

**Benchmarks:**

Benchmark 1: South West tag bolt on first fire hydrant north of Mokeler Creek and on the west side of Ayer Street.  
Elevation = 922.24 (NAVD88)

Benchmark 2: B-box located on the west side of Ayer Street, in front of the house located at 603 S. Ayer Street.  
Elevation = 918.54 (NAVD88)

\* Contractor shall uncover existing water main to determine depth prior to ordering pipe and manholes. Any apparent conflicts shall be brought to the attention of the Engineer. Paid for as "Exploration Trench Special."

Existing Structure: Existing SN 056-6201, constructed in 1920, is a three (3) cell cast-in-place reinforced concrete box culvert with a width of 34' - 0". The length measures 24' - 3" out-to out of headwalls. The individual cells are 10' - 0" x 4' - 0" with 1' - 0" center and side walls. Structure to be removed and replaced. Road to be closed during construction. Traffic to be maintained with a temporary detour of Ayer Street during construction.

Salvage: No Salvage

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)

**PRECAST UNITS**

$f'_c = 5,000$  psi  
 $f_y = 65,000$  psi (welded wire fabric)

**DESIGN SPECIFICATIONS**

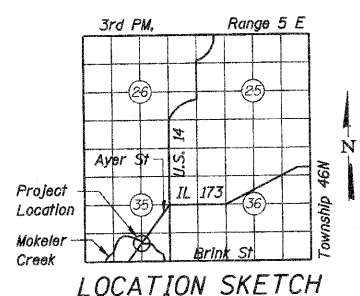
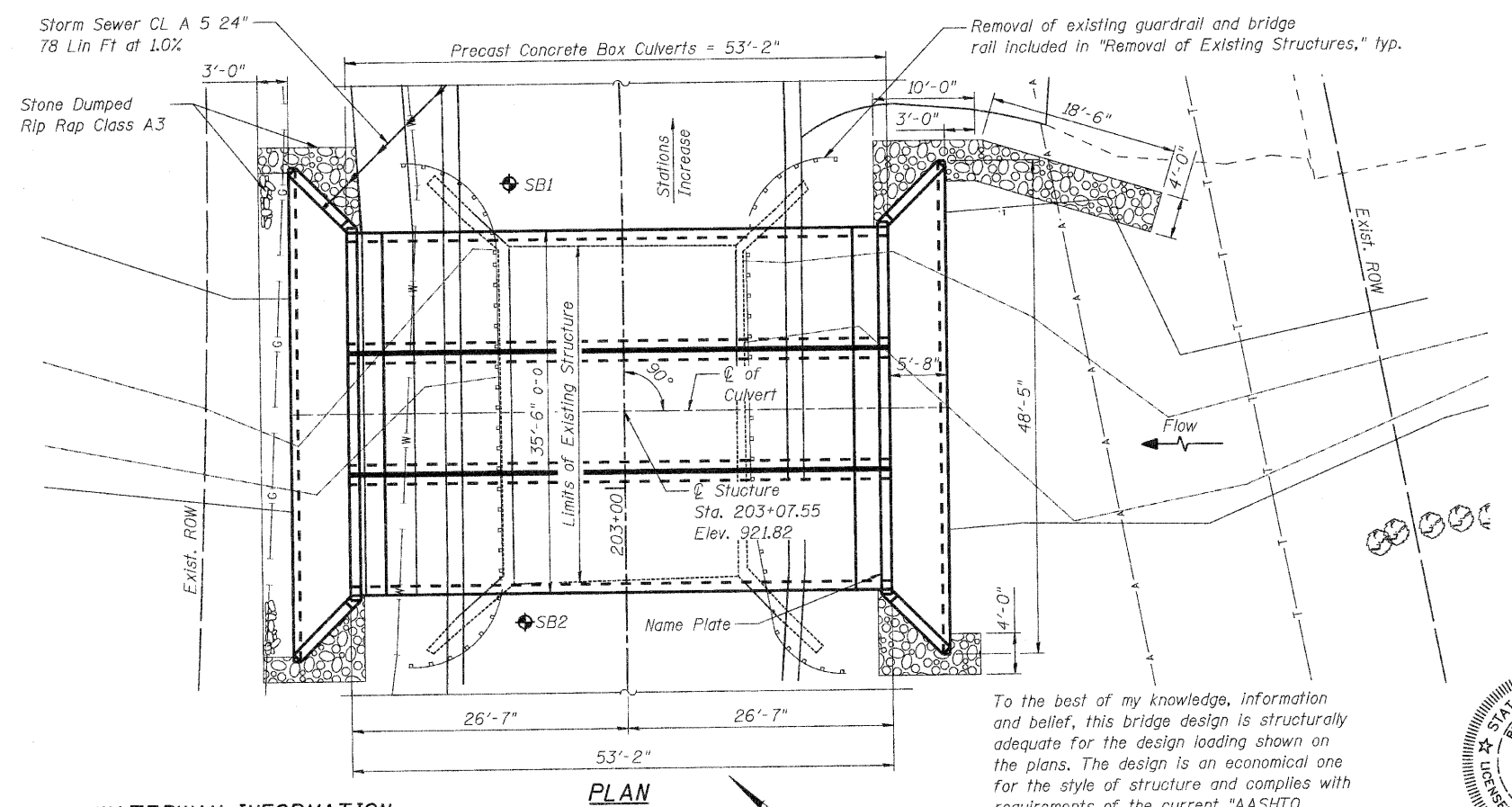
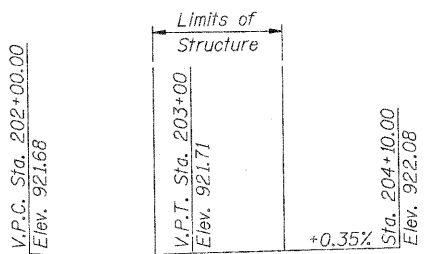
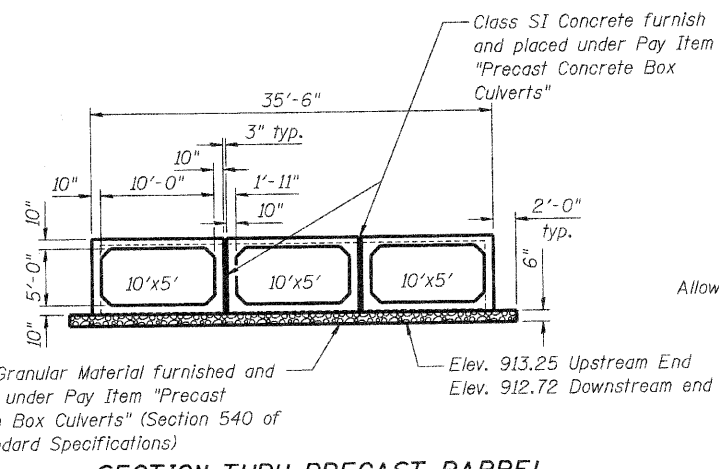
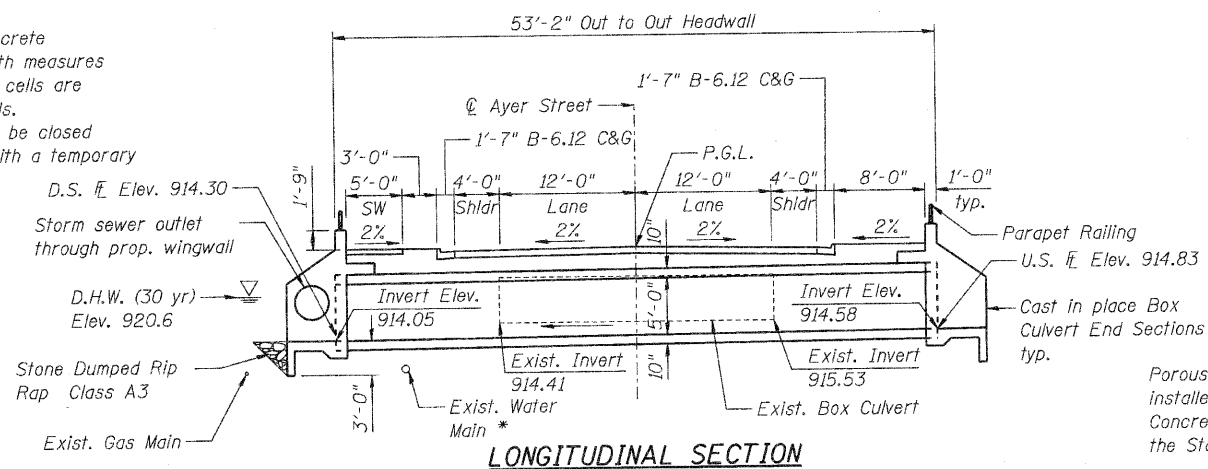
2007 AASHTO LRFD Bridge Design Specifications with 2008 and 2009 Interims

**LOADING HS20-44**

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

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	911.05	911.58



**PROFILE GRADE**  
(along Ayer Street)

MOKELER CREEK  
BUILT 20\_\_ BY  
CITY OF HARVARD  
SEC 06-00057-00-BR  
F.A.U. 0005 STA. 203+07.55  
STRUCTURE NO. 056-6203  
LOADING HS 20

**NAME PLATE**  
See Std. 515001

**WATERWAY INFORMATION**

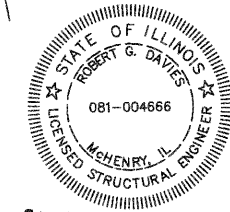
Drainage Area = 4.45 sq. mi. Low Grade Elev. 921.62 @ Sta. 202+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El. Prop.	
			Exist.	Prop.		Exist.	Prop.		
Design	10	490	120	150	920.2	0.2	0.1	920.4	920.3
Design	30	656	120	150	920.6	0.4	0.2	921.0	920.8
Design	50	740	120	150	920.8	0.6	0.3	921.4	921.1
Base	100	850	120	150	920.9	0.8	0.5	921.7	921.4
Overtopping		825/950*	120	150				921.6	921.6
Max. Calc.	500	1130	120	150	921.2	0.9	0.7	922.1	921.9

\* The discharges shown are for the overtopping discharges for the existing and proposed conditions, respectively.

To the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO Standard Specifications for Highway Bridges".

*Robert G. Davies*  
Structural Engineer  
SEC Group, Inc.



EXPIRES 11-30-10  
8/16/2010

**GENERAL PLAN AND ELEVATION**

AYER STREET (FAU ROUTE 0005)  
OVER MOKELER CREEK  
SECTION NO. 06-00057-00-BR  
McHENRY COUNTY  
STATION 203+07.55  
STRUCTURE NO. 056-6203

DATE: 8/16/10

DESIGNED	MCH/JPG
CHECKED	KMA
DRAWN	WJH
CHECKED	RGD

SHEET NO. S-1	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	0005	06-00057-00-BR	McHENRY	22	12
S-5 SHEETS	CONTRACT NO. 63508				
FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT					

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FILE NAME: 06057-00057-00-01.dwg 8/16/2010  
PLOT DRIVER: pldrvr  
PEN TABLE: Struct 2x36.tbl