

Iowa Department of Transportation
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE
**FARM-TO-MARKET SYSTEM
CRAWFORD COUNTY**
PROJECT NO. BROS-C024(90)--5F-24
BRIDGE REPLACEMENT - CCS
ON COUNTY ROAD M15 (190TH ST.) OVER
EAST SOLDIER RIVER

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.

LETTING DATE
11-18-08

BRIDGE REPLACEMENT - CCS
BROS-C024(90)--5F-24

CRAWFORD COUNTY

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

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 14, PERMIT NO. 2008-678. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT OFFICE OF CONTRACTS UPON REQUEST. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

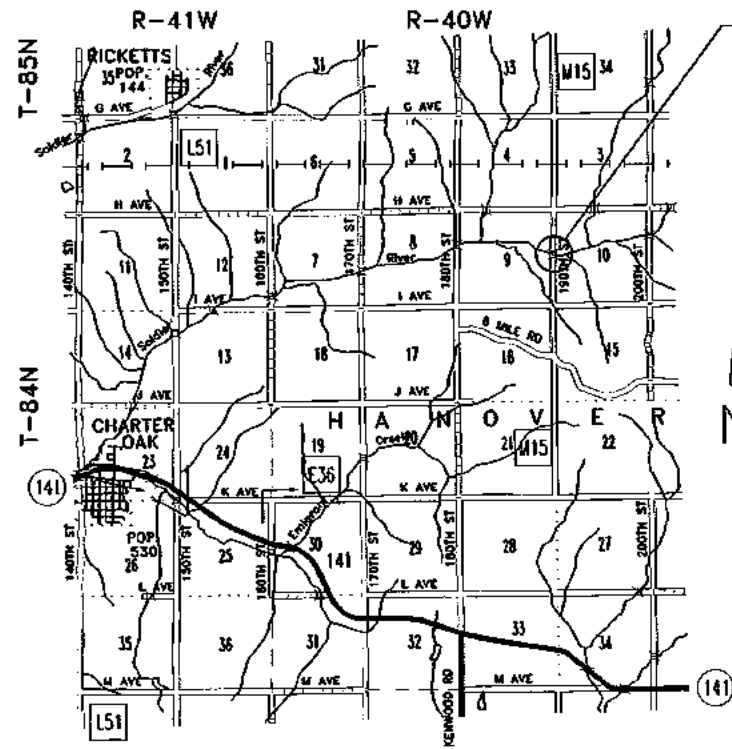
THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2802 OF THE IOWA DOT STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

DRAWING APPROVAL

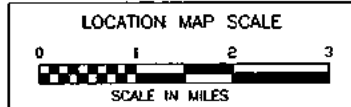
ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY SUNDQUIST ENGINEERING, P.C.

ADDRESS: 120 SOUTH MAIN, P.O. BOX 220
DENISON, IOWA 51442-0220
TELEPHONE: (712)263-8118

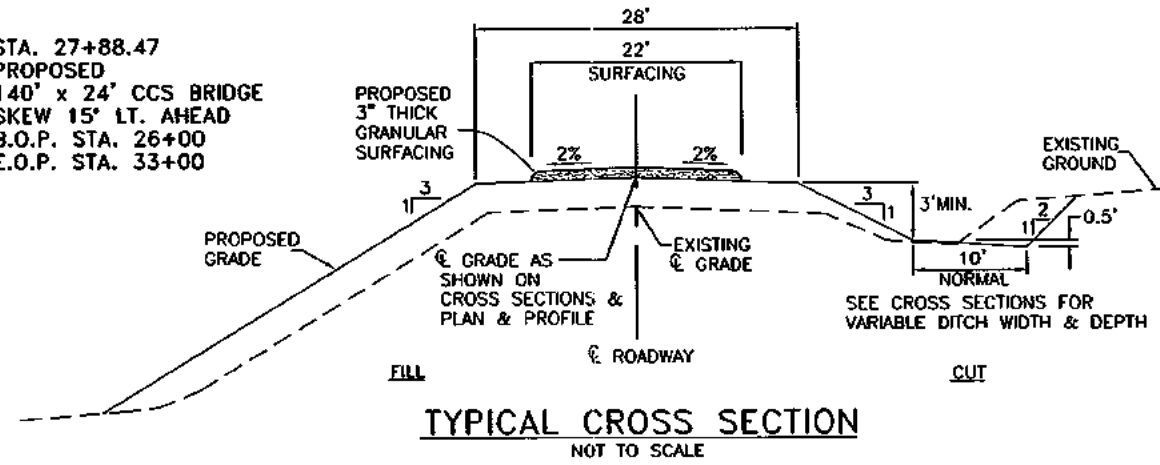
THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.



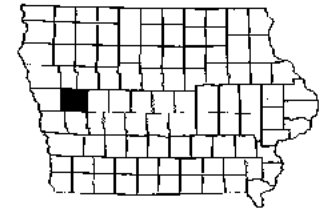
LOCATION MAP



STA. 27+88.47
PROPOSED
140' x 24' CCS BRIDGE
SKEW 15' LT. AHEAD
B.O.P. STA. 26+00
E.O.P. STA. 33+00



TYPICAL CROSS SECTION
NOT TO SCALE



04-30-02	101-4
DESIGN DATA RURAL	
2004 AADT	10 V.P.D.
2028 AADT	40 V.P.D.
201X DHV	X V.P.H.
TRUCKS	X %
TOTAL	
DESIGN ESALs	

Approved
John P. Hauber
Mark Schubert
Steve Elmer
Robert Lohmann
Daniel W. Mueller
 BOARD OF SUPERVISORS

Approved
[Signature]
 CRAWFORD COUNTY ENGINEER
 DATE: 8/19/08

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] 8/8/08
 TROY J. GROTH, P.E. #14450
 DATE: 8/8/08
 MY LICENSE RENEWAL DATE IS DECEMBER 31, 2009.
 PAGES OR SHEETS COVERED BY THIS SEAL:
 ALL SHEETS

SUNDQUIST ENGINEERING, P.C.
CONSULTING ENGINEERS
HIGHWAYS • MUNICIPAL • MAPPING • SURVEYING
120 S. MAIN, P.O. BOX 220, DENISON, IOWA 51442-0220
PHONE: (712)263-8118 FAX: (712)263-2181

TOTAL SHEETS	17
PROJECT NUMBER	BROS-C024(90)--5F-24
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
FHWA STRUCTURE NO.	129360

INDEX OF SHEETS	
NO.	DESCRIPTION
A1	TITLE SHEET
B1-2	ESTIMATE OF QUANTITIES AND GENERAL INFORMATION
C1-2	POLLUTION PREVENTION PLAN AND TABULATIONS, TYPICALS
D1	PLAN AND PROFILE SHEET
Q1-2	SOILS SHEET
U1-3	SPECIAL DETAILS
V1	BRIDGE SITUATION PLAN
W1-2	CROSS SECTIONS - ROADWAY
Z1-3	CROSS SECTIONS - CHANNEL

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED
J24-01-06	NOVEMBER, 2006	
J24-16-06	NOVEMBER, 2006	
J24-17-06	NOVEMBER, 2006	
J24-20-06	NOVEMBER, 2006	
J24-21-06	NOVEMBER, 2006	
J24-23-06	NOVEMBER, 2006	
J24-24-06	NOVEMBER, 2006	
J24-35-06	NOVEMBER, 2006	
J24-39-06	NOVEMBER, 2006	
J24-40-06	NOVEMBER, 2006	
J24-41-06	NOVEMBER, 2006	
J24-42-06	NOVEMBER, 2006	
J24-43-06	NOVEMBER, 2006	
P10A	SEPTEMBER, 2006	

MILEAGE SUMMARY		
LOCATION	LIN. FT.	MILES
BOP STA. 26+00 TO EOP STA. 33+00	700.00	
DEDUCT BRIDGE AT STA. 27+88.47	143.10	
NET LENGTH OF ROADWAY	556.90	0.106

IOWA ONE CALL
 Call Before You Dig!
 1.800.292.8989
 Call the toll-free number at least 48 hours prior to ALL excavations in Iowa.

195621

ESTIMATE REFERENCE INFORMATION

2102-2710070 EXCAVATION, CLASS 10, ROADWAY AND BORROW
TYPE A COMPACTION WILL BE REQUIRED. REFER TO PLAN SHEET C1 FOR TABULATION OF EARTHWORK QUANTITIES.

SUITABLE MATERIAL FROM CHANNEL EXCAVATION AND CLASS 20 EXCAVATION MAY BE USED FOR EMBANKMENT MATERIAL. ADDITIONAL NECESSARY BORROW SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR-SELECTED BORROW SITE AND MATERIAL SHALL BE APPROVED BY THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLEARANCES FOR BORROW SITES IN ACCORDANCE WITH ARTICLE 2102.06.

OVERHAUL IS INCIDENTAL TO THE PRICE BID FOR THIS ITEM. THE HAUL ROUTE DESIGNATION SHALL BE IN ACCORDANCE WITH ARTICLE 1105.13 EXCEPT THE CONTRACTOR SHALL SUBMIT THE HAUL ROAD REQUEST TO THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING WHICH POTENTIAL COUNTY HAUL ROADS ARE EMBARGOED AND WHEN THE EMBARGO IS IN EFFECT.

FILL MATERIALS SHALL CONTAIN NO SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS. FILL SHALL NOT BE PLACED UPON A FROZEN SURFACE, NOR SHALL SNOW, ICE OR FROZEN MATERIAL BE INCORPORATED IN THE FILL.

FILL PLACEMENT SHALL TAKE PLACE ON NEAR HORIZONTAL SURFACES. THE EXISTING SURFACES SHALL BE BENCHED PRIOR TO PLACEMENT OF FILL UPON THEM. NEAR VERTICAL BENCHES AT 3 TO 5 FEET IN HEIGHT SHALL BE REQUIRED IN ORDER TO EFFECT A GOOD BOND BETWEEN THE FILL AND THE EXISTING SURFACES. NO SEPARATE PAYMENT WILL BE MADE FOR BENCHING OF THE EXISTING SURFACES. SUCH BENCHING SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

PAYMENT SHALL BE BASED ON PLAN QUANTITY. CROSS SECTIONS SHALL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.

2104-2710020 EXCAVATION, CLASS 10, CHANNEL
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.

QUANTITY INCLUDES EXCAVATION REQUIRED TO INSTALL THE CLASS B REVETMENT FOR BANK STABILIZATION AND SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT. ITEM INCLUDES 4555 CY OF CUT AND PLACEMENT OF 4523 CY (3350 X 1.35) OF FILL ON THE CHANNEL BANKS.

QUANTITY INCLUDES EXCAVATION REQUIRED TO TRANSITION PROPOSED CHANNEL SLOPES INTO EXISTING SLOPES WITHIN THE LIMITS SHOWN ON PLAN SHEET D1.

PAYMENT SHALL BE BASED ON PLAN QUANTITY. CROSS SECTIONS SHALL NOT BE TAKEN AFTER EXCAVATION FOR THE PURPOSE OF DETERMINING ACTUAL QUANTITIES.

2312-8260050 GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE
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 1650 TONS PER MILE.

2401-6745625 REMOVAL OF EXISTING BRIDGE
THE EXISTING BRIDGE IS A 104' X 18' STEEL PONY TRUSS WITH TIMBER APPROACH SPAN, TIMBER ABUTMENTS, TIMBER AND STEEL PILES AND TIMBER DECK.

CONTRACTOR SHALL COORDINATE WITH COUNTY FOR REMOVAL OF TIMBER DECKING PLANK. COUNTY FORCES SHALL REMOVE DECKING. REMAINDER OF STRUCTURE SHALL BE REMOVED BY CONTRACTOR.

2403-0100010 STRUCTURAL CONCRETE (BRIDGE)
REFER TO TABULATION ON PLAN SHEET C1. ALL STRUCTURAL CONCRETE SHALL BE CLASS C. CLASS D WILL NOT BE ALLOWED. ITEM INCLUDES CERTIFIED PCC PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521.

THE STRUCTURAL CONCRETE QUANTITY HAS BEEN INCREASED BY 1.2 CU. YDS TO ACCOUNT FOR THE ADDITION OF PAVING BLOCKS. REFER TO DETAILS ON PLAN SHEET U1.

NO HEAVY CONSTRUCTION EQUIPMENT WILL BE PERMITTED ON THE NEWLY CONSTRUCTED BRIDGE UNLESS LOADED ON A LEGAL TRAILER.

2404-7775005 REINFORCING STEEL, EPOXY COATED
REFER TO TABULATION ON PLAN SHEET C1. ALL REINFORCING STEEL SHALL BE EPOXY COATED. REINFORCING STEEL FOR THE ROUNDED END POSTS SHALL BE AS DETAILED ON PLAN SHEET U1.

THE REINFORCEMENT STEEL QUANTITY HAS BEEN INCREASED BY 24 LBS. TO ACCOUNT FOR THE ADDITION OF PAVING BLOCKS. REFER TO DETAILS ON PLAN SHEET U1.

2414-6424124 CONCRETE OPEN RAILING, TL-4
SEE ROUNDED END POST DETAILS ON PLAN SHEET U1 FOR MODIFICATIONS TO STANDARD BRIDGE PLAN J24-40-06 AND J24-41-06.

2417-1040024 CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.
2502-8215136 SUBDRAIN, CORRUGATED METAL PIPE, 36 IN. DIA.
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.

ALL BANDS SHALL HAVE ANNULAR CORRUGATIONS AND SHALL BE THE SAME THICKNESS AS THE PIPE. BANDWIDTHS SHALL BE IN ACCORDANCE WITH MATERIALS I.M. 441 EXCEPT THAT NO BAND SHALL BE LESS THAN 24 INCHES IN WIDTH.

REFER TO PLAN SHEET U3 FOR DEGREE OF ELBOWS. ELBOWS AND DIAPHRAGMS ARE NOT BID ITEMS. REFER TO TABULATION ON PLAN SHEET C2.

ESTIMATED PROJECT QUANTITIES

ITEM NUMBER	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2101-0850002	CLEARING & GRUBBING	UNIT	388	
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1752	
3	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	4555	
4	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	175	
5	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
6	2402-2720000	EXCAVATION, CLASS 20	CY	61	
7	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	313.0	
8	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	70380	
9	2414-6424124	CONCRETE OPEN RAILING, TL-4	LF	302.2	
10	2417-1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	54	
11	2501-0201042	PILES, STEEL, HP 10X42	LF	750	
12	2501-0201253	PILES, STEEL, HP 12X53	LF	1250	
13	2501-5475053	CONCRETE ENCASMENT OF STEEL H PILES, HP 12 X 53 (P10A TYPE 3)	LF	520	
14	2501-6335010	PREBORED HOLES	LF	120	
15	2502-8215136	SUBDRAIN, CORRUGATED METAL PIPE, 36 IN. DIA.	LF	76	
16	2507-3250005	ENGINEERING FABRIC	SY	1211	
17	2507-4011100	CONCRETE GROUT FOR REVETMENT OR GABION	CY	7	
18	2507-6800021	REVTMENT, CLASS B	TON	1125	
19	2507-6875002	REVTMENT, REMOVE AND REPLACE	CY	82	
20	2518-6910000	SAFETY CLOSURE	EACH	4	
21	2524-9100030	OBJECT MARKER, TYPE 3	EACH	4	
22	2528-8445110	TRAFFIC CONTROL	LS	1	
23	2533-4980005	MOBILIZATION	LS	1	
24	2547-0000100	TEMPORARY STREAM ACCESS	LS	1	
25	2601-2634100	MULCHING	ACRE	1.8	
26	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	1.8	
27	2601-2640350	SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT	SQ	26.1	
28	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	117	

STANDARD ROAD PLANS

105-4
10-16-07

The following Standard Road Plans shall be considered applicable to construction work on this project.				
NUMBER	DATE	SHEETS	TITLE	
RC-5	04-27-99	1	EROSION CONTROL DETAILS (WOOD EXCELSIOR MAT)	
RC-17	10-16-07	2	SILT FENCE	
RE-47	04-17-07	1	TYPE 3 OBJECT MARKER	
RE-48A	10-19-04	1	DETAILS OF MARKER AND DELINEATOR PLACEMENT (AT BRIDGES)	
RF-7	10-16-07	1	CORRUGATED METAL TYPE 'A' DIAPHRAM	
RF-30A	10-16-07	1	CULVERT (BEDDING AND BACKFILL)	
RF-30B	10-17-06	1	PIPE CULVERT (COVER AND CAMBER)	
RF-30C	04-30-02	1	PIPE CULVERT (INSTALLATION DETAILS)	
RF-32	10-16-07	2	DEPTH OF COVER TABLES FOR CORRUGATED PIPE	
RL-4	9-21-99	1	DITCH BLOCKS AND DIKES	
RL-16	04-15-08	1	TEMPORARY STREAM CROSSING, CAUSEWAY OR EQUIPMENT PAD	
TC-252	04-15-08	2	ROAD CLOSURE	

2501-0201042 PILES, STEEL, HP 10 X 42
2501-0201253 PILES, STEEL, HP 12 X 53
THE REQUIRED DESIGN BEARING FOR THE HP 10 X 42 ABUTMENT PILES IS 34 TONS. THE REQUIRED DESIGN BEARING FOR THE HP 12 X 53 P10A TYPE 3 PIER PILES IS 34 TONS. 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.

CAST-IN-ONE-PIECE STEEL PILE POINTS ARE REQUIRED FOR ALL PILES. PILE POINTS SHALL BE IN ACCORDANCE WITH ARTICLE 4167.02 AND MATERIALS I.M. 467.02

ESTIMATED PROJECT QUANTITIES AND GENERAL INFORMATION

ESTIMATE REFERENCE INFORMATION (CONTINUED)

2507-3250005 ENGINEERING FABRIC

MATERIAL SHALL CONFORM TO IOWA DOT MATERIALS I.M. 496.01 APPENDIX A, EMBANKMENT EROSION CONTROL (ARTICLE 4196.01, C). MATERIAL SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES. REFER TO DETAILS ON PLAN SHEET U2.

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.

2507-6800021 REVETMENT, CLASS B

THIS ITEM SHALL CONSIST OF FURNISHING AND PLACING REVETMENT STONE, COMPLETE IN PLACE AS SHOWN ON THE DRAWINGS. REFER TO DETAILS ON PLAN SHEET U2.

MATERIAL SHALL MEET THE REQUIREMENTS OF SECTION 4130 FOR CLASS B REVETMENT ON PRIMARY PROJECTS.

DEWATERING REQUIRED TO INSTALL REVETMENT SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

RIPRAP WILL NOT BE ALLOWED TO BE DUMPED OVER THE RAILING OF THE NEWLY CONSTRUCTED BRIDGE.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF RIPRAP STOCKPILES FROM FARM FIELDS UTILIZED BY CONTRACTOR IN THE PROJECT AREA. THIS WORK SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

CLASS B REVETMENT PLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS WILL BE MEASURED IN TONS TO THE NEAREST 0.1 TON. FOR THE QUANTITY OF CLASS B REVETMENT FURNISHED AND PLACED, THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER TON.

2507-6875002 REVETMENT, REMOVE AND REPLACE

ITEM INCLUDES REMOVING EXISTING CHANNEL BANK REVETMENT TO THE EXTENT NECESSARY TO COMPLETE INSTALLATION OF THE PROPOSED IMPROVEMENTS INCLUDING THE BRIDGE BERM AND APPROACH ROADWAY GRADING. REVETMENT SHALL BE STOCKPILED AND REPLACED ON THE PROPOSED CHANNEL SLOPES. REMOVAL AND DISPOSAL OF EXISTING ENGINEERING FABRIC SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

THE QUANTITY OF REVETMENT, 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 REVETMENT, 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 STOCKPILING THE EXISTING RIPRAP REVETMENT, AND REPLACING THE REVETMENT. THE CONTRACTOR SHALL EXERCISE CARE TO MINIMIZE THE AMOUNT OF SOIL AND DEBRIS IN THE RIPRAP STOCKPILE.

2518-6910000 SAFETY CLOSURE

REFER TO TABULATION ON PLAN SHEET C1.

2524-9100030 OBJECT MARKER, TYPE 3

REFER TO TABULATION ON PLAN SHEET C1.

2601-2640350 SPECIAL DITCH CONTROL, WOOD EXCELSIOR MAT

REFER TO STANDARD ROAD PLAN RC-5 AND TABULATION AND DETAILS ON PLAN SHEET C2.

2602-0000030 SILT FENCE FOR DITCH CHECKS

REFER TO STANDARD ROAD PLAN RC-17 AND TABULATION ON PLAN SHEET C2 FOR DETAILS.

QUANTITY INCLUDES SILT FENCE AT CULVERT INLETS AS DETAILED ON PLAN SHEET C2. MAXIMUM SPACING OF STEEL POSTS FOR SILT FENCE AT CULVERT INLETS SHALL BE 5 FEET.

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.

ALL BORROW AREAS, STOCKPILE AREAS, HAUL ROADS AND AREAS FOR MANEUVERING EQUIPMENT ON THIS PROJECT WILL REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 18 TO 24 INCHES. SUCH TILLAGE SHALL BE ACCOMPLISHED ON MAXIMUM OF THREE FOOT CENTERS. SUCH AREAS SHALL BE DESIGNATED BY THE ENGINEER.

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.

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.

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 AND IN THE 404 PERMIT.

CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED DURING LOW TO NORMAL FLOWS. LOW TO NORMAL FLOWS SHALL BE DETERMINED IN CONSULTATION WITH THE PROJECT ENGINEER AND ARE DEFINED AS FLOWS AT OR BELOW THE ORDINARY HIGH WATER MARK. THE ORDINARY HIGH WATER MARK IS THAT LINE ON THE SHORE OF A STREAM OR WATERBODY ESTABLISHED BY THE FLUCTUATIONS OF WATER AND BEST INDICATED BY THE LINE IMPRESSED ON THE BANK CONTAINING VEGETATION ABOVE AND BARE SOIL BELOW.

THE PRIME CONTRACTOR SHALL EMPLOY CONTROLS TO REDUCE THE EROSION 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.

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

ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF AT AN UPLAND, NON-WETLAND LOCATION, IN SUCH A MANNER THAT IT CANNOT ENTER A WATERWAY OR WETLAND.

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

CLEARING AND GRUBBING OF VEGETATION, INCLUDING TREES LOCATED IN OR IMMEDIATELY ADJACENT TO WETLANDS AND STREAMS, SHALL BE LIMITED TO THAT WHICH IS ABSOLUTELY NECESSARY FOR CONSTRUCTION OF THE PROJECT. ALL VEGETATIVE MATERIAL REMOVED FROM THE RIGHT OF WAY SHALL BE DISPOSED OF AT AN UPLAND, NON-WETLAND LOCATION.

01-20-84 212-1
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.

04-15-08 213-1
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 INTO THE WORK INVOLVED ON THIS PROJECT.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT AREAS (INCLUDING HAUL ROADS) SELECTED FOR WASTE OR DISPOSAL NOT IMPACT 1) CULTURALLY SENSITIVE SITES OR GRAVES OR 2) WETLANDS OR "WATERS OF THE U.S.", INCLUDING STREAMS OR STREAM BANKS BELOW THE "ORDINARY HIGH WATER MARK", WITHOUT AN APPROVED U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT.

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.

10-27-98 213-4
THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA AND HAUL ROADS TO PREVENT THE SPREAD OF DUST. REFER TO ARTICLE 1107.07 OF THE CURRENT STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

01-19-88 251-1
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 PAID FOR AS A CONTRACT ITEM OR BY EXTRA WORK.

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 42,800 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 24,400 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.

ESTIMATED PROJECT QUANTITIES AND GENERAL INFORMATION

POLLUTION PREVENTION PLAN

110-12A

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 CRAWFORD COUNTY SECONDARY ROAD BRIDGE ON M15 (190TH STREET) OVER THE EAST SOLDIER RIVER.

THIS PPP COVERS APPROXIMATELY 4.5 ACRES WITH AN ESTIMATED 2.1 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 2.1 ACRES DISTURBED.

THE PPP IS LOCATED IN AN AREA OF TWO SOIL ASSOCIATIONS (MARSHALL AND MONONA-IDA-HAMBURG). THE ESTIMATED AVERAGE NRCS RUNOFF CURVE NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 62.

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 PROJECT ENGINEER'S OFFICE. RUNOFF FROM THIS WORK WILL FLOW INTO THE EAST SOLDIER RIVER.

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 CONTRACTOR, AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL COMPLETE THE CONSTRUCTION WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS.

POLLUTION PREVENTION PLAN

110-12A

3. OTHER CONTROLS

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 OF 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.

**PLACEMENT OF QUANTITIES
140'-0 x 24' CCS BRIDGE**

ITEM	UNIT	PIERS	SUPERSTRUCTURE & ABUTMENTS	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	CY	-	313.0	313.0
REINFORCING STEEL, EPOXY COATED	LB	-	70380	70380

POINTS OF ACCESS

Refer to Detail Cross-Sections. For Pipe Culvert Details Refer to RF-30A, RF-30B, and RF-30C.

STATION	SIDE	W	TYPE	H	SIZE (Inches)	LENGTH		APRON (No.)	SURFACE MATERIAL (Tons)
						LT (Lin. Ft.)	RT (Lin. Ft.)		
26+50	R	40	C	1.0	24	28	26		

TABULATION OF EARTHWORK QUANTITIES

STA.	CUT	ADD. CUT	FILL +35%	ADD. FILL	TOTAL CUT	TOTAL FILL+35%	BALANCE
26+00							
26+49.43	37		25	106	37	131	
27+22	101		47		101	47	
28+55							
29+53.66	617		155	134	617	289	
30+56.45	423		105		423	105	
31+59.88	318		120		318	120	
32+63.90	225		238		225	238	
33+00	31		56		31	56	
TOTAL					1752	986	

TABULATION OF SAFETY CLOSURES

108-13A
10-28-97

Refer to Section 2518 of the S.C. Specifications

STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
26+00	1	-	S. END
27+00	-	1	S. END
29+00	-	1	N. END
33+00	1	-	N. END

TABULATION OF DELINEATORS AND OBJECT MARKERS

108-17
04-28-98

Refer to Standard Plan RE-48A-B* and RE-29C ** Not a Bid Item

Station	Type*	DELINEATOR		OBJECT MARKER			REMARKS
		Single White D-1W Number	Type 2 OM2-3YV Number	Type 3 OM-3L Number	OM-3R Number	Offset Brackets ** Number	
27+88.47	1	-	-	1	1	-	SOUTH END
27+88.47	1	-	-	1	1	-	NORTH END

TABULATIONS, TYPICALS

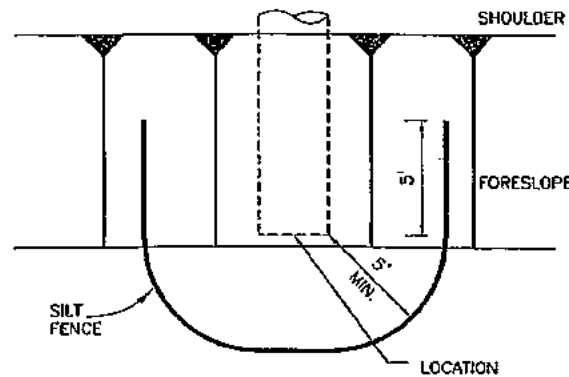
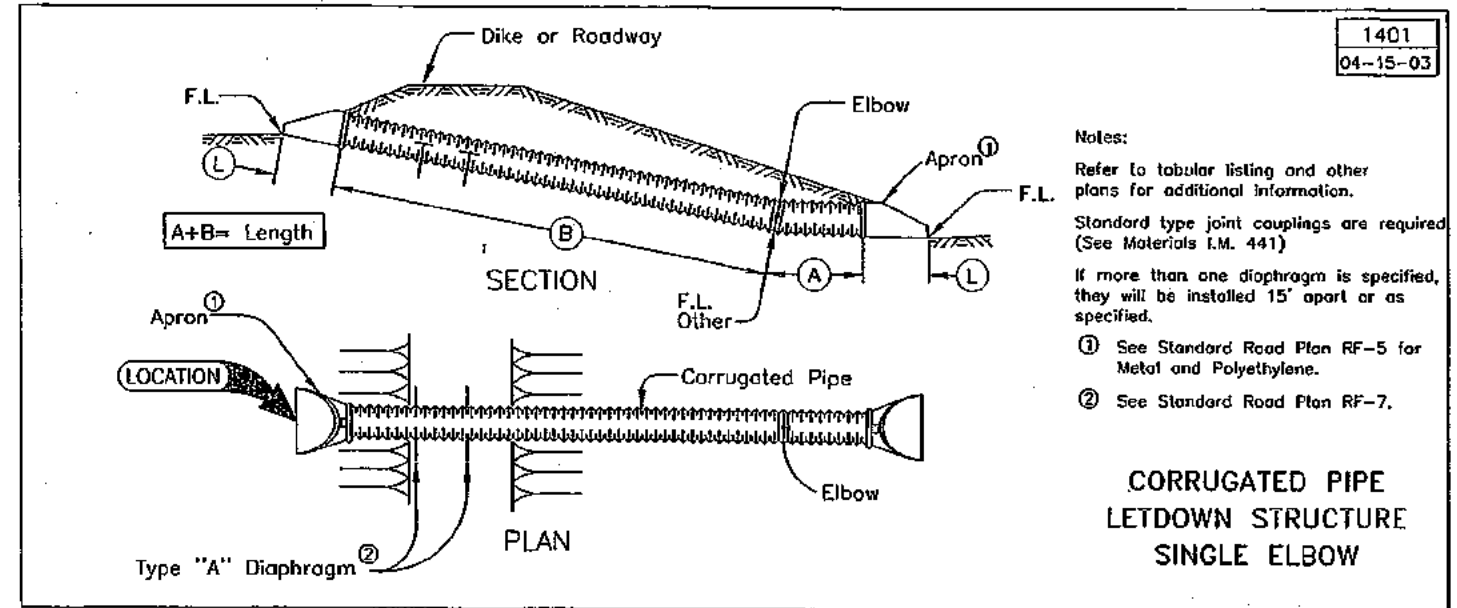
DRAINAGE STRUCTURES

104-3
MODIFIED
* Not a bid item

LOCATION	TYPE	SIZE Inches	KIND OF PIPE	LENGTH NEW CONST. Lin. Ft.	BEDDING CLASS	DESIGN COVER (ft)	CAMBER FL.	APRON NO.		ELBOW* No.	DIAPHRAGM* RF-7 No.	TEE SECTION* RF-21 No.	ADAPTORS* RF-2 Type No.		CONNECTED PIPE JOINT* RF-14 Type	FLOW LINE ELEVATIONS			DIMENSIONS Lin. Ft.				SKEW AHEAD		DIKE			CLASS 20 Cu. Yds.	REMARKS	
								Inlet	Outlet				LL	RT		Other	Total		Extensions		Degrees		Lt	Location Station	Top Elevation	Type				
																	LL	RT	LL	RT	Lt	Rt								
28+74.52	1401	36	CMP	76	C	8.0			1	1						1386.93	1370.50	1371.06	A=14	B=62					RT	28+54	1392.5	F	-	

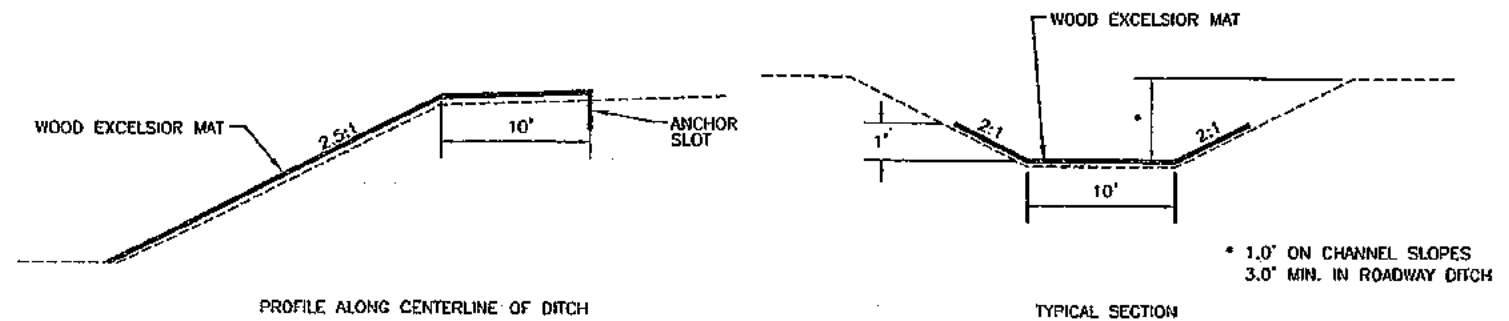
TABULATION OF EROSION CONTROL FEATURES

LOCATION STATION TO STATION (EXACT LOCATION TO BE DETERMINED BY THE ENGINEER)	SIDE	SPECIAL DITCH CONTROL WOOD EXCELSIOR MAT (Squares)	FOR DITCH CHECK			REMARKS
			NO.	SPACING (Ft.)	SILT FENCE (Lin. Ft.)	
26+23	R	-	1	-	28	CULVERT INLET
27+05	R	-	1	-	20	
27+22	L	-	1	-	20	
28+65	L	-	1	-	20	
28+75	R	-	1	-	29	CULVERT INLET
27+05 TO 27+63	R	8.4	-	-	-	
27+22 TO 27+89	L	9.8	-	-	-	
28+10 TO 28+65	L	7.9	-	-	-	
TOTAL		26.1			117	



DETAILS OF SILT FENCE AT CULVERT INLETS

NO SCALE



DETAILS OF SPECIAL DITCH CONTROL WOOD EXCELSIOR MAT

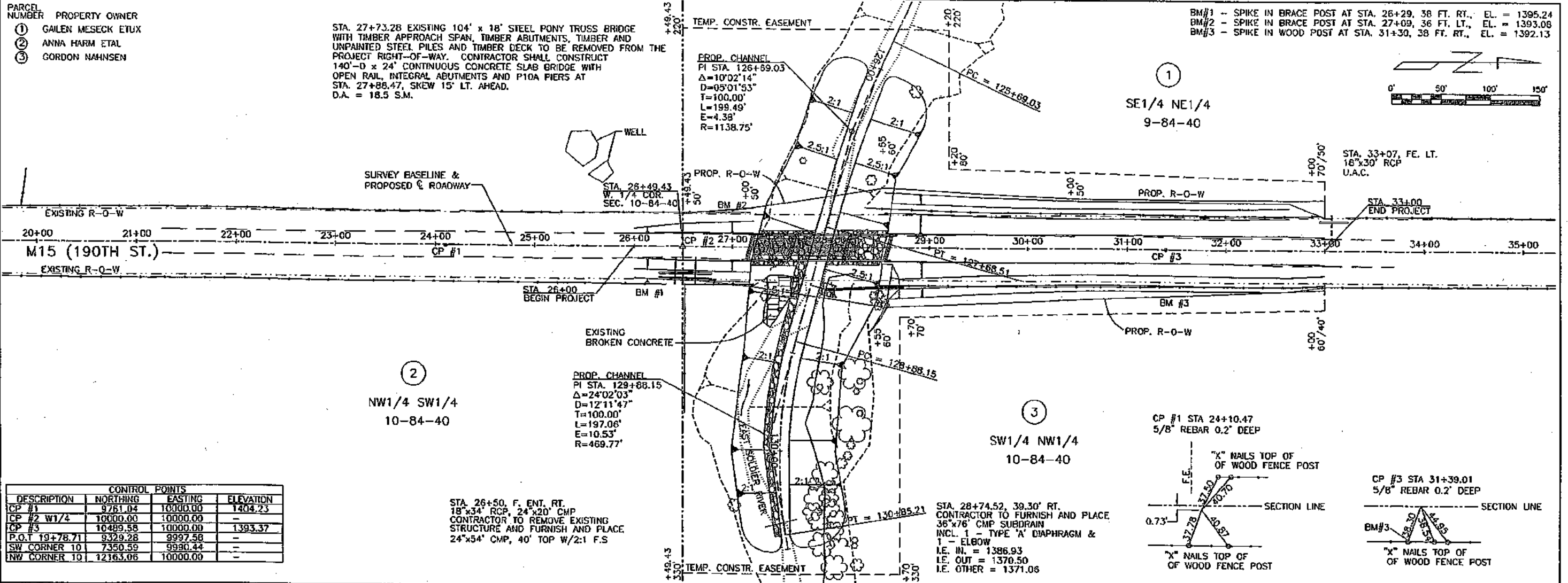
NO SCALE

TABULATIONS, TYPICALS

PARCEL NUMBER	PROPERTY OWNER
①	GAILEN MESECK ETUX
②	ANNA HARM ETAL
③	GORDON NAHNSEN

STA. 27+73.28 EXISTING 104' x 18' STEEL PONY TRUSS BRIDGE WITH TIMBER APPROACH SPAN, TIMBER ABUTMENTS, TIMBER AND UNPAINTED STEEL PILES AND TIMBER DECK TO BE REMOVED FROM THE PROJECT RIGHT-OF-WAY. CONTRACTOR SHALL CONSTRUCT 140'-0" x 24' CONTINUOUS CONCRETE SLAB BRIDGE WITH OPEN RAIL, INTEGRAL ABUTMENTS AND P10A PIERS AT STA. 27+88.47, SKEW 15' LT. AHEAD. D.A. = 18.5 S.M.

BM#1 - SPIKE IN BRACE POST AT STA. 26+29, 38 FT. RT., EL. = 1395.24
 BM#2 - SPIKE IN BRACE POST AT STA. 27+09, 36 FT. LT., EL. = 1393.08
 BM#3 - SPIKE IN WOOD POST AT STA. 31+30, 38 FT. RT., EL. = 1392.13



CONTROL POINTS			
DESCRIPTION	NORTHING	EASTING	ELEVATION
CP #1	9761.04	10000.00	1404.23
CP #2 W1/4	10000.00	10000.00	-
CP #3	10489.58	10000.00	1393.37
P.O.T. 19+78.71	9329.28	9997.58	-
SW CORNER 10	7350.59	9990.44	-
NW CORNER 10	12163.06	10000.00	-

②
 NW1/4 SW1/4
 10-84-40

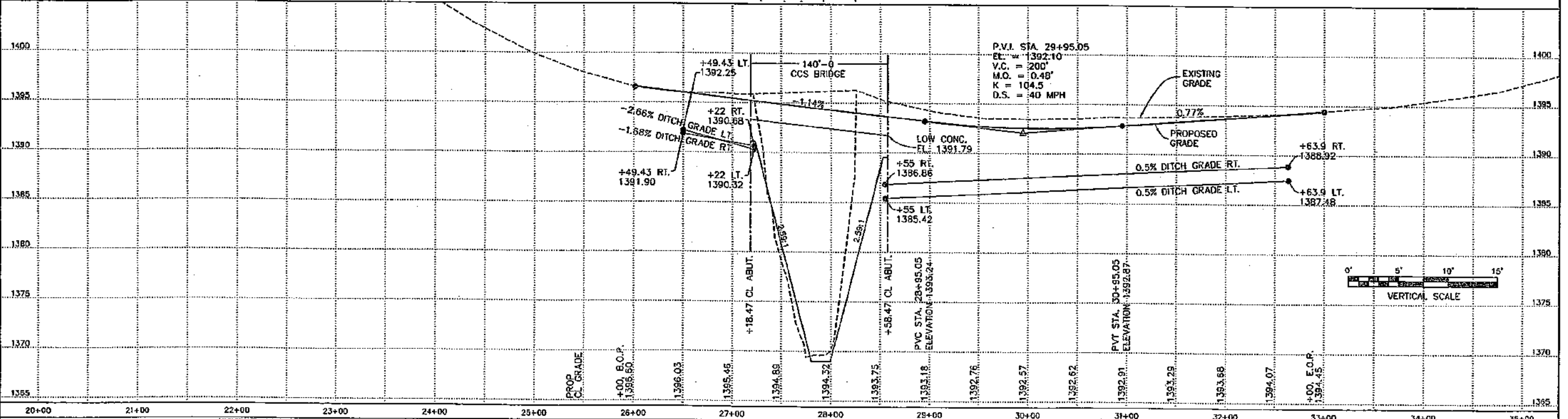
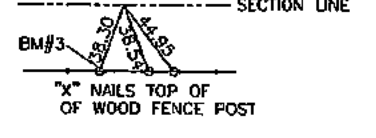
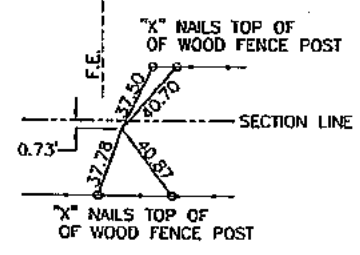
③
 SW1/4 NW1/4
 10-84-40

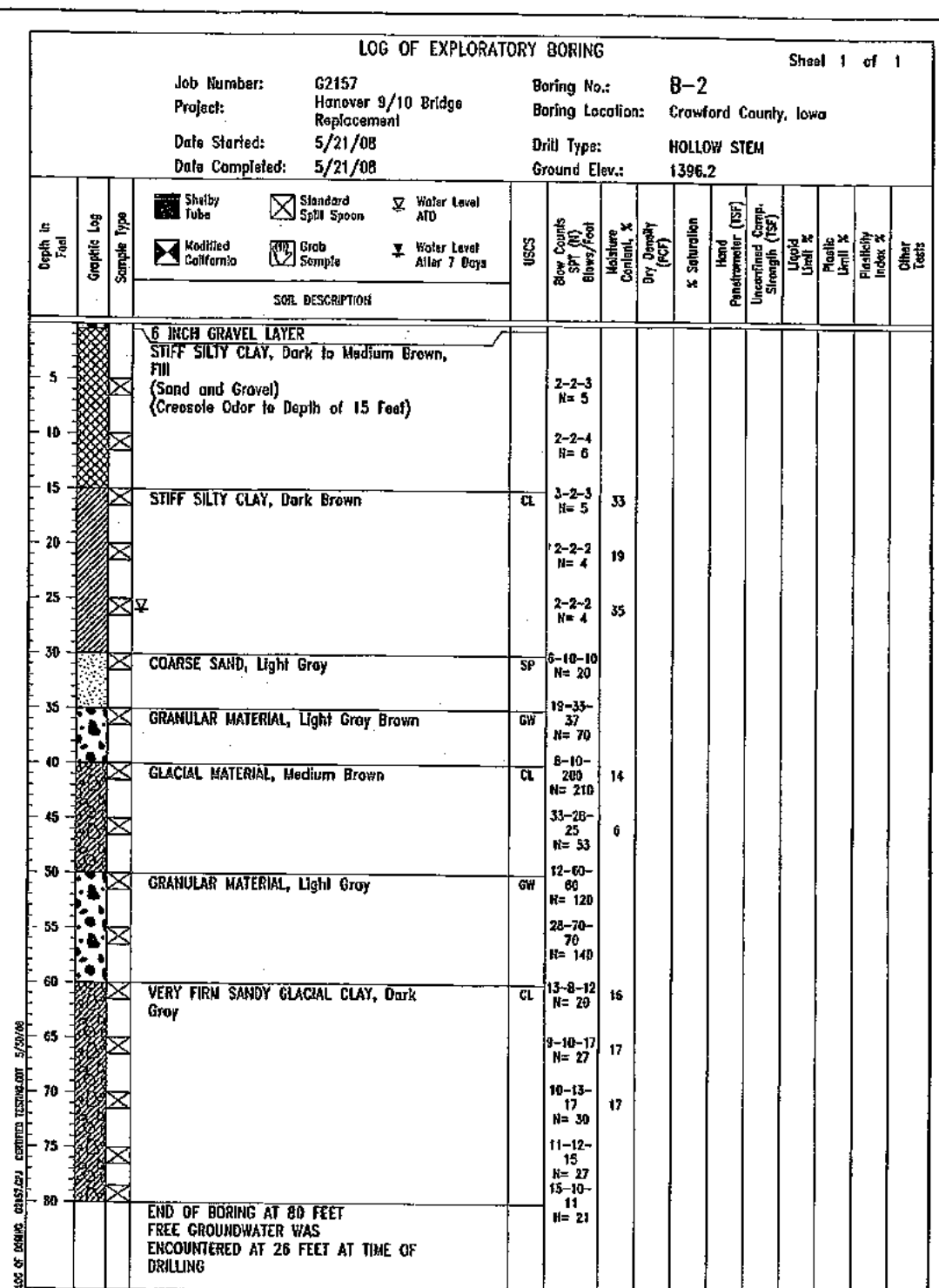
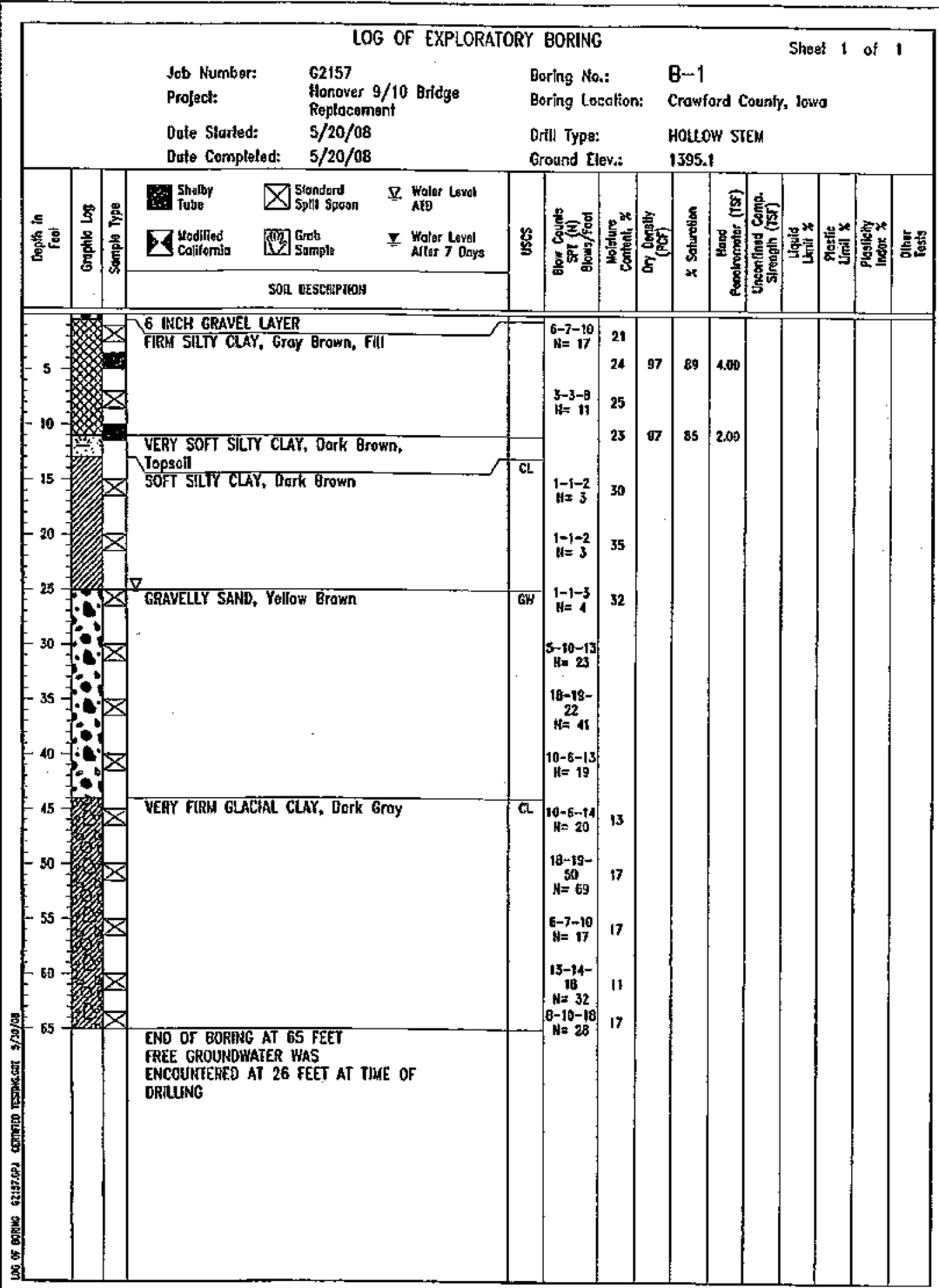
STA. 26+50, F. ENT. RT.
 18"x34" RCP, 24"x20" CMP
 CONTRACTOR TO REMOVE EXISTING STRUCTURE AND FURNISH AND PLACE 24"x54" CMP, 40' TOP W/2:1 F.S.

STA. 28+74.52, 39.30' RT.
 CONTRACTOR TO FURNISH AND PLACE 36"x76" CMP SUBRAIN INCL. 1 - TYPE 'A' DIAPHRAGM & 1 - ELBOW
 I.E. IN. = 1386.93
 I.E. OUT = 1370.50
 I.E. OTHER = 1371.06

CP #1 STA 24+10.47
 5/8" REBAR 0.2' DEEP

CP #3 STA 31+39.01
 5/8" REBAR 0.2' DEEP





GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF CERTIFIED TESTING SERVICES, INC., WHOSE GEOTECHNICAL REPORT DATED MAY 30, 2008, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.

SOUNDING DATA

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

SOUNDINGS WERE TAKEN ON MAY 19-21, 2008

SEE SHEET V1 FOR BORING LOCATIONS.

LOG OF EXPLORATORY BORING										Sheet 1 of 1	
Job Number: G2157		Boring No.: B-3		Project: Hanover 9/10 Bridge Replacement		Boring Location: Crawford County, Iowa		Date Started: 5/21/08		Drill Type: HOLLOW STEM	
Date Completed: 5/21/08		Ground Elev.: 1395.9		Water Level ATD		Water Level After 7 Days		USCS		Blow Counts SPT (N) Blows/Foot	
Shelby Tube		Standard Split Spoon		Modified California		Grab Sample		Moisture Content, %		Dry Density (pcf)	
Graphic Log		Sample Type		SOIL DESCRIPTION		Penetration (TSF)		Unconfined Comp. Strength (TSF)		Liquid Limit %	
										Plastic Limit %	
										Plasticity Index %	
										Other Tests	
VOID BETWEEN TOP OF BRIDGE AND GROUND SURFACE											
STIFF SILTY CLAY, Dark Gray											
GRANULAR MATERIAL, Light Brown											
END OF BORING AT 38 FEET DUE TO AUGER REFUSAL IN ROCK FREE GROUNDWATER WAS ENCOUNTERED AT 25 AT TIME OF DRILLING											

LOG OF EXPLORATORY BORING										Sheet 1 of 1	
Job Number: G2157		Boring No.: B-4		Project: Hanover 9/10 Bridge Replacement		Boring Location: Crawford County, Iowa		Date Started: 5/19/08		Drill Type: HOLLOW STEM	
Date Completed: 5/19/08		Ground Elev.: 1395.8		Water Level ATD		Water Level After 7 Days		USCS		Blow Counts SPT (N) Blows/Foot	
Shelby Tube		Standard Split Spoon		Modified California		Grab Sample		Moisture Content, %		Dry Density (pcf)	
Graphic Log		Sample Type		SOIL DESCRIPTION		Penetration (TSF)		Unconfined Comp. Strength (TSF)		Liquid Limit %	
										Plastic Limit %	
										Plasticity Index %	
										Other Tests	
6 INCH GRAVEL LAYER											
STIFF SILTY CLAY, Medium Brown, Fill											
SOFT SILTY CLAY, Yellow Brown											
FIRM SILTY CLAY, Dark Brown											
GRAVELLY SAND, Yellow Brown											
GLACIAL MATERIAL, Gray Brown											
VERY FIRM SANDY GLACIAL CLAY, Gray Brown											
END OF BORING AT 70 FEET FREE GROUNDWATER WAS ENCOUNTERED AT 26 FEET AT TIME OF DRILLING											

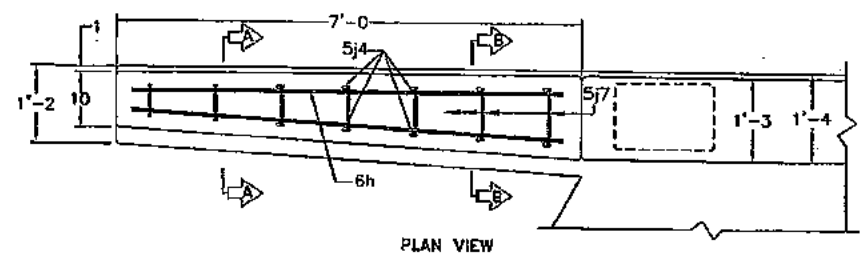
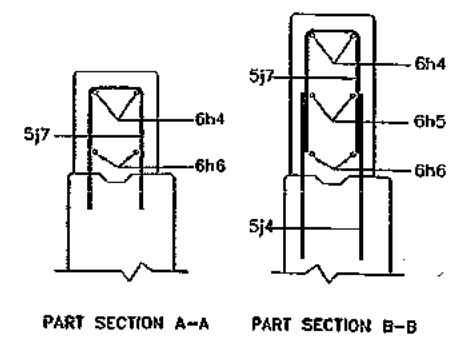
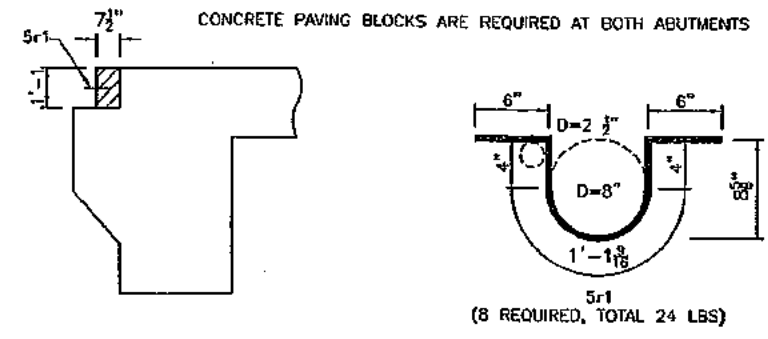
GEOTECHNICAL INFORMATION PROVIDED HERewith IS THE SOLE RESPONSIBILITY OF CERTIFIED TESTING SERVICES, INC., WHOSE GEOTECHNICAL REPORT DATED MAY 30, 2008, COMPLETE WITH THE LICENSED ENGINEER'S SEAL AND CERTIFICATION, IS AVAILABLE FOR VIEWING.

SOUNDING DATA

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

SOUNDINGS WERE TAKEN ON MAY 19-21, 2008

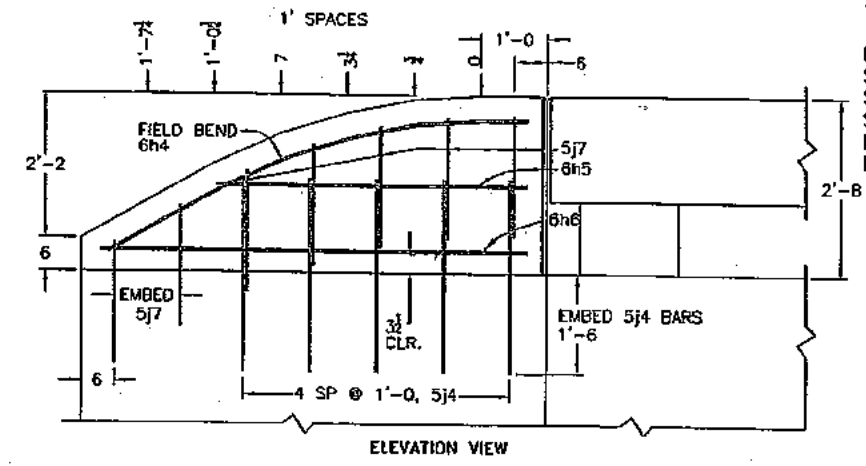
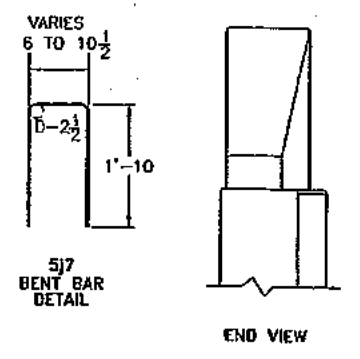
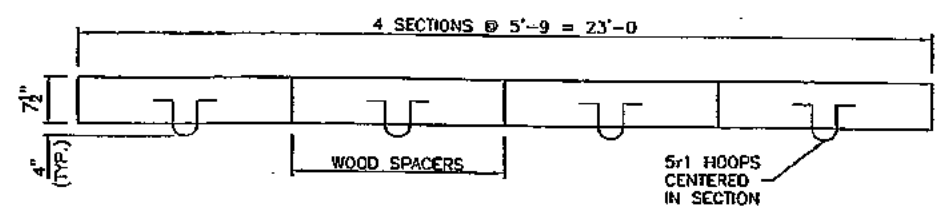
SEE SHEET V1 FOR BORING LOCATIONS.



REINF. BAR LIST -- ONE SPECIAL END SECTION				
BAR/LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5j4 ANCH. TO SLAB		10	2'-11"	31
5j7 VERTICAL		7	4'-2" TO 4'-6 1/2"	32
6h4 LONGITUDINAL		2	6'-9"	21
6h5 LONGITUDINAL		2	4'-8"	14
6h6 LONGITUDINAL		2	6'-5"	20
TOTAL -- ONE END SECTION				118
TOTAL -- ONE BRIDGE				472

TOTAL CONCRETE PER END SECT. 0.55 CY
 TOTAL CONCRETE (x4) 2.2 CY

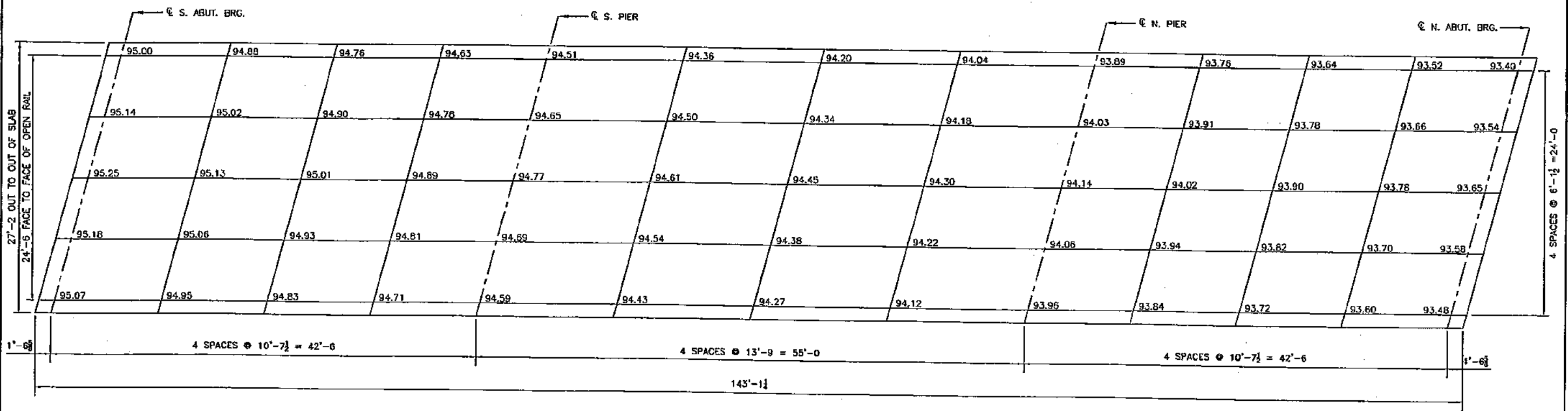
NOTE:
 SPECIAL BRIDGE END SECTION AS DETAILED ON THIS SHEET SHALL BE USED INSTEAD OF END SECTION SHOWN ON STD. SH. J24-40-06. THE FOLLOWING BARS DETAILED ON STD. SH. J24-41-06 SHALL NOT BE USED: 4c1, 4c2, 5c3, 5d1 AND 5d2.



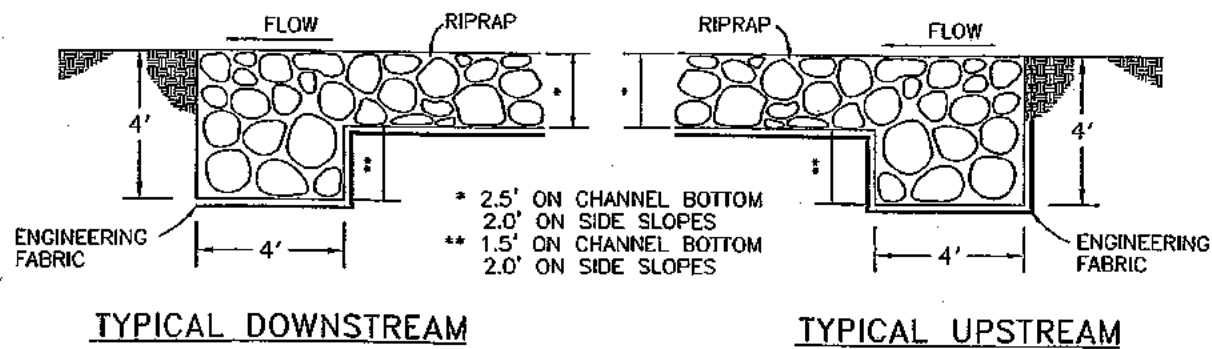
CONCRETE PAVING BLOCK DETAILS

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

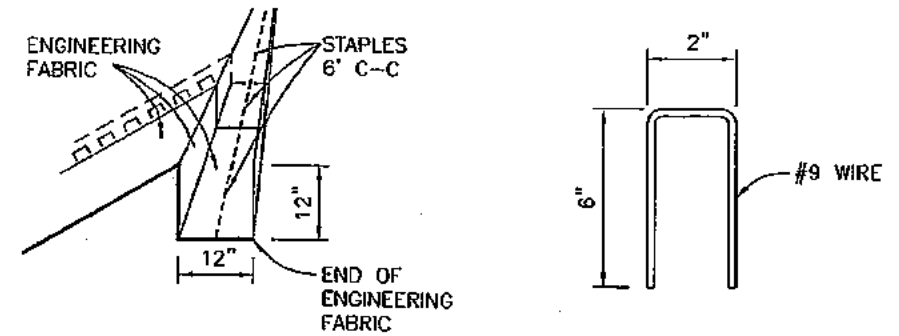
OPEN RAIL ROUNDED END POST DETAILS
 NOT TO SCALE



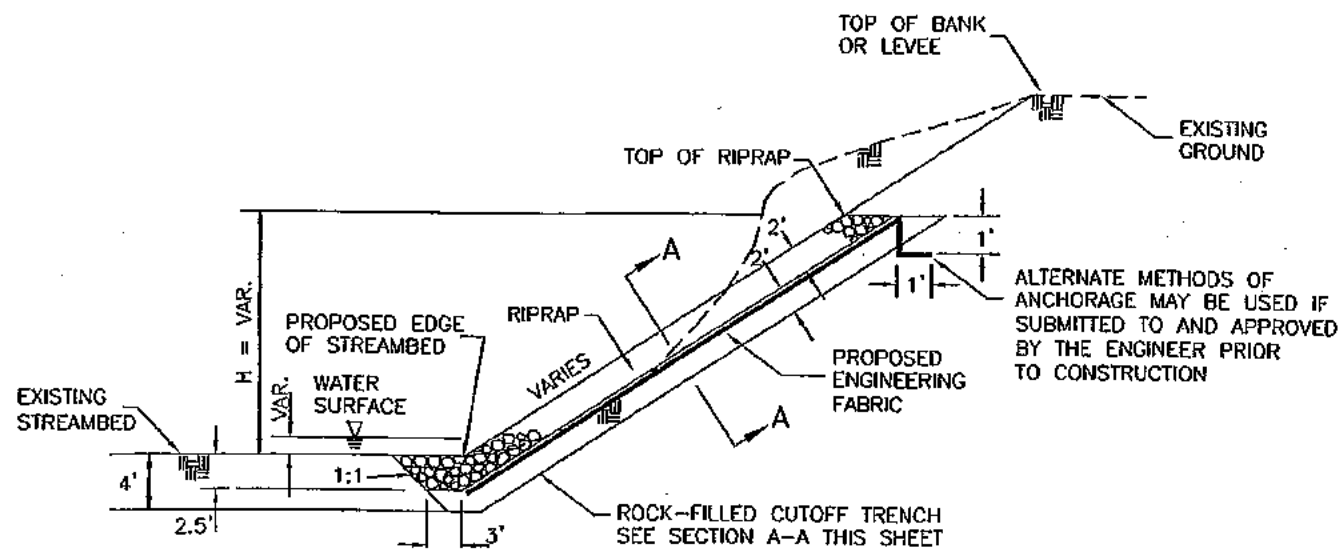
TOP OF SLAB ELEVATIONS
 (ADD 1300' TO ABOVE ELEVATIONS)



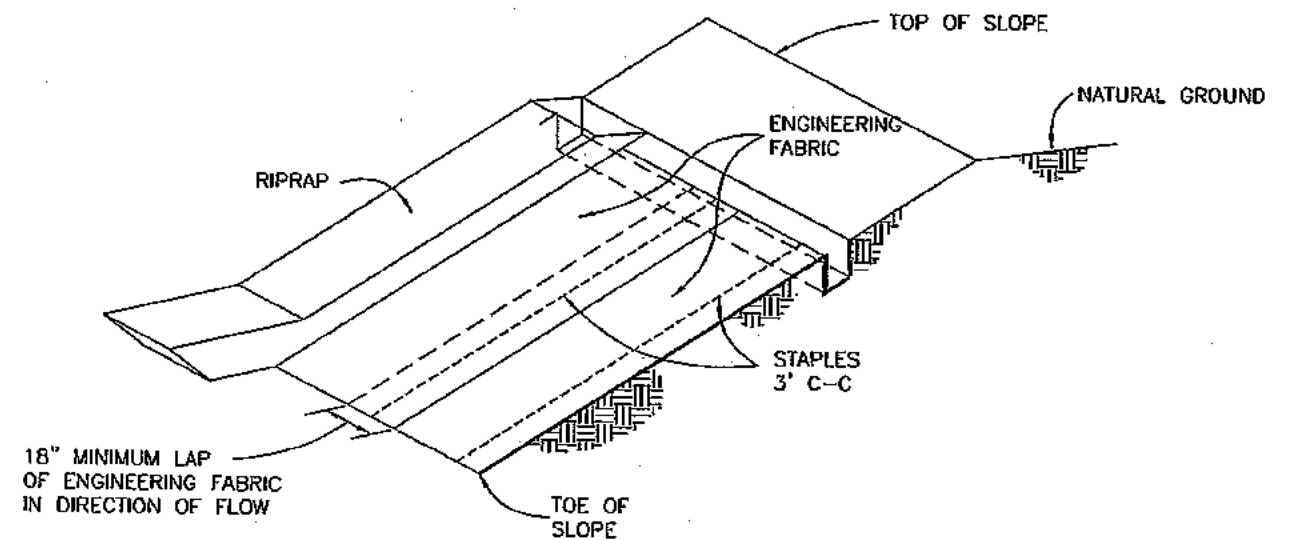
SECTION A-A
ROCK-FILLED CUTOFF TRENCH DETAILS
 NOT TO SCALE



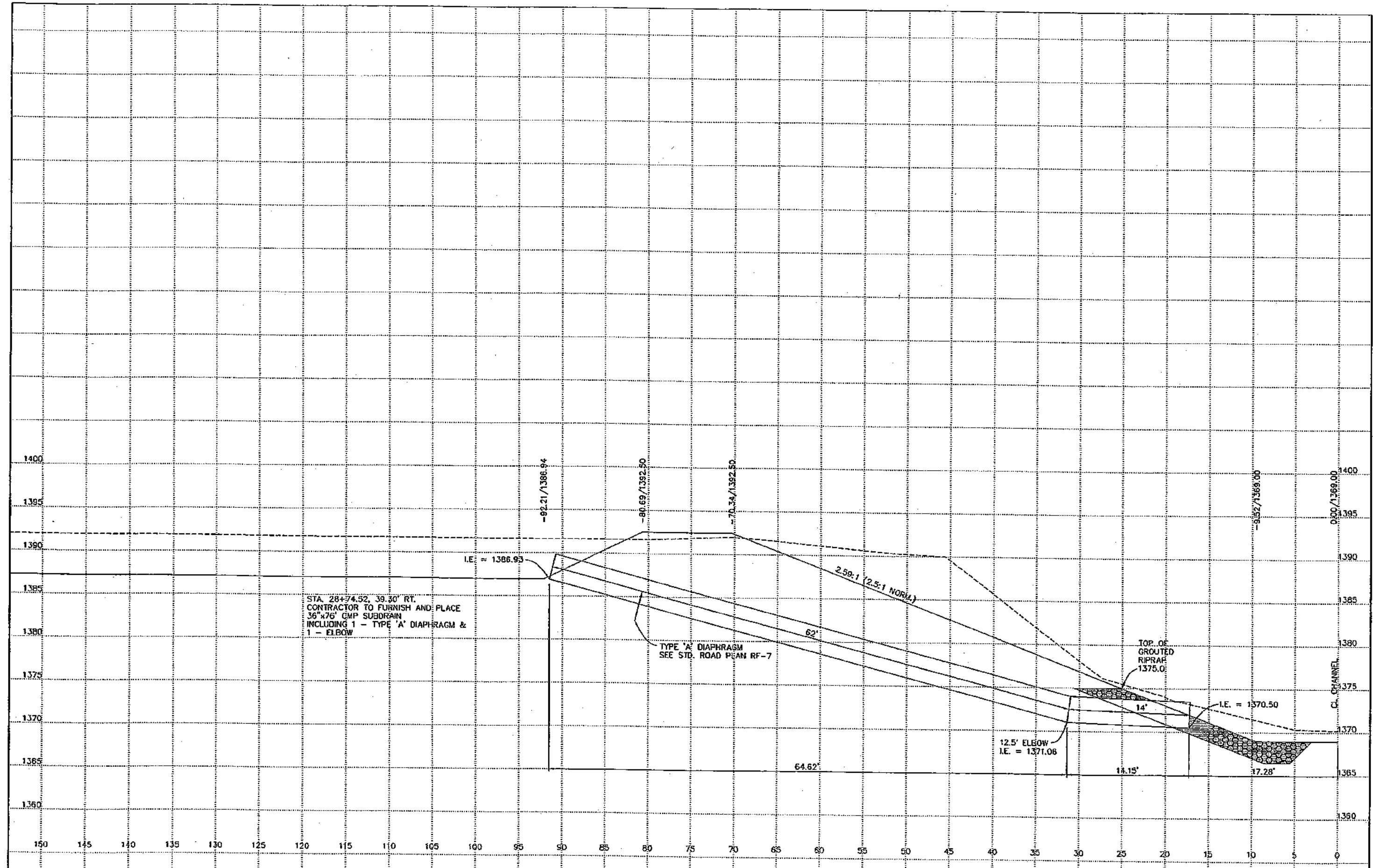
DETAIL OF TRENCH **STAPLE**



TYPICAL HALF-CHANNEL BANK STABILIZATION SECTION
 NOT TO SCALE
 FOR TOP OF RIPRAP ELEVATIONS AND CHANNEL BANK SLOPES SEE CHANNEL CROSS SECTIONS



DETAILS OF PLACEMENT OF ENGINEERING FABRIC
 NO SCALE



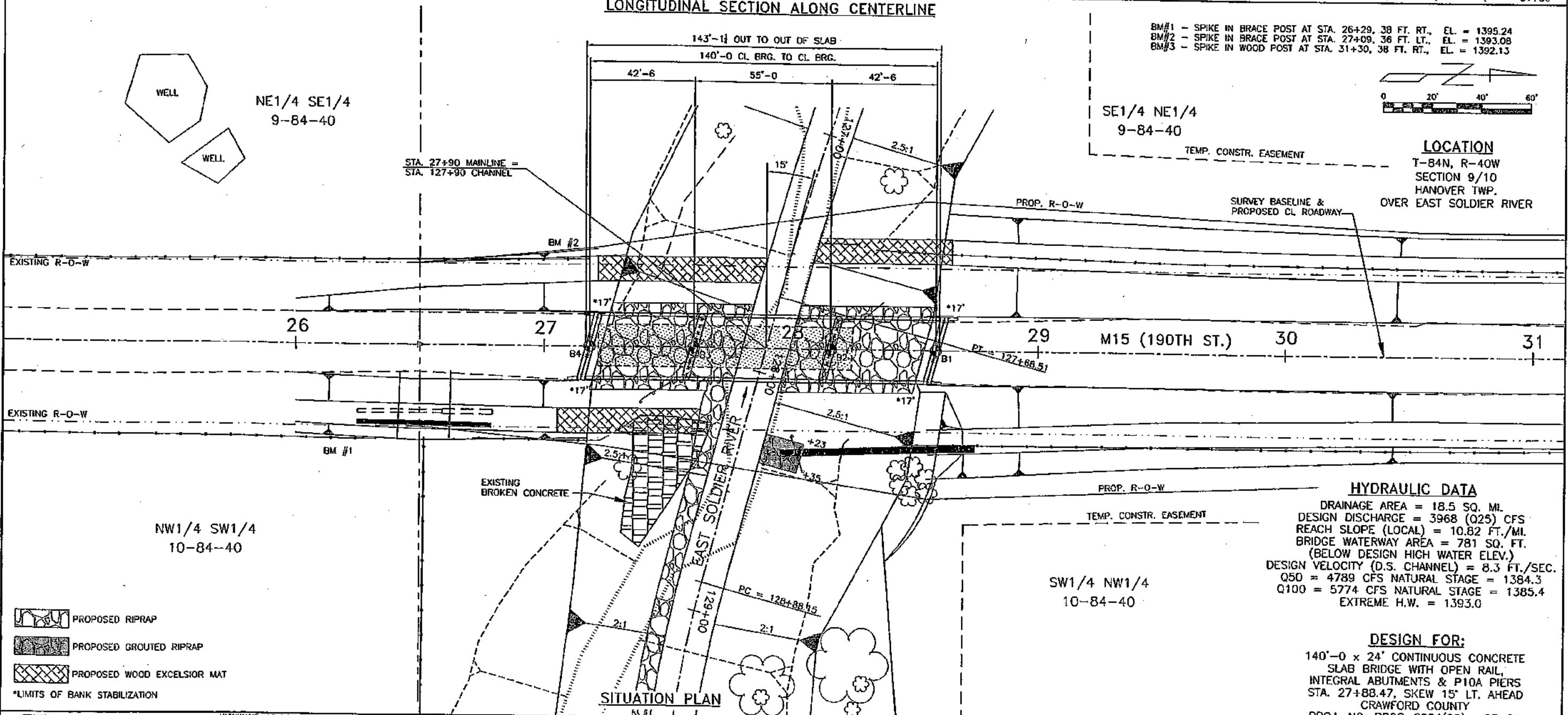
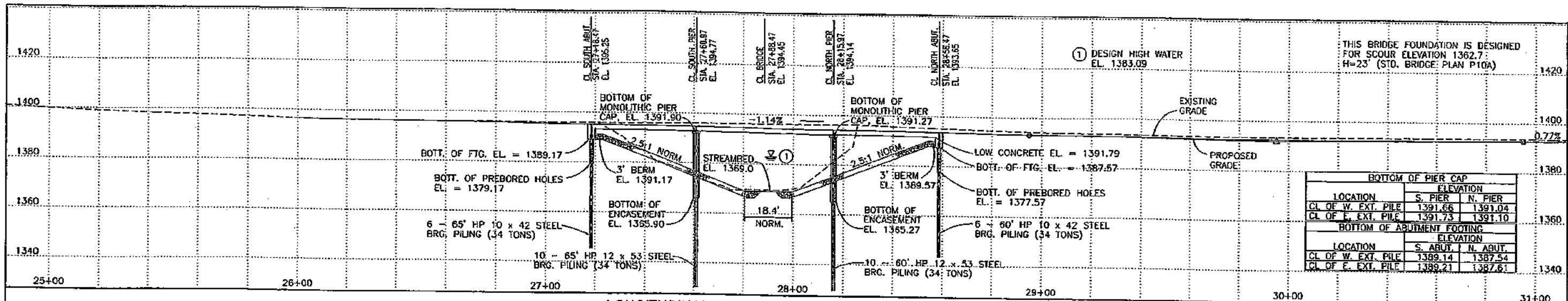
STA. 28+74.52, 39.30 RT.
 CONTRACTOR TO FURNISH AND PLACE
 36"x76" CMP SUBDRAIN
 INCLUDING 1 - TYPE 'A' DIAPHRAGM &
 1 - ELBOW

TYPE 'A' DIAPHRAGM
 SEE STD. ROAD PLAN RF-7

TOP OF GROUDED
 RIPRAP
 1375.0

12.5' ELBOW
 I.E. = 1371.08

I.E. = 1370.50



HYDRAULIC DATA

DRAINAGE AREA = 18.5 SQ. MI.
 DESIGN DISCHARGE = 3968 (Q25) CFS
 REACH SLOPE (LOCAL) = 10.82 FT./MI.
 BRIDGE WATERWAY AREA = 781 SQ. FT.
 (BELOW DESIGN HIGH WATER ELEV.)
 DESIGN VELOCITY (D.S. CHANNEL) = 8.3 FT./SEC.
 Q50 = 4789 CFS NATURAL STAGE = 1384.3
 Q100 = 5774 CFS NATURAL STAGE = 1385.4
 EXTREME H.W. = 1393.0

DESIGN FOR:

140'-0 x 24' CONTINUOUS CONCRETE
 SLAB BRIDGE WITH OPEN RAIL,
 INTEGRAL ABUTMENTS & P10A PIERS
 STA. 27+88.47, SKEW 15' LT. AHEAD
 CRAWFORD COUNTY
 PROJ. NO. BROS-C024(90)-5F-24

