Benchmarks: #1. Disk on Northwest Headwall of Structure No. 006-0136, Elevation = 636.75 (NAVD 88), Sta. 1579+30.66/17.43' RT.
#2. Railroad Spike in power pole approximately 750' North of ℄ of Big Bureau Creek, Elevation = 630.65 (NAVD 88), Sta. 1573+06.22/50.19' RT.

Existing Structure: Structure No. 006-0079 was originally built in 1927 as SBI Route 89, Section 115B. In 1981, the superstructure was replaced, the North abutment was replaced and relocated, and the remaining substructure was widened to build Structure No. 006-0136 as FA Route 38, Section 115BR. In 1993, the existing bituminous wearing surface was removed and replaced with a 5" reinforced concrete wearing surface as FA Route 316, Section 115BR-M. The superstructure consists of a four-span, precast prestressed concrete deck beam bridge with a 5" reinforced concrete wearing surface. The substructure consists of an open pile bent abutment at the North end supported by precast concrete piles, a closed abutment wall at the south end supported by untreated timber piles, and solid wall pile bent piers supported by untreated timber piles and precast concrete piles. The back-to-back of abutment dimension measures 228'-1" and the out-to-out dimension measures 33'-0". The span lengths are 67'-8", 53'-0", 53'-0", and 54'-5". The structure is not skewed. One lane of traffic will be maintained utilizing stage construction.

No Salvage.

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PREPARATION OF DETAILED PLANS

## WATERWAY INFORMATION

Drainage Area = 175.5 Sq. Mi.
Existing Low Grade Elev. 629.83 ℄ Sta. 1597+25
Proposed Low Grade Elev. 629.83 ℄ Sta. 1597+25

| 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. |
|---|---|---|---|---|---|---|---|---|---|
| Ex. Overtopping | 9 | 7,490 | 1,455 | 2,541 | 629.7 | 0.4 | 0.0 | 630.1 | 629.7 |
| Pr. Overtopping | 9 | 7,530 | 1,468 | 2,557 | 629.8 | 0.4 | 0.0 | 630.2 | 629.8 |
| | 10 | 7,920 | 1,504 | 2,600 | 630.0 | 0.5 | 0.1 | 630.4 | 630.1 |
| Hydraulic Design | 50 | 12,500 | 1,910 | 3,075 | 632.0 | 0.2 | 0.3 | 632.3 | 632.3 |
| Base/Scour Design | 100 | 14,500 | 2,042 | 3,233 | 632.7 | 0.3 | 0.3 | 633.0 | 633.0 |
| Scour Check | 200 | 16,579 | 2,121 | 3,351 | 633.2 | 0.5 | 0.4 | 633.7 | 633.6 |
| Max. Calc. | 500 | 19,300 | 3,522 | 3,493 | 633.8 | 0.6 | 0.4 | 634.4 | 634.2 |

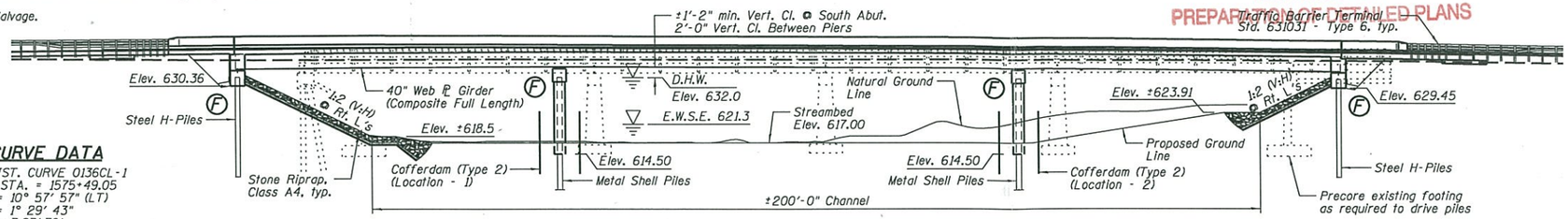
10-Yr. Velocity = 5.3 ft./sec. (Exist.)
10-Yr. Velocity = 3.0 ft./sec. (Prop.)

## DESIGN SCOUR ELEVATION TABLE

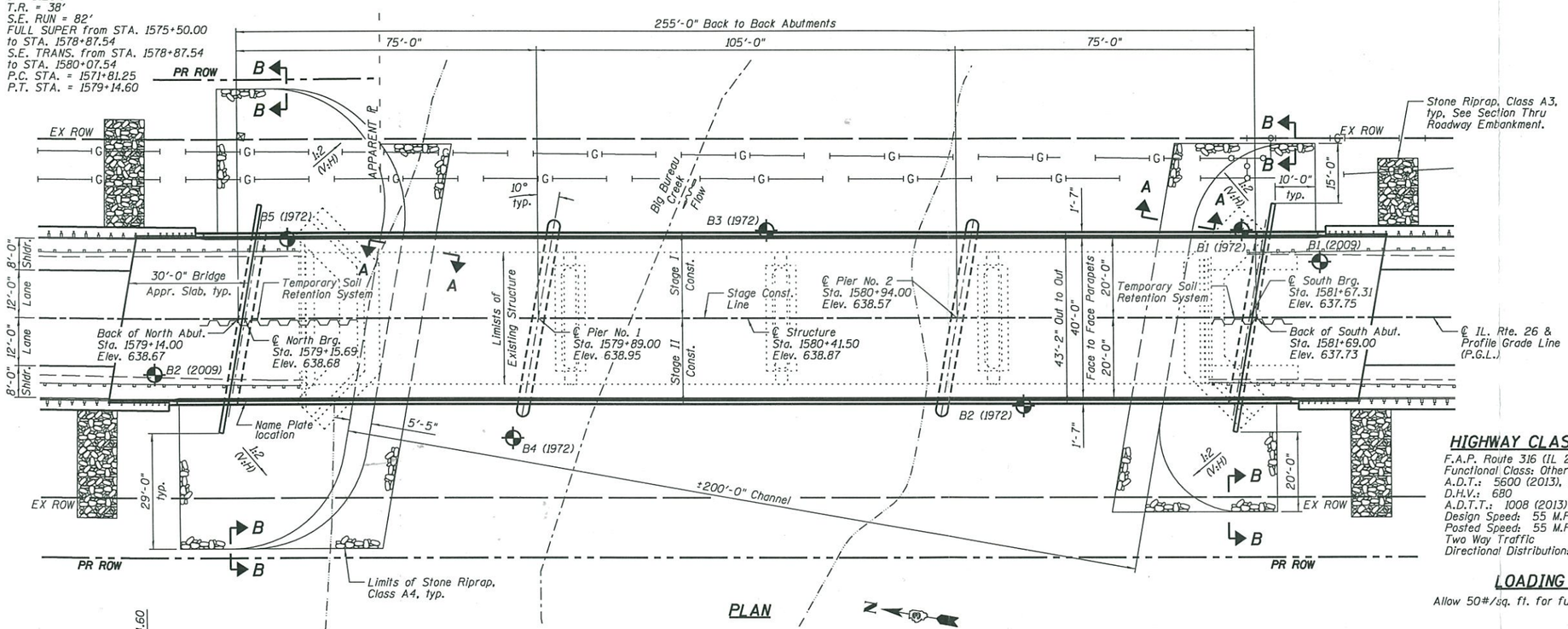
| Event/Limit State | Design Scour Elevations (ft.) N. Abut. | Pier 1 | Pier 2 | S. Abut. | Item 113 |
|---|---|---|---|---|---|
| Q100 | 630.4 | 611.9 | 611.9 | 629.5 | 8 |
| Q200 | 630.4 | 611.9 | 611.9 | 629.5 | |
| Design | 630.4 | 611.9 | 611.9 | 629.5 | |
| Check | 630.4 | 611.9 | 611.9 | 629.5 | |

## CURVE DATA

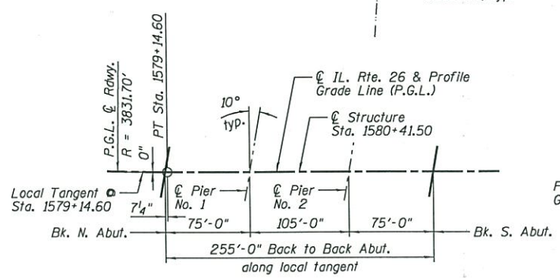
EXIST. CURVE 0136CL-1
PI STA. = 1575+49.05
Δ = 10° 57' 57" (LT)
D = 1° 29' 43"
R = 3,831.70'
T = 367.80'
L = 733.35'
E = 17.61'
e = 3.20%
T.R. = 38'
S.E. RUN = 82'
FULL SUPER from STA. 1575+50.00 to STA. 1578+87.54
S.E. TRANS. from STA. 1578+87.54 to STA. 1580+07.54
P.C. STA. = 1571+81.25
P.T. STA. = 1579+14.60



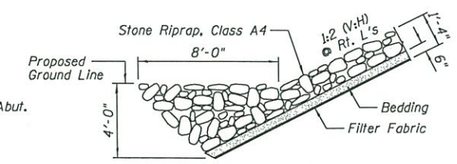

ELEVATION



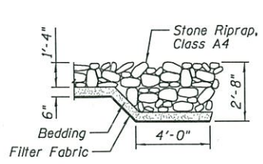

PLAN



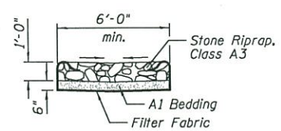

OFFSET DETAIL




SECTION A-A

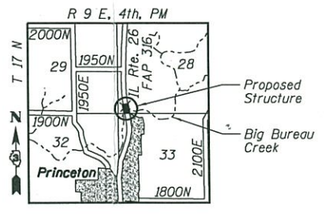



SECTION B-B

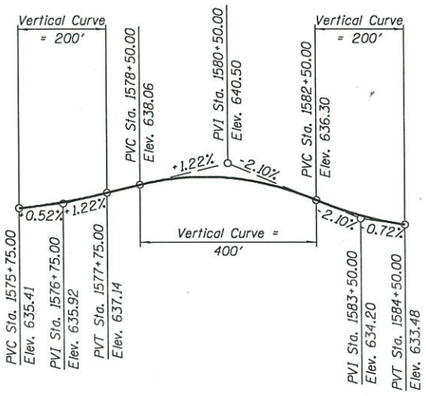



SECTION THRU ROADWAY EMBANKMENT

Provides drainage down embankment from bridge approach slab.




LOCATION SKETCH




PROFILE GRADE
(Along ℄ Roadway)

## HIGHWAY CLASSIFICATION

F.A.P. Route 316 (IL 26)
Functional Class: Other Principal Arterial
A.D.T.: 5600 (2013), 7800 (2033)
D.H.V.: 680
A.D.T.T.: 1008 (2013)
Design Speed: 55 M.P.H.
Posted Speed: 55 M.P.H.
Two Way Traffic
Directional Distribution: 50/50

## LOADING HL-93

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

## DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, 7th Edition

## DESIGN STRESSES

FIELD UNITS:
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (AASHTO M270 Grade 50W)

## SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.067
Design Spectral Acceleration at 0.2 sec. (SDs) = 0.116
Soil Site Class = C

# IL. ROUTE 26 OVER BIG BUREAU CREEK
# F.A.P. 316 - SECTION (116 BR)BR
# BUREAU COUNTY
# STATION 1580+41.50
# STRUCTURE NO. 006-0187


Farnsworth GROUP, INC.
2709 McGraw Drive
Bloomington, Illinois 61704
309/663-8435, 309/663-1571 fax

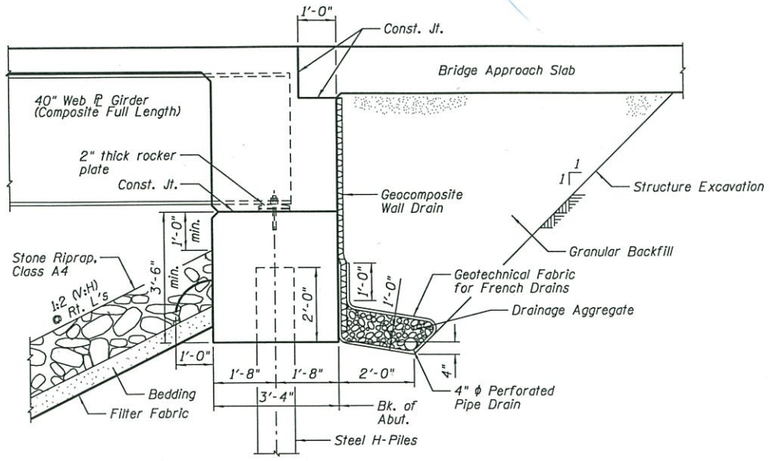

| | | |
|---|---|---|
| | DESIGNED - TCR | REVISED |
| | CHECKED - JCZ | REVISED |
| | DRAWN - TCR | REVISED |
| DATE - 02/23/15 | CHECKED - JML | REVISED |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

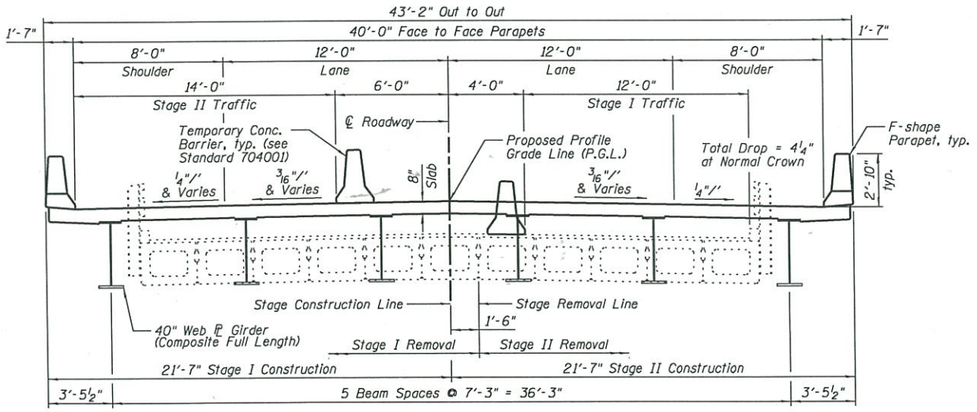
GENERAL PLAN
STRUCTURE NO. 006-0187
SHEET NO. OF SHEETS

| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 316 | (116 BR)BR | BUREAU | 2 | 1 |
| | | CONTRACT NO. 66A19 | | |
| | ILLINOIS | FED. AID PROJECT | | |

24-8962




**SECTION THRU ABUTMENT**
(Horiz. dimensions ℄ Rt. L's)




**CROSS SECTION**
(Looking South)

Notes: Cross Section transitions from full superelevation at Station 1578+87.54 to normal crown at Station 1580+07.54.

The condition of the existing PPC deck beams intended to carry Stage I Traffic shall be verified in the design phase.

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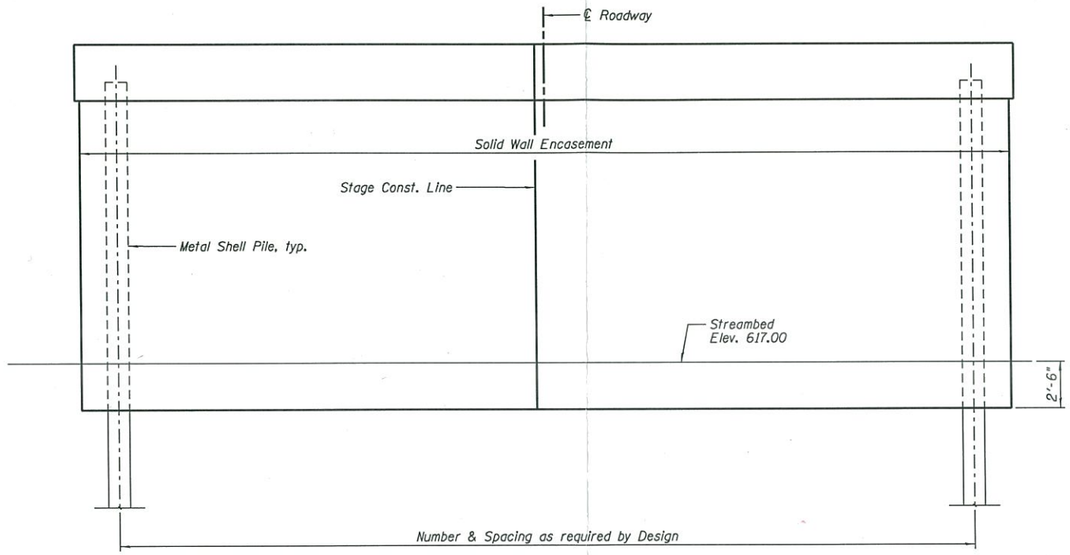
AS A BASIS FOR
PREPARATION OF DETAILED PLANS




**PIER SKETCH**
(Looking South)

Farnsworth GROUP, INC.
2709 McGraw Drive
Bloomington, Illinois 61704
309/663-8435, 309/663-1571 fax

| | | |
|---|---|---|
| | DESIGNED - TCR | REVISED |
| | CHECKED - JCZ | REVISED |
| | DRAWN - TCR | REVISED |
| DATE - 02/23/15 | CHECKED - JML | REVISED |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**DETAILS**
**STRUCTURE NO. 006-0187**
SHEET NO. OF SHEETS

| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 316 | (116 BR)BR | BUREAU | 2 | 2 |
| | | CONTRACT NO. 66A19 | | |
| | ILLINOIS | FED. AID PROJECT | | |

24-8962