

(REFERENCE)	* EXISTING STRUCTURES				PROPOSED STRUCTURE
	(1)	(2)	(3)	(4)	
FOUNDATION	Conc. Piles	Timber			Conc. Piles
OVERALL LENGTH	135	200			164 (rem. #1)
SPAN LENGTH	5 @ 27	20 @ 10			4 @ 41
TYPE CONSTRUCTION	Concrete	Timber			Concrete
AREA OF OPENING @ D.F.	1000	Unknown			1020
BRIDGE WIDTH	28'	Railroad (South)			44'
ELEV. LOW MEMBER	40.35	38.32			41.17

**HYDRAULIC DESIGN DATA**

**NOTE:**  
The hydraulic data is shown for informational purposes only to indicate the flood discharges and water surface elevations which may be anticipated in any given year. This data was generated using highly variable factors determined by a study of the watershed. Many judgements and assumptions are required to establish these factors. The resultant hydraulic data is sensitive to changes, particularly antecedent conditions, urbanization, channelization and land use. Users of this data are cautioned against the assumption of precision which cannot be obtained.

**TERMS:**  
Design Flood: Utilized to assure a desired level of hydraulic performance.  
Base Flood: Has a 1% chance of being exceeded in any given year (100 year frequency)  
Overtopping Flood: Causes flow over the highway, over a watershed divide, or thru emergency relief structures.  
Greatest Flood: The most severe that can be predicted where overtopping is not practicable.

WATER SURFACE ELEVATIONS:	N.H.W. (Non-Tidal)		M.H.W. (Tidal)		OVERTOPPING or GREATEST FLOOD
	CONTROL (Non-Tidal)	M.L.W. (Tidal)	CONTROL (Non-Tidal)	M.L.W. (Tidal)	
FLOOD DATA:	MAX. EVENT OF RECORD	DESIGN FLOOD	BASE FLOOD		
STAGE ELEV. (ft)	38.7 (rem. #2)	38.91	39.27		39.57
DISCHARGE (cfs)	unknown	3280	3950		4630
AVERAGE VELOCITY (ft/s)		3.22	3.58		4.13
EXCEEDANCE PROB. (%)		2	1		0.2
FREQUENCY (yr.)		50	100		500

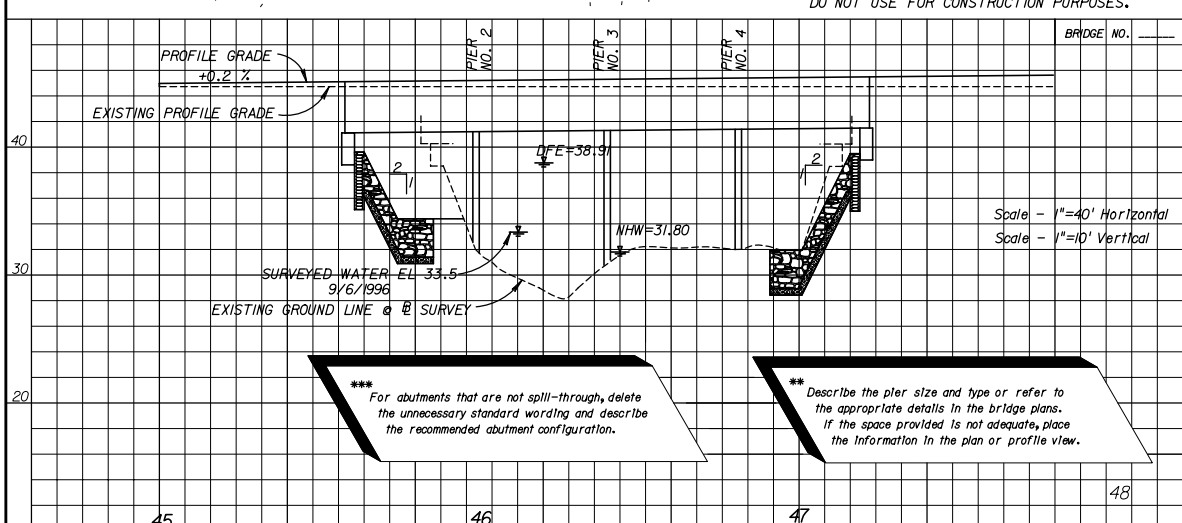
**SCOUR PREDICTIONS FOR PROPOSED STRUCTURE DESCRIBED ABOVE:**

NUMBERS	PIER INFORMATION	LONG TERM SCOUR ELEV.	TOTAL SCOUR ELEVATION	
			WORST CASE < 100 yr. FREQ. (yr.)	WORST CASE < 500 yr. FREQ. (yr.)
2 & 3	** SIZE AND TYPE	N/A	18.4	16.4
4 (rem. #3)	24" Conc. Piles	N/A	27.6	25.6

**HYDRAULIC RECOMMENDATIONS**

1. BEGIN BRIDGE STATION 45+58.00 END BRIDGE STATION 47+22.00 SKEW ANGLE 0°  
 2. CLEARANCE PROVIDED: NAV. HORIZ. 39.0 VERT. 8.04 ABOVE EL. 33.14 DRIFT: HORIZ. 39.0 VERT. 2.26 ABOVE EL. 38.91  
 3. MINIMUM CLEARANCE: NAV. HORIZ. 10.0 VERT. 6.0 ABOVE EL. 33.14 DRIFT: HORIZ. N/A VERT. 2.0 ABOVE EL. 38.91  
 4. ABUTMENTS: BEGIN BRIDGE END BRIDGE  
 \*\*\* RUBBLE GRADE: Bank and Shore  
 SLOPE: 1:2  
 BURIED OR NON-BURIED HORIZ. TOE: Non-Buried  
 TOE HORIZ. DISTANCE: 10  
 LIMIT OF PROTECTION: 15' Lt. & 20' Rt.  
 5. DECK DRAINAGE: Spread is contained in shoulder. Runoff captured by inlets at begin bridge.

**REMARKS:** (1) Bridge lengthened to accommodate predicted channel migration to the west.  
 (2) Based on mark provided by local resident of 43 years.  
 (3) Due to predicted channel migration to the west and lack of meander cutoff, Pier No. 4 will not experience main channel scour depths.



REVISIONS	
DATE	DESCRIPTION

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			BRIDGE HYDRAULIC RECOMMENDATIONS	SHEET NO.
ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
70	LEON	123456-1-52-01		

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 68G5-23.003, F.A.C.

**EXHIBIT BHD-1**  
Date: 1/1/10

