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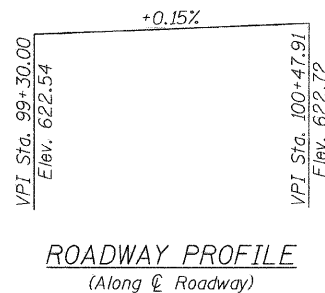
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Concrete Box Culverts	Cu. Yd.	171.2
Reinforcement Bars	Lb.	31070
Name Plates	Each	1
Granular Culvert Backfill	Cu. Yd.	162
Rockfill - Replacement	Ton	445
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	247

**WATERWAY INFORMATION**

Flood	Freq. Yr.	Q C.F.S.	Opening (Sq. Ft.)		Natural H.W.E.	Head - ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	1294	72.6/257.5	130.0	616.28	-0.06	0.26	616.22	616.54
	25	1997	72.6/423.9	165.9	617.21	0.04	1.63	617.25	618.84
	50	2654	72.6/560.0	208.0	617.92	0.08	3.40	618.00	621.32
Base	100	3522	72.6/724.1	208.0	618.74	0.14	3.42	618.88	622.16

10 year velocity through existing culvert = 6.8 fps  
 10 year velocity at culvert outlet for center barrel = 9.7 fps.  
 10 year velocity at culvert outlet for outer barrels = 9.4 fps.



STA. 99+79  
 BUILT 20\_\_ BY  
 McDONOUGH COUNTY  
 ARGYLE LAKE STATE PARK  
 PARK ROADS  
 STR. NO. 055-2009  
 LOADING HS20-44

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications for Highway Bridges.

**DESIGN STRESSES**

**FIELD UNITS**

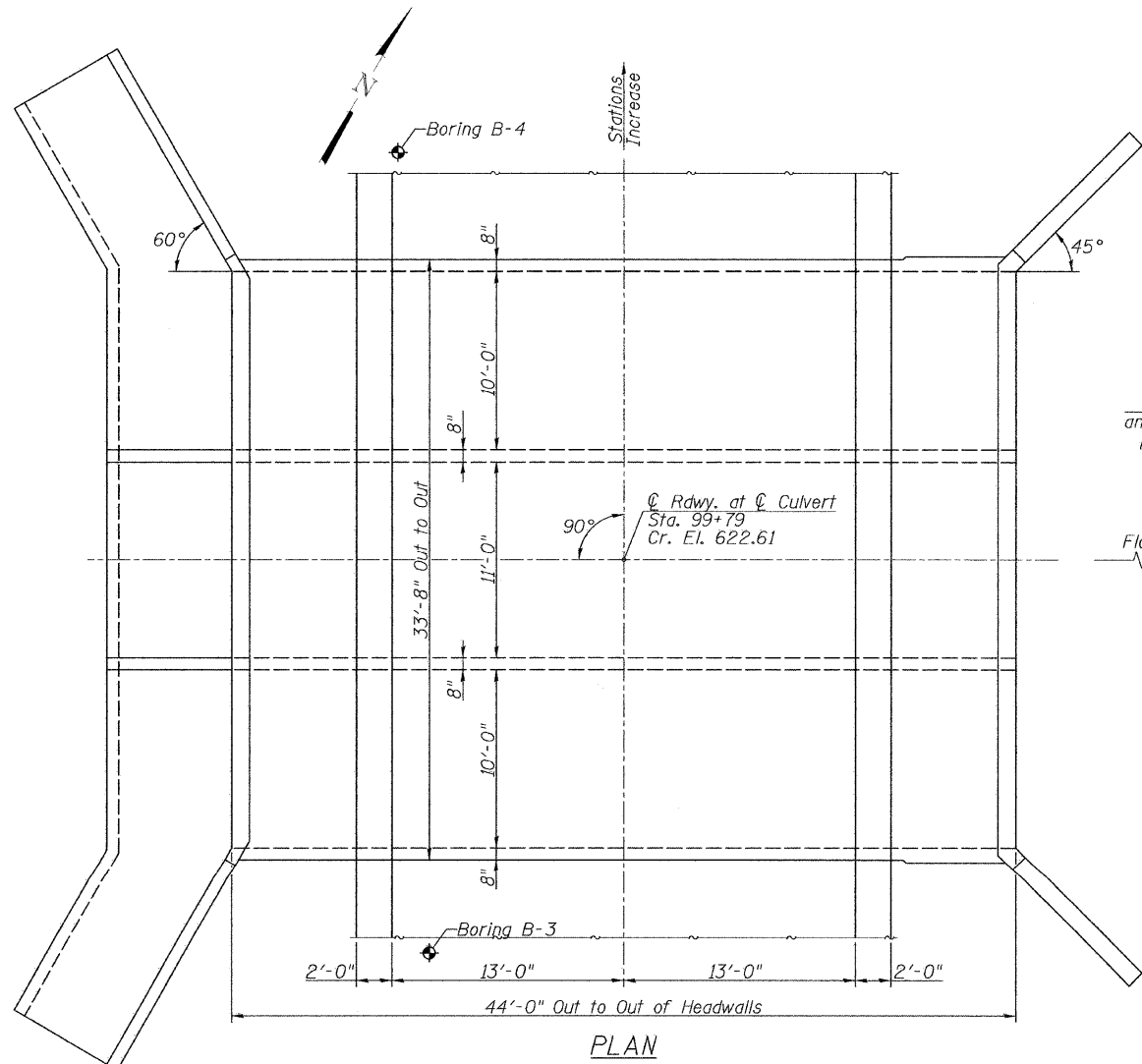
f'c = 3,500 psi  
 fy = 60,000 psi (Reinforcement)

**LOADING HS20-44**

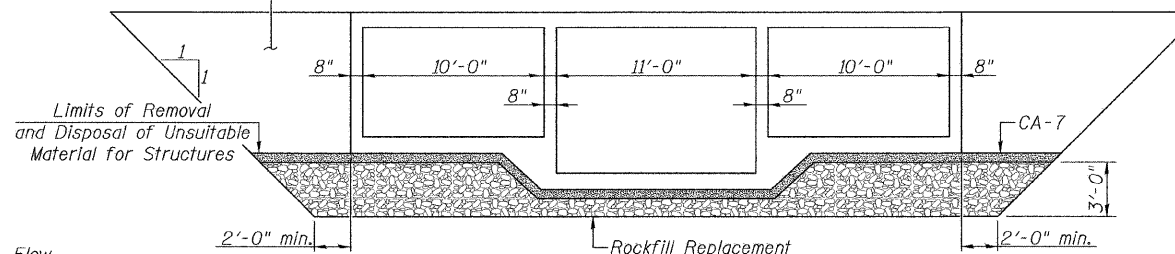
Allow 50#/sq. ft. for future wearing surface.

**GENERAL NOTES**

1. Reinforcement bar shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
2. See Roadway Plans for riprap layout and quantities.
3. Exposed edges shall have a 3/4" chamfer.
4. At least 8 ft. of barrel shall be poured monolithically with the wingwalls.
5. Precast alternative is not allowed.



Granular Culvert Backfill within the limits of proposed roadway and shoulders (30' total length). Outside limits of shoulders, the culvert shall be backfilled in accordance with Section 502 of the Standard Specifications.

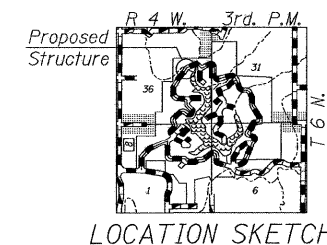


Note: The limits and quantities of removal and replacement shown may be modified by the Field Engineer for variable subsurface conditions encountered in the field.

**APPROVED**  
 FOR STRUCTURAL ADEQUACY ONLY  
 M. Henderson  
 ENGINEER OF BRIDGES AND STRUCTURES



M.A. Henderson 12/8/2010  
 Expiration 11/30/2012



**GENERAL PLAN & ELEVATION**  
 ARGYLE PARK ROAD OVER  
 TRIBUTARY TO ARGYLE LAKE  
 ARGYLE LAKE STATE PARK  
 McDONOUGH COUNTY  
 STATION 99+79  
 STRUCTURE NO. 055-2009

<b>Allen Henderson &amp; Associates, Inc.</b> Civil and Structural Engineers Springfield, IL. 62703 Phone: (217)544-8033 IL. Design Firm No. 184-001907	SHEET NO. 1	RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	7 SHEETS	*	ARGYLE LAKE STATE PARK	McDONOUGH	162	94
		*	PARK ROADS	CONTRACT NO. 46158		
		FED. ROAD DIST. NO.	ILLINOIS JOB NO. C-30-055-11			