

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**PLANS FOR PROPOSED**  
**HIGHWAY BRIDGE PROGRAM**

**SECTIONS 06-02148-00-BR & 06-18148-00-BR**  
**IROQUOIS COUNTY**  
**ASH GROVE - MILFORD ROAD DISTRICTS**  
**PROJECT NO. BROS-0075(137)**  
**T.R. 228**  
**C-93-051-10**

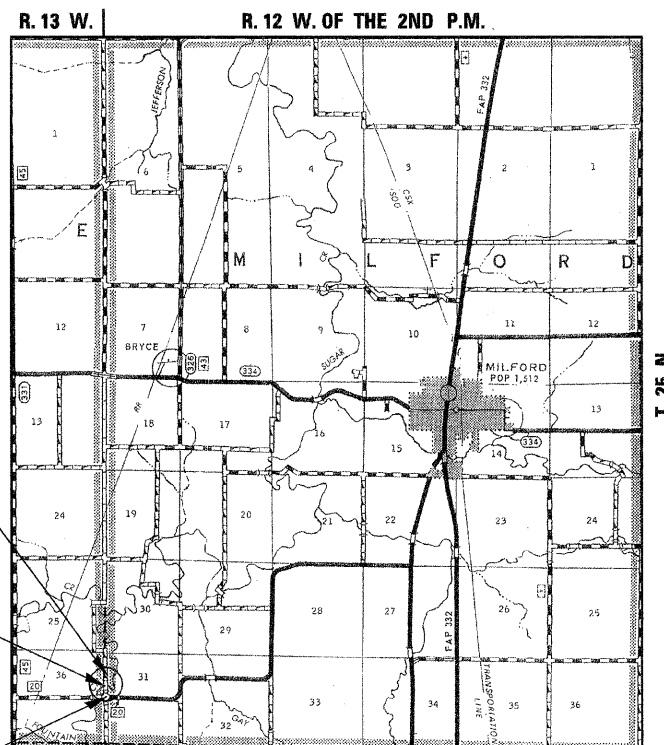
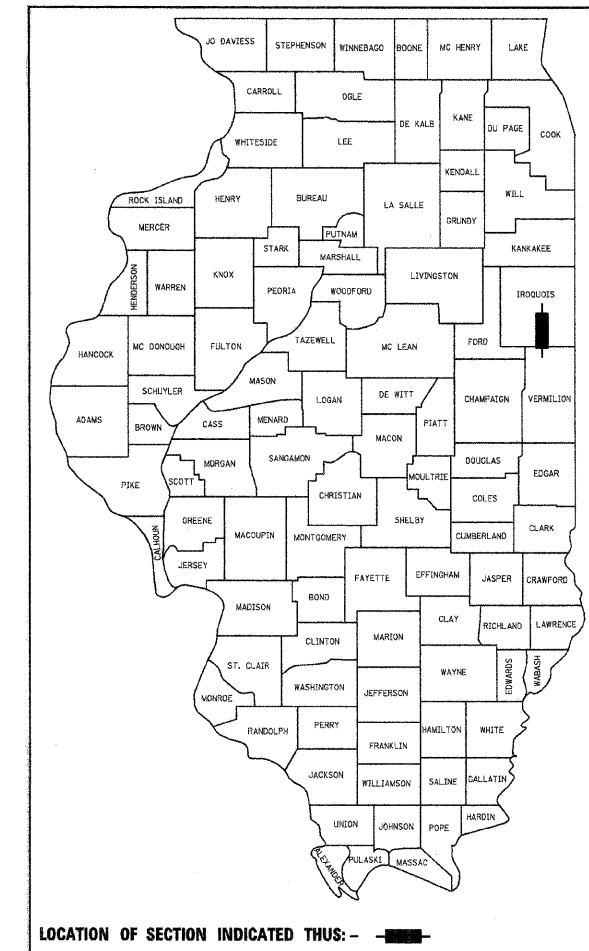
| ROUTE NO.        | SECTION | COUNTY         | TOTAL SHEETS      | SHEET NO.          |
|------------------|---------|----------------|-------------------|--------------------|
| T.R. 228         | **      | IROQUOIS       | 1                 | 19                 |
| ROAD DISTRICT    |         | ILLINOIS       | ASH GROVE/MILFORD |                    |
| **06-02148-00-BR |         | 06-18148-00-BR |                   | CONTRACT NO. 87446 |

**INDEX OF SHEETS**

| SHEET NO. | TITLE   |
|-----------|---|
| 1.        | COVER SHEET   |
| 2.        | SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS |
| 3.        | PLAN AND PROFILE SHEET                                  |
| 4.-13.    | BRIDGE PLANS  |
| 14.-19.   | STATION CROSS SECTIONS                                  |

**STANDARDS**

|           |   |
|-----------|---|
| 000001-06 | STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS  |
| 280001-05 | TEMPORARY EROSION CONTROL SYSTEMS   |
| 515001-03 | NAME PLATE FOR BRIDGES  |
| 635006-03 | REFLECTOR AND TERMINAL MARKER PLACEMENT   |
| 701901-01 | TRAFFIC CONTROL DEVICES   |
| 720011-01 | METAL POSTS FOR SIGNS, MARKERS AND DELINEATORS  |
| 728001-01 | TELESCOPING STEEL SIGN SUPPORT  |
| 729001-01 | APPLICATIONS OF TYPES A & B METAL POSTS (FOR SIGNS AND MARKERS)                         |
| BLR 21-8  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS |



**STA. 14 + 52.50 - SPECIAL BRIDGE DESIGN**  
**PRECAST PRESTRESSED CONCRETE DECK**  
**BEAM BRIDGE (21" DEPTH), THREE SPANS @**  
**56'-0"; 169'-9 3/4" BK.-BK. ABUTS.; 30'-0" ROADWAY;**  
**15° SKEW LT.**  
**EXISTING S.N. 038-4733**  
**PROPOSED S.N. 038-4751**

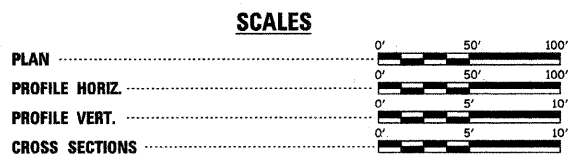
**IMPROVEMENT ENDS**  
**STA. 19 + 00**

**IMPROVEMENT BEGINS**  
**STA. 10 + 10**

**LOCATION PLAN**

GROSS LENGTH OF SECTION = 890.00 FEET = 0.169 MILES  
 NET LENGTH OF SECTION = 890.00 FEET = 0.169 MILES

SCALE IN MILES



*Gary J. Cartwright* 12-2-10  
 ILLINOIS PROFESSIONAL NO. 43408  
 EXPIRES 11-30-11

**CLASSIFICATION: LOCAL ROAD (NON-URBAN)**  
**DESIGN VOLUME: UNDER 250 ADT**  
**CURRENT ADT: 35 (2010)**  
**DESIGN SPEED: 30 MPH**

TOLL FREE JOINT UTILITY LOCATING  
 INFORMATION FOR EXCAVATORS (J.U.L.I.E.)  
 TELEPHONE NUMBER 1-800-892-0123

|   |                        |  |
|---|------------------------|--|
| PASSED  | 12-20                  | 20 10  |
|   | <i>Jay D. Binder</i>   | ROAD DISTRICT COMMISSIONER                       |
| PASSED  | 12/15                  | 20 10  |
|   | <i>Norman Anderson</i> | ROAD DISTRICT COMMISSIONER                       |
| APPROVED  | 12-21                  | 20 10  |
|   | <i>[Signature]</i>     | COUNTY ENGINEER                                  |
| PASSED  |                        | 20   |
|   | <i>[Signature]</i>     | DISTRICT THREE IMPLEMENTATION ENGINEER           |
| RELEASED FOR BID                                  |                        | 20   |
| BASED ON LIMITED                                  |                        | 20   |
| REVIEW  | <i>[Signature]</i>     | DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER |
| STATE OF ILLINOIS<br>DEPARTMENT OF TRANSPORTATION |                        |  |

CONTRACT NO. 87446

4440 ASH GROVE  
 SPRINGFIELD, IL 62711  
 (217) 793-3600  
 www.fehr-graham.com

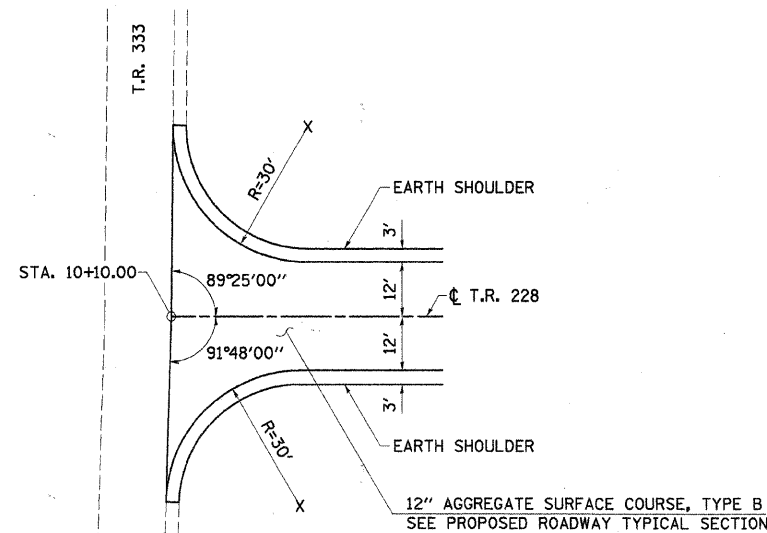
**FEHR-GRAHAM & ASSOCIATES LLC**  
 ENGINEERING AND SCIENCE CONSULTANTS  
 PEORIA, IL. ROCKFORD, IL. ROCKFORD, IL. SPRINGFIELD, IL.

**SUMMARY OF QUANTITIES**

CONSTRUCTION  
TYPE CODE  
0011

| NUMBER   | ITEM  | UNIT  | QUANTITY |
|----------|---|-------|----------|
| 20100210 | TREE REMOVAL (OVER 15 UNITS DIAMETER)                   | UNIT  | 106      |
| 20100500 | TREE REMOVAL, ACRES                                     | ACRE  | 0.1      |
| 20200100 | EARTH EXCAVATION  | CU YD | 836      |
| 20300100 | CHANNEL EXCAVATION                                      | CU YD | 950      |
| 20400800 | FURNISHED EXCAVATION                                    | CU YD | 3,177    |
| 28000250 | TEMPORARY EROSION CONTROL SEEDING                       | POUND | 106      |
| 28000305 | TEMPORARY DITCH CHECKS                                  | FOOT  | 240      |
| 28000400 | PERIMETER EROSION BARRIER                               | FOOT  | 1,968    |
| 28100209 | STONE RIPRAP, CLASS A5                                  | TON   | 759      |
| 28200200 | FILTER FABRIC   | SQ YD | 728      |
| 40200800 | AGGREGATE SURFACE COURSE, TYPE B                        | TON   | 1,324    |
| 50100100 | REMOVAL OF EXISTING STRUCTURES                          | EACH  | 1        |
| 50300225 | CONCRETE STRUCTURES                                     | CU YD | 52.4     |
| 50300280 | CONCRETE ENCASEMENT                                     | CU YD | 42.6     |
| 50400405 | PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)     | SQ FT | 5,040    |
| 50800105 | REINFORCEMENT BARS                                      | POUND | 6,870    |
| 50900205 | STEEL RAILING, TYPE S1                                  | FOOT  | 337      |
| 51201600 | FURNISHING STEEL PILES HP12X53                          | FOOT  | 1,274    |
| 51202305 | DRIVING PILES   | FOOT  | 1,274    |
| 51203600 | TEST PILE STEEL HP12X53                                 | EACH  | 2        |
| 51500100 | NAME PLATES   | EACH  | 1        |
| 67100100 | MOBILIZATION  | L SUM | 1        |
| 70101830 | TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21         | L SUM | 1        |
| 78201000 | TERMINAL MARKER - DIRECT APPLIED                        | EACH  | 4        |
| X2501000 | SEEDING, CLASS 2 (SPECIAL)                              | ACRE  | 0.8      |
| X2830495 | AGGREGATE DITCH (SPECIAL)                               | TON   | 280      |
| X5020501 | UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1 | EACH  | 1        |
| X5020502 | UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2 | EACH  | 1        |

\*SEE SPECIAL PROVISIONS  
Δ SPECIALTY ITEMS



**INTERSECTION DETAIL**

**GENERAL NOTES**

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AND AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

THE AREA TO BE SEEDDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY, AS DIRECTED BY THE ENGINEER.

SEEDING, CLASS 2 (SPECIAL) = 0.8 ACRE

THE AREA OF WETLAND SITE 1 WHICH IS DISTURBED BY CONSTRUCTION SHALL BE SEEDDED WITH AGROSTIS ALBA (REDDTOP) AT A RATE OF 5 POUNDS PER ACRE. COST IS INCLUDED IN "SEEDING, CLASS 2 (SPECIAL).

"PERIMETER EROSION BARRIER" SHALL BE INSTALLED AT THE BOUNDARIES OF THE PROPOSED RIGHT OF WAY TO ENSURE THAT CONSTRUCTION ACTIVITIES DO NOT ENCRONCH ON THE REMAINDER OF WETLAND SITE 1.

TREES THAT INTERFERE WITH THE CONSTRUCTION WITHIN THE LIMITS OF THE R.O.W. LINE SHALL BE REMOVED ONLY AS DIRECTED BY THE ENGINEER.

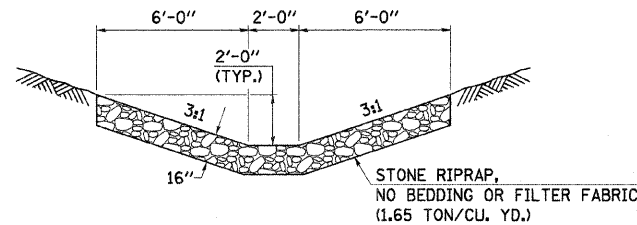
**TREE REMOVAL (OVER 15 UNITS DIAMETER)**

|                    |   |                 |
|--------------------|---|-----------------|
| 34' RT. STA. 13+57 | = | 36 UNIT         |
| 32' RT. STA. 14+79 | = | 24 UNIT         |
| 21' RT. STA. 14+98 | = | 30 UNIT         |
| 31' LT. STA. 17+38 | = | 16 UNIT         |
| <b>TOTAL</b>       | = | <b>106 UNIT</b> |

**TREE REMOVAL, ACRE**

(WITHIN CONSTRUCTION LIMITS)

|                                    |                   |
|------------------------------------|-------------------|
| LT. STA. 14+98 TO LT. STA. 16+10   |                   |
| & RT. STA. 17+47 TO RT. STA. 18+72 | = 0.1 ACRE        |
| <b>TOTAL</b>                       | = <b>0.1 ACRE</b> |

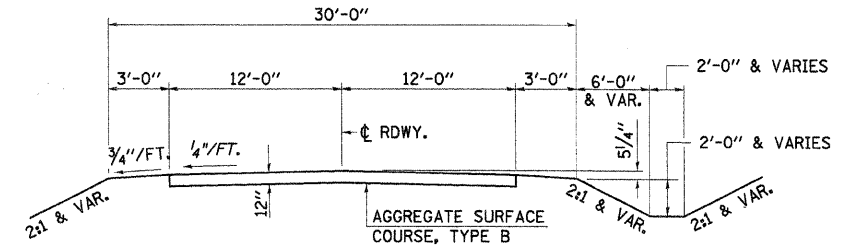


**AGGREGATE DITCH (SPECIAL)**

|                                  |   |                |
|----------------------------------|---|----------------|
| RT. STA. 17+50 TO RT. STA. 19+00 | = | 170 TON        |
| LT. STA. 18+00 TO LT. STA. 19+00 | = | 110 TON        |
| <b>TOTAL</b>                     | = | <b>280 TON</b> |

**APPLICATION RATES USED IN QUANTITY CALCULATIONS**

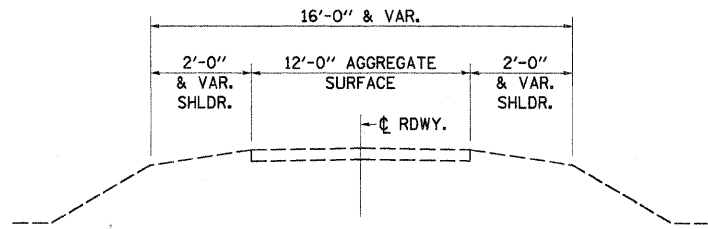
|                           |                |
|---------------------------|----------------|
| STONE RIPRAP, CLASS A5    | 1.65 TON/CU YD |
| AGGREGATE SURFACE COURSE  | 2.05 TON/CU YD |
| AGGREGATE DITCH (SPECIAL) | 1.65 TON/CU YD |



**TYPICAL PROPOSED CROSS SECTION**

STA. 10+60 TO 18+50

TRANSITION FROM EXISTING ROADWAY TO PROPOSED ROADWAY TO BE CONSTRUCTED FROM STA. 10+10 TO STA. 10+60 AND FROM STA. 18+50 TO STA. 19+00.



**EXISTING TYPICAL CROSS SECTION**

**TEMPORARY EROSION CONTROL**

THE FOLLOWING QUANTITIES ARE ESTIMATE ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND THERE WILL BE NO ADJUSTMENT IN ANY PRICE DUE TO A CHANGE IN PLAN QUANTITY.

|                                    |   |            |
|------------------------------------|---|------------|
| TEMPORARY EROSION CONTROL SEEDINGS | = | 106 POUND  |
| PERIMETER EROSION CONTROL BARRIER  | = | 1,968 FOOT |
| TEMPORARY DITCH CHECKS             | = | 240 FOOT   |

**TEMPORARY DITCH CHECKS**

|                      |   |                 |
|----------------------|---|-----------------|
| RT. STA. 11+50       | = | 20 FOOT         |
| RT. STA. 13+50       | = | 20 FOOT         |
| LT. & RT. STA. 15+50 | = | 40 FOOT         |
| LT. STA. 16+00       | = | 20 FOOT         |
| LT. & RT. STA. 16+50 | = | 40 FOOT         |
| LT. & RT. STA. 17+00 | = | 40 FOOT         |
| LT. & RT. STA. 17+50 | = | 40 FOOT         |
| LT. STA. 18+00       | = | 20 FOOT         |
| <b>TOTAL</b>         | = | <b>240 FOOT</b> |

FILE NAME =  
09-478-SUMTYP.DGN

DESIGNED - G.J.C.  
DRAWN - S.A.P.  
CHECKED - R.J.C.  
DATE - 11/29/10

REVISED -  
REVISED -  
REVISED -  
REVISED -

4440 ASH GROVE  
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**FEHR-GRAHAM & ASSOCIATES, LLC**  
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FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

**SUMMARY OF QUANTITIES, GENERAL NOTES  
AND TYPICAL CROSS SECTIONS**

SCALE: N/A SHEET NO. 1 OF 1 SHEETS PROPOSED STRUCTURE @ STA. 14+52.50

| TWP. RTE.                                 | SECTION | COUNTY   | TOTAL SHEETS | SHEET NO. |
|---|---------|----------|--------------|-----------|
| 228                                       | **      | IROQUOIS | 19           | 2         |
| CONTRACT NO. 87446                        |         |          |              |           |
| ILLINOIS ASH GROVE/MILFORD ROAD DISTRICTS |         |          |              |           |

\*\*06-02148-00-BR  
06-18148-00-BR

SE. 1/4, SEC. 36, T. 25 N., R. 13 W., 2ND P.M.

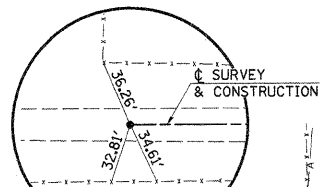
NE. 1/4, SEC. 36, T. 25 N., R. 13 W., 2ND P.M.

ENTRANCES TO BE BUILT

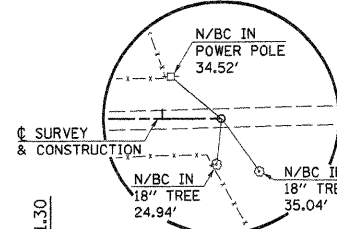
LT. STA. 11+00, F.E., 15.0%, 30' ROADBED QUANTITIES INCLUDED IN THOSE LISTED.

PIPES TO BE REMOVED

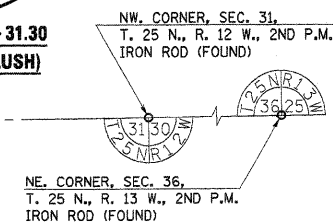
LT. STA. 12+49, 18" CMP, 24' LONG QUANTITIES INCLUDED IN "EARTH EXCAVATION".



P.O.T. STA. 8+03.61 IRON PIN (FLUSH)



P.O.T. STA. 19+31.30 IRON PIN (FLUSH)



GILLAN FAMILY LIMITED PARTNERSHIP

GILLAN FAMILY LIMITED PARTNERSHIP

HARRY G. GILLETTE AND SANDRA L. GILLETTE

HARRY G. GILLETTE AND SANDRA L. GILLETTE

EXISTING STRUCTURE NO. 038-4733

6.34' RT. STA. 14+35.50 - SINGLE SPAN THRU-TRUSS BRIDGE WITH TIMBER DECK ON CLOSED STONE ABUTS. 102'-0" BK.-BK. ABUTS, 18'-0" O.-O. DECK, NO SKEW REMOVAL OF EXISTING STRUCTURES = 1 EACH

UTILITIES

EASTERN ILLINOI ELECTRIC COOP. ALAN SCHWEIGHART 217-379-2131 EX. 173

VERIZON MARY RUTH WILLIS 309-827-1617

WETLAND AREA IMPACTED

SITE 1 = 0.005 ACRES

CHANNEL EXCAVATION

THE CHANNEL SHALL BE EXCAVATED AS SHOWN WITHIN THE LIMITS OF THE PROPOSED STRUCTURE THEN TAPER TO THE EXISTING CHANNEL AT THE R.O.W. LINES. SUITABLE EXCAVATED MATERIAL TO BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.

CHANNEL EXCAVATION = 950 CU. YD.

SW. 1/4, SEC. 31, T. 25 N., R. 12 W., 2ND P.M.

NW. 1/4, SEC. 31, T. 25 N., R. 12 W., 2ND P.M.

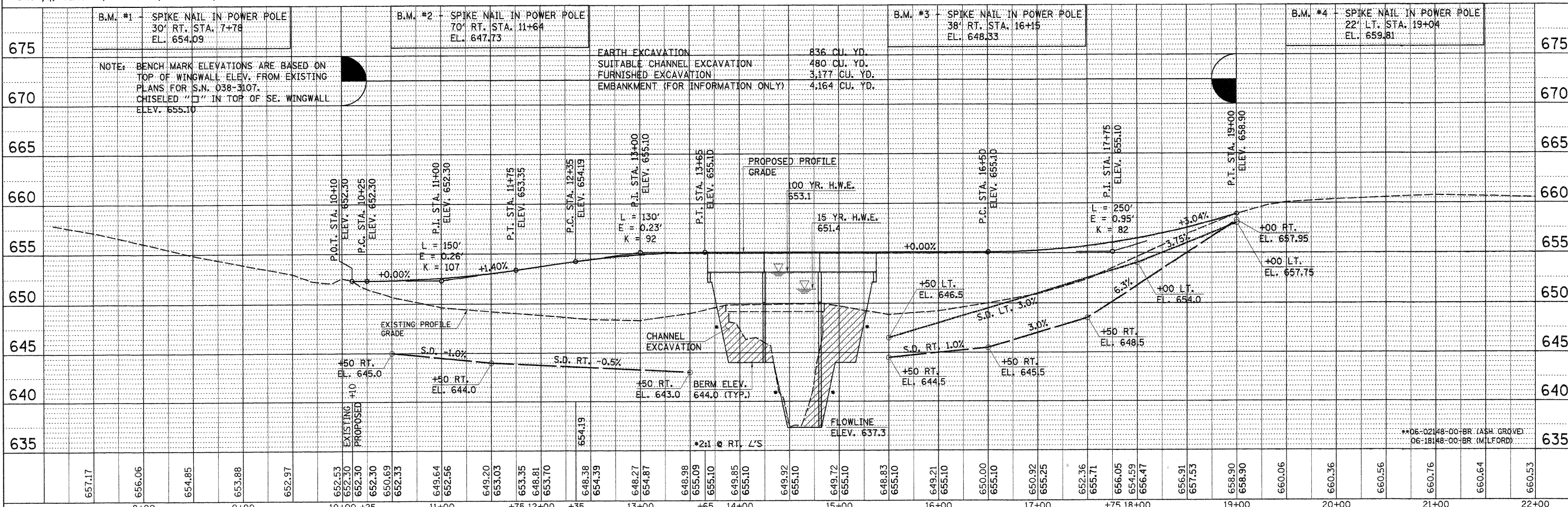
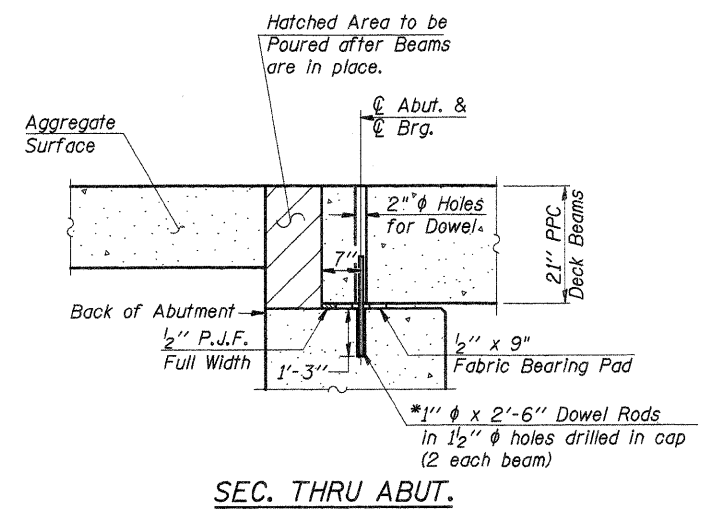
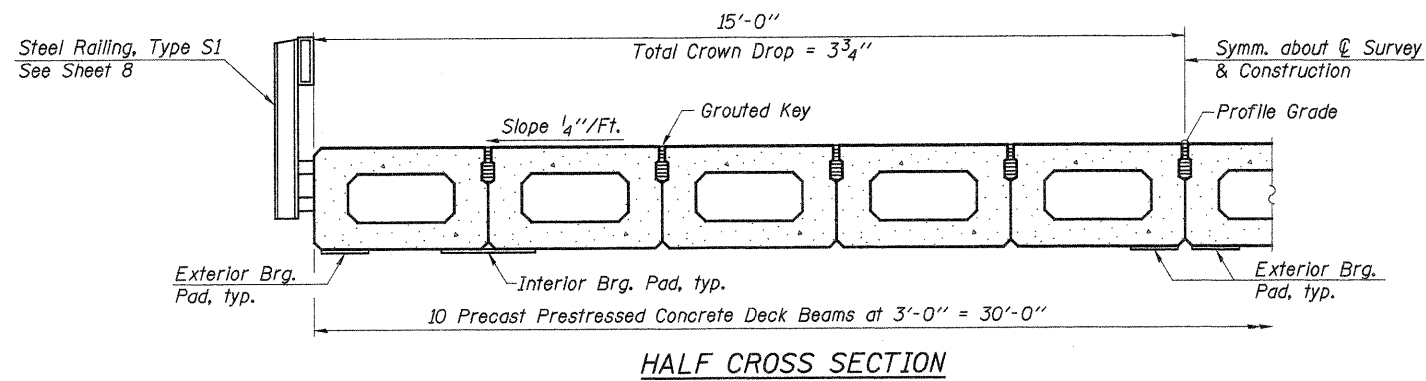


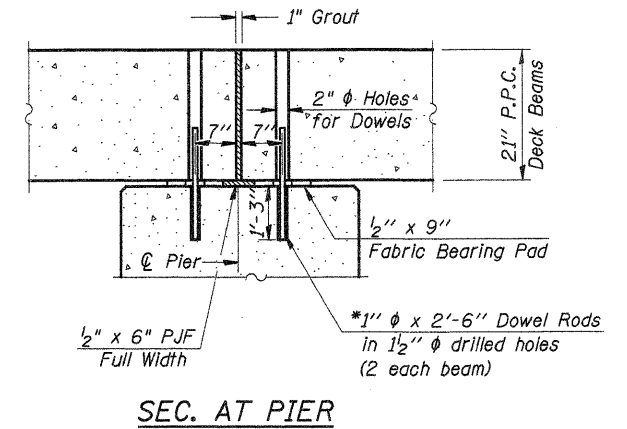
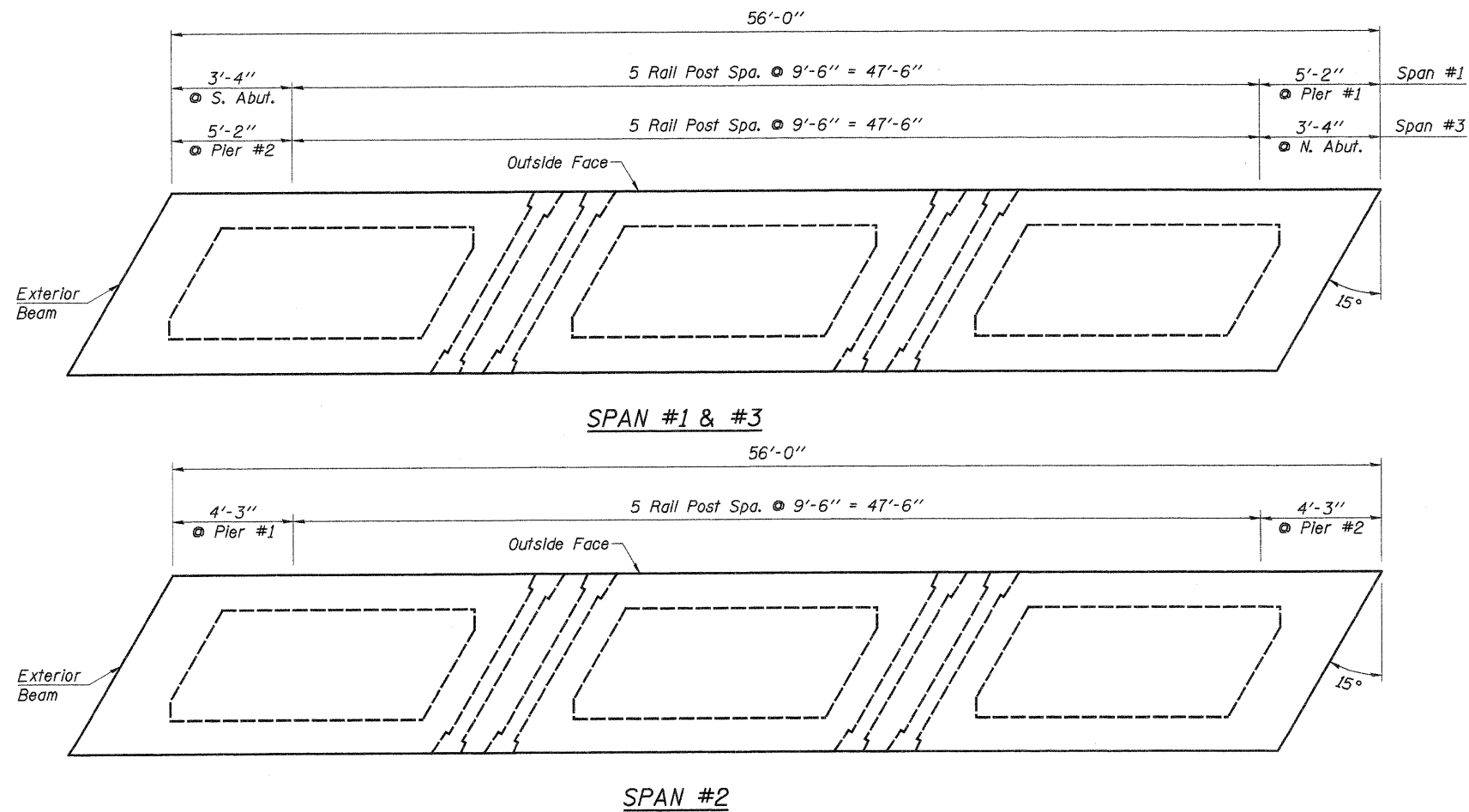
Table with columns for stationing (8+00 to 22+00) and corresponding elevation values (635 to 675).







\* Note: After beams are in place, 1/2" holes shall be drilled into the Substructure, and the dowel rods grouted in place and allowed to cure (Min. 24 Hrs.) prior to grouting shear key.



|            |                 |
|------------|-----------------|
| DESIGNED - | A.L.S.          |
| CHECKED -  | A.R.K.          |
| DRAWN -    | S.A.P.          |
| CHECKED -  | A.R.K. & A.L.S. |

PDB-2136-LS

9-29-09

FILE: 09-478.SUPER.DGN

DATE: 11/19/09

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ENGINEERING AND SCIENCE CONSULTANTS  
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

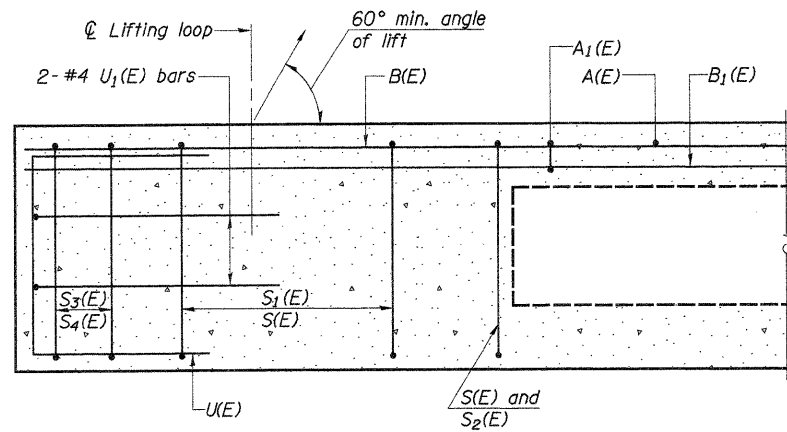
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8800 www.fehr-graham.com

| TWP. RTE.      | SECTION  | COUNTY             | TOTAL SHEETS | SHEET NO. |
|----------------|----------|--------------------|--------------|-----------|
| 228            | ****     | IROQUOIS           | 19           | 5         |
| BROS-075 (137) |          | CONTRACT NO. 87446 |              |           |
| ROAD DISTRICT  | ILLINOIS | ASH GROVE/MILFORD  |              |           |

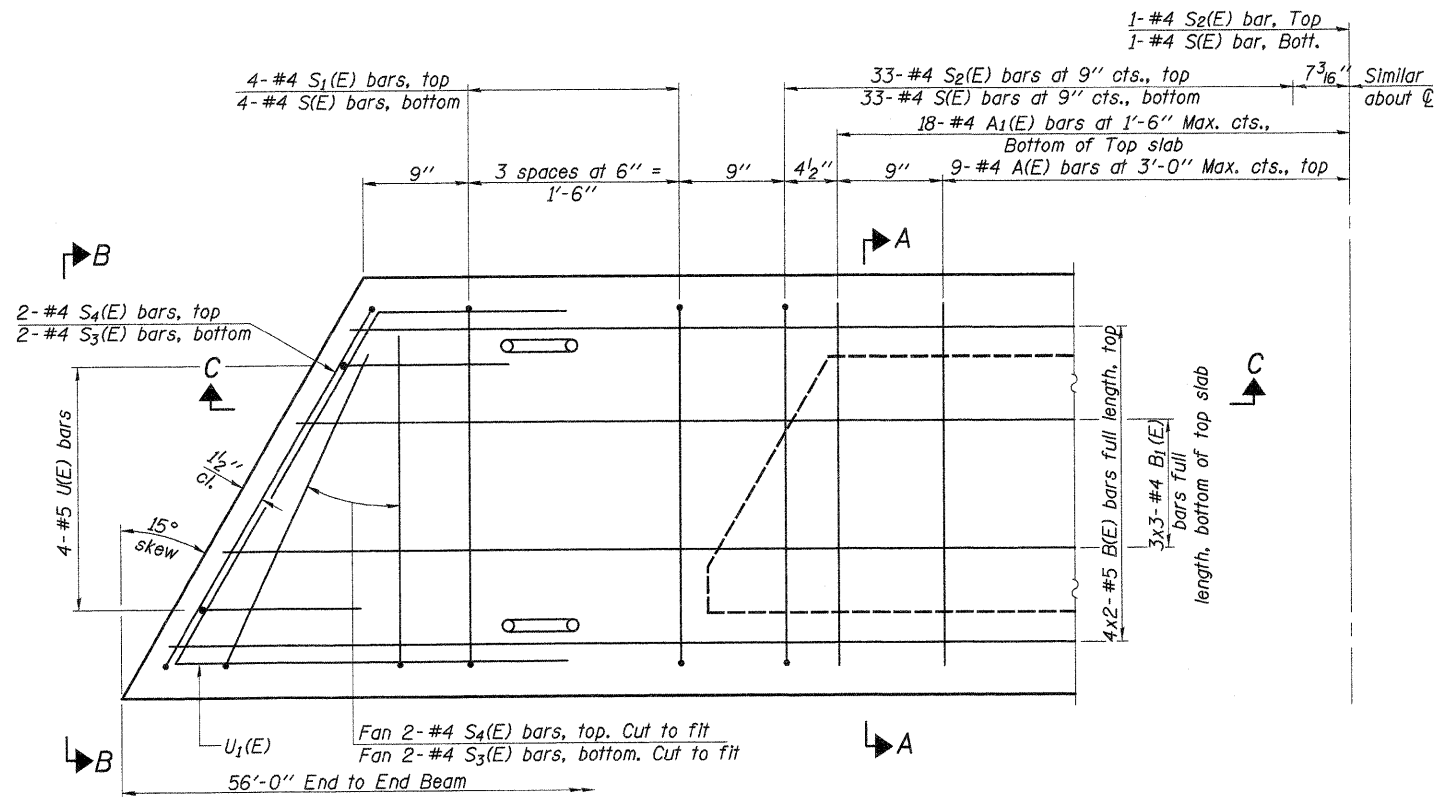
**SUPERSTRUCTURE**

S.N. 038-4751 \*\*\*\*06-02148-00-BR  
06-18148-00-BR

\*09-478

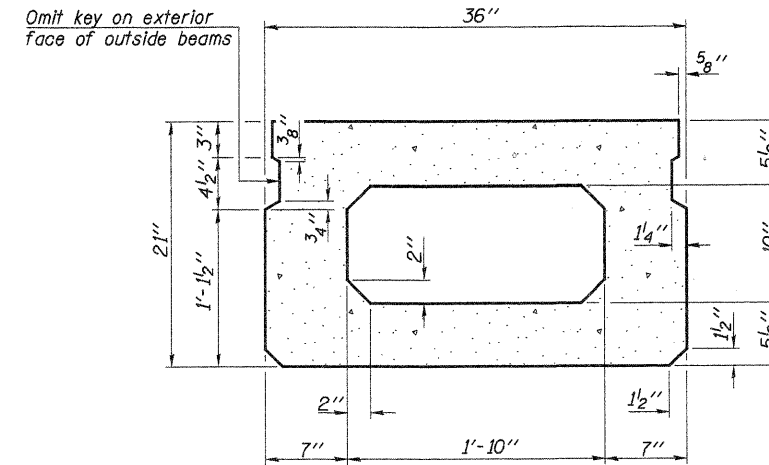


SECTION C-C

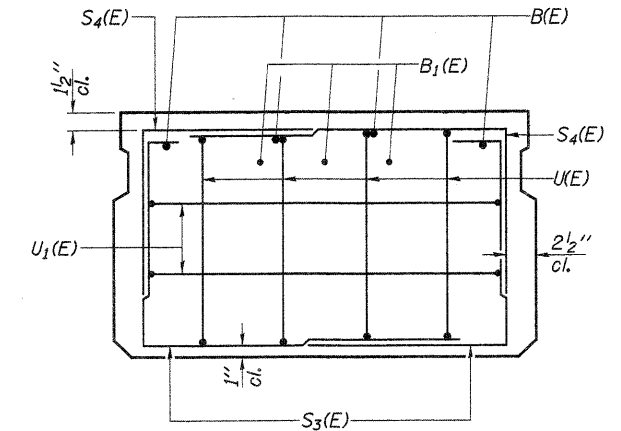


PLAN VIEW

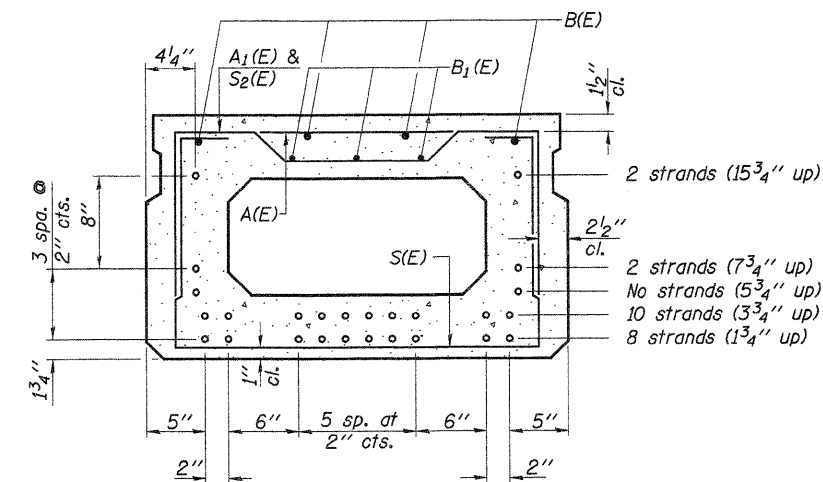
Note: Spacing of S(E) and S<sub>2</sub>(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block-outs for the transverse ties.  
 Bars indicated thus 4x2-#5 etc., indicates 4 lines of bars with 2 lengths per line.



SECTION A-A  
(Showing dimensions)



VIEW B-B



Use 22-1/2" φ strands at the locations shown.

SECTION A-A

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MIN. BAR LAPS

- #4 ..... 2'-0"
- #5 ..... 2'-6"

BAR LIST  
ONE BEAM ONLY  
(For information only)

| Bar                | No. | Size | Length | Shape |
|--------------------|-----|------|--------|-------|
| A(E)               | 17  | #4   | 2'-7"  | —     |
| A <sub>1</sub> (E) | 35  | #4   | 2'-10" | —     |
| B(E)               | 8   | #5   | 29'-3" | —     |
| B <sub>1</sub> (E) | 9   | #4   | 20'-0" | —     |
| S(E)               | 75  | #4   | 6'-5"  | ⌌     |
| S <sub>1</sub> (E) | 8   | #4   | 4'-11" | ⌌     |
| S <sub>2</sub> (E) | 67  | #4   | 5'-2"  | ⌌     |
| S <sub>3</sub> (E) | 8   | #4   | 4'-7"  | ⌌     |
| S <sub>4</sub> (E) | 8   | #4   | 3'-10" | ⌌     |
| U(E)               | 8   | #5   | 4'-0"  | ⌌     |
| U <sub>1</sub> (E) | 4   | #4   | 5'-9"  | ⌌     |

Note: See sheet 7 for additional details and Bill of Material.  
 Reinforcement bars designated (E) shall be epoxy coated.

21" X 36" PPC DECK BEAM

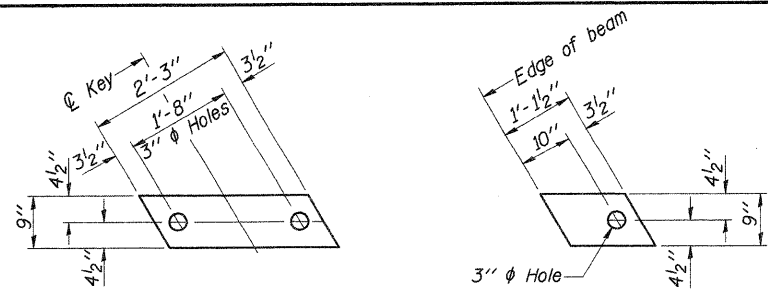
S.N. 038-4751 \*\*\*\*06-02148-00-BR  
 06-18148-00-BR

|            |                 |
|------------|-----------------|
| DESIGNED - | A.L.S.          |
| CHECKED -  | A.R.K.          |
| DRAWN -    | S.A.P.          |
| CHECKED -  | A.R.K. & A.L.S. |

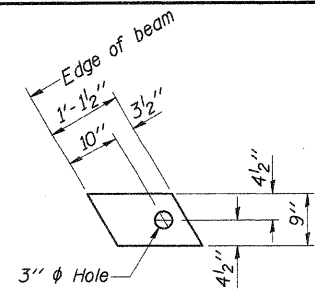
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 ENGINEERING AND SCIENCE CONSULTANTS  
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 4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-9600 www.fehr-graham.com

|                |          |                    |              |           |
|----------------|----------|--------------------|--------------|-----------|
| TWP. RTE.      | SECTION  | COUNTY             | TOTAL SHEETS | SHEET NO. |
| 228            | ****     | IROQUOIS           | 19           | 6         |
| BROS-075 (137) |          | CONTRACT NO. 87446 |              |           |
| ROAD DISTRICT  | ILLINOIS | ASH GROVE/MILFORD  |              |           |

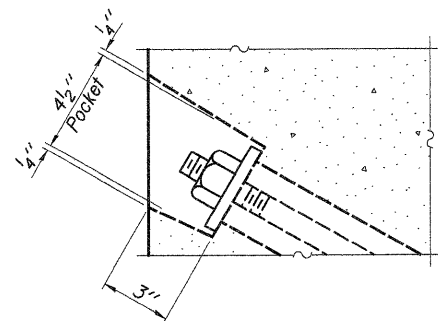


**FABRIC BEARING PAD**  
(Interior)  
(48 Required)

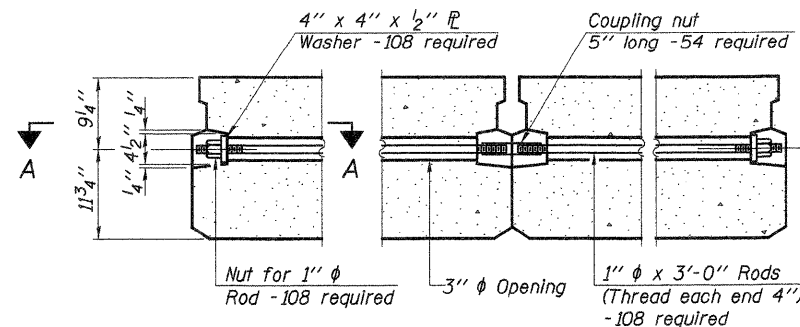


**FABRIC BEARING PAD**  
(Exterior)  
**FIXED**  
(24 Required)

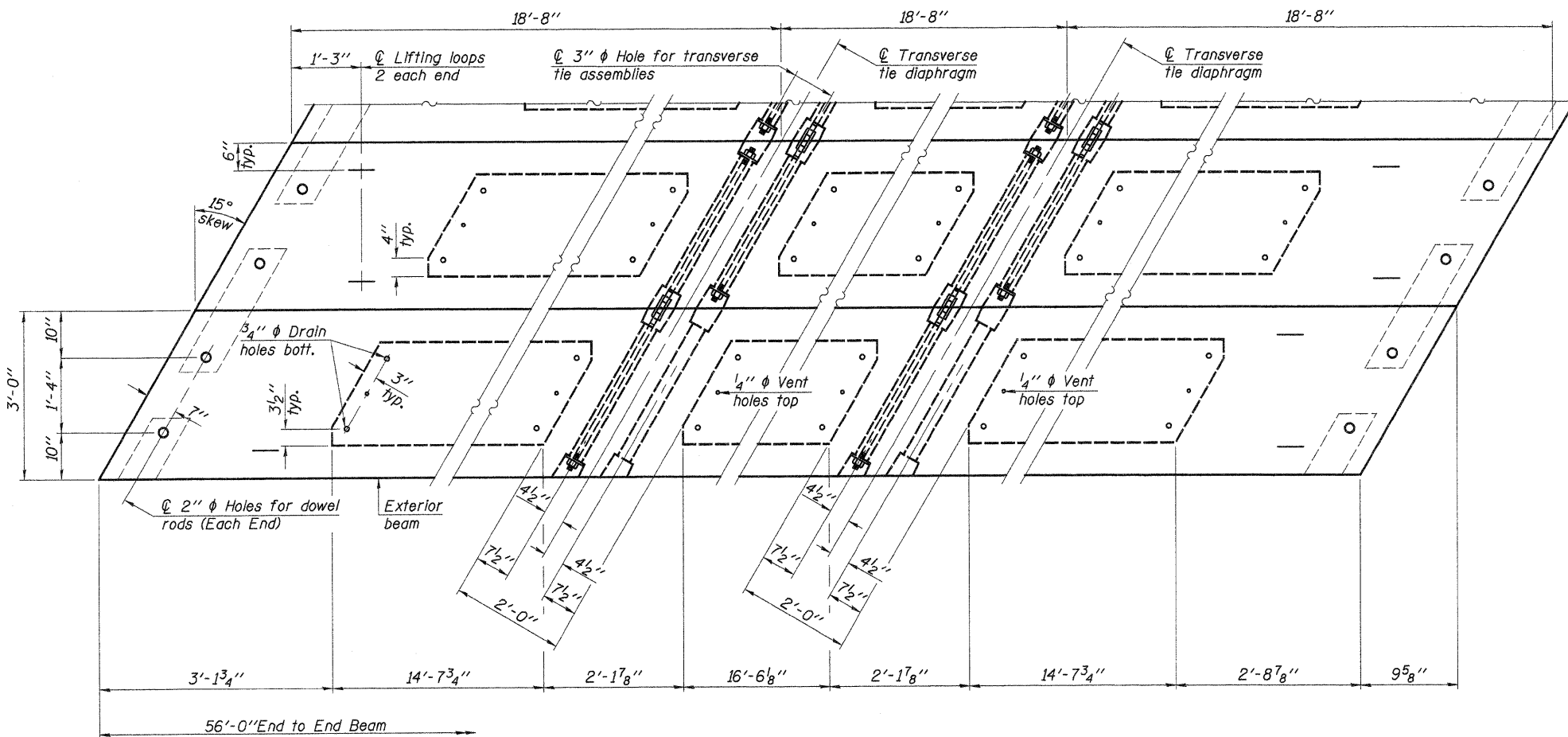
Note: All bearing pads shall be 1/2" thick.



**SECTION A-A**



**TYPICAL TRANSVERSE TIE ASSEMBLY**



**PLAN VIEW**

Note: Connect beams in pairs with the transverse tie configuration shown.

**NOTES**

Prestress steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60.

Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location. (144 Required)

A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.

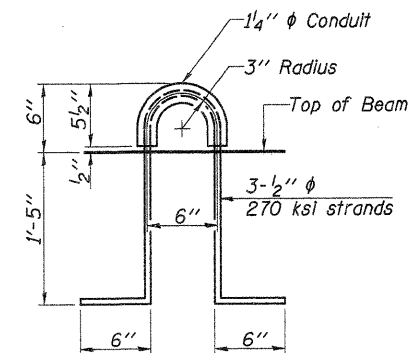
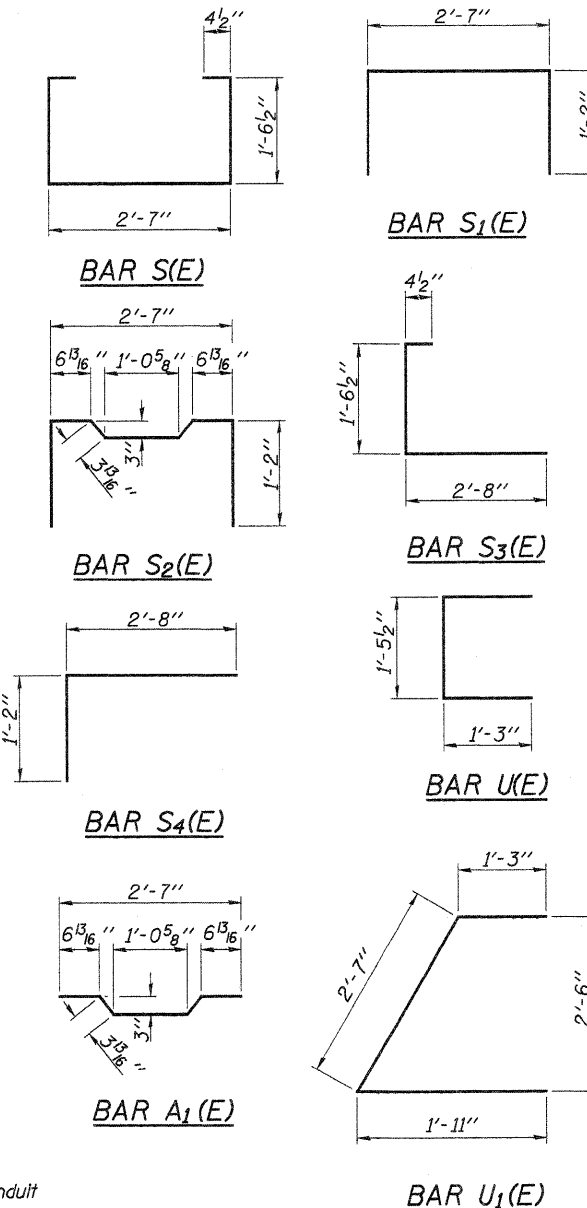
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

Rail post inserts, specified elsewhere, shall be cast into the exterior face of the outside beams.

See Special Provisions for review and distribution of shop drawings.



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

|   |         |       |
|---|---------|-------|
| Precast Prestressed Conc. Deck Bms. (21" depth)   | Sq. Ft. | 5,040 |
| Estimated Total Weight (One Beam) = 34,650 Pounds |         |       |

**21" X 36" PPC DECK BEAM DETAILS**

S.N. 038-4751 \*\*\*\*06-02148-00-BR  
06-18148-00-BR

|            |                 |
|------------|-----------------|
| DESIGNED - | A.L.S.          |
| CHECKED -  | A.R.K.          |
| DRAWN -    | S.A.P.          |
| CHECKED -  | A.R.K. & A.L.S. |

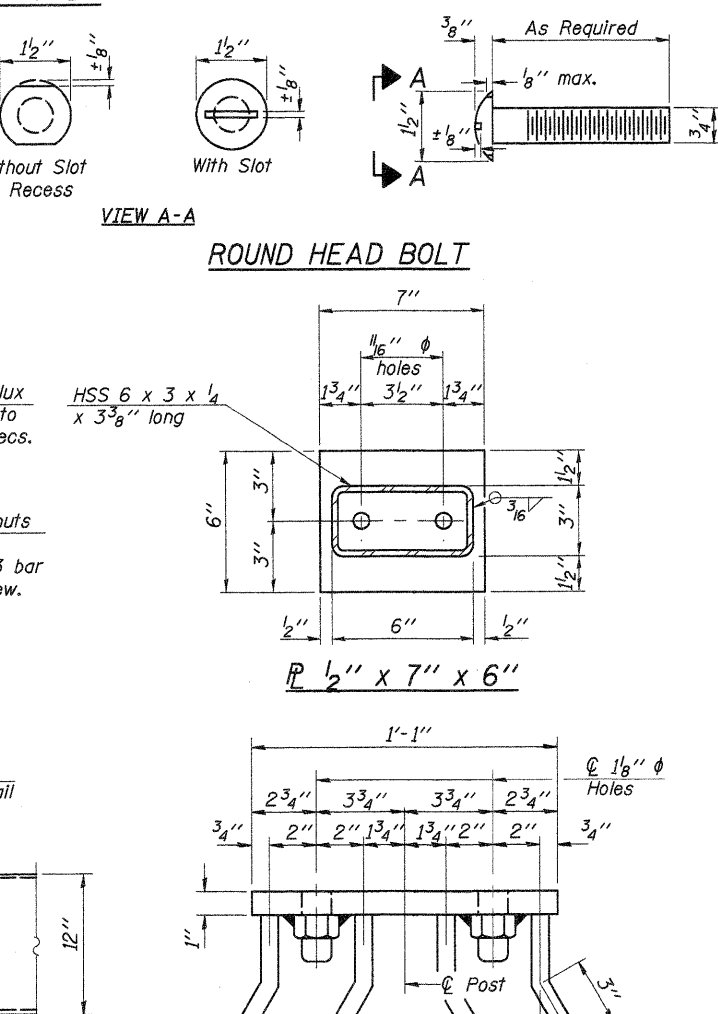
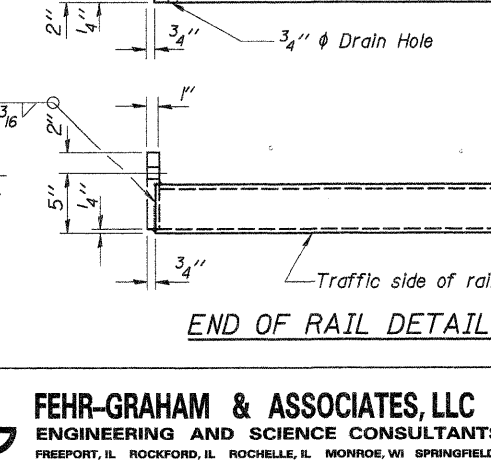
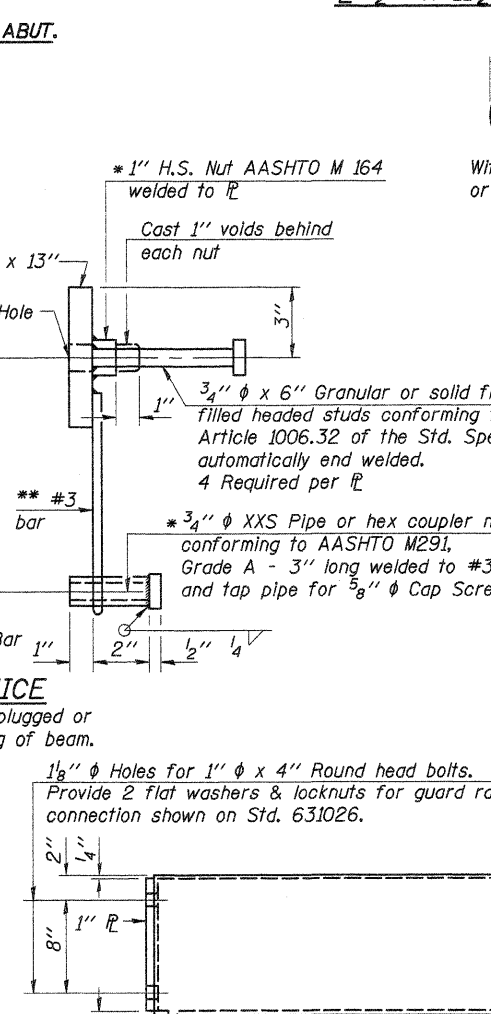
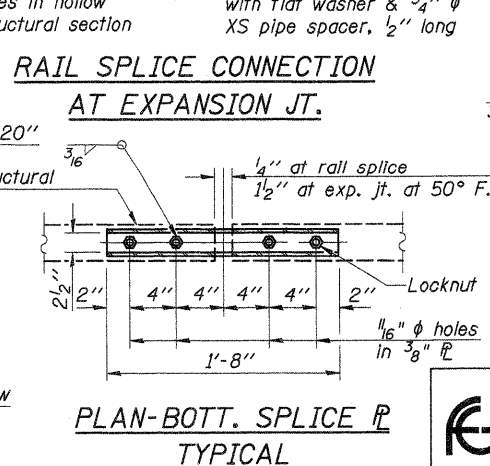
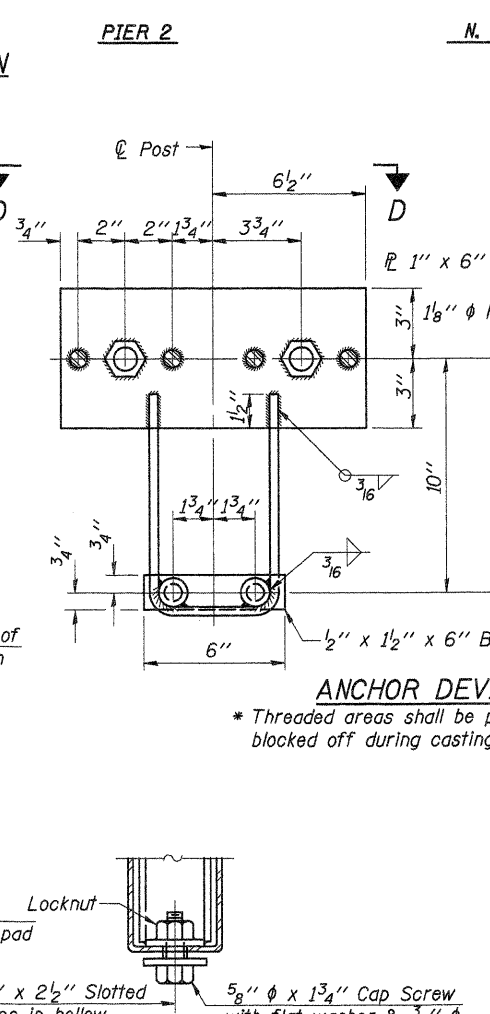
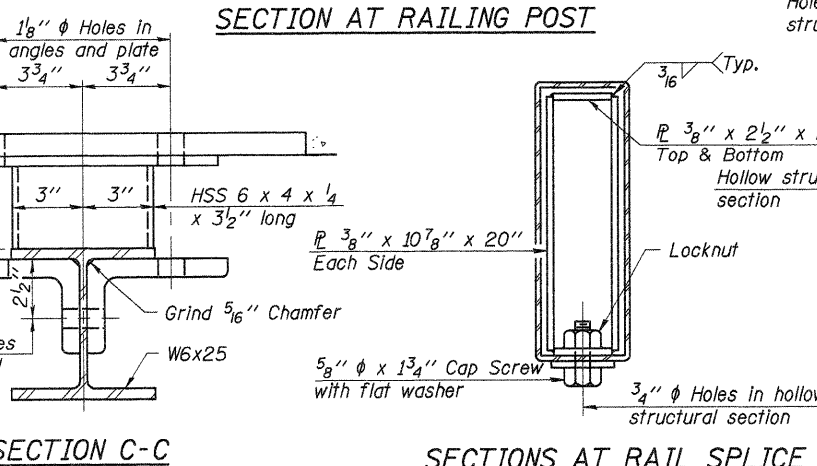
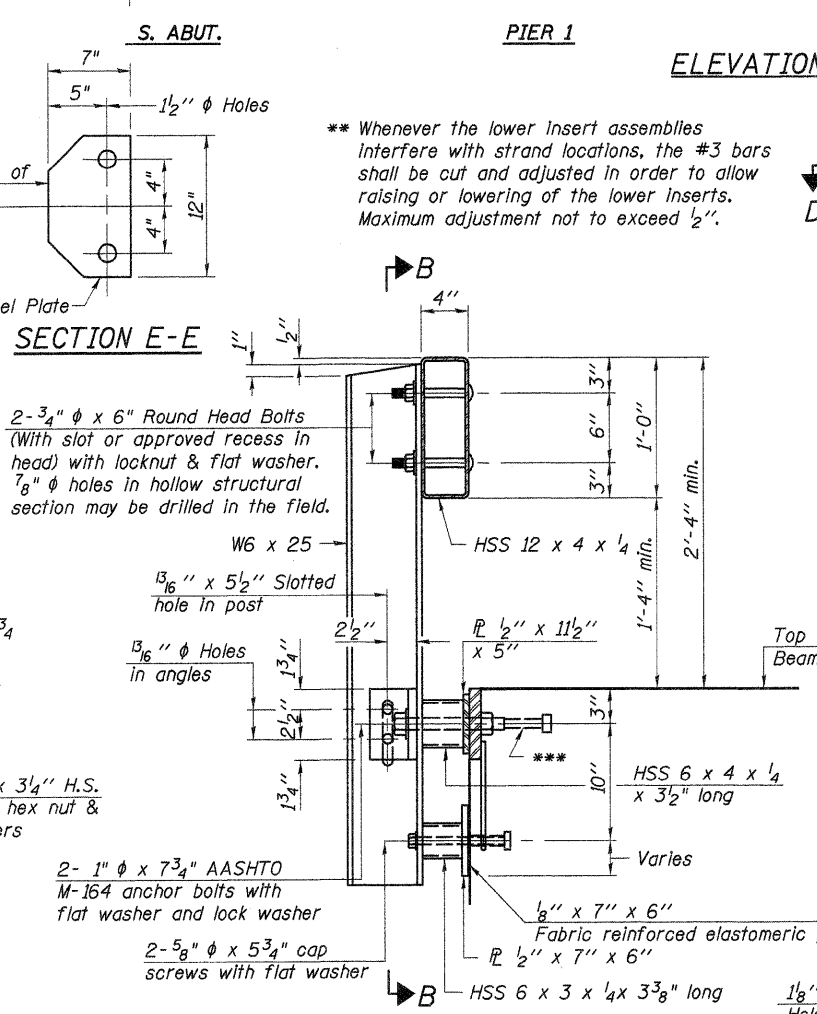
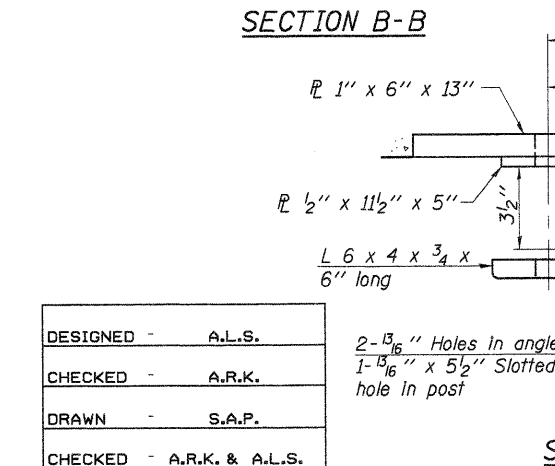
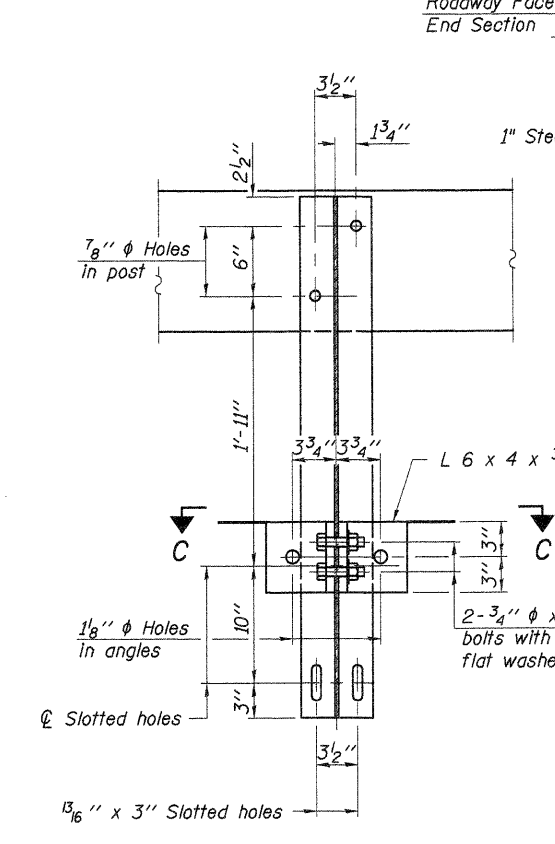
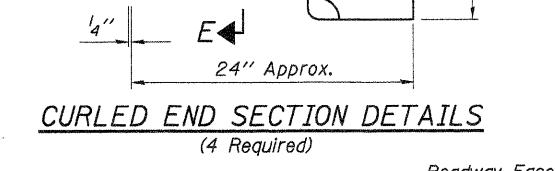
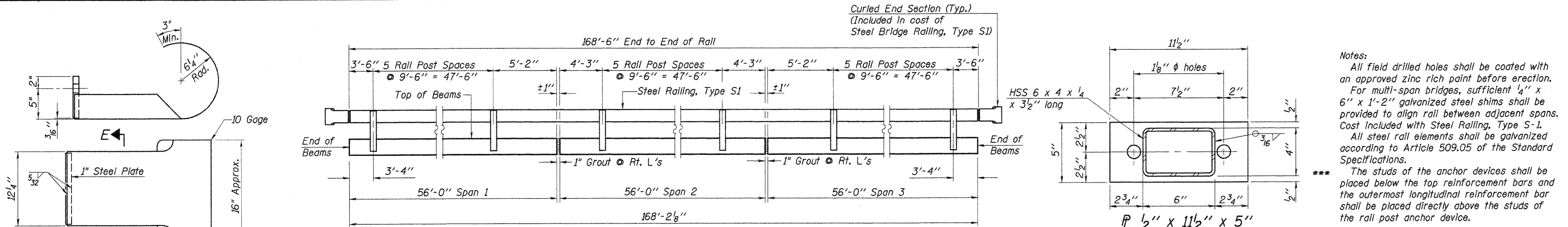
PDB-2136-LD

9-29-09

**FEHR-GRAHAM & ASSOCIATES, LLC**  
ENGINEERING AND SCIENCE CONSULTANTS  
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-9800 www.fehr-graham.com

| TWP. RTE.      | SECTION | COUNTY             | TOTAL SHEETS      | SHEET NO. |
|----------------|---------|--------------------|-------------------|-----------|
| 228            | ****    | IROQUOIS           | 19                | 7         |
| BROS-075 (137) |         | CONTRACT NO. 87446 |                   |           |
| ROAD DISTRICT  |         | ILLINOIS           | ASH GROVE/MILFORD |           |



**BILL OF MATERIAL**

| Item                    | Unit | Quantity |
|-------------------------|------|----------|
| Steel Railing, Type S-1 | Foot | 337      |

**STEEL RAILING, TYPE S-1**  
S.N. 038-4751 \*\*\*\*06-02148-00-BR  
06-18148-00-BR

| TWP. RTE.      | SECTION | COUNTY             | TOTAL SHEETS      | SHEET NO. |
|----------------|---------|--------------------|-------------------|-----------|
| 228            | ****    | IROQUOIS           | 19                | 8         |
| BROS-075 (137) |         | CONTRACT NO. 87446 |                   |           |
| ROAD DISTRICT  |         | ILLINOIS           | ASH GROVE/MILFORD |           |

|          |                 |
|----------|-----------------|
| DESIGNED | A.L.S.          |
| CHECKED  | A.R.K.          |
| DRAWN    | S.A.P.          |
| CHECKED  | A.R.K. & A.L.S. |

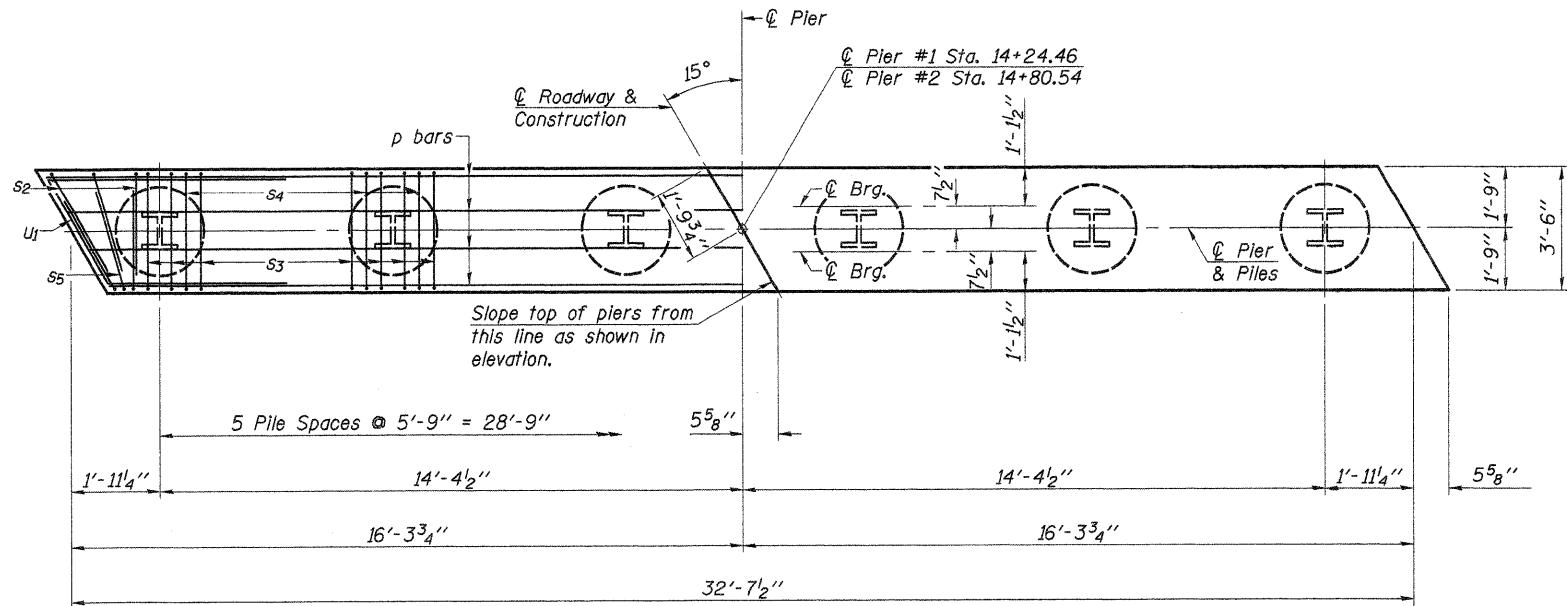
R-23A 10-1-08 (10'-9" Maximum Post Spacing)

**FEHR-GRAHAM & ASSOCIATES, LLC**  
ENGINEERING AND SCIENCE CONSULTANTS  
FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

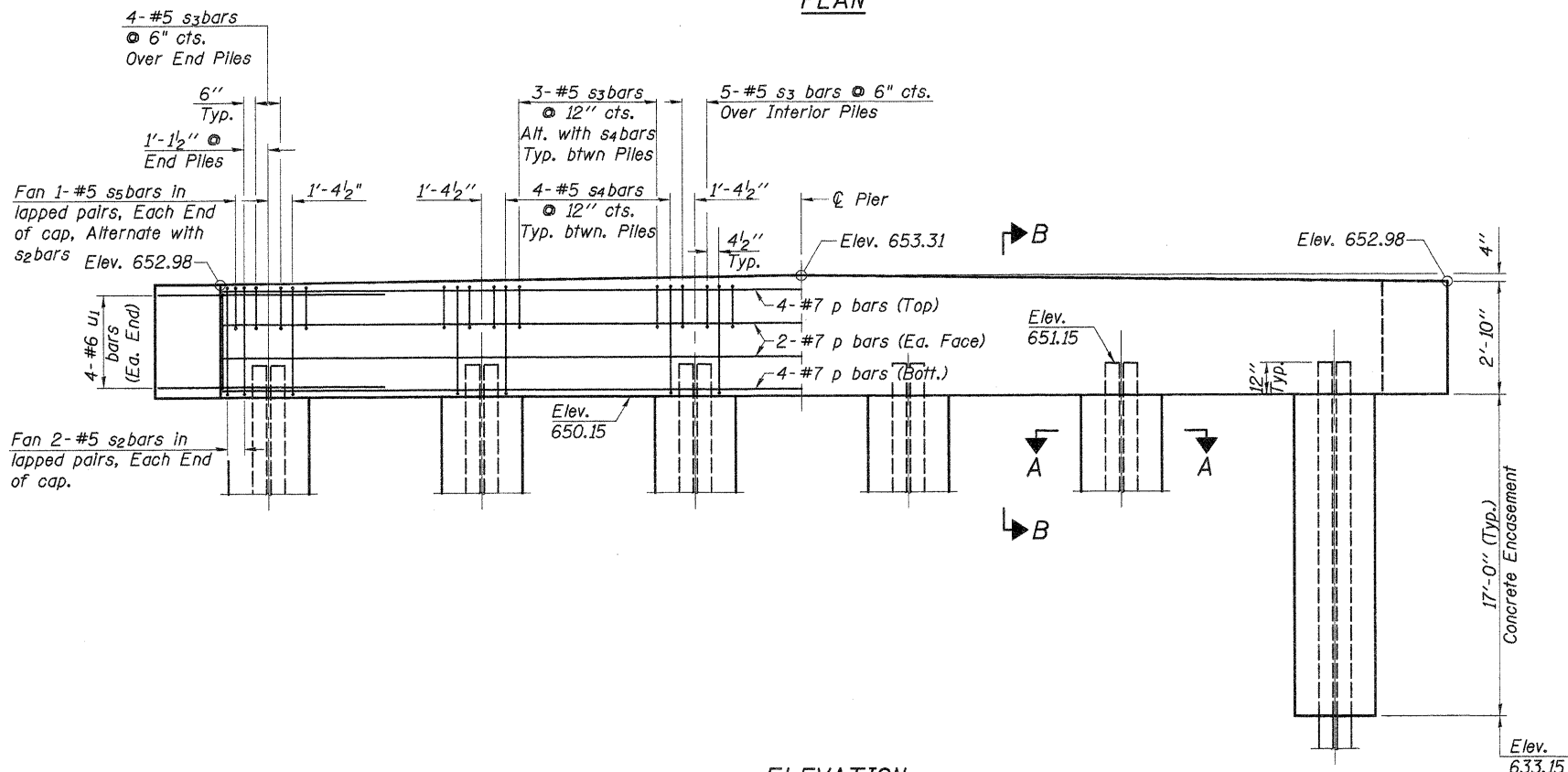
4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-9800 www.fehr-graham.com



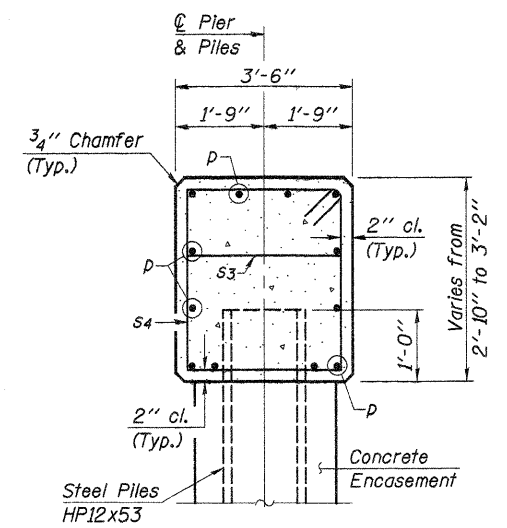
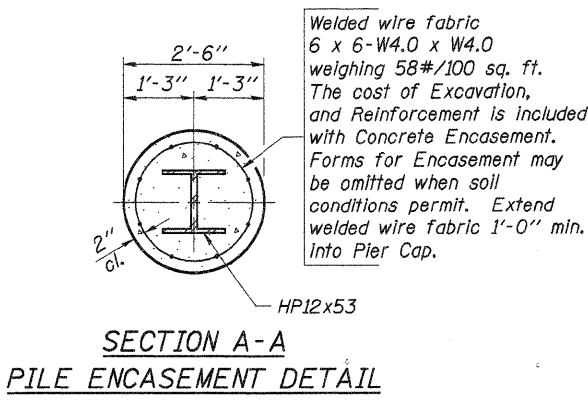




PLAN



ELEVATION



2 PIERS  
BILL OF MATERIAL

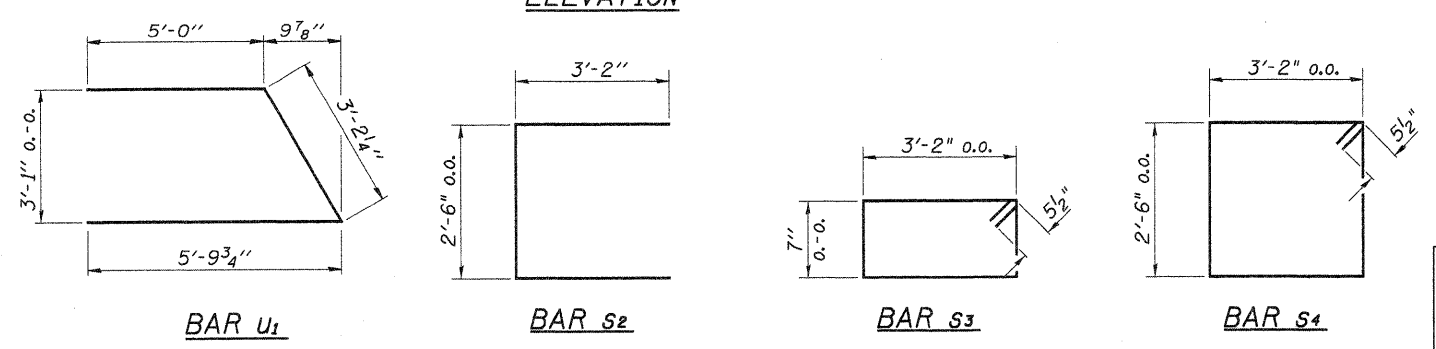
| BAR                            | NO. | SIZE | LENGTH  | SHAPE |
|--------------------------------|-----|------|---------|-------|
| p                              | 24  | #7   | 32'-3"  | —     |
| s2                             | 16  | #5   | 8'-10"  | □     |
| s3                             | 86  | #5   | 8'-5"   | □     |
| s4                             | 40  | #5   | 12'-3"  | □     |
| s5                             | 8   | #5   | 6'-11"  | □     |
| u1                             | 16  | #6   | 14'-0"  | ▽     |
| Concrete Structures            |     |      | Cu. Yd. | 25.4  |
| Reinforcement Bars             |     |      | Pound   | 3,390 |
| Furnishing Steel Piles HP12x53 |     |      | Foot    | 770   |
| Driving Piles                  |     |      | Foot    | 770   |
| Test Pile, Steel HP12x53       |     |      | Each    | 1     |
| Concrete Encasement            |     |      | Cu. Yd. | 37.1  |

See Sheet 11 for Pile Details.

PILE DATA

Type: Steel HP12x53  
 No. Required (2 Piers): \*12  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 70 Foot/Pile

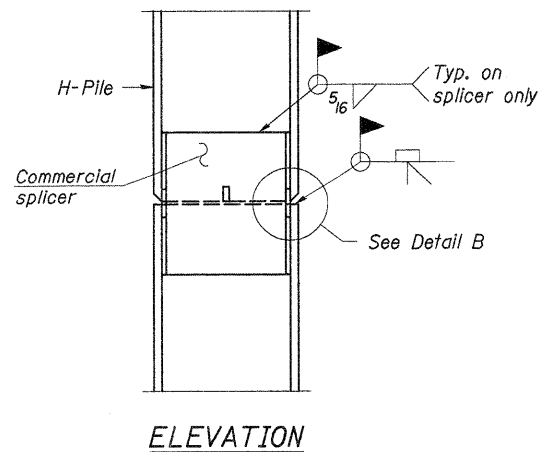
\*Includes 1 Test Pile to be driven in a permanent location at Pier #1.  
 The steel H-piles shall be according to AASHTO M270, Grade 50.  
 The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated above.



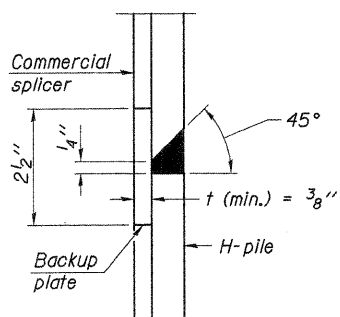
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|------------|-----------------|
| DESIGNED - | A.L.S.          |
| CHECKED -  | A.R.K.          |
| DRAWN -    | S.A.P.          |
| CHECKED -  | A.R.K. & A.L.S. |

**FEHR-GRAHAM & ASSOCIATES, LLC**  
 ENGINEERING AND SCIENCE CONSULTANTS  
 FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL

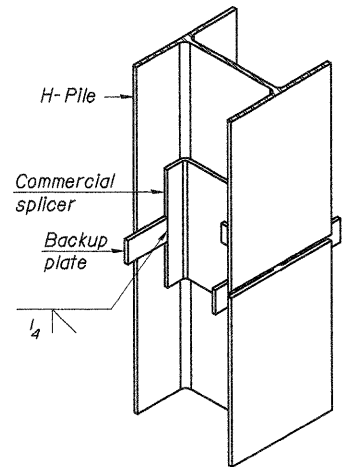
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|----------------|----------|--------------------|--------------|-----------|
| TWP. RTE.      | SECTION  | COUNTY             | TOTAL SHEETS | SHEET NO. |
| 228            | ****     | IROQUOIS           | 19           | 10        |
| BROS-075 (137) |          | CONTRACT NO. 87446 |              |           |
| ROAD DISTRICT  | ILLINOIS | ASH GROVE/MILFORD  |              |           |



ELEVATION

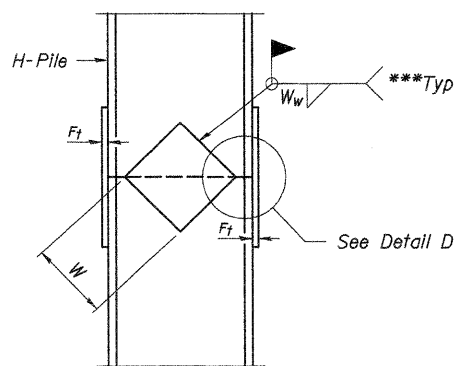


DETAIL "B"

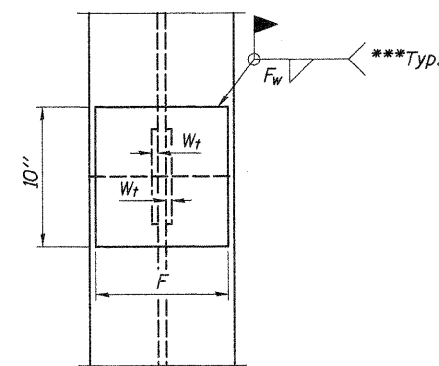


ISOMETRIC VIEW

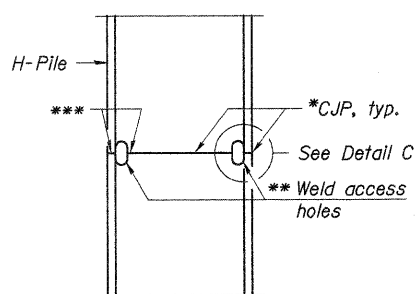
WELDED COMMERCIAL SPLICE



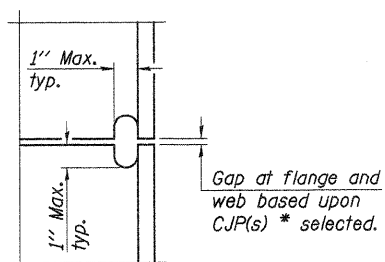
ELEVATION



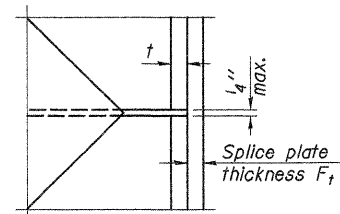
END VIEW



ELEVATION



DETAIL C



DETAIL D

COMPLETE PENETRATION WELD SPLICE

- \* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
- \*\* Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
- \*\*\* Interrupt welds 1/4" from end of each pile.

| Designation | F       | F <sub>t</sub> | F <sub>w</sub> | W      | W <sub>t</sub> | W <sub>w</sub> |
|-------------|---------|----------------|----------------|--------|----------------|----------------|
| HP 14x117   | 12 1/2" | 1"             | 7/8"           | 7 3/4" | 5/8"           | 1/2"           |
| x102        | 12 1/2" | 7/8"           | 3/4"           | 7 3/4" | 5/8"           | 1/2"           |
| x89         | 12 1/2" | 3/4"           | 11/16"         | 7 3/4" | 5/8"           | 1/2"           |
| x73         | 12 1/2" | 5/8"           | 9/16"          | 7 3/4" | 5/8"           | 1/2"           |
| HP 12x84    | 10"     | 7/8"           | 11/16"         | 6 1/2" | 5/8"           | 1/2"           |
| x74         | 10"     | 7/8"           | 11/16"         | 6 1/2" | 5/8"           | 1/2"           |
| x63         | 10"     | 5/8"           | 1/2"           | 6 1/2" | 1/2"           | 3/8"           |
| x53         | 10"     | 5/8"           | 1/2"           | 6 1/2" | 1/2"           | 3/8"           |
| HP 10x57    | 8"      | 3/4"           | 9/16"          | 5 1/4" | 1/2"           | 3/8"           |
| x42         | 8"      | 5/8"           | 9/16"          | 5 1/4" | 1/2"           | 3/8"           |
| HP 8x36     | 7"      | 5/8"           | 7/16"          | 4 1/4" | 1/2"           | 3/8"           |

WELDED PLATE FIELD SPLICE

Note:  
The steel H-piles shall be according to AASHTO M270 Grade 50.

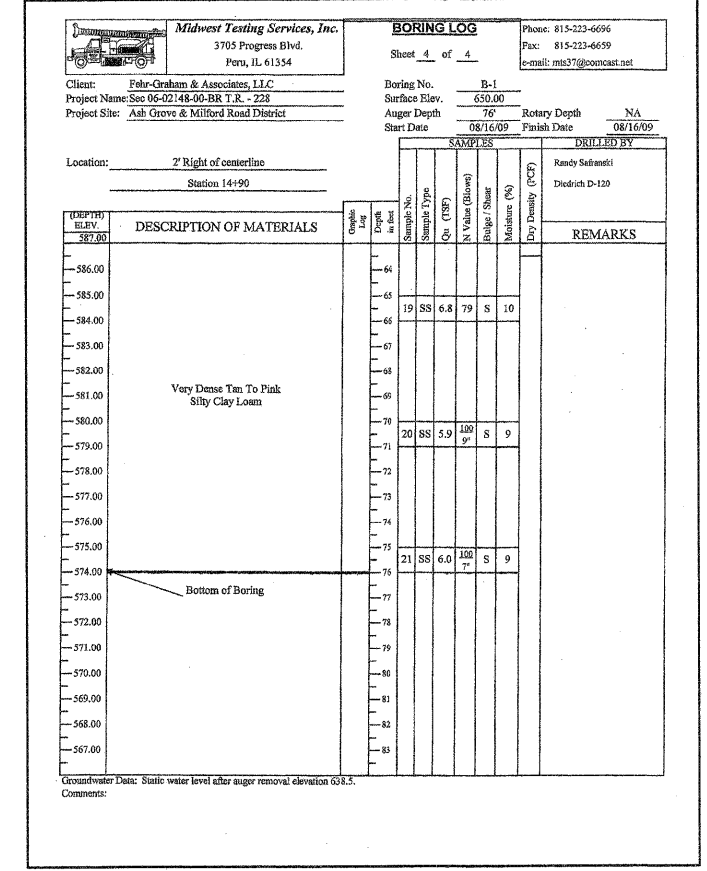
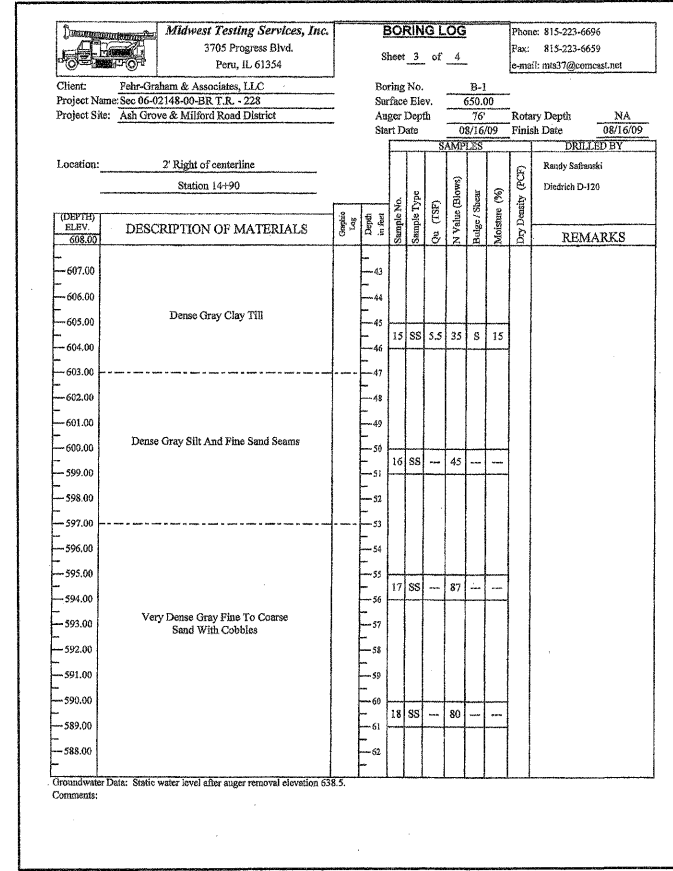
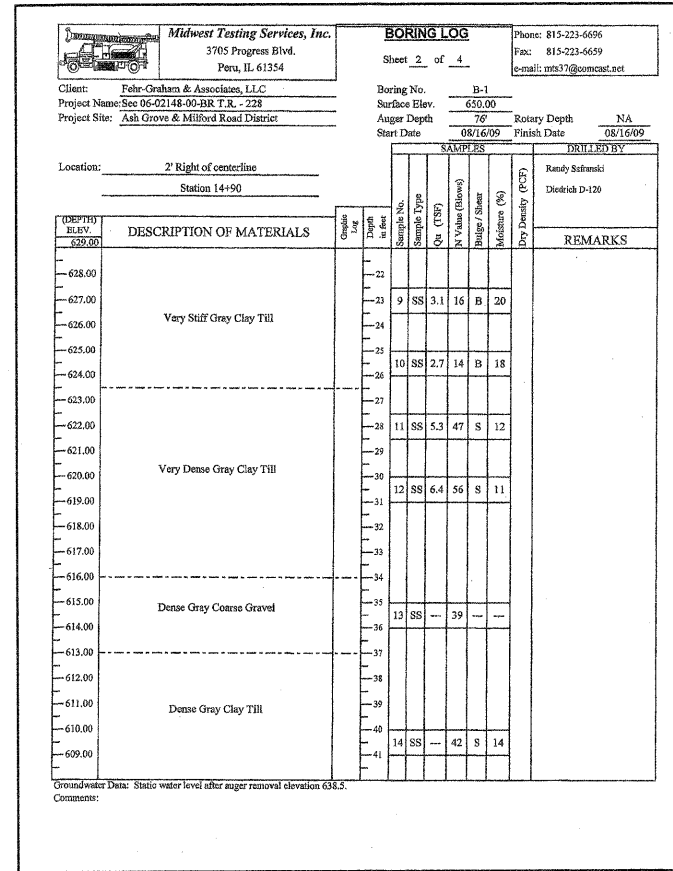
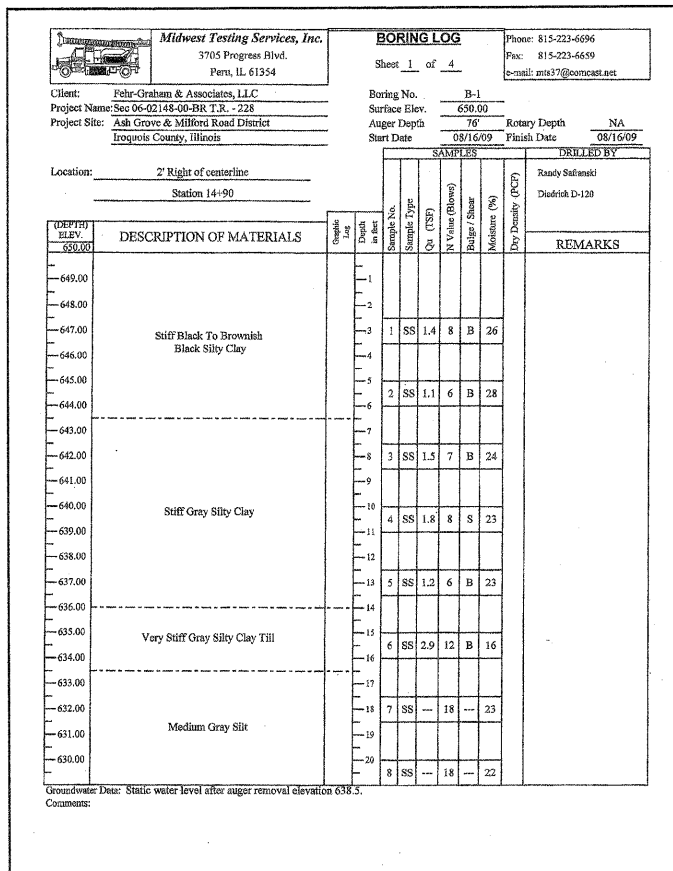
STEEL PILE SPLICING DETAILS

S.N. 038-4751 \*\*\*\*\*06-02148-00-BR  
06-18148-00-BR

|            |                 |
|------------|-----------------|
| DESIGNED - | A.L.S.          |
| CHECKED -  | A.R.K.          |
| DRAWN -    | S.A.P.          |
| CHECKED -  | A.R.K. & A.L.S. |


F-HP 11-1-06  
FILE: 09-478\_PILES.DGN DATE: 11/19/09

|   |           |          |                    |              |           |
|---|-----------|----------|--------------------|--------------|-----------|
| <b>FEHR-GRAHAM &amp; ASSOCIATES, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL<br>4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-9600 www.fehr-graham.com | TWP. RTE. | SECTION  | COUNTY             | TOTAL SHEETS | SHEET NO. |
|   | 228       | ****     | IROQUOIS           | 19           | 11        |
| BROS-075 (137)  |           |          | CONTRACT NO. 87446 |              |           |
| ROAD DISTRICT   |           | ILLINOIS | ASH GROVE/MILFORD  |              |           |

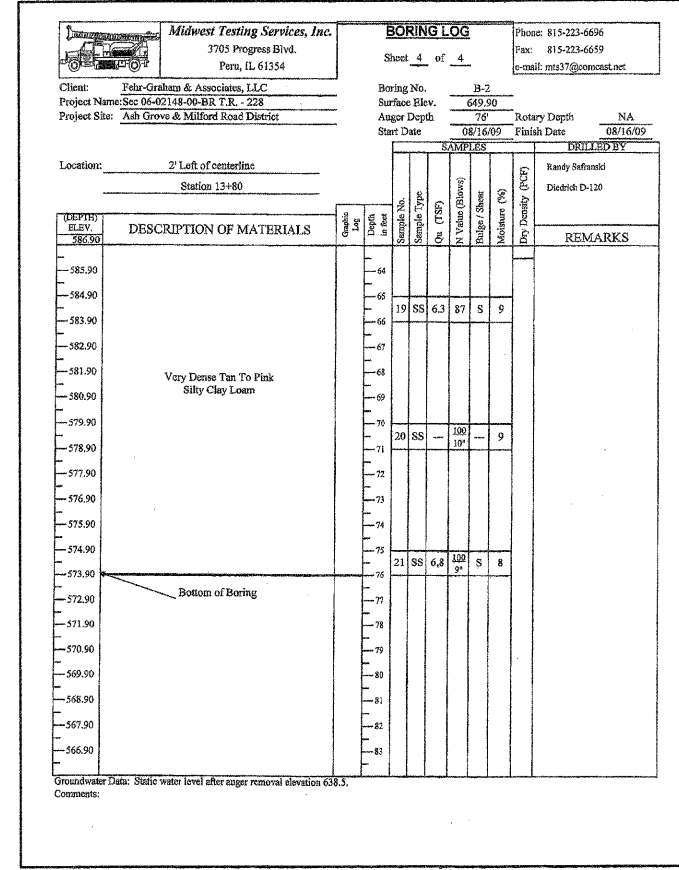
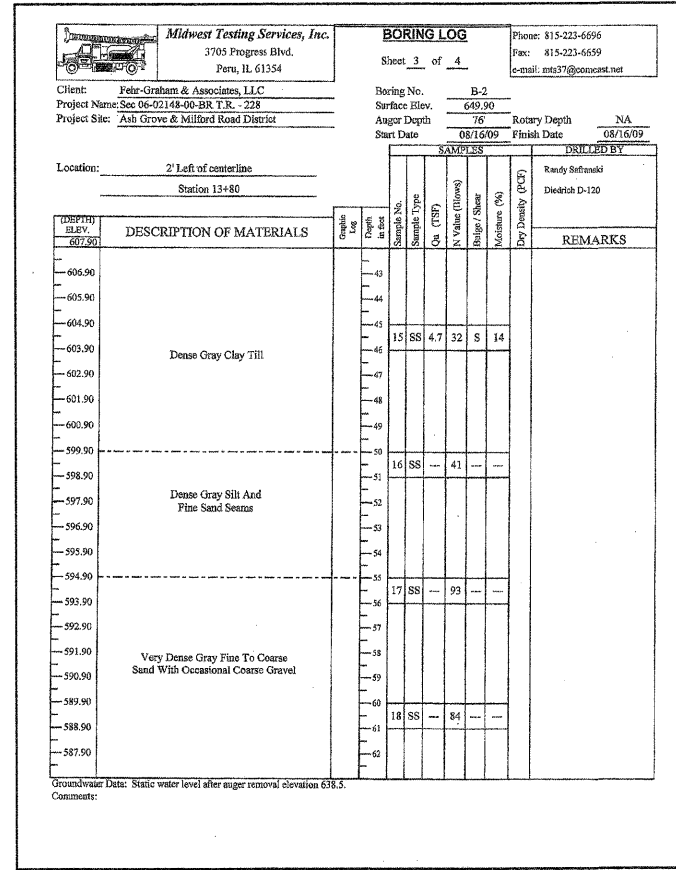
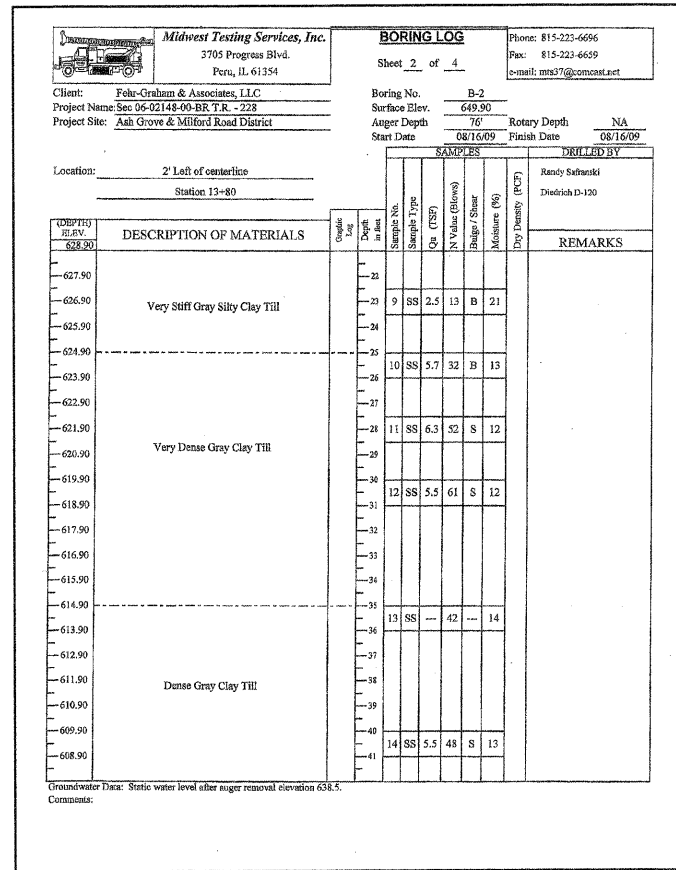
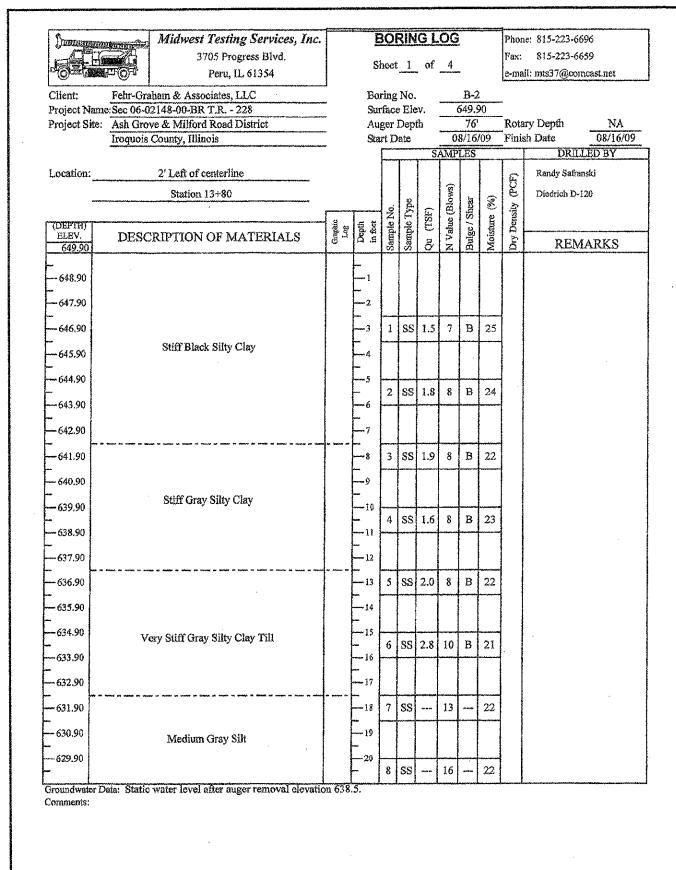


|          |                 |
|----------|-----------------|
| DESIGNED | A.L.S.          |
| CHECKED  | A.R.K.          |
| DRAWN    | S.A.P.          |
| CHECKED  | A.R.K. & A.L.S. |

**SOIL BORING LOG NO. 1**  
**S.N. 038-4751** \*\*\*\*\*06-02148-00-BR  
06-18148-00-BR


|   |           |          |                    |              |           |
|---|-----------|----------|--------------------|--------------|-----------|
|  <b>Fehr-Graham &amp; Associates, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL<br>4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com | TWP. RTE. | SECTION  | COUNTY             | TOTAL SHEETS | SHEET NO. |
|   | 228       | ****     | IROQUOIS           | 19           | 12        |
| BROS-075 (137)  |           |          | CONTRACT NO. 87446 |              |           |
| ROAD DISTRICT   |           | ILLINOIS | ASH GROVE/MILFORD  |              |           |





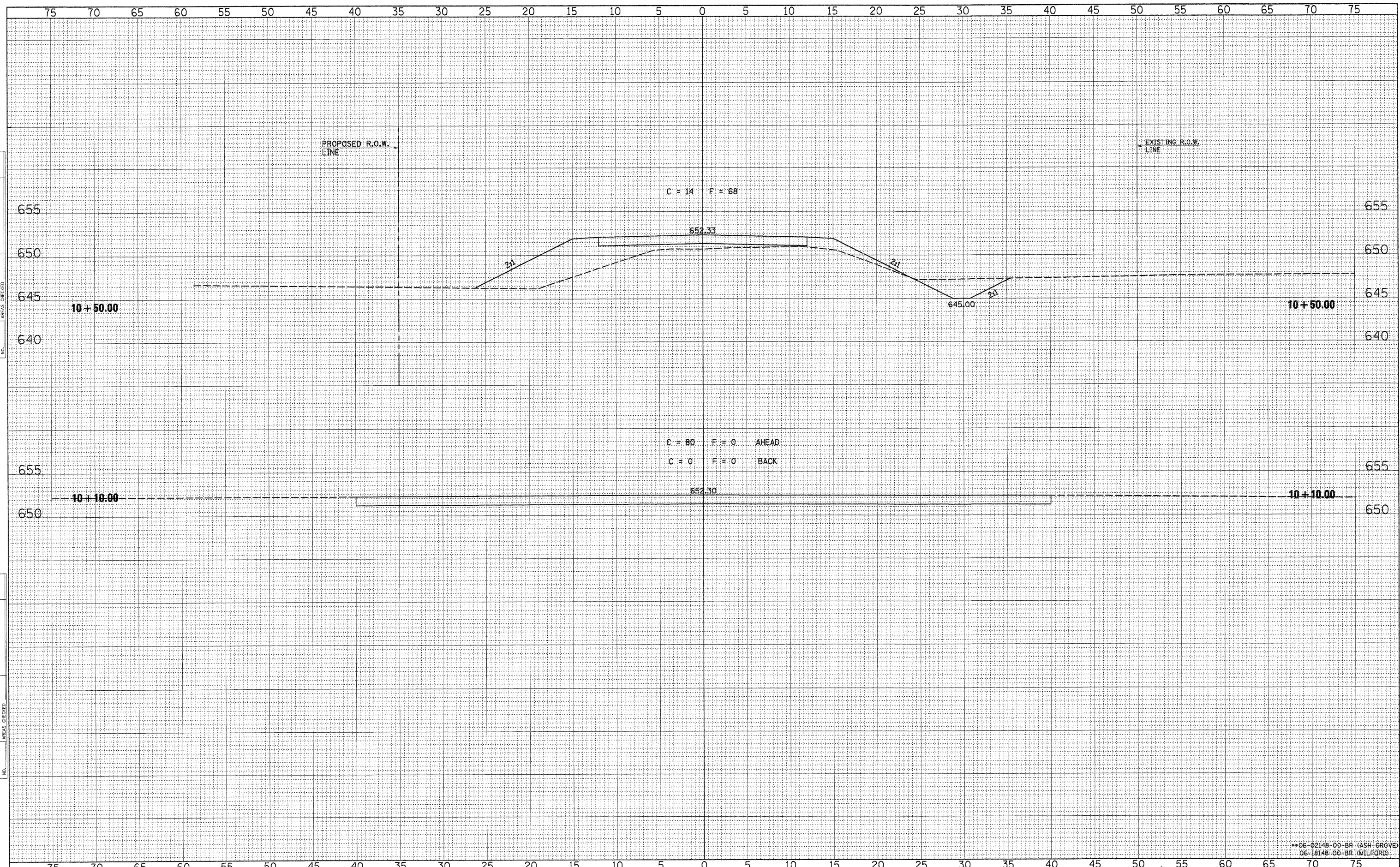
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|----------|-----------------|
| DESIGNED | A.L.S.          |
| CHECKED  | A.R.K.          |
| DRAWN    | S.A.P.          |
| CHECKED  | A.R.K. & A.L.S. |

**SOIL BORING LOG NO. 2**  
**S.N. 038-4751** \*\*\*\*06-02148-00-BR  
06-18148-00-BR

|   |           |         |                    |              |                   |
|---|-----------|---------|--------------------|--------------|-------------------|
|  <b>FEHR-GRAHAM &amp; ASSOCIATES, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL<br>4440 ASH GROVE SPRINGFIELD, IL 62711 (217)-793-8600 www.fehr-graham.com | TWP. RTE. | SECTION | COUNTY             | TOTAL SHEETS | SHEET NO.         |
|   | 228       | ****    | IROQUOIS           | 19           | 13                |
| ROAD DISTRICT   |           |         | CONTRACT NO. 87446 |              | ASH GROVE/MILFORD |

|              |               |
|--------------|---------------|
| DATE         |               |
| BY           |               |
| FINAL SURVEY | SURVEYED      |
| NOTE BOOK    | PLOTTED       |
| NO.          | TEMPLATE      |
|              | AREAS CHECKED |
|              | AREAS CHECKED |

|                 |               |
|-----------------|---------------|
| DATE            |               |
| BY              |               |
| ORIGINAL SURVEY | SURVEYED      |
| NOTE BOOK       | PLOTTED       |
| NO.             | TEMPLATE      |
|                 | AREAS CHECKED |
|                 | AREAS CHECKED |



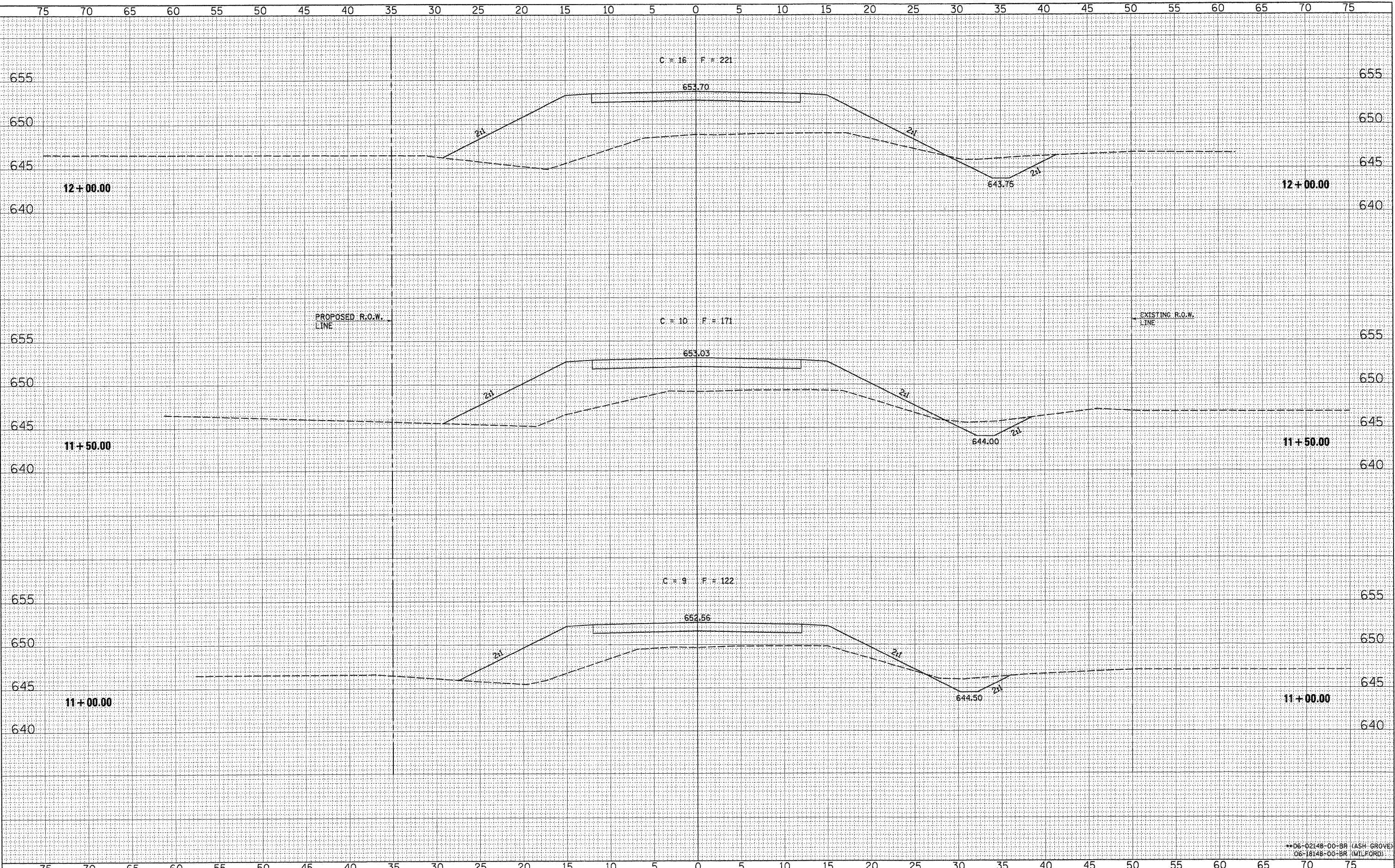
\*\*06-02148-00-BR (ASH GROVE)  
06-18148-00-BR (MILFORD)

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|----------------------------------|-------------------|-----------|---|--|--|--|---|---------|----------|--------------|-----------|
| FILE NAME = 09-478_XS-SHEETS.DGN | DESIGNED - G.J.C. | REVISED - | 4440 ASH GROVE<br>SPRINGFIELD, IL. 62711<br>(217) 793-8600<br>www.fehr-graham.com | <b>FEHR-GRAHAM &amp; ASSOCIATES, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL | <b>ROADWAY CROSS SECTIONS - T.R. 228</b><br>STA. 10+10.00 TO STA. 10+50.00 |  | TWP. RTE.                                 | SECTION | COUNTY   | TOTAL SHEETS | SHEET NO. |
| USER NAME = S.A.P.               | DRAWN - S.A.P.    | REVISED - |   |  |  |  | 228                                       | **      | IROQUOIS | 19           | 14        |
| PLOT SCALE = 5                   | CHECKED - R.J.C.  | REVISED - |   |  |  |  | CONTRACT NO. 87446                        |         |          |              |           |
| PLOT DATE = 07/14/09             | DATE - 09/29/10   | REVISED - |   |  |  |  | ILLINOIS ASH GROVE/MILFORD ROAD DISTRICTS |         |          |              |           |



|               |               |      |
|---------------|---------------|------|
| FINAL SURVEY  | SURVEYED      | DATE |
| NOTE BOOK NO. | PLOTTED       |      |
|               | TEMPLATE      |      |
|               | AREAS CHECKED |      |

|                 |               |      |
|-----------------|---------------|------|
| ORIGINAL SURVEY | SURVEYED      | DATE |
| NOTE BOOK NO.   | PLOTTED       |      |
|                 | TEMPLATE      |      |
|                 | AREAS CHECKED |      |



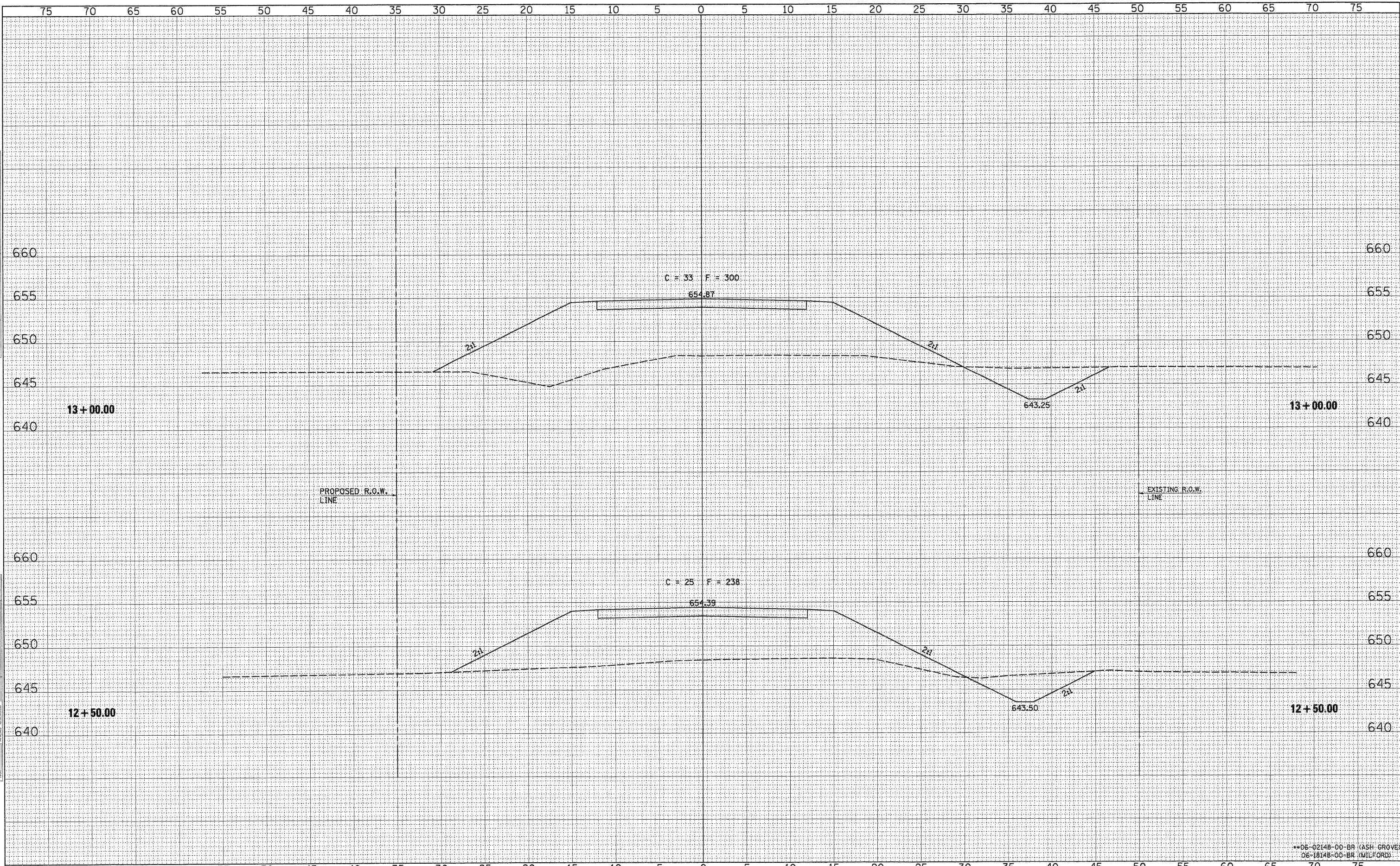
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| USER NAME = S.A.P.               | DRAWN - S.A.P.    | REVISED - |   |  |  |  | CONTRACT NO. 87446                        |            |                 |                 |              |
| PLOT SCALE = 5                   | CHECKED - R.J.C.  | REVISED - |   |  |  |  | ILLINOIS ASH GROVE/MILFORD ROAD DISTRICTS |            |                 |                 |              |
| PLOT DATE = 07/14/09             | DATE - 09/29/10   | REVISED - |   |  |  |  |   |            |                 |                 |              |

\*\*06-02148-00-BR (ASH GROVE)  
06-18148-00-BR (MILFORD)



|              |  |
|--------------|--|
| DATE         |  |
| BY           |  |
| FINAL SURVEY |  |
| SURVEYED     |  |
| NOTED        |  |
| PLOTTED      |  |
| TEMPLATE     |  |
| AREAS        |  |
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| DATE            |  |
| BY              |  |
| ORIGINAL SURVEY |  |
| SURVEYED        |  |
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| PLOTTED         |  |
| TEMPLATE        |  |
| AREAS           |  |
| CHECKED         |  |
| NO.             |  |



\*\*06-02148-00-BR (ASH GROVE)  
06-18148-00-BR (MILFORD)

|                                  |                   |           |   |   |                                   |  |                    |         |   |              |           |
|----------------------------------|-------------------|-----------|---|---|-----------------------------------|--|--------------------|---------|---|--------------|-----------|
| FILE NAME = 09-478.XS-SHEETS.DGN | DESIGNED - G.J.C. | REVISED - | 4440 ASH GROVE<br>SPRINGFIELD, IL. 62711<br>(217) 793-8600<br>www.fehr-graham.com | <b>FEHR-GRAHAM &amp; ASSOCIATES, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL. ROCKFORD, IL. ROCHELLE, IL. MONROE, WI. SPRINGFIELD, IL. | ROADWAY CROSS SECTIONS - T.R. 228 |  | TWP.               | SECTION | COUNTY                                    | TOTAL SHEETS | SHEET NO. |
| USER NAME = S.A.P.               | DRAWN - S.A.P.    | REVISED - |   |   |                                   |  | 228                | **      | IROQUOIS                                  | 19           | 16        |
| PLOT SCALE = 5                   | CHECKED - R.J.C.  | REVISED - |   |   | STA. 12+50.00 TO STA. 13+00.00    |  | CONTRACT NO. 87446 |         | ILLINOIS ASH GROVE/MILFORD ROAD DISTRICTS |              |           |
| PLOT DATE = 07/14/09             | DATE - 09/29/10   | REVISED - |   |   | *09-478                           |  |                    |         |   |              |           |

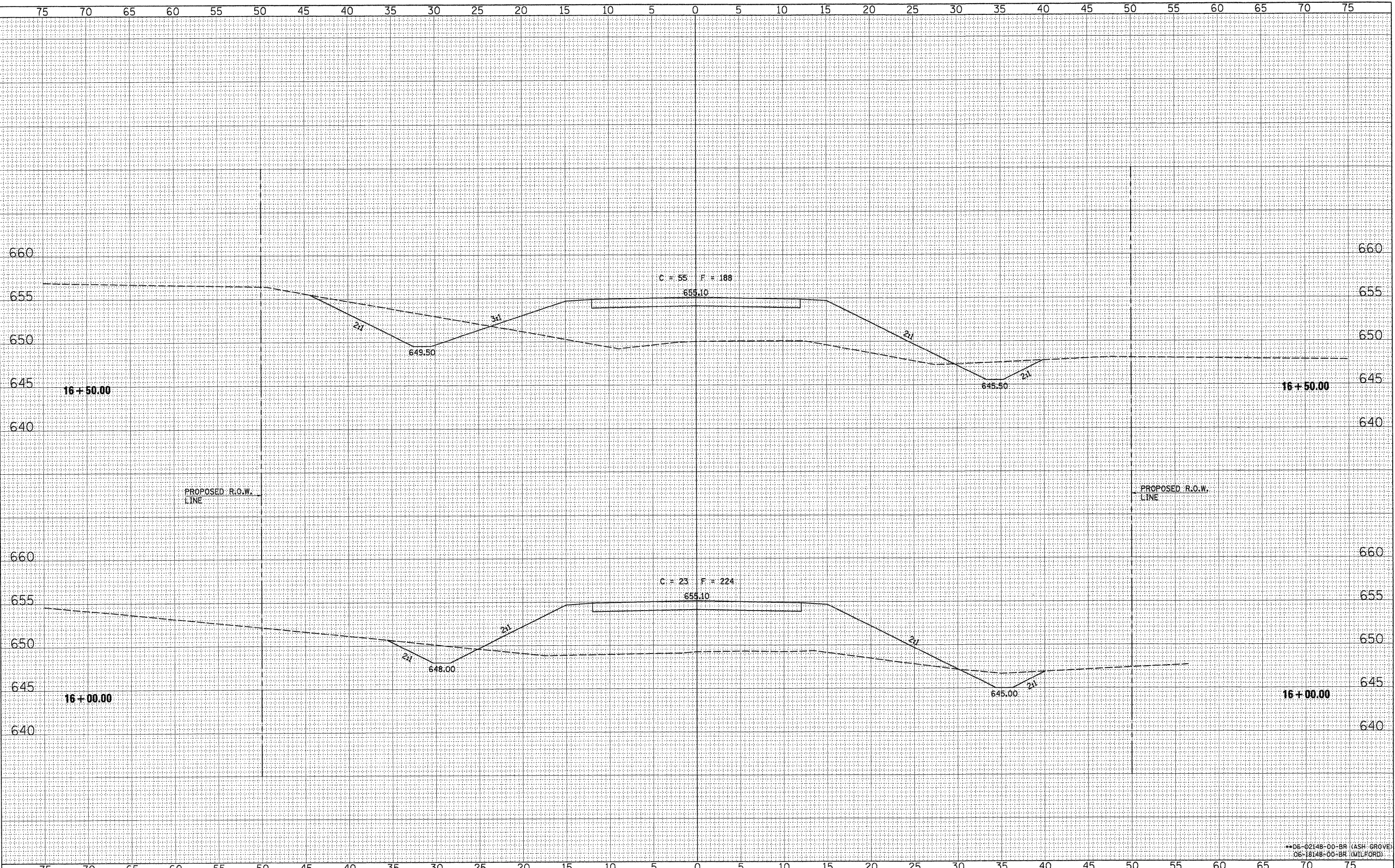






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| DATE          |  |
| BY            |  |
| SURVEYED      |  |
| PLOTTED       |  |
| TEMPLATE      |  |
| NOTE BOOK     |  |
| AREAS CHECKED |  |
| NO.           |  |

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| DATE            |  |
| BY              |  |
| ORIGINAL SURVEY |  |
| PLOTTED         |  |
| TEMPLATE        |  |
| NOTE BOOK       |  |
| AREAS CHECKED   |  |
| NO.             |  |



|                                  |                   |           |
|----------------------------------|-------------------|-----------|
| FILE NAME = 09-478_XS-SHEETS.DGN | DESIGNED - G.J.C. | REVISED - |
| USER NAME = S.A.P.               | DRAWN - S.A.P.    | REVISED - |
| PLOT SCALE = 5                   | CHECKED - R.J.C.  | REVISED - |
| PLOT DATE = 07/14/09             | DATE - 09/29/10   | REVISED - |

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|                                   |                 |
|-----------------------------------|-----------------|
| ROADWAY CROSS SECTIONS - T.R. 228 |                 |
| TWP. RTE. 228                     | SECTION **      |
| COUNTY IROQUOIS                   | TOTAL SHEETS 19 |
| CONTRACT NO. 87446                | SHEET NO. 18    |
| STA. 16+00.00 TO STA. 16+50.00    |                 |

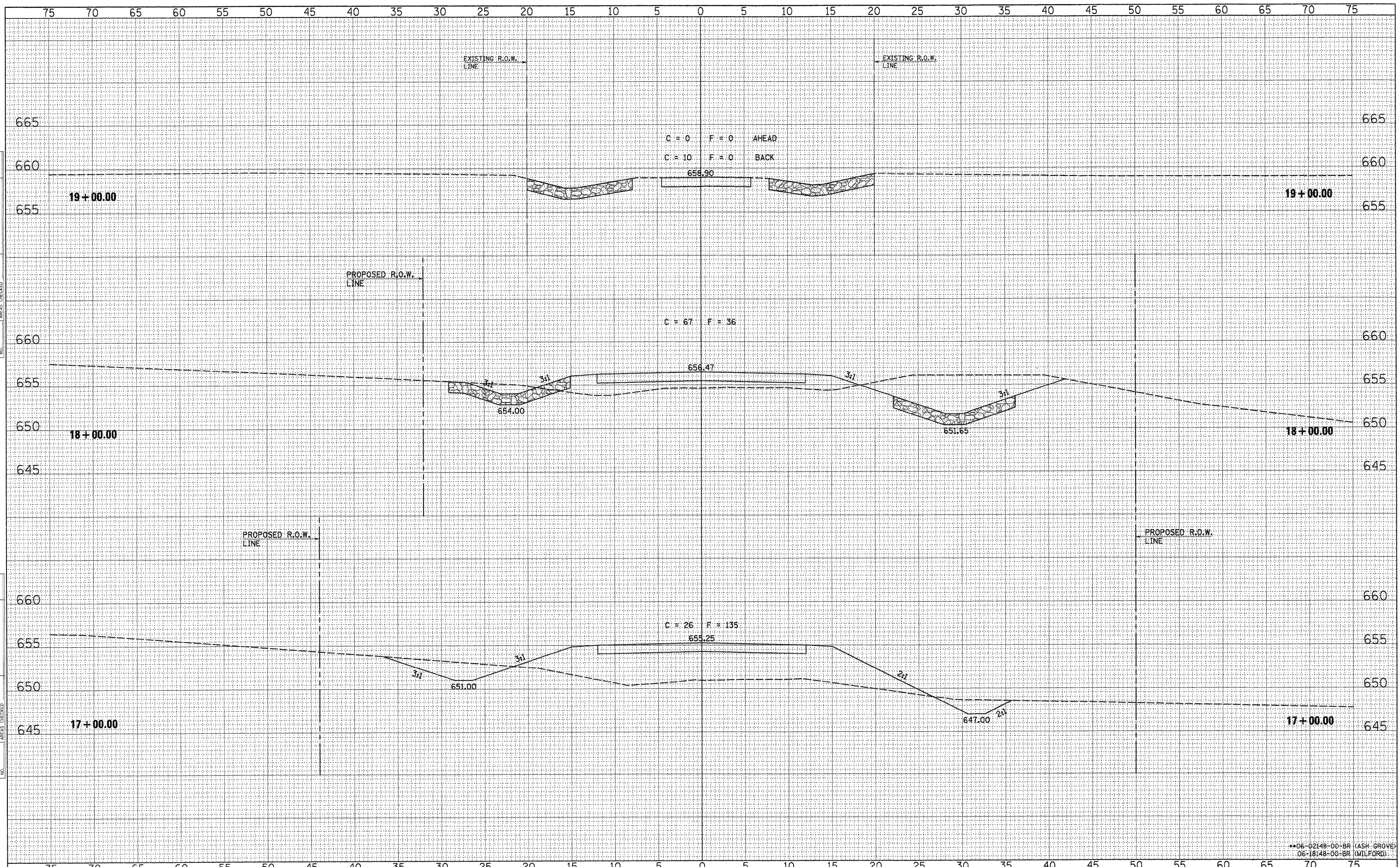
|          |                                  |
|----------|----------------------------------|
| ILLINOIS | ASH GROVE/MILFORD ROAD DISTRICTS |
|----------|----------------------------------|

\*\*06-02148-00-BR (ASH GROVE)  
 06-18148-00-BR (MILFORD)



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| DATE         |               |
| BY           |               |
| FINAL SURVEY | SURVEYED      |
| NOTE BOOK    | PLOTTED       |
| NO.          | TEMPLATE      |
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| DATE            |               |
| BY              |               |
| ORIGINAL SURVEY | SURVEYED      |
| NOTE BOOK       | PLOTTED       |
| NO.             | TEMPLATE      |
|                 | AREAS CHECKED |



|                                  |                   |           |   |  |   |  |  |  |      |                    |          |              |           |
|----------------------------------|-------------------|-----------|---|--|---|--|--|--|------|--------------------|----------|--------------|-----------|
| FILE NAME = 09-478.XS-SHEETS.DGN | DESIGNED - G.J.C. | REVISED - | 4440 ASH GROVE<br>SPRINGFIELD, IL. 62711<br>(217) 793-8600<br>www.fehr-graham.com | <b>FEHR-GRAHAM &amp; ASSOCIATES, LLC</b><br>ENGINEERING AND SCIENCE CONSULTANTS<br>FREEPORT, IL ROCKFORD, IL ROCHELLE, IL MONROE, WI SPRINGFIELD, IL | ROADWAY CROSS SECTIONS - T.R. 228         |  |  |  | TWP. | SECTION            | COUNTY   | TOTAL SHEETS | SHEET NO. |
| USER NAME = S.A.P.               | DRAWN - S.A.P.    | REVISED - |   |  |   |  |  |  | 228  | **                 | IROQUOIS | 19           | 19        |
| PLOT SCALE = 5                   | CHECKED - R.J.C.  | REVISED - |   |  | STA. 17+00.00 TO STA. 19+00.00            |  |  |  |      | CONTRACT NO. 87446 |          |              |           |
| PLOT DATE = 07/14/09             | DATE - 09/29/10   | REVISED - |   |  | ILLINOIS ASH GROVE/MILFORD ROAD DISTRICTS |  |  |  |      |                    |          |              |           |

\*\*06-02148-00-BR (ASH GROVE)  
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