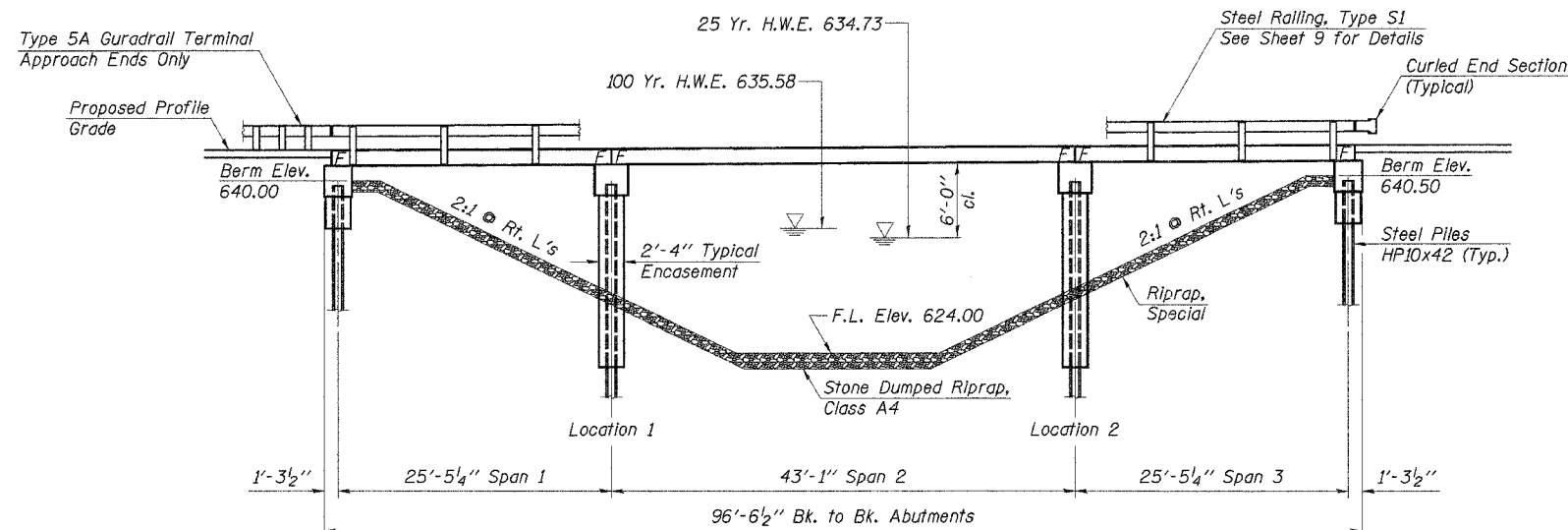
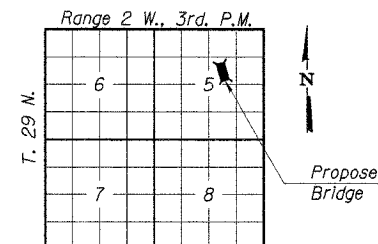


| ROUTE NO.  | SECTION  | COUNTY   | TOTAL SHEETS   | SHEET NO. |
|------------|----------|----------|----------------|-----------|
| C.H. 16    | 06-00084 | MARSHALL | 15             | 5         |
| F.A.S. 365 | -00-BR   |          |                |           |
|            |          | ILLINOIS | FED. AID PROJ. |           |

CONTRACT NO. 89409



**ELEVATION**



**LOCATION PLAN**

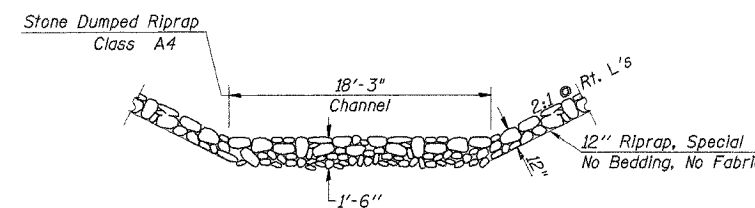
**GENERAL NOTES**

See Proposal Booklet for Boring data.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.

The Contractor shall drive one steel test pile in a permanent location at the North abutment and at Pier #2 as directed by the Engineer, before ordering the remainder of piles.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer. (See Special Provisions),



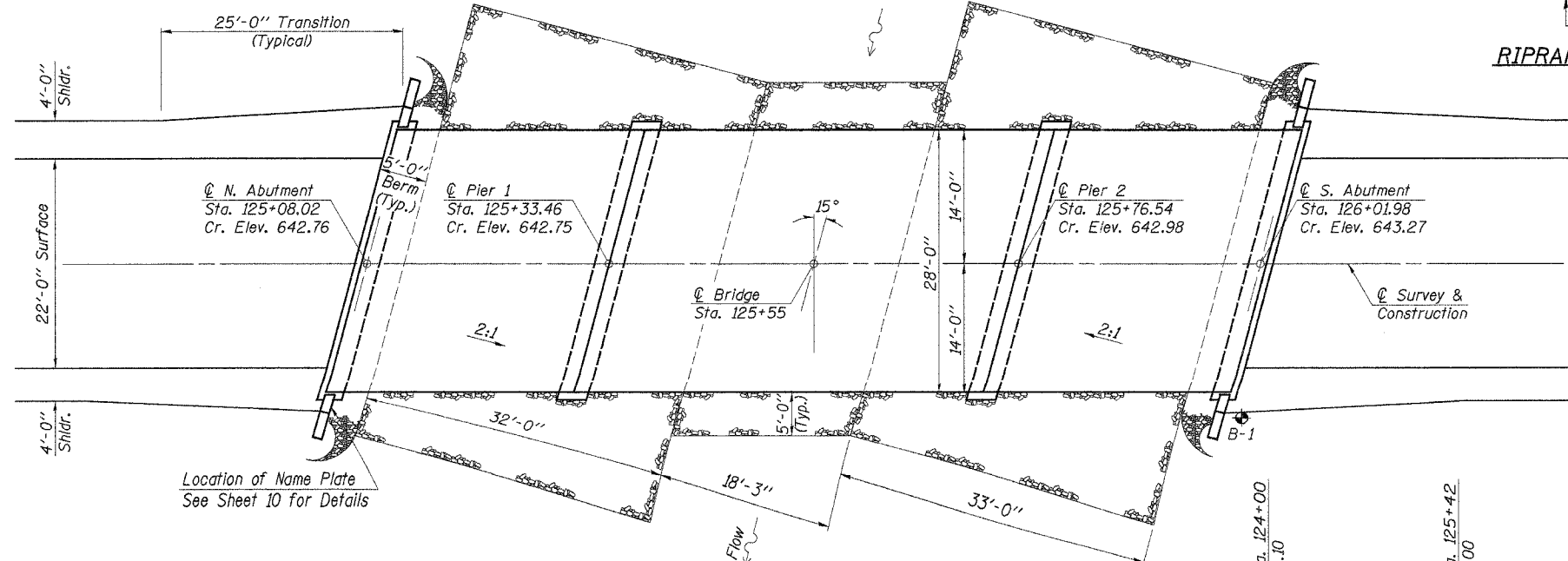
**RIPRAP PLACEMENT**

STRAWN CREEK  
BUILT 200\_ BY  
MARSHALL COUNTY  
SEC. 06-00084-00-BR  
COUNTY HIGHWAY 16  
F.A. PROJ. BRS-365(106)  
STR. NO. 062-3651 LOADING HS20

**LETTERING FOR NAME PLATE**  
See Std. 515001

**TOTAL BILL OF MATERIAL**

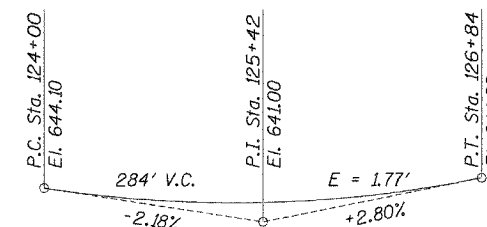
| ITEM  | UNIT    | SUPER | SUB  | TOTAL |
|---|---------|-------|------|-------|
| Precast Prestressed Concrete Deck Beams (17" Depth)     | Sq. Ft. | 2,660 |      | 2,660 |
| Concrete Structures Reinforcement Bars                  | Cu. Yd. |       | 41.1 | 41.1  |
| Steel Railing, Type S1                                  | Pound   | 4,520 |      | 4,520 |
| Name Plates   | Foot    | 191   |      | 191   |
| Steel Piles HP10x42                                     | Each    |       | 1    | 1     |
| Test Pile Steel HP10x42                                 | Foot    |       | 456  | 456   |
| Riprap, Special   | Each    |       | 2    | 2     |
| Stone Dumped Riprap, Class A4                           | Ton     |       | 214  | 214   |
| Concrete Encasement                                     | Ton     |       | 60   | 60    |
| Bituminous Concrete Surface Course, Mix "C", N50        | Cu. Yd. |       | 29.0 | 29.0  |
| Waterproofing Membrane System                           | Ton     |       | 37   | 37    |
| Portland Cement Mortar Fairing Course                   | Sq. Yd. |       | 296  | 296   |
| Underwater Structure Excavation Protection - Location 1 | Foot    |       | 285  | 285   |
| Underwater Structure Excavation Protection - Location 2 | Each    |       | 1    | 1     |



**PLAN**

**DESIGN STRESSES**

$f_c$  = 5,000 p.s.i. (Prestressed Beams)  
 $f_{ci}$  = 4,000 p.s.i. (Prestressed Beams)  
 $f_c$  = 1,400 p.s.i. (Concrete)  
 $f_s$  = 270,000 p.s.i. (Prestressed Strands)  
 $f_{si}$  = 201,960 p.s.i. (Prestressed Strands)  
 $f_s$  = 24,000 p.s.i. (Reinf. Bars -- Field Units)  
 $f_y$  = 60,000 p.s.i. (Reinf. Bars -- Field Units)  
 $n$  = 9 (Concrete)  
 LOADING HS20-44  
 Design Specifications: 2002 AASHTO  
 25#/Sq. Ft. Included in dead load for future wearing surface.



**PROFILE GRADE**

Top of Bituminous Surface

"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 requirements of the current 'AASHTO Standard Specifications for Highway Bridges'."

Fred J. Stone, Jr. (9-01-06)  
ILLINOIS STRUCTURAL NO. 2934 (Expires 11/30/06)

**WATERWAY INFORMATION**

|                           |              |
|---------------------------|--------------|
| Drainage Area             | 7.71 Sq. Mi. |
| Existing Opening (25 Yr.) | 297 Sq. Ft.  |
| Required Opening (25 Yr.) | 348 Sq. Ft.  |
| Proposed Opening (25 Yr.) | 348 Sq. Ft.  |
| Design Discharge (25 Yr.) | 1103 C.F.S.  |
| Created Head (25 Yr.)     | 0.51 Ft.     |
| 100 Year Discharge        | 1455 C.F.S.  |
| 100 Yr. Created Head      | 0.58 Ft.     |

|          |        |
|----------|--------|
| DESIGNED | F.J.S. |
| CHECKED  | S.F.M. |
| DRAWN    | S.A.P. |
| CHECKED  | S.F.M. |



**GENERAL PLAN & ELEVATION**

COUNTY HIGHWAY 16  
SECTION 06-00084-00-BR  
MARSHALL COUNTY  
STATION 125+55

4440 ASH GROVE  
SPRINGFIELD, ILL. 62711  
(217) 793-8600  
www.fehr-graham.com

**FEHR-GRAHAM & ASSOCIATES, LLC**  
ENGINEERING AND SCIENCE CONSULTANTS  
PREPARED BY: ENGINEERS, ARCHITECTS, SURVEYORS & SCIENTISTS

JOB NO.: 46813  
FILE: 04236PE.DGN  
DATE: 04/11/06