

BRIDGE REPLACEMENT - PPCB
BROS-C024(110)--8J-24

CRAWFORD COUNTY

CRAWFORD COUNTY

LETTING DATE
11-17-2015

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."

PERMITS

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NO. 14, PERMIT NO. CEMVR-00-P-2015-515. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE (<http://envpermits.iowadot.gov/CMEPortalENV/Home.aspx>). THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

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 2802 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DRAWING APPROVAL

ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY THE CRAWFORD COUNTY ENGINEER.

ADDRESS: 1202 BROADWAY, P.O. BOX 458
DENISON, IOWA 51442-0458

TELEPHONE: (712)263-2449

EMAIL: pcssman@crawfordcounty.org

THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.

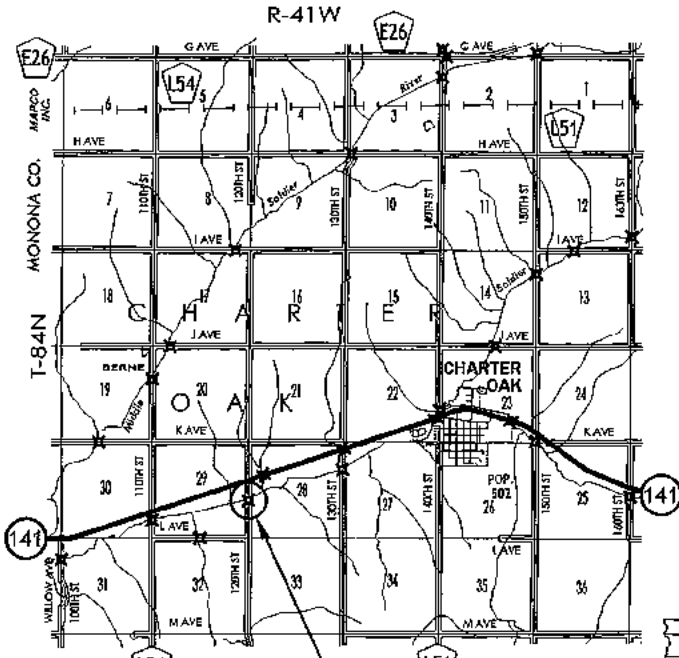


PLANS OF PROPOSED IMPROVEMENTS ON THE

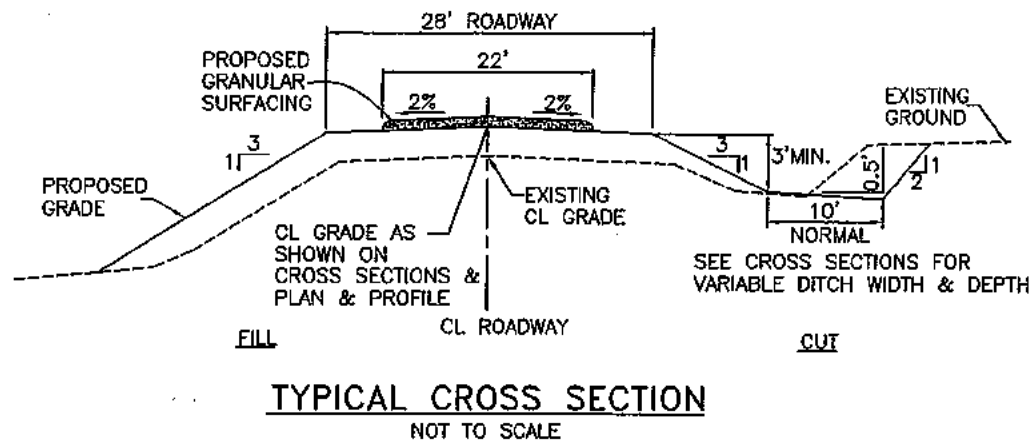
SECONDARY ROAD SYSTEM CRAWFORD COUNTY PROJECT NO. BROS-C024(110)--8J-24 BRIDGE REPLACEMENT - PPCB ON 120TH STREET OVER EAST SOLDIER RIVER

SCALE: AS NOTED

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS.



STA. 8+57
PROPOSED 163'-10 x 24' PPCB BRIDGE
15' SKEW RT. AHEAD
B.O.P. STA. 7+00
E.O.P. STA. 12+00



TYPICAL CROSS SECTION
NOT TO SCALE

UTILITY CONTACTS

ARCADIA TELEPHONE COOPERATIVE
Lois Schroeder
Phone: 712-689-2238
Email: loiss@netins.net

FRONTIER COMMUNICATIONS
Trent Flockhart
Phone: 515-573-1288
Email: trent.flockhart@ftr.com

MIDAMER-ELEC & GAS
Scott Clausen
Phone: 712-277-7476
Email: SClausen@midamerican.com

MILEAGE SUMMARY

LOCATION	LN. FT.	MILES
BOP STA. 7+00 TO EOP STA. 12+00	500.00	
DEDUCT BRIDGE AT STA. 8+57	166.94	
NET LENGTH OF ROADWAY	333.06	0.083

Approved

[Signature]
CRAWFORD COUNTY ENGINEER DATE 8/11/15



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.

[Signature] 8/11/15
TROY J. GROTH, P.E. #14450 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2015.
PAGES OR SHEETS COVERED BY THIS SEAL:
A1, C1-4, G1, U1-8, V1, W1-2, Z1-2

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A1	TROY J. GROTH	PRIMARY SIGNATURE BLOCK
01	JAMES A. BERTSCH	GEOTECHNICAL DESIGN

Approved

[Signatures]

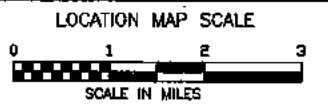
BOARD OF SUPERVISORS



04-30-02 101-4

DESIGN DATA RURAL

2012 AADT	30	V.P.D.
2036 AADT	35	V.P.D.
201X DHV	X	V.P.H.
TRUCKS	X	%
TOTAL		
DESIGN ESALs		



DESIGN TEAM: TJG/SAS/TKK

ENGLISH

SE PROJECT NO. : 04614

FHWA NO. 129750

CRAWFORD COUNTY

PROJECT NUMBER BROS-C024(110)--8J-24

SHEET NUMBER A1

ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.3	
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	482.0	
3	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	3902.9	
4	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	141.4	
5	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00	
6	2402-2720000	EXCAVATION, CLASS 20	CY	167	
7	2402-2721000	EXCAVATION, CLASS 21	CY	39	
8	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	293.8	
9	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	58507	
10	2407-0551250	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, B50	EACH	8	
11	2407-0551259	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, B59	EACH	4	
12	2408-7800000	STRUCTURAL STEEL	LB	3624	
13	2414-8424124	CONCRETE OPEN RAILING, TL-4	LF	361.9	
14	2417-1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	30	
15	2501-0201057	PILES, STEEL, HP 10 X 57	LF	750	
16	2501-0201253	PILES, STEEL, HP 12 X 53	LF	1200	
17	2501-6335010	PREBORED HOLES	LF	100	
18	2507-3250005	ENGINEERING FABRIC	SY	2009.6	
19	2507-6800021	REVTMENT, CLASS B	TON	1954.7	
20	2507-6875002	REVTMENT, REMOVE AND REPLACE	CY	51.6	
21	2518-6910000	SAFETY CLOSURE	EACH	2	
22	2524-9100030	OBJECT MARKER, TYPE 3	EACH	12	
23	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
24	2528-8445110	TRAFFIC CONTROL	LS	1.00	
25	2533-4980005	MOBILIZATION	LS	1.00	
26	2801-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	9.0	
27	2802-0000030	SILT FENCE FOR DITCH CHECKS	LF	90.0	
28	2802-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	

STANDARD ROAD PLANS

105-4
10-18-11

The following Standard Road Plans apply to construction work on this project.

NUMBER	DATE	TITLE
EC-101	04-21-15	WOOD EXCELSIOR MAT FOR DITCH PROTECTION
EC-201	04-21-15	SILT FENCE
EW-501	10-20-15	RURAL ENTRANCE
SI-173	04-20-10	OBJECT MARKERS
TC-252	10-20-15	ROUTES CLOSED TO TRAFFIC

STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED
H24-01-06	DECEMBER, 2006	05-13
H24-01A-06	DECEMBER, 2006	05-13
H24-02-06	DECEMBER, 2006	05-13
H24-03-06	DECEMBER, 2006	06-12
H24-04-06	DECEMBER, 2006	06-12
H24-11-06	DECEMBER, 2006	05-13
H24-13-06	DECEMBER, 2006	01-10
H24-15-06	DECEMBER, 2006	07-15
H24-16-06	DECEMBER, 2006	12-10
H24-17-06	DECEMBER, 2006	
H24-34-06	DECEMBER, 2006	01-10
H24-35-06	DECEMBER, 2006	01-10
H24-38-06	DECEMBER, 2006	01-10
H24-39-06	DECEMBER, 2006	07-10
H24-40-06	DECEMBER, 2006	12-10
H24-41-06	DECEMBER, 2006	09-12
H24-44-06	DECEMBER, 2006	05-13

INDEX OF TABULATIONS

111-25
10-18-11

Tabulation	Tabulation Title	Sheet No.
100-1A	ESTIMATED PROJECT QUANTITIES	C1
100-18	TABULATION OF SILT FENCES FOR DITCH CHECKS	C4
100-22	ROLLED EROSION CONTROL	C4
102-3	ACCESS POINTS AND SAFETY RAMPS	C4
105-4	STANDARD ROAD PLANS	C1
108-13A	SAFETY CLOSURES	C4
110-17	CLEARING AND GRUBBING	C4
111-25	INDEX OF TABULATIONS	C1
	MODIFIED REINFORCING BAR LIST	C4
	PLACEMENT OF QUANTITIES	C4
	TABULATION OF EARTHWORK QUANTITIES	C4

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.	Item Code	Description
1	2101-0850001	<u>CLEARING AND GRUBBING</u> REFER TO TAB. 110-17 AND PLAN SHEET V1 FOR LOCATIONS.
2	2102-2710070	<u>EXCAVATION, CLASS 10, ROADWAY AND BORROW</u> INCLUDES 482 C.Y. CUT, 381 C.Y. FILL +35% SHRINK, AND 121 C.Y. WASTE. REFER TO TABULATION OF EARTHWORK QUANTITIES ON PLAN SHEET C4. TYPE "A" COMPACTION WILL BE REQUIRED. BORROW MAY BE OBTAINED FROM SUITABLE CLASS 20, CLASS 21 AND CLASS 10 CHANNEL EXCAVATIONS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL NECESSARY BORROW. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. EXISTING SLOPES THAT ARE TO RECEIVE EMBANKMENT, REGARDLESS OF THEIR HEIGHT, SHALL BE PREPARED IN ACCORDANCE WITH ARTICLE 2107.03, C, 2, OF THE STANDARD SPECIFICATIONS. A SUFFICIENT VOLUME OF SOIL HIGH IN ORGANIC CONTENT IS AVAILABLE WITHIN THE EXCAVATION LIMITS OF THE PROJECT. THIS MATERIAL SHALL BE DEPOSITED AS THE FINAL LAYER TO A MINIMUM FINISHED DEPTH OF 4 INCHES ON THE PROPOSED ROADWAY FORESLOPES AND OTHER DISTURBED AREAS TO FACILITATE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THIS BID ITEM. PAYMENT FOR THIS ITEM WILL BE AT PLAN QUANTITY. CROSS SECTIONS WILL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.
3	2104-2710020	<u>EXCAVATION, CLASS 10, CHANNEL</u> EXCESS MATERIAL AND UNSUITABLE MATERIAL NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE HAULED FROM THE SITE. THE COST OF HAULING AND DISPOSING OF THIS MATERIAL SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR CLASS 10 CHANNEL EXCAVATION. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED. ITEM INCLUDES 3902.9 C.Y. OF CUT, PLACEMENT OF 32.1 C.Y. (23.8 X 1.35) OF FILL ON THE CHANNEL BANKS, AND 3870.8 C.Y. WASTE. QUANTITY INCLUDES EXCAVATION REQUIRED TO INSTALL REVTMENT. QUANTITY INCLUDES EXCAVATION REQUIRED TO TRANSITION PROPOSED CHANNEL SLOPES INTO EXISTING SLOPES WITHIN THE LIMITS SHOWN ON PLAN SHEET V1. EXISTING SLOPES THAT ARE TO RECEIVE EMBANKMENT, REGARDLESS OF THEIR HEIGHT, SHALL BE PREPARED IN ACCORDANCE WITH ARTICLE 2107.03, C, 2, OF THE STANDARD SPECIFICATIONS. PAYMENT FOR THIS ITEM WILL BE AT PLAN QUANTITY. CROSS SECTIONS WILL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.
4	2312-8260051	<u>GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE</u> MATERIAL SHALL BE SPREAD BY THE CONTRACTOR AND THE CONTRACT UNIT PRICE PER TON SHALL INCLUDE THE COST OF SPREADING GRANULAR SURFACING ON ROADWAY SURFACE. RATE OF APPLICATION SHALL BE 2220 TONS PER MILE.
5	2401-6745625	<u>REMOVAL OF EXISTING BRIDGE</u> CONTRACTOR SHALL COORDINATE WITH COUNTY FOR REMOVAL OF TIMBER DECKING PLANK, STEEL BEAMS, AND STEEL TRUSS. THESE MATERIALS SHALL BE REMOVED BY COUNTY FORCES AND REMAIN THE PROPERTY OF THE COUNTY. THE REMAINDER OF THE STRUCTURE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. ITEM INCLUDES REMOVAL OF ABANDONED TIMBER PILES SHOWN ON PLAN SHEET V1 IN ACCORDANCE WITH ARTICLE 2401.03, C, OF THE STANDARD SPECIFICATIONS.
6	2402-2720000	<u>EXCAVATION, CLASS 20</u> REFER TO ABUTMENT EXCAVATION DETAILS ON PLAN SHEET U5.
8	2403-0100010	<u>STRUCTURAL CONCRETE (BRIDGE)</u> REFER TO TABULATION ON PLAN SHEET C4. ABUTMENT SUBDRAIN, BACKFILL PROCESS, AND WING ARMORING WILL NOT BE UTILIZED AT THIS STRUCTURE. ITEM INCLUDES CERTIFIED PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521 OF THE STANDARD SPECIFICATIONS. NO HEAVY CONSTRUCTION EQUIPMENT WILL BE PERMITTED ON THE NEWLY CONSTRUCTED BRIDGE UNLESS LOADED ON A LEGAL TRAILER.
9	2404-7775005	<u>REINFORCING STEEL, EPOXY COATED</u> REFER TO TABULATIONS ON PLAN SHEET C4. ALL REINFORCING STEEL SHALL BE EPOXY COATED. THE MINIMUM LAP LENGTH FOR THE 5b1 AND 5b2 BARS SHALL BE 2'-0. THE MINIMUM SPLICE LENGTH FOR THE 6h1 AND 6h2 BARS SHALL BE 3'-9. EMBED 8g1 BARS 4'-2 INTO ABUTMENT FOOTING. EMBED 5h2 BARS 1'-9 INTO ABUTMENT FOOTING AND BACKWALL.
12	2408-7800000	<u>STRUCTURAL STEEL</u> REFER TO TABULATION ON PLAN SHEET C4.
14	2417-1040024	<u>CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.</u> ALL CORRUGATED METAL PIPE LARGER THAN 12 INCHES IN DIAMETER SHALL BE ANNULAR, RIVETED PIPE. "SPIRAL" PIPE WILL NOT BE ALLOWED FOR PIPE DIAMETERS LARGER THAN 12 INCHES. MINIMUM BAND WIDTH SHALL BE 24 INCHES. REFER TO TAB. 102-3.
15	2501-0201057	<u>PILES, STEEL, HP 10 X 57</u>
16	2501-0201253	<u>PILES, STEEL, HP 12 X 53</u> WAVE EQUATION ANALYSIS WILL BE USED AT THE TIME OF PILE DRIVING TO DETERMINE PILE BEARING. THE CONTRACTOR SHALL SUBMIT ADEQUATE HAMMER INFORMATION SO THAT THE PROPER ANALYSIS CAN BE PERFORMED.

REV:



120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51642
P712 263 8118 F712 263 2181 SUNDQUISTENGINEERING.COM

SE PROJECT NO. 04614 DATE: 07/15 DRAWN BY: TTK REVIEWED BY: SAS APPROVED BY: TJG

CRAWFORD COUNTY

PROJECT NO. BROS-C024(110)-8J-24

SHEET C1

ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

Item No.	Item Code	Description
18	2507-3250005	<u>ENGINEERING FABRIC</u> MATERIAL SHALL BE AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS. MATERIAL SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. REFER TO DETAILS ON PLAN SHEETS C4 AND U5. 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 USED FOR LAP JOINTS IS INCIDENTAL.
19	2507-6800021	<u>REVTMENT CLASS B</u> REFER TO DETAILS ON PLAN SHEET U5. DEWATERING REQUIRED TO INSTALL REVTMENT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF REVTMENT STOCKPILES FROM FARM FIELDS UTILIZED BY CONTRACTOR IN THE PROJECT AREA. THIS WORK WILL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.
20	2507-6875002	<u>REVTMENT REMOVE AND REPLACE</u> ITEM INCLUDES REMOVING EXISTING CHANNEL BANK REVTMENT TO THE EXTENT NECESSARY TO COMPLETE INSTALLATION OF THE PROPOSED IMPROVEMENTS AND IN ACCORDANCE WITH DETAILS SHOWN IN THE PLANS. REVTMENT SHALL BE STOCKPILED AND REPLACED ON THE PROPOSED CHANNEL SLOPES. REMOVAL AND DISPOSAL OF EXISTING ENGINEERING FABRIC, IF PRESENT, SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM. THE QUANTITY OF REVTMENT, REMOVE AND REPLACE FOR WHICH PAYMENT WILL BE MADE, WHEN PLACED AS SHOWN IN THE CONTRACT DOCUMENTS, WILL BE THE QUANTITY SHOWN IN THE CONTRACT DOCUMENTS IN CUBIC YARDS. FOR REVTMENT, REMOVE AND REPLACE THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER CUBIC YARD. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR REMOVING AND STOCKPIILING THE EXISTING REVTMENT AND REPLACEMENT OF THE REVTMENT.
21	2518-6910000	<u>SAFETY CLOSURE</u> REFER TO TAB. 108-13A.
22	2524-9100030	<u>OBJECT MARKER TYPE 3</u> BEGINNING AT THE APPROACH END OF THE ROUNDED END POST, INSTALL THREE TYPE 3 OBJECT MARKERS AT 25 FT. INTERVALS PROCEEDING AWAY FROM THE BRIDGE. INSTALL THE MARKER AT THE END POST SO THE INSIDE EDGE OF THE MARKER IS IN LINE WITH THE INNER EDGE OF THE END POST. INSTALL SUBSEQUENT MARKERS SO THE INSIDE EDGE OF THE MARKER IS 2 FEET FURTHER FROM ROADWAY CENTERLINE THAN THE ADJACENT MARKER CLOSER TO THE BRIDGE. THE ENGINEER WILL COUNT EACH OBJECT MARKER INSTALLED. PAYMENT WILL BE THE CONTRACT UNIT PRICE FOR EACH OBJECT MARKER COUNTED. PAYMENT IS FULL COMPENSATION FOR FURNISHING, FABRICATING AND ERECTING THE OBJECT MARKERS COMPLETE, INCLUDING POSTS AND MARKER SIGNS, FURNISHING ALL NECESSARY FITTINGS AND ATTACHMENTS, AND ALL LABOR NECESSARY TO COMPLETE THE WORK.
26	2601-2640350	<u>SPECIAL DITCH CONTROL WOOD EXCELSIOR MAT</u> REFER TO TAB. 100-22 AND DETAILS ON PLAN SHEET C4. APPLY SLOPE PROTECTION IN THE DIRECTION OF THE FLOW OF WATER. ITEM INCLUDES ANY NECESSARY SHAPING OF AREA TO RECEIVE SLOPE PROTECTION. WATERING WILL NOT BE REQUIRED. SEEDING, FERTILIZING, AND MULCHING WILL BE PERFORMED BY THE COUNTY. CONTRACTOR SHALL COORDINATE INSTALLATION OF THE WOOD EXCELSIOR MAT WITH THE COUNTY.
27	2602-0000030	<u>SILT FENCE FOR DITCH CHECKS</u> REFER TO TAB. 100-17. THE TABULATION INCLUDES ESTIMATED LOCATIONS FOR PLACEMENT OF "SILT FENCE FOR DITCH CHECKS" TO ADDRESS EROSION TO BE ENCOUNTERED DURING CONSTRUCTION. VERIFY THE SPECIFIC LOCATIONS WITH THE ENGINEER PRIOR TO BEGINNING PLACEMENT. BID ITEM INCLUDES 50% ADDITIONAL QUANTITY FOR FIELD ADJUSTMENTS AND REPLACEMENTS.

GENERAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ARRANGEMENTS WITH ADJACENT PROPERTY OCCUPANTS FOR RESTRAINING LIVESTOCK FROM ENTERING THE RIGHT-OF-WAY DURING CONSTRUCTION.

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

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

CONTRACTOR SHALL NOTIFY ONE-CALL (1-800-292-8989) FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.

SEEDING WILL BE ACCOMPLISHED BY THE COUNTY.

04-15-14 213-3
ALL BORROW AREAS, STOCKPILE AREAS, HAUL ROADS, AND AREAS USED FOR EQUIPMENT ON THIS PROJECT REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 16 TO 20 INCHES PRIOR TO PLACEMENT OF TOPSOIL AND/OR STABILIZING CROP SEEDING. COMPLETE THIS TILLAGE AT 3 FOOT MAXIMUM CENTERS AND AT RIGHT ANGLES TO THE FINISHED SLOPE.

USE TILLAGE EQUIPMENT EQUIPPED WITH AN ARROWHEAD TYPE SHOE THAT WILL PROVIDE LATERAL DISPLACEMENT AND LIMIT THE MOVEMENT OF THE SUBSOIL TO THE SURFACE. OBTAIN THE ENGINEER'S APPROVAL FOR THE EQUIPMENT. THIS WORK IS INCIDENTAL TO OTHER WORK ON THE PROJECT.

FOLLOWING THE SUBSOIL TILLAGE, THE AREA IS TO REMAIN IN A "LOOSENEED" CONDITION. ADDITIONAL COMPACTION OR THE OPERATION OF HEAVY EQUIPMENT, OTHER THAN REQUIRED FOR TOPSOIL PLACEMENT AND SHAPING, WILL NOT BE ALLOWED ON AREAS WHICH HAVE BEEN RECEIVED SUBSOIL TILLAGE.

10-21-14 232-10
DISPOSE OF ALL WOOD MATERIAL GENERATED AS A RESULT OF CLEARING AND/OR GRUBBING ACCORDING TO THE IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP'S EMERALD ASH BORER (EAB) QUARANTINE ORDER. FOR MORE INFORMATION REFER TO http://www.iowatreepests.com/eab_regulations.html.

09-27-94 271-9
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 41,100 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 49,600 PPM. 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 EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

This Base Pollution Prevention Plan (PPP) includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-Of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the 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.

I. ROLES AND RESPONSIBILITIES

A. Designer:

1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Signature authority on the Base PPP and NOI.

B. Contractor/Subcontractor:

1. Affected contractors/subcontractors are co-permittees with the contracting authority and will sign a certification statement adhering to the requirements of the NPDES permit and this PPP plan. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Submit a detailed schedule according to Article 2602 of the Specifications and any additional plan notes.
3. Install and maintain appropriate controls.
4. Supervise and implement good housekeeping practices.
5. Conduct joint required inspections of the site with inspection staff.
6. Signature authority on Co-Permittee Certification Statements and storm water inspection reports.

C. RCE/Inspector:

1. Update PPP whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the discharge of pollutants from the project.
2. Maintain an up-to-date list that identifies contractors and subcontractors as co-permittees.
3. Make these plans available to the DNR upon their request.
4. Conduct joint required inspections of the site with the contractor/subcontractor.
5. Complete an inspection report after each inspection.
6. Signature authority on storm water inspection reports and Notice of Discontinuation (NOD).

II. PROJECT SITE DESCRIPTION

- A. This Pollution Prevention Plan (PPP) is for the construction of a Crawford County bridge on county road 120th Street over East Soldier River.
- B. This PPP covers approximately 1.6 acres with an estimated 1.2 acres being disturbed. The portion of the PPP covered by this contract has 1.2 acres disturbed.
- C. The PPP is located in an area of one soil association (Manana-Ide-Napier). The estimated average SCS runoff curve number for this PPP after completion will be 62.
- D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
 1. Drainage patterns - Plan and Profile sheets and Situation plans.
 2. Proposed Slopes - Cross Sections.
 3. Areas of Soil Disturbance - construction limits shown on Plan and Profile sheets.
 4. Location of Structural Controls - Tabulations on C sheets.
 5. Locations of Non-structural Controls - Tabulations on C sheets.
 6. Locations of Stabilization Practices - generally within construction limits shown on Plan and Profile sheets.
 7. Surface Waters (including wetlands) - Plan and Profile sheets.
 8. Locations where storm water is discharged - Plan and Profile sheets.
- E. The base site map is amended by contract modifications and progress payments of completed erosion control work.
- F. Runoff from this work will flow into East Soldier River.

III. CONTROLS

- A. The contractor's work plan and sequence of operations specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.
- B. Preserve vegetation in areas not needed for construction.
- C. Section 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.
 1. **EROSION AND SEDIMENT CONTROLS**
 - a. **Stabilization Practices**
 - 1) Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized.
 - 2) Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
 - 3) 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.
 - 4) Stabilization measures to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional items may be found in the Inspector's Daily Reports (IDR) or Contract Modifications.
 - b. **Structural Practices**
 - 1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.
 - 2) Structural items to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plan or are referenced in the Standard Road Plans Tabulation.
 - c. **Storm Water Management**

- 1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS

- a. 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.
 - 1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
 - 2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
 - 3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
 - 4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by the Section 404 permit.
 - 5) Spill Prevention and Control - Implement procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
 - 6) Concrete Residuals and Washout Wastes - Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located.
 - 7) Vehicle and Equipment Cleaning - Employ washing practices that prevent contamination of surface and ground water from wash water.
 - 8) Vehicle and Equipment Fueling and Maintenance - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of on site fuels and proper disposal of used engine oil or other fluids on site.
 - 9) Litter Management - Ensure employees properly dispose of litter.

3. 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.

IV. MAINTENANCE PROCEDURES

The contractor is required to maintain all temporary erosions and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

- A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:
 1. Date of the inspection.
 2. Summary of the scope of the inspection.
 3. Name and qualifications of the personnel making the inspection.
 4. Rainfall amount.
 5. Review erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
 6. Major observations related to the implementation of the PPP.
 7. Identify corrective actions required to maintain or modify erosion and sediment control measures.
- B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found and complete all actions within 3 calendar days of the inspection.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone, erosion stone or other appropriate materials.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silt, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

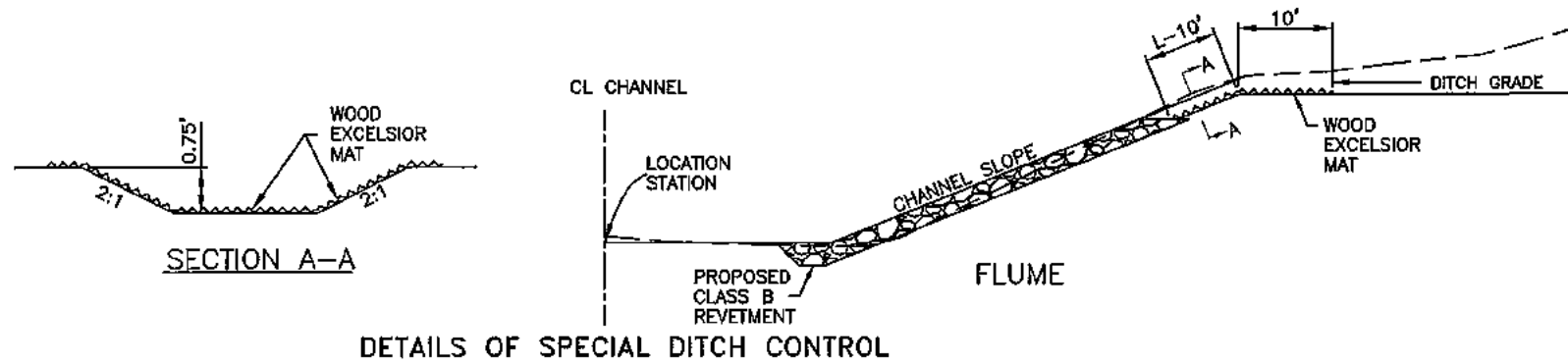
- A. Base PPP - Initial Pollution Prevention Plan.
- B. Amended PPP - May include Plan Revisions or Contract Modifications for new items and fieldbook entries made by the inspector.
- C. IDR - Inspector's Daily Report - this contains the inspector's daily diary and item postings.
- D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials.
- E. Signature Authority - Representative from Designer, Contractor/Subcontractor, or RCE/Inspector authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature _____

Printed or Typed Name _____



DETAILS OF SPECIAL DITCH CONTROL

ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104

100-22
04-21-15

Location				Ⓛ	Ⓜ	Turf Reinforcement Mat (TRM) (EC-104)				Slope Protection (EC-103)	Special Ditch Control (EC-101)	Remarks
Road Identification	Begin Station	End Station	Side			Type 1	Type 2	Type 3	Type 4			
				FT	FT	Squares	Squares	Squares	Squares	Squares	Squares	
120TH STREET	108+77		RT	38	16						5.8	
120TH STREET	109+29		LT	20	16						3.2	
TOTAL											9.0	

CLEARING AND GRUBBING

110-17
04-15-14

Station to Station or Milepost or Description	Direction of Travel	Work and Material Type	Trees, Stumps, and Logs and Down Timber Material Diameters													All other Materials		Estimated Quantities			Remarks	
			3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length	Width	Units	Area	Herbicide Application		
			FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	Units	Acres	Each		
7+94 - 8+63	N	TREES - CLEARING AND GRUBBING																		0.1		
9+19 - 9+74	N	TREES - CLEARING AND GRUBBING																		0.1		
8+45 - 8+85	S	TREES - CLEARING AND GRUBBING																		0.1		
TOTAL																					0.3	

TABULATION OF EARTHWORK QUANTITIES

STA.	CUT	ADD. CUT	FILL +35%	ADD. FILL	TOTAL CUT	TOTAL FILL+35%	BALANCE
7+00							
7+40	43		0	70	43	70	
7+60	22		51		22	51	
7+65	0		25		0	25	
7+74	4		46		4	46	
9+37.83							
10+00	150		65		150	65	
10+75	129		45		129	45	
11+50	101		42		101	42	
12+00	33		17		33	17	
TOTAL					482	361	

TABULATION OF SILT FENCES FOR DITCH CHECKS

Refer to EC-201

100-18
04-20-10

Location Station	Side	Length LF	Remarks
7+84	R	20	
10+10	R	20	
11+50	R	20	
TOTAL		60	TABULATED QUANTITY
TOTAL +50%		90	BID QUANTITY

PLACEMENT OF QUANTITIES 163'-10 x 24' PPCB BRIDGE

ITEM	UNIT	PIERS	SUPERSTRUCTURE & ABUTMENTS	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	CY	101.8	192.0	293.8
REINFORCING STEEL, EPOXY COATED	LB	9004	49503	58507
STRUCTURAL STEEL	LB	1069	2555	3624

MODIFIED REINFORCING BAR LIST

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5b2	SLAB LONGITUDINAL, TOP & BOTT., ENDS	=====	122	27'-4"	3478
8g1	ABUT. VERT.	=====	92	7'-3"	1781
5h2	ABUT. TO WING ANCHOR	=====	56	5'-3"	307
#2	PILE SPIRAL (WOOD/STEEL)*		10	38'-6"	64
	SPIRAL SPACER, L 7/8 x 7/8 x 1/8 x 0.70 (WOOD STL.)*	=====	30	1'-10"	39

*EPOXY COATING NOT REQUIRED
NOTE: REFER TO PLAN SHEET U2 FOR PILE BENT REINFORCING STEEL. REFER TO PLAN SHEET U3 FOR OPEN RAIL REINFORCING STEEL. REFER TO ESTIMATE REFERENCE INFORMATION ON PLAN SHEET C1 FOR ADDITIONAL DETAILS.

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

102-3
MODIFIED

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- ① Refer to MI-210
- ② Refer to EW-501.
- ③ Refer to EW-501 OR EW-502.

* Predetermined for access point not constructed with this project.

Station	Side	Type A, B, C, Safety Ramp, or Predetermined*	Pipe Culvert ③				Driveway Surfacing Material	Remarks			
			Ⓜ	①	②	③					
			FT	FT	FT	FT	IN	Pipe Length LF	Lt. LF	Rt. LF	TON
7+29	R	C	20		15	1.7	24	30	15.5	14.5	
7+40	L	C	24		15						
9+69	L	C	28		15						U.A.C.

SAFETY CLOSURES

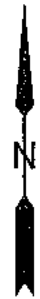
Refer to Section 2518 of the Standard Specifications

108-13A
08-01-08

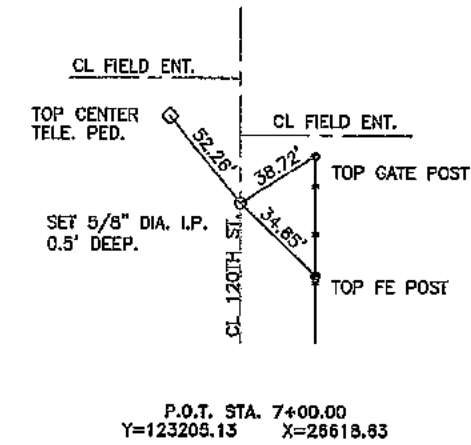
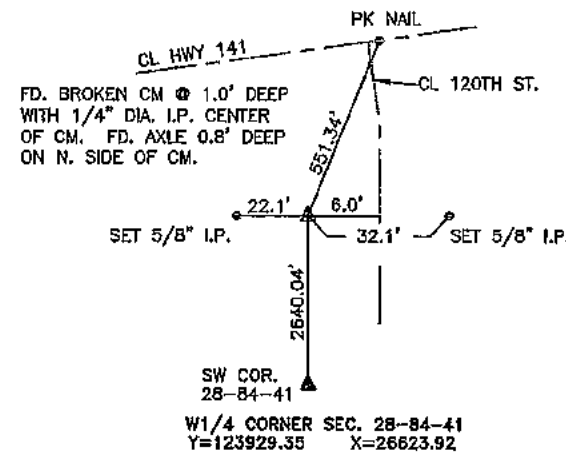
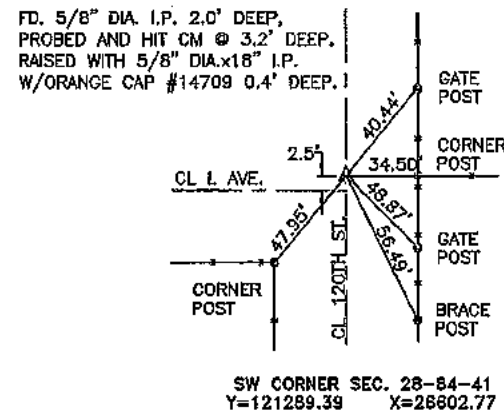
STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
6+50		1	SOUTH END
12+50		1	NORTH END
TOTAL		2	

GENERAL INFORMATION
THIS SURVEY IS IN ENGLISH UNITS.

BENCH MARKS	ELEVATION
NO. 3 STA. 7+00.00, 0.00 RT. SET 5/8" DIA. I.P.	1200.98
NO. 4 STA. 12+00.00, 0.00 RT. SET 5/8" DIA. I.P.	1198.56



UNLESS NOTED:
ALL TIES ARE "X" NAILS



ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent		Begin Spiral		Begin Curve		Simple Curve PI or Master PI of SCS		End Curve		End Spiral	
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
120TH ST.		7+00.00	123205.13	26618.63									
120TH ST.		12+00.00	123705.07	26626.48									

DETAILS OF REFERENCE INFORMATION
All References Plumb Distances
(unless otherwise noted)

LOG OF EXPLORATORY BORING Sheet 1 of 1

Job Number: G4332 Boring No.: B-1
 Project: 120th Street Bridge Replacement Boring Location: Crawford County, IA
 Date Started: 3/26/15 Drill Type: Hollow Stem
 Date Completed: 3/26/15 Ground Elev.: 1199.8

Depth in Feet	Graphic Log	Sample Type	USCS		Blow Counts SPT (N) Blows/Feet	Moisture Content, %	Dry Density (pcf)	Saturation %	Head Penetration (TSF)	Unconfined Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Cone Penetrometer (Blows per 1-3/4")
			Soil Description	USCS										
0-5	6-Inch Gravel Layer				5-4-4 N=8	19								
5-7	FIRM SILTY CLAY, Dark Brown and Medium Brown, Moist to Very Moist, Fill				3-4-4 N=8	31								
7-10	FIRM SILTY CLAY, Dark Brown, Very Moist				3-4-4 N=8	34								
10-15	STIFF SILTY CLAY, Dark Gray Brown, Very Moist to Wet				2-3-3 N=6	26								
15-25	(Dark Brownish Gray, Sand Lenses)					26	97	100	1.00	0.90				
25-30	(Medium Gray)				2-3-3 N=6	26								
30-35	FINE SAND, Medium Gray, Wet				0-4-10 N=14	34								
35-40	FIRM GLACIAL CLAY, Dark Gray, Very Moist				4-4-7 N=11	22								
40-45					4-7-8 N=15	17								
45-50	VERY FIRM GLACIAL CLAY, Light Gray, Very Moist, Oxidized				6-13-14 N=27	21								
50-55	(Light Brownish Gray)				5-10-11 N=21	22								
55-60					4-8-9 N=17	25								
60-65	(Light Gray Brown)				5-10-11 N=21	23								
65-70					6-11-10 N=21	24								
70-75					5-10-11 N=21	24								
75-80	FIRM - VERY FIRM GLACIAL CLAY, Light Gray Brown, Very Moist				3-7-8 N=15	24								
80-86.5	VERY FIRM GLACIAL CLAY, Light Gray Brown, Very Moist				5-10-9 N=19	25								
END OF BORING AT 86.5 FEET FREE WATER WAS ENCOUNTERED AT 25 FEET AT TIME OF DRILLING														

LOG OF EXPLORATORY BORING Sheet 1 of 1

Job Number: G4332 Boring No.: B-2
 Project: 120th Street Bridge Replacement Boring Location: Crawford County, IA
 Date Started: 3/27/15 Drill Type: Hollow Stem
 Date Completed: 3/27/15 Ground Elev.: 1200.4

Depth in Feet	Graphic Log	Sample Type	USCS		Blow Counts SPT (N) Blows/Feet	Moisture Content, %	Dry Density (pcf)	Saturation %	Head Penetration (TSF)	Unconfined Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Cone Penetrometer (Blows per 1-3/4")
			Soil Description	USCS										
0-2	2-Inch Wood Deck													
2-5	VOID BELOW BRIDGE													
5-35														
35-40	SILTY SAND, Gray Brown, Wet				1-0-4 N=1									
40-45	GRAVELLY SAND, Gray Brown, Wet				4-8-7 N=15									
45-50	VERY FIRM GLACIAL CLAY, Dark Gray, Very Moist				6-10-11 N=21	18								
50-55					5-9-12 N=21	19								
55-60	(Light Gray)				3-15-13 N=28	27								
60-65	COARSE SAND, Grayish Yellow Brown, Wet				6-15-13 N=28									
65-70	VERY FIRM GLACIAL CLAY, Light Gray, Very Moist, Oxidized				5-9-14 N=23	22								
70-75					7-12-15 N=27	24								
75-80					8-14-12 N=26	24								
BORING WAS TERMINATED AT 76.5 FEET DUE TO SWINGING AUGER DUE TO VOID BELOW BRIDGE DECK FREE WATER WAS ENCOUNTERED AT 30 FEET AT TIME OF DRILLING														

LOG OF EXPLORATORY BORING Sheet 1 of 1

Job Number: G4332 Boring No.: B-3
 Project: 120th Street Bridge Replacement Boring Location: Crawford County, IA
 Date Started: 3/26/15 Drill Type: Hollow Stem
 Date Completed: 3/26/15 Ground Elev.: 1200.4

Depth in Feet	Graphic Log	Sample Type	USCS		Blow Counts SPT (N) Blows/Feet	Moisture Content, %	Dry Density (pcf)	Saturation %	Head Penetration (TSF)	Unconfined Comp. Strength (TSF)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Cone Penetrometer (Blows per 1-3/4")
			Soil Description	USCS										
0-5	8-Inch Gravel Layer													
5-7	STIFF SILTY CLAY, Dark Brown and Yellow Brown, Moist, Fill				3-5-6 N=12	22	101	89	2.50					
7-10	FIRM SILTY CLAY, Dark Brown and Medium Brown, Moist to Very Moist, Fill				4-8-6 N=14	25								
10-15	FIRM SILTY CLAY, Dark Brown, Very Moist				2-5-4 N=9	24								
15-20	STIFF SILTY CLAY, Dark Gray Brown, Very Moist					27	95	94	0.50					
20-25					1-3-3 N=6	30								
25-30	FIRM SILTY CLAY, Medium Gray, Wet				2-5-4 N=9	35								
30-35					3-5-4 N=9	37								
35-40	FINE SAND, Medium Gray, Wet				3-8-7 N=15									
40-45	GRANULAR MATERIAL, Brownish Gray, Wet				15-22-24 N=46									
45-50	COARSE SAND, Brownish Gray, Wet				6-8-8 N=16									
50-55	VERY FIRM GLACIAL CLAY, Dark Gray, Very Moist				6-10-9 N=18	17								
55-60					7-14-14 N=28	20								
60-65	(Light Brownish Gray)				6-11-14 N=25	23								
65-70					7-15-12 N=27	23								
70-75					9-15-13 N=26	24								
75-80					8-11-14 N=25	24								
END OF BORING AT 76.5 FEET FREE WATER WAS ENCOUNTERED AT 25 FEET AT TIME OF DRILLING														


SOUNDING DATA

NOTE: THESE SOUNDINGS WERE MADE FOR DESIGN PURPOSES AND ARE NOT GUARANTEED FOR CONSTRUCTION.

SOUNDINGS WERE TAKEN ON MARCH 26 & 27, 2015.

SEE SHEET V1 FOR BORING LOCATIONS.

GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF CERTIFIED TESTING SERVICES, INC., WHOSE GEOTECHNICAL REPORT DATED MARCH 31, 2015, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.



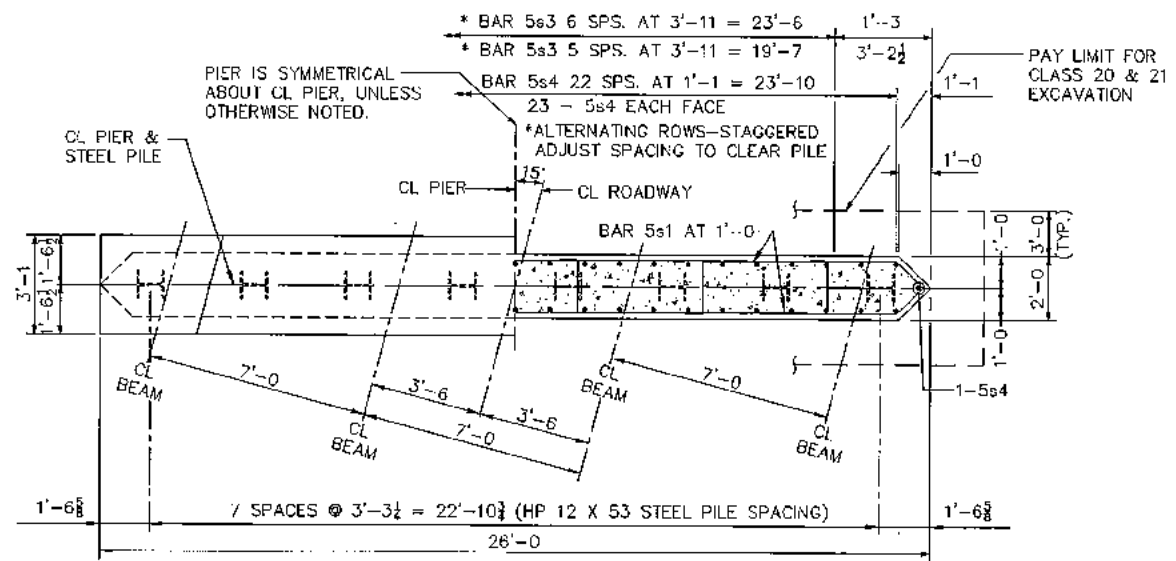
JAMES A. BERTSCH
12121

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.

James A. Bertsch 8-12-2015
 JAMES A. BERTSCH, P.E. #12121 DATE

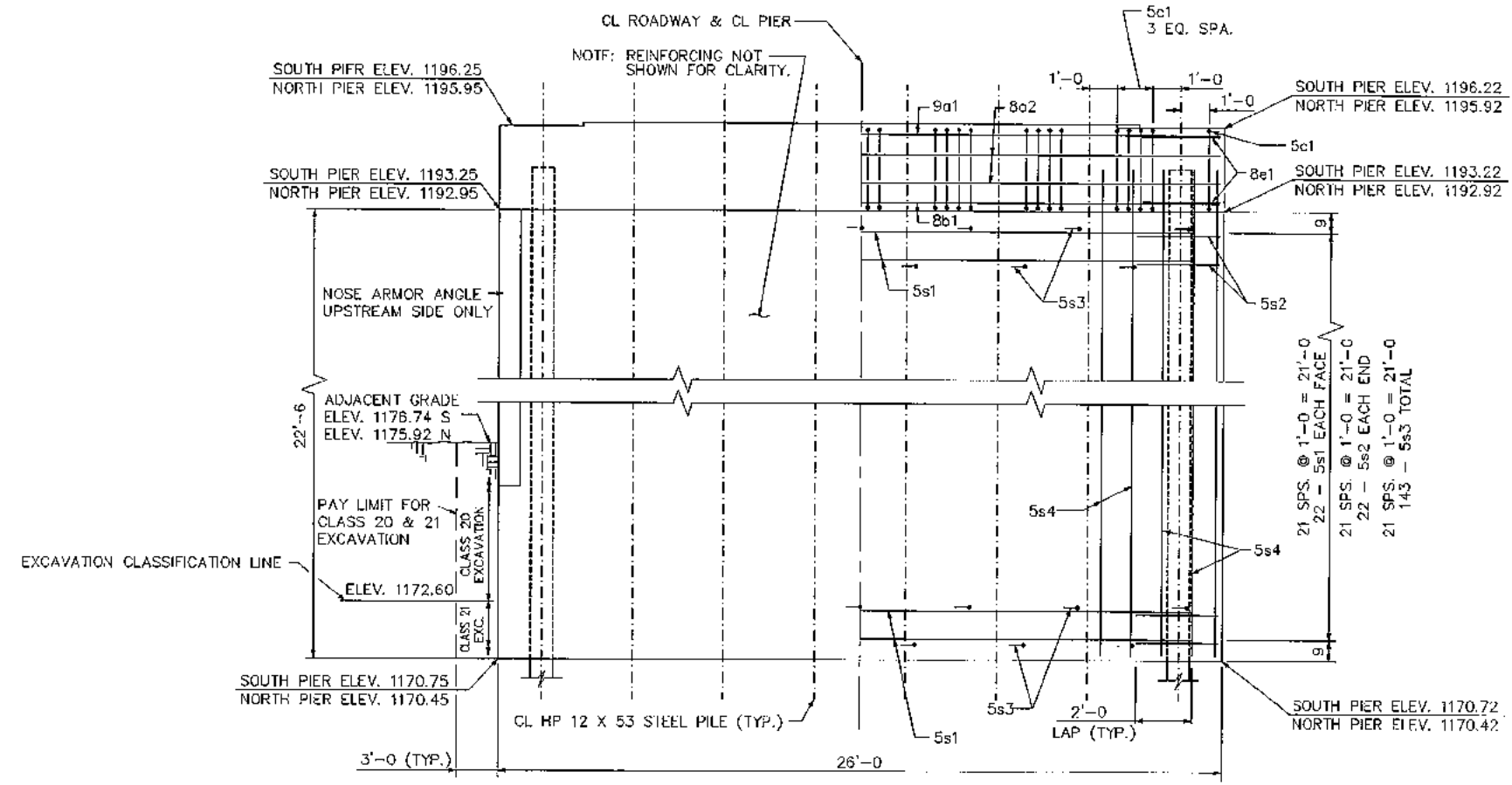
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2016.

PAGES OR SHEETS COVERED BY THIS SEAL:
 Q1



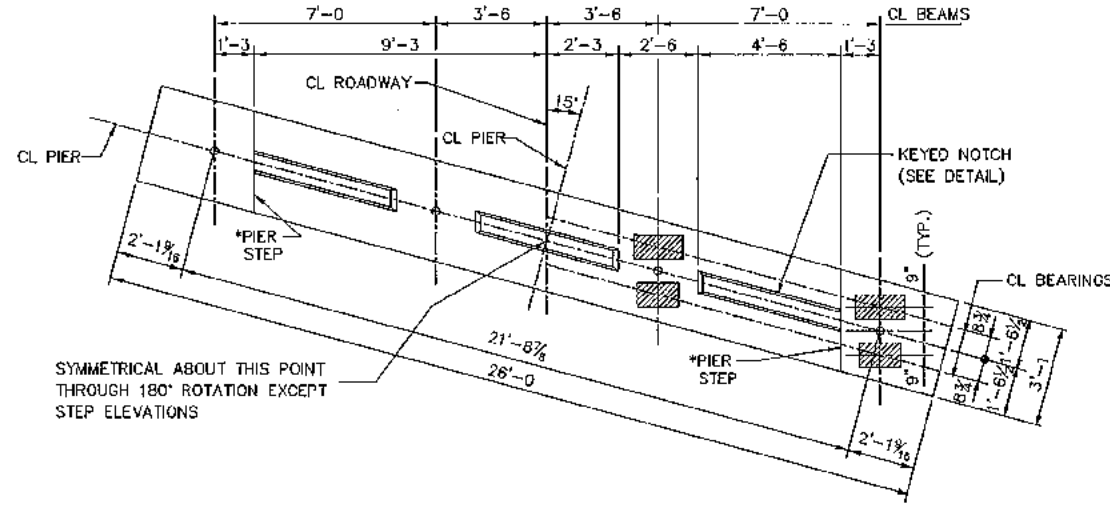
PLAN OF PIER CAP SECTION THRU PIER STEM
NOT TO SCALE NOT TO SCALE

NOTE:
SEE SHEET U4 FOR PIER STEP ELEVATIONS.
SEE SHEET U2 FOR ADDITIONAL PIER DETAILS.



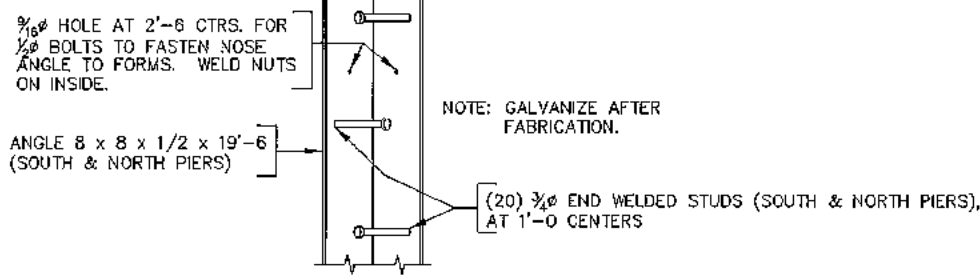
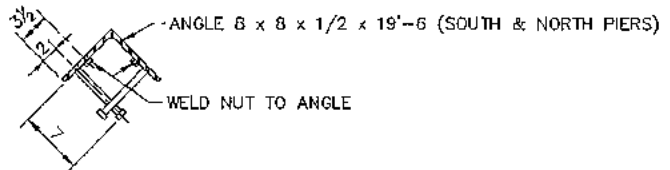
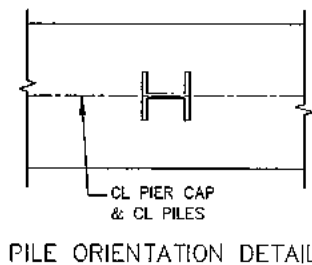
PIER ELEVATION
NOT TO SCALE
LOOKING UP STATIONING

PIER PLAN AND ELEVATION



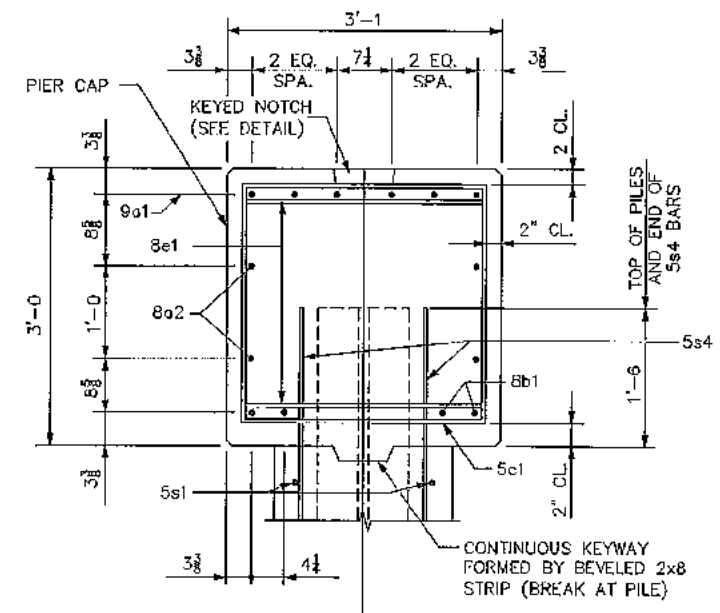
TYPICAL PLAN
 NOT TO SCALE

NOTE:
 SEE SHEET U4 FOR PIER STEP ELEVATIONS.
 REFER TO STD. SHEET H24-44-06 FOR
 ADDITIONAL DETAILS.



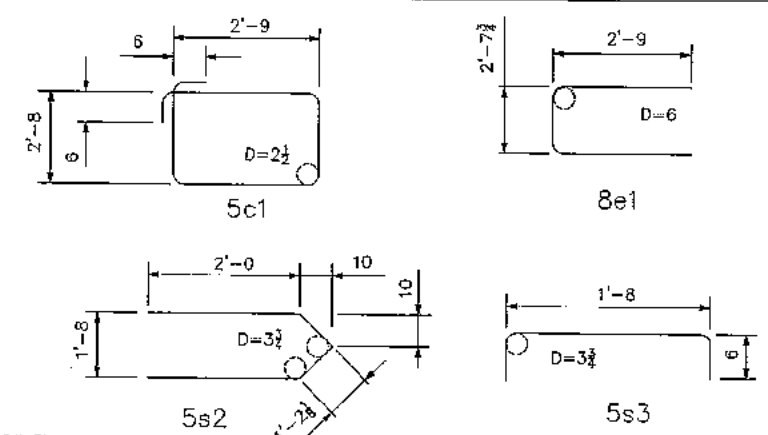
NOSE ARMOR ANGLE DETAILS
 NOT TO SCALE

PIER NOTES:
 ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED
 WITH A 3/4" DRESSED AND BEVELED STRIP.
 MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR
 REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
 REINFORCING STEEL IS TO BE SECURELY TIED IN PLACE BEFORE
 CONCRETE IS PLACED.
 NOSE ARMOR ANGLE AND WELDED STUDS ARE INCLUDED IN THE BID
 ITEM "STEEL, STRUCTURAL".



VIEW A-A
 NOT TO SCALE

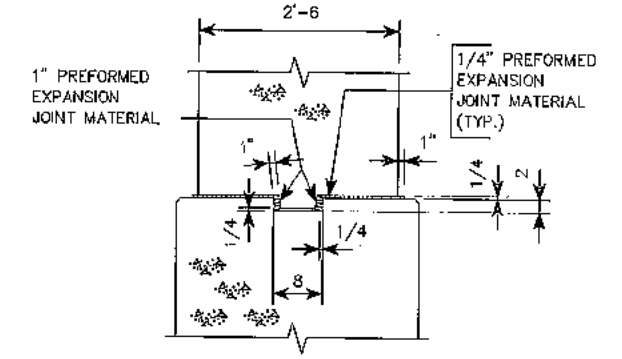
BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT
 TO OUT. D = PIN DIAMETER.

REINFORCING BAR LIST
 AND ESTIMATED QUANTITIES - PER PILE BENT

BAR	DESCRIPTION	SHAPE	NO.	LENGTH	WEIGHT	
9a1	CAP, HORIZONTAL	—	6	25'-8"	524	
8a2	CAP, HORIZONTAL	—	4	25'-8"	274	
8b1	CAP, HORIZONTAL	—	4	25'-8"	274	
5c1	CAP, STIR.	□	30	11'-10"	370	
8e1	CAP, ENDS	□	4	8'-2"	87	
5s1	STEM, HORIZONTAL	—	44	23'-10"	1094	
5s2	STEM, ENDS	U	44	6'-4 1/4"	292	
5s3	STEM, TIES	□	143	2'-8"	398	
5s4	STEM, VERTICAL	—	48	23'-9"	1189	
REINFORCING STEEL (LB.)					TOTAL (LBS)	4502
PIER CAP (CY)						9.2
PIER ENCASEMENT (CY)						41.7
STRUCTURAL CONCRETE (CY)					TOTAL (CY)	50.9
STRUCTURAL STEEL					TOTAL (LBS)	534.5



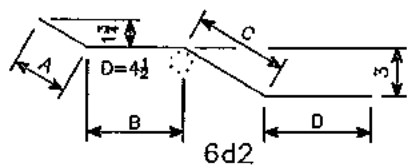
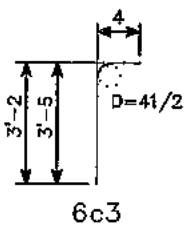
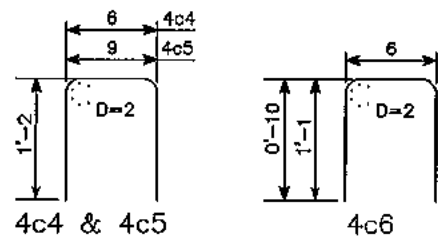
KEYED NOTCH DETAIL
 NOT TO SCALE

PIER DETAILS AND BAR LIST

REINFORCING STEEL-TWO OPEN RAILS

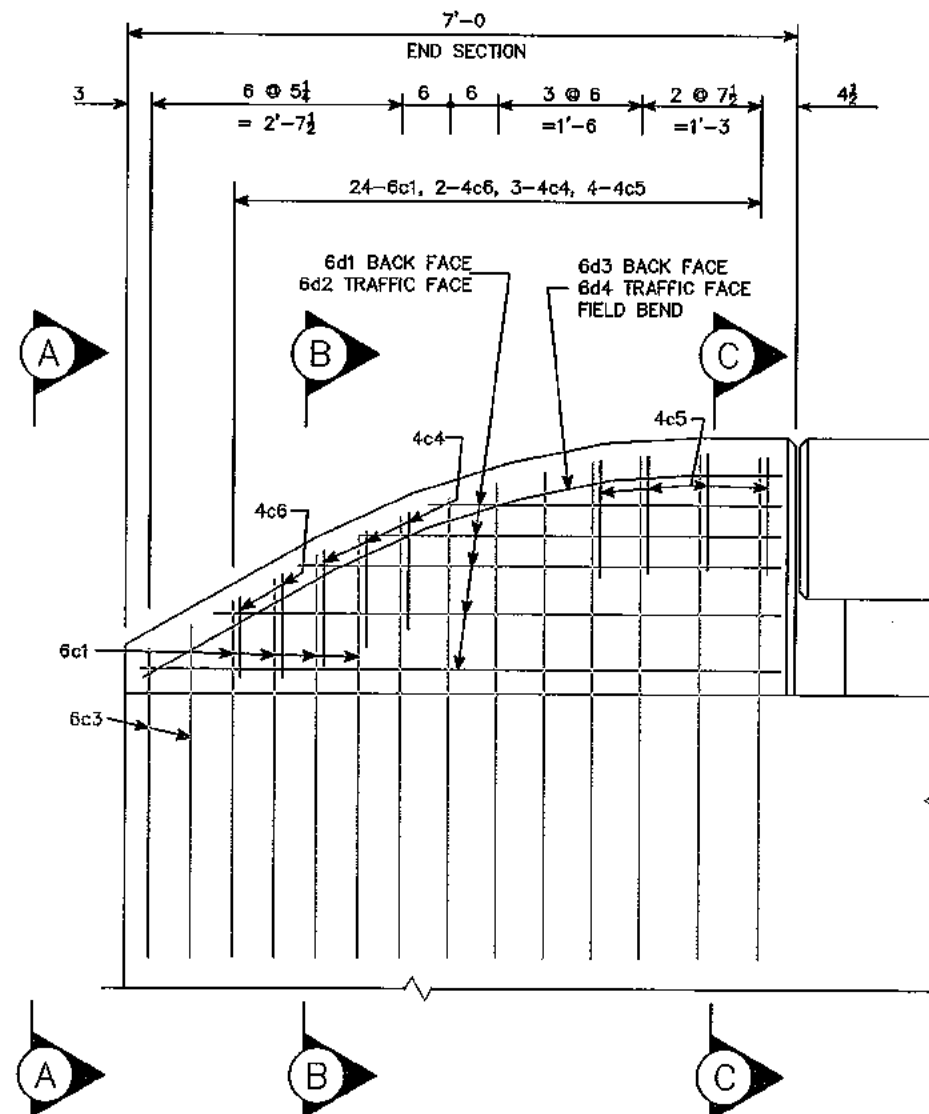
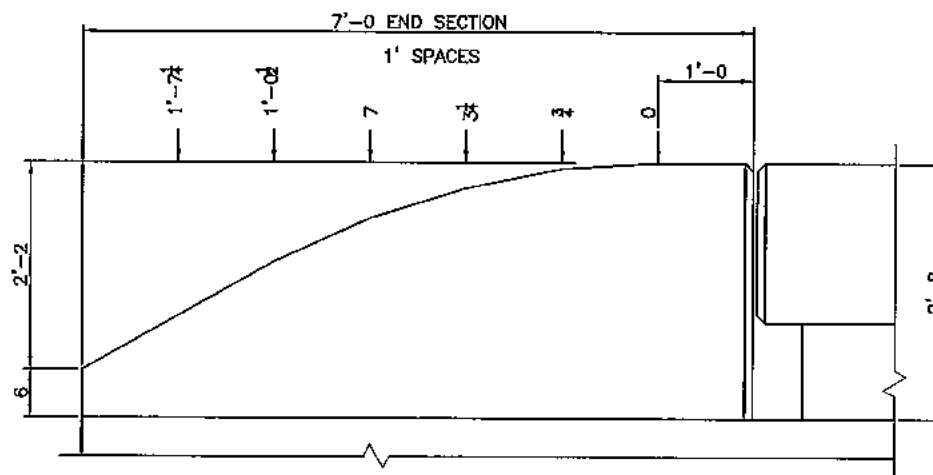
BRIDGE LENGTH		163'-10				
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
6c1	VERTICAL, END SECTION & ABUT. DIAPH. EXT.	---	96	VARIES	676	
6c3	VERTICAL, END SECTION	---	16	VARIES	87	
4c4	VERTICAL HOOPS, END SECTION	□	12	2'-10	23	
4c5	VERTICAL HOOPS, END SECTION	□	16	3'-1	33	
4c6	VERTICAL HOOPS, END SECTION	□	8	VARIES	13	
6d1	HORIZONTAL, END SECTION-BACK FACE	---	20	VARIES	154	
6d2	HORIZONTAL, END SECTION-TRAFFIC FACE	---	20	VARIES	156	
6d3	HORIZONTAL, END SECTION-BACK FACE	---	4	7'-1	43	
6d4	HORIZONTAL, END SECTION-TRAFFIC FACE	---	4	7'-2	43	
6h1	LONGITUDINAL, OPEN RAIL	---	36	40'-0	2,163	
6h2	LONGITUDINAL, OPEN RAIL, ENDS	---	24	30'-10	1,112	
6j1	VERTICAL DOWELS, OPEN RAIL	□	360	4'-0	2,163	
4j2	HOOP, INTERIOR POST	□	320	4'-9	1,015	
4j3	HOOP, OPEN RAIL	□	550	5'-5	1,990	
4j4	HOOP, END POST	□	32	6'-7	141	
4t1	WING FOOTING TIE BARS	---	16	VARIES	19	
TOTAL LBS. (INCLUDE WITH SUPERSTRUCTURE REINFORCING)					9,833	

BENT BAR DETAILS



6d2 VARIABLE LENGTHS							
SHAPE	NO.	A	B	C	D	LENGTH	WEIGHT
---	4	10 1/2	2'-0	1'-7 1/2	2'-2 1/2	6'-8 1/2	40.44
---	4	1 1/2	2'-0	1'-7 1/2	2'-2 1/2	5'-11 1/2	35.80
---	4	0	1'-3	1'-7 1/2	2'-2 1/2	5'-1	30.56
---	4	0	7 1/2	1'-7 1/2	2'-2 1/2	4'-5 1/2	26.80
---	4	0	0	1'-6 1/2	2'-2 1/2	3'-8 1/2	22.40
						TOTAL	156.00

NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.



ROUNDED END SECTION DETAILS

CONCRETE PLACEMENT SUMMARY - C.Y.

BRIDGE LENGTH		163'-10	
OPEN RAIL SECTION	2 @ 0.077 CU. YDS. PER FT.	25.9	
OPEN RAIL-END SECTION	4 @ 0.504 CU. YDS.	2.1	
OPEN RAIL-ABUT. DIAPH. SECTION	4 @ 0.107 CU. YDS. PER FT.	---	
OPEN RAIL-END POSTS	4 @ 0.11 CU. YDS.	0.4	
OPEN RAIL-INTERIOR POSTS	2 x "E" @ 0.07 CU. YDS.	2.8	
TOTAL (C.Y.)		31.2	

CONCRETE QUANTITIES SHOWN ARE BASED ON 45' SKEW. FOR "E" SEE SHEET H24-39-06.

NOTE: ROUNDED END SECTION AS DETAILED ON THIS SHEET SHALL BE USED INSTEAD OF END SECTION SHOWN ON STD. SHEETS H24-39-06 AND H24-40-06. REFER TO STD. SHEETS H24-39-06 AND H24-40-06 FOR ADDITIONAL OPEN RAIL DETAILS.

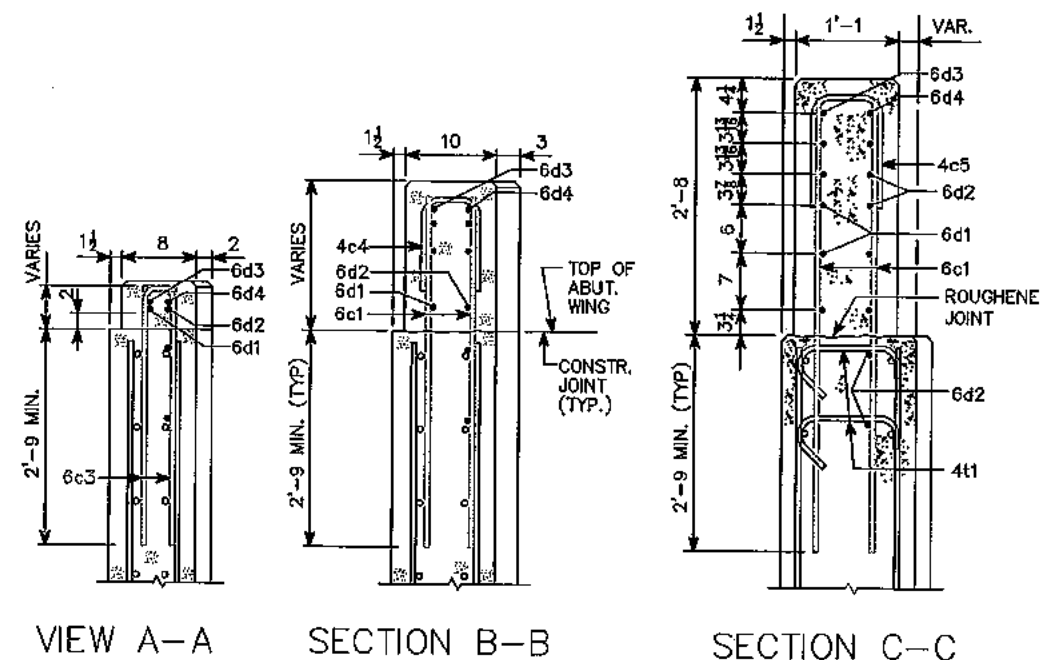
LISTED BARS

BAR 6c1
24 BARS AT 5'-3
72 BARS VAR. - 8 EA. LGTH.
3'-8, 3'-11, 4'-2, 4'-5, 4'-7, 4'-9, 4'-11
5'-1, 5'-2

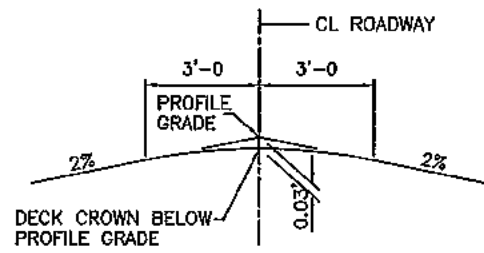
BAR 6c3
8 AT 3'-6
8 AT 3'-9

BAR 4c5
4 AT 2'-2
4 AT 2'-8

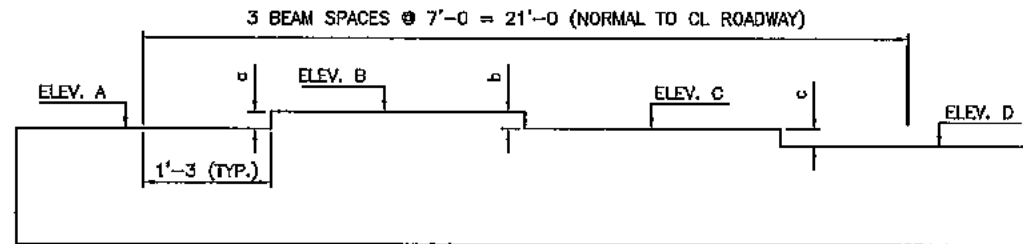
BAR 6d1
20 BARS VAR. - 4 EA. LGTH.
3'-8, 4'-5, 5'-0, 5'-11, 6'-8



ROUNDED END POST DETAILS



CROWN TEMPLATE
NO SCALE



ABUTMENT & PIER STEP DIAGRAM

LOOKING UP STATIONING
NOT TO SCALE

TABLE OF ABUTMENT & PIER STEPS			
LOCATON	a	b	c
SO. ABUTMENT	0.13	0.01	0.15
SO. PIER	0.13	0.01	0.15
NO. PIER	0.13	0.01	0.15
NO. ABUTMENT	0.13	0.01	0.15

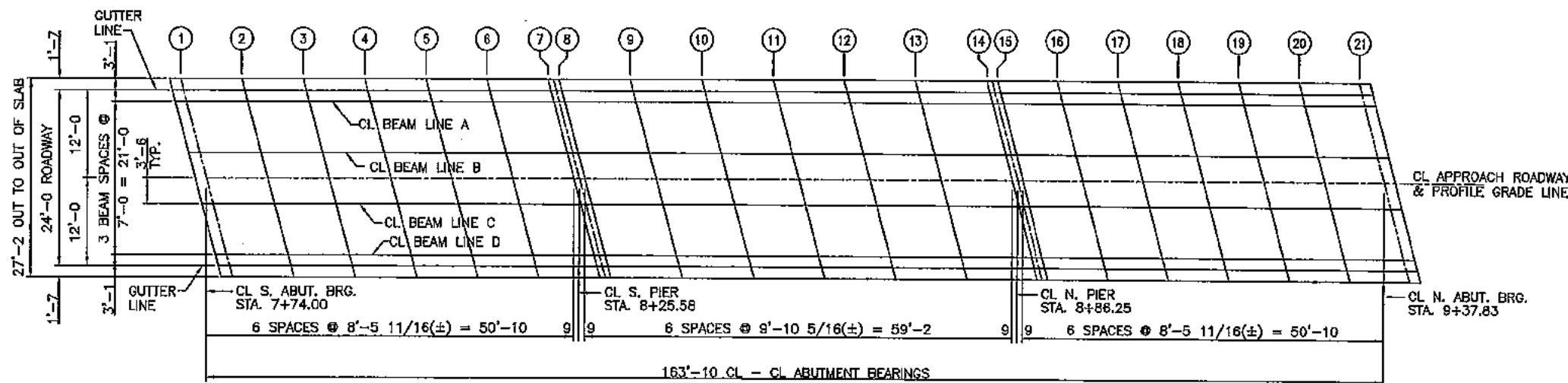
TABLE OF ABUTMENT & PIER ELEVATIONS				
LOCATON	ELEV. A	ELEV. B	ELEV. C	ELEV. D
SO. ABUTMENT	1196.40	1196.53	1196.52	1196.37
SO. PIER	1196.25	1196.38	1196.37	1196.22
NO. PIER	1195.95	1196.08	1196.07	1195.92
NO. ABUTMENT	1195.58	1195.71	1195.70	1195.55

LOW STEP 1195.55

ABUTMENT WING ELEVATIONS		
LOCATION	ELEVATION "A"	ELEVATION "B"
SW ABUT.	1200.63	1200.66
SE ABUT.	1200.59	1200.63
NW ABUT.	1199.79	1199.76
NE ABUT.	1199.76	1199.72

NOTE:
REFER TO PLAN SHEET H24-13-06 FOR
LOCATION OF WING ELEVATIONS A AND B.
ELEVATIONS ARE AT EDGE OF SLAB.

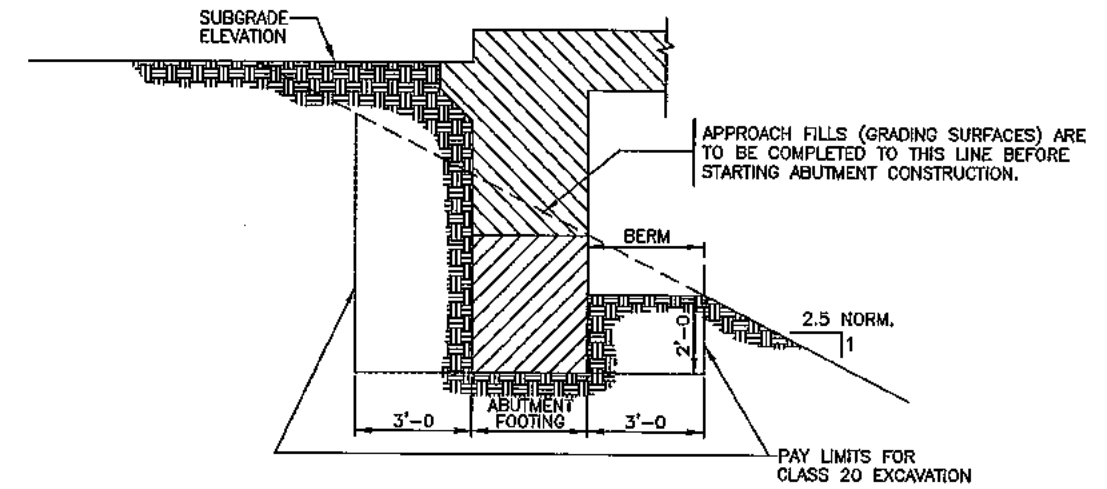
TOP OF SLAB ELEVATIONS																					
LOCATION	CL S. ABUT. BRG.	CL S. PIER BEARINGS						CL N. PIER BEARINGS						CL N. ABUT. BRG.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
W. GUTTER LINE	1200.61	1200.57	1200.53	1200.49	1200.45	1200.40	1200.36	1200.35	1200.30	1200.25	1200.20	1200.16	1200.11	1200.06	1200.05	1200.01	1199.96	1199.92	1199.88	1199.84	1199.80
BEAM LINE A	1200.64	1200.60	1200.56	1200.52	1200.47	1200.43	1200.39	1200.38	1200.33	1200.28	1200.23	1200.18	1200.13	1200.08	1200.08	1200.04	1199.99	1199.95	1199.91	1199.87	1199.82
BEAM LINE B	1200.77	1200.73	1200.69	1200.65	1200.60	1200.56	1200.52	1200.51	1200.46	1200.41	1200.36	1200.31	1200.27	1200.22	1200.21	1200.17	1200.12	1200.08	1200.04	1200.00	1199.95
CL BRIDGE	1200.81	1200.77	1200.73	1200.68	1200.64	1200.60	1200.56	1200.55	1200.50	1200.45	1200.40	1200.35	1200.30	1200.25	1200.25	1200.20	1200.16	1200.12	1200.08	1200.03	1199.99
BEAM LINE C	1200.76	1200.72	1200.68	1200.64	1200.59	1200.55	1200.51	1200.50	1200.45	1200.40	1200.35	1200.31	1200.26	1200.21	1200.20	1200.16	1200.11	1200.07	1200.03	1199.99	1199.95
BEAM LINE D	1200.61	1200.57	1200.53	1200.49	1200.44	1200.40	1200.36	1200.35	1200.30	1200.25	1200.20	1200.16	1200.11	1200.06	1200.05	1200.01	1199.96	1199.92	1199.88	1199.84	1199.80
E. GUTTER LINE	1200.58	1200.54	1200.50	1200.46	1200.41	1200.37	1200.33	1200.32	1200.27	1200.22	1200.17	1200.12	1200.07	1200.02	1200.02	1199.97	1199.93	1199.89	1199.85	1199.81	1199.76



TOP OF SLAB ELEVATION LAYOUT

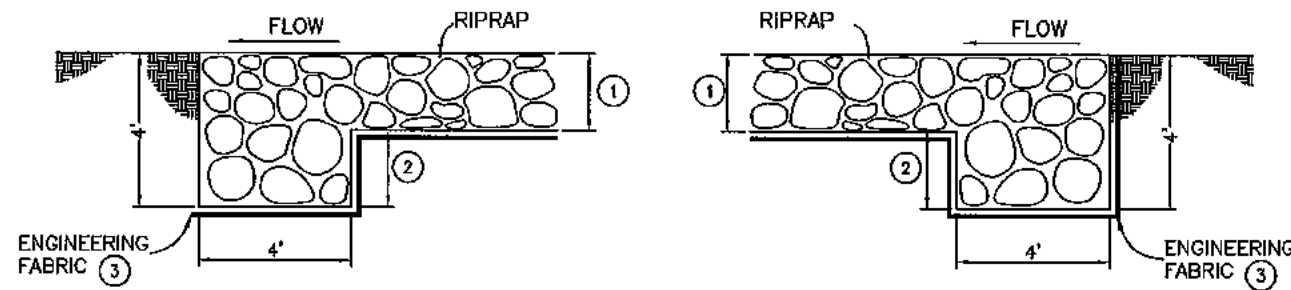


TOP OF SLAB ELEVATIONS



CLASS 20 EXCAVATION DETAIL

NOT TO SCALE

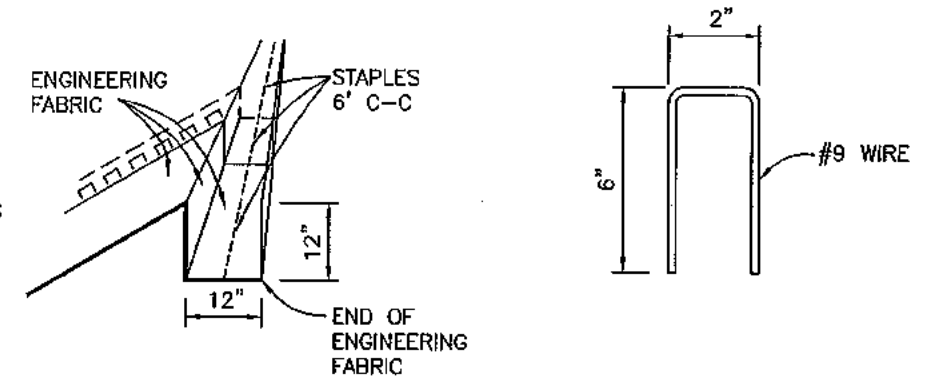


TYPICAL DOWNSTREAM

TYPICAL UPSTREAM

SECTION B-B

- ① 2.5' ACROSS CHANNEL BOTTOM
2.0' ON SIDE SLOPES
- ② 1.5' ACROSS CHANNEL BOTTOM
2.0' ON SIDE SLOPES
- ③ OMIT ENGINEERING FABRIC ACROSS
CHANNEL BOTTOM

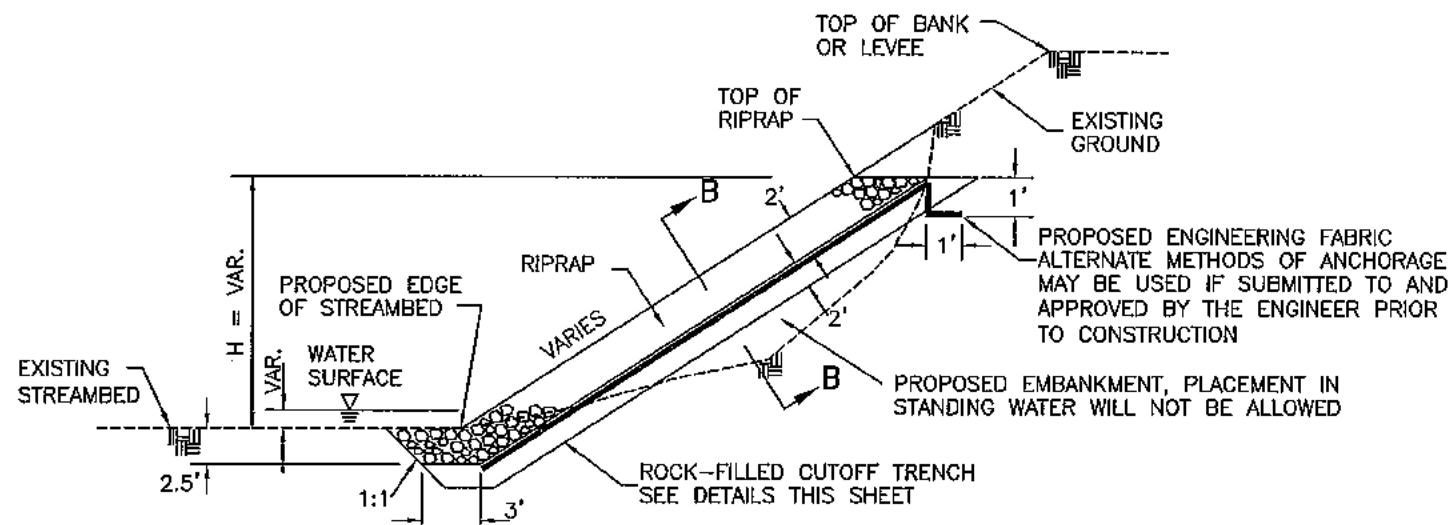


DETAIL OF TRENCH

STAPLE

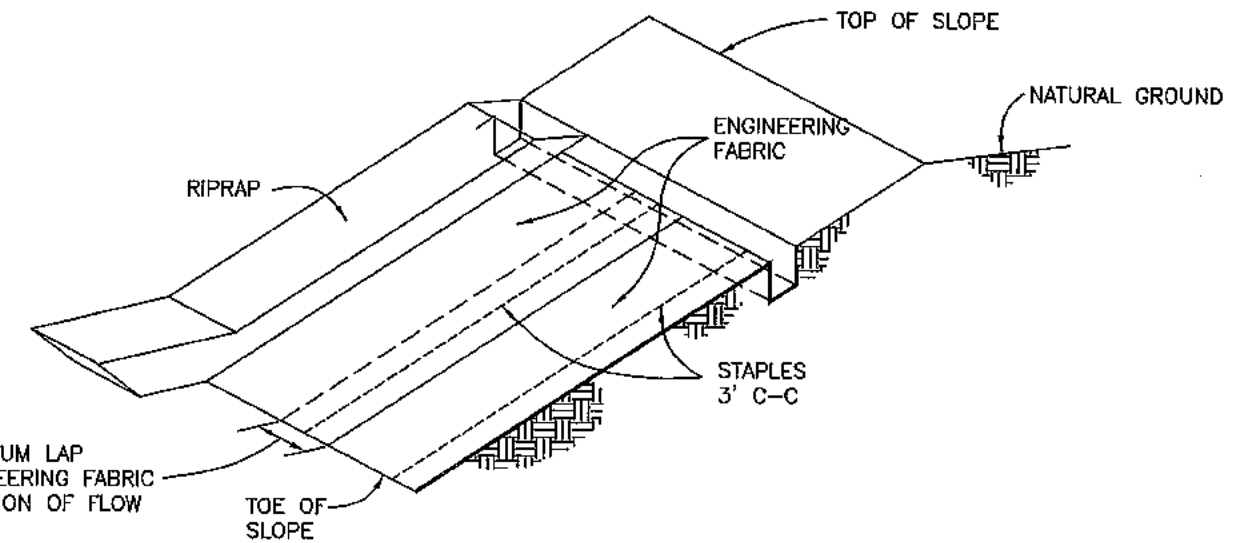
ROCK-FILLED CUTOFF TRENCH DETAILS

CONTINUOUS ACROSS BOTTOM WIDTH AND SIDE SLOPES
NO SCALE



TYPICAL HALF-CHANNEL BANK STABILIZATION SECTION

REFER TO CHANNEL CROSS SECTIONS FOR TOP OF RIPRAP ELEVATIONS
NO SCALE



DETAILS OF PLACEMENT OF ENGINEERING FABRIC

NO SCALE

SOUTH ABUTMENT PILE DESIGN NOTES:

THE CONTRACT LENGTH OF 70 FEET FOR THE SOUTH ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 138 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

SOUTH ABUTMENT PILE DRIVING NOTE:

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR SOUTH ABUTMENT PILES IS 106 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

SOUTH PIER PILE DESIGN NOTES:

THE CONTRACT LENGTH OF 75 FEET FOR THE SOUTH PIER PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 134 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76.

SOUTH PIER PILE DRIVING NOTE:

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR SOUTH PIER PILES IS 88 TONS AT END OF DRIVE. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

NORTH PIER PILE DESIGN NOTES:

THE CONTRACT LENGTH OF 75 FEET FOR THE NORTH PIER PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 134 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.76.

NORTH PIER PILE DRIVING NOTE:

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR NORTH PIER PILES IS 88 TONS AT END OF DRIVE. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

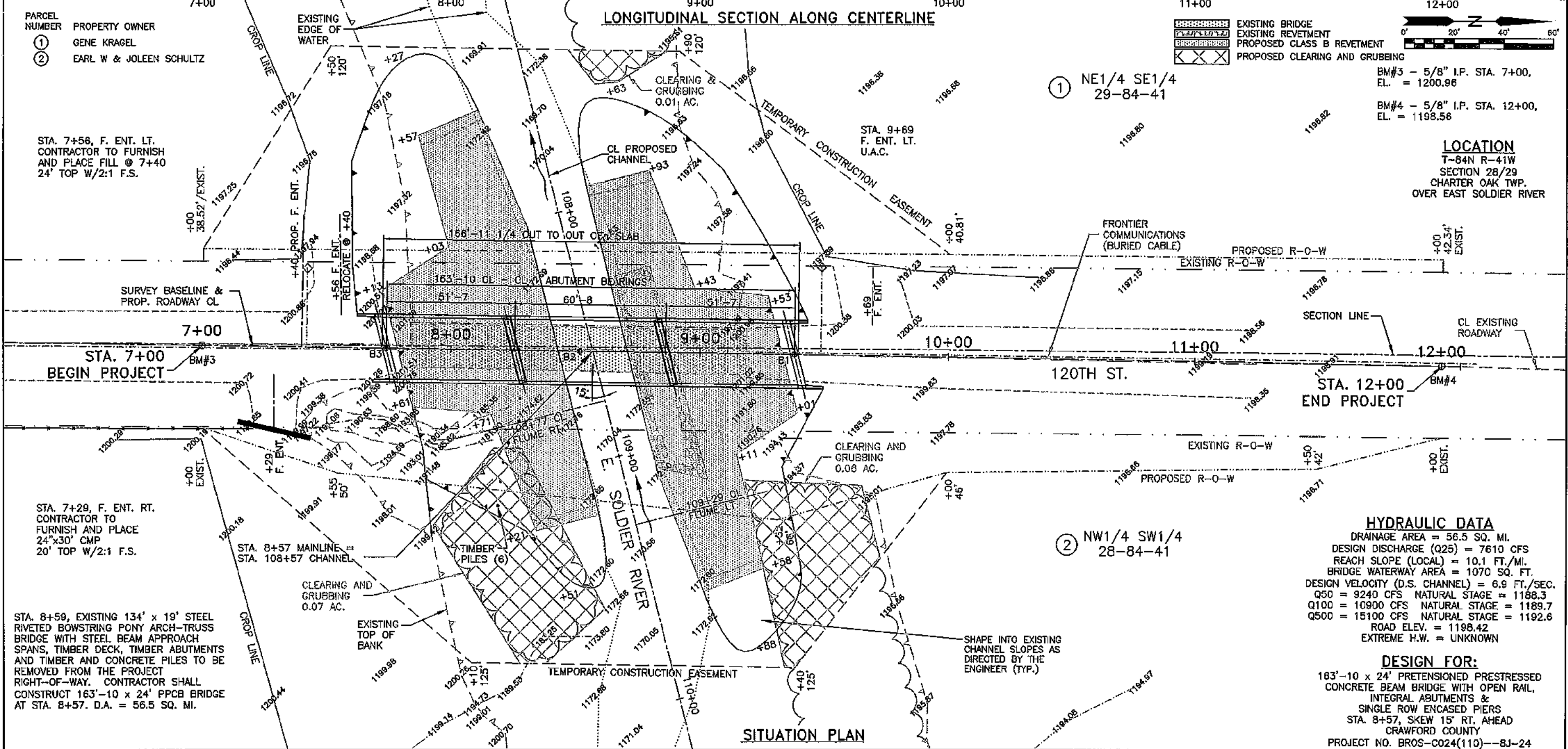
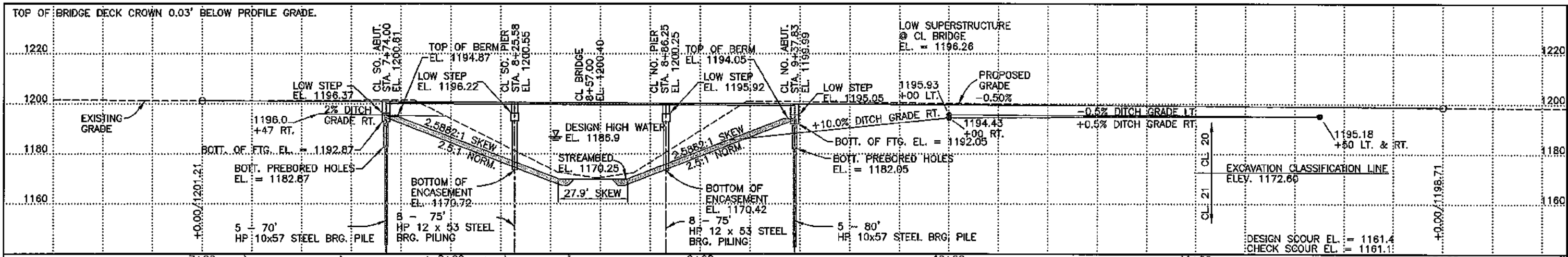
NORTH ABUTMENT PILE DESIGN NOTES:

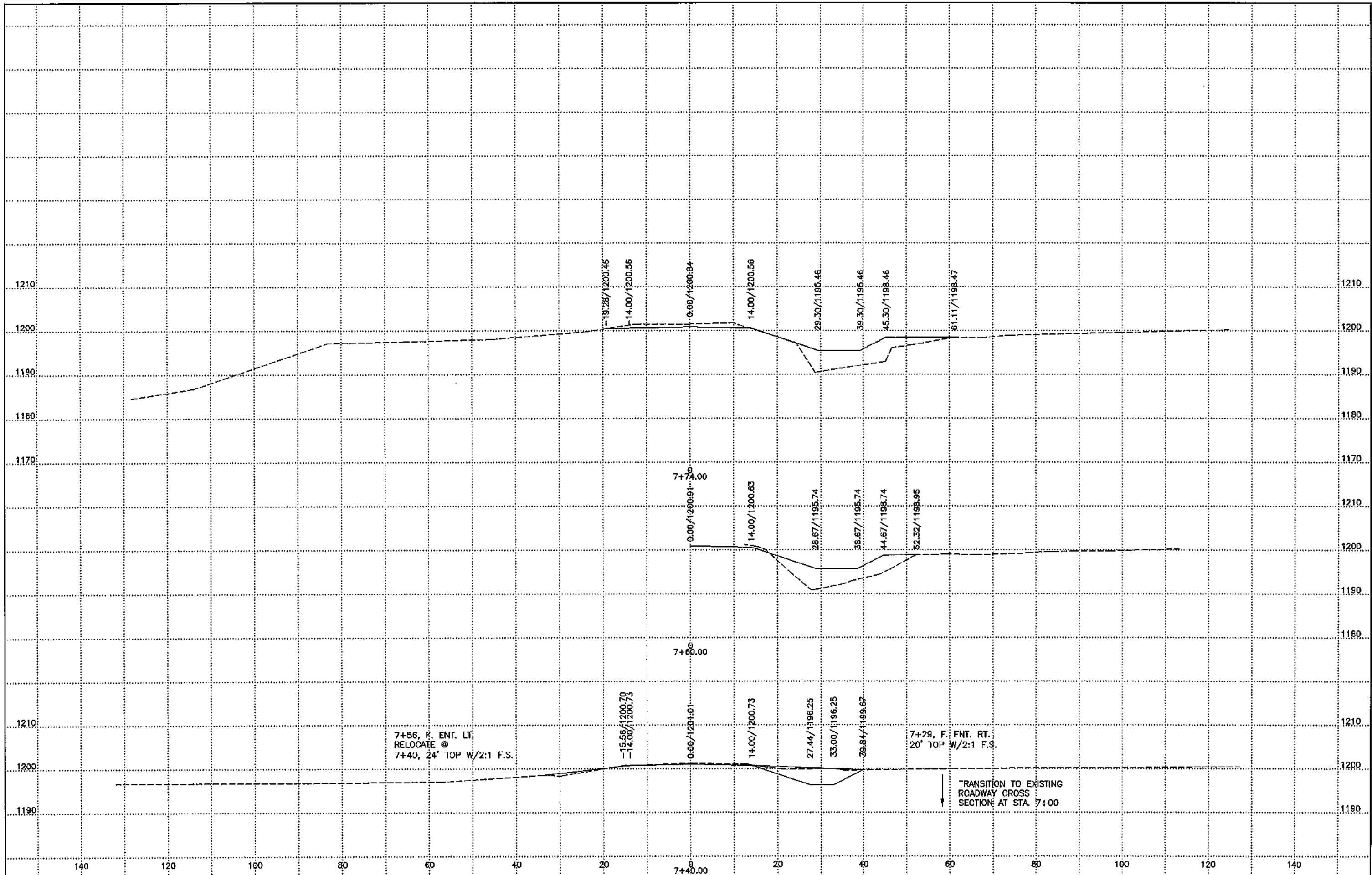
THE CONTRACT LENGTH OF 80 FEET FOR THE NORTH ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 138 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

NORTH ABUTMENT PILE DRIVING NOTE:

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR NORTH ABUTMENT PILES IS 106 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.





REV:

