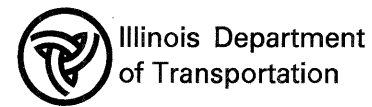


**Bench Mark:**  
Chiseled 'X' in Concrete Sidewalk on East side of IL RT. 53. 14.65' Northwest of PK nail in Power Pole and 41.00' Southwest of Building. Sta. 59+83.74, Offset 46.56 Rt., Elev. 747.43.

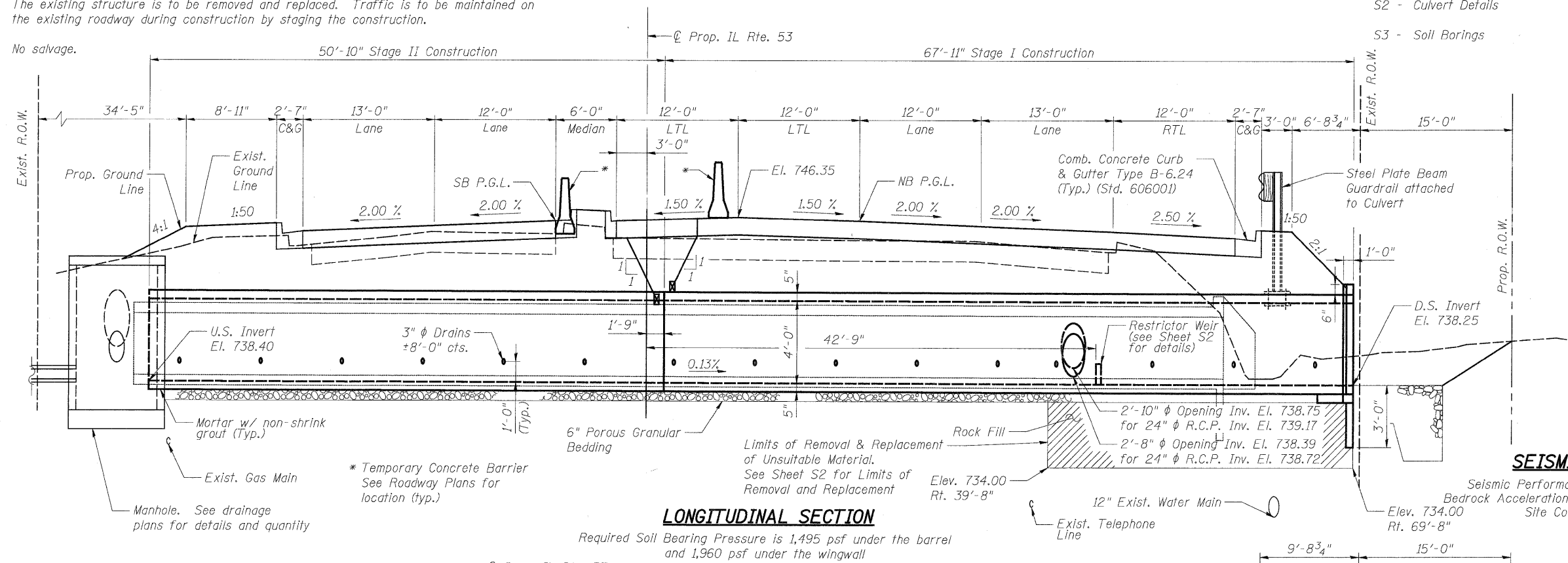


**INDEX OF SHEETS**

- S1 - General Plan & Elevation
- S2 - Culvert Details
- S3 - Soil Borings

**GENERAL NOTES**

- Precast Concrete Box Culvert shall conform to the requirements of Article 540.06 of the Standard Specifications and the applicable requirements of AASHTO M-259.
- Reinforcement Bars shall conform to the requirements of AASHTO M-31, M-322, Grade 60. The cost of reinforcement is included with "Box Culvert End Sections".
- Work this sheet with S2 for details of Cast-in-Place Sections.
- All exposed concrete edges shall be chamfered  $\frac{3}{4}$ " unless otherwise noted.



**SEISMIC DATA**

Seismic Performance Category (SPC)=A  
Bedrock Acceleration Coefficient (A)=0.035g  
Site Coefficient (S)=1.0

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications For Highway Bridges

**LOADING HS20-44**

Allowance for Future Wearing Surface=50 lb/ft<sup>2</sup>

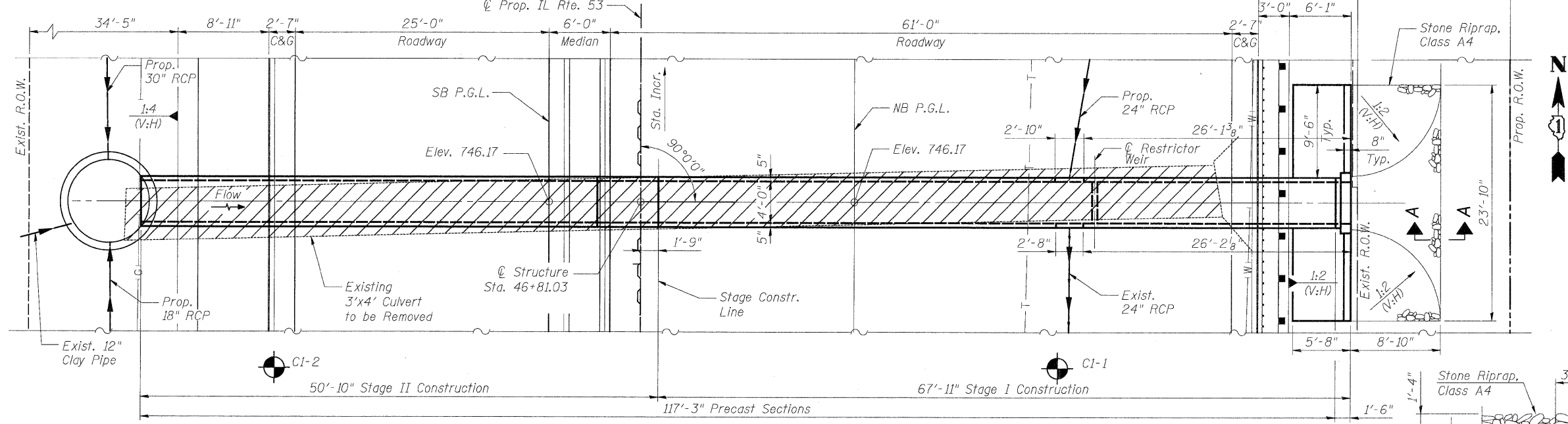
**DESIGN STRESSES**

**Precast Units**  
f'<sub>c</sub>=5,000 psi  
f<sub>y</sub>=65,000 psi (welded wire fabric)

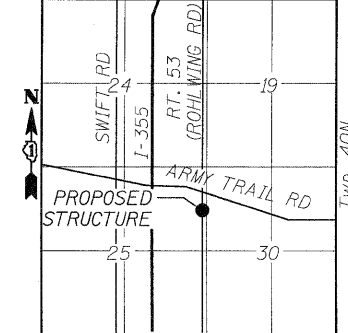
**Field Units**  
f'<sub>c</sub>=3,500 psi  
f<sub>y</sub>=60,000 psi (Reinf.)

**LONGITUDINAL SECTION**

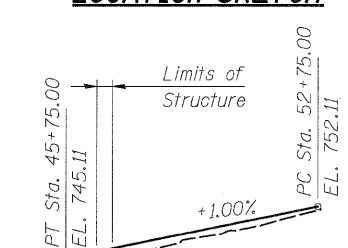
Required Soil Bearing Pressure is 1,495 psf under the barrel and 1,960 psf under the wingwall



**LOCATION SKETCH**



**PROFILE GRADE - IL RT. 53**



**WATERWAY INFORMATION TABLE**

Flood	Freq. Yr.	Q (C.F.S.)	Opening (Sq. Ft.)		Nat. H.W.E.	Head (Ft.)		Headwater Elev.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	14	4	4	740.7	0.0	0.0	740.7	740.7
Base	50	29	7	7	741.5	0.1	0.1	741.6	741.6
Overtopping	100	36	8	8	741.8	0.4	0.4	742.2	742.2
Max. Calc.	500	73	12	12	743.3	1.8	1.8	745.1	745.1

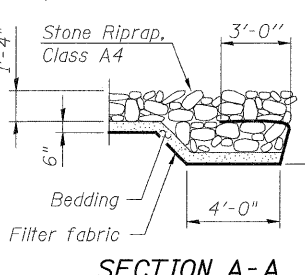
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Removal And Disposal Of Unsuitable Material	Cu Yd	54
Stone Riprap, Class A4	Sq Yd	25
Filter Fabric	Sq Yd	25
* Temporary Sheet Piling	Sq Ft	287
* Box Culvert End Sections	Cu Yd	7.6
* Precast Concrete Box Culvert 4' X 4'	Foot	117.5
* Box Culvert Removal	Foot	108
* Rock Fill	Cu Yd	54

**LEGEND**

- Sewer Pipe
- G- Gas Line
- W- Water Line
- T- Telephone Line
- ⊙ Soil Boring

**PATRICK ENGINEERING**  
PATRICK ENGINEERING INC.  
4970 VARSITY DRIVE  
LISLE, IL 60532  
patrickengineering.com



**SECTION A-A**

**DESIGNED** - A. Durbak  
**CHECKED** - R. DiGiulio  
**DRAWN** - A. Durbak  
**CHECKED** - R. DiGiulio

**4' X 4' BOX CULVERT GP&E**  
**ILLINOIS ROUTE 53**  
**FAU 2578 SECTION 532B-1**  
**DUPAGE COUNTY STATION 46+81.03**

SHEET NO.	F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S1 OF S25	2578	532B	DUPAGE	781	580
CONTRACT NO. 60477					
12/3/2010		ILLINOIS FED. AID PROJECT			