

LETTING DATE:

**CRAWFORD COUNTY**  
**PROJECT NO. LB31-31W BRIDGE REPLACEMENT**

# IOWA DEPARTMENT OF TRANSPORTATION

## Project Development Division Plans of Proposed Improvement on The **SECONDARY ROAD SYSTEM CRAWFORD COUNTY PROJECT NO. LB31-31W**

PROJECT NO. LB31-31W

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4	DETAIL SHEET, ABUTMENT CAP & PIER CAP
5	PIER BRACING DETAILS, HANDRAIL DETAILS
6	SITUATION PLAN

### 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 AND LAYOUTS SHALL BE AS PER PART VI OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (ICA), CHAPTER 130.

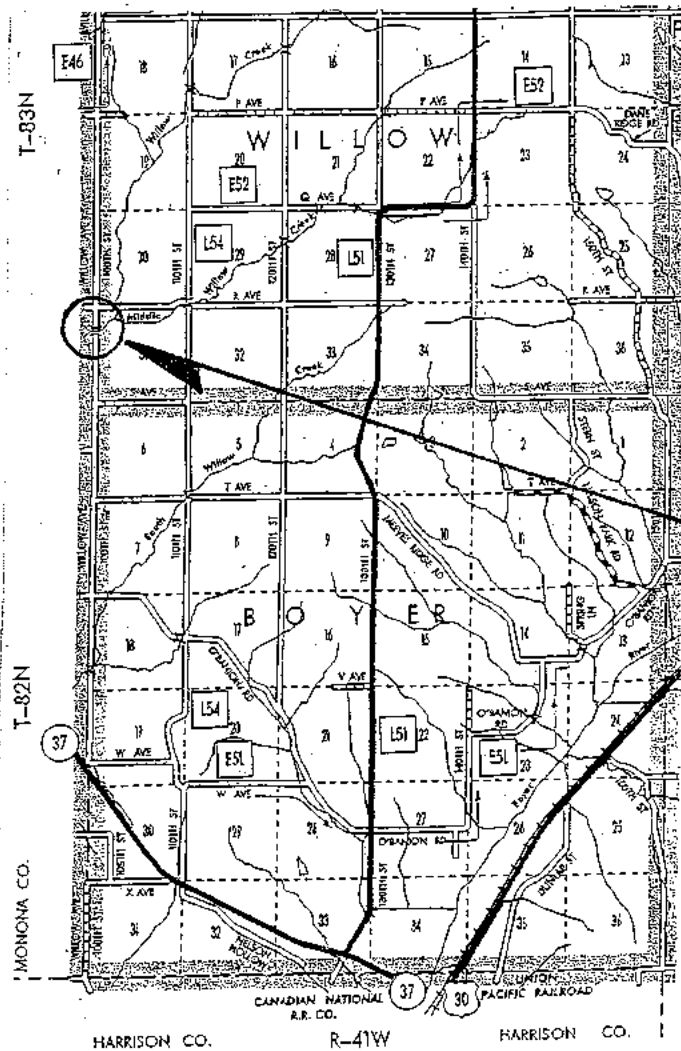
TRAFFIC CONTROL TO BE FURNISHED BY THE COUNTY.

ON 100th ST. 0.29 MILES SOUTH OF THE INTERSECTION OF R AVE. AND 100th ST.

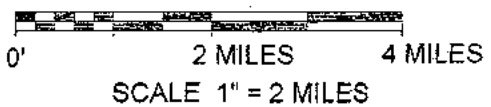
### BRIDGE REPLACEMENT

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

Scales As Noted



**98'-3" X 24'-0" STEEL GIRDER BRIDGE  
30° SKEW RT. AHEAD TIMBER FLOOR**



2000 ADT 35 V.P.D.

*Mark Johnson*

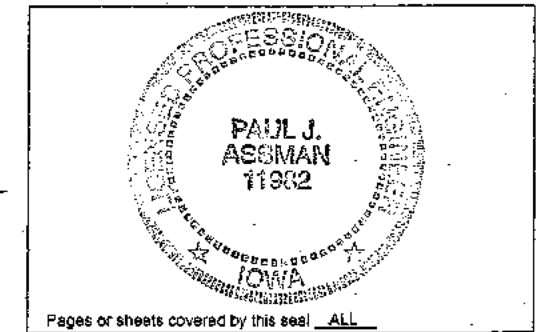
*Steve Clemens*

*Robert Lohman*

*Daniel W. Miller*

*John P. Lawley*

APPROVED  
BOARD OF SUPERVISORS



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

*Paul J. Assman* 2/3/09  
Paul J. Assman Date

MY LICENSE RENEWAL DATE IS 12/31/10

128411

**ESTIMATE OF QUANTITIES**

REF. NO.	ITEM CODE	ITEM	UNIT	TOTAL
1	2104-2710020	CLASS 10, CHANNEL EXCAVATION	CU. YDS.	390.0
2	2401-6745625	REMOVAL OF EXISTING BRIDGE	L.S.	1.0
3	2402-2720000	CLASS 20 EXCAVATION	CU. YDS.	19.0
4	2501-0201042	PILE STEEL HP10 X 42 (DRIVE ONLY)	LIN. FT.	1680.0
5	2408-7700020	STRUCTURAL STEEL - (ERECT ONLY)	LB.	62148.0
6	2507-3250005	ENGINEERING FABRIC	SY	294.0
7	2507-6800042	REVETMENT, CLASS D	TON	220.0
8		TIMBER DECKING (PLACE ONLY)	L.S.	1.0
9		HANDRAIL (PLACE ONLY)	L.S.	1.0
10	2533-4980005	MOBILIZATION	L.S.	1.0

**GENERAL NOTES**

213-1  
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 IN 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, UNLESS SPECIFICALLY STATED IN THE PLANS.

251-1  
THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ACCESS 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, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AN ALTERNATE ACCESS. TEMPORARY GRANULAR SURFACING WILL BE FURNISHED BY THE COUNTY.

271-9  
A SCRAPE SAMPLE WAS TAKEN FROM ONE AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 44400 mg/kg. ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 19.6 mg/kg. THESE ANALYSES SHOW 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 CONTRACTING AUTHORITY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTANCE OF THESE TWO TOXIC CONSTITUENTS.

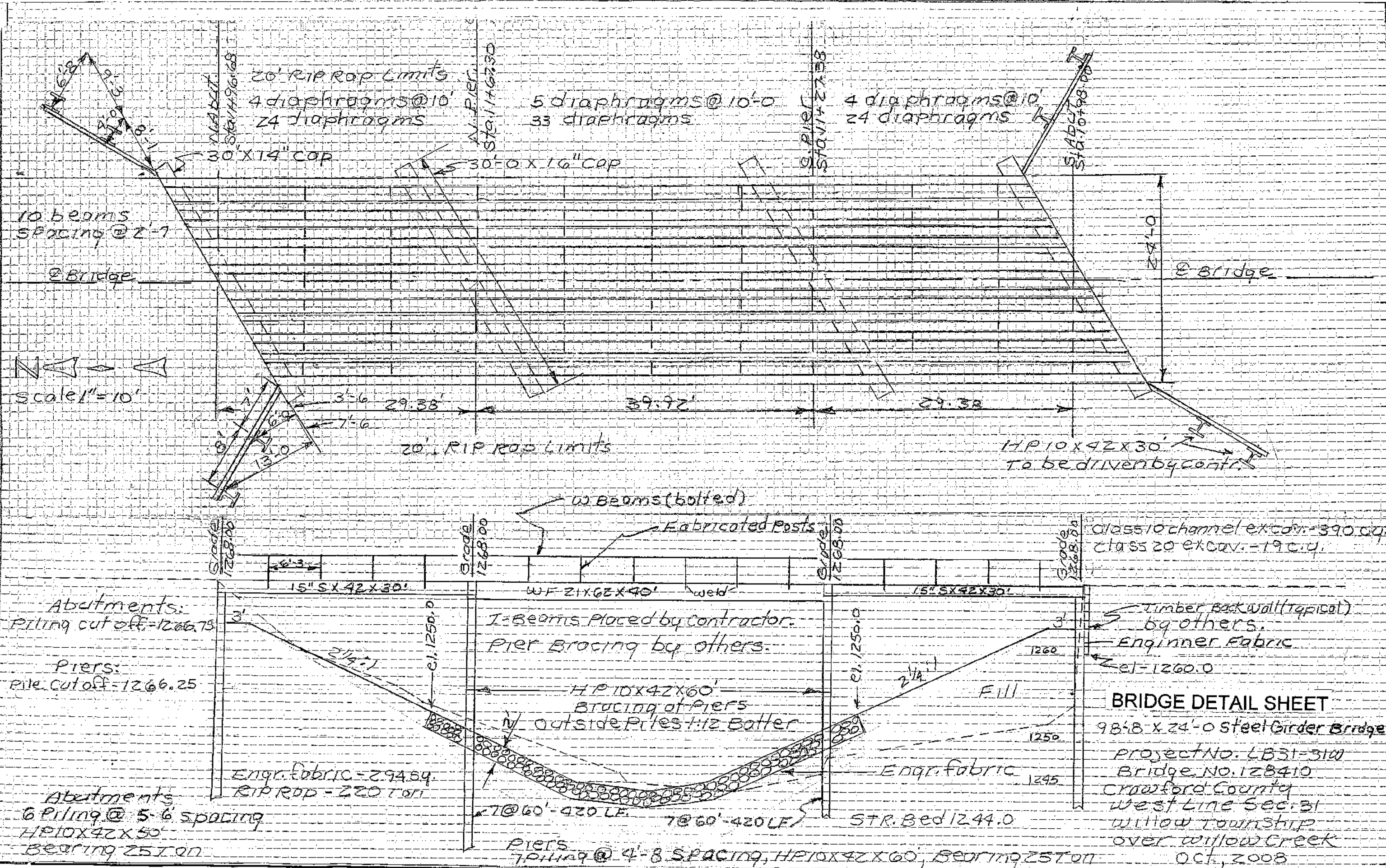
CONSTRUCTION STAKING SHALL BE PROVIDED BY THE OWNER IN ACCORDANCE WITH ARTICLE 1105.06 OF THE CURRENT STANDARD SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING AN INDEPENDENT CHECK OF ALL CONSTRUCTION STAKES PLACED FOR THE PROJECT. THIS INDEPENDENT CHECK SHALL BE SUFFICIENT TO UNDERSTAND THE PLACEMENT AND INTENT OF THE STAKES.

SEEDING, MULCHING & FERTILIZING WILL BE COMPLETED BY CRAWFORD COUNTY.

**ESTIMATE REFERENCE INFORMATION**

REF. NO.

- 1 ITEM INCLUDES EXCAVATION NECESSARY TO SHAPE THE CHANNEL AND PLACE THE REVETMENT. INCIDENTAL TO THIS ITEM AND INCLUDED IN THE COST THEREOF IS THE WORK REQUIRED TO BACKFILL WITH EARTH/FILL BEHIND THE BACKWALLS AND WINGWALLS AT BOTH ABUTMENTS TO THE FINISHED BRIDGE DECK ELEVATION. ROADWAY GRADING BEYOND THE IMMEDIATE VICINITY OF THE BRIDGE WILL BE COMPLETED BY CRAWFORD COUNTY.
- 2 ITEM INCLUDES REMOVAL AND DISPOSAL OF ALL BRIDGE ELEMENTS AS NOTED HEREIN. REMOVALS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS 2401. ANY CLEARING OF TREES NECESSARY TO CONSTRUCT THE BRIDGE SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.
- 4 INCLUDES 6 PILING AT 50'-0" FOR EACH ABUTMENT, 7 PILING AT 60'-0" FOR EACH PIER AND 2 PILING AT 30'-0" FOR EACH WINGWALL. HP10 X 42 PILING TO BE FURNISHED AND DELIVERED TO THE SITE BY CRAWFORD COUNTY.
- 5 ITEM INCLUDES INSTALLING ALL STEEL BEAMS, PIER AND ABUTMENT CAPS, PIER BRACING AND DIAPHRAGMS AS SHOWN HEREIN. SAID MATERIALS INCLUDING BOLTS SHALL BE FURNISHED AND DELIVERED TO THE SITE BY CRAWFORD COUNTY. DIAPHRAGMS SHALL BE BOLTED TO BEAM WEBS USING 3-7/8" BOLTS AT EACH CONNECTION. HOLES IN BEAM WEB SHALL BE FIELD CUT OR DRILLED.  
  
15" I-BEAMS 25,200 LBS.      21" I-BEAMS 24,800 LBS.      PIER & ABUTMENT CAPS 6528 LBS.  
DIAPHRAGMS 3417 LBS.      PIER BRACING 2203 LBS.
- 6 ITEM INCLUDES FURNISHING AND INSTALLING ENGINEERING FABRIC BENEATH THE REVETMENT AND BEHIND THE BRIDGE BACKWALLS AND WINGWALLS.  
  
MATERIAL TO CONFORM TO IOWA DOT MATERIALS IM 496.01 APPENDIX A, EMBANKMENT EROSION CONTROL (ARTICLE 4196.01, C OF THE STANDARD SPECIFICATIONS).  
  
MATERIAL SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. THE QUANTITY OF ENGINEERING FABRIC FOR WHICH PAYMENT WILL BE MADE, WHEN PLACED AS SHOWN IN THE CONTRACT DOCUMENTS, WILL BE THE QUANTITY SHOWN IN THE CONTRACT DOCUMENTS IN SQUARE YARDS. MATERIAL FOR LAPS IS NOT INCLUDED IN THE PLAN QUANTITY.
- 7 ITEM INCLUDES FURNISHING AND INSTALLING REVETMENT, CLASS D.  
  
MATERIAL SHALL BE PROCESSED TO THE EXTENT THAT MOST OF THE MATERIAL 3 INCHES AND LESS SHALL BE REMOVED.  
  
RIP RAP WILL NOT BE ALLOWED TO BE DUMPED OVER THE RAILING OF ANY BRIDGE.  
  
THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF RIP RAP STOCKPILES FROM FARM FIELDS UTILIZED BY THE CONTRACTOR IN THE PROJECT AREA. THIS WORK WILL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.
- 8 ITEM INCLUDES PLACING AND FASTENING THE TIMBER DECKING. THE 4" LOWER DECKING SHALL BE FASTENED TO EVERY OTHER STEEL BEAM IN AN ALTERNATING PATTERN USING POWER DRIVEN NAILS, SCREWS OR METAL CLIPS AT A MINIMUM OF TWO POINTS. THE 3" UPPER DECKING SHALL BE FASTENED TO THE LOWER 4" DECKING AT EACH END AND AT A MINIMUM SPACING OF 6' WITH A MINIMUM OF 2 NAILS PER CONNECTION POINT. THE 3" DECKING SHALL BE INSTALLED IN AN ALTERNATING PATTERN SUCH THAT A CONTINUOUS TRANSVERSE JOINT IS AVOIDED. ALL TIMBER DECKING SHALL BE FURNISHED AND DELIVERED TO THE SITE BY CRAWFORD COUNTY. ALL DECK FASTENERS SHALL BE PROVIDED BY THE CONTRACTOR.
- 9 ITEM INCLUDES WELDING THE HANDRAIL POST TO THE EXTERIOR BEAM USING A FULL-LENGTH WELD ON EACH SIDE OF THE CONNECTING PLATE AND BOLTING THE W-BEAM TO THE POST. ALL HANDRAIL POSTS AND W-BEAM SHALL BE FURNISHED AND DELIVERED TO THE SITE BY CRAWFORD COUNTY.



20' RIP RAP Limits  
4 diaphragms @ 10'  
24 diaphragms

5 diaphragms @ 10'-0  
33 diaphragms

4 diaphragms @ 10'  
24 diaphragms

30' X 14" COP

30'-0 X 16" COP

10 beams  
SPACING @ 2'-7

2 Bridge

2 Bridge

Scale 1" = 10'

3'-6 29.38' 39.72' 29.38'

20' RIP RAP Limits

HP 10 X 42 X 30  
to be driven by contractor

W Beams (bolted)

Fabricated Posts

class 10 channel excor. - 390 cu.  
class 20 excor. - 190 cu.

Abutments:  
Piling cut off = 1266.75

Piers:  
Pile cut off = 1266.25

Abutments  
6 Piling @ 5'-6 spacing  
HP 10 X 42 X 50  
Bearing 25 T on

Engr. fabric = 294.54  
RIP RAP = 220 T on

I-Beams Placed by contractor.  
Pier Bracing by others.

HP 10 X 42 X 60  
BRACING of Piers  
outside Piles 1/2 Batter

7 @ 60' - 420 LF. 7 @ 60' - 420 LF

Piers  
7 Piling @ 4'-8 spacing, HP 10 X 42 X 60, Bearing 25 T on

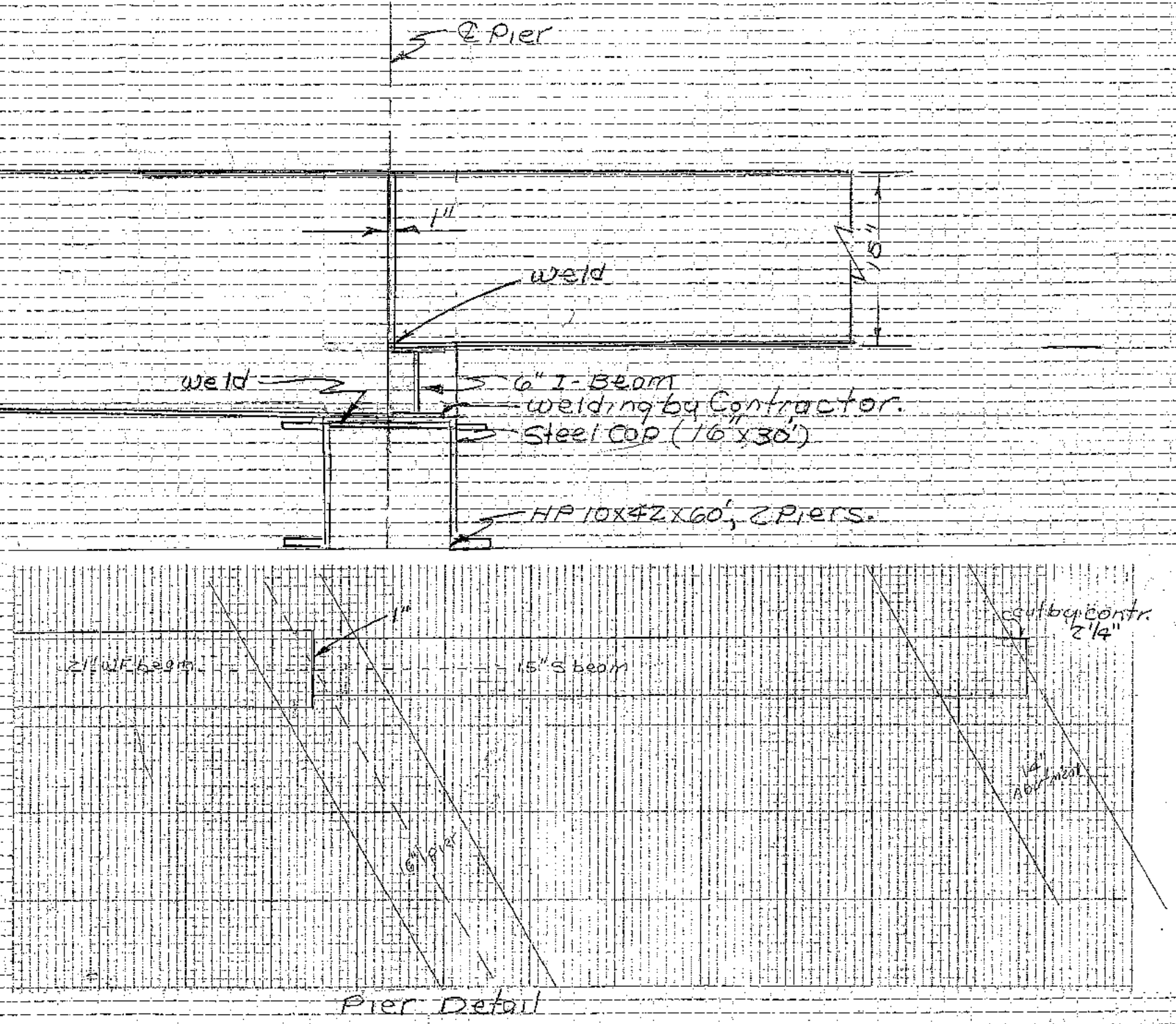
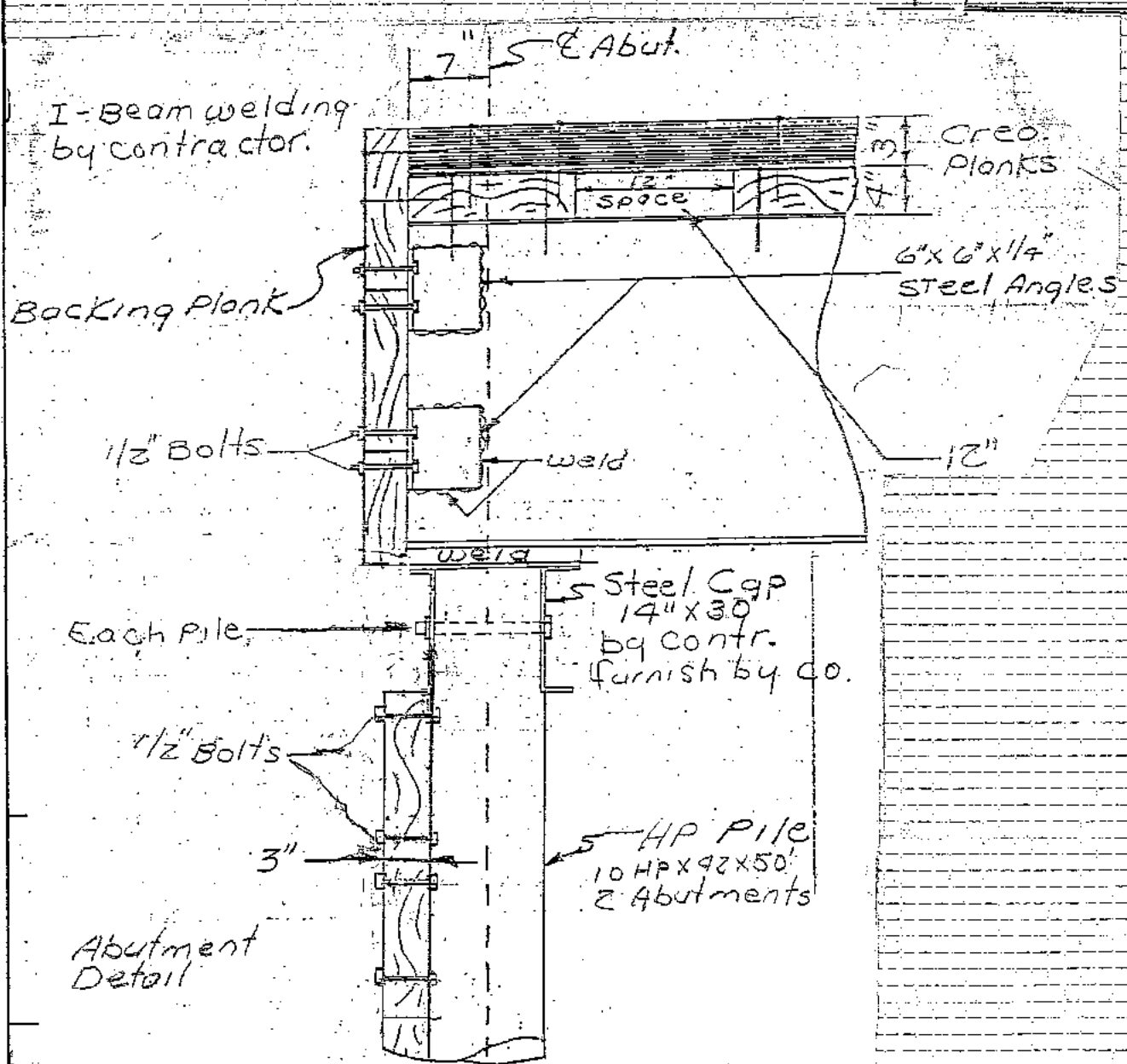
STR. Bed 1244.0

Timber Back wall (typical)  
by others.  
Engineer Fabric  
Elev = 1260.0

**BRIDGE DETAIL SHEET**

98'-8 X 24'-0 Steel Girder Bridge  
Project No. LB31-31W  
Bridge No. 128410  
Crawford County  
West Line Sec. 31  
Willow Township  
over Willow Creek  
Oct, 2008

**ABUTMENT DETAILS**



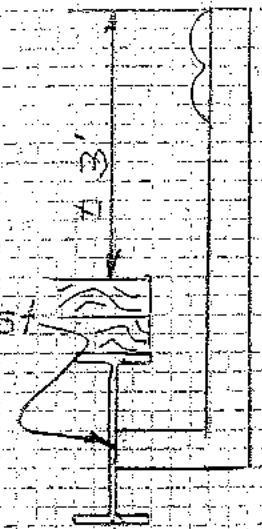
98'-8 x 24'-0 Steel Girder Bridge  
 Project No. LB31-31W  
 Bridge No. 123910  
 Crawford County  
 West Line Sec. 31  
 Willow Township  
 over Willow Creek  
 Oct. 2008

← Bridge

HANDRAIL DETAIL

NOT TO SCALE

Full weld  
each rail post  
each side



← Pier  
cap

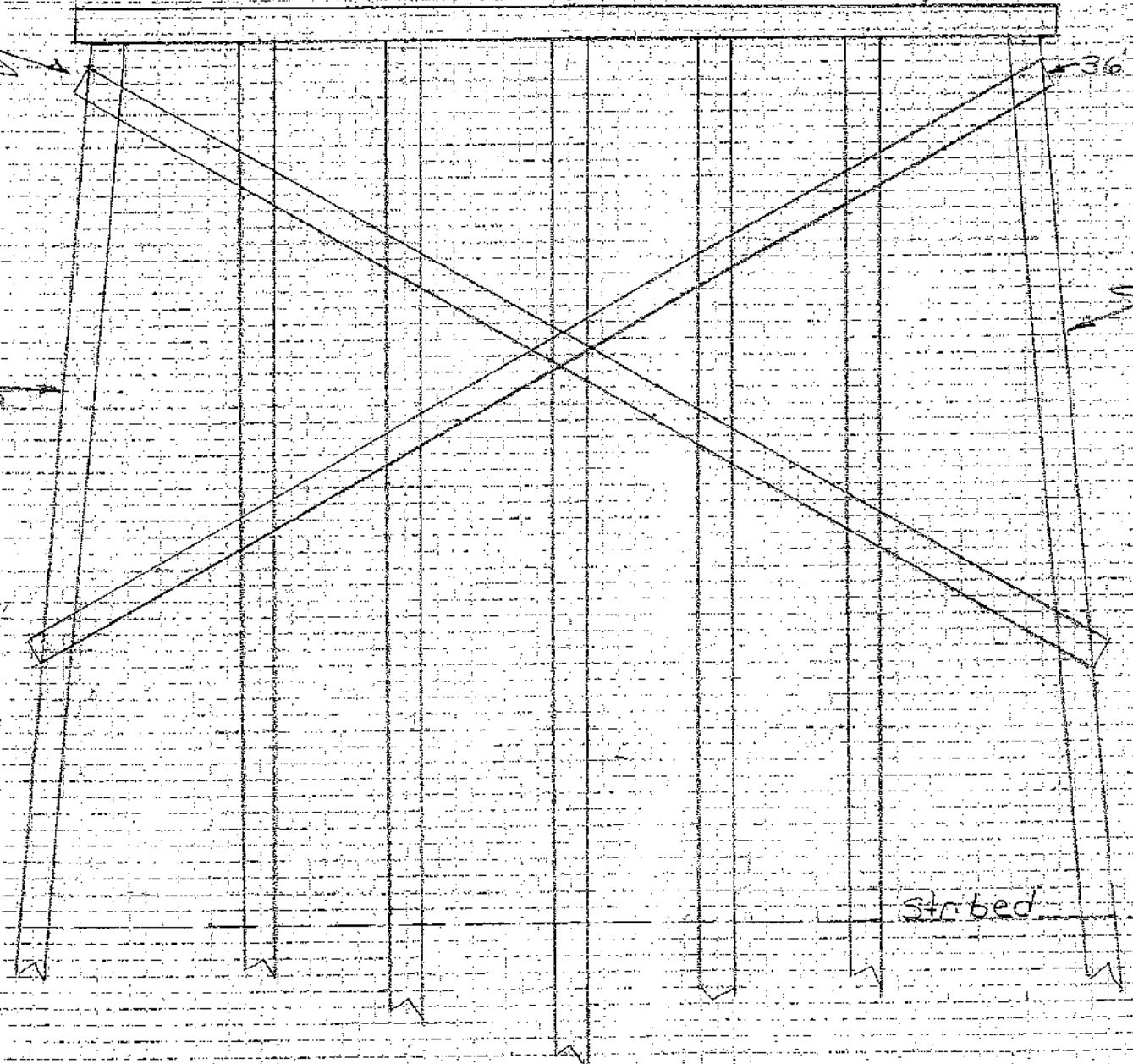
36"x10" channel  
weld to each pile

36"x10" channel weld to each pile

HP 10x42x60'  
1 1/2" Batter

HP 10x42x60' (1 1/2" Batter)

Pier Bracing Detail, Two Piers  
Scale 1"=5'



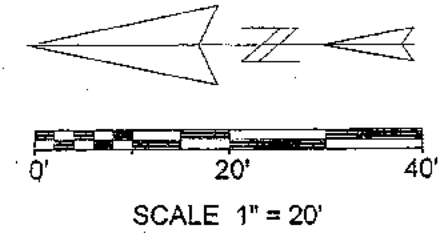
98'-8x24'-0 Steel Girder Bridge  
Project No. LB31-31W  
Bridge No. 12340  
Crawford County  
West Line Sec 31 Willow TWP  
over Willow Creek  
Oct. 2008

PIER BRACING DETAILS

CRAWFORD COUNTY  
WILLOW TOWNSHIP  
WEST LINE SECTION 31  
T-83N R-41W

DARRELL C. MITCHELL  
1016 R AVE.  
UTE IA 51060  
712-885-2865

MICHAEL MITCHELL  
BRENDA L. NEWELL  
LORI L. ROBERSON

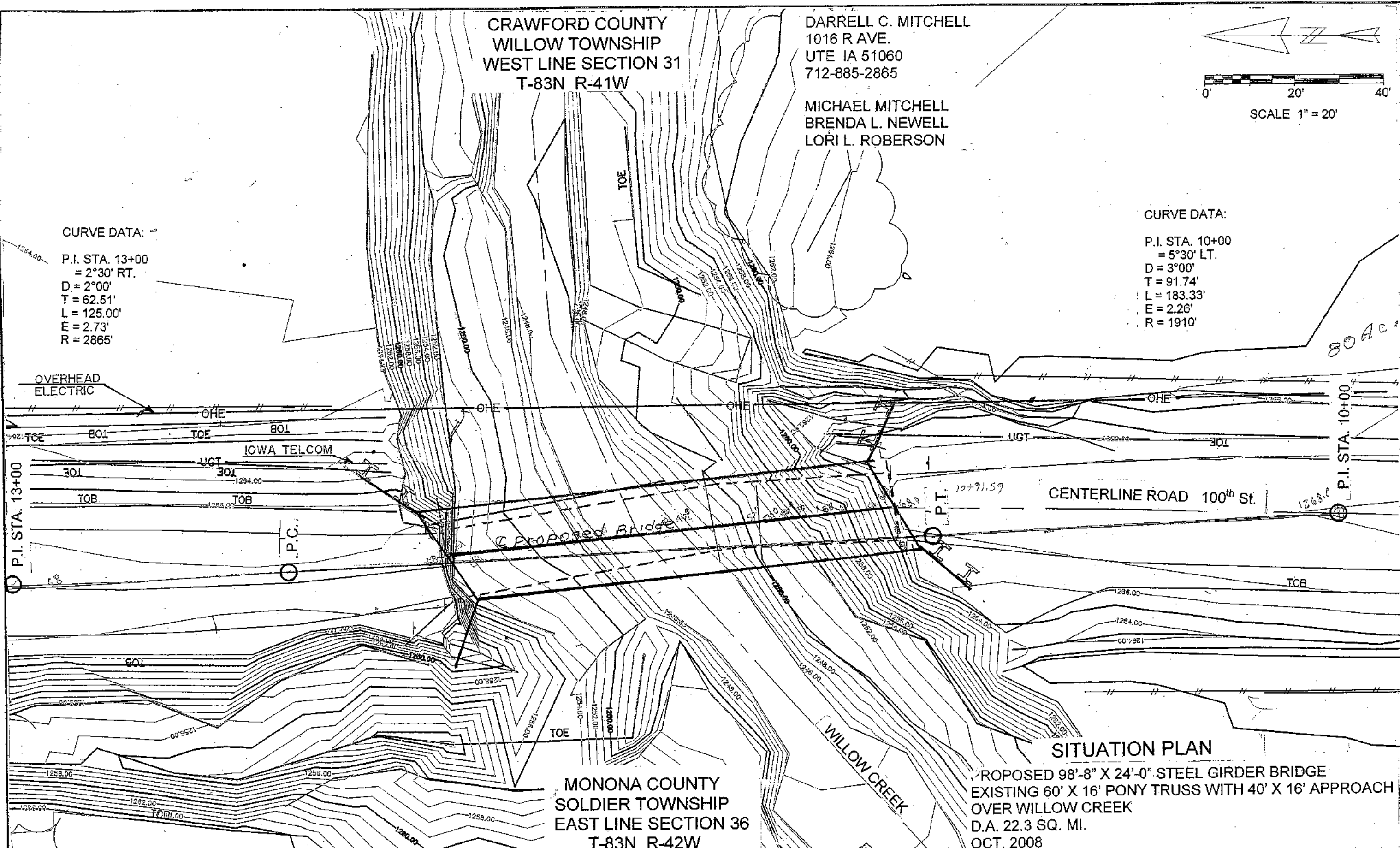


CURVE DATA:

P.I. STA. 13+00  
= 2°30' RT.  
D = 2°00'  
T = 62.51'  
L = 125.00'  
E = 2.73'  
R = 2865'

CURVE DATA:

P.I. STA. 10+00  
= 5°30' LT.  
D = 3°00'  
T = 91.74'  
L = 183.33'  
E = 2.26'  
R = 1910'



MONONA COUNTY  
SOLDIER TOWNSHIP  
EAST LINE SECTION 36  
T-83N R-42W

**SITUATION PLAN**  
PROPOSED 98'-8" X 24'-0" STEEL GIRDER BRIDGE  
EXISTING 60' X 16' PONY TRUSS WITH 40' X 16' APPROACH  
OVER WILLOW CREEK  
D.A. 22.3 SQ. MI.  
OCT. 2008