



Original Report Date: <u>12-23-2016</u>	Proposed SN: <u>027-2554</u>	Route: <u>FAP 326 (IL 47)</u>
Revised Date: <u>N/A</u>	Existing SN: <u>027-2524</u>	Section: <u>126C-1</u>
Geotechnical Engineer: <u>Michael Short, IDOT District 3</u>		County: <u>Ford</u>
Structural Engineer: <u>David Alexander, IDOT District 3</u>		Contract: <u>66D34</u>

Indicate the proposed structure type, substructure types, and foundation locations (attach plan and elevation drawing): The proposed structure is a double barrel 8 ft span by 5 ft rise precast concrete box culvert with no skew. Grated end sections are proposed. A preliminary plan and profile sheet is attached.

Discuss the existing boring data, existing plans foundation information, new subsurface exploration and need for any additional exploration to be provided with SGR Technical Memo (attach all data and subsurface profile plot): The existing structure is a double barrel 8 ft span by 5 ft rise box culvert with no skew. Two soil borings were taken in September of 2015.

Provide the location and maximum height of any new soil fill or magnitude of footing bearing pressure. Estimate the amount and time of the expected settlement. Indicate if further testing, analysis, and/or ground improvement/treatment is necessary: The profile of the roadway is not expected to change, therefore there will not be any significant additional load applied to the soils. A site visit indicated no signs of settlement problems with the existing structure. No further settlement analysis is required.

Identify any new cuts or fill slope angles and heights. Estimate the factor of safety against slope failure. Indicate if further testing, analysis or ground improvement/treatment is necessary: The proposed side slopes are not expected to change significantly. The proposed side slopes are 1:4 or flatter and are a maximum of 7 feet high at the culvert ends between Sta. 198+00 to Sta. 199+00 LT/RT. A site visit indicated no slope stability problems with the existing structure. No further slope stability analysis is required.

Indicate at each substructure, the 100-year and 200-year total scour depths in the Hydraulics report, the non-granular scour depth reduction, the proposed ground surface, and the recommended foundation design scour elevations: Not applicable to closed bottom box culverts per ABD Memo 14.2.

Determining the seismic soil site class, the seismic performance zone, the 0.2 and 1.0 second design spectral accelerations and indicate if that the soils are liquefiable: Not applicable to culverts.

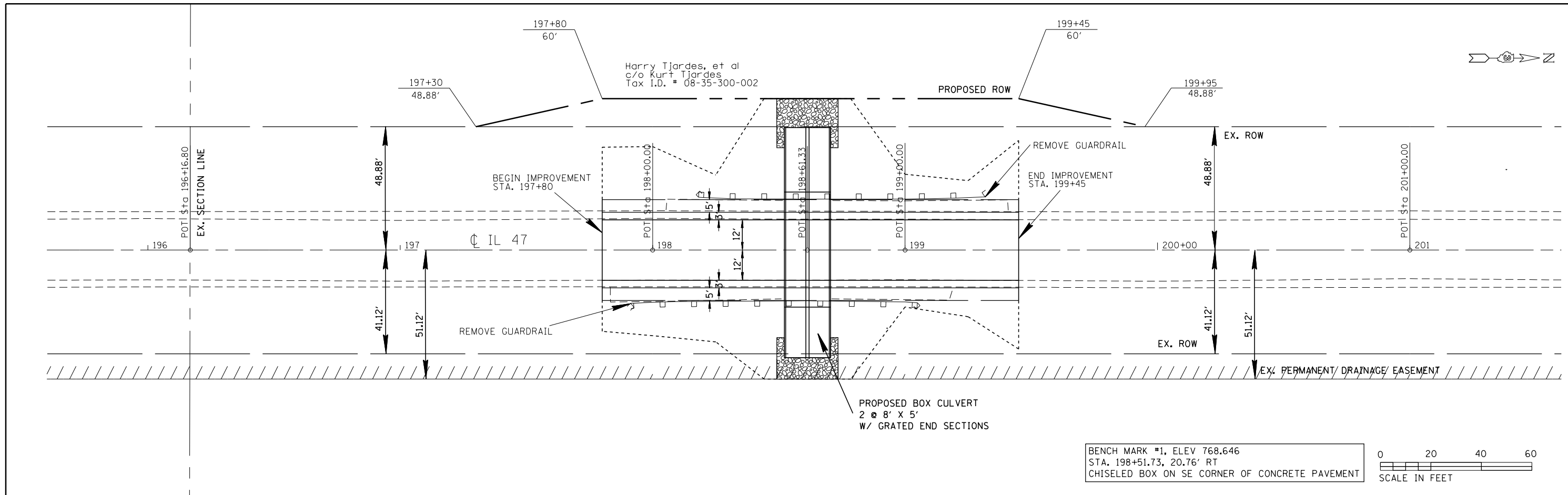
Confirm feasibility of the proposed foundation or wall type and provide design parameters. Attach a pile design table indicating feasible pile types, various nominal required bearings, factored resistances available and corresponding estimated lengths at locations where piles will be used. Provide factored bearing resistance and unit sliding resistance at various elevations and confirm no ground improvement/treatment is necessary where spread footings are proposed. Estimated top of rock elevations as well as preliminary factored unit side and tip resistance values shall be indicated when drilled shafts are proposed: A precast concrete box culvert is acceptable. The soils under the proposed box culvert will not require removal and replacement to support the proposed structure. The only aggregate needed under the precast concrete box culvert is the 6 inches required by Article 540.05 of the Standard Specifications.

Calculate the estimated water surface elevation and determine the need for cofferdams (type 1 or 2), and seal coat: The structure can be constructed using conventional methods of water diversion determined by the contractor.

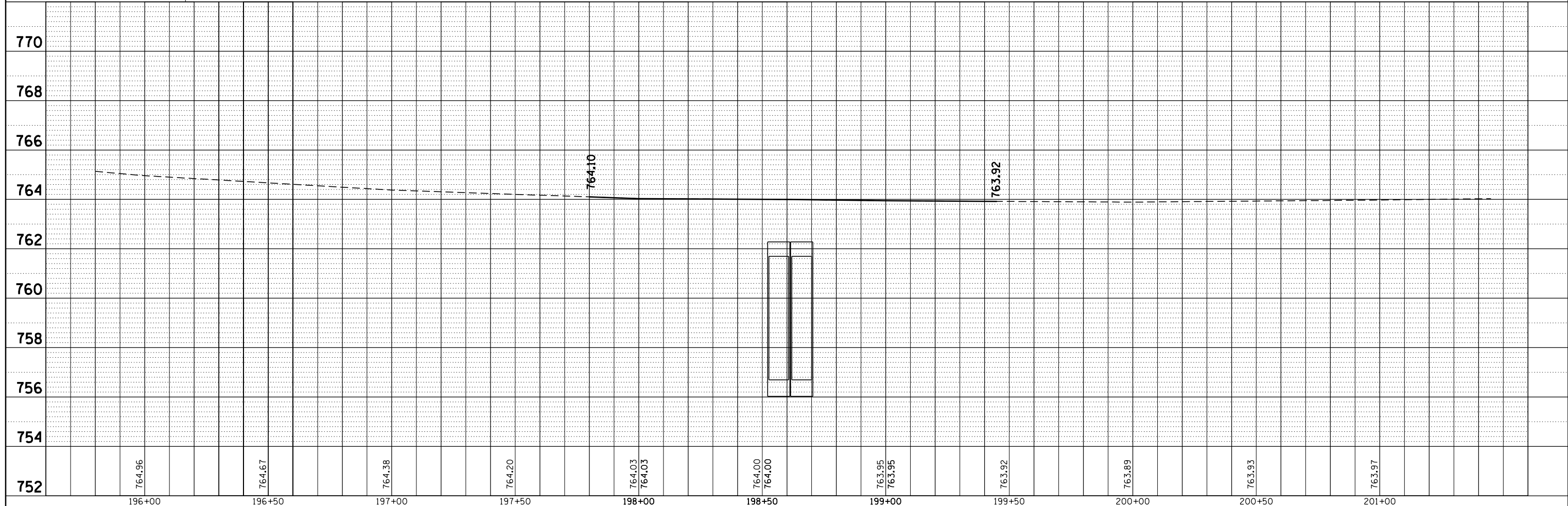
Assess the need for sheeting or soil retention or temporary construction slope and provide recommendation for other construction concerns: If stage construction is required, temporary sheet piling is not feasible because the soils with a strength exceeding 4.5 tsf are above the depth of sheet pile embedment. A temporary soil retention system will be required.

PLAN	SURVEYED	DATE
	PLOTTED	BY
	ALIGNED	
	CHECKED	
	FILED	
	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	BY
	GRADES	
	CHECKED	
	STRUCTURE	
	NOT AT THIS OFFICE	
	NO.	



BENCH MARK #1, ELEV 768.646
 STA. 198+51.73, 20.76' RT
 CHISELED BOX ON SE CORNER OF CONCRETE PAVEMENT



FILE NAME =	USER NAME = longnecker.jh	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	IL 47 PLAN & PROFILE	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
Default		CHECKED -	REVISED -			326	126C-1	FORD			
		DATE -	REVISED -			CONTRACT NO. 66034					
						ILLINOIS FED. AID PROJECT					



SOIL BORING LOG

ROUTE FAP 326 (IL 47) DESCRIPTION IL 47 over a Ditch, 1.56 miles North of IL 9 LOGGED BY Larry Myers

SECTION 126 C-1 LOCATION SW 1/4, SEC. 35, TWP. 24N, RNG. 7E, 3rd PM,
Latitude 40.486838, Longitude -88.380662

COUNTY Ford DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 027-2524 (Exist.)
Station 198+61.33

BORING NO. 01 (N.E. Quad.)
Station 198+93
Offset 16.0 ft Rt.
Ground Surface Elev. 763.68 ft

D E P T H H	B L O W S	U C S Qu	M O I S T
(ft)	(/6")	(tsf)	(%)

Surface Water Elev. _____ ft	D E P T H H	B L O W S	U C S Qu	M O I S T
Stream Bed Elev. <u>756.62</u> ft	(ft)	(/6")	(tsf)	(%)
Groundwater Elev.:				
First Encounter <u>741.2</u> ft ▼				
Upon Completion <u>743.7</u> ft ▼				
After _____ Hrs. _____ ft				

Soil Description	D E P T H H	B L O W S	U C S Qu	M O I S T	Soil Description	D E P T H H	B L O W S	U C S Qu	M O I S T
	(ft)	(/6")	(tsf)	(%)		(ft)	(/6")	(tsf)	(%)
Bituminous Shoulder, Black Silty Clay Loam Fill	761.18				Hard Gray Silty Clay Loam Till (continued)	5			
						8	4.8	17	
						10	S		
Hard to Stiff Black Silty Clay Loam Fill		5				4			
		5	4.5	22		5	4.8	14	
		7	P			7	S		
	-5								
		2				5			
		3	2.0	29		4	4.3	14	
		2	P			5	S		
	756.68								
Stiff Gray & Brown Silty Clay		2				4			
		2	1.8	25		5	4.4	13	
		2	P			7	S		
	754.18								
Stiff Gray & Brown Silty Clay Till with Gravel Pieces & Minor Silt / Sand / Gravel Seams	-10	1				3			
		2	1.0	21		5	4.0	14	
		1	P			6	S		
		4							
		5	1.0	17					
		7	P						
	749.18								
Hard Gray Silty Clay Till	-15	5				4			
		8	6.1	17		6	4.8	16	
		11	S			9	S		
		7							
		10	7.4	13					
		15	S						
	744.18								
Hard Gray Silty Clay Loam Till	▼ -20				End of Boring				

SOIL BORING 027-2524.GPJ IL_DOT.GDT 10/20/15

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

