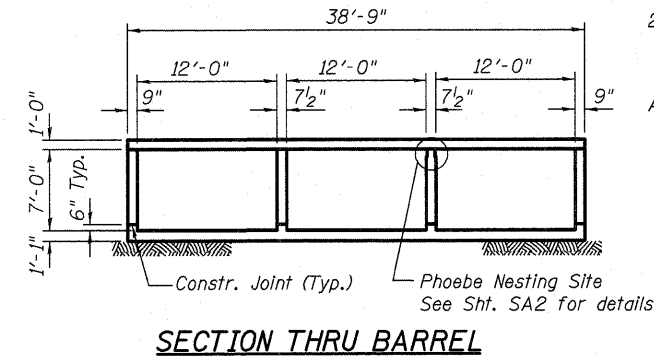
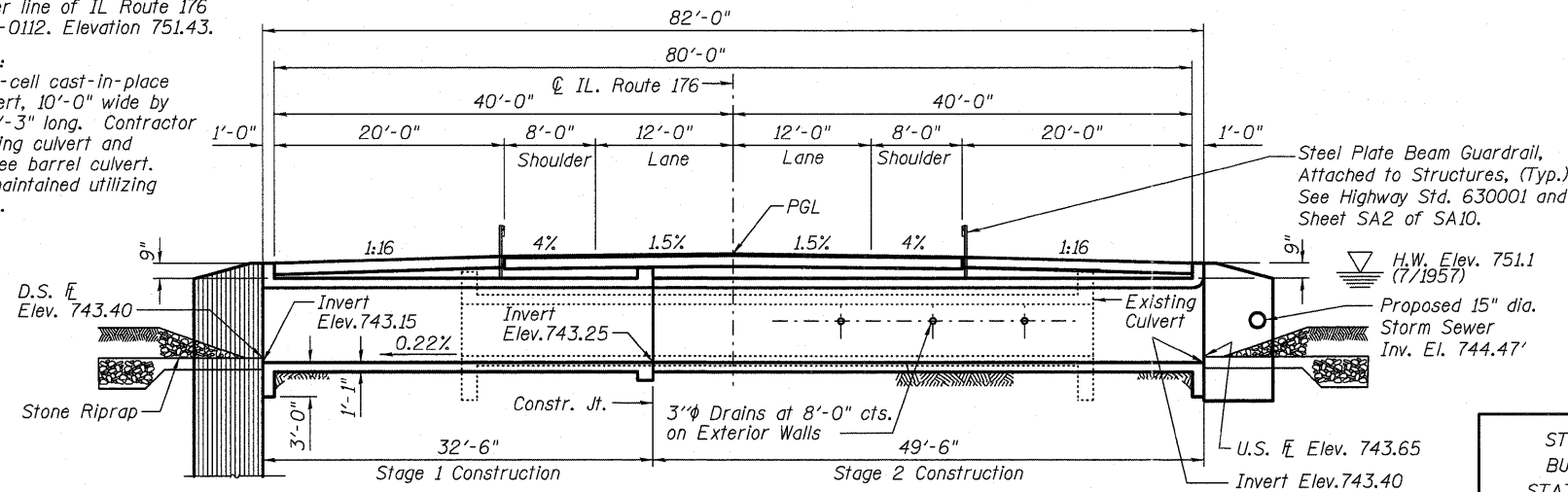


Bench Mark:  
"CJ" cut in the east end of the 50-foot headwall  
north of the center line of IL Route 176  
Structure No. 049-0112. Elevation 751.43.

Existing Structure:  
SN-049-0112 Two-cell cast-in-place  
concrete box culvert, 10'-0" wide by  
5'-0" high, by 53'-3" long. Contractor  
shall remove existing culvert and  
construct new three barrel culvert.  
Traffic shall be maintained utilizing  
stage construction.  
No salvage.



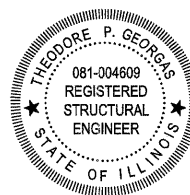
**DESIGN SPECIFICATIONS**  
2002 AASHTO Standard Specifications, 17th Edition  
**LOADING HS20-44**  
Allow 50#/sq. ft. for future wearing surface.  
**DESIGN STRESSES**  
**FIELD UNITS**  
f<sub>c</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (reinforcement)

STATION 54+00  
BUILT 2011 BY  
STATE OF ILLINOIS  
F.A.P. 335 SEC. 145 X-T  
LOADING HS20  
STR. NO. 049-0196

**NAME PLATE**  
See Std. 515001

**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head-Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	233	100	191	748.7	0.4	0.0	749.1	748.7
Base	50	341	100	209	749.2	0.8	0.1	750.0	749.3
Overtopping	100	395	100	220	749.5	0.7	0.1	750.2	749.6
Max. Calc.	500	487	100	230	749.8	0.6	0.2	750.4	750.0



*Theodore P. Georgas* 11-30-11  
Theodore P. Georgas  
Licensed Structural Engineer  
State of Illinois 081-4609  
Expires 11/30/2012

**GENERAL NOTES**

- Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60.
- Reinforcement bars designated (E) shall be epoxy coated.
- At least 6'-0" of the barrel shall be poured monolithically with the concrete wingwall.
- Precast alternate is not allowed.
- For backfilling and embankment, see standard specifications.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

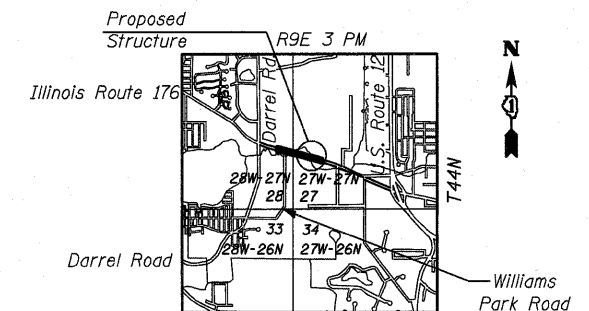
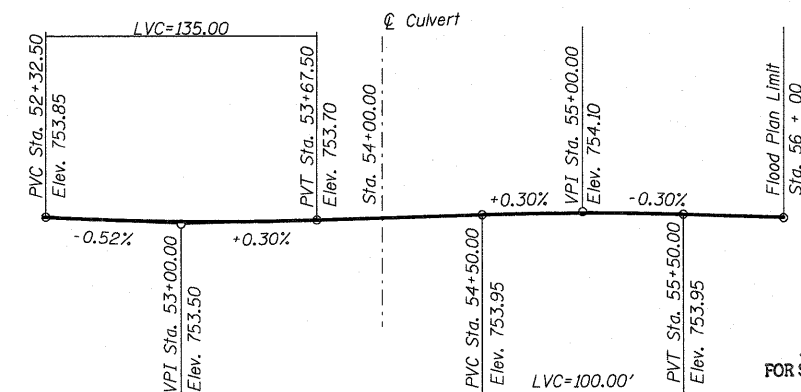
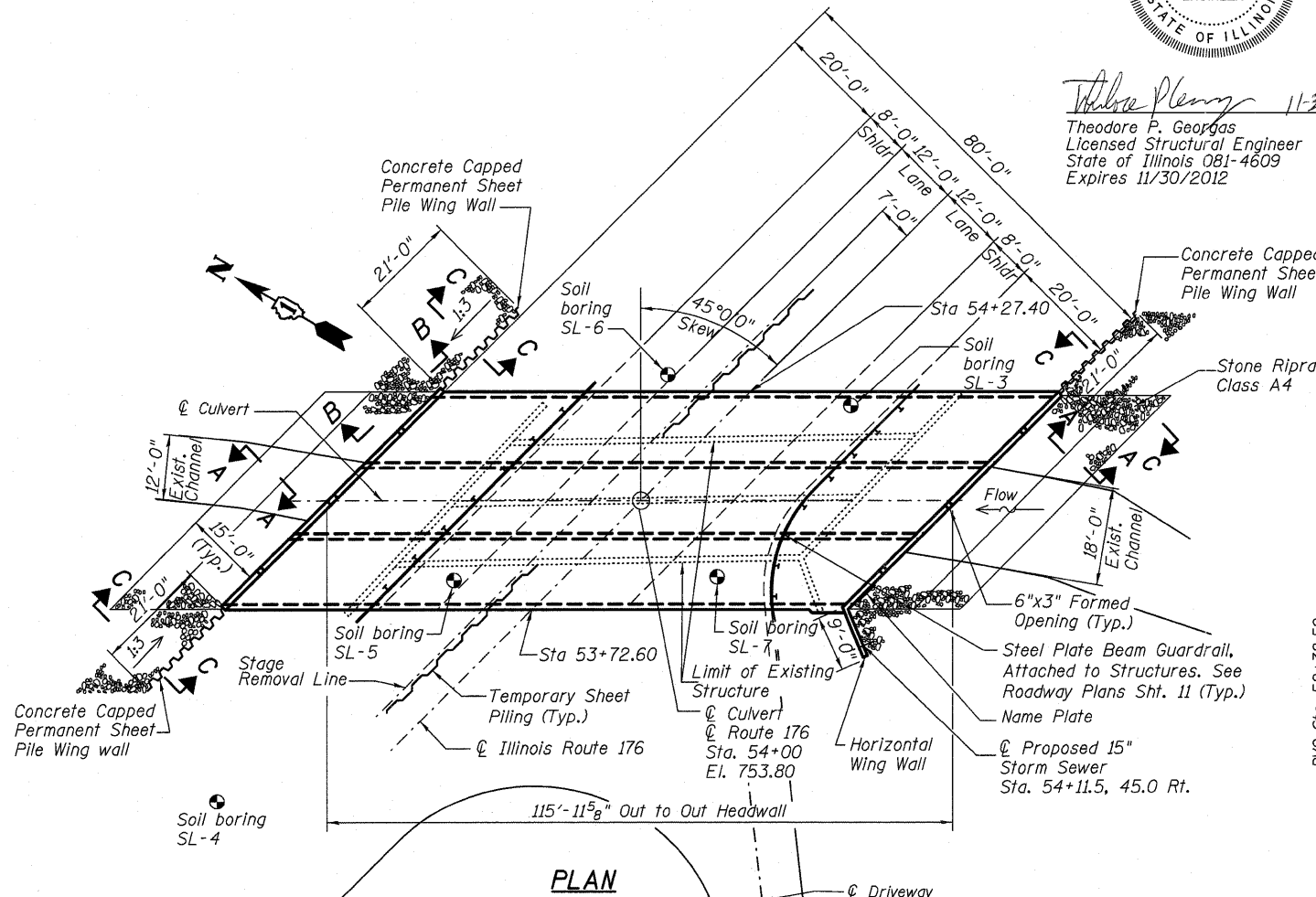
**INDEX OF SHEETS**

- SA1 - General Plan
- SA2 - Stage Construction Details
- SA3 - Culvert Plan and Details
- SA4 - Sections and Details
- SA5 - Sheet Piling Wingwall Details
- SA6 - Temporary Concrete Barrier
- SA7 - Bar Splicer Assembly Details
- SA8 - Boring Logs
- SA9 - Boring Logs
- SA10 - Boring Logs

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Stone Riprap, Class A4	Sq. Yd.	247
Filter Fabric	Sq. Yd.	247
Removal of Existing Structures No. 1	Each	1
Stud Shear Connectors	Each	288
Reinforcement Bars	Pound	100,420
Reinforcement Bars, Epoxy Coated	Pound	1,750
Bar Splicers	Each	400
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	469.6
Temporary Support System, Location 1	Each	1
Permanent Steel Sheet Piling	Sq. Ft.	1,519
Temporary Sheet Piling	Sq. Ft.	1,948

Note: See Roadway Plans for the quantity of "Steel Plate Beams Guardrail, Attached to Structures"



**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY  
*[Signature]*  
ENGINEER OF BRIDGES AND STRUCTURES

**GENERAL PLAN**  
**ILLINOIS ROUTE 176 OVER**  
**BANGS LAKE DRAIN**  
**LAKE COUNTY**  
**STA. 54+00**



USER NAME =	DESIGNED - JSG	REVISED -
PLOT SCALE =	CHECKED - LRG	REVISED -
PLOT DATE =	DRAWN - MPS	REVISED -
	CHECKED - JXH/TPG	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN  
STRUCTURE No. 049-0196 STA. 54+00.00  
SHEET NO. SA1 OF SA10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
335	145 X-T	LAKE	80	45
			CONTRACT NO. 62187	
DATE: 11-30-2011		[ILLINOIS] FED. AID PROJECT		