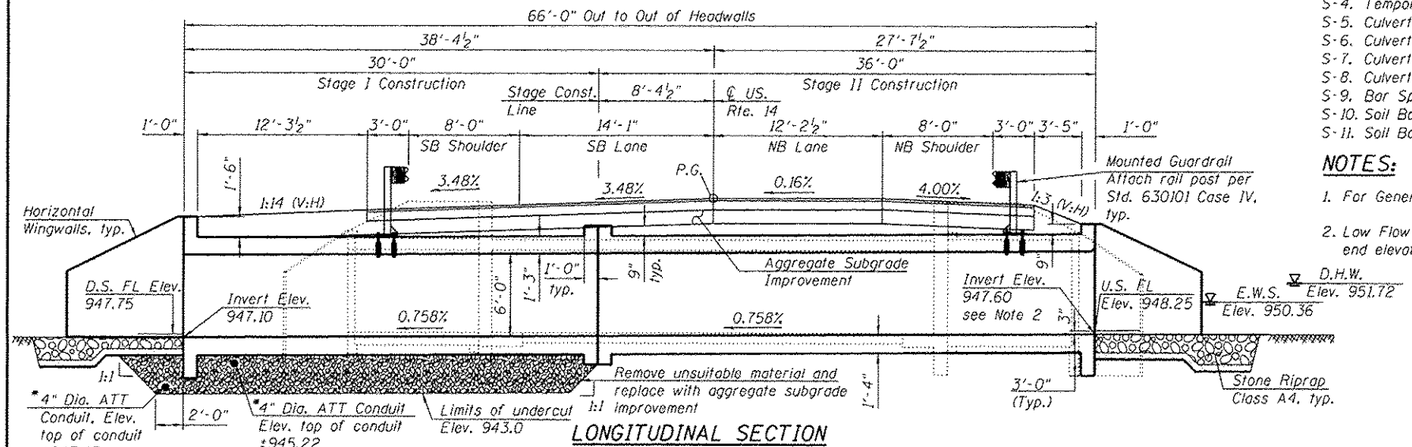
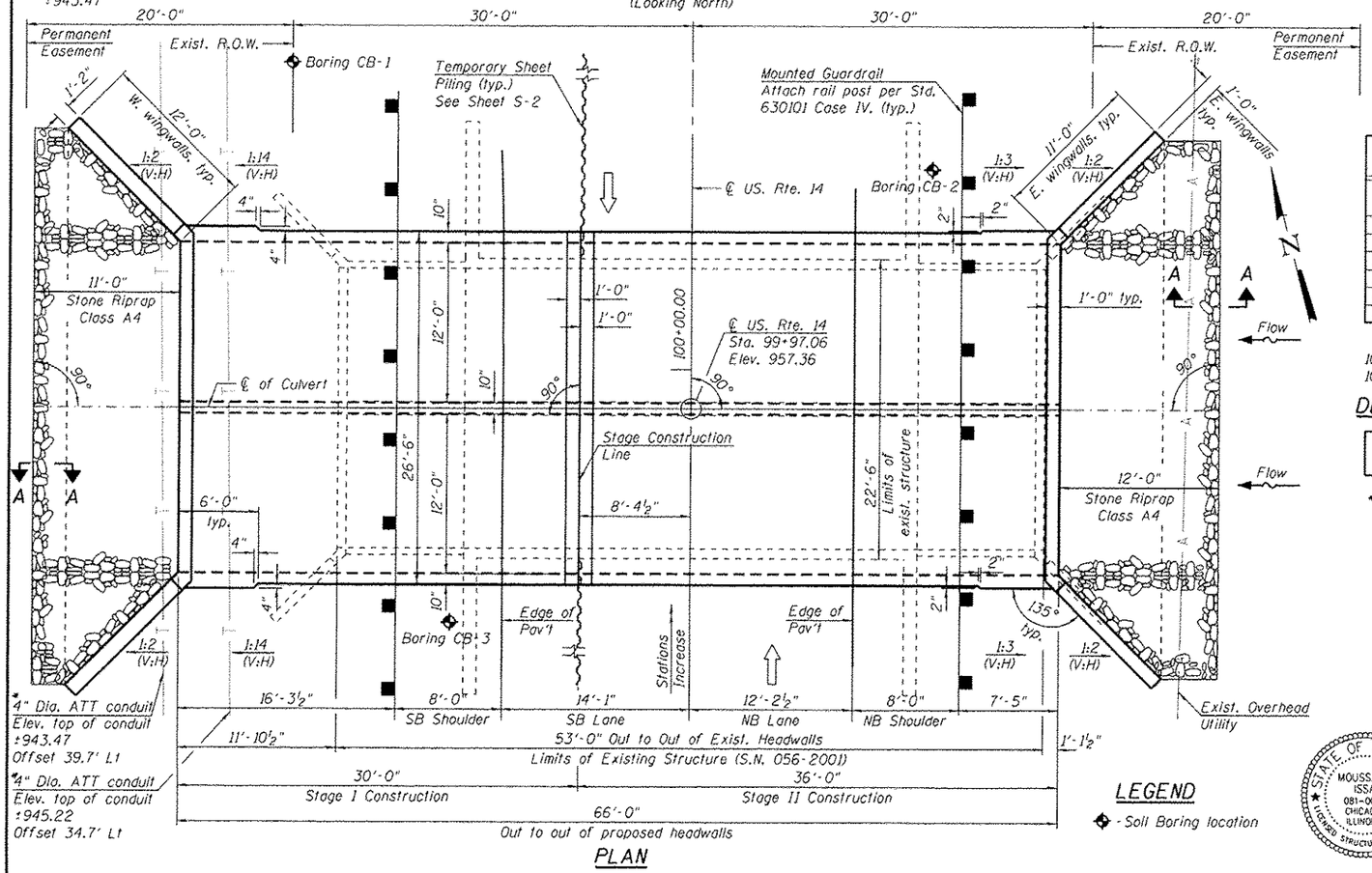
Bench Mark: BM-1 Sta 99+61.40 35.6'LT. N 2,113,477.9430 E 912,435.0720 Elevation 955.21.
Description: NGS Control Point MCH14-1a, Steel Rod in Sleeve.
Existing Structure: SN 056-2001 originally constructed in 1924 as a cast-in-place box culvert two cells 10' wide and 6' high and 32' long. The culvert was lengthened approximately by 9.5' on the east side in 1949 and approximately 9.5' on the west side in 1979. One lane of traffic shall be maintained in each direction utilizing stage construction.

No Salvage



LONGITUDINAL SECTION
(Looking North)



PLAN

LEGEND
◆ - Soil Boring location

INDEX OF SHEETS

S-1. General Plan
S-2. Stage Construction Details I
S-3. Stage Construction Details II
S-4. Temporary Concrete Barrier for Stage Construction
S-5. Culvert Plan Bottom Slab Details
S-6. Culvert Plan Top Slab Details
S-7. Culvert Sections and Details I
S-8. Culvert Sections and Details II
S-9. Bar Splicer Assembly and Mechanical Splicer Details
S-10. Soil Boring Logs I
S-11. Soil Boring Logs II

NOTES:

1. For General notes, see Sheet S-2.
2. Low Flow Weir is located at the upstream (East end) North Cell end elevation only. For sections and details, see Sheet S-7.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	TOTAL
**	Removal and Disposal of Unsuitable Material	Cu. Yd.	110
	Stone Riprap, Class A4	Sq. Yd.	95
	Filter Fabric	Sq. Yd.	95
	Aggregate Subgrade Improvement	Cu. Yd.	944
	Removal of Existing Structures	Each	1
	Structure Excavation	Cu. Yd.	530
	Reinforcement Bars, Epoxy Coated	Pound	41,620
	Bar Splicers	Each	165
	Name Plates	Each	1
	Concrete Box Culverts	Cu. Yd.	233.6
	Steel Plate Beam Guardrail, Attached to Structures	Foot	62.5
	Temporary Sheet Piling	Sq. Ft.	1,281
	Temporary Support System	L. Sum	1

** The excavated unsuitable material shall be used within the project limits as Top Soil. See Earth Work Schedule.

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition.

LOADING HL-93

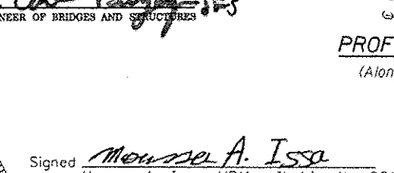
Allow 50 lb/sq. ft. for future wearing surface

DESIGN STRESSES

FIELD UNITS

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

STATION 99+97.06
BUILT 20__ BY
STATE OF ILLINOIS
LOADING HL-93
STRUCTURE NO. 056-0086



SECTION A-A

NAME PLATE

See Std. 515001

WATERWAY INFORMATION

Drainage Area = 1.4 sq. mi Low Grade Elev. = 957.19 at Sta. 99+70 Max. Recorded H.W.E = 952.00

Flood	Freq. Yr.	Discharge C.F.S	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	2	123	27.41	31.7	949.93	0.00	0.00	949.93	949.93
	10	191	44.7	71.3	950.97	0.00	0.00	950.97	950.97
Design	50	458	59.7	89.3	951.72	0.00	0.00	951.72	951.72
Base	100	564	63.2	93.6	951.90	0.05	0.00	951.95	951.90
Overtopping	260	890	82.8	117.1					
Max. Calc.	500	1572	81.7	115.7	952.82	0.69	0.55	953.51	953.37

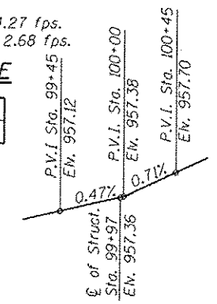
10-year velocity through the existing culvert = 4.27 fps.
10-year velocity through the proposed culvert = 2.68 fps.

DESIGN SCOUR ELEVATION TABLE

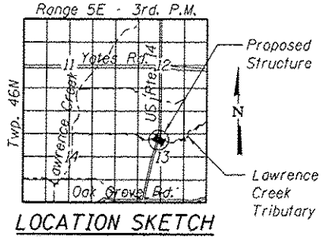
Design Scour Elevation (ft.)	D.S. Invert	U.S. Invert
	944.50	945.00

* Conduit to be relocated by others.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
P. Carl Ludwig 3-5
ENGINEER OF BRIDGES AND STRUCTURES



PROFILE GRADE
(Along ℄ Roadway)



LOCATION SKETCH

Signed Moussa A. Issa
Moussa A. Issa, HBM Il. Lic. No. 081-005738
Expires 11-30-2014
Date 06/19/2014 For Sheets S-1 Thru S-11 (Total of 11 Sheets)

GENERAL PLAN
U.S. RTE. 14 OVER
LAWRENCE CREEK TRIBUTARY
F.A.P. RTE. 66 - SEC. 21B-R
McHENRY COUNTY
STATION 99+97.06
STRUCTURE NO. 056-0086

HBM ENGINEERING GROUP, LLC
CONSULTING & DESIGN INSPECTION & RATING RESEARCH & TESTING
4415 WEST HARRISON ST. SUITE 231 HILLSIDE, IL 60162
PHONE: (708) 236-0900 FAX: (708) 236-0901

USER NAME = mustafa.alobaidi	DESIGNED - JMG, MAF	REVISED
FILE NAME = 056008G-60V25-001-GPE.dgn	CHECKED - MI	REVISED
PLOT SCALE = N.T.S.	DRAWN - MAF, HH	REVISED
PLOT DATE = 6/19/2014	CHECKED - MI, MAI	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NO. 056-0086
SHEET NO. S-1 OF 11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
066	21B-R	McHENRY	40	21
		CONTRACT NO. 60V25		
		ILLINOIS FED. AID PROJECT		