

Bench Mark: #100 PK Nail in pavement at west end of intersection of Flint Dr. and Woodland Dr. Elev. 758.73
(Northing: 2015278.00, Easting: 1028901.42)

Existing Structure: S.N. 049-6750 built in 1968. Structure is a single span bridge consisting of nonstandard precast prestressed concrete box beams supported by closed abutments of unknown footing type. 36'-0" bk. to bk. abutments. 32'-4" out to out deck. Structure to be removed and replaced using stage construction. Existing footing to remain.

No salvage

WATERWAY INFORMATION

Drainage Area = 23.2 sq mi Low Grade Elev. 755.24 @ Sta. 15+50

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	558	125	157	751.66	0.04	0.04	751.70	751.70
	30	779	151	193	752.43	0.07	0.07	752.50	752.50
	50	872	160	206	752.68	0.08	0.08	752.76	752.76
Base/Max Calc	100	1023	173	225	753.06	0.10	0.10	753.16	753.16

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	E. Abut.
	749.15	749.01

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu Yd		296	296
Stone Riprap, Class A4	Sq Yd		398	398
Filter Fabric	Sq Yd		440	440
Removal Of Existing Superstructures	Each	1		1
Concrete Removal	Cu Yd		111	111
Structure Excavation	Cu Yd		213	213
Concrete Structures	Cu Yd		30.3	30.3
Bridge Deck Grooving	Sq Yd	185		185
Concrete Encasement	Cu Yd		6.6	6.6
Protective Coat	Sq Yd	185		185
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq Ft	1,658		1,658
Reinforcement Bars, Epoxy Coated	Pound	2,740	4,570	7,310
Bar Splicers	Each	81	28	109
Furnishing Metal Shell Piles 12" X 0.179"	Foot		430	430
Driving Piles	Foot		430	430
Test Pile Metal Shells	Each		2	2
Name Plates	Each	1		1
Geocomposite Wall Drain	Sq Yd		36	36.0
Porous Granular Embankment, Special	Cu Yd		87	87
Concrete Wearing Surface, 5"	Sq Yd	185		185
Temporary Sheet Piling	Sq Ft		700	700
Pipe Underdrains For Structures 4"	Foot		76	76
Timber Railing	Foot	117		117

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DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications with 2010 Interims

LOADING HL-93

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

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)
PRECAST PRESTRESSED UNITS
 $f'_c = 6,000$ psi
 $f'_{ci} = 5,000$ psi
 $f'_{pu} = 270,000$ psi (1/2" ϕ low relax. strands)
 $f_{pbt} = 201,960$ psi (1/2" ϕ low relax. strands)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.080g
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 0.139g
 Soil Site Class = D

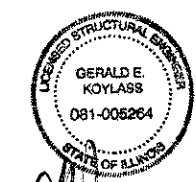
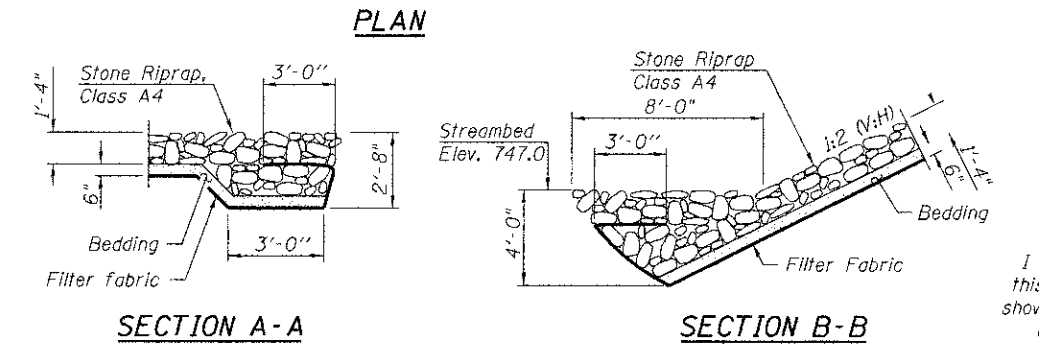
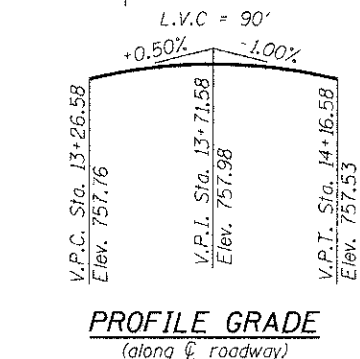
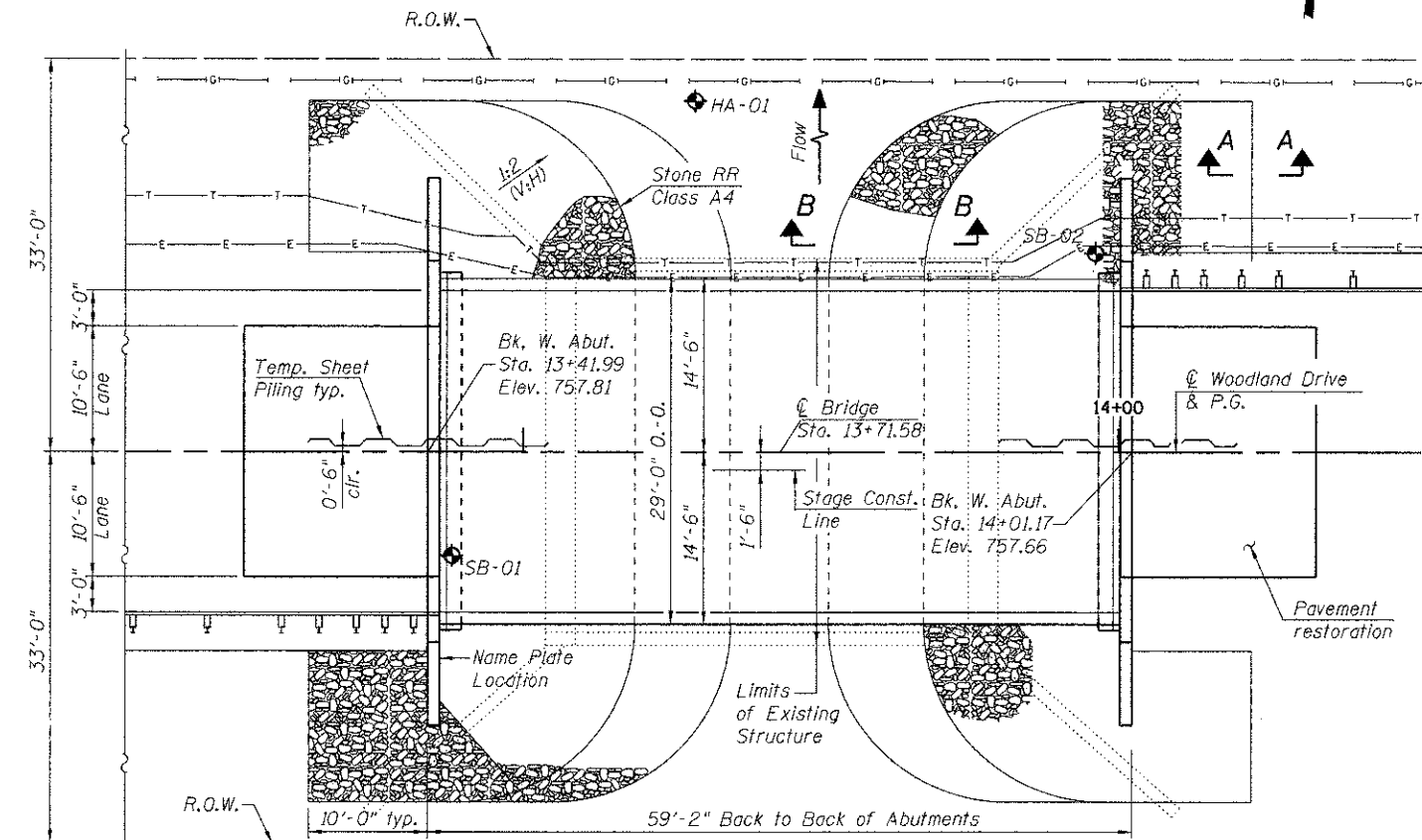
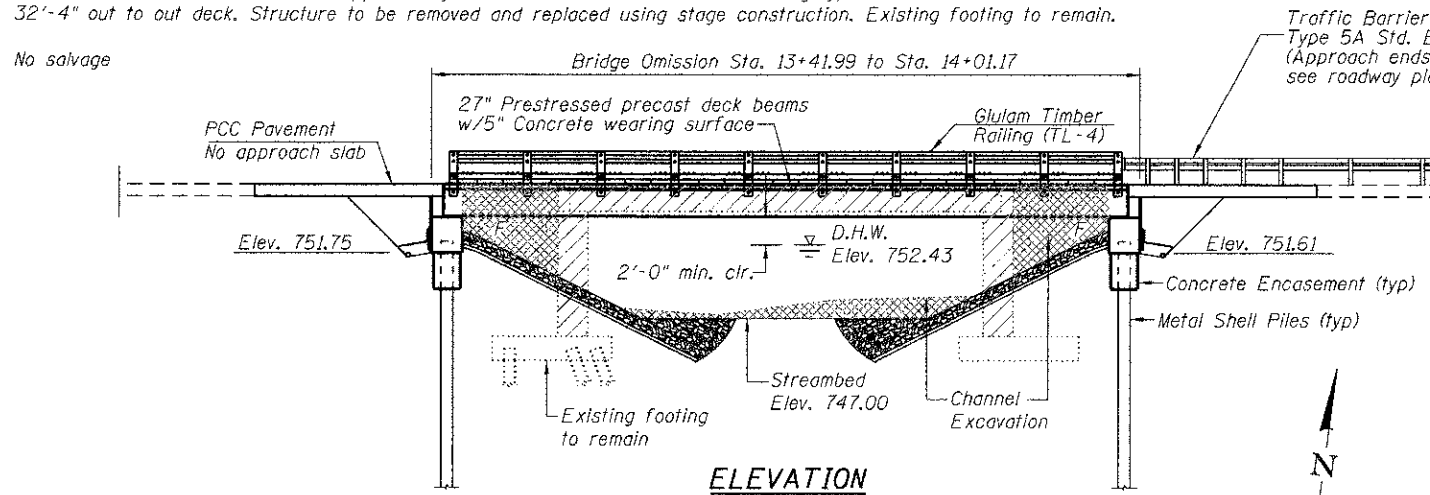
FLINT CREEK
 BUILT 2011 BY
 VILLAGE OF LAKE BARRINGTON
 SEC. 09-00010-00-BR
 STATION 13+71.58
 STR. NO. 049-6751 LOADING HL-93

NAME PLATE

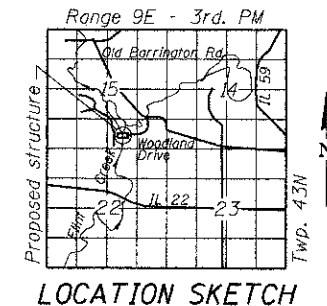
See Std. 515001

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
 Reinforcement bars designated (E) shall be epoxy coated.
 Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 The Contractor is advised that the existing southern fascia beam is in deteriorated condition with reduced load carrying capacity and care should be taken with construction equipment and removal procedures.
 The cost of any dewatering necessary for placement of filter fabric and riprap shall be included in the cost of Channel Excavation.



I certify that to the best of 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.



GENERAL PLAN AND ELEVATION
WOODLAND DRIVE OVER FLINT CREEK
 SEC. 09-00010-00-BR
 LAKE COUNTY
 STATION 13+71.58
 STRUCTURE NO. 049-6751