BRIDGE AND APPROACHES - PPCB

LETTING DATE: OCTOBER 16, 2007

PROJECT NO. BROS-C024(81)--8J-24

CRAWFORD COUNTY

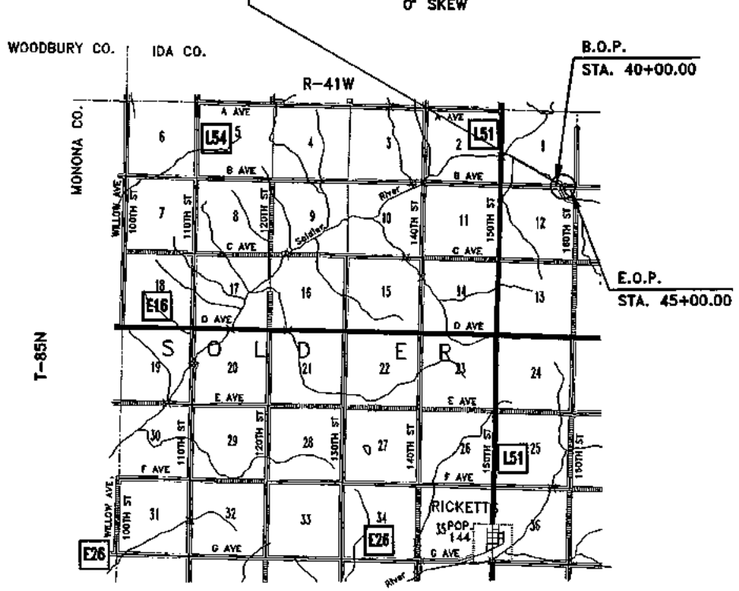
STANDARD ROAD PLANS					
THE FOLLOWING STANDARD ROAD PLANS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT.					
IDENT.	DATE	IDENT.	DATE	IDENT.	DATE
RC-17	10-16-07	RE-68A	10-19-04		
		RE-76	10-16-07		
RE-2B	04-03-01				
RE-7	04-15-03	RL-1A	10-03-00		
RE-12A	10-19-04	RL-1B	10-17-06		
RE-12B	10-19-04	RL-14A	10-17-06		
RE-47	04-17-07	RL-16	10-16-07		
RE-48A	10-19-04				
RE-64B	04-19-05	TC-252	10-17-06		
RE-68	10-19-04				

PROJECT TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

THIS PROJECT (COE #2007-637) IS COVERED BY U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT #13 AND 14.

B.O.P. STA.40+00.00
E.O.P. STA.45+00.00
STATION 42+60.00
PROPOSED 151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
0° SKEW



PROJECT LOCATION

1 MI. 0 1 MI. 2 MI.

N

68/K64

IOWA DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

SECONDARY ROAD SYSTEM

CRAWFORD COUNTY

PROJECT NO. BROS-C024(81)--8J-24

BRIDGE AND APPROACHES - PPCB

ON B AVENUE OVER BEAVER CREEK

APPROXIMATELY 6 MILES WEST AND 2 MILES NORTH OF SCHLESWIG

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS GENERAL SUPPLEMENTAL SPECIFICATIONS; AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO THE CONSTRUCTION ON THIS PROJECT.

THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DIVISION I - BRIDGE
DIVISION II - GRADING

MILEAGE SUMMARY			
DIV.	LOCATION	LIN.FT.	MILES
	STA. 40+00.00 TO STA. 45+00.00	500.00	0.0947
I	BRIDGE AT STA. 42+60.00	154.33	0.0292
II	TOTAL NET LENGTH OF PROJECT (GRADING)	345.67	0.0655

2004, TRAFFIC COUNT = 35 V.P.D.

DRAWING APPROVAL

ALL SHOP DRAWINGS AND FALSEWORK DRAWINGS THAT REQUIRE APPROVAL SHALL BE SUBMITTED TO AND APPROVED BY THE CONTRACTOR, WHO SHALL THEN SUBMIT THEM TO CALHOUN-BURNS AND ASSOCIATES, INC., FOR REVIEW AND APPROVAL.

ADDRESS : 1801 FULLER ROAD, P.O. BOX 65859
WEST DES MOINES, IOWA 50265
TELEPHONE : (515) 224-4344

THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGES AND STRUCTURES.

PROJECT NO. BROS-C024(81)--8J-24
FHWA NO. 130890

INDEX OF SHEETS

1. TITLE SHEET
2. QUANTITY SUMMARY

DIVISION I

3. SITUATION PLAN
4. GENERAL PLAN
5. GENERAL NOTES
6. SOUNDING DATA
7. SUPERSTRUCTURE DETAILS
8. WEST ABUTMENT AND SUPERSTRUCTURE DETAILS

DIVISION II

9. POLLUTION PREVENTION PLAN, GRADING NOTES, AND TYPICAL SECTIONS
10. TABULATIONS
11. PLAN AND PROFILE
12.-13. CROSS SECTIONS

IOWA DEPARTMENT OF TRANSPORTATION STANDARDS REQUIRED		
STANDARD	DATE ISSUED	LATEST REVISION
H24-01-06	DECEMBER, 2006	03-07
H24-02-06	DECEMBER, 2006	
H24-03-06	DECEMBER, 2006	
H24-04-06	DECEMBER, 2006	
H24-05-06	DECEMBER, 2006	
H24-07-06	DECEMBER, 2006	
H24-09-06	DECEMBER, 2006	
H24-10-06	DECEMBER, 2006	
H24-32-06	DECEMBER, 2006	
H24-33-06	DECEMBER, 2006	
H24-38-06	DECEMBER, 2006	
H24-39-06	DECEMBER, 2006	
H24-40-06	DECEMBER, 2006	
H24-41-06	DECEMBER, 2006	
H24-42-06	DECEMBER, 2006	
H24-67-06	DECEMBER, 2006	
P10A	AUGUST, 1988	9-06

THESE SHEETS MAY BE OBTAINED AT THE OFFICE OF BRIDGE DESIGN SERVICES.

LICENSED PROFESSIONAL ENGINEER
LAWRENCE J. SPELLERBERG
13029
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Lawrence J. Spellberg DATE: 6/22/07
LAWRENCE J. SPELLERBERG

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2007.

PAGES OR SHEETS COVERED BY THIS SEAL:
SHEETS 1-13

APPROVED
CRAWFORD COUNTY ENGINEER DATE 7/3/07

BOARD OF SUPERVISORS DATE 7/3/07

TOTAL ESTIMATED QUANTITIES : DIVISION I
151'–4 x 24'–6 P.P.C.B. BRIDGE

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS.	2 PIERS	SUPER.	TOTAL
1	2104–2710020	EXCAVATION, CLASS 10, CHANNEL	C.Y.	–	–	–	2,418
2	2401–6745625	REMOVAL OF EXISTING BRIDGE	L.S.	–	–	–	1
3	2401–7207020	REMOVAL OF CONCRETE	C.Y.	–	–	–	45
4	2402–2720000	EXCAVATION, CLASS 20	C.Y.	–	–	–	73
5	2403–0100010	STRUCTURAL CONCRETE (BRIDGE)	C.Y.	21.6	17.6	150.2	189.4
6	2404–7775000	REINFORCING STEEL	LBS.	3,540	2,760	41,315	47,615
7	2407–0551146	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, A46	EACH	–	–	–	8
8	2407–0551155	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, A55	EACH	–	–	–	4
9	2408–7800000	STRUCTURAL STEEL	LBS.	–	–	–	2,451
10	2414–6424120	CONCRETE OPEN RAILING	LIN.FT.	–	–	–	336.7
11	2501–0201057	PILES, STEEL, HP 10 X 57; 10 @ 65'	LIN.FT.	650	–	–	650
12	2501–0201253	PILES, STEEL, HP 12 X 53; 14 @ 75'	LIN.FT.	–	1050	–	1,050
13	2501–5475053	CONCRETE ENCASEMENT OF STEEL H PILES, HP 12 X 53 (P10A TYPE 3)	LIN.FT.	–	322	–	322
14	2501–6335010	PREBORED HOLES; 10 @ 10'	LIN.FT.	100	–	–	100
15	2507–3250005	ENGINEERING FABRIC	S.Y.	–	–	–	1,790
16	2507–4011100	CONCRETE GROUT FOR REVETMENT OR GABION	C.Y.	–	–	–	43
17	2507–6800061	REVETMENT, CLASS E	TON	–	–	–	1,220
18	2533–4980005	MOBILIZATION	L.S.	–	–	–	1
19	2547–0000100	TEMPORARY STREAM ACCESS	L.S.	–	–	–	1

REF. NO. ESTIMATE REFERENCE INFORMATION

1. INCLUDES COSTS TO CLEAR THE CHANNEL TO THE SHAPE, DEPTH, AND EXTENT SHOWN IN THE "LONGITUDINAL SECTION ALONG CENTERLINE OF ROADWAY" AND THE LIMITS SHOWN ON THE SITUATION PLAN.
   INCLUDES COST OF USING APPROXIMATELY 651 C.Y. OF SUITABLE MATERIAL FOR CONSTRUCTION OF APPROACH ROADWAY AND GUARDRAIL BERMS IN ACCORDANCE WITH I.D.O.T. ROAD STANDARD RL-1A OR RL-1B. SUITABLE SOILS SHALL BE AS DEFINED BY ARTICLE 2102.09 PARAGRAPH A2 OF THE STANDARD SPECIFICATIONS. UNSUITABLE OR EXCESS MATERIAL SHALL BE WASTED ON SITE.

2. THE EXISTING BRIDGE IS A STEEL PONY TRUSS WITH TIMBER PILE ABUTMENTS, TIMBER TRESTLE PIERS, AND TIMBER STRINGER APPROACHES. THE STRUCTURE HAS A TIMBER DECK. CRAWFORD COUNTY WILL REMOVE AND SALVAGE TIMBER DECK ON BRIDGE APPROACH SPAN PRIOR TO CONSTRUCTION.
   AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS COMPLETED AND NO SUSPECT MATERIALS WERE FOUND. A COMPLETE REPORT OF MATERIALS TESTED CAN BE OBTAINED FROM THE COUNTY ENGINEER'S OFFICE. IF MATERIALS SUSPECTED OF CONTAINING ASBESTOS ARE DISCOVERED DURING DEMOLITION OF THE BRIDGE, WORK SHALL BE STOPPED IMMEDIATELY AND THE ENGINEER NOTIFIED.
   THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL AND DISPOSAL OF THE EXISTING STRUCTURE. THE APPROACH SPAN TIMBER DECK SHALL REMAIN THE PROPERTY OF THE COUNTY AND WILL BE REMOVED BY CRAWFORD COUNTY PRIOR TO CONSTRUCTION. ALL REMAINING SALVAGEABLE MATERIAL AND UNSALVAGEABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR. THE EXISTING STRUCTURE SHALL BE REMOVED TO AN ELEVATION AT LEAST 1'± BELOW FINISHED GROUNDLINE AND TO THE EXTENT THAT IT WILL NOT INTERFERE WITH THE NEW CONSTRUCTION.
   BROKEN CONCRETE FROM THE DECK AND BACKWALLS WITH SIMILAR GRADATION TO CLASS 'E' REVETMENT MAY BE PLACED ON THE BANKS OUTSIDE THE LIMITS SHOWN FOR CLASS 'E' REVETMENT, AS DIRECTED BY THE ENGINEER. ALL REINFORCING SHALL BE CUT OFF FLUSH WITH THE CONCRETE. H.M.A. MATERIAL IS SPECIFICALLY EXCLUDED. ALTERNATELY, THE CONTRATOR MAY DISPOSE OF THE BROKEN CONCRETE OFF SITE AT A LOCATION PROVIDED BY THE CONTRACTOR AND NOTED TO THE ENGINEER.
   SEE HAZARDOUS MATERIALS NOTES, SHEET 5, FOR PAINT SCRAPE SAMPLE RESULTS.

3. BROKEN CONCRETE SHALL BE REMOVED AS REQUIRED TO ALLOW FOR NEW CONSTRUCTION.
   SEE SHEETS 3 AND 4 FOR LOCATIONS. THE UNIT PRICE BID FOR REMOVAL SHALL INCLUDE REMOVAL AND DISPOSAL OF THE BROKEN CONCRETE. ALL SALVAGABLE AND NONSALVAGABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

4. INCLUDES COSTS OF USING SUITABLE CLASS 20 EXCAVATION TO CONSTRUCT GUARDRAIL BERMS AND APPROACH FILLS IN ACCORDANCE WITH I.D.O.T. ROAD STANDARD RL-1A OR RL-1B. UNSUITABLE OR EXCESS MATERIAL SHALL BE WASTED ON SITE. QUANTITY IS BASED ON THE ASSUMPTION THAT CHANNEL EXCAVATION AND NECESSARY BERM CONSTRUCTION HAVE BEEN COMPLETED.

5. ALL STRUCTURAL CONCRETE FOR THE BRIDGE DECK IS TO BE CLASS "C"; SUBSTITUTION OF CLASS "D" CONCRETE IS NOT ALLOWED.
   INCLUDES THE COST OF FURNISHING AND APPLYING THE BRIDGE SEAT SEALER TO BRIDGE SEAT SURFACES. SEE CONCRETE AND REINFORCING STEEL NOTES, SHEET 5, FOR ADDITIONAL INFORMATION.
   THE STRUCTURAL CONCRETE QUANTITY HAS BEEN INCREASED BY 1.2 CU. YDS. TO ACCOUNT FOR THE ADDITION OF PAVING BLOCKS.
   INCLUDES COST OF TAR PAPER AND PREFORMED JOINT MATERIAL.
   INCLUDES COST OF MACADAM STONE WING ARMORING. SEE STANDARD SHEET H24-67-06.
   NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
   CERTIFIED PLANT INSPECTION IS REQUIRED.
   ARTICLE 2317 REGARDING BRIDGE DECK SMOOTHNESS DOES NOT APPLY TO THIS PROJECT.

6. ALL REINFORCING SHALL BE GRADE 60.
   THE REINFORCEMENT STEEL QUANTITY HAS BEEN INCREASED BY 24 LBS, TO ACCOUNT FOR THE ADDITION OF PAVING BLOCKS.

7.-8. INCLUDES COST OF BEARING MATERIAL, COIL TIES AND COIL RODS.
   COARSE AGGREGATE FOR PRESTRESSED CONCRETE BRIDGE UNITS SHALL MEET THE REQUIREMENTS OF SECTION 4115 CLASS III DURABILITY. GRADATION OF THE COARSE AGGREGATE SHALL MEET THE REQUIREMENTS OF SECTION 2407.02A.
   IF DECK HANGERS ARE EMBEDDED IN PRESTRESSED BEAMS, THEY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.

9. INCLUDES COST OF STEEL DIAPHRAGMS, SEE STANDARD SHEET H 24-36-05.

10. ALL STRUCTURAL CONCRETE FOR THE RAIL IS TO BE CLASS C; SUBSTITUTION OF CLASS D CONCRETE IS NOT ALLOWED.
    NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
    CERTIFIED PLANT INSPECTION IS REQUIRED.

13. THE PILING ENCASEMENTS ARE TO EXTEND DOWN TO THE ELEVATIONS SHOWN ON THE PLANS, SHEET 3. THE UNIT PRICE BID FOR ENCASEMENT SHALL BE FULL PAYMENT FOR FURNISHING AND PLACING MATERIAL AND, WHERE NECESSARY, EXCAVATION.
    SEE STANDARD P10A REVISED SEPTEMBER 2006 FOR DETAILS.

14. THE CONTRACTOR SHALL PREBORE HOLES FOR ABUTMENT PILES. MINIMUM DIAMETER OF THE HOLES SHALL BE 16 INCHES. HOLES SHALL BE BORED TO ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG CENTERLINE" ON THE SITUATION PLAN SHEET. HOLES SHALL BE FILLED WITH A NATURAL BENTONITE SLURRY. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING. FOR HOLES DRILLED IN NONCOLLAPSING SOILS THE BENTONITE SLURRY MAY BE PLACED AFTER PILES ARE DRIVEN; IN COLLAPSING SOILS THE BENTONITE SLURRY SHALL BE PLACED AT THE TIME THE HOLE IS DRILLED. INCLUDES ALL LABOR AND MATERIALS FOR FURNISHING AND PLACING THE BENTONITE SLURRY.

15. SEE SITUATION PLAN, SHEET 3 FOR LIMITS.

16. GROUT SHALL BE PLACED PER SECTION 2507 OF THE SPECIFICATIONS. SEE SITUATION PLAN, SHEET 3 FOR LIMITS.

17. REVETMENT IS TO BE PLACED AT A THICKNESS OF 1'-6. SEE SITUATION PLAN, SHEET 3 FOR LIMITS. THE UNIT PRICE BID FOR "REVETMENT, CLASS E" SHALL INCLUDE COST OF LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO PLACE CLASS E REVETMENT STONE ON CHANNEL BANKS IN ACCORDANCE WITH SECTION 2507 OF THE STANDARD SPECIFICATIONS.

18. INCLUDES MOBILIZATION FOR BOTH DIVISION I AND DIVISION II.

19. FILL MATERIALS FOR THE TEMPORARY CROSSING SHALL BE FURNISHED BY THE CONTRACTOR AND THE MATERIALS SHALL MEET THE REQUIREMENTS OF STANDARD ROAD PLAN RL-16 AND THE GENERAL SUPPLEMENTAL SPECIFICATIONS. USE OF DREDGED MATERIAL OR OTHER MATERIALS NOT MEETING THE SPECIFIED MATERIAL REQUIREMENTS WILL NOT BE ALLOWED. THE TEMPORARY CROSSING MUST MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS TO QUALIFY FOR "LUMP SUM" PAYMENT.

TOTAL ESTIMATED QUANTITIES : DIVISION II
GRADING

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS.	2 PIERS	SUPER.	TOTAL
20	2101–0850002	CLEARING AND GRUBBING	UNIT	–	–	–	20
21	2102–2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	C.Y.	–	–	–	912
22	2312–8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TONS	–	–	–	161
23	2505–4008200	INSTALLATION OF GUARDRAIL	L.F.	–	–	–	275
24	2505–4021690	GUARDRAIL, END ANCHORAGE, BEAM, RE–69	EACH	–	–	–	4
25	2505–4021762	GUARDRAIL TERMINAL, BEAM, FLARED, RE–76	EACH	–	–	–	4
26	2518–6910000	SAFETY CLOSURE	EACH	–	–	–	3
27	2528–8445110	TRAFFIC CONTROL	L.S.	–	–	–	1
28	2601–2634100	MULCHING	ACRES	–	–	–	1.60
29	2601–2636043	SEEDING AND FERTILIZING (RURAL)	ACRES	–	–	–	1.60
30	2602–0000020	SILT FENCE	LIN.FT.	–	–	–	560
31	2602–0000030	SILT FENCE FOR DITCH CHECKS	LIN.FT.	–	–	–	60
32	2602–0000090	CLEAN–OUT OF SILT FENCE	LIN.FT.	–	–	–	560
33	2602–0000100	CLEAN–OUT OF SILT FENCE FOR DITCH CHECK	LIN.FT.	–	–	–	60

REF. NO. ESTIMATE REFERENCE INFORMATION

20. SEE GENERAL PLAN, SHEET 4, FOR LIMITS.
    SELECTIVE CLEARING WILL BE REQUIRED ON THIS PROJECT. ALL DESIRABLE TREES OUTSIDE THE CONSTRUCTION AREA WILL BE SAVED. TREES AND SHRUBS WITHIN THE CONSTRUCTION LIMITS THAT DO NOT HINDER CONSTRUCTION SHALL BE SAVED UNLESS DIRECTED BY THE ENGINEER TO BE REMOVED.

21. THE APPROACH BERMS SHALL BE BUILT TO THE CONSTRUCTION LIMITS SHOWN AND SHALL BE IN PLACE BEFORE ABUTMENT PILES ARE DRIVEN. THE CONTRACTOR SHALL LEVEL AND SHAPE THE BERMS TO THE ELEVATIONS AND DIMENSIONS SHOWN ON THE SITUATION PLAN. DRESSING OF SLOPES OUTSIDE THE BRIDGE AREA NOT DISTURBED BY THE CONTRACTOR WILL BE PAID FOR AS EXTRA WORK.
    ROADWAY CONSTRUCTION REQUIRES 1,563 C.Y. OF FILL MATERIAL. OF THIS, 912 C.Y. IS AVAILABLE FROM ROADWAY AND DITCH CUTS AND 651 C.Y. IS AVAILABLE FROM, AND WILL BE PAID AS, "EXCAVATION, CLASS 10, CHANNEL", TYPE "A" COMPACTION WILL BE REQUIRED. SEE TABULATIONS AND PLAN AND PROFILE SHEETS FOR BREAKDOWN OF EXCAVATION QUANTITIES. INCLUDES MATERIAL FOR INTERSECTIONS, BRIDGE APPROACHES AND ENTRANCES. THE QUANTITY INCLUDES AN ADDITIONAL 35% TO COMPENSATE FOR SHRINKAGE.
    THE CONTRACTOR IS TO PROVIDE HIS OWN BORROW FOR "CLASS 10, ROADWAY AND BORROW, EXCAVATION". THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH PROVISIONS OF IOWA LAW AS IT APPLIES TO REMOVAL AND REPLACEMENT OF TOPSOIL ON BORROW AREAS.
    NO PAYMENT FOR OVERHAUL SHALL BE MADE ON THIS PROJECT.
    PAY QUANTITY WILL BE PLAN QUANTITY ADJUSTED FOR OBVIOUS ERRORS, PLAN REVISIONS OR CHANGE ORDERS.
    EXCEPT WHERE NOTED OTHERWISE ON THE PLANS, ALL ENTRANCE AND ROADWAY CULVERTS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS PART OF "EXCAVATION, CLASS 10, ROADWAY AND BORROW".
    MOISTURE SHALL BE APPLIED, AS NECESSARY, TO THE CONSTRUCTION AREA TO PREVENT THE SPREAD OF DUST NEAR RESIDENTIAL AREAS AND INDIVIDUAL HOMES. REFER TO ARTICLE 1107.07 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

22. SURFACING TO BE FURNISHED AND PLACED BY THE CONTRACTOR IN TWO PASSES (1400 AND 600 TONS /MILE).
    INCLUDES 30 TONS FOR 160TH STREET INTERSECTION WITHIN PROJECT AREA.

23.-25. SEE TABULATIONS, SHEET 10 AND STANDARD ROAD PLANS.

26. SEE TABULATION, SHEET 10.

27. SEE SHEETS 1 AND 10.

28.-29. THE CONTRACTOR IS TO RESHAPE, FERTILIZE, SEED AND MULCH ANY AREAS DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION. THIS SHALL BE INCLUDED IN THE PRICES BID FOR "MULCHING" AND "SEEDING AND FERTILIZING (RURAL)".

30.-33. SEE TABULATIONS, SHEET 10 AND POLLUTION PREVENTION PLAN, SHEET 9.

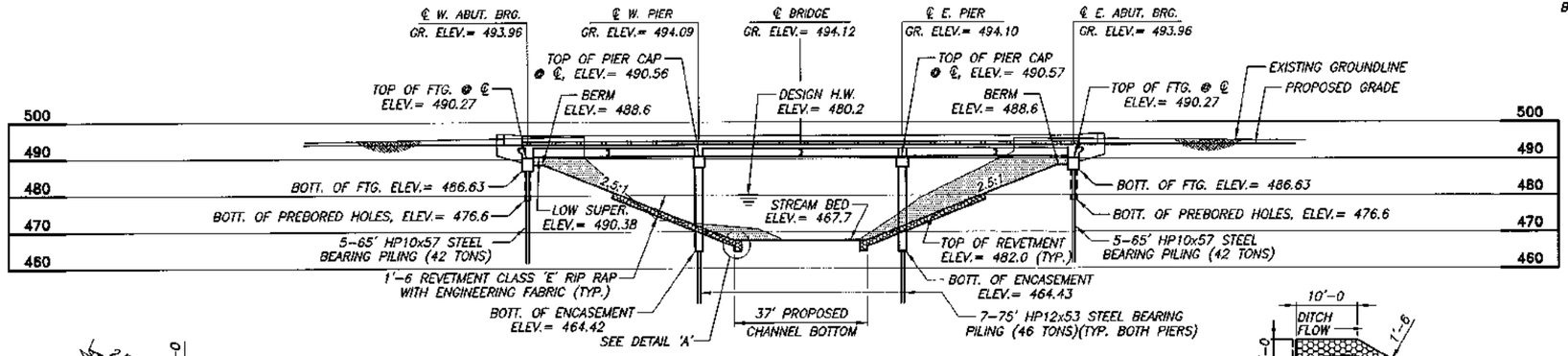
151'–4 x 24'–6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **P10A PIERS**
47'–5 END SPANS — **56'–6 INTERIOR SPAN**

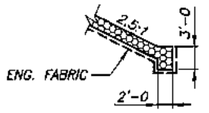
QUANTITY SUMMARY

STATION 42+60.00 — **0° SKEW**
CRAWFORD COUNTY, — **IOWA**

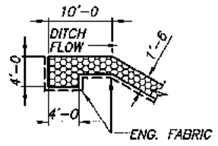
BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 48+00, 32' LT., ELEV.= 487.57



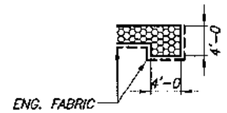
LONGITUDINAL SECTION ALONG ℄ ROADWAY



DETAIL 'A'



SECTION 'A-A'
(TYPICAL AT NW, NE, & SE DITCH OUTLETS)

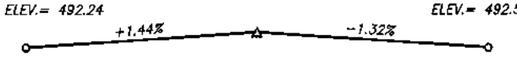


SECTION 'B-B'
(TYPICAL AT EDGES OF REVETMENT LIMITS)

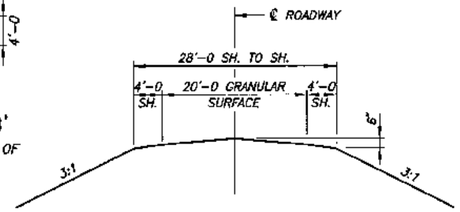
V.P.I. STA. 42+50.00
ELEV.= 495.84
L.V.C.= 500'
K = 1.8116
M.O.= 1.7250'
50 MPH DESIGN

TIE-IN STA. 40+00.00 ELEV.= 492.24

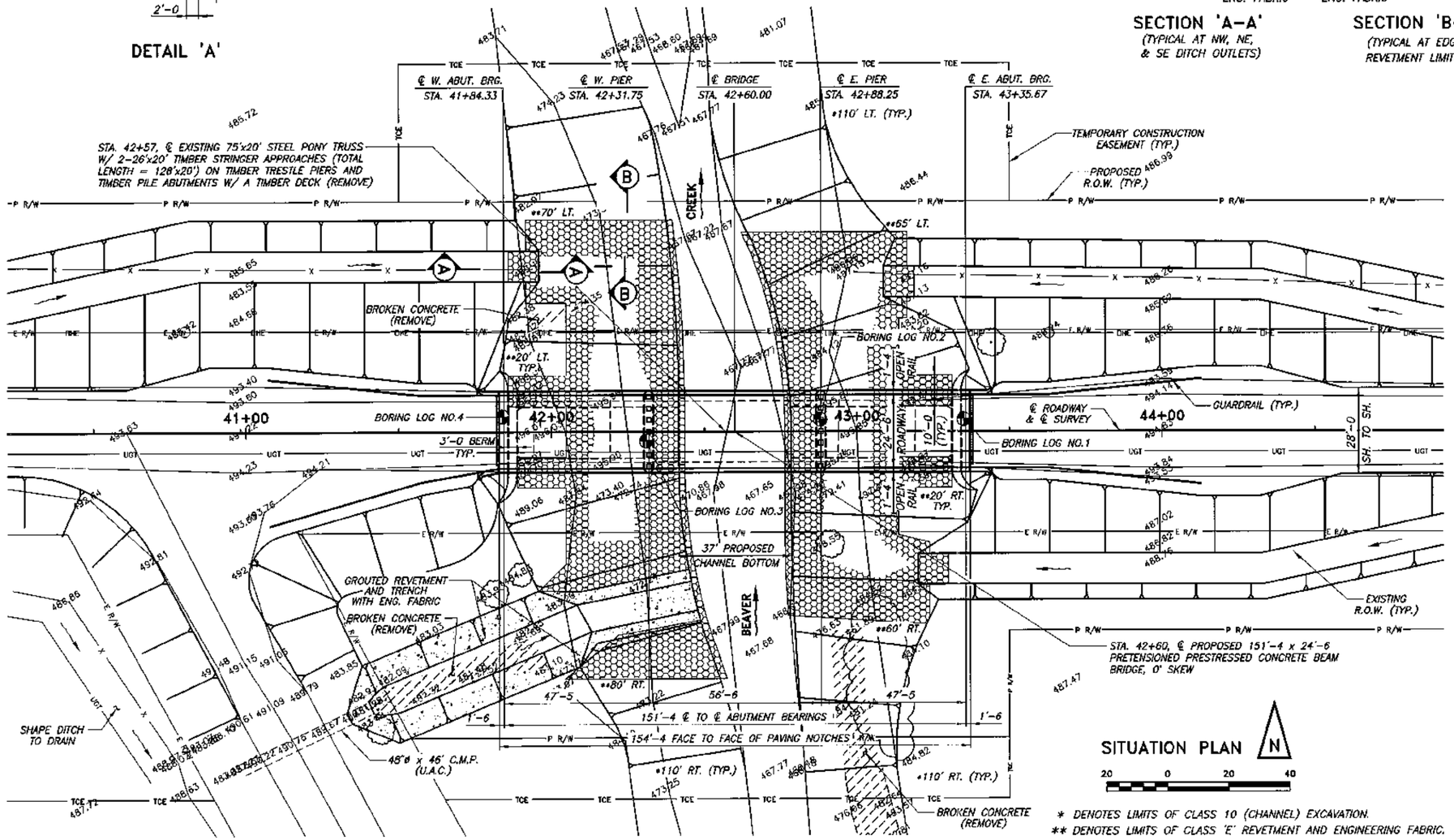
TIE-IN STA. 45+00.00 ELEV.= 492.54



PROPOSED GRADE



TYPICAL APPROACH SECTION



* DENOTES LIMITS OF CLASS 10 (CHANNEL) EXCAVATION.
** DENOTES LIMITS OF CLASS 'E' REVETMENT AND ENGINEERING FABRIC.

LOCATION

CRAWFORD COUNTY
T-85N, R-41W
SECTION 12
SOLDIER TOWNSHIP
OVER BEAVER CREEK

HYDRAULIC DATA

DRAINAGE AREA = 28.7 SQ. MI.
DESIGN DISCHARGE = 5,800 C.F.S.
DESIGN HIGH WATER ELEV. = 480.2
MANNING SLOPE = 0.002379 FT./FT.
BRIDGE WATERWAY AREA = 818 SQ. FT.
DESIGN VELOCITY = 7.1 F.P.S.
Q25 = 5,800 C.F.S. STAGE ELEV. = 480.2 (DESIGN)
Q50 = 7,100 C.F.S. STAGE ELEV. = 481.5
Q100 = 8,500 C.F.S. STAGE ELEV. = 482.7
Q500 = 12,100 C.F.S. STAGE ELEV. = 485.2
EXT. H.W. ELEV. = UNKNOWN
ANTICIPATED SCOUR ELEV.= 462.1

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

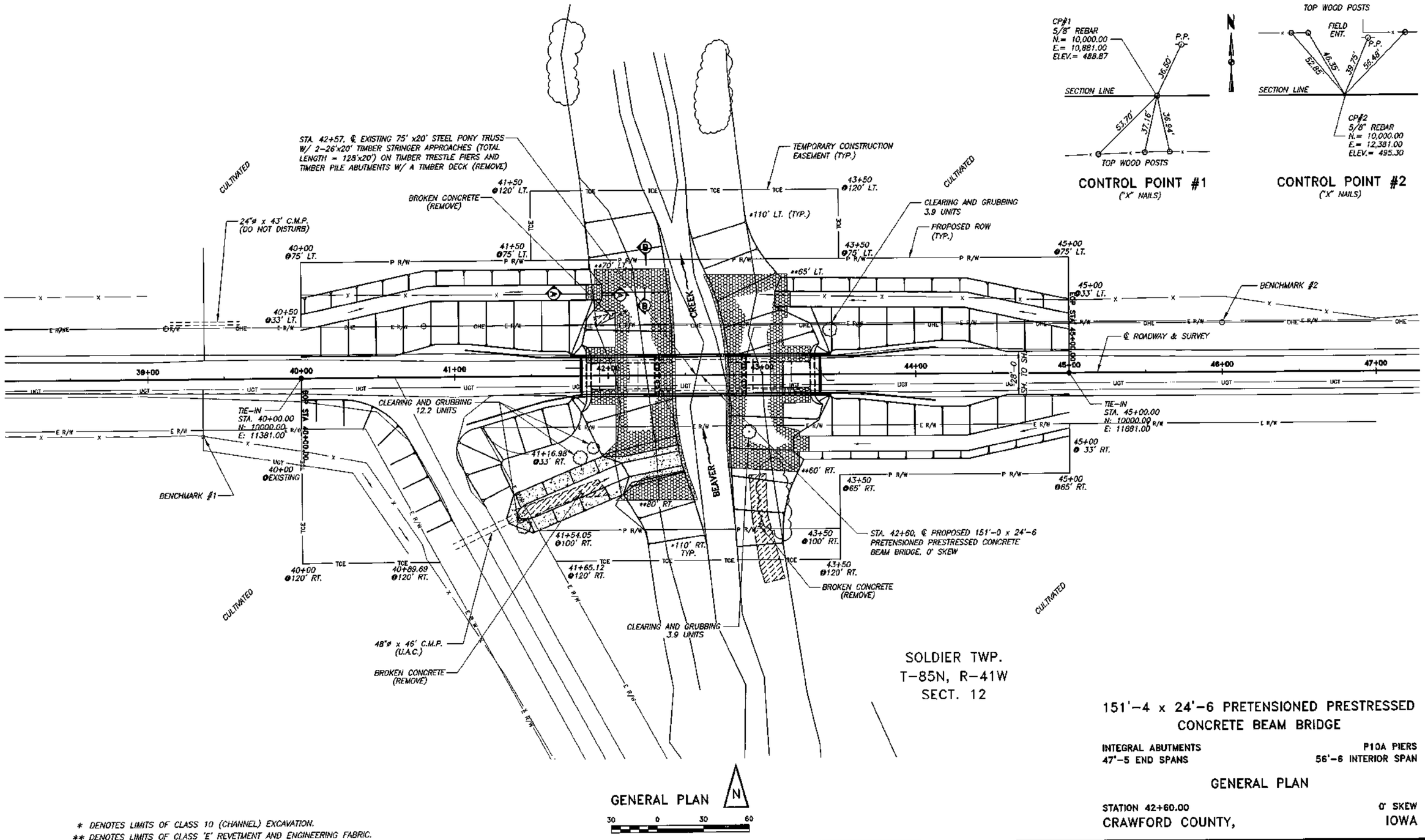
INTEGRAL ABUTMENTS
47'-5 END SPANS
P10A PIERS
56'-6 INTERIOR SPAN

SITUATION PLAN

STATION 42+60.00
CRAWFORD COUNTY,
0° SKEW
IOWA

BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 46+00, 32' LT., ELEV.= 487.57

SOLDIER TWP.
T-85N, R-41W
SECT. 01



CONTROL POINT #1
("X" NAILS)

CONTROL POINT #2
("X" NAILS)

SOLDIER TWP.
T-85N, R-41W
SECT. 12

GENERAL PLAN

30 0 30 60

* DENOTES LIMITS OF CLASS 10 (CHANNEL) EXCAVATION.
** DENOTES LIMITS OF CLASS 'E' REVETMENT AND ENGINEERING FABRIC.

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
47'-5 END SPANS

P10A PIERS
56'-6 INTERIOR SPAN

GENERAL PLAN

STATION 42+60.00
CRAWFORD COUNTY,

0° SKEW
IOWA

SPECIFICATIONS

DESIGN:

SUBSTRUCTURE:
AASHTO STANDARD SERIES OF 2002.
SUPERSTRUCTURE:
AASHTO LRFD, SERIES OF 2004, WITH INTERIM 2005.

CONSTRUCTION: THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS GENERAL SUPPLEMENTAL SPECIFICATIONS; AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS, SHALL APPLY TO THE CONSTRUCTION ON THIS PROJECT.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002, PLUS INTERIM SPECIFICATIONS.

REINFORCING STEEL IN ACCORDANCE WITH STANDARD AASHTO SECTIOIN 8 AND LRFD AASHTO SECTION 5, GRADE 60, ASTM A615.

CONCRETE IN ACCORDANCE WITH STANDARD AASHTO SECTION 8 AND LRFD AASHTO SECTION 5, F'c= 3,500 PSI.

		fs	=	24,000 PSI
PRESTRESSING STEEL	SEE SHEETS H24-32-06			
PRESTRESSED CONCRETE	SEE SHEETS H24-32-06			
STRUCTURAL STEEL	SECTION 10			
ASTM A36		fs	=	20,000 PSI

GENERAL NOTES

THIS DESIGN IS FOR A 151'- 4" x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON B AVENUE OVER BEAVER CREEK IN CRAWFORD COUNTY, IOWA.

THE BRIDGE SUBSTRUCTURES ARE DESIGNED FOR HS25 LOADING, PLUS 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE

THE BRIDGE SUPERSTRUCTURE IS DESIGNED FOR HL-93 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

ACCESS SHALL BE MAINTAINED TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

THE ENGINEER WILL BE RESPONSIBLE FOR THE CONSTRUCTION SURVEY. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING AN INDEPENDENT CHECK OF ALL CONSTRUCTION STAKES PLACED FOR THE PROJECT. THIS INDEPENDENT CHECK SHALL BE SUFFICIENT TO UNDERSTAND THE PLACEMENT AND INTENT OF THE STAKES.

THIS PROJECT IS TO BE BUILT UNDER THE CONDITIONS OF ARMY CORPS OF ENGINEERS 404 PERMIT NUMBER 13 AND 14. THIS IS A NATIONWIDE PERMIT AND MAY CONTAIN SPECIAL CONDITIONS. WORK REQUIRED UNDER THIS PERMIT IS CONSIDERED INCIDENTAL TO OTHER WORK. A COPY OF THE PERMIT IS AVAILABLE AT THE COUNTY ENGINEER'S OFFICE. THE ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

THE PRIME CONTRACTOR SHALL EMPLOY CONTROLS TO REDUCE THE EROSIVENESS OF LAND ADJACENT TO SURFACE WATERS AND WETLANDS, INCLUDING ESTABLISHMENT AND MAINTENANCE OF EROSION CONTROL DURING AND AFTER CONSTRUCTION AND REVEGETATION OF ALL DISTURBED AREAS UPON PROJECT COMPLETION. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ALL EROSION CONTROL MEASURES.

THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 – VALUE ENGINEERING INCENTIVE PROPOSAL, A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

UTILITY NOTES

THE CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING SITE CONDITIONS. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF ALL UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. ACCESS SHALL BE AFFORDED TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE ARE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. SHOULD ANY UTILITIES BE FOUND, THEY SHALL BE PROTECTED IN PLACE AND THE ENGINEER IMMEDIATELY NOTIFIED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE, OR DELAY CAUSED BY UTILITY COORDINATION OR RELOCATION WORK.

WASTE AND DISPOSAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. THESE AREAS SHALL NOT IMPACT WETLANDS OR "WATERS OF THE U.S." NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY AND SHALL NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.

HAZARDOUS MATERIALS NOTES

A SCRAPE SAMPLE OF THE EXISTING PAINT WAS TAKEN TO GET AN INDICATION OF THE EXISTENCE AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. SAMPLE ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 1960 MG/KG AND TOTAL CHROMIUM ON THIS SAMPLE WAS 28,900 MG/KG. THIS ANALYSIS SHOWS THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE COUNTY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING REMOVAL IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL AND STATE REGULATIONS.

BEFORE DELIVERY OF ANY SCRAP STEEL THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS THAT COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.
2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.
3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THE ABOVE REMOVAL AND DISPOSAL REQUIREMENTS WILL BE INCIDENTAL TO "REMOVALS OF EXISTING BRIDGE."

STREAM CROSSING NOTES

THE CONTRACTOR IS ENCOURAGED TO CONDUCT CONSTRUCTION ACTIVITIES DURING A PERIOD OF LOW FLOW. ANY TEMPORARY CROSSINGS SHALL INCLUDE ENOUGH CULVERTS TO ACCOMMODATE LOW FLOWS AND MUST BE REMOVED AFTER COMPLETION OF WORK ON THIS PROJECT. TEMPORARY STREAM CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD ROAD PLAN RL-16.

EQUIPMENT FOR HANDLING AND CONVEYING MATERIALS DURING CONSTRUCTION SHALL BE OPERATED TO PREVENT DUMPING OR SPILLING THE MATERIAL INTO WATERBODIES, STREAMS OR WETLANDS EXCEPT AS APPROVED HEREIN.

CARE SHALL BE TAKEN TO PREVENT ANY PETROLEUM PRODUCTS, CHEMICALS, OR OTHER DELETERIOUS MATERIALS FROM ENTERING WATERBODIES, STREAMS OR WETLANDS.

CONSTRUCTION EQUIPMENT, ACTIVITIES, AND MATERIALS SHALL BE KEPT OUT OF THE STREAMS AND WETLANDS TO THE MAXIMUM EXTENT POSSIBLE.

PILE NOTES

MINIMUM BEARING CAPACITY IS TO BE 46 TONS PER PILE AT PIERS AND 42 TONS PER PILE AT ABUTMENTS.

ALL PILES ARE TO BE DRIVEN TO FULL PENETRATION, WHERE PRACTICABLE.

SOUNDING AND TEST BORING DATA SHOWN ON PLANS WERE ACCUMULATED FOR DESIGNING AND ESTIMATING PURPOSES. THEIR APPEARANCE ON THE PLAN DOES NOT CONSTITUTE A GUARANTEE THAT CONDITIONS OTHER THAN THOSE INDICATED WILL NOT BE ENCOUNTERED.

CONCRETE AND REINFORCING STEEL NOTES

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS 5/8 INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

ALL REINFORCING STEEL SHALL BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED. BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS IN EITHER DIRECTION SHALL BE USED TO SUPPORT ALL REINFORCING IN ACCORDANCE WITH THE SECTION 2404 OF THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO REAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

CONCRETE PAVING BLOCKS ARE REQUIRED AND ARE TO REMAIN IN PLACE AFTER CONSTRUCTION.

CONTRACTOR'S WORK AREA

THE CONTRACTOR'S WORK AND MATERIAL STORAGE AREA SHALL BE DEFINED BY THE CONTRACTOR AND NOTED TO THE ENGINEER. THE CONTRACTOR SHALL SHAPE, FERTILIZE, AND SEED THIS CONTRACTOR'S AREA IN ORDER TO RETURN IT TO ITS ORIGINAL CONDITION. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR "MULCHING" AND "SEEDING AND FERTILIZING (RURAL)" BID ITEMS. AREAS OUTSIDE THE CONTRACTOR'S AREA DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION, AS DETERMINED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

151'–4 x 24'–6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — P10A PIERS
47'–5 END SPANS — 56'–6 INTERIOR SPAN

GENERAL NOTES

STATION 42+60.00 — 0° SKEW
CRAWFORD COUNTY, — IOWA

BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 48+00, 32' LT., ELEV.= 487.57

BORING LOG NO. 1 — STATION 43 + 35 4'L — Project No.: 061276

Project: Bridge Replacement Over Beaver Creek; Section 12, T-85N, R-41W, Soldier Twp; Crawford County, Iowa
Client: Calhoun-Burns & Associates, Inc.; 1801 Fuller Road; West Des Moines, Iowa 50265
Surface Elevation: 495.9 — Datum: BM #1 on Situation Plan (elev = 488.48')
Date Drilled: 6/7/2006 — Drilling Depth, ft.: 80 — Drilling Method: 3" CFA — Page: 1 of ??

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description *	Graphic Log	USCS	Water Level	Depth	Elevation ft.
	0							Crushed rock (4"±)				0.3	
488	8	1	SS	12	21.5			Dark brown and brown lean clay with sand, moist FILL (Firm Silty Clay)		CL			495.6
		2	SS	18	18.8							12.5	
480	16	3	SS	4	33.3			Dark brown to very dark gray lean clay, trace organics, moist to very moist COHESIVE ALLUVIUM (Soft Silty Clay)		CL			483.4
		4	ST		41.5	72	1310					24	
472	24	5	SS	40	5.2			Brown medium sand with clay and gravel, moist GRANULAR ALLUVIUM (Gravelly Sand)		SP-SC			471.9
		6	SS	23	20.5							28	
464	32							Brown fine to medium sand, very moist to wet Saturated after 32' GRANULAR ALLUVIUM (Coarse Sand)		SP	▼		467.9
		7	SS	45									
456	40												
448	48											51	
								Gray fat clay with sand, trace gravel, moist		CH			444.9
440	56												
432	64							GLACIAL TILL (Very Firm Glacial Clay)					
424	72												
416	80							End of Boring				80	415.9
408	88												
400	96												
392	104												

*The stratification lines represent the approximate boundary lines between material types; in-situ, the transition may be gradual.

Water Level Observation: Time: at completion ___ hrs. ___ days; Depth to water: 32 ft. ▼ ___ ft. ▼ ___ ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

BORING LOG NO. 2 — STATION 42 + 88 4' L — Project No.: 061276

Project: Bridge Replacement Over Beaver Creek; Section 12, T-85N, R-41W, Soldier Twp; Crawford County, Iowa
Client: Calhoun-Burns & Associates, Inc.; 1801 Fuller Road; West Des Moines, Iowa 50265
Surface Elevation: 495.9' — Datum: BM #1 on Situation Plan (elev = 488.39') — Date Drilled: 6/6/2006 — Drilling Depth, ft.: 76 — Drilling Method: HSA — Page: 1 of ??

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description *	Graphic Log	USCS	Water Level	Depth	Elevation ft.
	0												
488	8							BRIDGE SPAN					
480	16												
												22.5	
472	24	1	SS	2	26.0			Dark gray-brown sandy lean clay, moist to very moist COHESIVE ALLUVIUM (Soft Silty Clay)			▼		473.4
												28	
464	32	2	SS	14				Gray-brown medium to coarse sand, trace gravel, saturated GRANULAR ALLUVIUM (Coarse Sand) Gray fine sand after 39'		SP			467.9
		3	SS	21									
456	40	4	SS	20						SP			
		5	SS	42									
448	48							Possible large gravel after 46.5'				48.5	
		6	SS	18	29.3			Gray fat clay, trace sand, moist		CH			447.4
440	56	7	SS	18	25.8								
		8	SS	20	23.9								
432	64							GLACIAL TILL (Very Firm Glacial Clay)					
		9	SS	19	31.8								
424	72	10	SS	31	26.8								
		11	SS	27	26.0							76	
416	80							End of Boring					419.9
408	88												
400	96												
392	104												

*The stratification lines represent the approximate boundary lines between material types; in-situ, the transition may be gradual.

Water Level Observation: Time: at completion ___ hrs. ___ days; Depth to water: 23CW ft. ▼ ___ ft. ▼ ___ ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

BORING LOG NO. 3 — STATION 42 + 31 3' R — Project No.: 061276

Project: Bridge Replacement Over Beaver Creek; Section 12, T-85N, R-41W, Soldier Twp; Crawford County, Iowa
Client: Calhoun-Burns & Associates, Inc.; 1801 Fuller Road; West Des Moines, Iowa 50265
Surface Elevation: 495.9' — Datum: BM #1 on Situation Plan (elev = 488.89') — Date Drilled: 6/7/2006 — Drilling Depth, ft.: 80 — Drilling Method: 4" CFA — Page: 1 of ??

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description *	Graphic Log	USCS	Water Level	Depth	Elevation ft.
	0												
488	8							BRIDGE SPAN					
480	16												
472	24											24.5	
								Very dark gray sandy lean clay, very moist COHESIVE ALLUVIUM (Soft Silty Clay)		CL			471.4
464	32											29	
								Brown well graded sand with clay, saturated GRANULAR ALLUVIUM (Coarse Sand)		SW-SC	▼		466.9
456	40												
448	48											49.8	
								Gray fat clay, trace sand, moist		CH			446.1
440	56												
432	64							GLACIAL TILL (Very Firm Glacial Clay)					
424	72												
416	80							End of Boring				80	415.9
408	88												
400	96												
392	104												

*The stratification lines represent the approximate boundary lines between material types; in-situ, the transition may be gradual.

Water Level Observation: Time: at completion ___ hrs. ___ days; Depth to water: 29 ft. ▼ ___ ft. ▼ ___ ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

BORING LOG NO. 4 — STATION 41 + 84 5' L — Project No.: 061276

Project: Bridge Replacement Over Beaver Creek; Section 12, T-85N, R-41W, Soldier Twp; Crawford County, Iowa
Client: Calhoun-Burns & Associates, Inc.; 1801 Fuller Road; West Des Moines, Iowa 50265
Surface Elevation: 495.9' — Datum: BM #1 on Situation Plan (elev = 488.89') — Date Drilled: 6/6/2006 — Drilling Depth, ft.: 81 — Drilling Method: HSA — Page: 1 of ??

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description *	Graphic Log	USCS	Water Level	Depth	Elevation ft.
	0							Dark brown and brown lean clay, trace sand, moist FILL (Firm Silty Clay)		CL			
488	8	1	SS	11	23.2							12	
		2	SS	16	26.8			Dark brown sandy lean clay, moist COHESIVE ALLUVIUM (Stiff Sandy Clay)		CL			483.9
480	16	3	SS	6	18.1								
		4	SS	8	21.7							24	
472	24	5	SS	32	5.1			Brown medium to coarse sand, trace gravel, damp Less coarse, saturated after 27' GRANULAR ALLUVIUM (Coarse Sand)		SP	▼		471.9
		6	SS	17									
464	32	7	SS	30									
456	40	8	SS	40									
		9	SS	43									
448	48							Large gravel or possible boulders after 45'				49	
		10	SS	28	25.3			Gray fat clay, trace sand, moist		CH			446.9
440	56	11	SS	20	25.5								
		12	SS	23	25.2								
432	64	13	SS	18	28.1			GLACIAL TILL (Very Firm Glacial Clay)					
		14	SS	23	23.6								
424	72	15	SS	25	25.5								
416	80	16	SS	33	24.3							81	
								End of Boring					414.9
408	88												
400	96												
392	104												

*The stratification lines represent the approximate boundary lines between material types; in-situ, the transition may be gradual.

Water Level Observation: Time: at completion ___ hrs. ___ days; Depth to water: 27 ft. ▼ ___ ft. ▼ ___ ft. ▼

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

DAVID LOGEMANN 12394 — LICENSED PROFESSIONAL ENGINEER — IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

DAVID LOGEMANN, P.E. DATE: 7/17/07

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2007.

PAGES OR SHEETS COVERED BY THIS SEAL:
6 OF 13

SOUNDING DATA

(SEE "SITUATION PLAN", SHEET 3, FOR BORING LOCATIONS)

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
47'-5 END SPANS

P10A PIERS
56'-6 INTERIOR SPAN

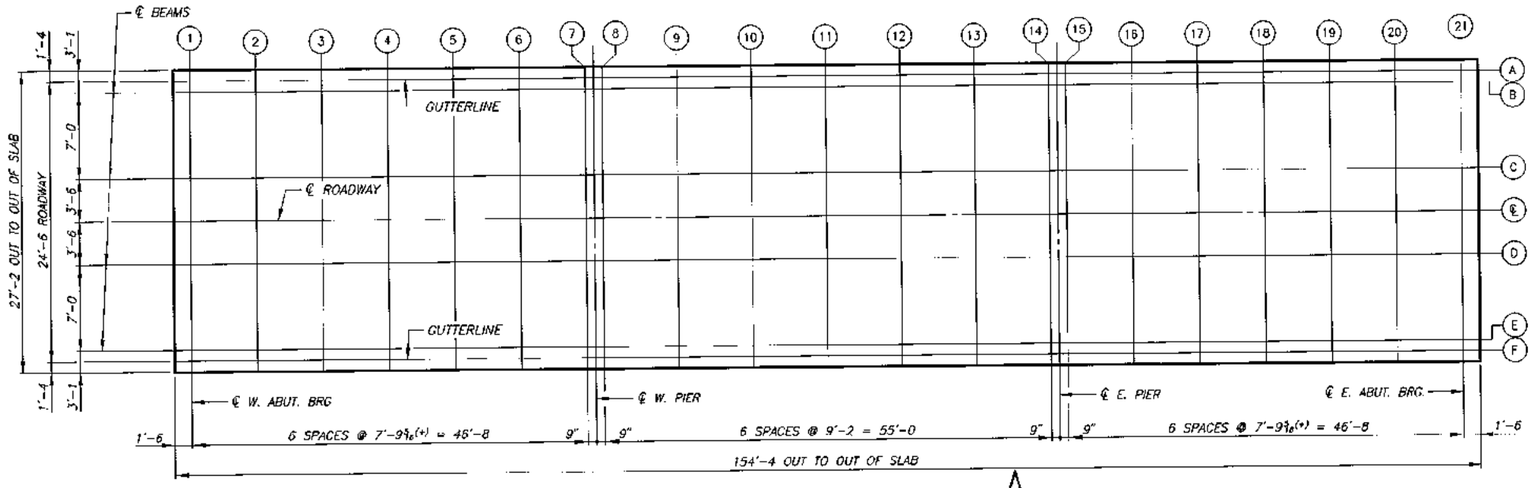
SOUNDING DATA

STATION 42+60.00
CRAWFORD COUNTY,

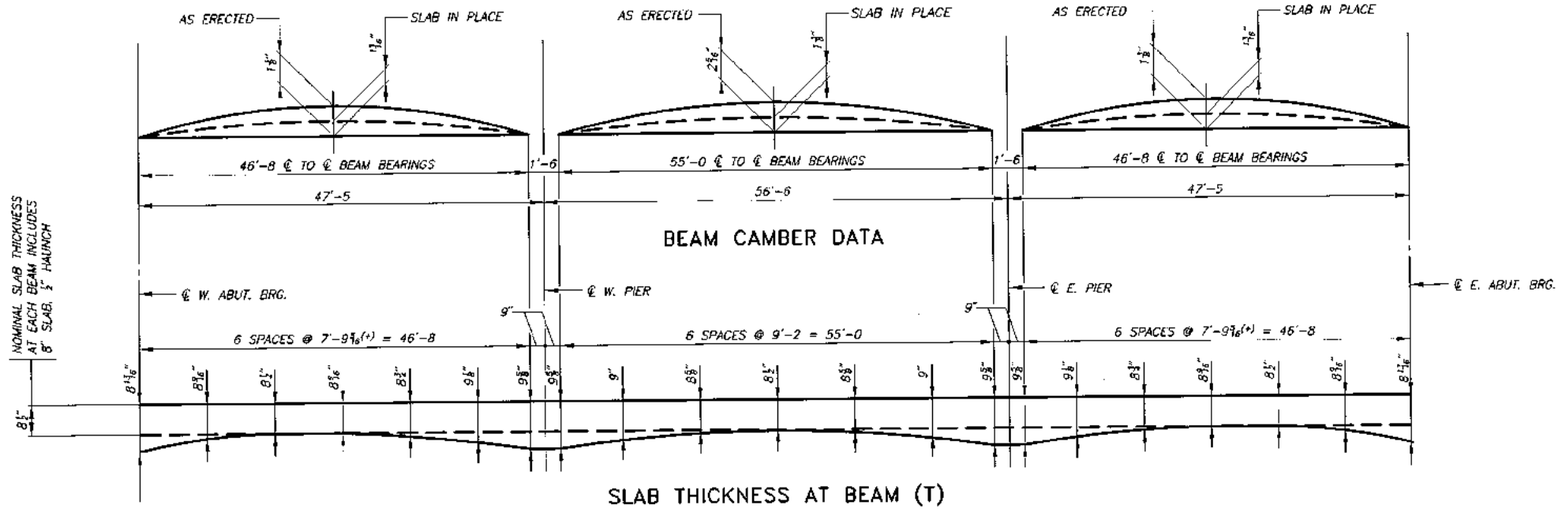
0° SKEW
IOWA

BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 46+00, 32' LT., ELEV.= 487.57

LOCATION	℄ W. ABUT. BRG. 1	2	3	4	5	6	℄ W. BEARING W. PIER 7	℄ E. BEARING W. PIER 8	9	10	11	12	13	℄ W. BEARING E. PIER 14	℄ E. BEARING E. PIER 15	16	17	18	19	20	℄ E. ABUT. BRG. 21	LOCATION
A	493.74	493.77	493.80	493.82	493.84	493.86	493.87	493.88	493.89	493.90	493.90	493.90	493.89	493.88	493.88	493.86	493.85	493.83	493.80	493.77	493.74	A
B	493.78	493.81	493.84	493.86	493.88	493.90	493.91	493.92	493.93	493.94	493.94	493.94	493.93	493.92	493.92	493.90	493.89	493.87	493.84	493.81	493.78	B
C	493.92	493.95	493.98	494.00	494.02	494.04	494.05	494.06	494.07	494.08	494.08	494.08	494.07	494.06	494.06	494.04	494.03	494.01	493.98	493.95	493.92	C
℄	493.96	493.99	494.02	494.04	494.06	494.08	494.09	494.10	494.11	494.12	494.12	494.12	494.11	494.10	494.10	494.08	494.07	494.05	494.02	493.99	493.96	℄
D	493.92	493.95	493.98	494.00	494.02	494.04	494.05	494.06	494.07	494.08	494.08	494.08	494.07	494.06	494.06	494.04	494.03	494.01	493.98	493.95	493.92	D
E	493.78	493.81	493.84	493.86	493.88	493.90	493.91	493.92	493.93	493.94	493.94	493.94	493.93	493.92	493.92	493.90	493.89	493.87	493.84	493.81	493.78	E
F	493.74	493.77	493.80	493.82	493.84	493.86	493.87	493.88	493.89	493.90	493.90	493.90	493.89	493.88	493.88	493.86	493.85	493.83	493.80	493.77	493.74	F



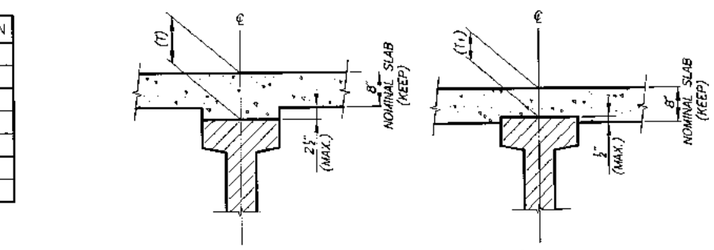
TOP OF SLAB ELEVATIONS



BEAM CAMBER DATA

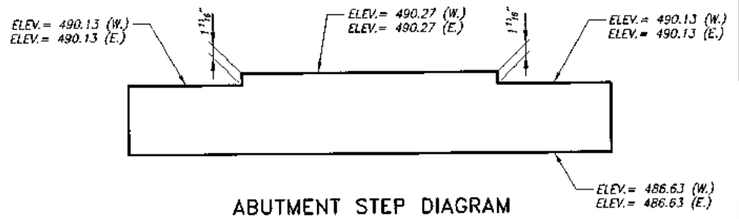
SLAB THICKNESS AT BEAM (T)

NOTE : HAUNCH THICKNESSES ARE SHOWN FOR ESTIMATING ONLY AND ARE NOT GUARANTEED FOR CONSTRUCTION.

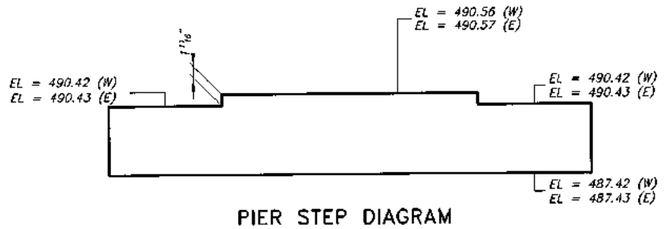


SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED, INCREASE SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED A MAXIMUM OF ½" EMBEDMENT AT THE BEAM (T1). IF MORE THAN ½" EMBEDMENT IS REQUIRED, OR IF THE HAUNCH EXCEEDS 2½", THE GRADE LINE IS TO BE REVISED. THE ABOVE DIAGRAMS DO NOT APPLY TO THE CANTILEVERED SLAB SIDE OF THE EXTERIOR BEAM.



ABUTMENT STEP DIAGRAM



PIER STEP DIAGRAM

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
47'-5 END SPANS

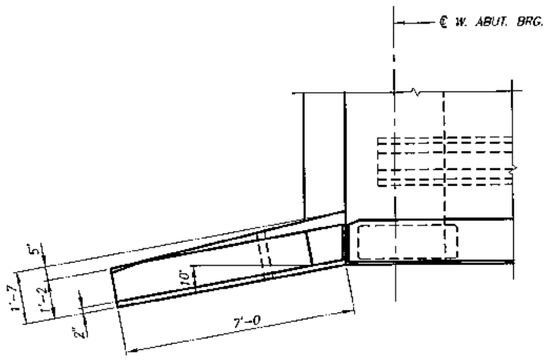
P10A PIERS
56'-6 INTERIOR SPAN

SUPERSTRUCTURE DETAILS

STATION 42+60.00
CRAWFORD COUNTY,

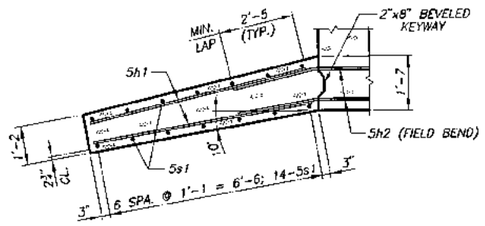
0° SKEW
IOWA

BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 46+00, 32' LT., ELEV.= 487.57

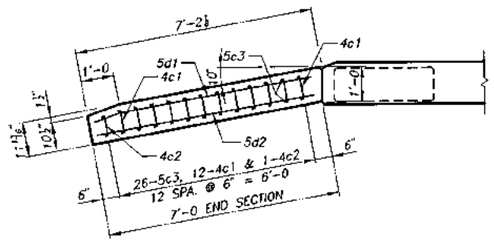


PART PLAN
(S.W. CORNER)
SEE NOTE 1

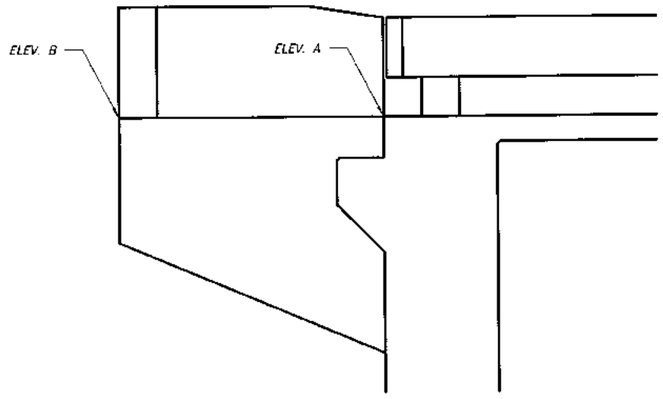
NOTE 1: SOUTHWEST WING AND END POST SHALL BE FLARED AS SHOWN. SEE STANDARD PLANS FOR ADDITIONAL REINFORCEMENT AND ABUTMENT DETAILS.



PART PLAN SECTION
(WINGWALL DETAIL)
SEE NOTE 1



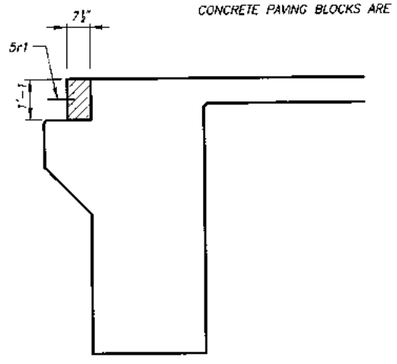
PART PLAN SECTION
(RAIL END SECTION DETAIL)
SEE NOTE 1

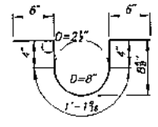


WING LOCATION	ELEVATION A**	ELEVATION B**
N.W.	493.71	493.66
S.W.	493.71	493.68
N.E.	493.72	493.69
S.E.	493.72	493.69

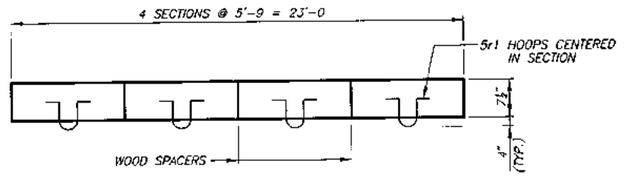
ABUTMENT WING ELEVATIONS
** ELEVATIONS LISTED ARE AT THE EXTERIOR EDGE OF THE WINGWALL.

CONCRETE PAVING BLOCKS ARE REQUIRED AT BOTH ABUTMENTS.

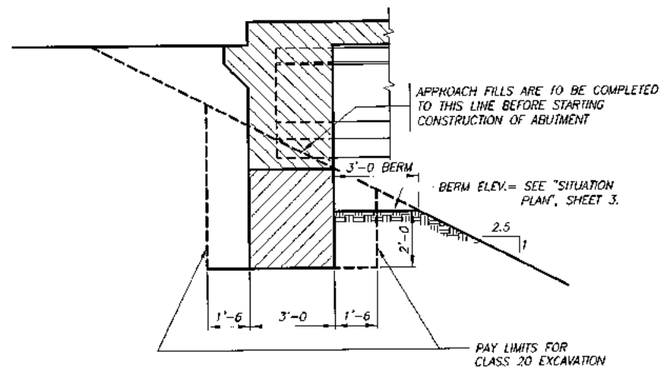




5r1
(8 REQUIRED, TOTAL 24 LBS)



CONCRETE PAVING BLOCK DETAILS
NOTE: LINE PAVING NOTCH WITH TAR PAPER BEFORE PLACING TEMPORARY PAVING BLOCK.



ABUTMENT EXCAVATION DETAIL

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — P10A PIERS
47'-5 END SPANS — 56'-6 INTERIOR SPAN

WEST ABUTMENT AND SUPERSTRUCTURE DETAILS

STATION 42+60.00 — 0° SKEW
CRAWFORD COUNTY, — IOWA

POLLUTION PREVENTION PLAN

ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE HIGHWAY RIGHT-OF-WAY. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE POLLUTION PREVENTION PLAN (PPP) FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP.

1. **SITE DESCRIPTION**

THIS POLLUTION PREVENTION PLAN (PPP) IS FOR THE CONSTRUCTION OF A 151'-4 X 24'-6 PRESTRESSED PRETENSIONED CONCRETE BEAM BRIDGE AND APPROACH GRADING IN CRAWFORD COUNTY IOWA.

THIS PPP COVERS APPROXIMATELY 2.19 ACRES WITH AN ESTIMATED 2.19 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 2.19 ACRES DISTURBED.

THE PPP IS LOCATED IN AN AREA OF ONE SOIL ASSOCIATION (MONONA-IDA-HAMBURG). THE ESTIMATED AVERAGE SCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 65.

REFER TO THE PROJECT PLANS FOR LOCATIONS OF TYPICAL SLOPES, DITCH GRADES, AND MAJOR STRUCTURAL AND NON-STRUCTURAL CONTROLS. A COPY OF THIS PLAN WILL BE ON FILE AT THE COUNTY ENGINEER'S OFFICE. RUNOFF FROM THIS WORK WILL FLOW INTO BEAVER CREEK.

POTENTIAL SOURCES OF POLLUTION:
SITE SOURCES OF POLLUTION GENERATED AS A RESULT OF THIS WORK RELATE TO SILTS AND SEDIMENT WHICH MAY BE TRANSPORTED AS A RESULT OF A STORM EVENT. HOWEVER, THIS PPP PROVIDES CONVEYANCE FOR OTHER (NON-PROJECT RELATED) OPERATIONS. THESE OTHER OPERATIONS HAVE STORM WATER RUNOFF, THE REGULATION OF WHICH IS BEYOND THE CONTROL OF THIS PPP. POTENTIALLY THIS RUNOFF CAN CONTAIN VARIOUS POLLUTANTS RELATED TO SITE-SPECIFIC LAND USES. EXAMPLES ARE:

RURAL AGRICULTURAL ACTIVITIES:
RUNOFF FROM AGRICULTURAL LAND USE CAN POTENTIALLY CONTAIN CHEMICALS INCLUDING HERBICIDES, PESTICIDES, FUNGICIDES AND FERTILIZERS.

COMMERCIAL AND INDUSTRIAL ACTIVITIES:
RUNOFF FROM COMMERCIAL AND INDUSTRIAL LAND USE MAY CONTAIN CONSTITUENTS ASSOCIATED WITH THE SPECIFIC OPERATION. SUCH OPERATIONS ARE SUBJECT TO POTENTIAL LEAKS AND SPILLS WHICH COULD BE COMMINGLED WITH RUN-OFF FROM THE FACILITY. POLLUTANTS ASSOCIATED WITH COMMERCIAL AND INDUSTRIAL ACTIVITIES ARE NOT READILY AVAILABLE SINCE THEY ARE TYPICALLY PROPRIETARY.

2. **CONTROLS**

AT LOCATIONS WHERE RUNOFF CAN MOVE OFFSITE, SILT FENCE SHALL BE PLACED ALONG THE PERIMETER OF THE AREAS TO BE DISTURBED PRIOR TO BEGINNING GRADING, EXCAVATION OR CLEARING AND GRUBBING OPERATIONS. VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED. AS AREAS REACH THEIR FINAL GRADE, ADDITIONAL SILT FENCES, SILT BASINS, INTERCEPTING DITCHES, SOD FLUMES, LETDOWNS, BRIDGE END DRAINS, AND EARTH DIKES SHALL BE INSTALLED AS SPECIFIED IN THE PLANS AND/OR AS REQUIRED BY THE PROJECT ENGINEER. THIS WILL INCLUDE USING SILT FENCE AS DITCH CHECKS AND TO PROTECT INTAKES. TEMPORARY STABILIZING SEEDING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST 21 DAYS, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING TIME PERIOD.

THIS WORK SHALL BE DONE IN ACCORDANCE WITH SECTION 2602 OF THE STANDARD SPECIFICATIONS. IF THE WORK INVOLVED IS NOT APPLICABLE TO ANY CONTRACT ITEMS, THE WORK SHALL BE PAID FOR ACCORDING TO ARTICLE 1109.03 PARAGRAPH B.

AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE ENGINEER AFTER FIELD INVESTIGATION. THESE MAY BE ITEMS SUCH AS LETDOWN STRUCTURES, SOIL STABILIZATION MATS AND OTHER APPROPRIATE MEASURES SHALL BE INSTALLED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL COMPLETE THE CONSTRUCTION WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS.

3. **OTHER CONTROLS**

THE CONTRACTOR SHALL FREQUENTLY WATER EXCAVATED AND FILL AREAS DURING CONSTRUCTION IN ORDER TO MINIMIZE DUST.

THE CONTRACTOR SHALL PROVIDE AN AREA FOR WASHOUT AND DISCHARGE OF EXCESS CONCRETE. THIS AREA SHALL BE PREPARED TO MINIMIZE CONTACT BETWEEN THE CONCRETE AND STORM WATER DISCHARGE FROM THE SITE. IN NO CASE SHALL WASH WATER BE ALLOWED TO FLOW DIRECTLY IN TO THE STREAM. THE CONTRACTOR SHALL DISPOSE OF HARDENED CONCRETE WASHOUT AREAS TO A LOCATION PROVIDED BY THE CONTRACTOR.

CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.

APPROVED STATE OR LOCAL PLANS:
DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

4. **MAINTENANCE**

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. CLEANING OF SILT CONTROL DEVICES SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

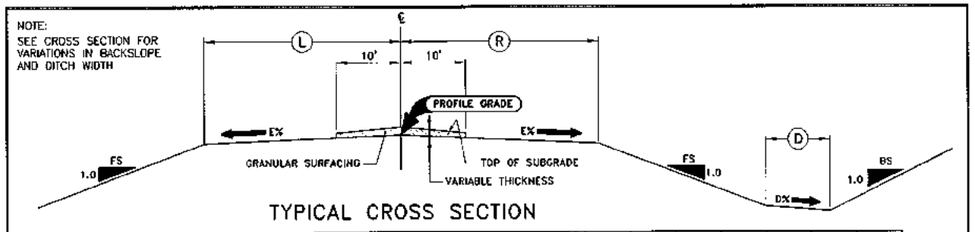
5. **INSPECTIONS**

INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT THAT IS ONE HALF INCH OR GREATER. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. THE FINDINGS OF THIS INSPECTION SHALL BE RECORDED IN THE PROJECT DIARY. THIS PPP MAY BE REVISED BASED ON THE FINDINGS OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

6. **NON-STORM DISCHARGES**

THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS), SLOPE DRAINS AND BRIDGE END DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE OR EROSION STONE.

NOTE:
SEE CROSS SECTION FOR VARIATIONS IN BACKSLOPE AND DITCH WIDTH



TYPICAL CROSS SECTION

LOCATION			Ⓛ	Ⓡ	E%	FS	D%	BS	Ⓓ
ROAD IDENT.	STATION TO STATION								
B AVE.	40+00	41+00	TRANSITION FROM EXISTING						
B AVE.	41+00	BRIDGE	14	14	3.57	3	2	3	10
B AVE.	BRIDGE	43+50	14	14	3.57	3	2	3	10
B AVE.	43+50	45+00	TRANSITION TO EXISTING						

NOTE:
NORMAL SECTIONS SHOWN MAY BE MODIFIED APPROPRIATELY IN AREAS OF SUPERELEVATION CURVES OR OTHER LOCATIONS SPECIFICALLY DESIGNATED BY THE ENGINEER.

GRADING NOTES

THE PLAN AND PROFILE SHEET INCLUDED IN THE PROJECT IS FOR PURPOSE OF ALIGNMENT, LOCATION AND SPECIAL DIRECTION FOR THE WORK TO BE PERFORMED UNDER THIS CONTRACT. IRRELEVANT DATA ON THIS SHEET IS NOT TO BE CONSIDERED A PART OF THIS CONTRACT.

ACCESS SHALL BE MAINTAINED TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION. RELOCATED ACCESS SHALL BE COMPLETED TO INDIVIDUAL PROPERTIES PRIOR TO REMOVAL OF EXISTING ACCESS. IF THE PERMANENT ACCESS CANNOT BE COMPLETED PRIOR TO REMOVAL OF THE EXISTING ACCESS, AN ALTERNATE ACCESS SHALL BE PROVIDED AND MAINTAINED. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

EXCAVATION AND BORROW

DUE CAUTION IS TO BE USED IN WORKING OVER AND AROUND ALL TILE LINES. BREAKS IN THE TILE LINE DUE TO THE CONTRACTOR'S CARELESSNESS ARE TO BE REPLACED AT HIS EXPENSE WITHOUT COST TO THE OWNER. ANY TILE LINES BROKEN OR DISTURBED BY OUR CUT LINES WILL BE REPLACED AS DIRECTED BY THE ENGINEER IN CHARGE OF CONSTRUCTION AND AT THE OWNER'S EXPENSE.

ALL PROPOSED DRIVES AND FIELD ENTRANCES SHALL BE CONSTRUCTED WITH A 20' TOP AND 3:1 SLOPES.

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — P10A PIERS
47'-5 END SPANS — 56'-6 INTERIOR SPAN

POLLUTION PREVENTION PLAN, GRADING NOTES, AND TYPICAL SECTIONS

STATION 42+60.00 — 0° SKEW
CRAWFORD COUNTY, — IOWA

TABULATION OF STEEL BEAM GUARDRAIL AT BRIDGE END POST, CONCRETE BARRIER

108-8A
04-19-05

Refer to Standard Road Plans RE-48A, RE-64A, RE-64B, and RE-65B

LOCATION NO.	① DIRECTION OF TRAFFIC	End A=Approach T=Trailing	Side O=Outside M=Median	STATION	CASE	STANDARD ROAD PLAN	LAYOUT LENGTHS STS (18.75') Lin.Ft.	VT1 Lin.Ft.	VF Lin.Ft.	VT2 Lin.Ft.	ET Terminal (37.5') Lin.Ft.	MATERIALS REQUIRED STS Thrie Beam (25.0') Lin.Ft.	STS Transition Section (6.25') Lin.Ft.	'W' Beam ② (VT1)+(VF)+(VT2)+(ET) Lin.Ft.	Posts ③ 6"x 8"x 7' with 6"x 8" Spacer Blocks (6 or 7) No.	Posts ④ 6"x 8"x 6' with 6" x 8" Spacer Blocks No.	CRT Posts 6"x 8"x 6' with 6" x 8" Spacer Blocks (5) No.	DELINEATORS AND OBJECT MARKERS Type	Delineator Single White D-1W No.	Object Marker Type 2 OM2-3TV No.	Object Marker Type 3 OM-3L No.	Object Marker Type 3 OM-3R No.	BID ITEMS Installation of Guardrail (STS)+(VT1)+(VF)+(VT2)+(ET) Lin.Ft.	Anchorage and Terminal Systems RE-69A No.	RE-69B No.	RE-69C No.	RE-76 No.	REMARKS
1	W	T	O	42+60.00	A	RE-64B	18.75	–	12.5	–	37.5	25.0	6.25	50	7	3	5	1	–	3	1	–	68.75	1	–	–	1	WEST END, LT.
2	E	A	O	42+60.00	A	RE-64B	18.75	–	12.5	–	37.5	25.0	6.25	50	7	3	5	1	–	3	–	1	68.75	1	–	–	1	WEST END, RT. (INSTALL ON 10 DEGREE WING)
3	W	A	O	42+60.00	A	RE-64B	18.75	–	12.5	–	37.5	25.0	6.25	50	7	3	5	1	–	3	–	1	68.75	1	–	–	1	EAST END, LT.
4	E	T	O	42+60.00	A	RE-64B	18.75	–	12.5	–	37.5	25.0	6.25	50	7	3	5	1	–	3	1	–	68.75	1	–	–	1	EAST END, RT.

① Lane(s) to which the obstacle is adjacent.
② Includes (1) special 12.5' sections of 'W' Beam, see RE-76.
③ (8) 6"x 8"x 7' post required when RE-88C is specified.
④ The last two posts of the RE-76 Terminal section are included as part of that bid item.

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
04-17-07

① Lane(s) to which the installation is adjacent.
A = Approach
T = Trailing

Refer to Standard Road Plans RL-12, RL-14A(1), RL-14A(2), RL-14B, and Typical 4303.

LOCATION POINT No.	① DIRECTION OF TRAFFIC	Station	SIDE	TYPE	DIMENSIONS (BY) Feet A	(BY) Feet T	(Z) Feet A	(Z) Feet T	(X1)	(Y1)	(X2)	(Y2)	(X3)	(Y3)	(X4)	(Y4)	CLASS10 EXCAV. Δ ΔCu.Yds.	EMBANK. IN PLACE Cu.Yds.	PIPE Size Inches	PIPE Type	PIPE Length Lin.Ft.	REMARKS
1	W	41+09.71	LT.	2	–	7.4	–	47.7	16.4	2.1	–	–	–	–	66.1	7.4	344	–	–	–	–	W. END, LT.
2	E	41+09.71	RT.	2	21.4	–	N.A.	–	16.4	2.1	–	–	–	–	66.1	21.4	456	–	–	–	–	E. END, LT.
3	W	44+10.29	LT.	2	7.4	–	47.7	–	16.4	2.1	–	–	–	–	66.1	7.4	219	–	–	–	–	E. END, RT.
4	E	44+10.29	RT.	2	–	7.4	–	47.7	16.4	2.1	–	–	–	–	66.1	7.4	221	–	–	–	–	W. END, RT.

Δ INCLUDES 35% FOR SHRINKAGE

TABULATION OF EROSION CONTROL FEATURES

108-19
04-17-07

LOCATION STATION OR STATION TO STATION (EXACT LOCATION TO BE DETERMINED BY THE ENGINEER)		SIDE L OR R	TYPE OF WORK FOR DITCH CHECK SILT FENCE (LIN.FT.)		SILT BASIN (NO.)	SILT DIKE (LIN.FT.)	SILT DITCH (LIN.FT.)	SILT FENCE (LIN.FT.)	SILT DIKE INTERCEPTING (LIN. FT.)	REMARKS
41+90	–	LT.	20		–	–	–	–		–
42+40	–	LT.	–		–	–	–	110'		PLACE AT TOE OF STREAMBANK
42+40	–	RT.	–		–	–	–	110'		
42+80	–	LT.	–		–	–	–	110'		
42+80	–	RT.	–		–	–	–	110'		
43+25	–	LT.	20		–	–	–	–		–
43+25	–	RT.	20		–	–	–	–		–
40+00	41+00	RT.	–		–	–	–	120'		SIDE ROAD
TOTALS			60		–	–	–	560'		

SUMMARY OF EARTHWORK

STATION	AREAS IN SQ. FT. CUT	FILL	VOLUMES IN CU. YDS. CUT	ADD'L CUT	FILL	ADD'L FILL	FILL+35%
40+00	0	0	124		9		13
41+00	67	5	55		17		23
41+25	53	32	109	62	111	646	1,022
41+70	77	102		#651			
BRIDGE	–	–		74		337	455
43+50	122	21	243		24		32
44+00	140	5	110		5		7
44+25	98	6	135		8		11
45+00	0	0					
TOTAL			775	787	175	983	1,563

Class 10, Channel

TRAFFIC CONTROL PLAN

THE PROJECT ROUTE WILL BE CLOSED TO TRAFFIC. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

SAFETY CLOSURES SHALL BE PLACED IN ACCORDANCE WITH SECTION 2518 OF THE STANDARD SPECIFICATIONS AT THE LOCATIONS SPECIFIED IN THE "TABULATION OF SAFETY CLOSURES".

THE CRAWFORD COUNTY MAINTENANCE SHALL SALVAGE ALL ROAD MARKERS AFTER ROAD IS CLOSED.

THE BID ITEM "TRAFFIC CONTROL" SHALL INCLUDE THE COST FOR ALL TRAFFIC CONTROL MEASURES REQUIRED OF THE CONTRACTOR EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS.

THE GUARDRAIL INSTALLATION MUST BE COMPLETED BEFORE THE ROAD IS OPENED TO TRAFFIC.

ALL CONTRACTOR FURNISHED TRAFFIC CONTROL SIGNS USED ON THIS PROJECT SHALL BE SHEETED WITH ENCAPSULATED LENS SHEETING.

TYPE 'C' STEADY BURN WARNING LIGHTS ARE NOT REQUIRED FOR VERTICAL PANELS, BARRICADES, AND DRUMS WHEN THESE TRAFFIC CONTROL DEVICES ARE SHEETED WITH ENCAPSULATED LENS SHEETING.

TABULATION OF SAFETY CLOSURES

108-13A
10-28-97

Refer to Section 2518 of the Standard Specifications

STATION	CLOSURE TYPE Road Qty.	Hazard Qty.	REMARKS
39+00	1	–	WEST END
41+70	1	–	S. 160th ST.
46+00	1	–	EAST END

151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
47'-5 END SPANS

P10A PIERS
56'-6 INTERIOR SPAN

TABULATIONS

STATION 42+60.00
CRAWFORD COUNTY,

0° SKEW
IOWA

BENCH MARK #1 : SPIKE IN WOOD TELEPHONE MARKER POST, STA. 39+35, 37' RT., ELEV.= 488.48
BENCH MARK #2 : SPIKE IN POWER POLE, STA. 46+00, 32' LT., ELEV.= 487.57

SOLDIER TWP.
T 85 N, R 41 W
SECT. 12

STA. 42+57, ℄ EXISTING 75'x20' STEEL PONY TRUSS W/ 2-26'x20' TIMBER STRINGER APPROACHES (TOTAL LENGTH = 128'x20') ON TIMBER TRESTLE PIERS AND TIMBER PILE ABUTMENTS W/ A TIMBER DECK (REMOVE)

TEMPORARY CONSTRUCTION EASEMENT (TYP.)

EOP = 45+00.00
N = 10000.00
E = 11881.00

BOP = 40+00.00
N = 10000.00
E = 11381.00

STA. 42+60, ℄ PROPOSED 151'-4 x 24'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE, 0° SKEW

PROPOSED R.O.W.

EXISTING R.O.W. (TYP.)

CREEK

BEAVER

50 0 50 100

SEE SITUATION PLAN FOR ADDITIONAL INFORMATION.

FILL +35%		CUT		BRIDGE	CUT		FILL +35%	
ABUTMENT BERM	72 CY	ADD'L CUT	62 CY		ADD'L CUT	74 CY	ABUTMENT BERM	15 CY
GUARDRAIL BERMS	800 CY	ROADWAY	287 CY		ROADWAY	488 CY	GUARDRAIL BERMS	440 CY
ROADWAY	185 CY	HAUL FROM EAST END	57 CY		HAUL TO WEST END	-57 CY	ROADWAY	50 CY
TOTAL	1,057 CY	CHANNEL EXCAVATION	651 CY		TOTAL	505 CY	TOTAL	505 CY
		TOTAL	1,057 CY					

VPI STA = 42+50.00
VPI EL = 495.84
CURVE LEN = 500.00
K = 181.16
E = 1.72

PROPOSED GRADELINE

EXISTING GROUNDLINE

BOP STA = 40+00.00 BOP EL = 492.24
EOP STA = 45+00.00 EOP EL = 492.54
VPC STA = 40+00.00 VPC EL = 492.24
VPT STA = 45+00.00 VPT EL = 492.54

1.44% -1.32%

40+00 LT. 484.0
41+85 LT. 482.8
43+10 LT. 483.2
43+20 RT. 483.4
45+00 RT. 487.2
45+00 LT. 487.0

2.1% RT. DITCH
2.0% LT. DITCH
-0.6% LT. DITCH

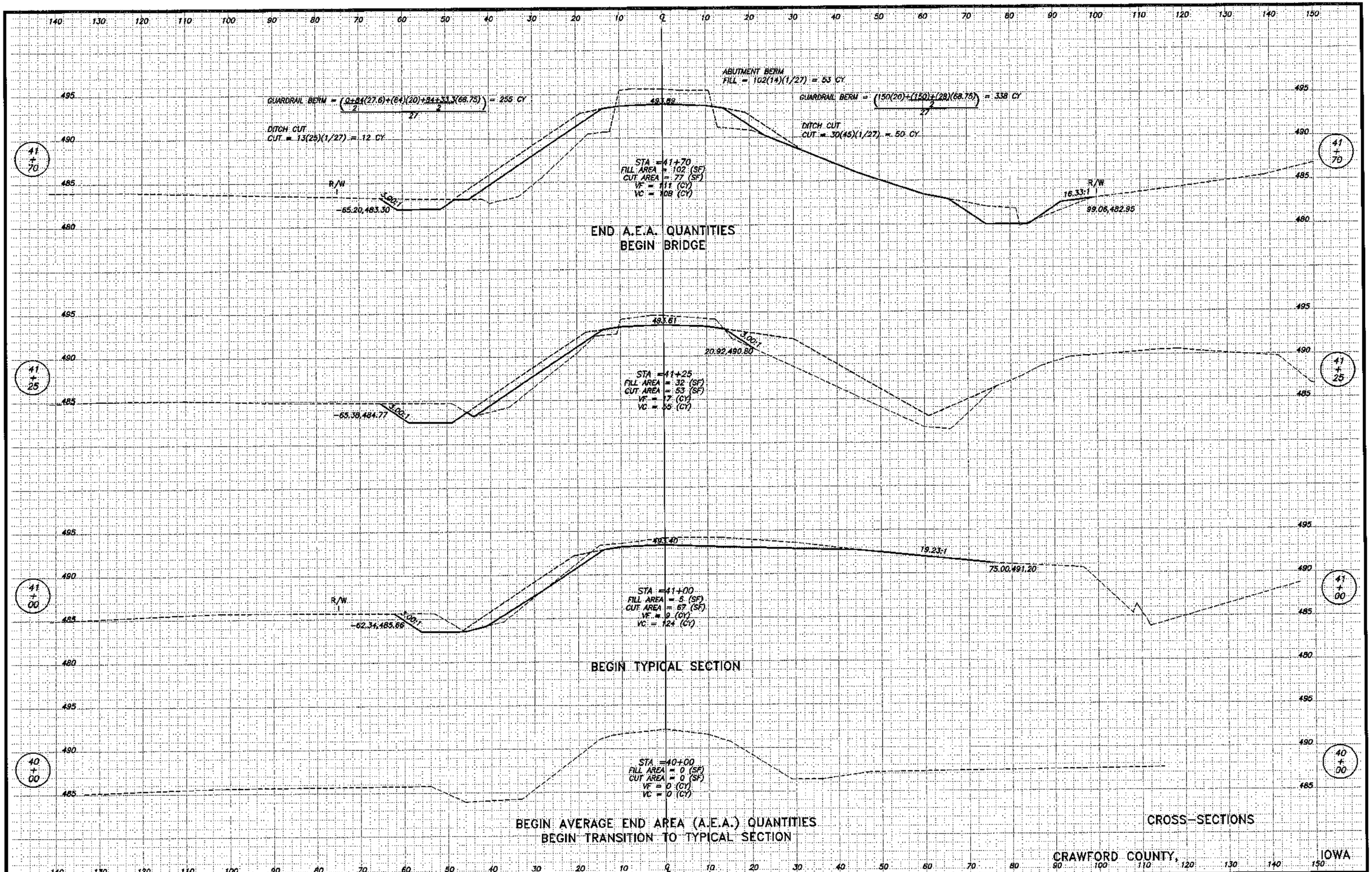
492.24 492.89 493.40 493.78 494.02 494.08 493.90 493.58 493.13 492.54

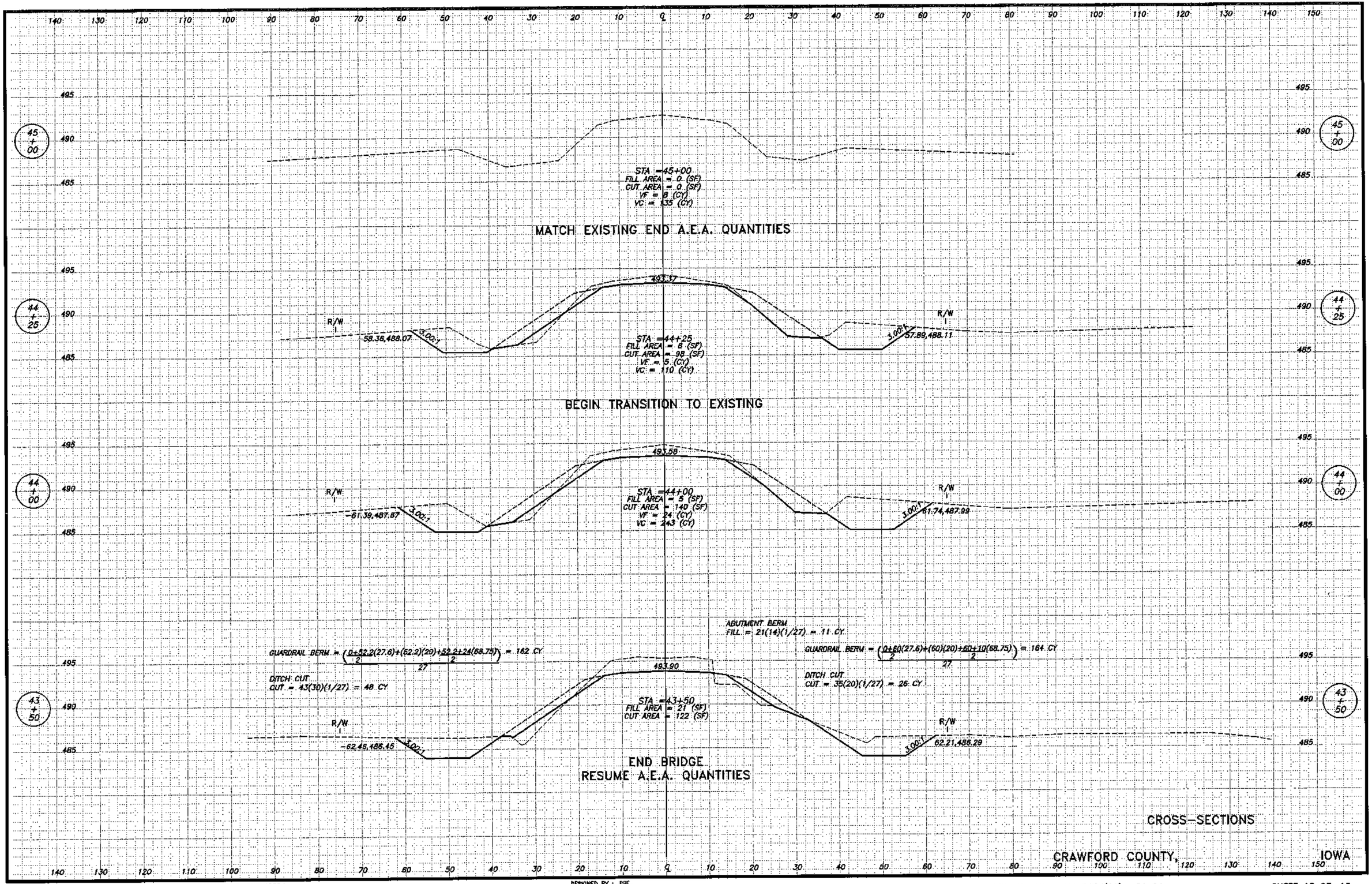
510 505 500 495 490 485 480 475 470 465

38+00 40+00 42+00 44+00 46+00 48+00 50+00 52+00

PLAN AND PROFILE

CRAWFORD COUNTY, IOWA


GUARDRAIL BERM = ((0+24)/2(27.6)+(64)(20)+(24+33.3)/2(68.75))/27 = 255 CY
DITCH CUT
CUT = 13(25)(1/27) = 12 CY
41 + 70
R/W
3.00:1
-65.20,483.30
STA =41+70
FILL AREA = 102 (SF)
CUT AREA = 77 (SF)
VF = 111 (CY)
VC = 108 (CY)
493.89
ABUTMENT BERM
FILL = 102(14)(1/27) = 53 CY
GUARDRAIL BERM = ((150(20)+(150+28)/2(68.75))/27 = 338 CY
DITCH CUT
CUT = 30(45)(1/27) = 50 CY
16.33:1
99.06,482.95
END A.E.A. QUANTITIES
BEGIN BRIDGE
41 + 25
493.61
3.00:1
20.92,490.80
STA =41+25
FILL AREA = 32 (SF)
CUT AREA = 53 (SF)
VF = 17 (CY)
VC = 55 (CY)
-65.38,484.77
41 + 00
R/W
3.00:1
-62.34,485.66
493.40
19.23:1
75.00,491.20
STA =41+00
FILL AREA = 5 (SF)
CUT AREA = 67 (SF)
VF = 9 (CY)
VC = 124 (CY)
BEGIN TYPICAL SECTION
40 + 00
STA =40+00
FILL AREA = 0 (SF)
CUT AREA = 0 (SF)
VF = 0 (CY)
VC = 0 (CY)
BEGIN AVERAGE END AREA (A.E.A.) QUANTITIES
BEGIN TRANSITION TO TYPICAL SECTION
CROSS-SECTIONS
CRAWFORD COUNTY, IOWA


45 + 00
STA =45+00
FILL AREA = 0 (SF)
CUT AREA = 0 (SF)
VF = 8 (CY)
VC = 135 (CY)
MATCH EXISTING END A.E.A. QUANTITIES
44 + 25
493.17
R/W
58.36,488.07
3.00:1
STA =44+25
FILL AREA = 6 (SF)
CUT AREA = 98 (SF)
VF = 5 (CY)
VC = 110 (CY)
R/W
3.00:1
57.89,488.11
BEGIN TRANSITION TO EXISTING
44 + 00
493.58
R/W
61.39,487.87
3.00:1
STA =44+00
FILL AREA = 5 (SF)
CUT AREA = 140 (SF)
VF = 24 (CY)
VC = 243 (CY)
R/W
3.00:1
61.74,487.99
ABUTMENT BERM
FILL = 21(14)(1/27) = 11 CY
GUARDRAIL BERM = ((0+52.2(27.6)+(52.2)(20)+52.2+24(68.75))/2)/27 = 162 CY
GUARDRAIL BERM = ((0+60(27.6)+(60)(20)+60+10(68.75))/2)/27 = 164 CY
DITCH CUT
CUT = 43(30)(1/27) = 48 CY
DITCH CUT
CUT = 35(20)(1/27) = 26 CY
43 + 50
493.90
R/W
62.46,486.45
3.00:1
STA =43+50
FILL AREA = 21 (SF)
CUT AREA = 122 (SF)
R/W
3.00:1
62.21,486.29
END BRIDGE
RESUME A.E.A. QUANTITIES
CROSS-SECTIONS
CRAWFORD COUNTY, IOWA