

89
9/17/24

Project Number: L-B(K19)--73-97

K19 BRIDGE REPLACEMENT

SECTION 404 PERMIT AND CONDITIONS
 CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF THE U.S. ARMY CORPS OF ENGINEERS NATIONAL PERMIT NOTICE. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE (http://www.permits.iowadot.gov). THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

Project Development Division
 PLANS OF PROPOSED IMPROVEMENT ON THE
SECONDARY ROAD SYSTEM
WOODBURY COUNTY
K19 BRIDGE REPLACEMENT
PROJECT NO: L-B(K19)--73-97

Kedron Township On Michigan Ave., over stream, from County Road D22 S 1.6 miles in Sec. 10, T88N, R43W

UTILITY CONTACTS

WESTERN IOWA TELEPHONE - 712-870-1298
 WOODBURY COUNTY REC - 712-870-1031

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 OR OF THE CURRENT STANDARD 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 781 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

ALL SAFETY CLOSURES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR.

MAINTENANCE OF SIGNS, BARRICADES AND SAFETY CLOSURES AS STATED IN ARTICLE 1107 OR SHALL APPLY ON THIS PROJECT.

ROAD CLOSURES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH ROAD STANDARD 10-252. GUARDRAIL INSTALLATION MUST BE COMPLETE BEFORE THE ROAD IS OPENED TO TRAFFIC.

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 2023, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Plus Current Special Provisions and Supplemental Specifications

INDEX OF SHEETS

No.	Description
1	TITLE SHEET
2	LOCATION PLAN
3	ESTIMATE OF QUANTITIES AND GENERAL INFORMATION
4	ABUTMENT AND CONNECTION DETAILS
5	ABUTMENT CONNECTIONS AND WELDING DETAILS
6	PILE NOTES
7	PROFILE VIEW
8	SITUATION PLAN
	PLANS FOR TRUENORTH STEEL BRIDGE AVAILABLE AT COUNTY ENGINEERS OFFICE
	CROSS SECTIONS FOR ROADWAY AVAILABLE AT COUNTY ENGINEERS OFFICE

ROAD STANDARD PLANS

The following Bridge Standards shall be considered applicable to construction work on this project.

Identification	Date	Identification	Date	Identification	Date
TC-252	04-21-20				

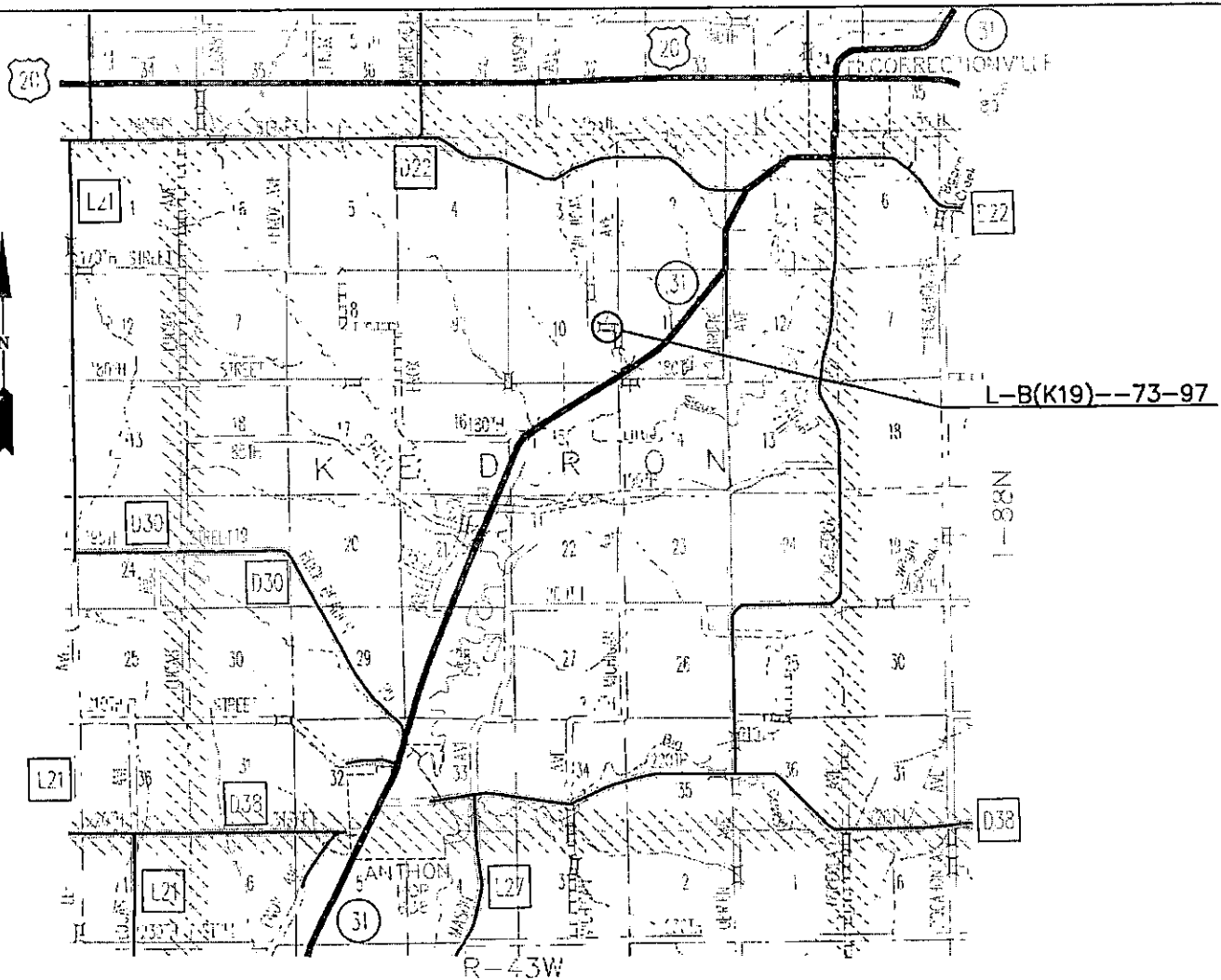
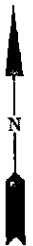
WOODBURY COUNTY
 Letting Date: OCTOBER 7, 2024
 PROJECT NO: L-B(K19)--73-97

Approved
Board of Supervisors

	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.	
		9/17/2024
	Signature	Date
	Printed or Typed Name	
My license renewal date is December 31, 2024		
Pages or sheets covered by this seal:		
Pages 1 thru 8		



2023 AADT 5 V.P.D.



Location Map Scale: 1"=1 Mile



WOODBURY COUNTY
ENGINEERS OFFICE

DATE	REVISION	DATE

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
MICHIGAN AVE. SEC. 10-88-43

SHEET DESCRIPTION: LOCATION MAP

PROJECT NO.
L-B(K19)-73-97

SHEET
2

ESTIMATE REFERENCE INFORMATION

- Includes removal of standing trees from the bank shaping areas. Includes removal and disposal of downed trees, drifts, logs, debris and other obstructions lying within the construction limits. No burning within the project limits allowed. If the contractor wants to burn on private property adjacent to the project they will supply the project engineer with a letter signed by the land owner allowing the burning.
- This item includes material needed to build the roadway approach to the new structure. This item includes compacting of the top 2 feet of the disturbed roadway with a vibratory roller. This material may come from items 4 and 8 if the material is suitable and inspected by Woodbury County prior to its use. The remaining material required for the 863 c.y. shall come from a contractor supplied borrow.
- Quantity of Excavation is 88 c.y. Material may be used in the ditch on the Northeast corner of the bridge and upstream of the Class E Revetment placement limits. Unused material shall be disposed of off the project site according to Applicable Federal, State and Local Regulations. Location of the material shown on sheet 8.
- Quantity of excavation is 803 c.y. (cut). Excess material may be used as roadway borrow if deemed suitable by the engineer. Unused material shall be disposed of off the project site according to applicable Federal, State and Local regulations.
- Granular Surfacing shall be placed in two (2), 2 inch lifts. The first lift shall be scarified into the roadway and rolled with a smooth drum roller, the second lift shall be placed and bladed to the correct crown.
- This item shall include all equipment and labor needed to remove the existing .55'x17.2' 2 span steel I-Beam bridge. All substructure items shall be removed to a depth of 3' below flow line. Complete removal of materials in areas which would impede the construction of new structure. All materials shall remain the property of the contractor except the steel I-beams and bridge floor plank which will remain the property of Woodbury County. Care shall be taken in the I-beam removal as not to damage them. The beams and plank shall be stockpiled within the project limits for pick up by Woodbury County.
- This material shall be placed behind the sheet piles and compacted in lifts not exceeding 18" and with a method that is approved by the engineer. This material will be supplied by Woodbury County and shall not be placed above an elevation equal to a distance of 4 feet below the finished roadbed. The fill shall extend 13' back from the abutment and be the full width of the abutment enclosure (31'). All elevations and areas shall be staked by Woodbury County.
- This item shall be full compensation for the excavation required to build the abutments. The excavation shall extend to at least a distance of 13 feet beyond the abutment piling. The excavation shall not extend below elevation 1140.00' in the abutment piling area.
- ,10. Bid item shall be full compensation for furnishing and driving the HP 10x57x65' West Abutment and 70' East Abutment and 8x36x45' wing pile. Care shall be taken not to damage the tops beyond an area covering one (1) foot from the top. The pile shall be trimmed to the final elevation by any means that allows a straight and level top. See sheet 6 for more details.
- This item shall consist of furnishing and installing the sheet piling and bracing see sheet 4 and 5 for details. The sheet piling and metalwork pertaining to this item shall meet the requirements of ASTM A328, A572 or A690.
- The safety closures are required at both ends of the project. The contractor is required to monitor the closures daily and keep a diary of their condition in a traffic control diary.
- Contractor shall be responsible for signing, marking and maintaining all project signs. A traffic control diary shall be included in this bid item as incidental. The contractor shall have a certified traffic control person assigned to this project.
- Mobilization shall be lump sum and include all labor and costs needed to move equipment to and from the project.
- Bid item shall include all equipment, C-Channel, labor, cap materials (as per detail sheet 4 and 5), tie rods, washers, PL 1/2"x4"x4" plate (2-34' and 2-36' tie rods) and hardware to transport and erect the 60' TrueNorth Steel Bridge. All welding shall be incidental to this item and shall be done by an Iowa certified welder. The guardrail system installation will be incidental to this bid item and all materials for this item will be supplied by Woodbury County. See sheets 4, 5 and 8 for installation. Backwalls on the bridge shall be painted with Carothane 1 or Interzone 954, Coal Tar, (Black).

ESTIMATED QUANTITIES

No.	ITEM CODE	ITEM	UNIT	TOTAL
1.	2101-0850001	CLEARING AND GRUBBING	ACRE	.09
2.	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	C.Y.	863
3.	2102-2713090	EXCAVATION, CLASS 13, WASTE	C.Y.	88
4.	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	C.Y.	803
5.	2312-8260310	GRANULAR SURFACE ON ROAD CRUSHED CONCRETE	TON	85
6.	2401-6745625	REMOVAL OF EXISTING BRIDGE	LUMP SUM	1
7.	2402-0425033	GRANULAR BACKFILL, (PLACE ONLY)	C.Y.	257
8.	2402-2720000	EXCAVATION, CLASS 20	C.Y.	975
9.	2501-0200836	PILES, STEEL, HP 8x36	L.F.	360
10.	2501-0201057	PILES, STEEL, HP 10x57	L.F.	810
11.	2501-5775000	PILING, STEEL SHEET	SQ. FT.	2875
12.	2507-6800061	REVTMENT CLASS E	TON	434
13.	2518-6910000	SAFETY CLOSURE	EACH	2
14.	2528-8445110	TRAFFIC CONTROL	LUMP SUM	1
15.	2533-4980005	MOBILIZATION	LUMP SUM	1
16.	2599-9999010	INSTALL 60' TRUE NORTH STEEL BRIDGE	LUMP SUM	1

WOOD-100 SUMMARY OF EARTHWORK QUANTITIES							
EXCAVATION TYPE	RAW CUT	RAW FILL	WASTE *****	USABLE CUT	SHRINKAGE FACTOR	FILL + 40% SHRINKAGE	PAYMENT QUANTITY
	CY	CY	CY	CY		CY	CY
EXCAVATION 10 RDWY & BORROW	54	616	0	0	40%	863	863
EXCAVATION 10 CHANNEL	803	0	0	720	40%	0	803
EXCAVATION 20	975	0	0	975	40%	0	975
TOTALS							

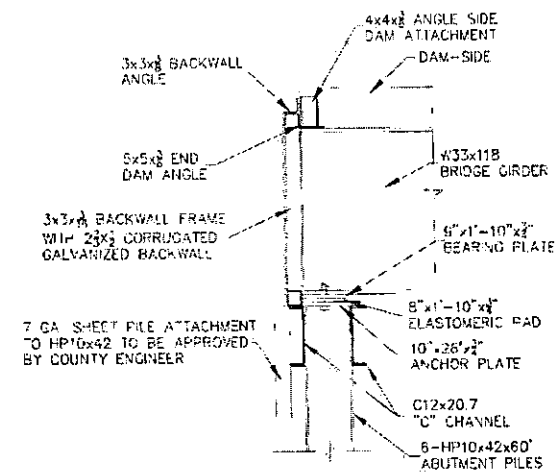
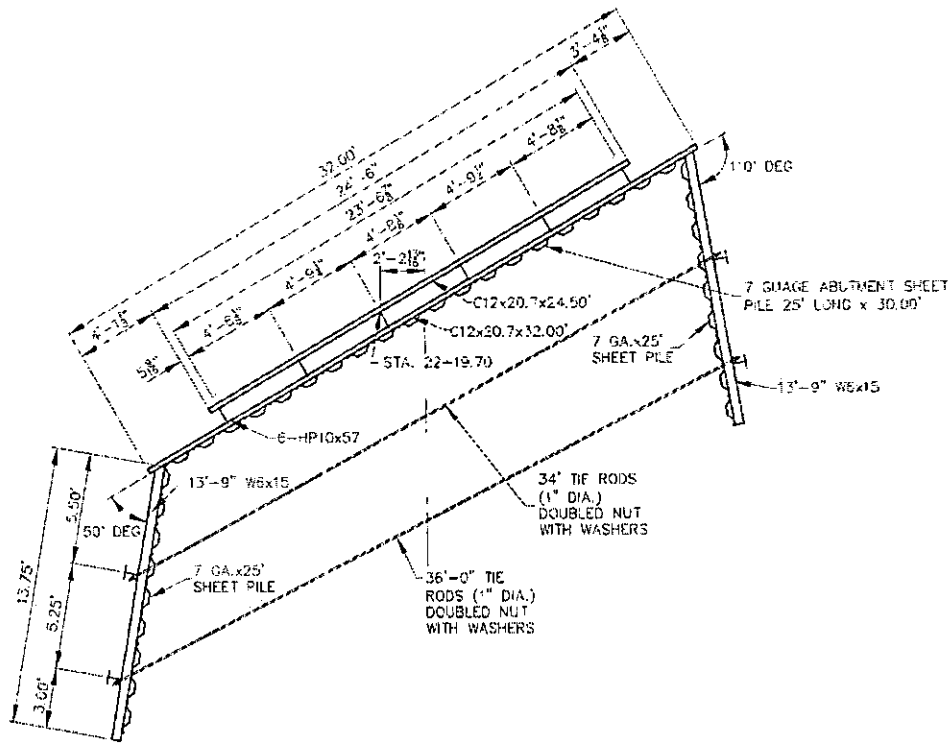
WOODBURY COUNTY
ENGINEERS OFFICE

DATE: _____
 DRAWN BY: _____
 DESIGNED BY: _____
 CHECKED BY: _____
 APPROVED BY: _____
 TITLE: _____

BRIDGE REPLACEMENT
MICHIGAN AVENUE SEC. 10-88-43
 ESTIMATE OF QUANTITIES AND
GENERAL INFORMATION

PROJECT DESCRIPTION:
SHEET DESCRIPTION:

PROJECT NO
L-8(K19)-73-97
SHEET
3



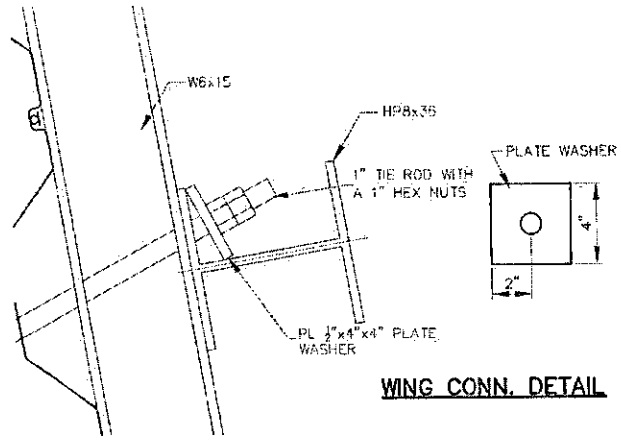
ABUTMENT DETAIL

WOODBURY COUNTY
ENGINEERS OFFICE

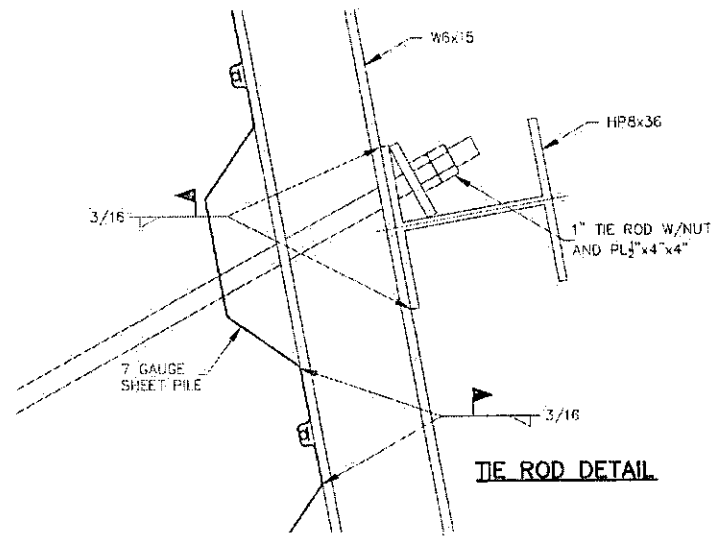
DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
MICHIGAN AVENUE SEC. 10-88-43
SHEET DESCRIPTION: ABUTMENT AND CONNECTION DETAILS

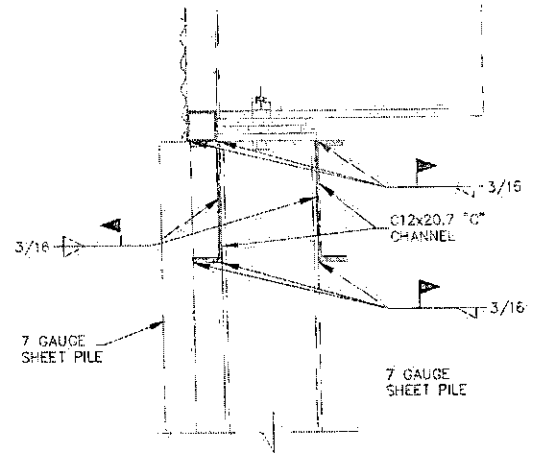
PROJECT NO.
L-B(K18)-73-97
SHEET



WING CONN. DETAIL



TIE ROD DETAIL



ABUTMENT CAP DETAIL

WOODBURY COUNTY
ENGINEERS OFFICE

DESIGNED BY:	DATE:
APPROVED BY:	REVISION:

PROJECT DESCRIPTION: BRIDGE REPLACEMENT
MICHIGAN AVENUE SEC. 10-88-43

SHEET DESCRIPTION: ABUTMENT CONNECTIONS AND
WELDING DETAILS

PROJECT NO.
L-B(19)-73-87

SHEET

PILE NOTES

WEST ABUTMENT

THE CONTRACT LENGTH OF 65 FEET FOR THE WEST ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (FU) OF 104 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65 FOR SOIL

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE PROPOSED GROUND ELEVATION.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST ABUTMENT PILES IS 80 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.

EAST ABUTMENT

THE CONTRACT LENGTH OF 70 FEET FOR THE EAST ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (FU) OF 104 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65 FOR SOIL

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE PROPOSED GROUND ELEVATION.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST ABUTMENT PILES IS 80 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.

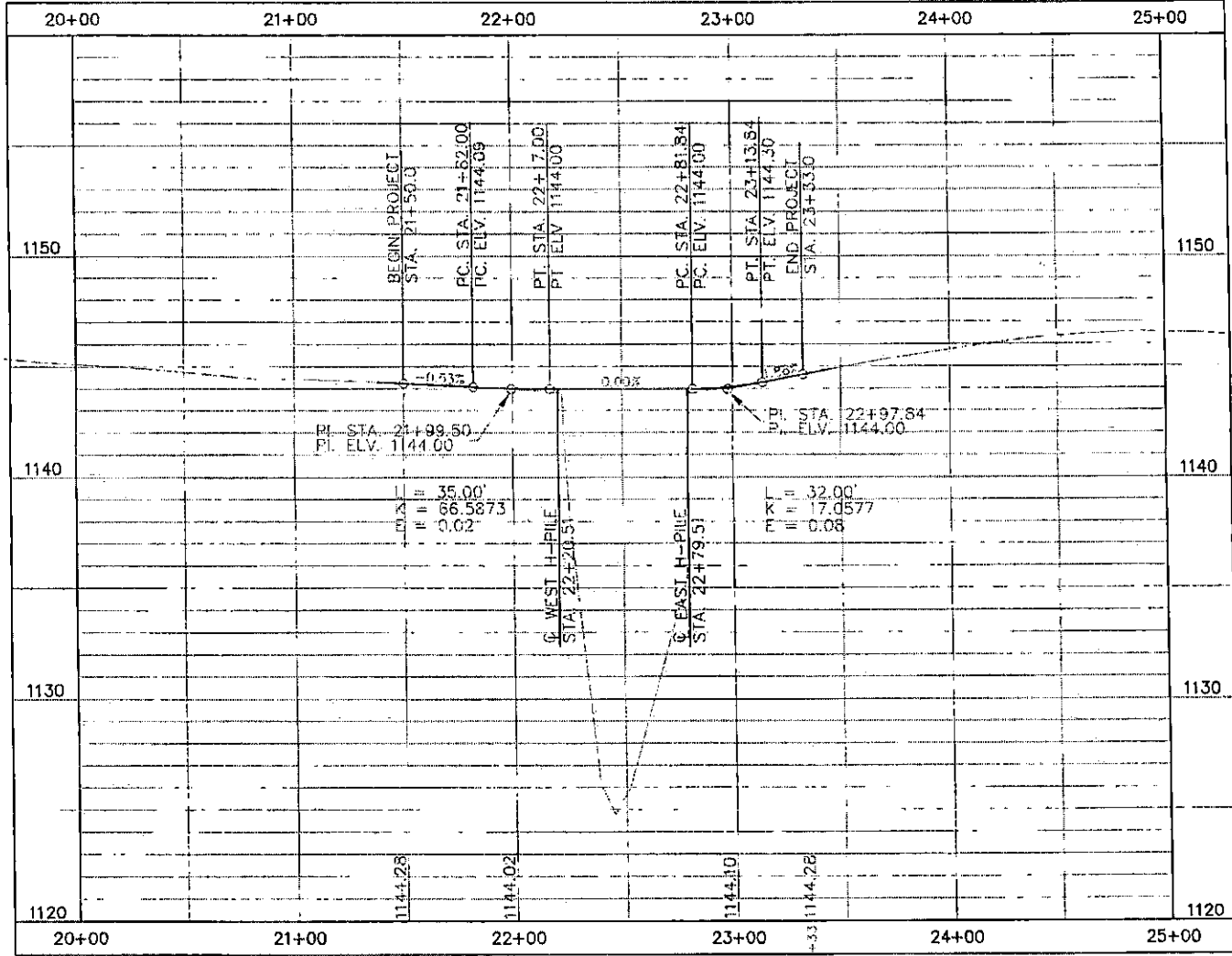
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REVISION	
DESIGNED BY:	
APPROVED BY:	
DATE	

PROJECT DESCRIPTION: BRIDGE REPLACEMENT MICHIGAN AVENUE SEC. 10-88-43

SHEET DESCRIPTION: PILE NOTES

PROJECT NO.
L-6(K19)-73-67

SHEET

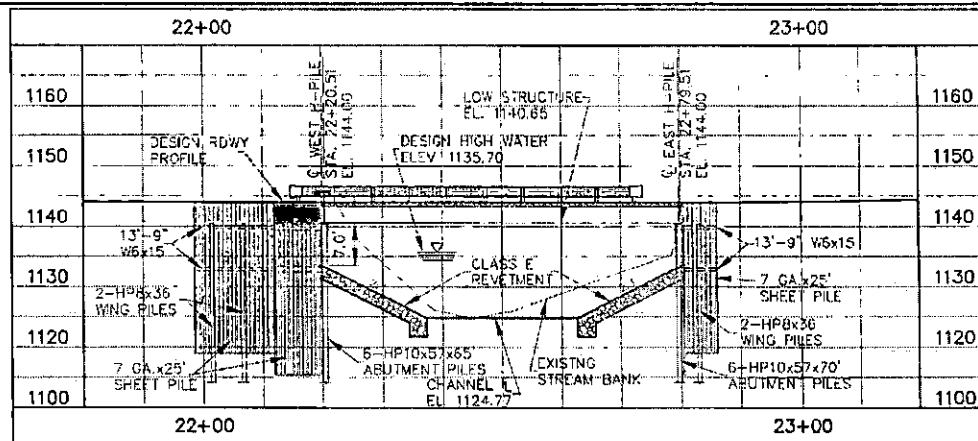


WOODBURY COUNTY
ENGINEERS OFFICE

PROJECT DESCRIPTION: **BRIDGE REPLACEMENT**
MICHIGAN AVENUE SEC. 10-80-43
SHEET DESCRIPTION: **PROFILE VIEW**

PROJECT NO. **L-B(K19)-73-97**
SHEET **7**

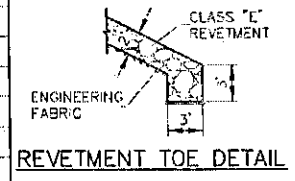
DATE: _____
DRAWN BY: _____
RECORDED BY: **M.J.N.**
APP. FOR D. BY: _____
CHECKED BY: _____



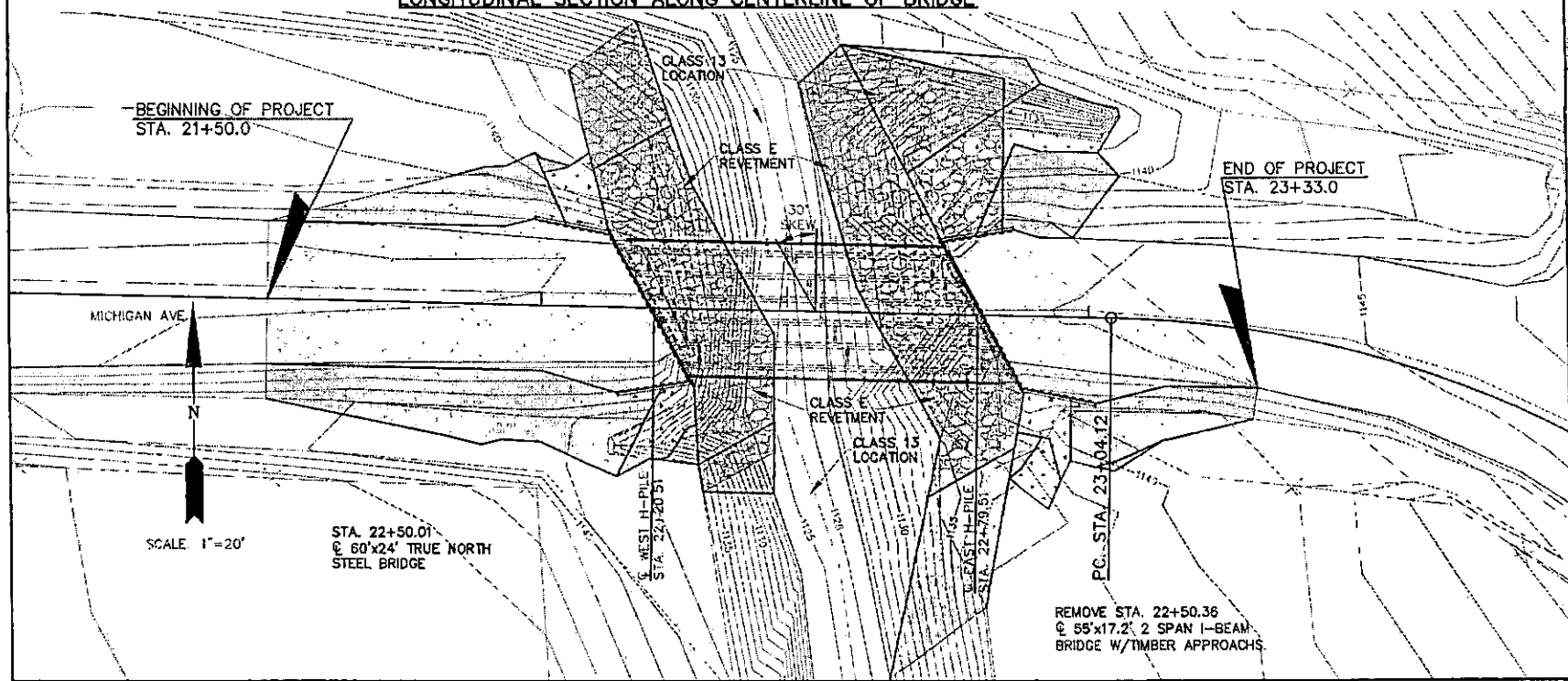
HYDRAULIC DATA

Q25	2350	STAGE ELEV	1134.70
Q50	2900	STAGE ELEV	1135.70
Q100	3450	STAGE ELEV	1136.59
Q200	4490	STAGE ELEV	1138.13

STREAM SLOPE: 35.96 FT./M.
 BRIDGE VELOCITY: 9.31 FT./SEC.
 FREEBOARD: 4'6"
 DRAINAGE AREA: 6.19 SQ. MI.



LONGITUDINAL SECTION ALONG CENTERLINE OF BRIDGE



WOODBURY COUNTY
ENGINEERS OFFICE

DATE	
REVISION	
APPROVED BY:	
DESIGNED BY:	
DRAWN BY:	

PROJECT DESCRIPTION: BRIDGE REPLACEMENT MICHIGAN AVENUE SEC. 10-88-43
SHEET DESCRIPTION: SITUATION PLAN

PROJECT NO. L-B(18)-73-97
SHEET 8

