BENCHMARK: Top of concrete R.O.W. marker at southeast corner of Rte. 34 and E. 4th Rd. Sta. ±57+00, 90' Rt., El. 730.086

EXISTING STRUCTURE: Structure number 050-0189 was originally constructed at Sta. 55+12.00 in 1981 as FA Route 587 (US 34) Section (20.20X) RW & RS, 20 BR. It is a single span precast, prestressed concrete deck beam bridge on open pile bent abutments. The length of the structure is 69'-0" from back to back of the abutments. The clear width is 40'-4" face to face of the railing.

Existing structure to be removed and replaced. One lane of traffic to be maintained by stage construction.

No salvage.

## LOADING HL-93

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

## DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications with 2013 Interims

## DESIGN STRESSES

FIELD UNITS

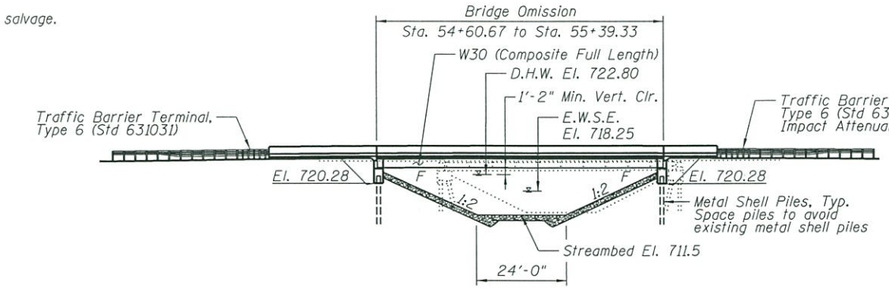
$f'_c$ = 3,500 psi
$f_y$ = 60,000 psi (reinforcement)
$f_y$ = 50,000 psi (M270 Grade 50)

## LIVE LOAD DEFLECTION

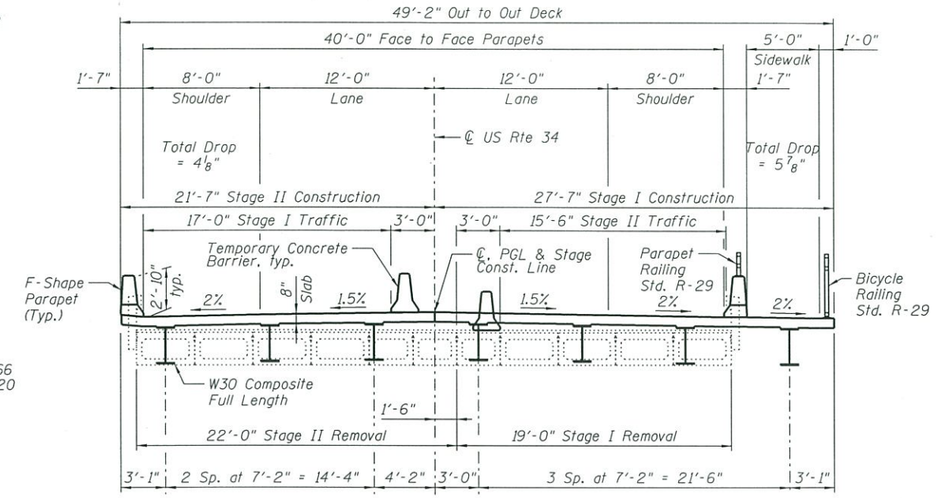
$\Delta$ LL + I < Span/1000

## SEISMIC DATA

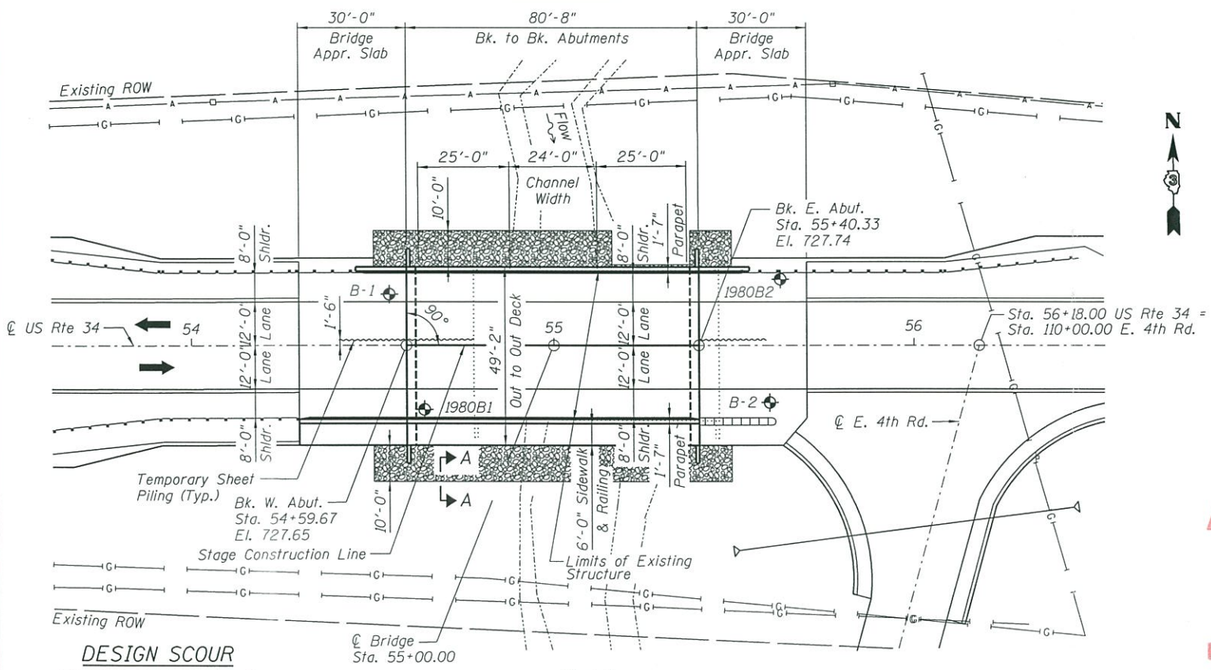
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration @ 1.0 sec (SD1) = 0.066
Design Spectral Acceleration @ 0.2 sec (SDS) = 0.120
Soil Site Class = C



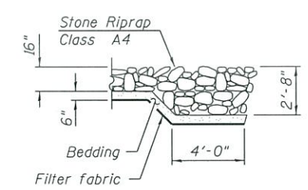

ELEVATION



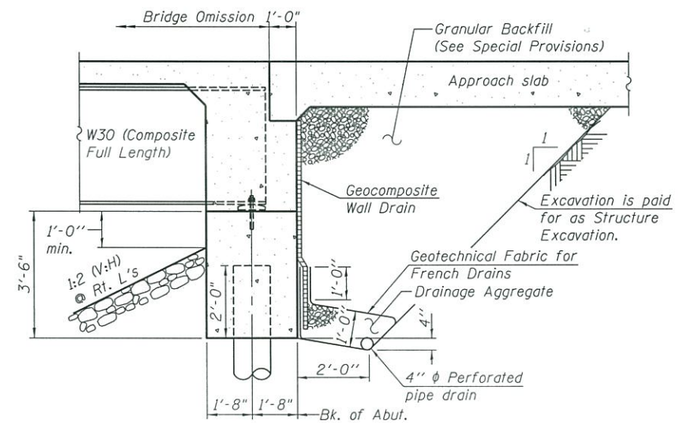

CROSS SECTION
(Looking East)




PLAN




SECTION A-A




SECTION THRU INTEGRAL ABUTMENT

APPROVED
OCT 15 2014
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

## DESIGN SCOUR ELEVATION TABLE

| W. Abut. | E. Abut. |
|---|---|
| 720.3 | 720.3 |

## HIGHWAY CLASSIFICATION

Route: FAP 587 (US Rte 34)
Functional Class: Urban Other Principal Arterial
ADT: 7000 (2011), 9800 (2031)
DHV = 680 (2031)
ADTT = 1180 (2031)
Design Speed: 45 mph
Posted Speed: 45 mph
Directional Distribution: 50/50
Two Way Traffic

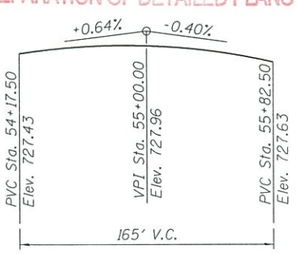
## WATERWAY INFORMATION

Drainage Area = 9.1 sq. mi.

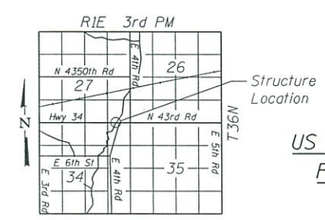
Exist. Low Grade Elev. = 726.36 @ Sta. 54+40
Prop. Low Grade Elev. = 726.39 @ Sta. 53+50

| Flood | Freq. Yr. | Q 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. |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 1730 | 361 | 508 | 721.8 | 0.5 | 0.4 | 722.3 | 722.4 |
| Hydraulic Design | 50 | 2890 | 425 | 585 | 722.8 | 1.1 | 0.9 | 724.0 | 723.8 |
| Base | 100 | 3420 | 450 | 614 | 723.2 | 1.5 | 1.2 | 724.7 | 724.4 |
| Scour Design | 200 | 3995 | 473 | 642 | 723.6 | 2.1 | 1.4 | 725.7 | 725.0 |
| Ex. Overtopping | 334 | 4390 | 484 | 668 | 723.9 | 2.5 | 1.6 | 726.6 | 725.6 |
| Max. Calc. | 500 | 4740 | 484 | 668 | 724.1 | 2.8 | 1.7 | 726.8 | 725.7 |

10-Year Velocity through Existing Bridge = 5.0 fps
10-Year Velocity through Proposed Bridge = 3.2 fps




PROFILE GRADE
(along ℄ US Route 34)




LOCATION SKETCH

## GENERAL PLAN
## US 34 OVER LITTLE VERMILION RIVER
## FAP 587 (US 34) SECTION (20) BR
## LA SALLE COUNTY
## STA. 55+00.00
## STRUCTURE NO. 050-0257

FILE NAME = ...\050-0257_66853_TSL.dgn

ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

| | | |
|---|---|---|
| USER NAME = SAW | DESIGNED - LAS | REVISED - |
| | CHECKED - DAZ | REVISED - |
| PLOT SCALE = 480.0.0000 ':' / ft. | DRAWN - SAW | REVISED - |
| PLOT DATE = 9/24/2014 | CHECKED - LAS | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NO. 050-0257
SHEET NO. 1 OF 1 SHEETS

| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 587 | (20) BR | LA SALLE | | |
| | | CONTRACT NO. 66853 | | |
| | | ILLINOIS FED. AID PROJECT | | |