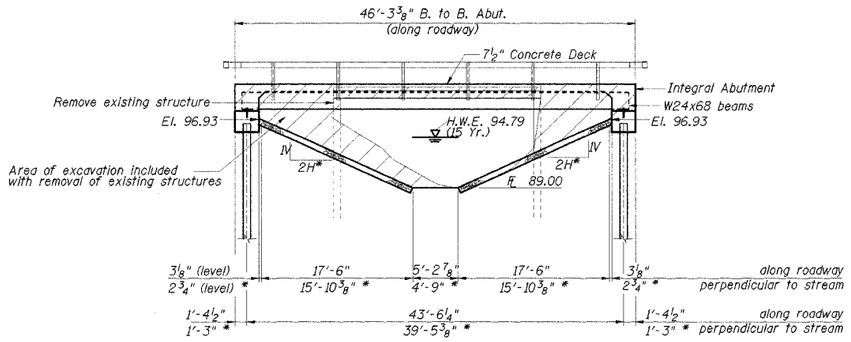
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	VERMILION	19	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

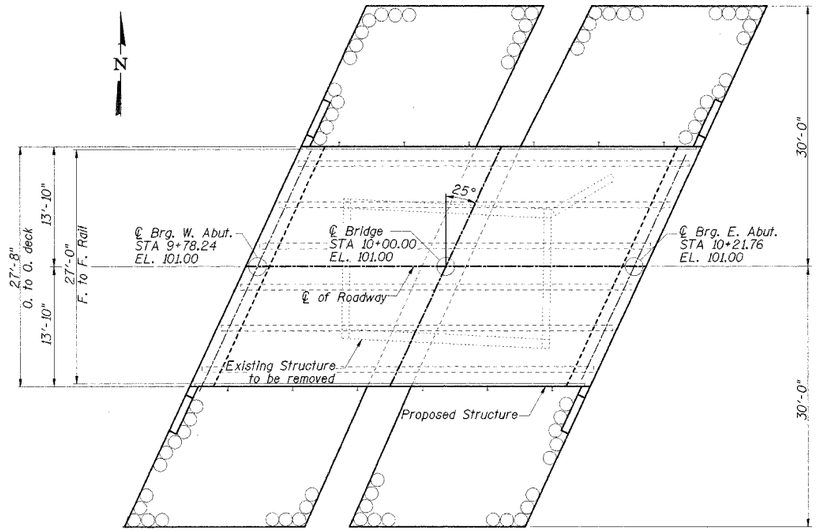
*02-04130-00-BR

Existing Structure: Single span of steel girders supporting a concrete deck. Abutments are steel H-piles with a concrete curtain wall. 24' Long and 16.1' Wide.

BM #1 - Spike in power pole at Sta 7+93.1, 21.4' R.T., Elev. 100.55
BM #2 - "□" in southwest corner of bridge at 100.02
BM #3 - Spike in power pole at Sta 11+26.3, 22.4' R.T., Elev. 101.11



ELEVATION



PLAN

BORING B-1

Location: STA 10+26.5, ℄ of roadway.
Elev. 100.00

Water Levels
While Drilling: 28'
At Completion: -

	N	Qu	W	
0				Dark brown to black sandy clay loam (Backfill)
	4	1.4 B	26%	Brown/gray mottled silty clay loam
5	2	-	18%	Brown/gray mottled silt loam to dirty coarse sand
	5	4.7 B	20%	Brown to brown/gray silty clay till
10	9	1.9 B	17%	Brown silty clay loam till to silt loam till
	9	1.2 B	12%	Gray silty clay loam till
15	10	2.9 B	12%	
	9	3.3 B	10%	
20				Gray sandy clay loam till
	22	-	8%	
25				
	32	8.1 S	6%	Gray moderately sorted coarse sand
30				Gray sand loam till
	19	3.3 B	17%	Blue micaceous clay to clay loam
35				
	48	-	15%	Blue micaceous sand loam to loam
40				
	23 50/4"	-	-	Blue/gray to brown slightly weathered shale
45				End of Boring

BORING B-2

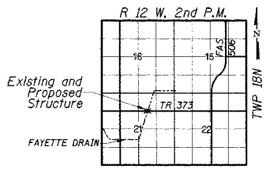
Location: STA 9+82, ℄ of roadway.
Elev. 100.00

Water Levels
While Drilling: -
At Completion: -

	N	Qu	W	
0				Dark brown to black sandy clay loam (Backfill)
	4	-	-	Brown/gray mottled silty clay loam
5	4	-	16%	Brown oxidized dirty sand to sand loam
	10	1.5B	15%	
10	6	1.2B	13%	Brown silty clay loam till to sandy clay loam till
	7	1.2B	13%	
15				Gray sand loam till
	17	3.1S	8%	
20				Gray dirty sand and gravel
	35	6.2B	9%	
25				
	39	10.5S	7%	Gray sandy clay loam till with large gravel
30				
	38	9.2S	12%	Dark gray silt to silty clay (slight organic smell)
35				
	16	6.2B	-	Dark gray clay
40				
	66	-	-	Blue/gray weathered micaceous shale
45				End of Boring

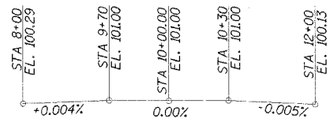
BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. split spoon sampler 12" with 140 lb. hammer falling 30".
Qu - Unconfined Compressive Strength - Tons/Sq. Ft.
W - Water Content - Percentage of oven dry weight - %
B - Bulge Failure, V - Shear Failure, S - Splitting Failure
E - Estimated Value



LOCATION SKETCH

Drainage Area	2.49 Sq. Mi.
Existing Opening (15 Yr.)	67.2 Sq. Ft.
Required Opening (15 Yr.)	89.5 Sq. Ft.
Proposed Opening (15 Yr.)	94.55 Sq. Ft.
Design Discharge (15 Yr.)	451.8 C.F.S.
Computed Discharge (100 Yr.)	706.6 C.F.S.
15 Yr. Head	0.00 Ft.
100 Yr. Head	0.00 Ft.



PROFILE GRADE

DESIGN SPECIFICATIONS

AASHTO (2002)

DESIGN LOADING

HS 20-44
25 P.S.F Future Wearing Surface

DESIGN STRESSES

f'_c = 3,500 psi (Cast In Place Concrete)
f_y = 60,000 psi (Reinforcement)
f_y = 50,000 psi (Structural Steel)

GENERAL NOTES

1. The Contractor shall drive 1 steel test pile in a permanent location at each abutment and pier as directed by the Engineer before ordering the remainder of piles.
2. Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction.
3. Class BD concrete shall be used for the bridge deck.
4. Class SI concrete shall be used in the abutments.
5. Structural steel shall be M270 Grade 50W, ASTM 588.
6. Welds shall use a E70XX electrode.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yds.		108	108
Concrete Structures	Cu. Yds.		18.8	18.8
Concrete Superstructures	Cu. Yds.	48.4		48.4
Furnishing & Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	612		612
Reinforcement Bars	Pounds		2,360	2,360
Reinforcing Bars, Epoxy Coated	Pounds	10,120		10,120
Steel Railing, Type S-1	Foot	90		90
Furnishing Steel Piles, HP10x42	Foot		280	280
Driving Steel Piles	Foot		280	280
Test Piles, Steel HP10x42	Each		2	2
Metal Shoes	Each		8	8
Name Plate	Each		1	1
Grouted Riprap	Sq. Yds.		283	283
Conc. Cut-off Wall	Cu. Yds.		5.7	5.7
Controlled Low-Strength Material	Cu. Yds.		50	50

LICENSED STRUCTURAL ENGINEER
KEITH E. BRANDAU
81-4905
CHAMPAIGN
STATE OF ILLINOIS

I certify that 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 the requirements of the current "AASHTO Standard Specifications for Highway Bridges."

Keith E. Brandau 03/01/06

KEITH E. BRANDAU
Illinois Licensed Structural Engineer Number 4905
License Expires 11/30/06

STRUCTURE NO. 092-3505
SEC. 02-04130-00-BR
TR 373
VERMILION COUNTY
LOADING HS-20-44

NAME PLATE

See Standard 515001

DSGN K.J. Hoffmann					
DR K.J. Hoffmann					
CHK K.E. Brandau					
APVD K.E. Brandau	NO.	DATE	REVISION	BY	APVD

FRAUENHOFFER
Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, Il. 61822 217-351-6268

GENERAL PLAN AND ELEVATION
CATLIN ROAD DISTRICT
SECTION 02-04130-00-BR
VERMILION COUNTY

SHEET 7
DWG NO. 5068-gpe.dgn
DATE FEB 2006
PROJ NO. 5068