

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4 FAS 321	04-00034 -04-BR	IROQUOIS	16	1
		ILLINOIS	PROJ. BRS-321(113)	

CONTRACT NO. 87299

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

SECTION 04-00034-04-BR
IROQUOIS COUNTY
PROJECT NO. BRS-321(113)
COUNTY HIGHWAY 4 (FAS RTE 321)
JOB NO. C-93-027-05

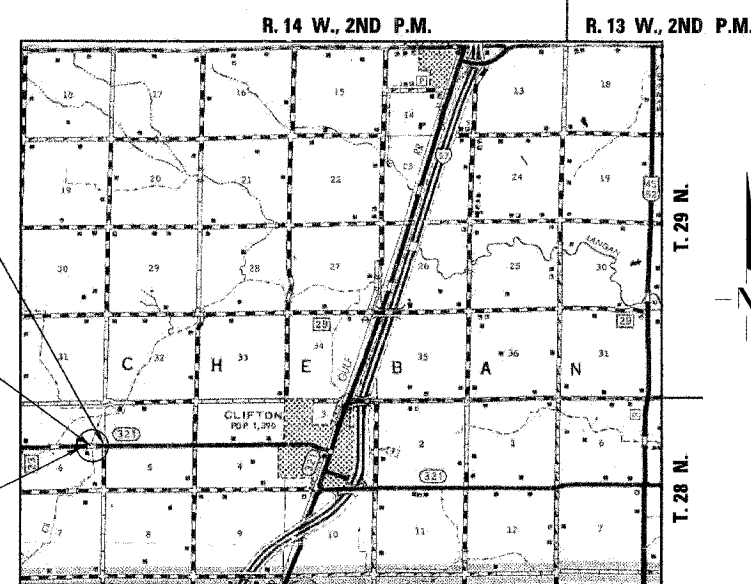
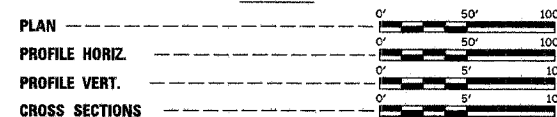
INDEX OF SHEETS

SHEET NO.	TITLE
1.	COVER SHEET
2.	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL SECTIONS
3.	ROADWAY PAVEMENT NOTES
4.	PLAN AND PROFILE SHEET
5.	SHOULDER & GUARDRAIL DETAILS
6.-9.	BRIDGE PLANS
10.-11.	FOUNDATION BORING LOGS
12.-16.	STATION CROSS SECTIONS

STANDARDS:

- 280001-03
- 515001-02
- 630001-07
- 630301-04
- 631032-03
- 635006-02
- 702001-06
- BLR 21-6

SCALES



IMPROVEMENT BEGINS
STATION 136 + 25

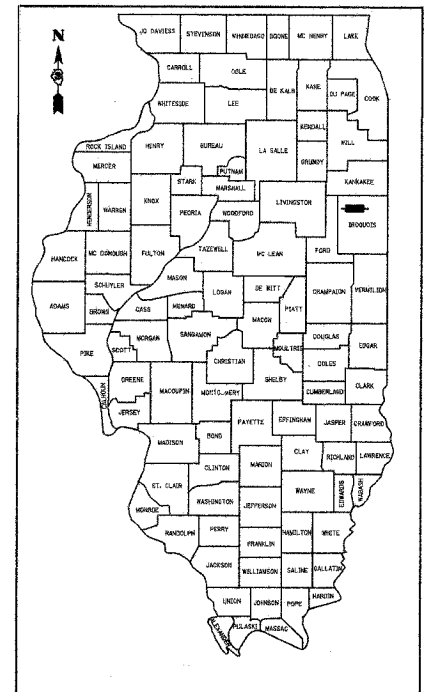
STA. 139 + 05 - SPECIAL BRIDGE DESIGN
CONTINUOUS REINFORCED CONCRETE
SLAB BRIDGE, THREE SPANS @ 28'-10",
36'-0", 28'-10"; 30'-0" ROADWAY, 0° SKEW
EXISTING S.N. 038-0052
PROPOSED S.N. 038-3607

IMPROVEMENT ENDS
STA. 141 + 75

LOCATION PLAN

GROSS LENGTH OF SECTION = 550.00 FEET = 0.104 MILES
NET LENGTH OF SECTION = 550.00 FEET = 0.104 MILES

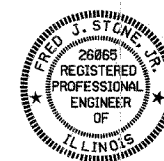
SCALE IN MILES



LOCATION OF SECTION INDICATED THUS:

CLASSIFICATION: MAJOR COLLECTOR (RURAL)
DESIGN VOLUME: ADT 400-750
CURRENT ADT: 525 (2005)
DESIGN SPEED: 50 MPH

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



Fred J. Stancak (11.11.06)
ILLINOIS PROFESSIONAL NO. 26865
EXPIRES 11-30-07

APPROVED	<i>December 18, 2006</i>	2006
	<i>[Signature]</i>	COUNTY ENGINEER
PASSED	<i>DEC. 21</i>	2006
	<i>[Signature]</i>	DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	<i>DEC. 21</i>	2006
	<i>[Signature]</i>	DEPUTY DIRECTOR OF HIGHWAYS, REGION TWO ENGINEER
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION		

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

FEHR-GRAHAM & ASSOCIATES, LLC
ENGINEERING AND SCIENCE CONSULTANTS
PROFESSIONAL ENGINEERS
REGISTERED PROFESSIONAL ENGINEERS OF ILLINOIS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IROQUOIS	16	2
FAS 321	-04-BR			
ROAD DIST.	ILLINOIS	PROJ. NO. BRS-321113		
CONTRACT NO. 87299				

SUMMARY OF QUANTITIES

NUMBER	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE CODE X020-2A
20200100	EARTH EXCAVATION	CU YD	375	
20300100	CHANNEL EXCAVATION	CU YD	284	
* 20700110	POROUS GRANULAR EMBANKMENT	TON	64	
* 25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.4	
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	40	
28000300	TEMPORARY DITCH CHECKS	EACH	4	
28000400	PERIMETER EROSION BARRIER	FOOT	400	
28100207	STONE RIPRAP, CLASS A4	TON	270	
* 28200200	FILTER FABRIC	SQ YD	359	
35501332	HOT-MIX ASPHALT BASE COURSE 12"	SQ YD	56	
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	111	
40600625	LEVELING BINDER (MACHINE METHOD), N50	TON	81	
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	472	
40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	132	
* 44000700	APPROACH SLAB REMOVAL	SQ YD	107	
48100100	AGGREGATE SHOULDERS, TYPE A	TON	212	
* 50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	
* 50300255	CONCRETE SUPERSTRUCTURE	CU YD	167.4	
50300260	BRIDGE DECK GROOVING	SQ YD	299	
50300280	CONCRETE ENCASEMENT	CU YD	20.5	
50300300	PROTECTIVE COAT	SQ YD	320	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	35,250	
50901005	STEEL BRIDGE RAIL, TYPE SM	FOOT	193	
51201105	FURNISHING METAL SHELL PILES 14"	FOOT	766	
* 51202305	DRIVING PILES	FOOT	766	
51203200	TEST PILE METAL SHELLS	EACH	2	
51500100	NAME PLATES	EACH	1	
* 54200223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	42	
* 60100925	PIPE DRAINS 8"	FOOT	30	
* 60100945	PIPE DRAINS 12"	FOOT	30	
63000000	STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	200	
63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4	
63100167	TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT)	EACH	4	
63200310	GUARDRAIL REMOVAL	FOOT	322	
67100100	MOBILIZATION	L SUM	1	
* 70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	
78201000	TERMINAL MARKER-DIRECT APPLIED	EACH	4	
* X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION NO. 1	EACH	1	
* X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION NO. 2	EACH	1	

*SEE SPECIAL PROVISIONS

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.

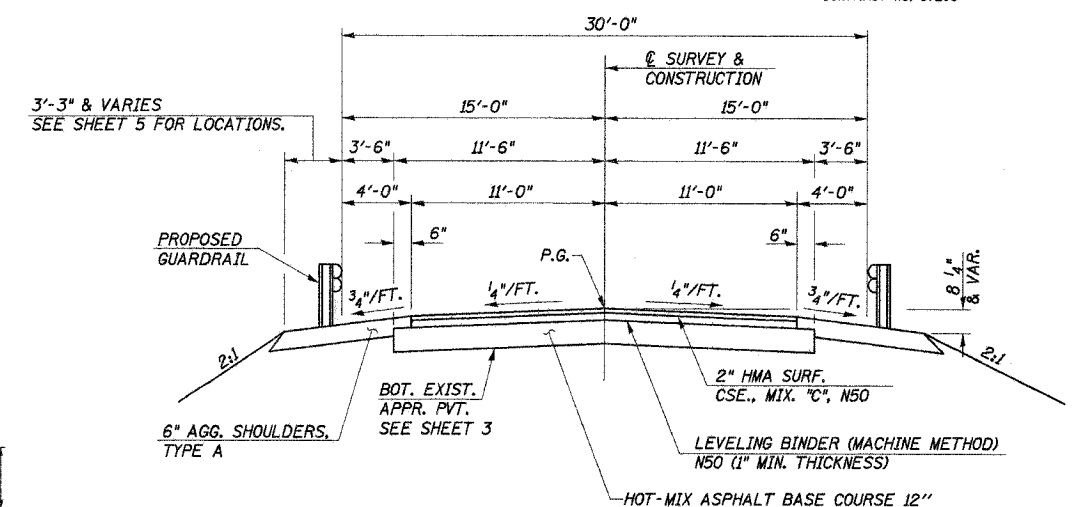
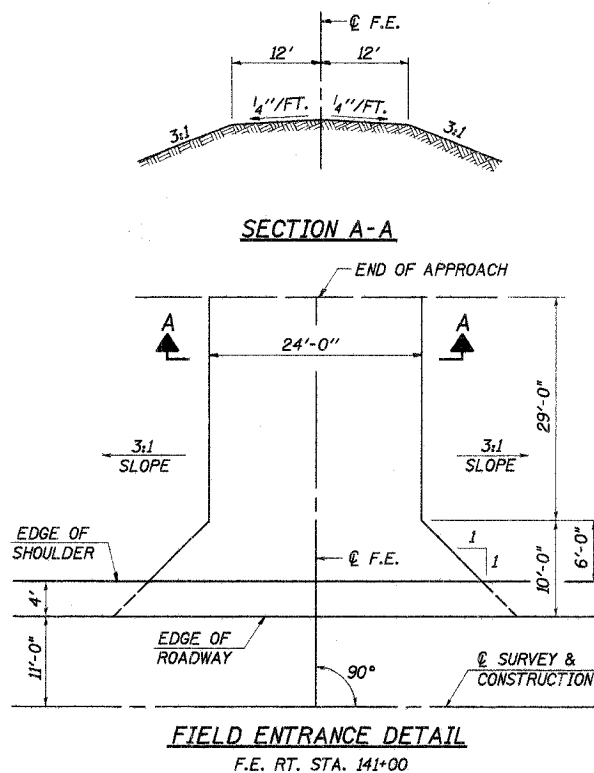
THE AREA TO BE SEEDING SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY, AS DIRECTED BY THE ENGINEER.

SEEDING, CLASS 2 (SPECIAL) = 0.4 ACRE

TEMPORARY EROSION CONTROL

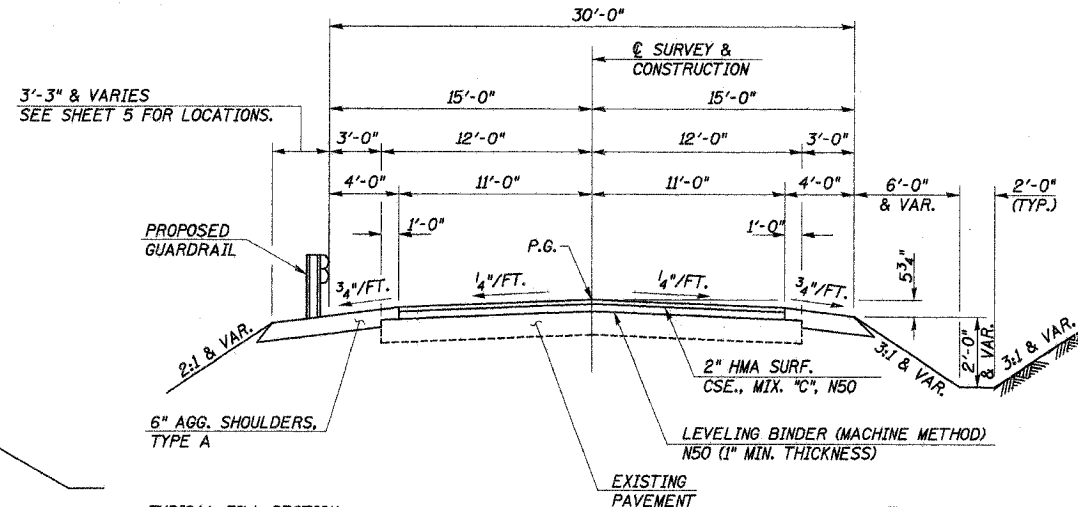
THE FOLLOWING QUANTITIES ARE ESTIMATES ONLY. ACTUAL QUANTITIES FOR EROSION CONTROL WILL BE DETERMINED BY THE ENGINEER IN THE FIELD AND THERE WILL BE NO ADJUSTMENT IN ANY PRICE DUE TO A CHANGE IN PLAN QUANTITY.

- PERIMETER EROSION BARRIER = 400 FOOT
- TEMPORARY EROSION CONTROL SEEDING = 40 POUND
- TEMPORARY DITCH CHECKS = 4 EACH



TYPICAL PROPOSED CROSS SECTION #1

STA. 138+46.04(±) TO STA. 138+56.92
 STA. 139+53.08 TO STA. 139+63.96(±)



TYPICAL PROPOSED CROSS SECTION #2

STA. 136+75 TO STA. 138+46.04(±)
 STA. 139+63.96(±) TO STA. 141+25

TRANSITION FROM EXISTING ROADWAY TO PROPOSED ROADWAY TO BE CONSTRUCTED FROM STA. 136+25 TO STA. 136+75 AND FROM STA. 141+25 TO STA. 141+75.

SUMMARY OF QUANTITIES, GENERAL NOTES AND TYPICAL CROSS SECTION
 COUNTY HIGHWAY 4
 SECTION 04-00034-04-BR
 IROQUOIS COUNTY
 STA. 139+05

4440 ASH GROVE SPRINGFIELD, IL 62711 (217) 793-8600 www.fehr-graham.com
FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 JEFFREY A. ROOPERS, P.E. ROSEMARY A. ROSS, P.E. ROBERT L. ROOPERS, P.E. ROBERT L. ROOPERS, P.E.
 JOB NO.: 46817
 FILE: 0403SUMTYP.DGN
 DATE: 12/08/06

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IROQUOIS	16	3
FAS 321	04-BR			
ROAD DIST.	ILLINOIS	PROJ. NO. BRS-32K(13)		
CONTRACT NO. 87299				

PAVEMENT DESIGN

STRUCTURAL DESIGN TRAFFIC (S.D.T.): YEAR 2014; P.V. = 532, S.U. = 42, M.U. = 31
CLASS III ROAD

MINIMUM SOIL SUPPORT: E = 3 k.s.i. (ASSUMED)

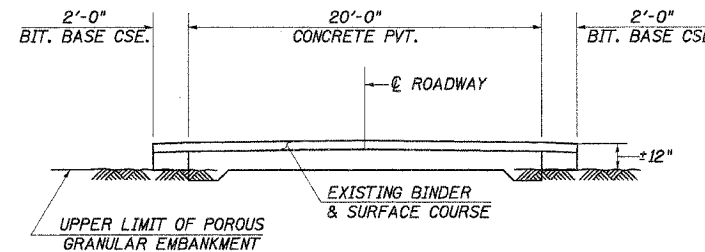
Percent of S.D.T. in Design Lane: P = 50%, S = 50%, M = 50%
T.F. = 0.166 D. T. = 3.13

Pavement Structural Materials:

Typical Proposed Roadway Cross-Section-#1
Hot-Mix Asphalt Base Course 12" with Hot-Mix Asphalt Surf. & Binder Cse. (+5")

Typical Proposed Roadway Cross-Section-#2
Existing Concrete Base Course 9" and 3" Bituminous Conc. Surf. & Binder Cse., with proposed Hot-Mix Asphalt Binder and Surface Courses, 3" Minimum.

HOT-MIX ASPHALT MIXTURE REQUIREMENTS			
ITEM	ASPHALT GRADE	ALLOWABLE RAP	VOIDS
LEVELING BINDER, N50	P.G. 64-22	15%	4.0%
SURFACE, MIX C, N50	P.G. 64-22	15%	4.0%
BASE COURSE	P.G. 58-22	15%	2.0%



EXISTING APPROACH PAVEMENT REMOVAL

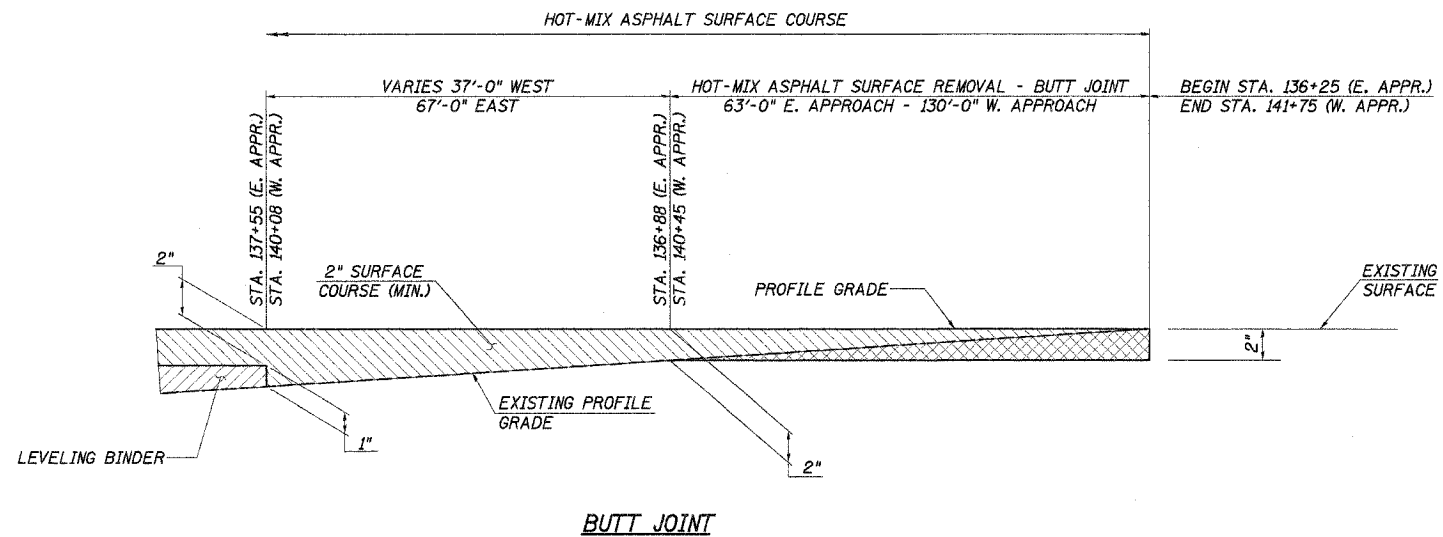
STA. 138+46.04(±) TO STA. 138+66.04(±) = 53.3 SQ. YD.
STA. 139+43.96(±) TO STA. 139+63.96(±) = 53.3 SQ. YD.
TOTAL = 106.6 SQ. YD.

NOTE: REMOVAL OF 2' WIDENING IS INCIDENTAL TO "APPROACH PAVEMENT REMOVAL."

APPLICATION RATES USED IN QUANTITY CALCULATIONS

STONE RIPRAP, CLASS A4	1.50 TON/CU. YD.
GRANULAR MATERIALS	2.05 TON/CU. YD.
AGGREGATE SHOULDERS	2.05 TON/CU. YD.
BITUMINOUS MATERIALS (PRIME COAT)	0.10 GAL./SQ. YD.
HOT-MIX ASPHALT	112 LB./SQ. YD./IN.

NOTE: THE ABOVE NOTED APPLICATION RATES ARE FOR QUANTITY CALCULATIONS ONLY. THE APPLICATION RATE TO BE APPLIED WILL BE DETERMINED BY THE ENGINEER AT THE TIME OF PLACEMENT.



HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT

STA. 136+25 TO STA. 136+88 = 154 SQ. YD.
STA. 140+45 TO STA. 141+75 = 318 SQ. YD.
TOTAL = 472 SQ. YD.

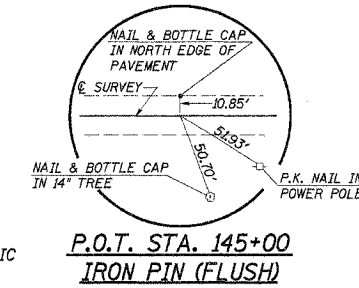
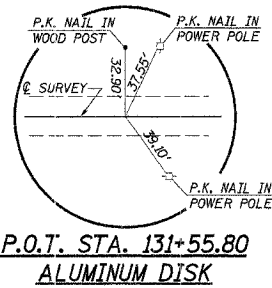
ROADWAY PAVEMENT NOTES

COUNTY HIGHWAY 4
SECTION 04-00034-04-BR
IROQUOIS COUNTY
STA. 139+05

4440 ASH GROVE SPRINGFIELD, IL 62711 (217) 793-8000 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS PROFESSOR, L. ROOFING, L. ROSSIGLE, L. SPANGLER, L.	JOB NO.: 46817 FILE: rdwnotes.dgn DATE: 11/06/06
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S.E. 1/4, SECTION 6, T. 28 N., R. 14 W., 2nd P.M.
KENNETH HANSEN & JULIA HANSEN

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IRROQUOIS	16	4
FAS 321-04-BR		IRROQUOIS		
STA. 136+25.00	TO STA. 141+75.00			
ROAD DISTRICT	ILLINOIS	PROJ. BR-321131		
CONTRACT NO. 87299				



PIPES TO BE REMOVED
RT. STA. 139+75, CMP 12" FIELD TILE
RT. STA. 140+05, 18" CMP, 24' LONG
LT. STA. 140+52 TO 141+50, 4" PLASTIC PIPE, 98' LONG
QUANTITIES INCLUDED IN "EARTH EXCAVATION".

ENTRANCES TO BE BUILT
RT. STA. 141+00, F.E. -10.0%, 28' ROADBED
QUANTITIES INCLUDED IN THOSE LISTED

ALUMINUM DISK
@ STA. 131+55.80
E. 1/4 COR., SEC. 6
T. 28 N., R. 14 W., 2ND P.M.

ALUMINUM DISK
STA. 158+05.8
CENTER SEC. 6
T. 28 N., R. 14 W., 2ND P.M.

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 = 284 CU. YD.

EXISTING STRUCTURE NO. 038-0052
PRECAST CONCRETE SLAB BRIDGE ON CONCRETE PILE BENT PIERS AND CREOSOTED TIMBER PILE BENT SPILL-THRU ABUTMENTS, WITH CONCRETE SLOPE WALLS; 3 SPANS @ 24'-0", 30'-0", 24'-0"; 78'-11" BK.-BK. ABUTMENTS 26'-2" O.-O., 0° SKEW. (SEE SPECIAL PROVISIONS)

REMOVAL OF EXISTING STRUCTURES = L. SUM

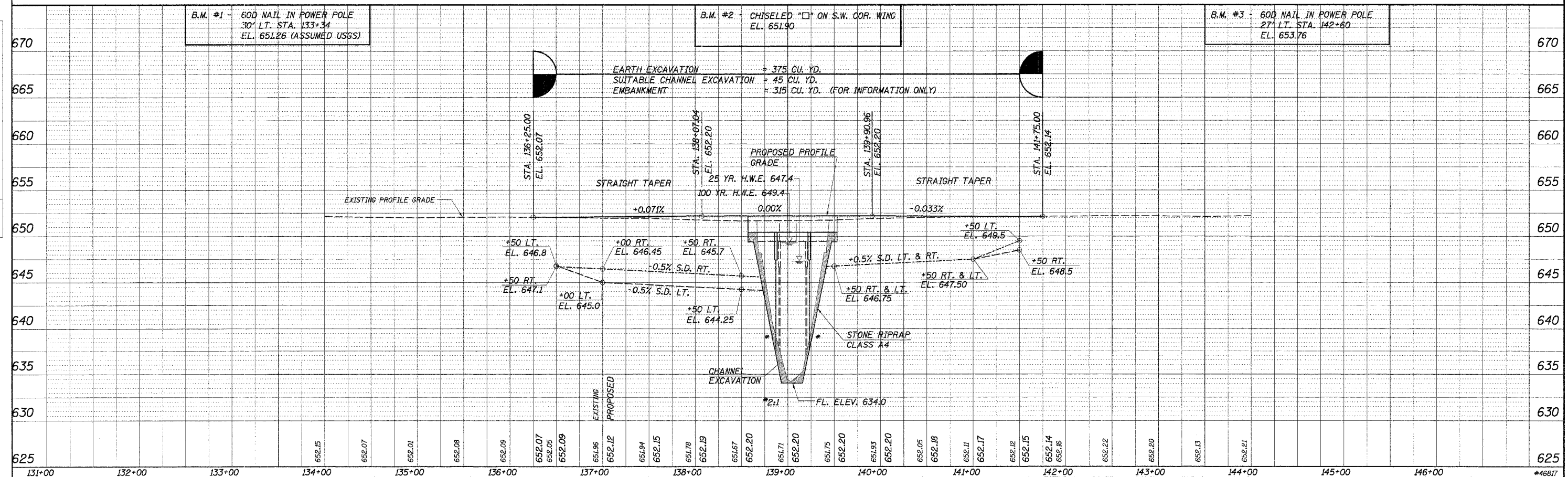
OVERHEAD POWER
EASTERN ILLINI ELECTRIC COOP.
P.O. BOX 96
PAXTON, IL 60957
BILL HOFFSHNEIDER
217-379-2131 EXT. 155

BURIED CABLE
VERIZON NORTH, INC
1312 E. EMPIRE
BLOOMINGTON, IL 61701
JONNA FRICKE
309-663-3422

KEVIN P. ELLIOT & CAROL J. ELLIOT

VIRGIL HANSEN FARMS, INC.

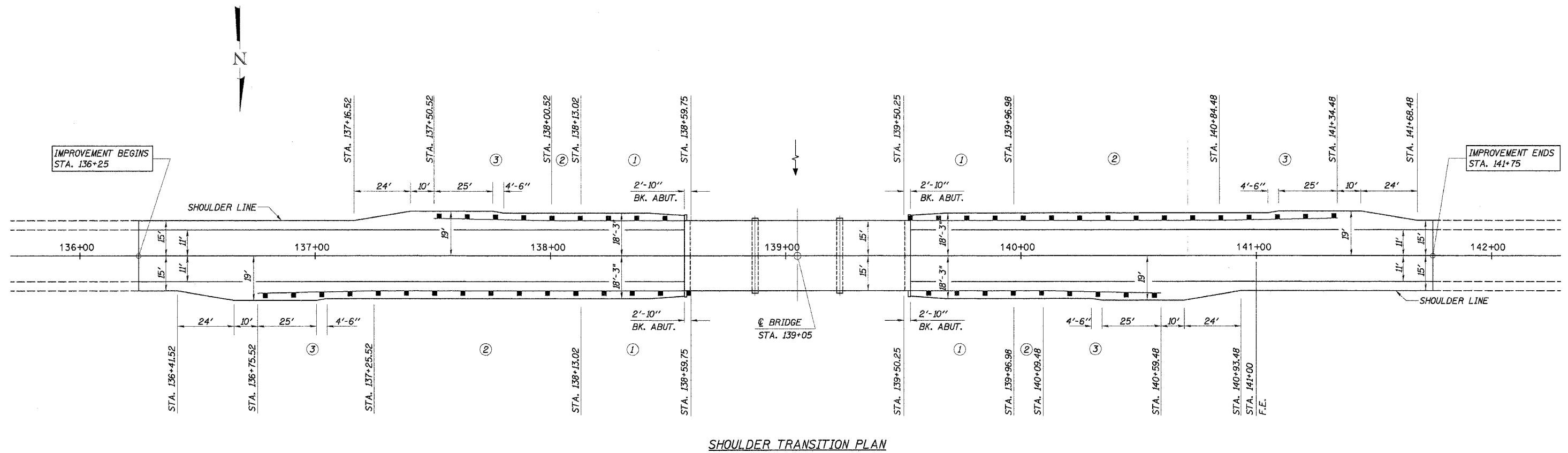
N.E. 1/4, SECTION 6, T. 28 N., R. 14 W., 2nd P.M.



DATE	BY	REVISION

DATE	BY	REVISION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IROQUOIS	16	5
F.A.S. 321	-04-BR			
ROAD DIST.	ILLINOIS	PROJ. NO. BRS-321113		
CONTRACT NO. 87299				



SHOULDER TRANSITION PLAN

GUARDRAIL REMOVAL

RT. STA. 137+64 TO STA. 138+66 = 102 FOOT
 LT. STA. 137+88 TO STA. 138+66 = 78 FOOT
 RT. STA. 139+45 TO STA. 139+85 = 40 FOOT
 LT. STA. 139+45 TO STA. 140+47 = 102 FOOT
TOTAL = 322 FOOT

TRAFFIC BARRIER TERMINAL, TYPE 6A

15' LT. & RT. STA. 138+13.02 TO STA. 138+59.75 = 2 EACH
 15' LT. & RT. STA. 139+50.25 TO STA. 139+96.98 = 2 EACH
TOTAL = 4 EACH

STEEL PLATE BEAM GUARDRAIL, TYPE A

15' RT. STA. 137+25.52 TO 15' RT. STA. 138+13.02 = 87'-6"
 15' LT. STA. 138+00.52 TO 15' LT. STA. 138+13.02 = 12'-6"
 15' RT. STA. 139+96.98 TO 15' RT. STA. 140+09.48 = 12'-6"
 15' LT. STA. 139+96.98 TO 15' LT. STA. 140+84.48 = 87'-6"
TOTAL = 200'-0"

TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)

16' RT. STA. 136+75.52 TO 15' RT. STA. 137+25.52 = 1 EACH
 16' LT. STA. 137+50.52 TO 15' LT. STA. 138+00.52 = 1 EACH
 15' RT. STA. 140+09.48 TO 16' RT. STA. 140+59.48 = 1 EACH
 15' LT. STA. 140+84.48 TO 16' LT. STA. 141+34.48 = 1 EACH
TOTAL = 4 EACH

LEGEND

- ① TRAFFIC BARRIER TERMINAL, TYPE 6A
- ② STEEL PLATE BEAM GUARDRAIL, TYPE A
- ③ TRAFFIC BARRIER TERMINAL, TYPE 1, SPECIAL (TANGENT)

DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

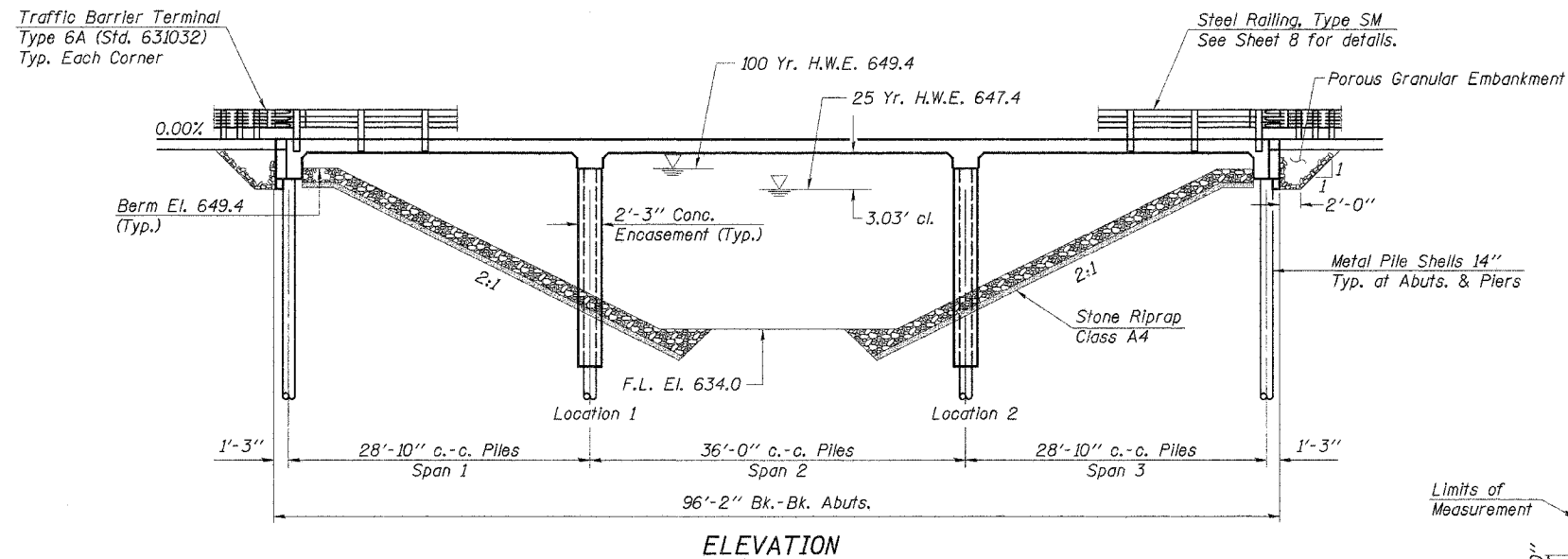
NOTE: ALL OFFSET DIMENSIONS REFER TO FRONT FACE OF PROPOSED RAILING.

SHOULDER AND GUARDRAIL DETAILS

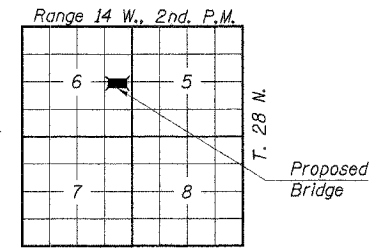
COUNTY HIGHWAY 4
 SEC. 04-00034-04-BR
 IROQUOIS COUNTY
 STATION 139+05

4440 ASH GROVE SPRINGFIELD, IL 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FREDERICK, ILL. ROCKFORD, ILL. ROCKFORD, ILL. SPRINGFIELD, ILL.	JOB NO.: 46817 FILE: 0403SHLDR.dgn DATE: 11/06/06
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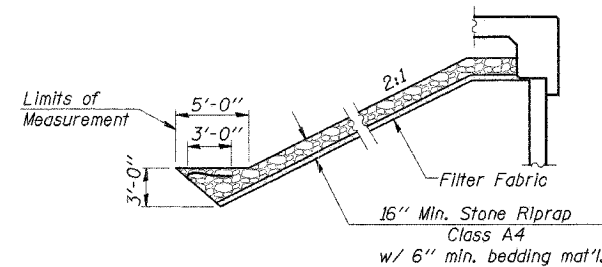
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IROQUOIS	16	6
F.A.S. 321	-04-BR			
ROAD DIST.	ILLINOIS	PROJ. NO.	BRS-321(113)	
CONTRACT NO. 87299				



ELEVATION



LOCATION PLAN



SECTION A-A

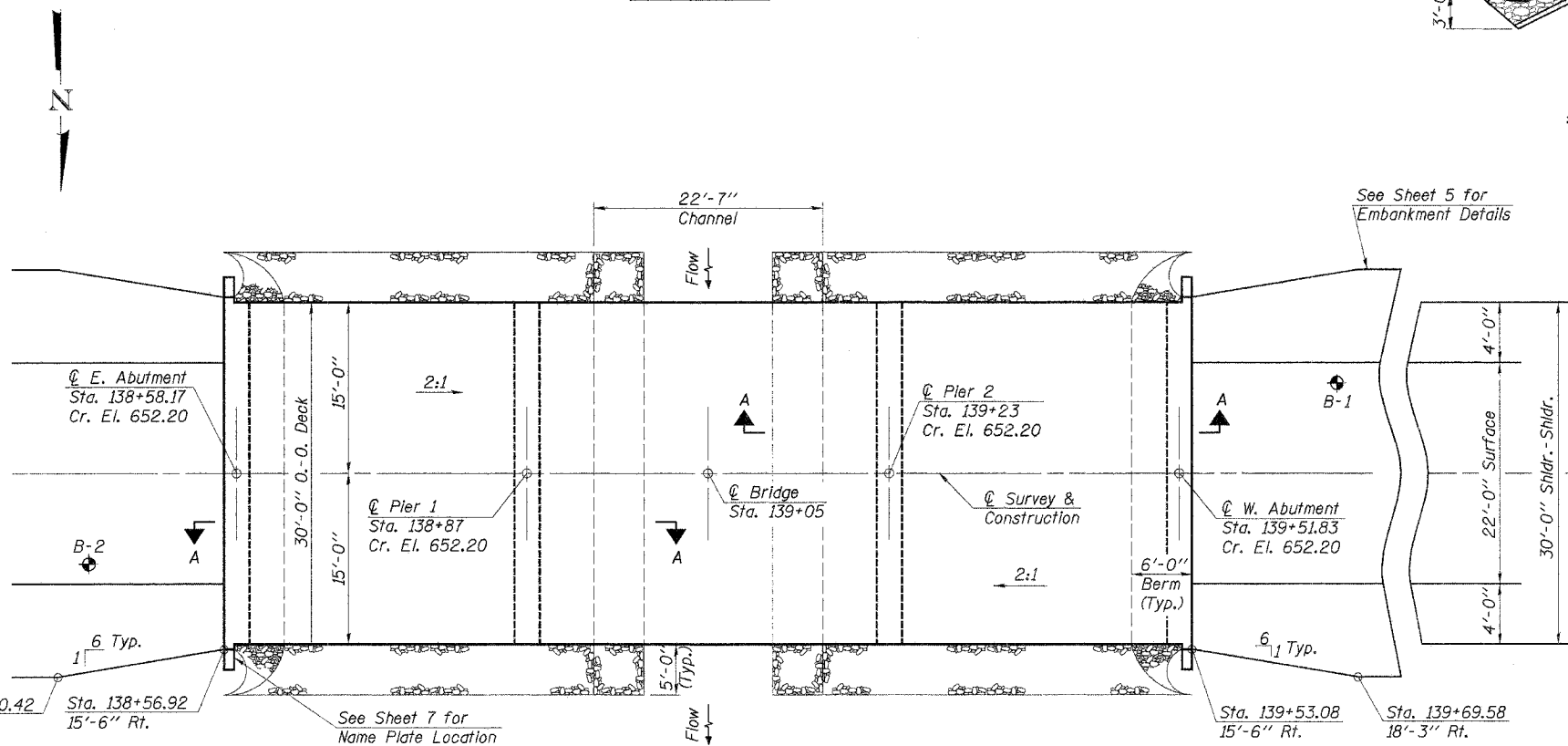
GENERAL NOTES

See sheets 10 & 11 for Boring data.

Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60 (IL Modified). See Special Provisions.

The Contractor shall drive one metal shell test pile in a permanent location at the West abutment and at Pier #1 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.



PLAN

Note: The requirements of the IDNR-Division of Water Resources have been fulfilled in accordance with Statewide Permit No. 12.

WATERWAY INFORMATION

DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

Drainage Area	41.66 Sq. Mi.
Existing Opening (25 Yr.)	529 Sq. Ft.
Required Opening (25 Yr.)	613 Sq. Ft.
Proposed Opening (25 Yr.)	613 Sq. Ft.
Design Discharge (25 Yr.)	1331 C.F.S.
Created Head (25 Yr.)	0.0 Ft.
100 Year Discharge	1668 C.F.S.
100 Yr. Created Head	0.0 Ft.

DESIGN STRESSES

$f_c = 3,500$ p.s.i. (Concrete)
 $f_y = 60,000$ p.s.i. (Reinf. Bars)
 $n = 9$ (Concrete)
 LOADING HS20-44
 Design Specifications: 2002 AASHTO & Interim 25#/Sq. Ft. Included in dead load for future wearing 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. (12-0-05)
 ILLINOIS STRUCTURAL NO. 2934 (Expires 11/30/08)

LANGAN CREEK
 BUILT 200_ BY
 IROQUOIS COUNTY
 SEC. 04-00034-04-BR
 F.A.S. RTE. 321 C.H. RTE. 4
 F.A. PROJ. BRS-321(113)
 STR. NO. 038-3607 LOADING HS20

LETTERING FOR NAME PLATE
 See Std. 515001

TOTAL BILL OF MATERIAL

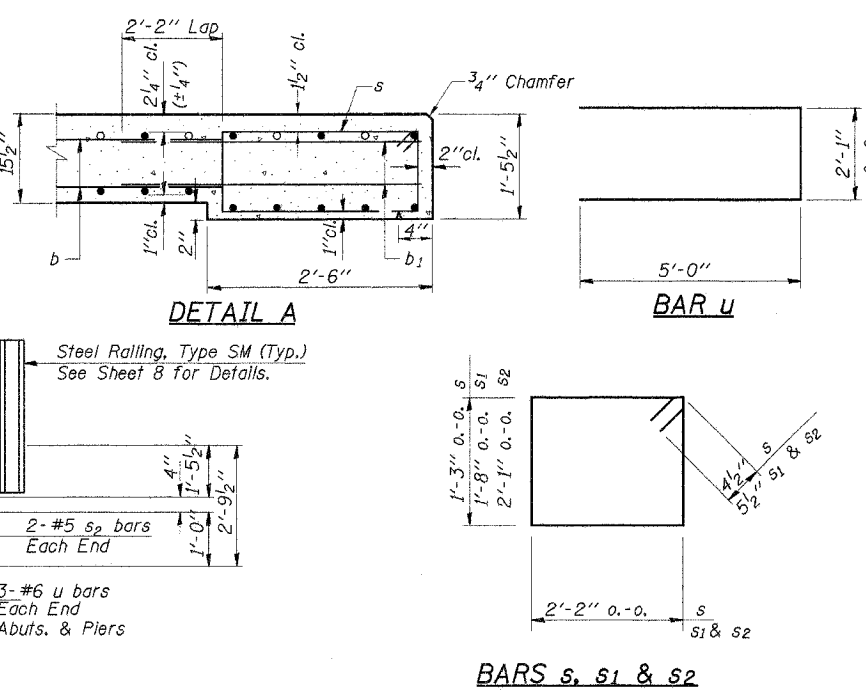
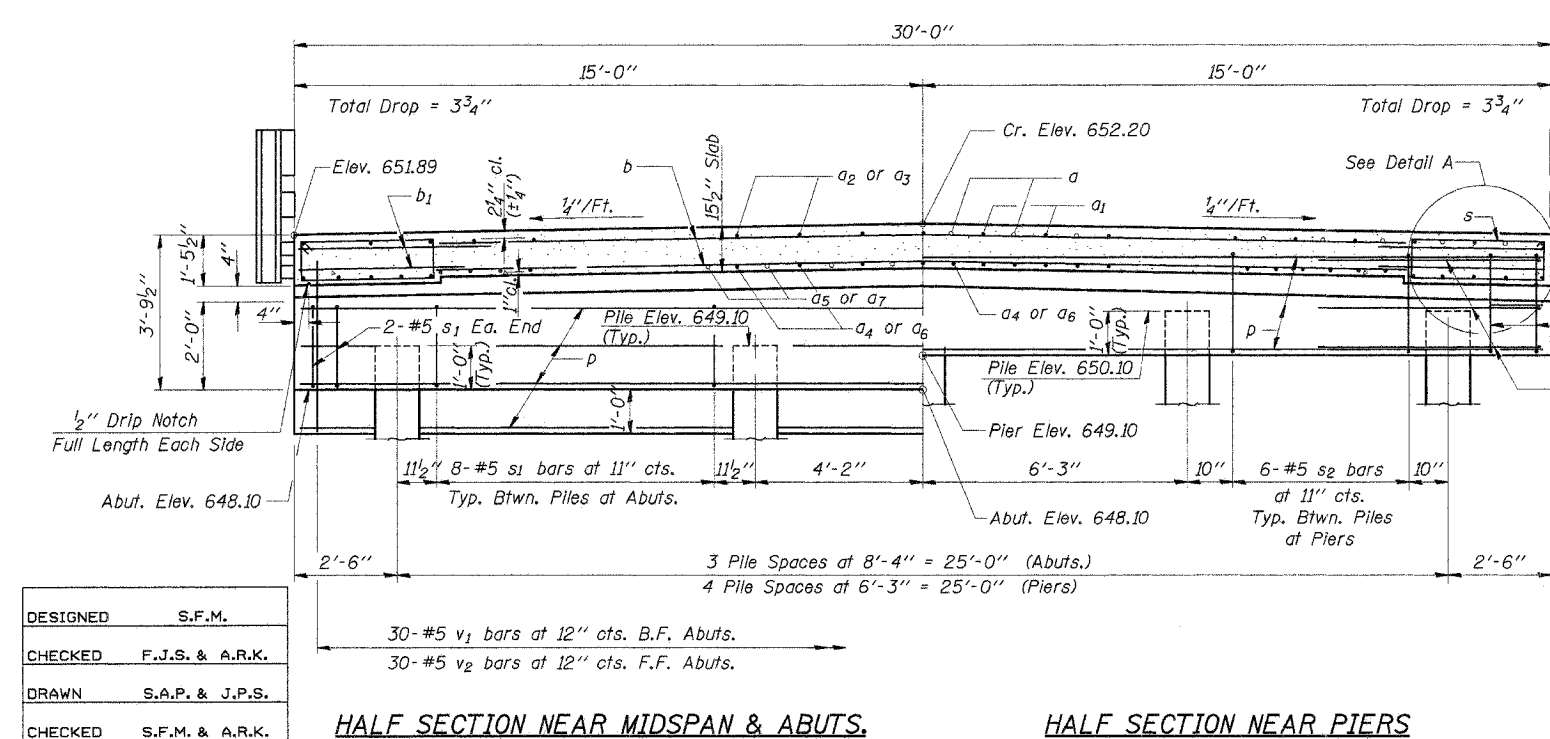
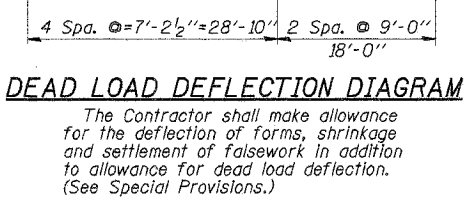
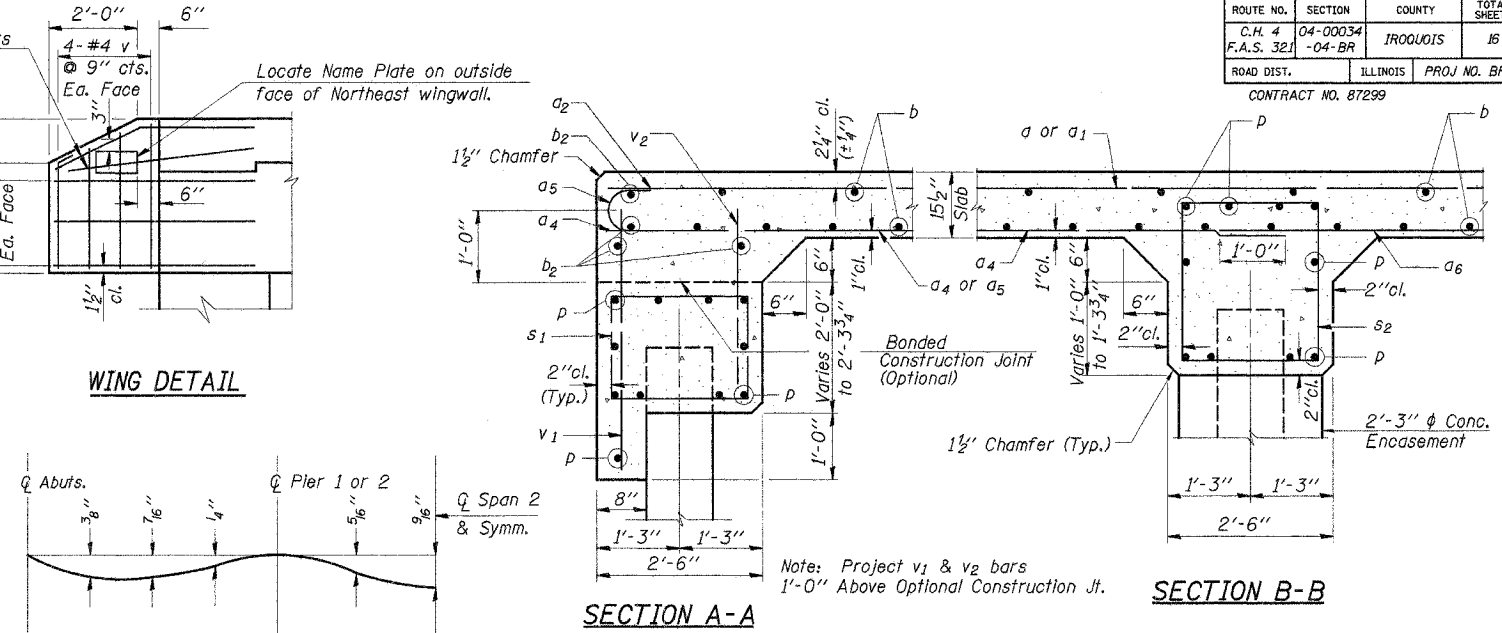
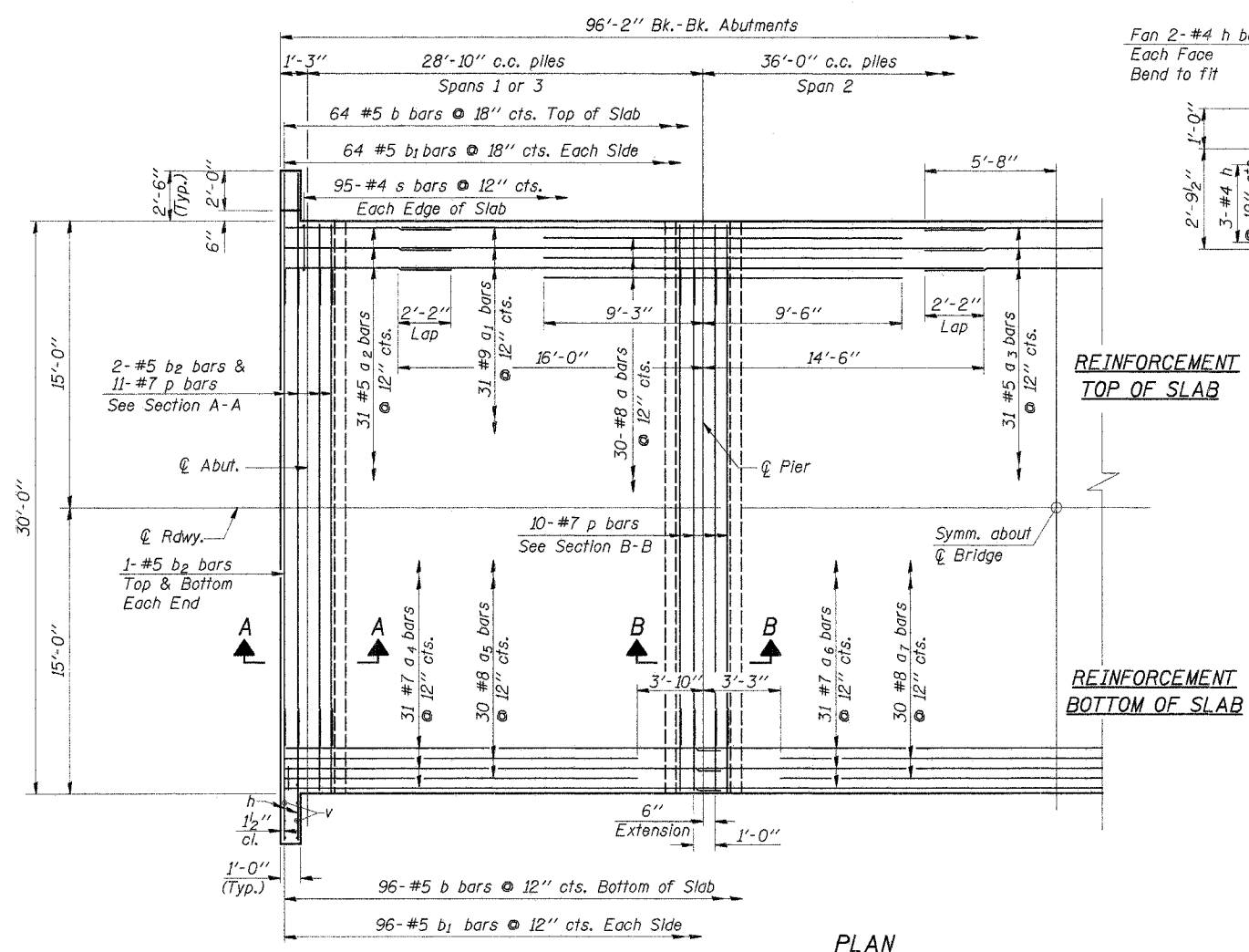
ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Superstructure	Cu. Yd.	167.4		167.4
Reinforcement Bars, Epoxy Coated	Pound	35,250		35,250
Steel Railing, Type SM	Foot	193		193
Name Plates	Each		1	1
Metal Shell Piles 14"	Foot		766	766
Test Pile Metal Shells	Each		2	2
Stone Riprap, Class A4	Ton			270
Filter Fabric	Sq. Yd.			359
Concrete Encasement	Cu. Yd.			20.5
Porous Granular Embankment	Ton		64	64
Protective Coat	Sq. Yd.	320		320
Bridge Deck Grooving	Sq. Yd.	299		299
Underwater Structure Excavation Protection - Location 1	Each		1	1
Underwater Structure Excavation Protection - Location 2	Each		1	1



GENERAL PLAN & ELEVATION

COUNTY HIGHWAY 4
 SEC. 04-00034-04-BR
 IROQUOIS COUNTY
 STATION 139+05

4440 ASH GROVE SPRINGFIELD, IL 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS FRED J. STONE, JR., REGISTERED PROFESSIONAL ENGINEER, STATE OF ILLINOIS	JOB NO.: 46817 FILE: 04030PE.DGN DATE: 12/08/06
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BILL OF MATERIAL SUPERSTRUCTURE

BAR	NO.	SIZE	LENGTH	SHAPE
a	60	#8	18'-9"	—
a1	62	#9	30'-6"	—
a2	62	#5	16'-1"	—
a3	31	#5	11'-4"	—
a4	62	#7	30'-5"	—
a5	60	#8	27'-0"	—
a6	31	#7	37'-0"	—
a7	30	#8	29'-6"	—
b	160	#5	25'-0"	—
b1	320	#5	4'-6"	—
b2	8	#5	29'-8"	—
h	40	#4	4'-4"	—
p	42	#7	29'-8"	—
s	190	#4	7'-7"	□
s1	56	#5	8'-7"	□
s2	56	#5	9'-5"	□
u	24	#6	12'-1"	—
v	32	#4	3'-6"	—
v1	60	#5	3'-10"	—
v2	60	#5	2'-10"	—
Concrete Superstructure		Cu. Yd.	167.4	
Reinforcement Bars, Epoxy Coated		Pound	35,250	
Protective Coat		Sq. Yd.	320	
Name Plates		Each	1	
Metal Shells Piles 14"		Foot	766	
Test Pile Metal Pile Shells		Each	2	

BARS s, s1 & s2

PILE DATA

Type & Size.....Metal Shell - 14 in. Dia. x 0.250 in. walls
 No. Req'd.....*8 (Abuts.), 10 (Piers)
 Nominal Required Bearing.....210 kips (Abuts.), 300 kips (Piers)
 Allowable Resistance Available.....70 kips (Abuts.), 100 kips (Piers)
 Estimated Length.....40 ft. (Abuts.), 54 ft. (Piers)

*Includes 2 Metal Shell Test Piles to be driven in permanent locations: One at the West Abutment and one at Pier 1. The test piles shall be driven to 110 percent of the Nominal Required Bearing indicated above.

SUPERSTRUCTURE
 COUNTY HIGHWAY 4
 SEC. 04-00034-04-BR
 IROQUOIS COUNTY
 STATION 139+05

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 www.fehr-graham.com

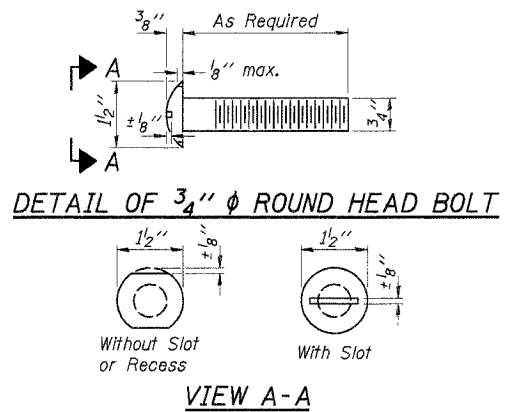
FEHR-GRAHAM & ASSOCIATES, LLC
 ENGINEERING AND SCIENCE CONSULTANTS
 FERRIS A. ROOFER, P.E., ROBERT L. ROOFER, P.E., MONICA M. ROOFER, P.E.

JOB NO.: 46817
 FILE: 0403super.dgn
 DATE: 12/08/06

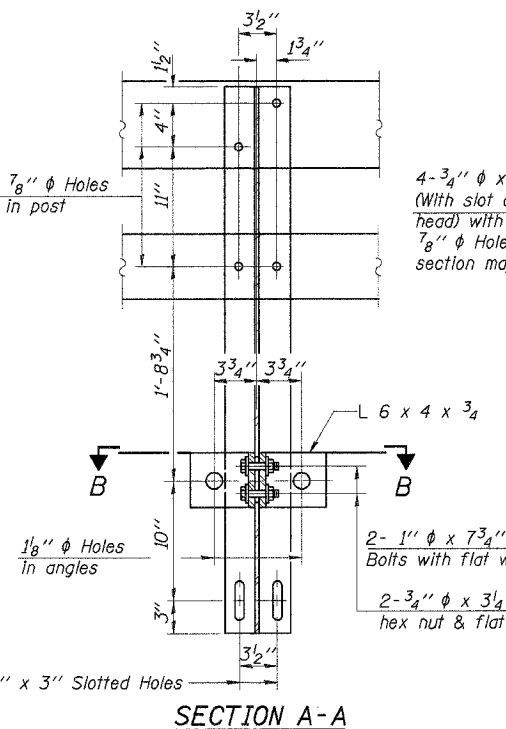
DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 4	04-00034	IROQUOIS	16	8
F.A.S. 321	-04-BR			
ROAD DIST.	ILLINOIS	PROJ. NO.	BRS-321(113)	

CONTRACT NO. 87299

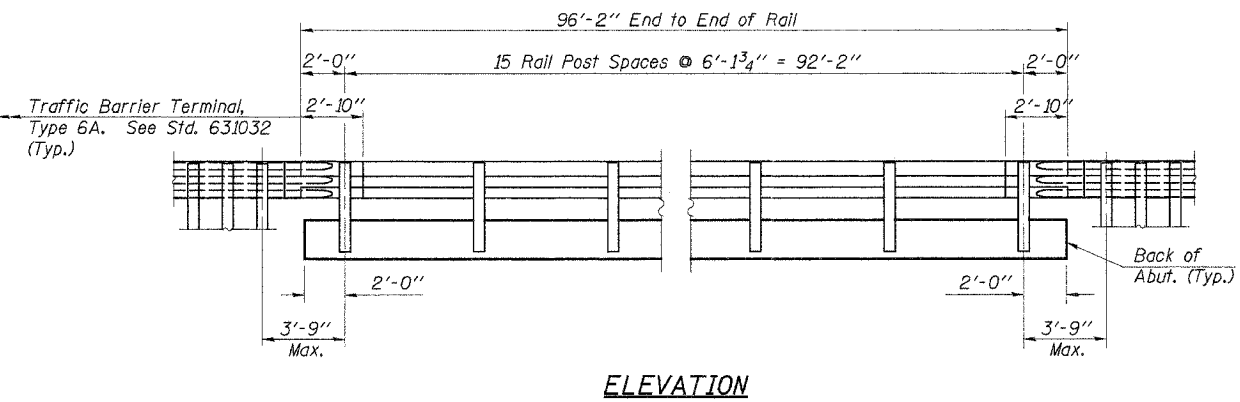


DETAIL OF 3/4" ϕ ROUND HEAD BOLT

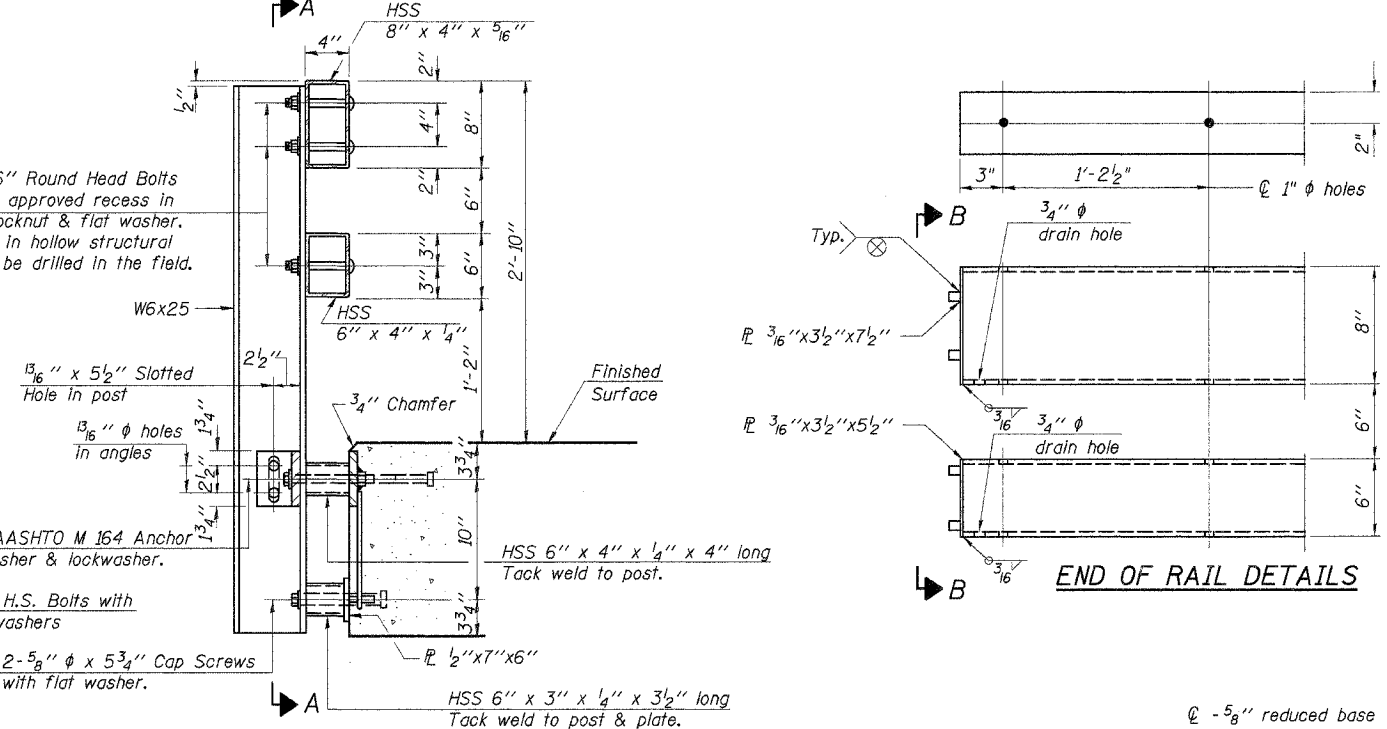


SECTION A-A

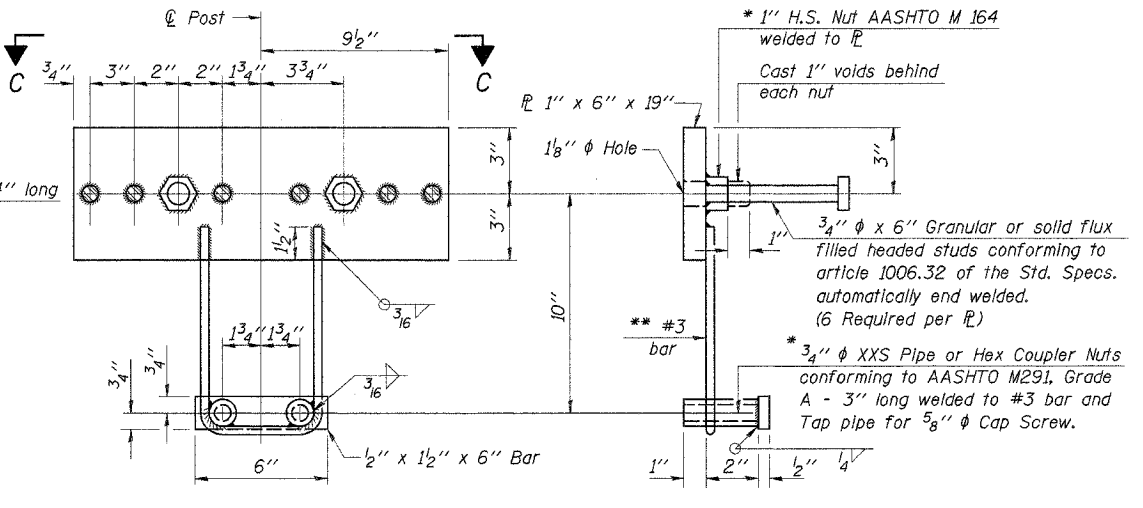
SECTION B-B



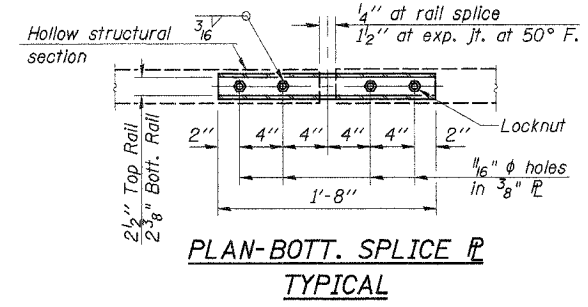
ELEVATION



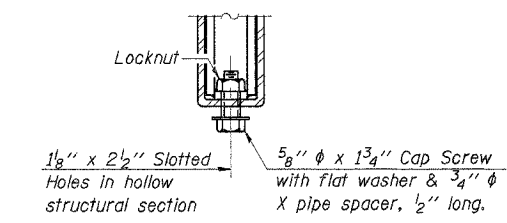
SECTION AT RAIL POST



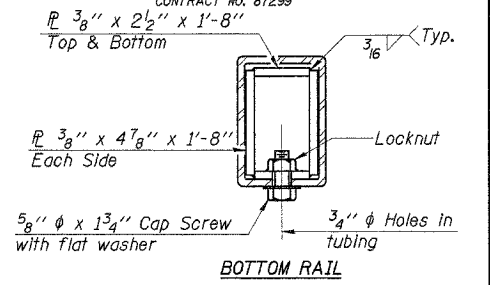
ANCHOR DEVICE



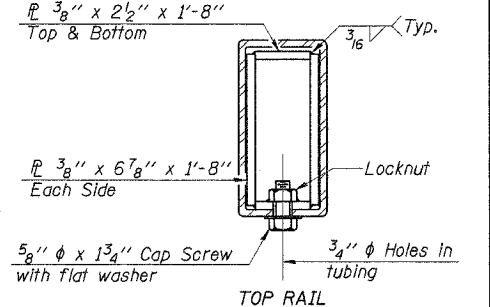
PLAN-BOTT. SPLICE R TYPICAL



RAIL SPLICE CONNECTION AT EXPANSION JT.



BOTTOM RAIL



TOP RAIL

NOTES

Hollow structural sections shall conform to the requirements of ASTM designation A 500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A 307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized rail shall not be painted.

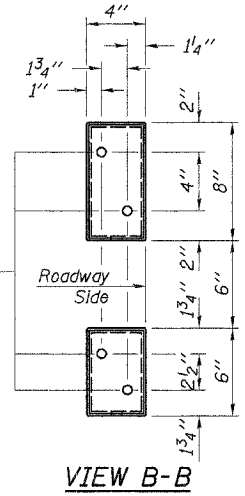
Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for Steel Bridge Rail, Type SM.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL BRIDGE RAIL, TYPE SM.

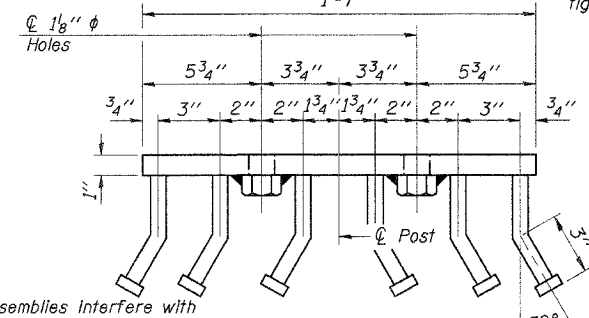
The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" ϕ high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04(f)(2) of the Standard Specifications. The 1" ϕ high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8" ϕ cap screws in bottom of posts shall be tightened to a snug fit only.



VIEW B-B

4 - 5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032



VIEW C-C

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM	Foot	193

STEEL BRIDGE RAIL, TYPE SM

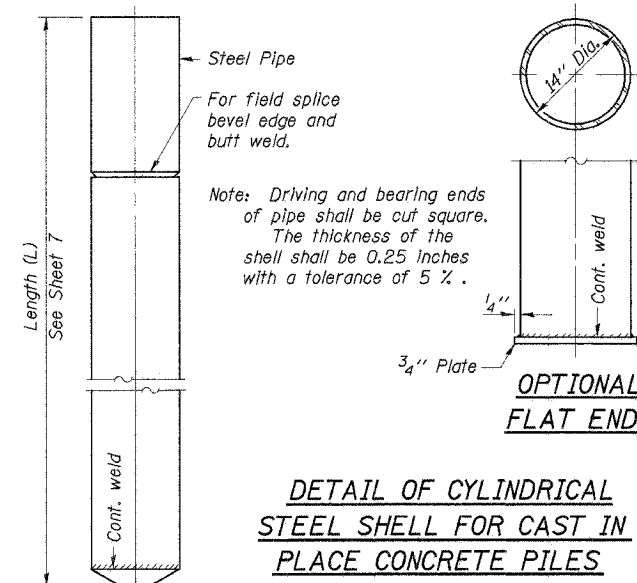
COUNTY HIGHWAY 4
SEC. 04-00034-04-BR
IROQUOIS COUNTY
STATION 139+05

DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

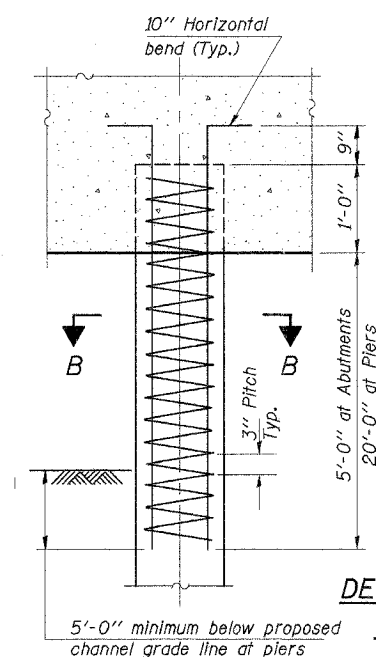
R-34 9-01-03 (6'-3" Maximum Post Spacing)

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

Note: The shell shall be in accordance with ASTM A 252 Grade 3.



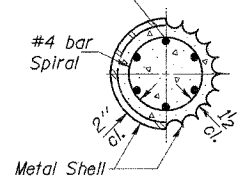
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



DETAIL OF REINFORCEMENT FOR METAL SHELLS

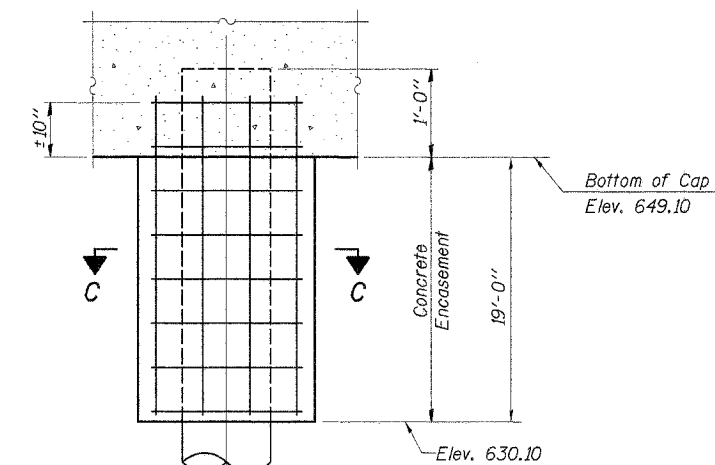
The cost of Reinforcement & Concrete is included in the cost of driving piles.

6-#5 bars 7'-7" long at Abuts.
6-#5 bars 22'-7" long at Piers

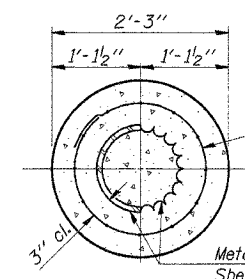


SECTION B-B

Reinforcement in top of pile shall be omitted under pier footings when placed in natural ground.



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of welded wire fabric is included in the cost of concrete encasement.



SECTION C-C

DETAIL OF METAL SHELL PILE ENCASEMENT AT PIERS

BILL OF MATERIAL

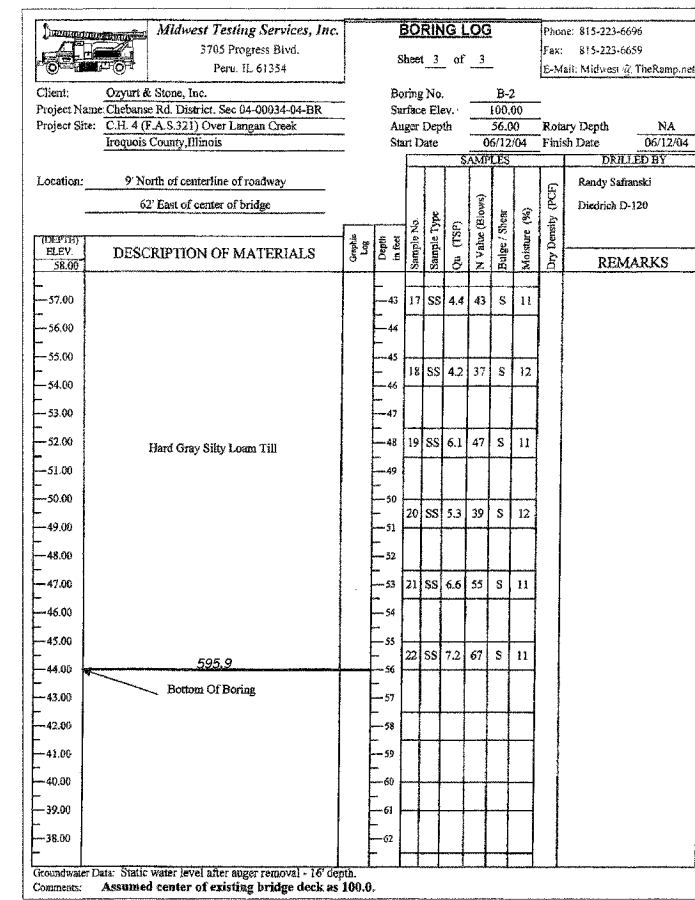
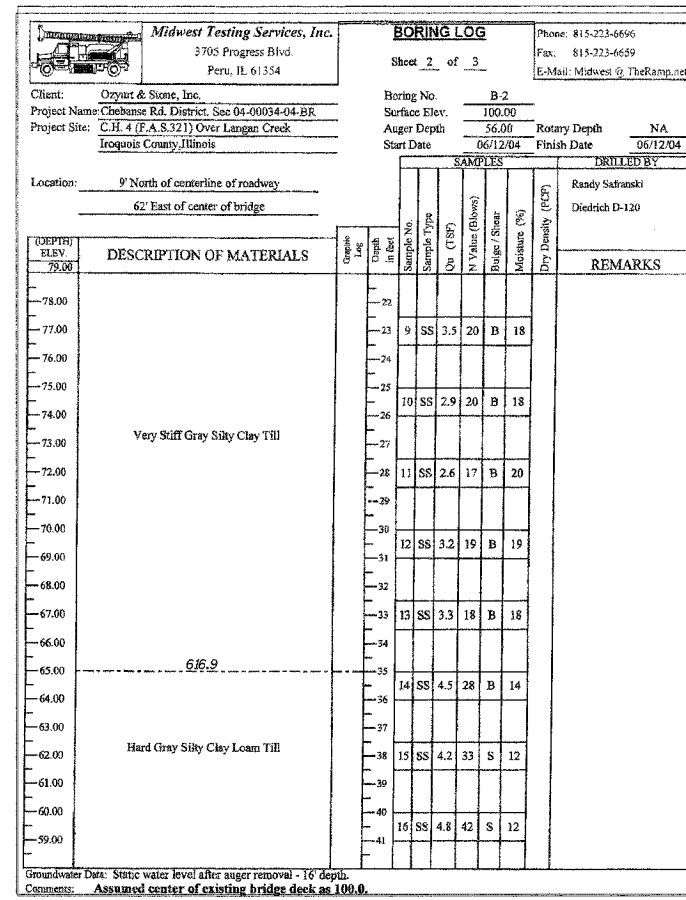
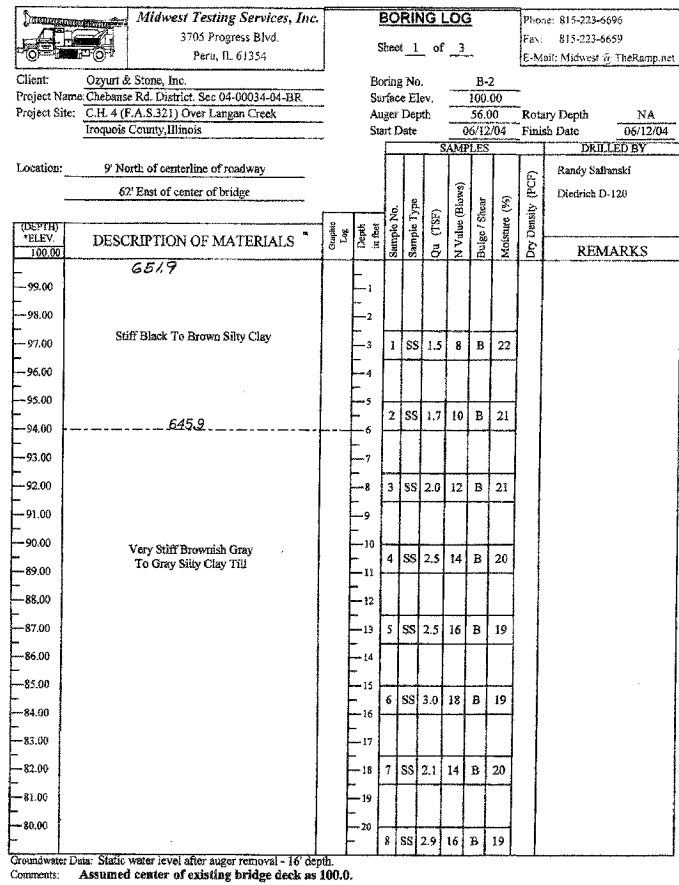
Item	Unit	Quantity
Concrete Encasement	Cu. Yd.	20.5

DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

PILE DETAILS

COUNTY HIGHWAY 4
SEC. 04-00034-04-BR
IROQUOIS COUNTY
STATION 139+05

4440 ASH GROVE SPRINGFIELD, IL 62711 (217) 793-8600 www.fehr-graham.com	FEHR-GRAHAM & ASSOCIATES, LLC ENGINEERING AND SCIENCE CONSULTANTS <small>PROFESSIONAL ENGINEERS, PROFESSIONAL SURVEYORS</small>	JOB NO.: 46817 FILE: 0403PILE.DGN DATE: 12/08/06
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DESIGNED	S.F.M.
CHECKED	F.J.S. & A.R.K.
DRAWN	S.A.P. & J.P.S.
CHECKED	S.F.M. & A.R.K.

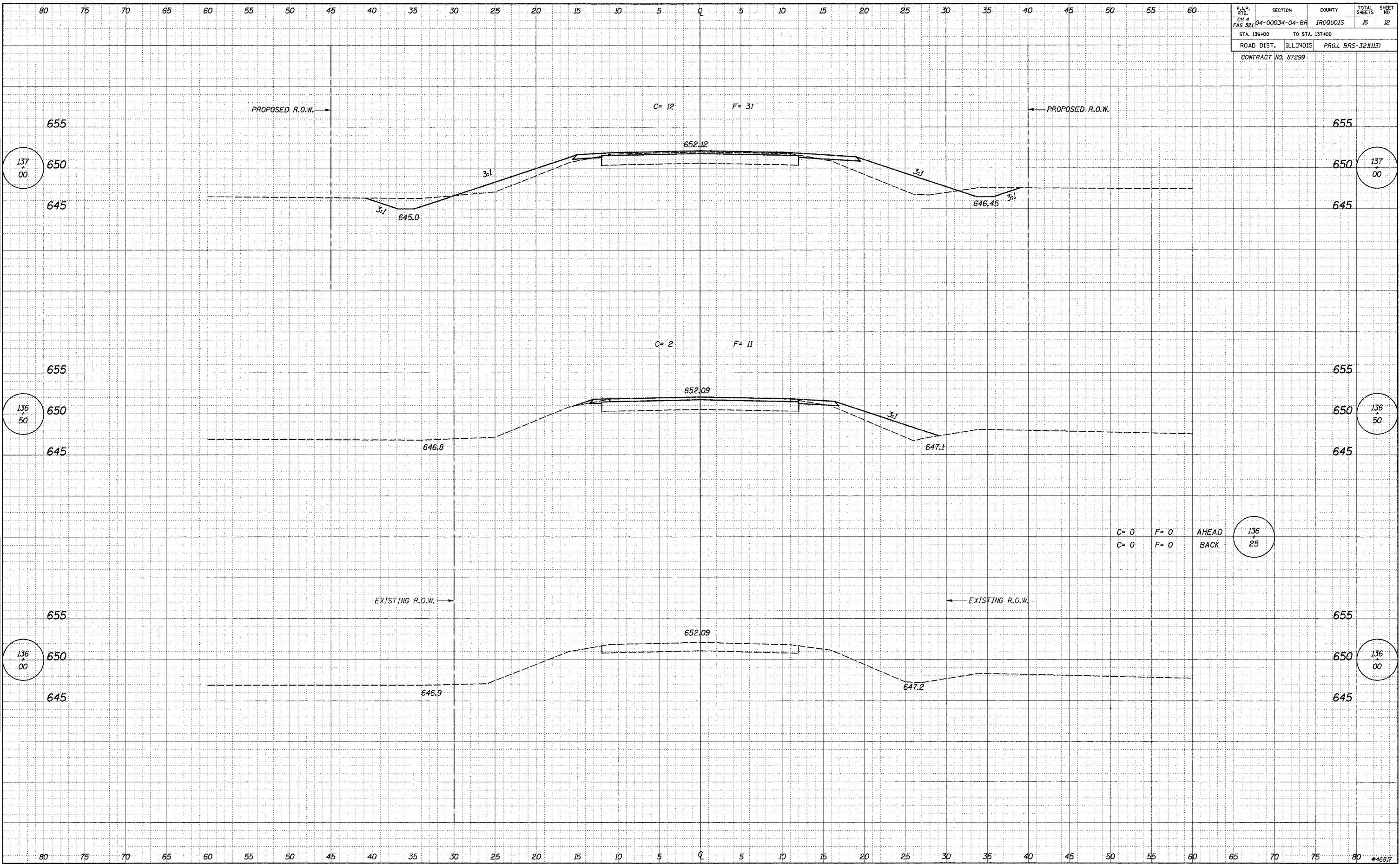
SOIL BORING NO. 2
COUNTY HIGHWAY 4
SEC. 04-00034-04-BR
IROQUOIS COUNTY
STATION 139+05

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

FEHR-GRAHAM & ASSOCIATES, LLC
ENGINEERING AND SCIENCE CONSULTANTS
REPORTS, RECORDS, E. ROSSVILLE, IL. SPRINGFIELD, IL.

JOB NO.: 46817
FILE: 0403boring2.dgn
DATE: 11/06/06

F.A.P. RITE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STA. 136+00	04-00034-04-BR	IROQUOIS	25	12
ROAD DIST. ILLINOIS		PROJ. BRS-32(113)		
CONTRACT NO. 87299				



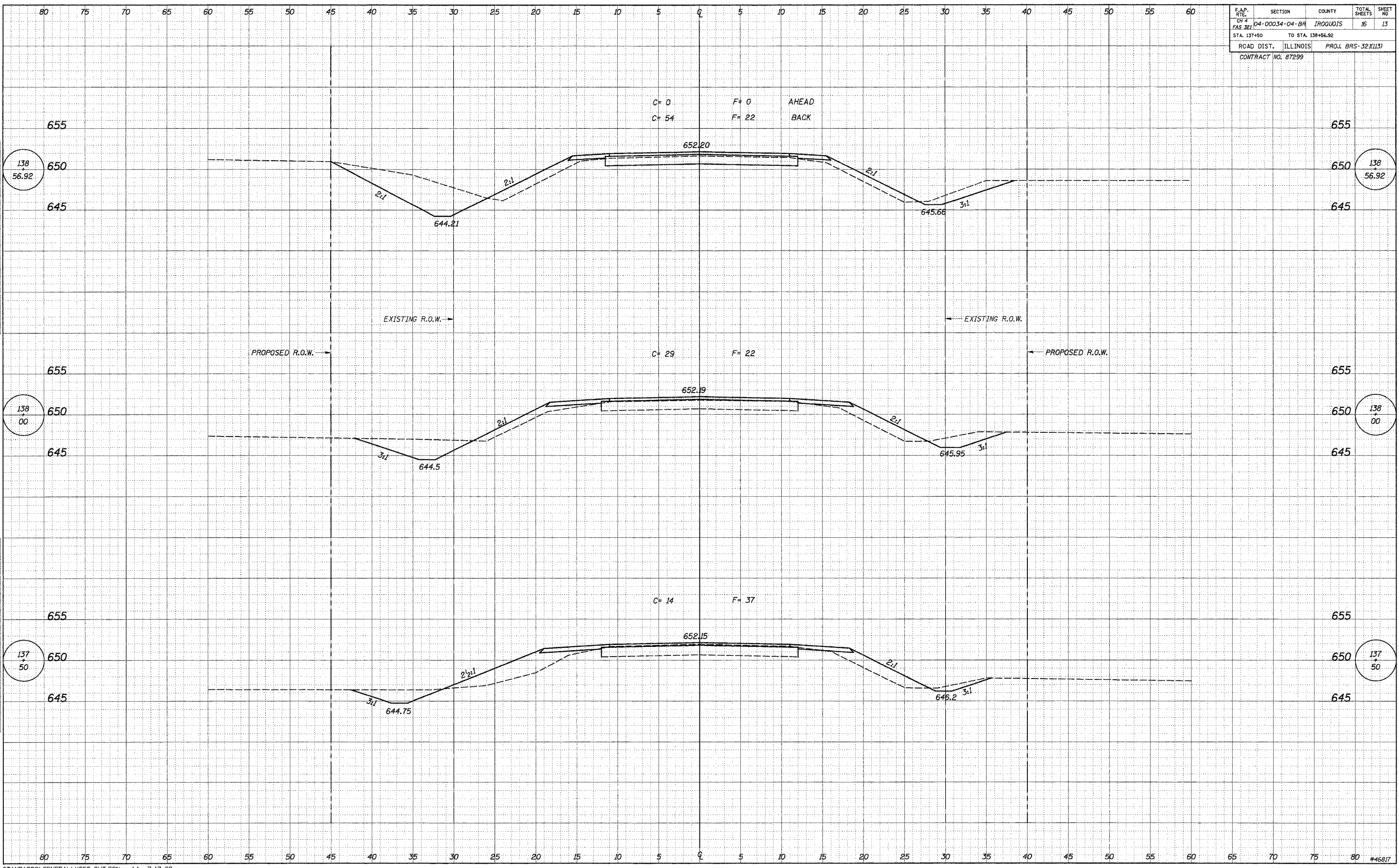
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 SURVEYED BY DATE
 NOTE BOOK NO.
 TEMPLATE AREAS CHECKED

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 NOTE BOOK NO.
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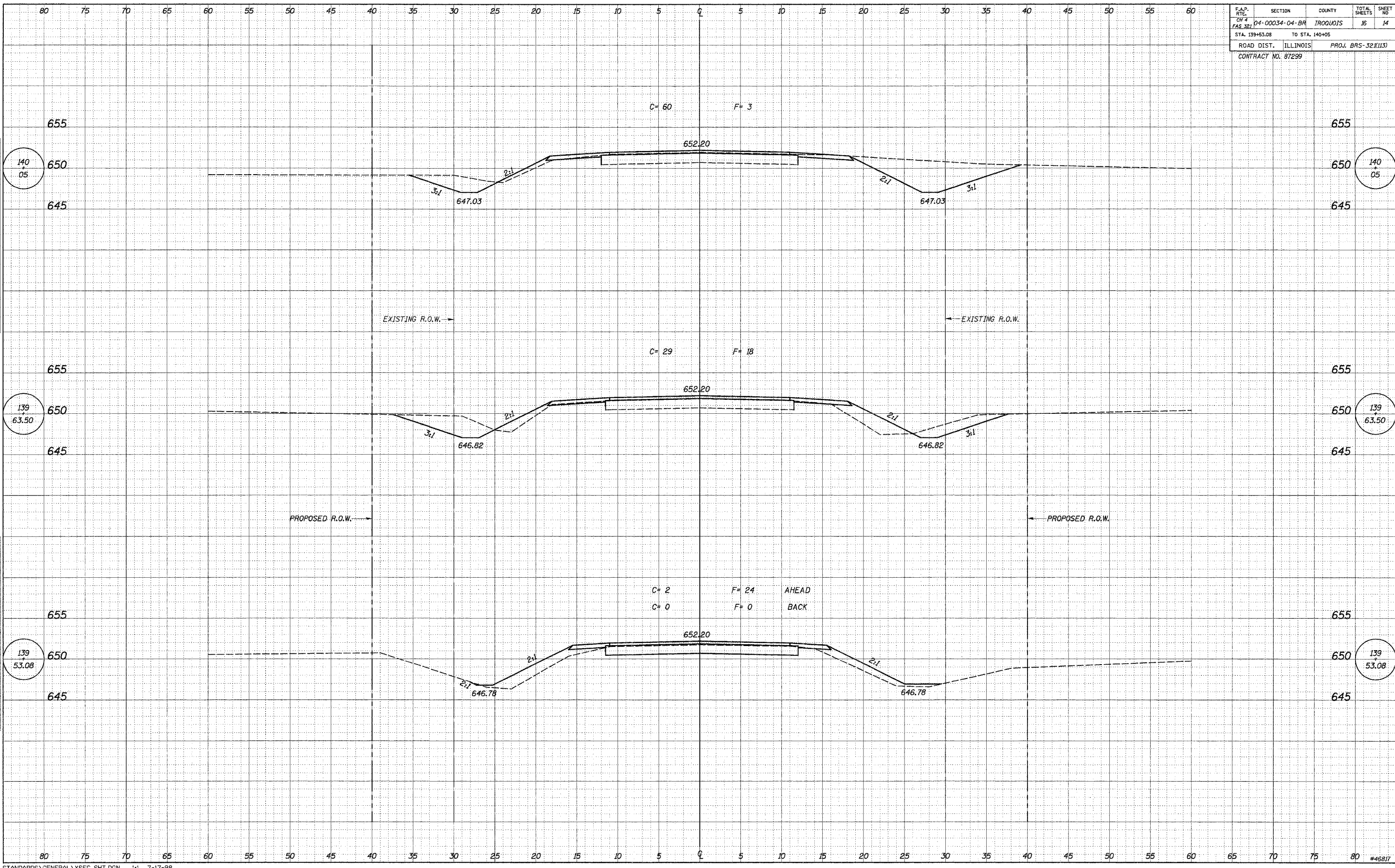
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 4 EAS 321	04-00034-04-BR	IROQUOIS	16	13
STA. 137+50		TO STA. 138+56.92		
ROAD DIST. ILLINOIS		PROJ. BRS-321(13)		
CONTRACT NO. 87299				

DATE	BY
REVIEWED	DATE
BY	
NO.	

DATE	BY
REVIEWED	DATE
BY	
NO.	



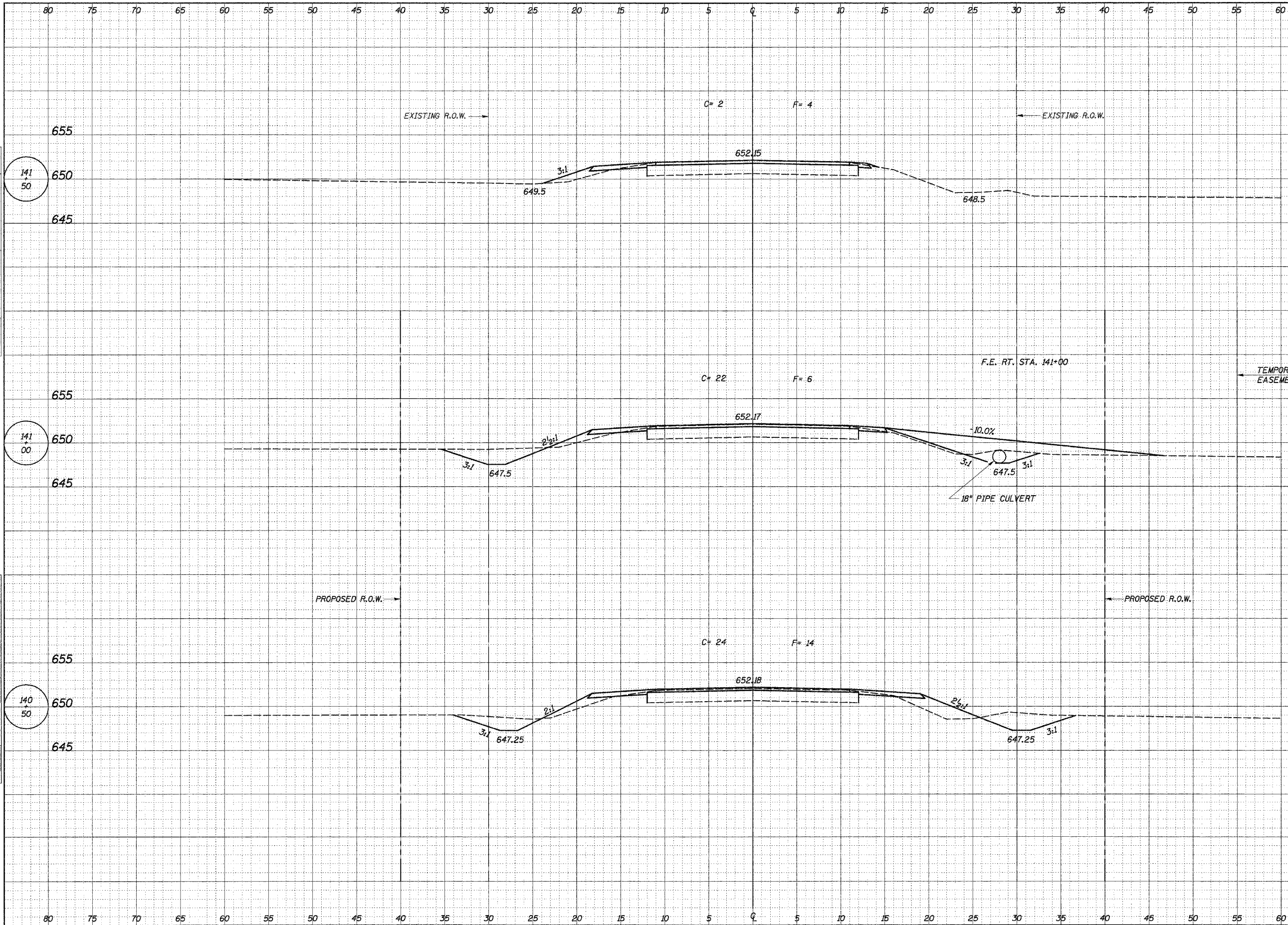
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STA. 139+53.08		TO STA. 140+05		
ROAD DIST. ILLINOIS	PROJ. BRS-32(113)			
CONTRACT NO. 87299				



BY _____ DATE _____
 SURVEYED _____
 CHECKED _____
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 TEMPLATE _____
 AREAS CHECKED _____
 NO. _____

BY _____ DATE _____
 SURVEYED _____
 CHECKED _____
 NOTE BOOK _____
 TEMPLATE _____
 AREAS CHECKED _____
 NO. _____

F.A.P. RT# 4	SECTION D4-00034-04-BR	COUNTY IROQUOIS	TOTAL SHEETS 16	SHEET NO 15
STA. 140+50		TO STA. 141+50		
ROAD DIST. ILLINOIS	PROJ. BRS-321113			
CONTRACT NO. 87299				



DATE	BY
DATE	BY
DATE	BY

DATE	BY
DATE	BY
DATE	BY

80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STA. 142+00	04-00034-04-BR	IRROQUOTS	16	16
ROAD DIST.		ILLINOIS	PROJ. BR-32(113)	
CONTRACT NO. 87299				

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

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

