bridge open!

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: D.C. WEBER

Address: 05339 KINGS CT
FRUITLAND PARK, FL 34731

For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
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Please share your ideas concerning the project plans:

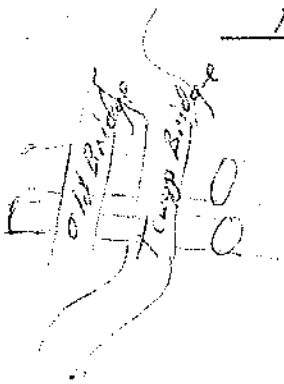
We live on the West side of the Bridge and Store our work trailer at Lake Griffin Isle across the Bridge our customers are on Both ends of Picciola Rd and By 27
We lived in Ohio on an Island our Bridge was Removed, But 2 Colverts 6' tall were laid side by side fill & mulch was Poured down as a base and above then a Portable Bridge was set above Next to the old Bridge once fixed the temporary Bridge came out. No inconvienience.

(If additional Room is needed for your comments, please use the back of this form or attach additional sheets.)

Please provide your name and address below if you would like to receive future information about this project:

Name: Dorothy Wuebker

Address: 35216 Waterseedge Dr
Fruitland Park FL 34731



For more information contact:

Michael J. Leo, P.E.
HNTB Corporation
1615 Edgewater Drive, Suite 200
Orlando, Florida 32804
Phone: (407) 859-8380 FAX (407) 318-9016
mleo@hntb.com

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: J. R. Amin.

Address: 4225 Picciola Rd.
Ft. Pk.

Telephone Number: (352) 326-8872
Area Code

Representing: Self ✓ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: _____

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [ ] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [x] Shopping Inconvenience
- [x] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: MOLLY W. BAIR

Address: 09116 BAIR AVE.
FRUITLAND PARK, FL 34731

Telephone Number: (352) 787-4347
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other: My husband, son & daughter of Bair

Signature: Molly W. Bair

Alignment Preference:

- ❑ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ❑ Request Additional Vertical Clearance under Bridge

Wants new bridge - straight one? Does not want to repair old bridge.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: SANDi Ballou

Address: 5324 Old Hickory Lane
Fruitland Park, FL 34731

Telephone Number: (352) 323-8859 Cell 407-375-3683
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- ☒ Support Phased Construction (Alt. A)
- ☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ☒ Delay in Emergency Response Time
- ☐ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ☐ Request Additional Vertical Clearance under Bridge

Lives in Kings cove. Lake Unity - wants it repaved also.

Worried about EMS.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: PAT BOSS

Address: 05426 TWIN PALMS ROAD
FRUITLAND PARK FLA 34731

Telephone Number: (352) 728-1388
Area Code

Representing: Self _____ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: _____

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [ ] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [ ] Shopping Inconvenience
- [ ] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Lake Unity - Dangerous - No place to go.

Need to do something about lake unity ROAD.

Cost of Fire station a concern

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: JIM CONWAY

Address: 05206 TWIN PALMS RD,
FRUITLAND PARK

Telephone Number: (352) 728-0544
Area Code

Representing: Self ✓ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: Jim Conway

Alignment Preference:

- ■ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

❑ Request Additional Vertical Clearance under Bridge

Reimbuse residents for lost time - claims this will cost residents millions for the 6 months

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: Jim DUNCAN

Address: 4304 Emmaus Rd
Fruitland Park, FL 34731

Telephone Number: (352) 728-4822
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: James P. Duncan

Alignment Preference:

☒ Support Phased Construction (Alt. A)

☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

☐ Delay in Emergency Response Time

☐ Safety/Delay at US 27/441 Eagles Nest Intersection

☐ Driving Extra Miles

☐ Shopping Inconvenience

☐ Impact to Local Business

☐ Increased Travel Time to Work/School

Other:

☐ Request Additional Vertical Clearance under Bridge

Does not feel cost is correct.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: CLIFFORD A DYKE

Address: 4344 SUNNYSIDE DR
FRUITLAND PK FL 34731-5689

Telephone Number: (352) 326-5744
Area Code

Representing: Self X Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: Clifford A Dyke

Alignment Preference:

- ☐ Support Phased Construction (Alt. A)
- ■ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ☐ Delay in Emergency Response Time
- ☐ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ☐ Request Additional Vertical Clearance under Bridge

Worried about Paving Lake Unity.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: PEGGY ELROD

Address: 35385 LAKE WATTY Rd
EKLUTHLAND PK FL, 34731

Telephone Number: (352) 728-5273
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: Peggy Elrod

Alignment Preference:

- ☐ Support Phased Construction (Alt. A)
- ■ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ☐ Delay in Emergency Response Time
- ☐ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ■ Request Additional Vertical Clearance under Bridge

Also access bridge should be raised to standards.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: JOYCE FULLINGTON

Address: 33669 PICCIOLA DRIVE
FRUITLAND PARK, FL 34731

Telephone Number: (352) 728-6726
Area Code

Representing: Self X Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: Joyce D. Fullington

Alignment Preference:

- ■ Support Phased Construction (Alt. A)
- ☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ■ Delay in Emergency Response Time
- ☐ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ☐ Request Additional Vertical Clearance under Bridge

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: JEAN GRAVES

Address: 34240 ROSA LANE
FRUITLAND PARK, FL 34731

Telephone Number: (352) 787-9538
Area Code

Representing: Self ✓ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: Jean G Graves

Alignment Preference:

- ❑ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ❑ Request Additional Vertical Clearance under Bridge

Did not speak

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: KEVIN GRONDAHL

Address: 5241 MAGNOLIA TERRACE
FRUITLAND PARK, FL 34731

Telephone Number: (352) 360-0886
Area Code

Representing: Self X Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [ ] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [ ] Shopping Inconvenience
- [ ] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Wants a trail along Picciola Way

Shore up rotted pyles and staple gutter to edge of failing concrete.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: DONALD HAYES

Address: 35234 QUEENS WAY
FRUITLAND PK. FL 34731

Telephone Number: (352) 323/2997
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [x] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [ ] Shopping Inconvenience
- [ ] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Worried about amount of gas and traffic.
Safety -
Bad business all around

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: SANDY HAYES

Address: 35234 QUEENS WAY
FRUITLAND PK

Telephone Number: (352) 323-1297
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: Sandy Hayes

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [ ] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [x] Shopping Inconvenience
- [x] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Worried about convienence store

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: Andrew Homann

Address: 93 Rose

Telephone Number: (352) 314-0287
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- ❑ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ☒ Request Additional Vertical Clearance under Bridge

Build bridge to Federal standards for underclearance.

Global warming is attributing to high lake level.

Federal height standard?

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)
Name: Charles K. Jacobs

Address: 5202 Sydney Rd
Fruitland Park

Telephone Number: (352) 365 0537
Area Code

Representing: Self X Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc: Picciola Home Owners

Other:

Signature: C K Jacobs

Alignment Preference:

- ❑ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Supports New bridge in old location

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ❑ Request Additional Vertical Clearance under Bridge

Environmental impacts - wants to put new bridge where it was 50 years ago.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: DUDLEY JONES

Address: 35241 MAPLE LEAF DR

Telephone Number: (352) 787-7751
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- ❑ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ■ Request Additional Vertical Clearance under Bridge

Sidewalks and bicycles and pedestrian traffic

NB Lk. unity should be addressed

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: Chris & Debbie Muma

Address: 35422 Lk Unity Rd

Telephone Number: (352) 728-6634
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature:

Alignment Preference:

- ☒ Support Phased Construction (Alt. A)
- ☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ☐ Delay in Emergency Response Time
- ☒ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ☐ Request Additional Vertical Clearance under Bridge

Safety on eagles nest road

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: Harold S. Ollff, Jr.

Address: 5423 Old Hickory Lane
Fruitland Park, FL 34731

Telephone Number: (352) 323-3555
Area Code

Representing: Self ✓ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: Harold S Ollff Jr

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [ ] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [ ] Shopping Inconvenience
- [ ] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Very Long !!!! Did math For each Item!!!!
Presentation

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: GWEN RUSSELL

Address: 35836 UNITY DR
FRUITLAND PK

Telephone Number: (_____) 787-8962
Area Code

Representing: Self ✓ Firm: _____

Government Agency: _____

Civic Organization: _____

Homeowner's Assoc: _____

Other: _____

Signature: Gwen Russell

Alignment Preference:

- ☒ Support Phased Construction (Alt. A)
- ☐ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ☐ Delay in Emergency Response Time
- ☒ Safety/Delay at US 27/441 Eagles Nest Intersection
- ☐ Driving Extra Miles
- ☐ Shopping Inconvenience
- ☐ Impact to Local Business
- ☐ Increased Travel Time to Work/School

Other:

- ☐ Request Additional Vertical Clearance under Bridge

Cost to rehab Fire house - her concern
Has this been added to 6 month cost.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: ANN Springer

Address: 4327 Serene Circle
FP FL 34731

Telephone Number: (352) 323-5756
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: C A Springer

Alignment Preference:

- ■ Support Phased Construction (Alt. A)
- ❑ Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- ❑ Delay in Emergency Response Time
- ❑ Safety/Delay at US 27/441 Eagles Nest Intersection
- ❑ Driving Extra Miles
- ❑ Shopping Inconvenience
- ❑ Impact to Local Business
- ❑ Increased Travel Time to Work/School

Other:

- ❑ Request Additional Vertical Clearance under Bridge

Wants to know where the commissioners are.

Worried about the cost

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: George Ilitz

Address: 36049 Lake County Marsey Rd.

Telephone Number: (352) 785 1419
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: [illegible]

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [x] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [x] Shopping Inconvenience
- [x] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Signal on eagles nest supports one now.

Wants access to bridge for fishing

Worried about fuel cost to drive around.

Worried about local business.

To be completed prior to making a Statement

Date: November 4, 2004

STATEMENT REGISTRATION CARD FOR:

Picciola Bridge Improvements Project- RFP No. 02-129

(PLEASE PRINT)

Name: Ann Wettstein Griffin

Address: 33428 Picciola Rd

Fruitland Park

Telephone Number: (352) 787-2303
Area Code

Representing: Self ✓ Firm:

Government Agency:

Civic Organization:

Homeowner's Assoc:

Other:

Signature: Ann Wettstein Griffin

Alignment Preference:

- [x] Support Phased Construction (Alt. A)
- [ ] Support Build-in-Place Construction (Alt. B)

Justification for Preference:

- [ ] Delay in Emergency Response Time
- [x] Safety/Delay at US 27/441 Eagles Nest Intersection
- [ ] Driving Extra Miles
- [x] Shopping Inconvenience
- [x] Impact to Local Business
- [ ] Increased Travel Time to Work/School

Other:

- [ ] Request Additional Vertical Clearance under Bridge

Worried about the convienence store