

LETTING DATE
May 20, 2008

**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM STORY COUNTY REVENUE

I-35 At Ballard Creek
1.3 Miles N. Of Ia 210

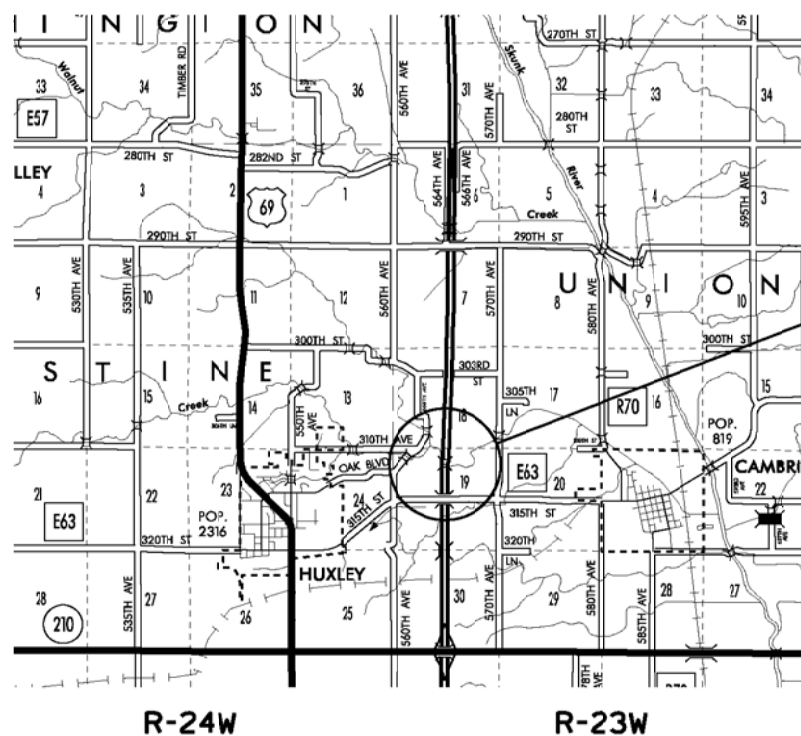
SCALES: As Noted

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 construction on this project.

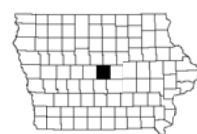
Value Engineering Saves. Refer to Article 1105.15 of the Specifications.



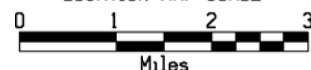
NO MILEAGE SUMMARY



PROJECT LOCATION



LOCATION MAP SCALE



04-30-02	101-4
DESIGN DATA RURAL	
20 06 AADT	<u>37,900</u> V.P.D.
20 AADT	<u>--</u> V.P.D.
20 DHV	<u>--</u> V.P.H.
TRUCKS	<u>--</u> %
Total	
Design ESALs	<u>--</u>

INDEX OF SHEETS		105-3 10-18-05
No.	Description	
A.1	Title Sheet	
A.2	Legend and Symbol Information Sheet	
C.1 - C.2	Estimate of Quantities	
G.1	Reference Ties and Bench Marks	
H.1	Right of Way Design Information (FOR INFORMATION ONLY)	
U.1 - U.2	Special Traffic Control Details	
V.1	Situation Plan	
W.1 - W.20	Cross Sections, Ballard Creek	

ROADWAY DESIGN



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.

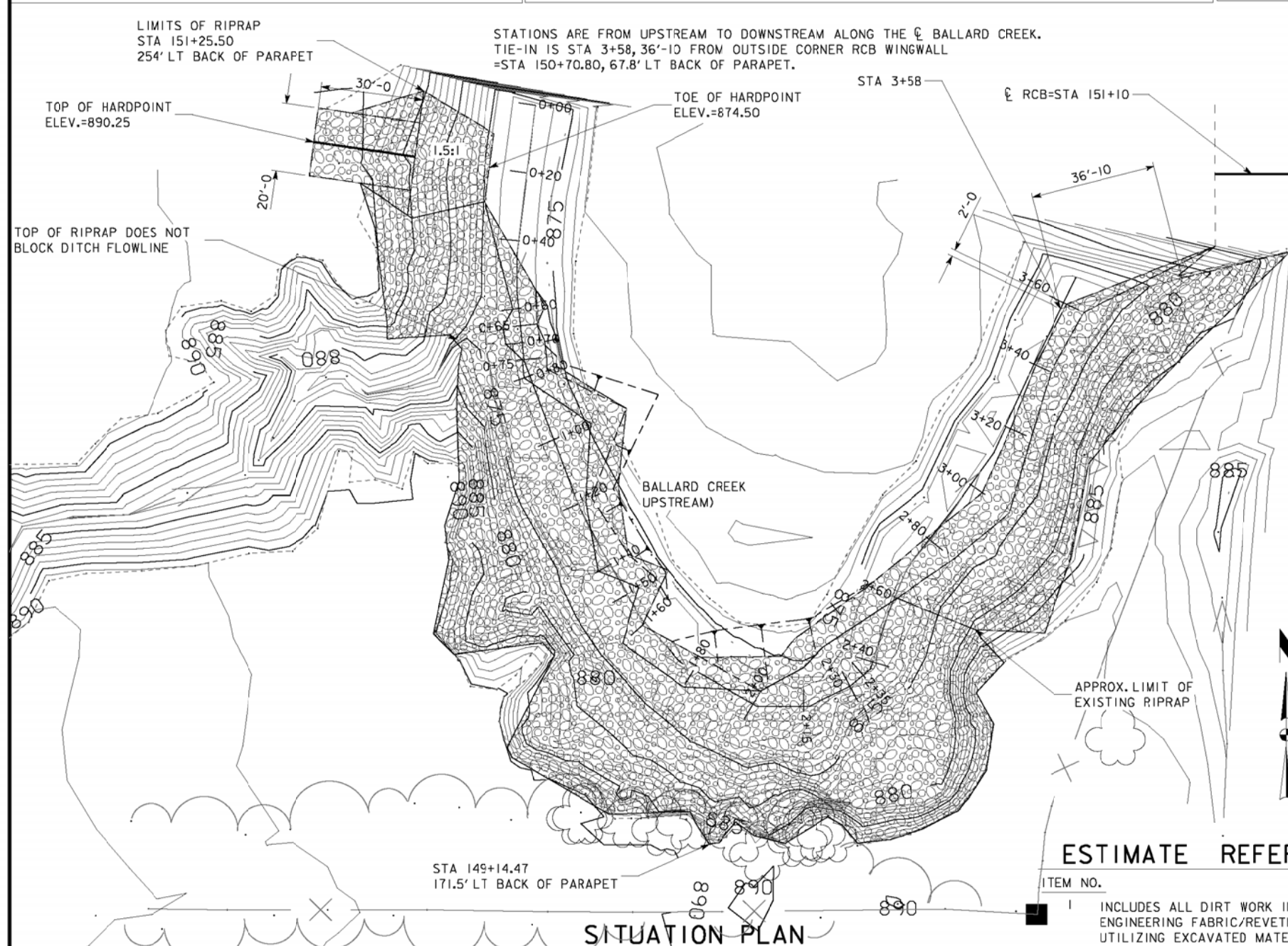
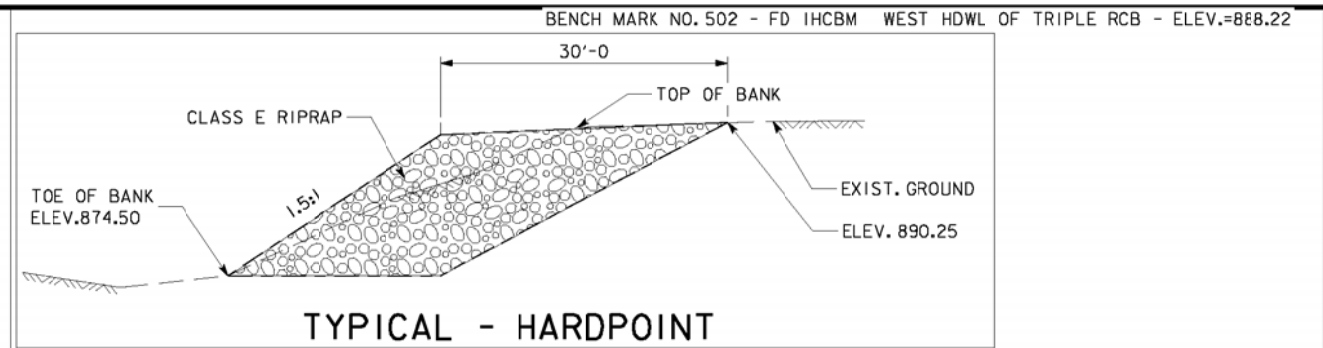
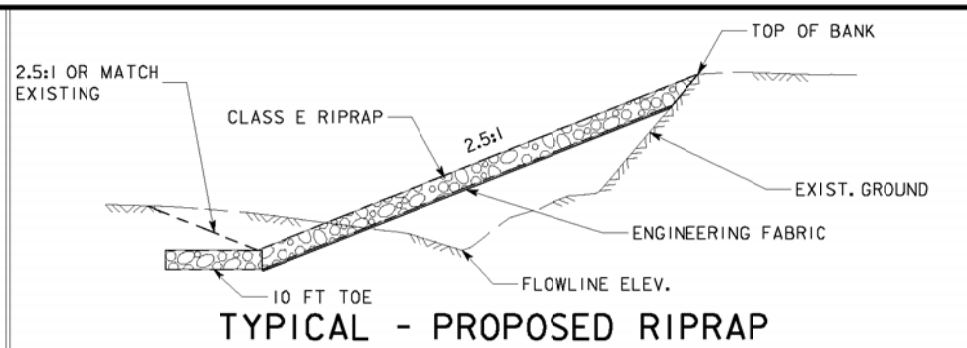
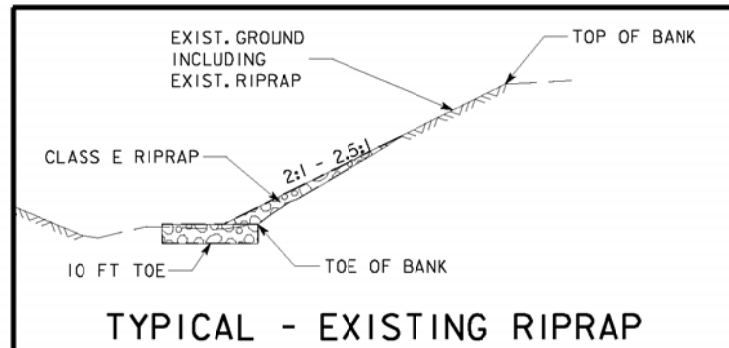
Robert A Welper 03/04/08

Signature Robert A. Welper

Printed or Typed Name _____

My license renewal date is December 31, 20 09

Pages or sheets covered by this seal: A.1-A.2, C.1-C.2, G.1,
H.1, U.1-U.2, V.1, W.1-W.20



GENERAL NOTES:

THIS DESIGN IS FOR STREAMBANK REPAIR TO THE EXISTING TRIPLE 13'-16'-13' X 12' REINFORCED CONCRETE BOX (RCB) CULVERT AT I-35 OVER BALLARD CREEK, 1.3 MILES NORTH OF JCT. IA 210. COPIES OF THE ORIGINAL DESIGN PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

THE REPAIR SHALL CONSIST OF THE FOLLOWING WORK.
ALL WORK IS ON THE SOUTH BANK ON THE UPSTREAM (WEST) SIDE OF THE RCB.
FROM THE SOUTH INLET WING OF THE RCB TO APPROXIMATELY STA 2+60, RIPRAP HAD BEEN PLACED IN THE PAST. AT THE EXISTING TOE OF BANK, PROVIDE AN ENTRENCHED 10 FT. CLASS E RIPRAP TOE 2 FT. DEEP. DO NOT PLACE ENGINEERING FABRIC ON TOP OF EXISTING RIPRAP. PLACE CLASS E RIPRAP ON TOP OF EXISTING RIPRAP TO MATCH THE ORIGINAL GRADED BANK SLOPE. (THIS WAS APPROXIMATELY 2:1 TO 2.5:1, VARYING TO FLATTER AT THE RCB WING.) AT STA 2+60, THE SLOPE SHOULD BE 2.5:1. TIE IN RIPRAP TOE AND BLANKET AT SOUTH WINGWALL OF RCB. SEE TYPICAL FOR EXISTING RIPRAP.

FROM APPROXIMATELY STA 2+60 TO APPROXIMATELY STA 0+40
FROM THE EXISTING RIPRAP LIMITS, GRADE FROM TOP OF BANK AT 2.5:1 SLOPES. GRADE TO APPROXIMATELY 2 FT BELOW THE EXISTING FLOWLINES TO PROVIDE FOR A 10 FT. WIDE TOE.
IN SOME LOCATIONS, THE OPPOSITE BANK WILL REQUIRE SOME EXCAVATION IN ORDER TO PROVIDE FOR THE TOE. IN THESE CASES, THE BANK SHOULD BE RESTORED AFTER THE TOE IS PLACED. IN CASES WHERE THE NATURAL BANK SLOPE IS BETWEEN 2:1 AND 3:1, THE RESTORED SLOPE CAN MATCH EXISTING. OTHERWISE THE BANK SHOULD BE GRADED AT A SLOPE OF 2.5:1.
PLACE ENGINEERING FABRIC ON ALL GRADED SLOPED AREAS ON THE SOUTH BANK. TIE INTO EXISTING FABRIC AT APPROXIMATELY STA 2+60. ENGINEERING FABRIC IS NOT REQUIRED BENEATH THE TOE.
PLACE CLASS E RIPRAP BLANKET 2 FT THICK ON ENGINEERING FABRIC. TIE INTO EXISTING RIPRAP AT APPROXIMATELY STA 2+60.
PROVIDE A 10 FT WIDE TOE. THE TOP OF THE TOE SHOULD BE AT THE EXISTING FLOWLINES. SEE TYPICAL FOR PROPOSED RIPRAP.

STA 0+20 IS THE CENTERLINE OF THE HARDPOINT.
THE TOP OF THE HARDPOINT IS 20 FT. WIDE AND 30 FT. LONG. THE TOE OF THE HARDPOINT IS AT THE SAME LOCATION AS THE TOE OF THE BANK. THE SLOPE FROM THE TOP OF THE HARDPOINT TO ITS TOE IS 1.5:1. THE TOE OF BANK ELEVATION IS THE SAME AS THE TOE OF HARDPOINT ELEVATION (APPROXIMATELY 874.5). THE TOP OF HARDPOINT ELEVATION MATCHES THE EXISTING GROUND ELEVATION 30 FT BACK FROM THE TOE (APPROXIMATELY 890.25).
THE EXCAVATED SLOPE FROM THE TOP ELEVATION TO THE TOE ELEVATION SHOULD NOT BE STEEPER THAN 1.5:1. ALTHOUGH EXCAVATION IS REQUIRED TO PLACE THE HARDPOINT, THE 1.5:1 FORESLOPES AND SIDESLOPES ARE FROM THE HARDPOINT TOP TO GROUND SURFACE AND DO NOT REQUIRE EXCAVATION.
ENGINEERING FABRIC IS NOT REQUIRED BENEATH THE HARDPOINT.
FILL IN THE ENTIRE EXCAVATED AREA WITH CLASS E RIPRAP. PLACE CLASS E RIPRAP SO THE ENTIRE TOP ELEVATION IS AT 890.25.
SLOPE HARDPOINT TO TOE OF BANK AT 1.5:1 WITH CLASS E RIPRAP.
SLOPE SIDESLOPES OF HARDPOINT AT 1.5:1 WITH CLASS E RIPRAP.
TIE IN ENGINEERING FABRIC, RIPRAP TOE AND RIPRAP BLANKET AT HARDPOINT. SEE TYPICAL FOR HARDPOINT.

THESE PLANS ARE BASED ON ORIGINAL DESIGN NO. 962 AND IOWA DOT SURVEY DONE FOR THIS PROJECT. SURVEY WAS DONE FOR CHANNEL ONLY SO ANY NOTES USING ROAD STATIONS ARE APPROXIMATE. CROSS SECTIONS OF THE CREEK ARE SHOWN LOOKING DOWNSTREAM, FROM LEFT TO RIGHT.

ESTIMATE REFERENCE INFORMATION

ITEM NO. 1
INCLUDES ALL DIRT WORK IN PREPARATION OF GRADE FOR PLACEMENT OF ENGINEERING FABRIC/REVTMENT INCLUDING EXCAVATION AND SOIL BACKFILL UTILIZING EXCAVATED MATERIAL.

ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1060	
2	2507-3250005	ENGINEERING FABRIC	SY	1500	
3	2507-6800061	REVTMENT, CLASS E RIPRAP	T	3300	

LOCATION

I-35 OVER BALLARD CREEK
T 82 N R 23 W
SECTION 19
UNION TOWNSHIP
STORY COUNTY
BRIDGE MAINT. NO. 8504.65035

HYDRAULIC DATA

DRAINAGE AREA= 16.67 MI²
Q₅₀= 3500 CFS
INFO FROM DES #962

PRELIMINARY

0 ENGLISH 40
SCALE RATIO: 1:40

DESIGN FOR 0° SKEW

STREAMBANK REPAIRS

TRIPLE 13'-16'-13'x12' RCB CULVERT

SITUATION PLAN

STATION: 151+10, LT X

STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. OF FILE NO. 30179 DESIGN NO. 107