

PROJECT NO.: FM-C054(128)--55-54
RCB CULVERT REPLACEMENT - TWIN BOX
KEOKUK COUNTY, IOWA
LETTING DATE: NOVEMBER 17, 2026

TRAFFIC CONTROL PLAN

170TH STREET SHALL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. TRAFFIC TO ADJACENT PROPERTIES SHALL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 2015 STANDARD SPECIFICATIONS PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS AND SIGNING 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 AND THE CURRENT STANDARD SPECIFICATIONS.

SECTION 404 PERMIT AND CONDITIONS

281-1
10-18-16

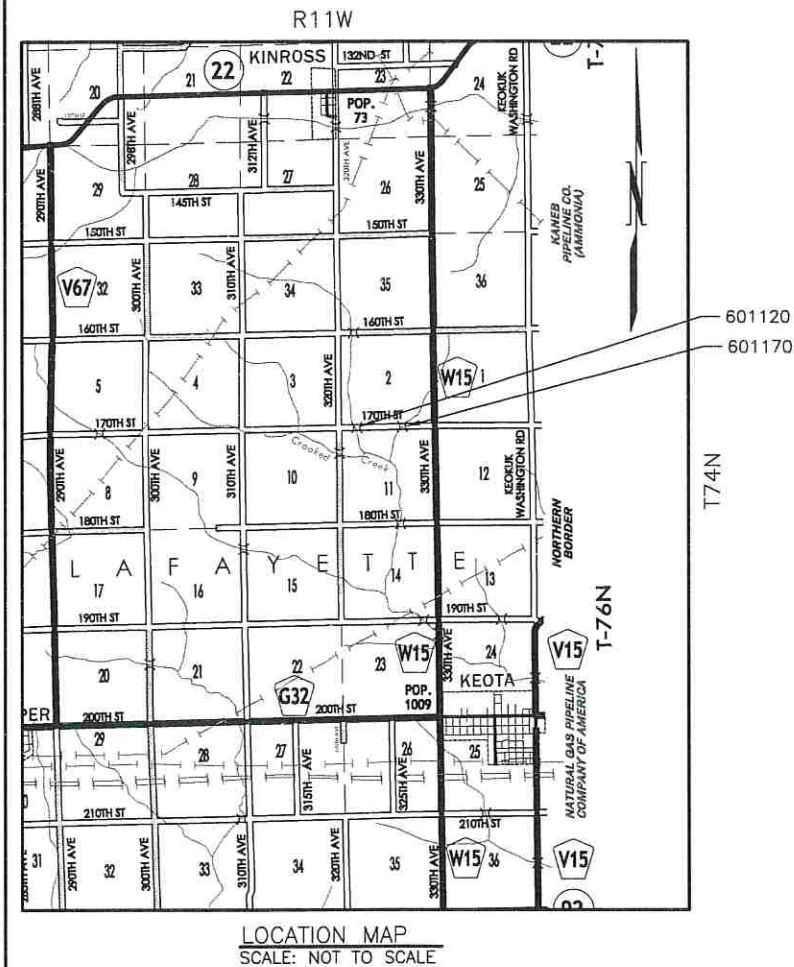
CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 14. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

ARCHAEOLOGICAL NOTE

IF ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING THE CONSTRUCTION PHASE OF THIS PROJECT, THE OFFICE OF PROJECT PLANNING AND/OR THE OFFICE OF LOCAL SYSTEMS (I.D.O.T.) MUST BE CONTACTED IMMEDIATELY SO THE PROPER AUTHORITIES CAN BE NOTIFIED ACCORDING TO THE EXISTING FEDERAL REGULATIONS AND STATE PROCEDURES. ADDITIONALLY, IT SHOULD BE NOTED THAT FINDINGS AND RECOMMENDATIONS FOR CLEARANCE FOR FURTHER TESTING CANNOT BE CONSIDERED FINAL UNTIL CONCURRENCE IS RECEIVED FROM THE OFFICE OF THE STATE HISTORIC PRESERVATION OFFICER.

OFFICE OF PROJECT PLANNING 515-239-1225
OFFICE OF LOCAL SYSTEMS 515-239-1528

STANDARD ROAD PLANS			105-4 10-18-11
THE FOLLOWING STANDARD ROAD PLANS APPLY TO CONSTRUCTION WORK ON THIS PROJECT.			
NUMBER	DATE	TITLE	
EC-204	10/19/21	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICES	
TC-252	10/20/26	ROUTES CLOSED TO TRAFFIC	



IOWA DOT
Highway Division

PLANS FOR PROPOSED IMPROVEMENT ON THE

FARM TO MARKET ROAD SYSTEM

KEOKUK COUNTY

RCB CULVERT REPLACEMENT - TWIN BOX

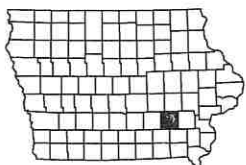
PROJECT NUMBER

FM-C054(128)--55-54

ON 170TH STREET, OVER STREAM, S11 T76 R10

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS

UTILITY CONTACTS			
COMPANY	CONTACT	PHONE #	ADDRESS
ALLIANT ENERGY	BRAD VONK	641-683-8024	2901 OAK MEADOW DR. OTTUMWA, IA 52501
WAPELLO RURAL WATER ASSOC.	KRISTA HUFFMAN	641-682-8351	534 SHAUL AVENUE, OTTUMWA, IA 52501
WINDSTREAM	CHRIS COOK	641-895-4058	236 WEST MAPLE ST. CENTERVILLE, IA 52544



CONTACT INFORMATION

KEOKUK COUNTY ENGINEERS OFFICE
1301 EAST JACKSON STREET
SIGOURNEY, IOWA 52591
PHONE: (641)-622-2610
FAX: (641)-622-3637

PROJECT NUMBER: FM-C054(128)--55-54
170TH ST. RCB CULVERT REPLACEMENT - TWIN BOX
TOTAL SHEETS 6

INDEX OF SHEETS		105-3 10-18-05
NO.	DESCRIPTION	
A.01	TITLE SHEET	
B.01	TYPICAL CROSS SECTION AND DETAILS	
C.01-C.02	QUANTITIES AND GENERAL INFORMATION	
V.01-V.02	CULVERT DETAILS	

MILEAGE SUMMARY				105-1 09-27-94
DIV.	LOCATION	LIN. FT.	MILES	
1	170TH STREET(601120) STA 9+00 TO STA 11+00	200.00	0.04	
1	170TH STREET(601170) STA 36+50 TO STA 38+50	200.00	0.04	

KEOKUK COUNTY BOARD OF SUPERVISORS

Michael Hadley 7/27/26
MICHAEL HADLEY (CHAIRPERSON) DATE

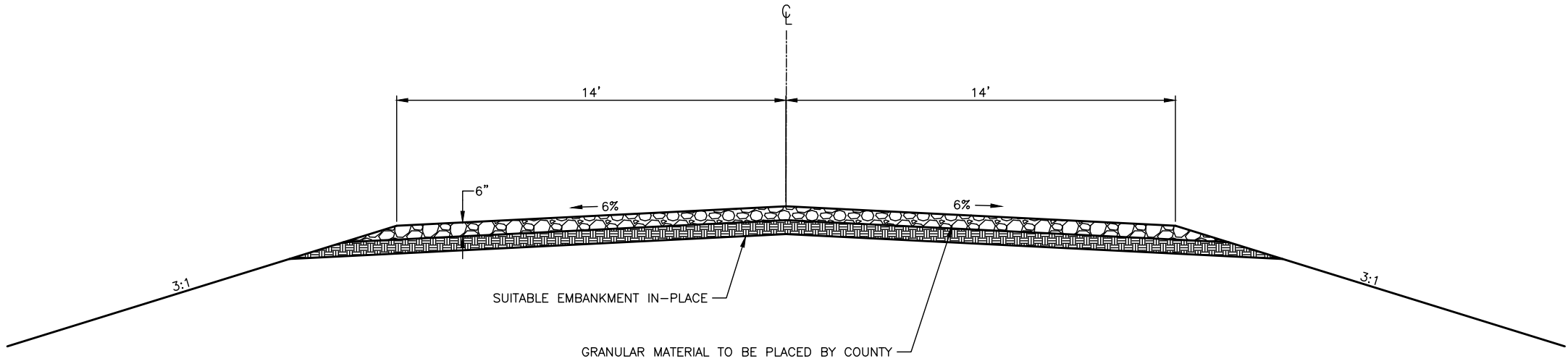
Daryl Wood 7/27/26
DARYL WOOD DATE

Kevin Weber 7/27/26
KEVIN WEBER DATE

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.

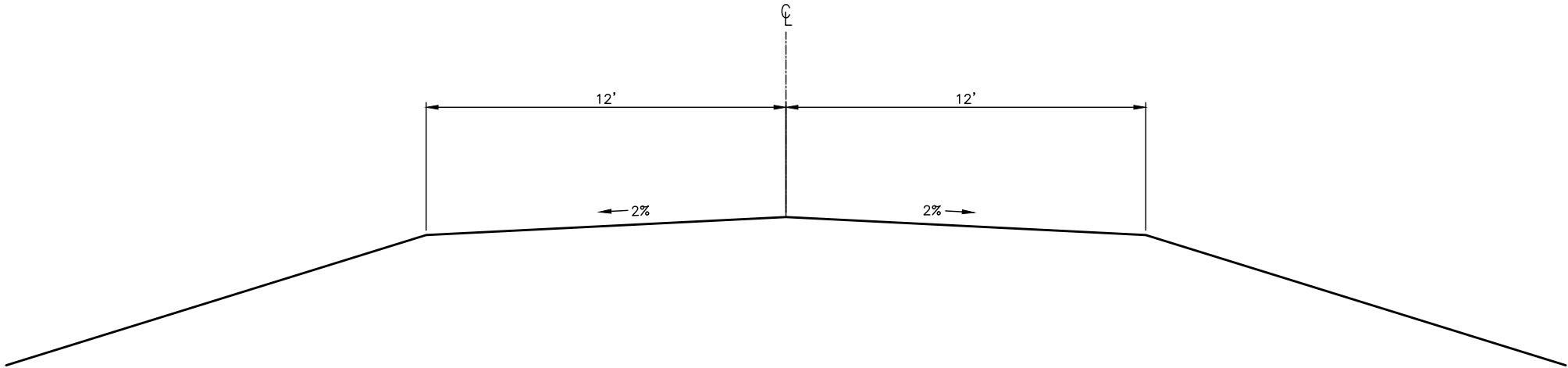
Andrew J. McGuire 7/27/2026
ANDREW J. MCGUIRE 21085 DATE

My License Renewal Date is Dec. 31, 2027
Pages or sheets covered by this seal:
(Entire submission unless specified here)



LOCATION			LENGTH (FEET)
ROAD IDENTIFICATION	STATION	TO STATION	
170TH	9+00	11+00	200.00
170TH	36+50	38+50	200.00
TOTALS			400.00

TYPICAL CROSS SECTION-PROPOSED 28' ROADWAY
SCALE: NOT TO SCALE



LOCATION			LENGTH (FEET)
ROAD IDENTIFICATION	STATION	TO STATION	
170TH	9+00	11+00	200.00
170TH	36+50	38+50	200.00
TOTALS			400.00

TYPICAL CROSS SECTION-EXISTING 24' ROADWAY
SCALE: NOT TO SCALE

KEOKUK COUNTY ENGINEERING DEPARTMENT	
DESIGN FOR	
RCB CULVERT REPLACEMENT – TWIN BOX	
TYPICAL CROSS SECTIONS AND DETAILS	
DESIGNED BY CC 010526	LAST REVISED CC 031526
PROJECT NO. FM-C054(128)--55-54	

ESTIMATED PROJECT QUANTITIES					100-1A 07-15-97
ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY.
1	2101-0850001	CLEARING & GRUBBING	ACRE	0.09	
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	870.00	
3	2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	255.00	
4	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CY	660.00	
5	2115-0100000	MODIFIED SUBBASE	CY	173.00	
6	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	2.00	
7	2402-2720000	EXCAVATION CLASS 20	CY	542.00	
8	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY	392.48	
9	2404-7775000	REINFORCING STEEL	LBS	58055.00	
10	2502-8212115	SUBDRAIN PLASTIC PIPE 15IN	LF	95.00	
11	2528-2518000	SAFETY CLOSURE	EACH	6.00	
12	2528-8445110	TRAFFIC CONTROL	LS	1.00	
13	2533-4980005	MOBILIZATION	LS	1.00	
14	2599-9999010	REMOVE AND REUSE CLASS E REVETMENT	LS	1.00	
15	2601-2634100	MULCHING	ACRE	1.50	
16	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	1.50	
17	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	160.00	

ESTIMATE REFERENCE INFORMATION	
ITEM NO.	DESCRIPTION
1.	INCLUDES COST TO CLEAR AND REMOVE ALL TREES AND STUMPS IN THE AREAS LISTED: SEE SHEETS V.02 FOR LOCATIONS AND QUANTITIES. 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
2.	CONTRACTOR TO FURNISH MATERIAL. REFER TO TAB KEO-12 ON SHEET C.02 FOR QUANTITIES.
3.	SUITABLE MATERIAL MAY BE USED ON THE FORE SLOPES.
4.	REFER TO TAB KEO-12 ON SHEET C.02 FOR QUANTITIES. PAYMENT INCLUDES PROCESS CONTROL SAMPLING, TESTING, AND INSPECTION.
6.	INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS TO REMOVE AND DISPOSE OFF SITE.
8.	CERTIFIED PLANT INSPECTION BY THE CONTRACTOR SHALL BE REQUIRED.
10.	PIPE SHALL BE A MINIMUM SCHEDULE 40. ITEM INCLUDES ALL FITTINGS, EQUIPMENT AND LABOR NECESSARY TO CONNECT THE EXISTING 8" AND 6" FIELD TILE TO THE NEW 15" PIPE. ITEM ALSO INCLUDES A 15" RODENT GUARD TO BE PLACED AT THE OUTLET OF THE PIPE. SEE SHEET V.02 FOR LOCATION.
14.	THIS ITEM INCLUDES ALL EQUIPMENT AND LABOR NECESSARY TO REMOVE EXISTING REVETMENT UNDER BOTH BRIDGES, STOCKPILE IT AND PLACE IT AS SHOWN ON SHEETS V.01 AND V.02. METHOD OF MEASUREMENT SHALL BE NONE, LUMP SUM ITEM. PAYMENT FOR REMOVING, STOCKPILING, AND PLACING EXISTING REVETMENT WILL BE PAID FOR AT THE LUMP SUM CONTRACT PRICE.
17.	REFER TO STANDARD ROAD PLAN EC-204. REFER TO TAB KEO-19 ON SHEET C.02 FOR LOCATIONS.

GENERAL NOTES: FOR RCB REPLACEMENTS AT STA. 9+95.7(601120) AND 35+68.0(601170)

SPECIFICATIONS

DESIGN: AASHTO LRFD 8th EDITION, SERIES OF 2017.
CONSTRUCTION: THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT SERIES, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, SHALL APPLY TO THE CONSTRUCTION ON THIS PROJECT.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, SERIES 2017:
REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, F'C=4,000 KSI.

GENERAL NOTES

601120 DESIGN IS FOR ONE TWIN 10'x10' REINFORCED CONCRETE BOX CULVERT REPLACEMENT ON 170TH STREET OVER THE WEST FORK OF CROOKED CREEK IN KEOKUK COUNTY, IOWA.

THIS CULVERT IS DESIGNED FOR HL-93 LOADING AND TO ACCOMMODATE A FILL HEIGHT OF 1.0 FEET AT STA. 9+95.70 (1.0' FILL HEIGHT PER TWRCB 10-10-20). THE CULVERT SECTIONS ARE DESIGNED FOR CLASS 1 EXPOSURE CONDITION.

601170 DESIGN IS FOR ONE 10'x10' REINFORCED CONCRETE BOX CULVERT REPLACEMENT ON 170TH STREET OVER UNNAMED STREAM IN KEOKUK COUNTY, IOWA.

THIS CULVERT IS DESIGNED FOR HL-93 LOADING AND TO ACCOMMODATE A FILL HEIGHT OF 1.0 FEET AT STA. 35+68.0 (1.0' FILL HEIGHT PER RCB 10-10-20). THE CULVERT SECTIONS ARE DESIGNED FOR CLASS 1 EXPOSURE CONDITION.

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

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

ANY EXISTING FIELD TILE DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR.

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

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION WEBSITE: <http://www.iowadot.gov/design/stdtrdpln.htm>

UTILITY NOTES

SEE SECTION 1107.15 OF THE STANDARD SPECIFICATION REGARDING UTILITY COORDINATION.

WASTE AND DISPOSAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. 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 OR APPROVED BY THE ENGINEER.

CONCRETE AND REINFORCING STEEL NOTES

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

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

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM THE VERTICAL

CONTRACTOR'S WORK AREA

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

CULVERT NOTES

THE CULVERT FLOOR SHALL BE FINISHED SMOOTH. SIDES OF THE FOOTING SHALL BE FORMED TO ENSURE CORRECT LINE AND GRADE.

KEYWAYS IN CONSTRUCTION JOINTS ARE TO BE FORMED WITH BEVELED 2 X 4 UNLESS OTHERWISE NOTED.

BOTTOM OF FLOOR IS TO BE TAPERED 3" IN 12" TO ACCOMMODATE DIFFERENCE IN FLOOR THICKNESS BETWEEN BARREL FLOOR AND APRON OF HEADWALL TAPER IS TO BE DIRECTLY BELOW AND PARALLEL TO PARAPET.

THE VERTICAL BARS IN THE WALLS MAY BE SPLICED ABOVE THE FOOTING AT THE CONTRACTOR'S OPTION AS FOLLOWS:

BAR SIZE NUMBER	4	5	6	7	8	9
MINIMUM SPLICE LENGTH	20"	24"	29"	34"	38"	47"

THIS SPLICE, IF USED, WILL BE AT THE CONTRACTOR'S EXPENSE. LONGITUDINAL REINFORCING SHALL NOT EXTEND THROUGH CONSTRUCTION JOINTS. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE

APPROVED BUT AT NO ADDITIONAL COST. THE CULVERT CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL, COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

HAZARDOUS MATERIALS NOTES

601120 - A SCRAPE SAMPLE OF THE EXISTING PAINT WAS TAKEN FROM THE RAILING AND STEEL I-BEAM OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE AND OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF THE TOTAL LEAD ON THESE SAMPLES WERE 117,000 PART PER MILLION (PPM) ON THE RAILING AND 249,000 PPM ON THE STEEL I-BEAM. ANALYSIS OF THE TOTAL CHROMIUM ON THESE SAMPLES WERE 103 PPM ON THE RAILING AND 6,640 PPM ON THE STEEL I-BEAM.

601170 - A SCRAPE SAMPLE OF THE EXISTING PAINT WAS TAKEN FROM THE RAILING AND STEEL I-BEAM OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE AND OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF THE TOTAL LEAD ON THESE SAMPLES WERE 220,000 PART PER MILLION (PPM) ON THE RAILING AND 256,000 PPM ON THE STEEL I-BEAM. ANALYSIS OF THE TOTAL CHROMIUM ON THESE SAMPLES WERE 130 PPM ON THE RAILING AND 5,080 PPM ON THE STEEL I-BEAM.

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 COUNTY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING REMOVAL IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS.

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

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

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

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

KEOKUK COUNTY ENGINEERING DEPARTMENT	
DESIGN FOR	
RCB CULVERT REPLACEMENT - TWIN BOX	
QUANTITIES AND GENERAL INFORMATION	
DESIGNED BY CC 010526	LAST REVISED CC 031526
PROJECT NO. FM-C054(128)--55-54	

11-13-12 KEO-10
THE CONTRACTOR IS EXPECTED TO HAVE MATERIALS, EQUIPMENT, AND LABOR AVAILABLE ON A DAILY BASIS TO INSTALL AND MAINTAIN EROSION CONTROL FEATURES ON THE PROJECT. THIS MAY INVOLVE SEEDING, SILT FENCE, ROCK DITCH CHECKS, SILT BASINS, OR SILT DIKES.

01-31-12 KEO-03
PLAN AND PROFILE SHEETS INCLUDED IN THE PROJECT ARE FOR THE PURPOSE OF ALIGNMENT, LOCATION AND SPECIFIC DIRECTIONS FOR THE WORK TO BE PERFORMED UNDER THIS CONTRACT. IRRELEVANT DATA ON THESE SHEETS IS NOT TO BE CONSIDERED A PART OF THIS CONTRACT.

01-31-12 KEO-04
THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15-VALUE ENGINEERING INCENTIVE PROPOSAL.

04-15-08 KEO-05
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.

01-31-12 KEO-09
A PLAN FOR STAGE CONSTRUCTION OF LOCAL ACCESSSES WHICH ARE REQUIRED TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION SHALL BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.

01-01-04 KEO-01
911 SIGNS SHALL NOT BE DISTURBED UNLESS THEY INTERFERE WITH CONSTRUCTION. DISTURBED 911 SIGNS SHALL BE REPLACED BY OTHERS.

SAFETY CLOSURES				108-13A
Refer to Section 2518 of the Standard Specifications				08-01-08
STATION	CLOSURE TYPE		REMARKS	
	Road Qty.	Hazard Qty.		
BOP	1			
7+50		1		
11+50		1		
33+25		1		
37+50		1		
EOP	1			
TOTAL	2	4		

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE						KEO-19
Possible Standards: EC-204						06-27-25
Location			Length of Installation			REMARKS
Begin Station	End Station	Side	9 Inch Dia	12 Inch Dia	20 Inch Dia	
			LF	LF	LF	
9+38		LT.		20.0		
9+60		RT.		20.0		
10+30		LT.		20.0		
10+51		RT.		20.0		
35+00		RT.		20.0		
35+24		LT.		20.0		
35+71		RT.		20.0		
36+20		LT.		20.0		
TOTAL				160.00		

DRAINAGE STRUCTURES BY CULVERT CONTRACTOR																							KEO-12			
																							11-01-11			
LOCATION	CLASS	SIZE	KIND	LGTH. NEW CONST. Lin. Ft.	NO. OF APRONS	FLOW LINE ELEVATION				DIMENSIONS – Lin. Ft.				SKEW AHEAD Degrees		BY ROAD CONTRACTOR										REMARKS
										Total		Extensions				DIKE				MODIFIED SUBBASE	CLASS 20	EMBANKMENT	CLASS 10	SEEDING		
						Left	Right	Other	Other	Left	Right	Left	Right	Left	Right	Lt.	Rt.	LOCATION	STATION	TOP ELEV.	TYPE	Cu. Yds.	Cu. Yds.	Cu. Yds.	ACRE	
9+95.70		10X10	TWIN RCB	45.00		769.70	769.20			54.50	54.50			15							102.00	170.00	545.00	150.00	0.65	
35+68.00		10X10	SINGLE RCB	50.00		768.60	767.90			60.50	60.50			30							71.00	372.00	325.00	105.00	0.85	

KEOKUK COUNTY ENGINEERING DEPARTMENT
DESIGN FOR
RCB CULVERT REPLACEMENT -- SINGLE BOX

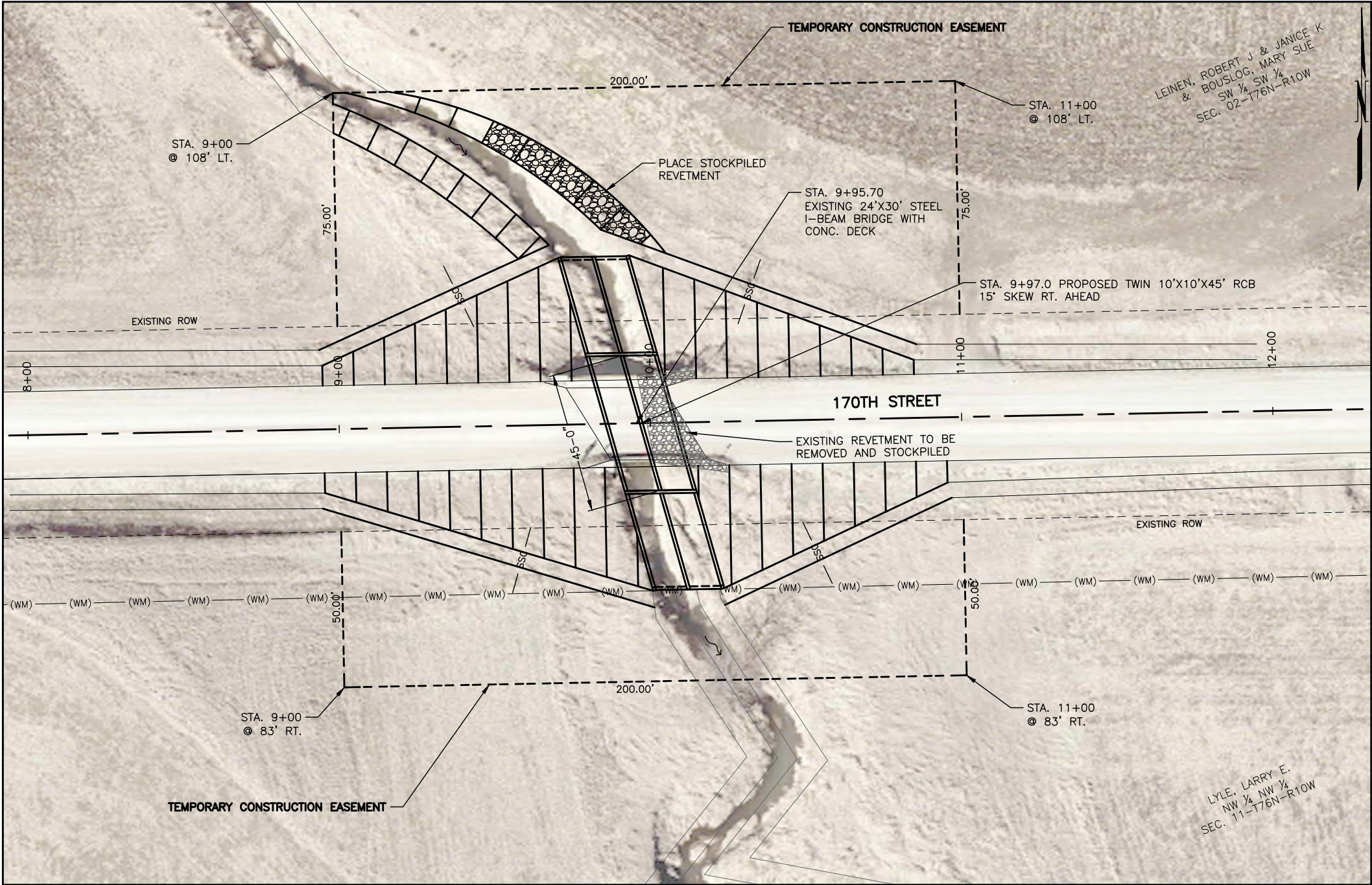
QUANTITIES AND GENERAL INFORMATION

DESIGNED BY
CC 010526

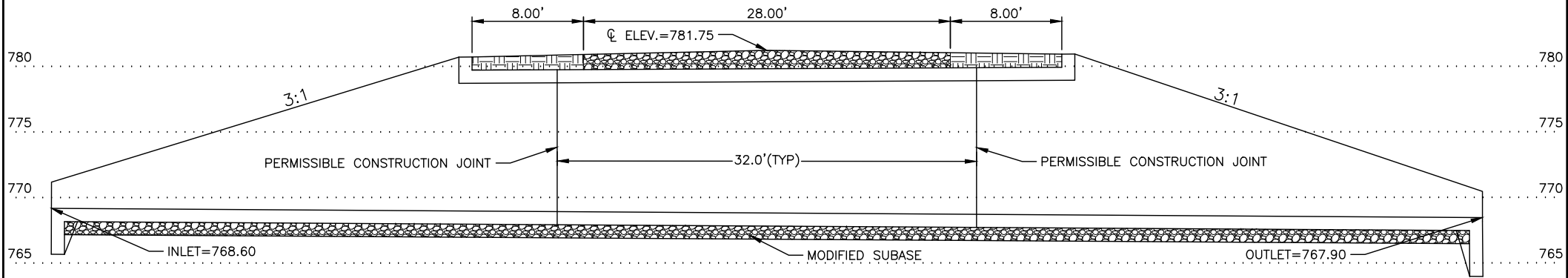
LAST REVISED
CC 031526

PROJECT NO.
FM-C054(128)--55-54

IOWA DEPARTMENT OF TRANSPORTATION STANDARDS REQUIRED		
STANDARDS	DATE ISSUED	LATEST REVISION
RCB-G1-20	JULY 2020	----
RCB-G2-20	JULY 2020	----
RCB-G3-20	JULY 2020	----
RCB-10-10-20	JULY 2020	----
PWH-30-1-20	JULY 2020	----
PWH-30-2-20	JULY 2020	----
PWH-30-3-20	JULY 2020	----
PWH-30-4-20	JULY 2020	----
PWH-30-8-20	JULY 2020	----
TWRCB-G1-20	JULY 2020	----
TWRCB-G2-20	JULY 2020	----
TWRCB-G3-20	JULY 2020	----
TWRCB-10-10-20	JULY 2020	----
TWRCB-15-1-20	JULY 2020	----
TWRCB-15-2-20	JULY 2020	----
TWRCB-15-3-20	JULY 2020	----
TWRCB-15-4-20	JULY 2020	----
TWRCB-15-5-20	JULY 2020	----
TWRCB-15-7-20	JULY 2020	----



SITUATION PLAN
SCALE: 1"=40'



LONGITUDINAL SECTION ALONG CL OF CULVERT
SCALE: NOT TO SCALE

QUANTITIES FOR A TWIN 10'X10'X45' RCB 15° SKEW					
ITEM	Slab/Parapet	Floor/Footing	Walls	Total Concrete	Total Steel
BARREL PER FOOT	0.929	0.878	0.887	2.694	389.50
TOTAL	41.81	39.51	39.92	121.23	17527.50
WING HEADWALL ONE	2.40	18.60	36.70	57.70	8029.00
BOTH	4.80	37.20	73.40	115.40	16058.00
TOTAL				236.63	33745.50*

* INCLUDES 160.00 LBS FOR 2 CONSTRUCTION JOINTS.

HYDRAULIC DATA

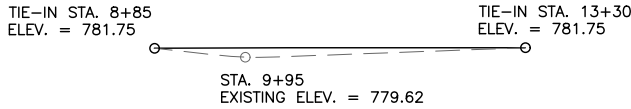
DRAINAGE AREA=2200 ACRES, ROLLING
Q₅₀=2,009.0 CFS
Q₁₀₀=2,387.0 CFS
HW₅₀=780.02
HW₁₀₀=781.37

EXISTING STRUCTURE:

YEAR BUILT=1966
24'x30' STEEL I-BEAM BRIDGE WITH
CONCRETE DECK AND WOOD PILE.

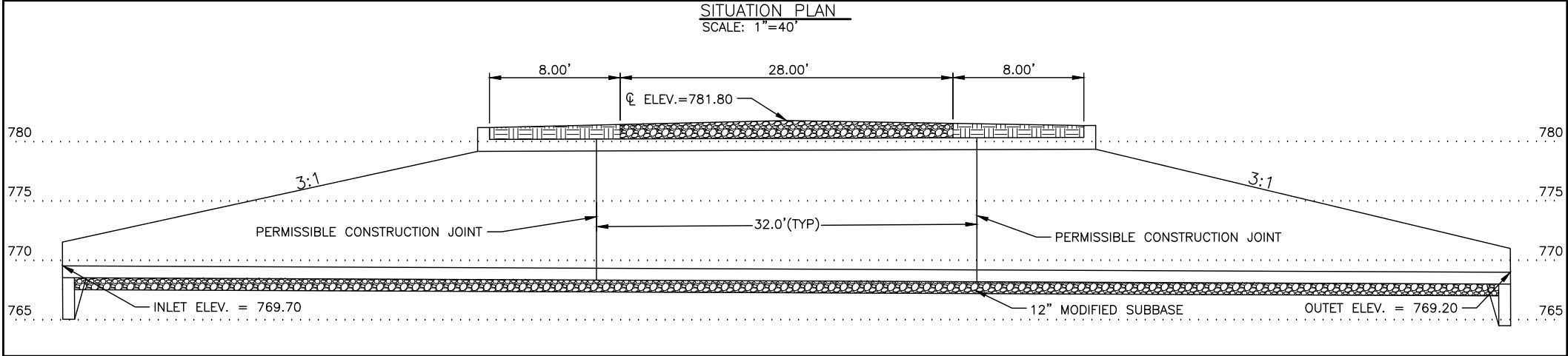
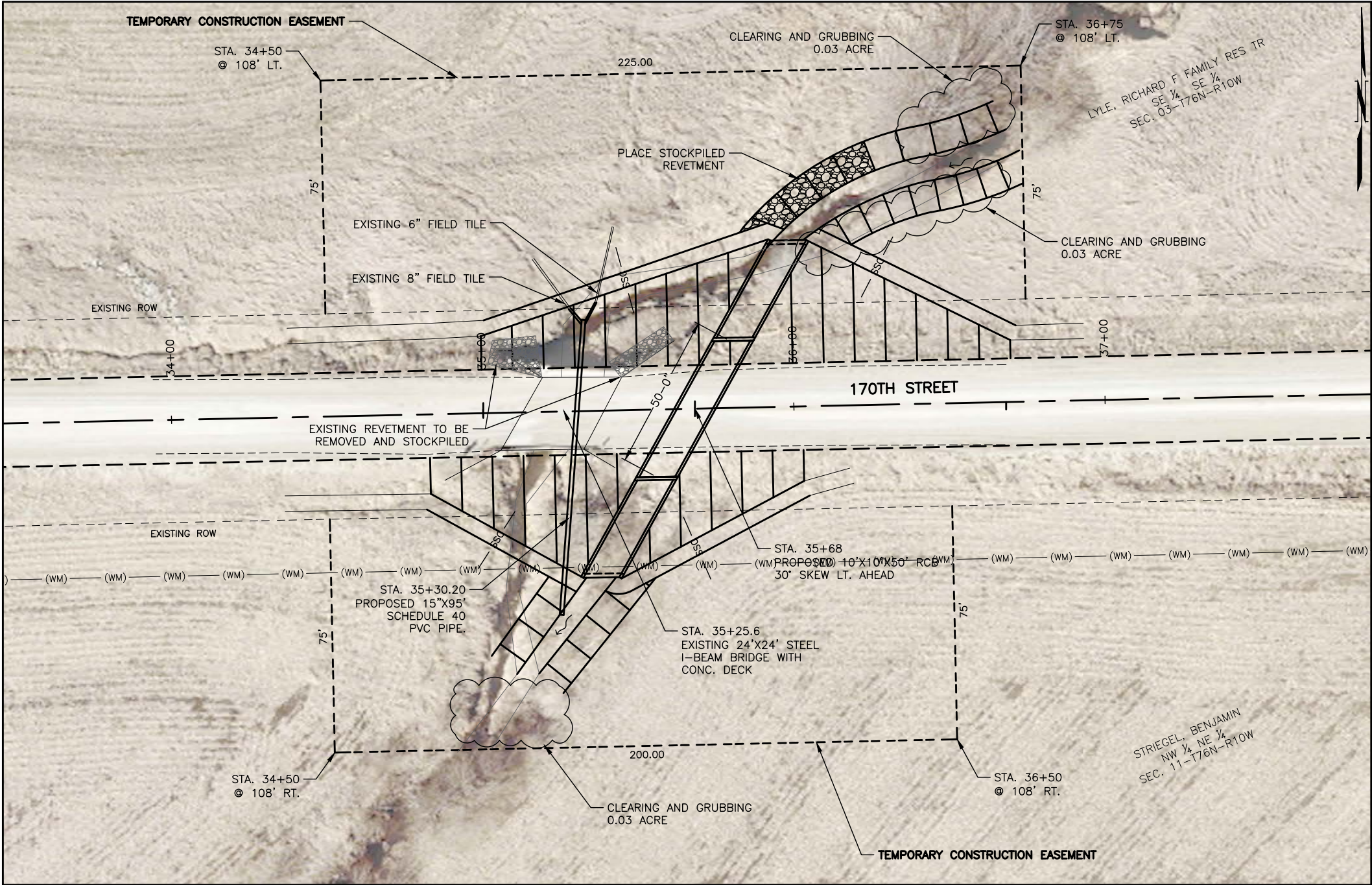
PROPOSED STRUCTURE:

TWIN 10'X10'X45' RCB ON A 15° SKEW
RT. AHEAD



PROPOSED GRADE

KEOKUK COUNTY ENGINEERING DEPARTMENT	
DESIGN FOR	
RCB CULVERT REPLACEMENT – TWIN BOX	
STA. 9+97.00	
DESIGNED BY CC 010926	LAST REVISED CC 052926
PROJECT NO. FM-C054(128)--55-54	



QUANTITIES FOR A SINGLE 10'X10'X50' RCB 30° SKEW					
ITEM	Slab/Parapet	Floor/Footing	Walls	Total Concrete	Total Steel
BARREL PER FOOT	0.467	0.508	0.594	1.569	239.50
TOTAL	23.35	25.40	29.70	78.45	11975.00
WING HEADWALL ONE	1.70	15.0	22.0	38.70	6127.00
BOTH	2.40	30.0	44.0	77.40	12254.00
TOTAL				155.85	24309.00

* INCLUDES 80.00 LBS FOR 2 CONSTRUCTION JOINTS.

HYDRAULIC DATA

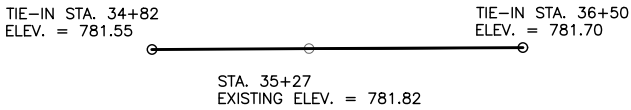
DRAINAGE AREA=1018 ACRES, ROLLING
Q₅₀=732.0 CFS
Q₁₀₀=879.0 CFS
HW₅₀=778.71
HW₁₀₀=779.88

EXISTING STRUCTURE:

YEAR BUILT=1966
24'x24' STEEL I-BEAM BRIDGE WITH
CONCRETE DECK AND WOOD PILE.

PROPOSED STRUCTURE:

10'X10'X50' RCB ON A 30° SKEW LT.
AHEAD



PROPOSED GRADE

KEOKUK COUNTY ENGINEERING DEPARTMENT	
DESIGN FOR	
RCB CULVERT REPLACEMENT – TWIN BOX	
STA. 35+68	
DESIGNED BY CC 010126	LAST REVISED CC 052926
PROJECT NO. FM-C054(128)--55-54	