

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	(ALG. NO. 47) PINE ISLAND DR. OVER THE ROGUE RIVER	1	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	SITE PLAN
SHEET NO. 3	ROADWAY & BRIDGE CROSS SECTIONS
SHEET NO. 4	BRIDGE PROFILE
SHEET NO. 5	BALUSTRADE REPAIRS / PERMANENT SIGNAGE & PAVEMENT MRKGS.
SHEET NO. 6	CONCRETE REPAIR DETAILS
SHEET NO. 7-10	HISTORIC BRIDGE PLANS (FOR REFERENCE ONLY)
SHEET NO. 11	TRAFFIC CONTROL / ESTIMATED PROJECT QUANTITIES

**KENT COUNTY ROAD COMMISSION**  
 IN CO-OPERATION WITH  
**MICHIGAN DEPARTMENT OF TRANSPORTATION**  
 AND  
**FEDERAL HIGHWAY ADMINISTRATION**  
 PLANS AND DETAILS OF PROPOSED REPAIRS TO THE  
**ALGOMA BRIDGE NO. 47**  
**PINE ISLAND DRIVE OVER THE ROGUE RIVER**  
**ALGOMA TOWNSHIP, KENT COUNTY, MICHIGAN**  
**CONTROL SECTION TA 41081      JOB NO. 119727A**

**FEDERAL CONTROL NO. TAP 1441 (045)      FEDERAL ITEM NO. HH 9384**

STRUCTURE NO: 5051      KCRC BRG. ID: ALGOMA NO. 47

TOTAL LENGTH OF PROJECT 0.07 MILE

**UTILITIES**

CONSUMERS ENERGY COMPANY (DISTRIBUTION)  
 4000 CLAY AVE. SW. GRAND RAPIDS, MICHIGAN 49508  
 ATTN: CHRIS SCHROCK  
 (616) 530-4097  
  
 CONSUMERS ENERGY COMPANY (TRANSMISSION)  
 1945 WEST PARNALL ROAD, JACKSON, MICHIGAN 49201  
 ATTN: KEN KING / PAGER - 616-270-6875  
 (517) 788-1977  
  
 AT&T  
 955 36TH ST. ROOM 5 SE. GRAND RAPIDS, MICHIGAN 49508  
 ATTN: PATTI KALINIAK  
 (616) 246-7621  
  
 DTE ENERGY  
 444 WEALTHY ST. GRAND RAPIDS, MICHIGAN 49503  
 ATTN: ANDRE' A. DIAZ  
 (616) 632-2631  
  
 CHARTER COMMUNICATIONS  
 1202 WEST BENTON  
 GREENVILLE, MI 48838  
 ATTN: ROBERT C. BALCOME  
 (616) 835-0999

**GENERAL NOTE**

MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012, EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL OR SUPPLEMENTAL SPECIFICATIONS. ALL TRAFFIC CONTROLS SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2011.

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH THE AASHTO, A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2004.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 2012 EDITION.

BIDDERS WILL BE FURNISHED WITH SCANNED PDF IMAGES OF PLAN SHEETS OF THE EXISTING STRUCTURE IF REQUESTED.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE: GRADE S2 f<sub>c</sub> = 3,000 PSI

CONCRETE: GRADE D f<sub>c</sub> = 4,000 PSI

STEEL REINFORCEMENT: f<sub>y</sub> = 60,000 PSI

STRUCTURAL STEEL:

AASHTO M270 GRADE 36      f<sub>y</sub> = 36,000 psi

AASHTO M270 GRADE 50      f<sub>y</sub> = 50,000 psi

**MDOT STANDARD DETAILS**

GUARDRAIL APPROACH TERMINAL TYPES 1B & 1 T (SRT & FLEAT)  
 GUARDRAIL ANCHORAGE, BRIDGE, DETAILS  
 SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

R-61-G  
 R-67-F  
 R-96-E

**MDOT STANDARD TRAFFIC AND SAFETY PLANS**

GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS  
 TEMPORARY TRAFFIC CONTROL DEVICES

WZD-100 \*  
 WZD-125-E \*

\* SPECIAL DETAILS  
(INCLUDED IN PROPOSAL)



BEGIN PROJECT - P.O.B. - STA. 25+50

PROPOSED DETOUR ROUTE

END PROJECT - P.O.E. - STA. 29+00

PROJECT LOCATION:  
 ALGOMA TOWNSHIP, KENT COUNTY  
 T 9N, R 11W



NOTE:  
 THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES. THE CONTRACTOR SHALL NOTIFY "MISS DIG" TOLL FREE AT 811 OR 1-800-482-7171 THREE (3) DAYS BEFORE THE START OF CONSTRUCTION, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS.

2014 ADT: 3,797 - 8% COMMERCIAL  
 2034 ADT: 4,936 - 8% COMMERCIAL

POSTED SPEED = 55 MPH (PRIMA FASCIA)  
 DESIGN SPEED = 55 MPH

TOTAL LENGTH OF PROJECT 0.07 MILE

PLANS PREPARED UNDER THE SUPERVISION OF:

Wayne A. Harrall  
 WAYNE A. HARRALL  
 REG. PROFESSIONAL ENGINEER REG. NO. 36066

CLEAN CONCRETE SUPERSTRUCTURE, CHIP & REPAIR CONCRETE  
 GIRDERS, COLD MILLING, CONCRETE BRIDGE DECK PATCHING,  
 GUARDRAIL, EPOXY COATING DECK OVERLAY AND  
 MAINTAINING TRAFFIC.

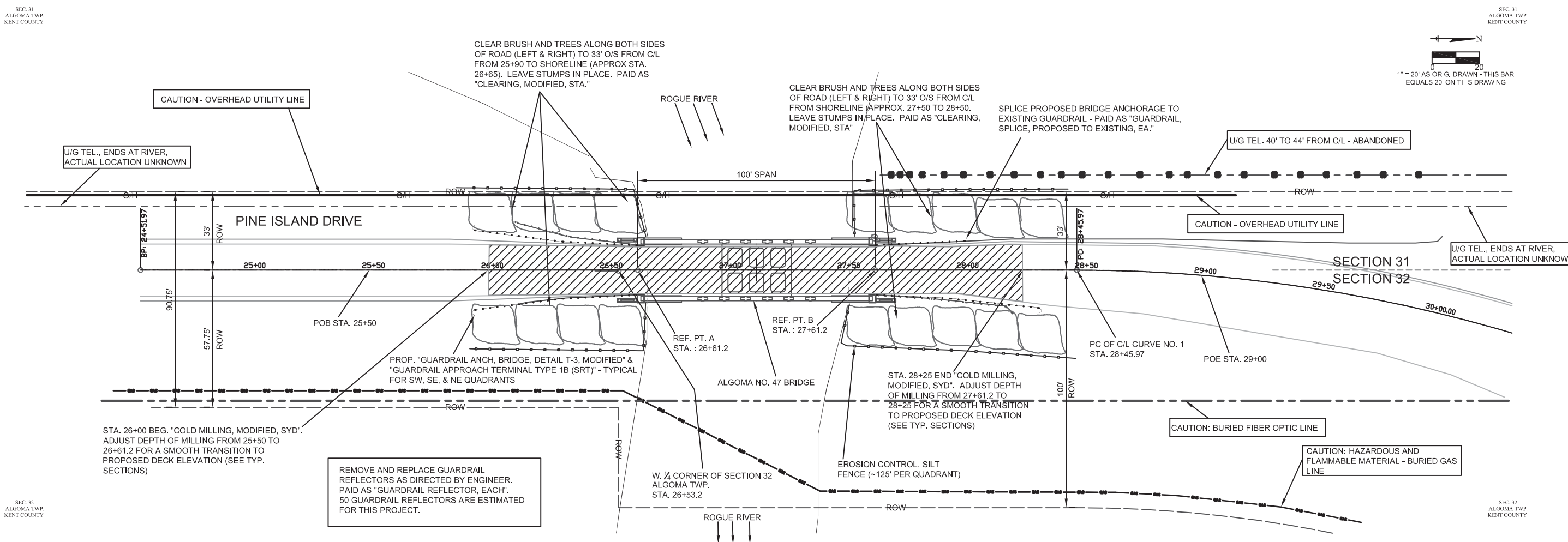
COUNTY APPROVAL  
BOARD OF COUNTY ROAD COMMISSIONERS

BY	<i>[Signature]</i>	DATE	2/25/14
BY	<i>[Signature]</i>	DATE	2/25/2014
BY	<i>[Signature]</i>	DATE	2/25/2014
BY	<i>[Signature]</i>	DATE	2/25/2014
BY	<i>[Signature]</i>	DATE	
BY	<i>[Signature]</i>	DATE	2/25/14

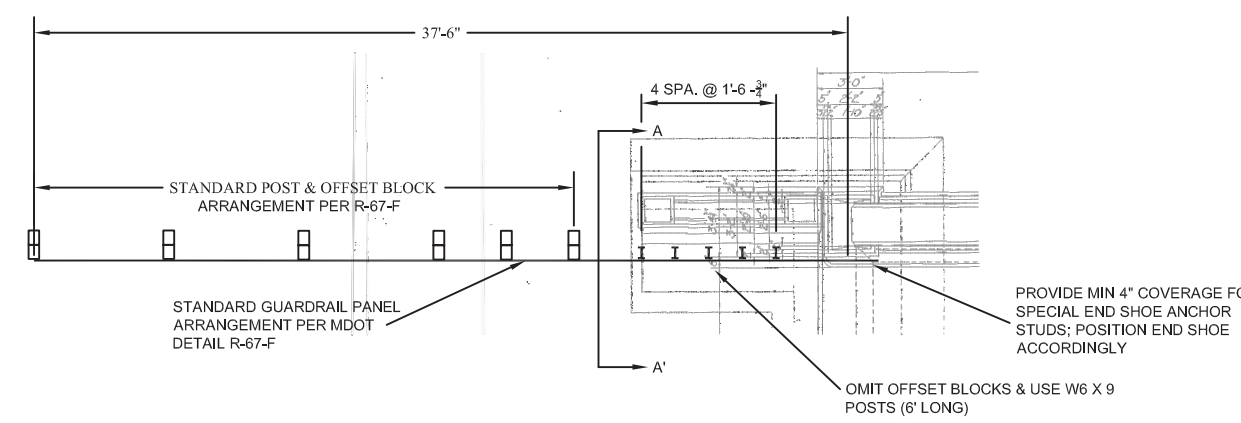
FEDERAL PROJECT NO. TAP 1441 (045)      JOB NO. 119727A      FEDERAL ITEM NO. HH 9384

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	2	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

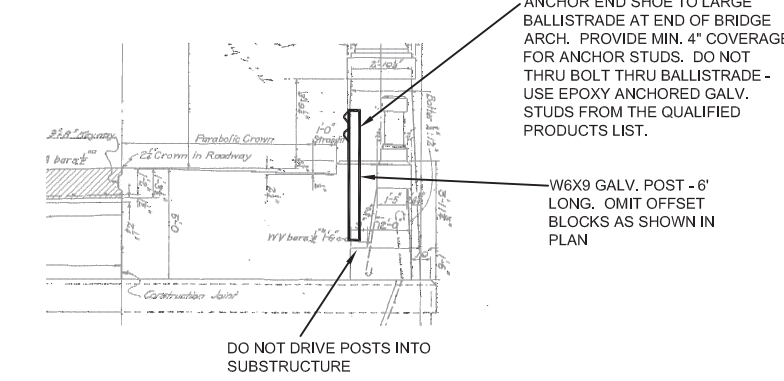
DATE: AS CONSTRUCTED BY: TENBROCK DATE: 2/17/14 SURVEYED BY: \*\* DATE: \*\*



**ALG 47 BRIDGE SITE PLAN**  
SCALE: 1" = 20'



**GUARDRAIL ANCH, BRIDGE, DETAIL T-3, MODIFIED**

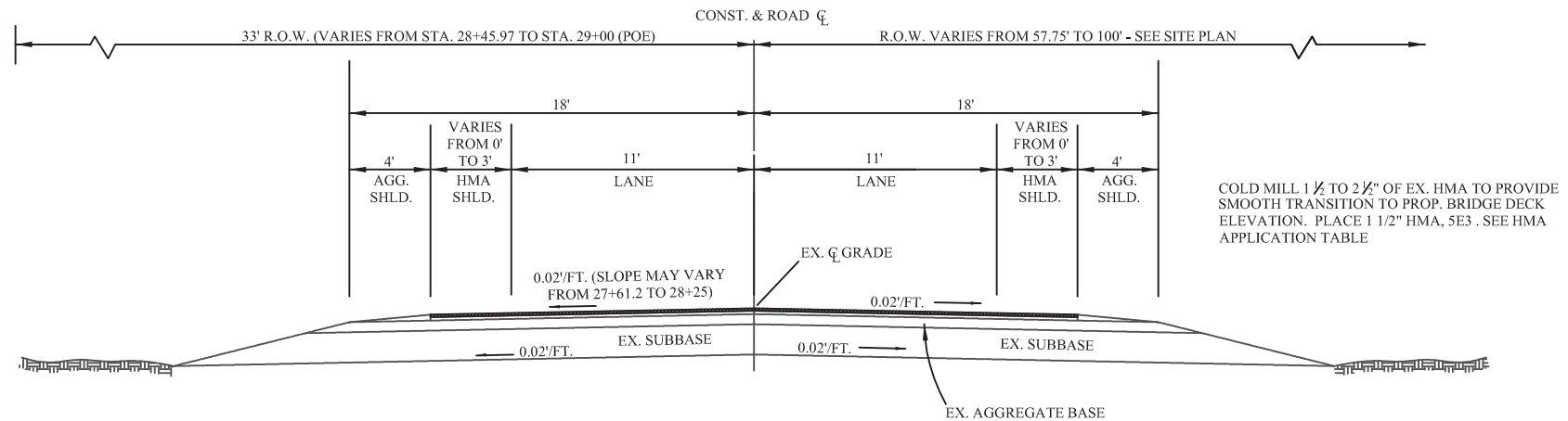


**GUARDRAIL ANCH, BRIDGE, DETAIL T-3, MODIFIED**  
SECTION A-A'

**MISC. SITE AND ROADWORK QUANTITIES NOT DETAILED**  
(CONTINGENCY ITEMS - USE ONLY AT THE DIRECTION OF THE ENGINEER)

ITEM	ESTIMATED QTY.
SEEDING, MIXTURE CR, LB.	25
MULCH BLANKET, SYD	300
MULCH BLANKET, HIGH VELOCITY, SYD	200

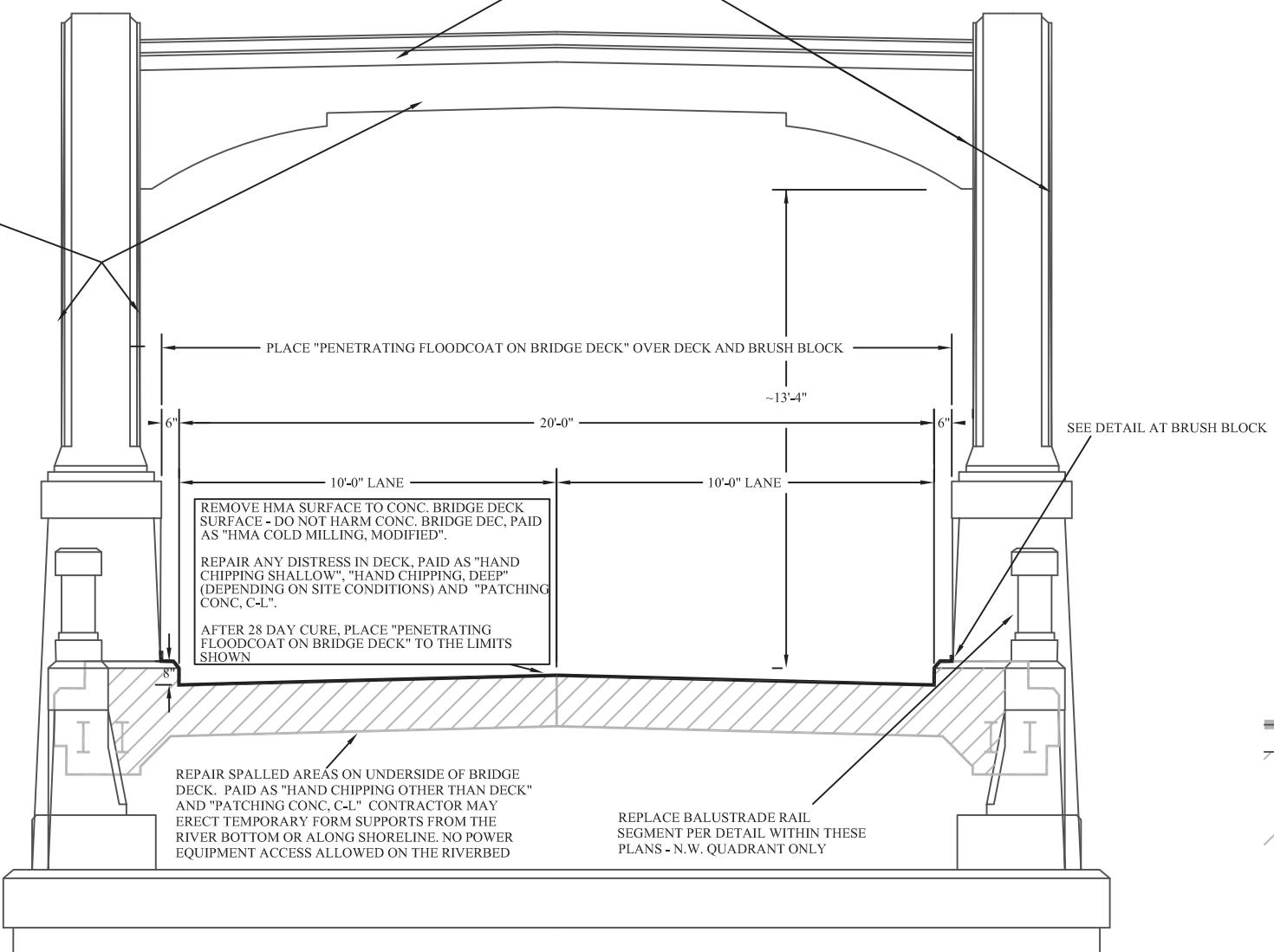
F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	3	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	



**PROPOSED FINISHED SECTION NO. 1**  
 SHOWING A SHOULDER FINISHED SECTION. STRUCTURAL ELEMENTS SHOWN ON "FINISHED SECTION". FOR HMA APPLICATION RATES SEE TABLE THIS SHEET.  
**APPLIES TO STA. 26+00 TO 28+25 EXCLUDING BRIDGE DECK (STA. 26+61.2 TO 27+61.2) TAPER TO EXISTING WIDTHS OVER ENTIRE SECTION**

GENTLY REMOVE ACCUMULATED DIRT AND LAITANCE OVER ALL BRIDGE SURFACES (EXCEPT TOP AND BOTTOM SIDES OF BRIDGE DECK). PAID AS "BRIDGE CLEANING, MODIFIED, LS"

REPAIR SPALLED AREAS ON VERTICAL & HORIZONTAL FACES OF BRIDGE. PAID AS "HAND CHIPPING OTHER THAN DECK" AND "PATCHING CONC, C-L, MODIFIED". TYPICAL BOTH SIDES OF BRIDGE.

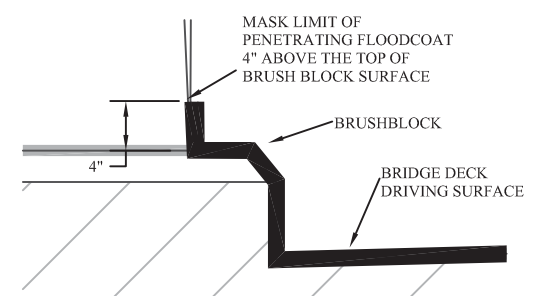


**PROPOSED FINISHED SECTION NO. 2**  
 SHOWING ALGOMA NO. 47 BRIDGEWORK  
**APPLIES TO STA. 26+61.2 TO 27+61.2**

**HMA APPLICATION TABLE**

HMA MIXTURE	RATE OF APPLICATION	PERFORMANCE GRADE	LOCATION
HMA, 5E3 (1 1/2")	165 LBS / SYD	64-28	TOP

HMA BOND COAT SS-1H AS DIRECTED BY THE ENGINEER, ESTIMATED AT 0.05 TO 0.15 GAL/SYD. (NOT A PAY ITEM).  
 TOP COURSE AW1 = 260 MINIMUM



**PENETRATING FLOODCOAT DETAIL AT BRUSH BLOCK**  
 NOTE: DEPTH OF COLD MILLING OUTSIDE DECK AREA WILL REQUIRE ADJUSTMENT FOR SMOOTH RIDE GIVEN DECK ELEVATION IS BEING REDUCED 2 TO 3 INCHES.

**GENERAL NOTES**

THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES. THE CONTRACTOR SHALL NOTIFY "MISS DIG" TOLL FREE AT 1-800-482-7171 THREE (3) DAYS BEFORE THE START OF CONSTRUCTION, EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS.

IN NO INSTANCE WILL ANY ACTION OR OMISSION ON THE PART OF THE INSPECTOR WILL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLETING THE WORK ACCORDING TO THE PLANS AND SPECIFICATIONS, IN ACCORDANCE WITH SECTION 104.01D OF THE MDOT 2012 STANDARD SPECIFICATIONS.

CONTRACTOR TO OBTAIN WRITTEN PERMISSION BEFORE WASTING DIRT OR OTHER MATERIAL ON PRIVATE PROPERTY. SIGNED RELEASES MUST BE OBTAINED BEFORE THE PROJECT WILL BE FINALED.

REMOVE HMA SURFACE AS NECESSARY AND SAW CUT AT REMOVAL LIMITS. INCLUDED IN "COLD MILLING, MODIFIED".

WHEN PLACING THE HMA, THE LONGITUDINAL JOINT SHALL COINCIDE WITH THE PROPOSED LANE LINES.

DURING CONSTRUCTION, ADEQUATE DUST CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER. DUST CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR AND WILL NOT BE PAID FOR SEPARATELY, PER MDOT STANDARD SPECIFICATIONS SECTION 107.15, SUBSECTION A.1.

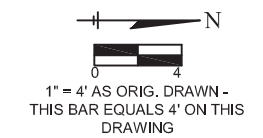
AS DIRECTED, CONTRACTOR TO REMOVE AND DISCARD PERMANENT SIGNS WITHIN THE WORK INFLUENCE AREA. NEW PERMANENT SIGNS WILL BE PLACED BY KCRC, IF NEEDED.

ITEM ESTIMATED FOR "MULCH BLANKET" AND "SEEDING, MIXTURE CR" ARE INTENDED AS SOIL EROSION CONTROL MEASURES. PLACEMENT OF THESE ITEMS, IF NECESSARY, WILL BE DETERMINED BY THE ENGINEER.

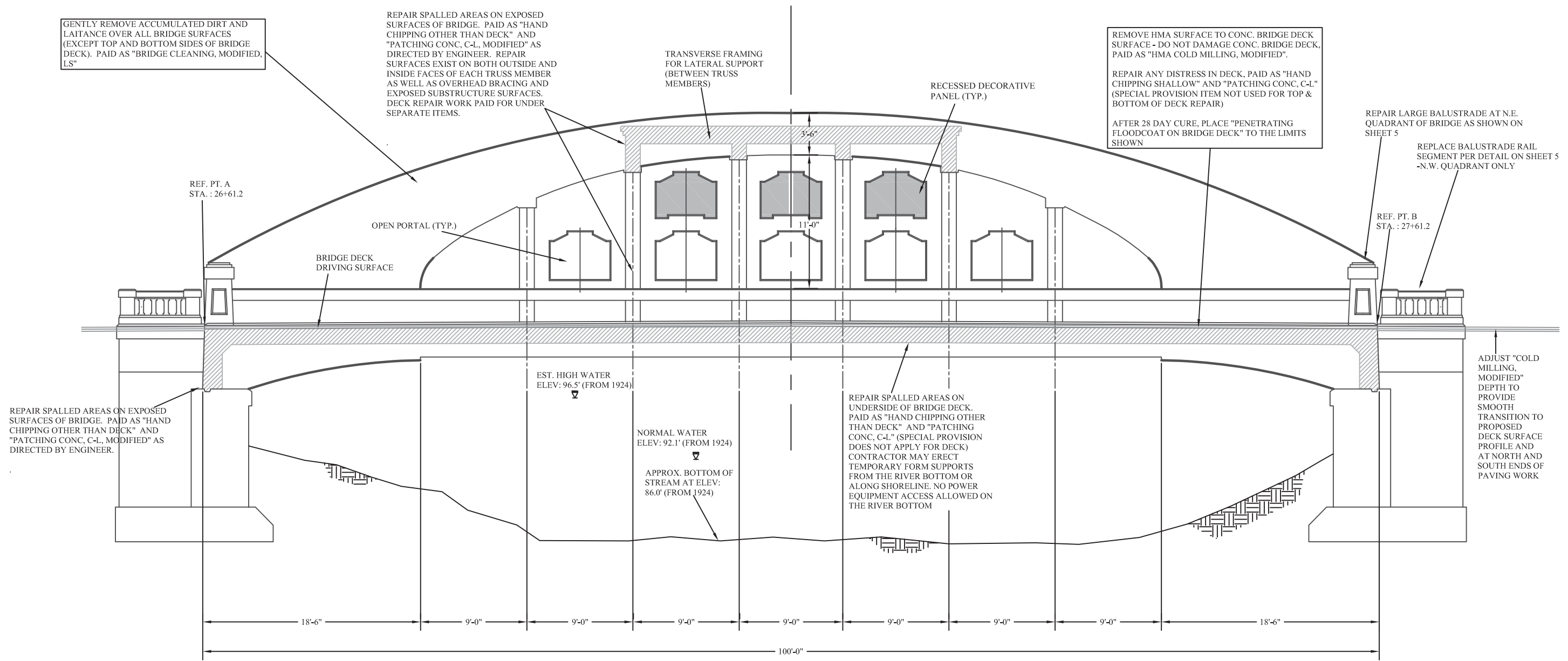
DATE: \*\* DATE: \*\* SURVEYED BY: \*\* DATE: \*\* PLAN PLOTTED BY: TENBROCK DATE: 2/17/14 AS CONSTRUCTED BY:

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	4	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

SEE SPECIAL PROVISION TITLED "SPECIAL PROVISION FOR CONCRETE AND PATCHING MATERIALS", FOR DETAILS ASSOCIATED WITH DEVELOPING "CONC, GRADE S2 MODIFIED" AND "PATCHING CONC, C-L, MODIFIED"



DATE: \_\_\_\_\_ AS CONSTRUCTED BY: \_\_\_\_\_ PLAN PLOTTED BY: TENBROCK DATE: 2/14/14 SURVEYED BY: \*\* DATE: \*\*



**ALG 47 BRIDGE PROFILE**  
SCALE: 1" = 4'

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	5	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

SEE SPECIAL PROVISION TITLED: *SPECIAL PROVISION FOR CONCRETE AND PATCHING MATERIALS*, FOR DETAILS ASSOCIATED WITH DEVELOPING "CONC. GRADE S2 MODIFIED" AND "PATCHING CONC, C-L, MODIFIED"

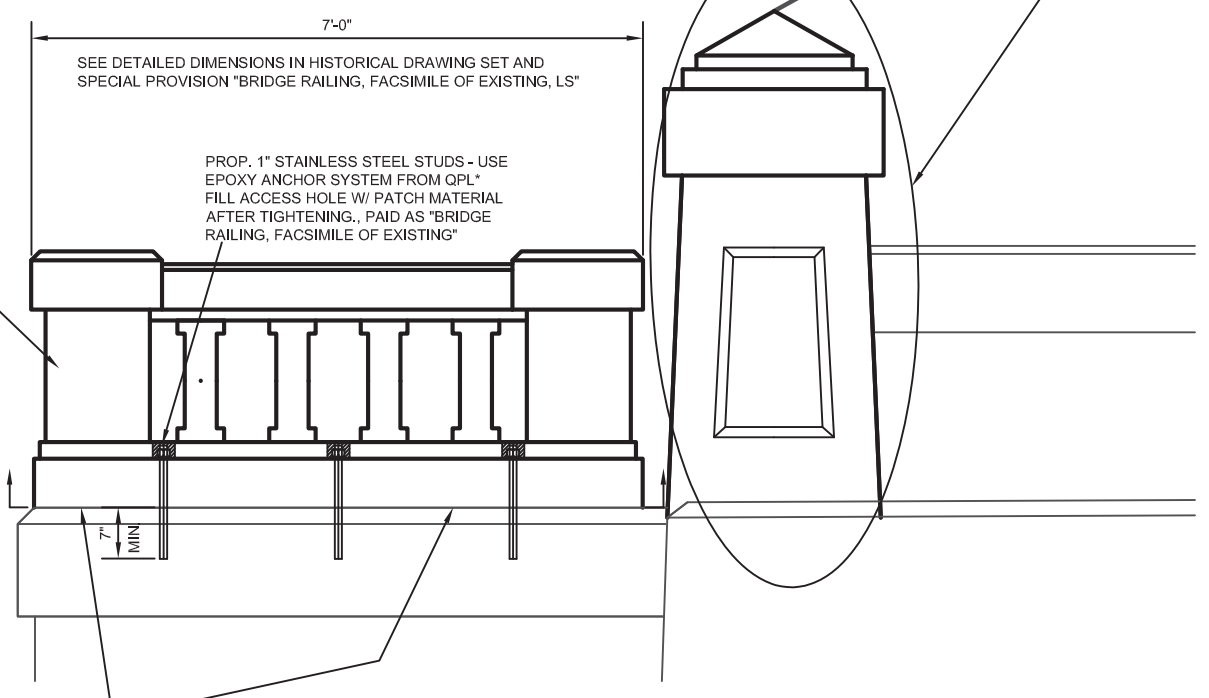
REPAIR LARGE BALUSTRADE AT N.E. QUADRANT OF BRIDGE - HAND CHIP UNSOUND CONCRETE TO DURABLE CONCRETE, FORM NEW BALUSTRADE TO MATCH ORIGINAL. ADD REINFORCEMENT STEEL AS DIRECTED. THESE APPLICABLE PAY ITEMS WILL BE APPLIED TO THIS AREA:

- "HAND CHIPPING, OTHER THAN DECK, CFT." (ACTUAL VOLUME REMOVED)
- "CONC. GRADE S2, MODIFIED, CYD" (ACTUAL VOLUME USED)

CONSTRUCT AN IDENTICAL COPY OF N.W. QUADRANT SMALL BALUSTRADE RAIL, PAID AS:

- "BRIDGE RAILING, FACSIMILE OF EXISTING, LS"
- "CONC. GRADE S2, MODIFIED, CYD"
- "STRUCTURES, REHABILITATION, REM PORTIONS, LS"

SEE HISTORICAL PLAN SHEETS FOR AND SPECIAL PROVISIONS FOR DETAILS



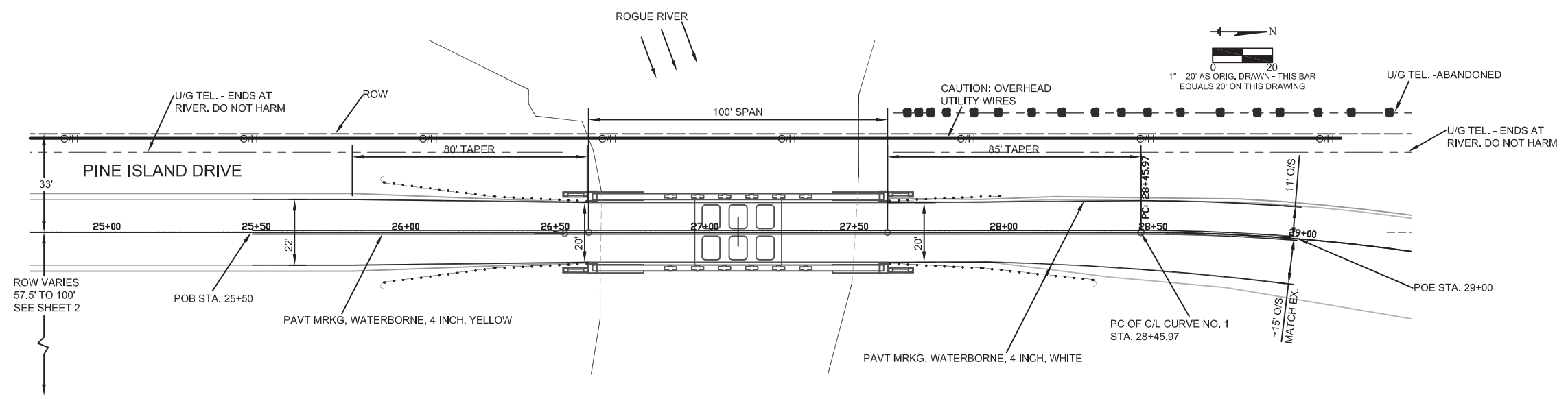
REMOVE N.W. QUADRANT SMALL BALUSTRADE RAIL. MAKE THE LIMITS OF REMOVAL SMOOTH AND LEVEL. REMOVAL PAID AS "STRUCTURES, REHABILITATION, REM PORTIONS, LS"

APPLY UNIFORM LAYER OF THIN-SET EPOXY MORTAR AS LEVELING AGENT IF PRECAST BRIDGE RAIL UNIT IS USED. INCLUDED AS A PART OF "BRIDGE RAILING, FACSIMILE OF EXISTING, LS"

### BRIDGE BALUSTRADE REPAIR DETAILS

APPLIES TO N.W. QUADRANT SMALL BALUSTRADE RAIL  
APPLIES TO N.E. QUADRANT LARGE BALUSTRADE

\* ALTERNATE MEANS OF ANCHORAGE MAY BE POSSIBLE, SUBJECT TO REVIEW AND APPROVAL BY ENGINEER. SEE SPECIAL PROVISION



### PROPOSED PAVEMENT MARKINGS

### BALUSTRADE REPAIRS / PERMANENT SIGNAGE & PAVEMENT MARKINGS

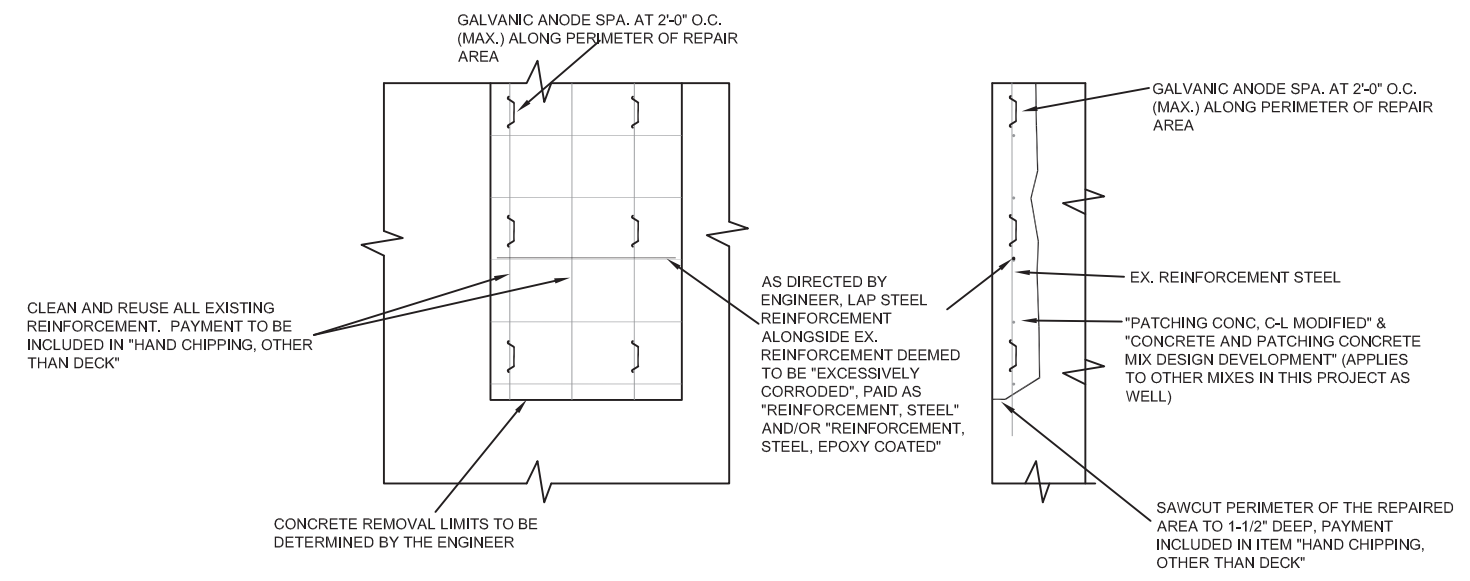
DATE: \*\* AS CONSTRUCTED BY: TENBROCK DATE: 1/14/14 SURVEYED BY: \*\*

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	6	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
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ESTIMATED QUANTITIES		
AMOUNT	UNIT	ITEM
60	CFT	HAND CHIPPING OTHER THAN DECK
250	SFT	PATCH, FORMING
3	CYD	PATCHING CONC, C-L
5	CYD	PATCHING CONC, C-L, MODIFIED
1	LS	CONCRETE AND PATCHING CONCRETE MIX DESIGN DEVELOPMENT
40	EA	EMBEDDED GALVANIC ANODE
20	SYD	HAND CHIPPING, SHALLOW
* 20	SYD	HAND CHIPPING, DEEP
* 200	LBS	REINFORCEMENT STEEL
* 200	LBS	REINFORCEMENT STEEL, EPOXY COATED

\* THESE ITEMS ADDED TO THE CONTRACT AS A CONTINGENCY.

"HAND CHIPPING, DEEP" MAY BE REQUIRED IN AREAS OF SEVERE DECK DISTRESS. LIKEWISE, THE REINFORCING STEEL ITEMS ARE ADDED IN THE EVENT SEVERELY CORRODED REINFORCING STEEL IS ENCOUNTERED



**TYPICAL CONCRETE REPAIRS FOR "HAND CHIPPING "OTHER THAN DECK"**

**NOTES:**

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 2'-0" X 4'-0" HIGH SECTIONS.

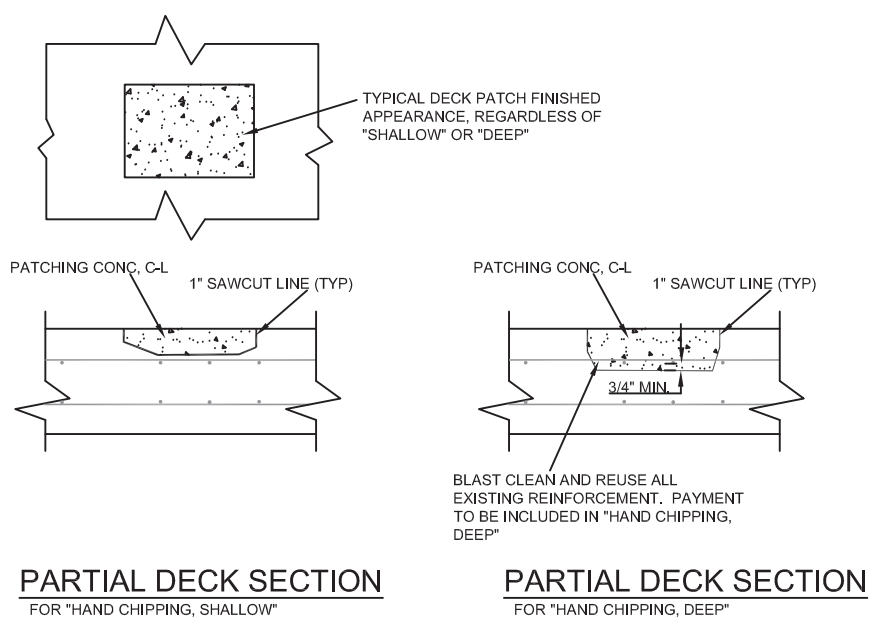
EMBEDDED GALVANIC ANODES SHALL BE INSTALLED ALONG EDGES OF SUBSTRUCTURE REPAIR AREAS.

SPALLED AREAS SHALL BE CLEANED TO REMOVE ALL UNSOUND CONCRETE. BLAST CLEAN ALL EXPOSED EXISTING REBAR, PAYMENT INCLUDED IN "HAND CHIPPING, OTHER THAN DECK".

FOR BEVEL AND MOLDING DETAILS, SEE STANDARD PLAN B0103 SERIES.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03.J OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEM "PATCHING CONC, C-L" FOR SUBSTRUCTURE REPAIR.

LOCATIONS AND REPAIRS AS DIRECTED BY THE ENGINEER.



**PARTIAL DECK SECTION**  
FOR "HAND CHIPPING, SHALLOW"

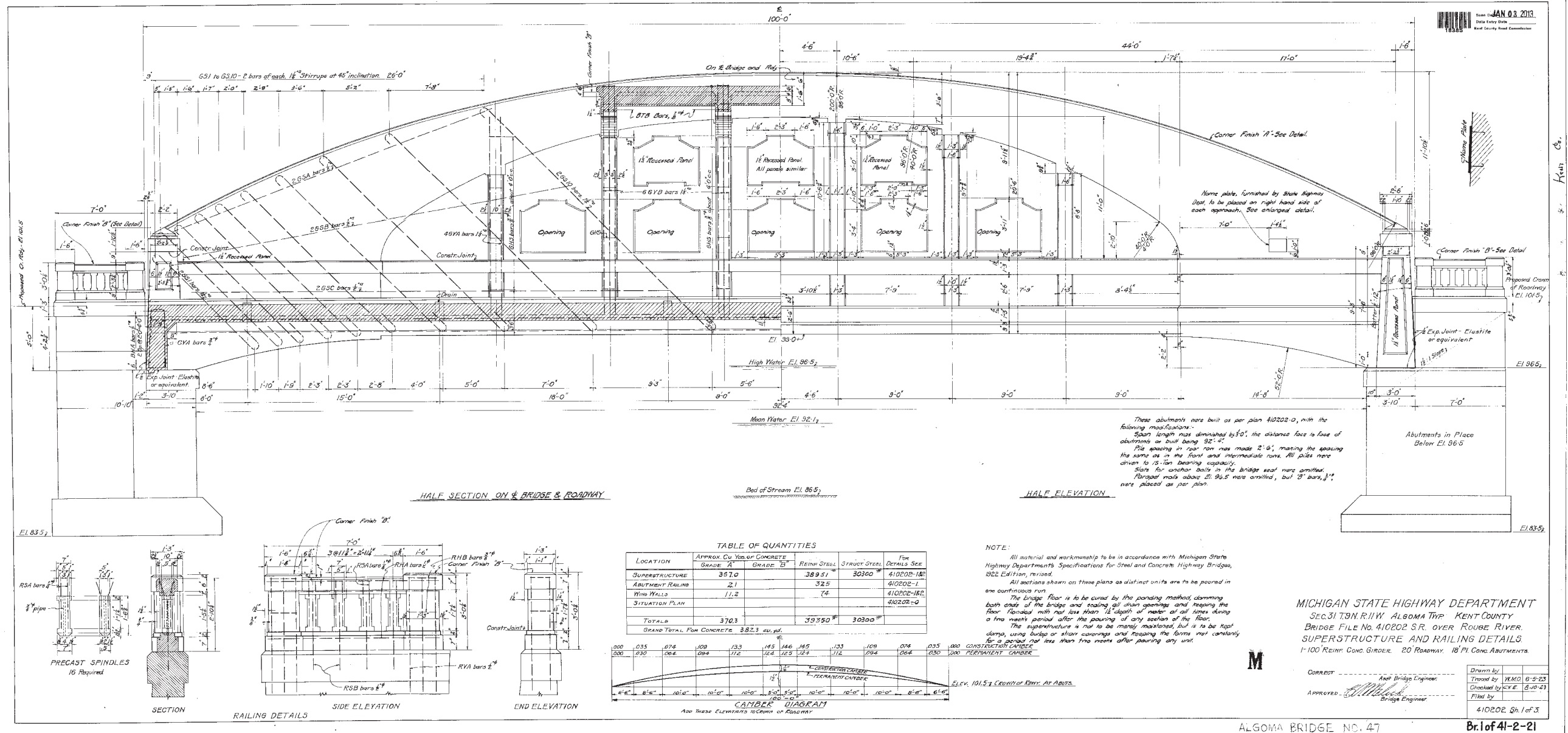
**PARTIAL DECK SECTION**  
FOR "HAND CHIPPING, DEEP"

DATE: \_\_\_\_\_ AS CONSTRUCTED BY: \_\_\_\_\_ PLAN PLOTTED BY: TENBROCK DATE: 2/14/14 SURVEYED BY: \*\* DATE: \*\*

**REPAIR DETAILS**

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	7	11
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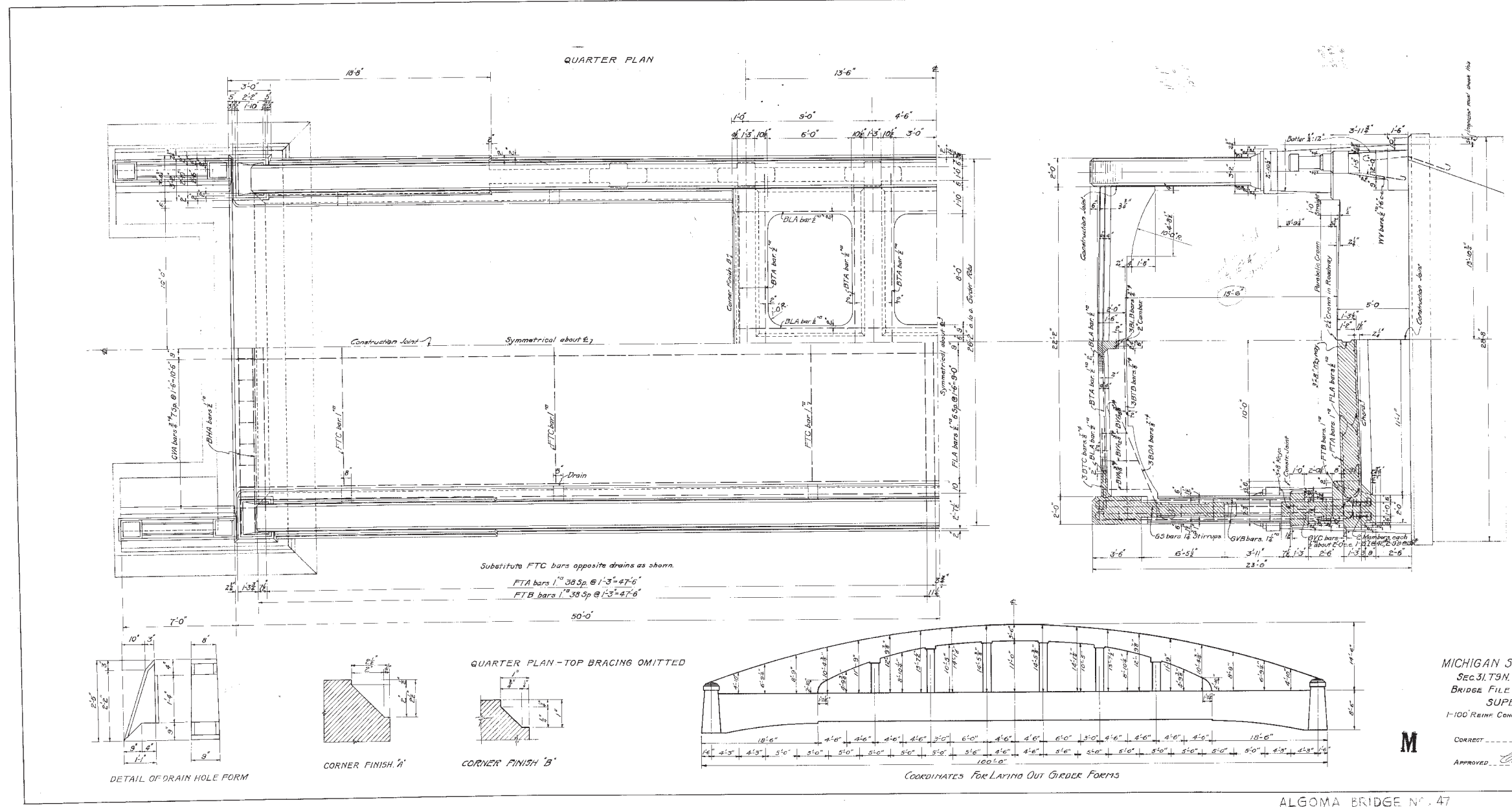
SURVEYED BY: \*\* DATE: \*\*  
 PLAN PLOTTED BY: TENBROCK DATE: 10/24/13  
 AS CONSTRUCTED BY: DATE:



ORIGINAL PLAN SHEET FROM 1924. PROVIDED FOR REFERENCE ONLY. THERE ARE NO WORK ITEMS PROVIDED ON THIS SHEET.

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	8	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

JAN 03 2013  
Date Entry Date  
Kent County Road Commission



MICHIGAN STATE HIGHWAY DEPARTMENT  
SEC. 31.75N. R. 11W. ALGOMA TWP. KENT COUNTY.  
BRIDGE FILE NO. 410202 S.R. OVER ROUSE RIVER.  
SUPERSTRUCTURE DETAILS  
1-100 REINF. CONC. GIRDER. 20' ROADWAY. 18' PI. CONC. ABUTMENTS.

**M**  
CORRECT  
Approved: *[Signature]* Bridge Engineer  
Checked by: *[Signature]* Bridge Engineer  
Filed by: *[Signature]*  
410202 Sh. 2 of 3

ALGOMA BRIDGE NO. 47 **Br. 1 of 41-2-21**

ORIGINAL PLAN SHEET FROM 1924. PROVIDED FOR REFERENCE ONLY. THERE ARE NO WORK ITEMS PROVIDED ON THIS SHEET.

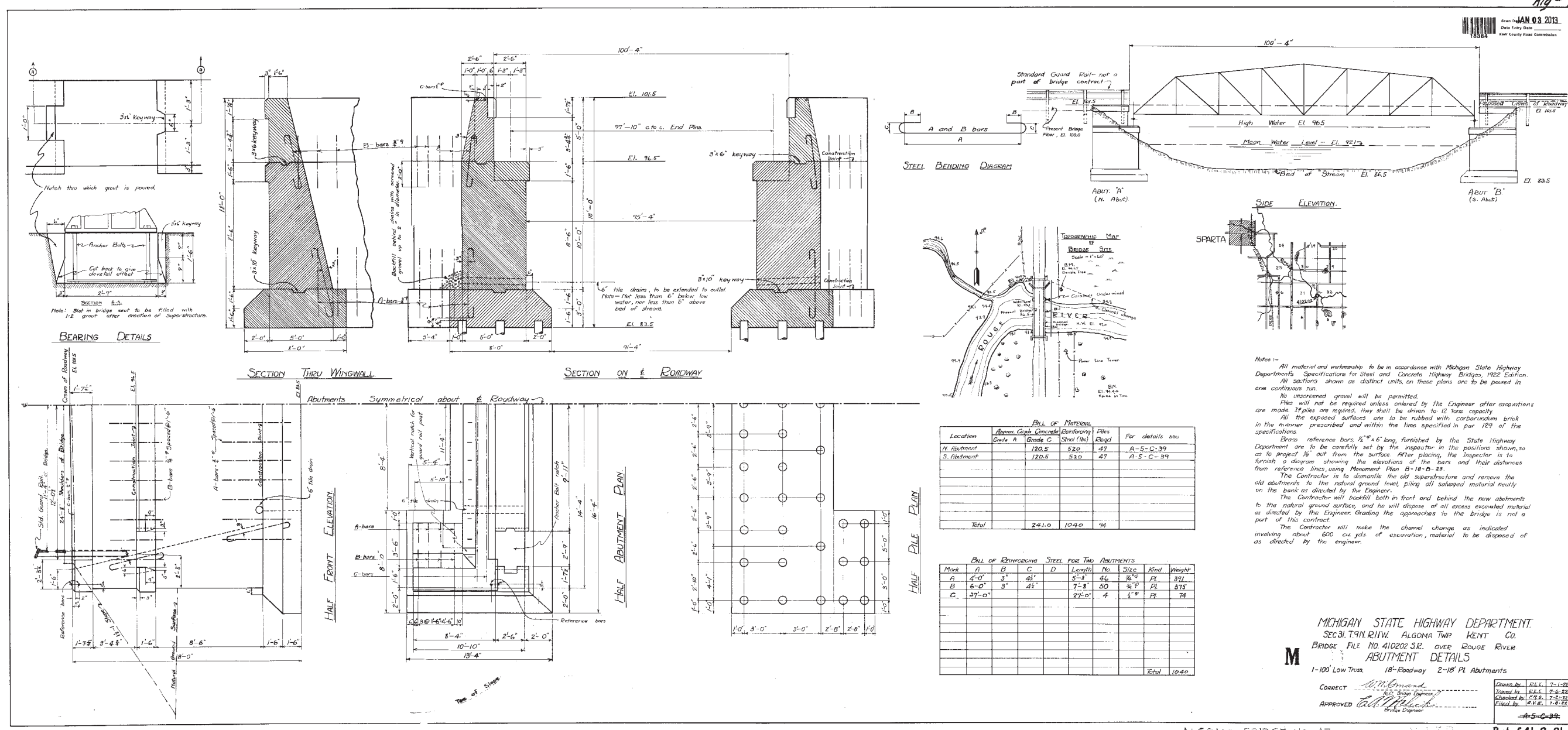
HISTORIC PLAN SHEET - FOR REFERENCE ONLY

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 PLAN PLOTTED BY: TENBROCK DATE: 10/24/13  
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 PLAN PLOTTED BY: \*\* DATE: \*\*  
 AS CONSTRUCTED BY: \*\* DATE: \*\*



**PILE OF MATERIALS**

Location	Approx. Cubic Concrete	Grade C	Steel (lbs)	Piles	For details see
N. Abutment	120.5	520	47		A-5-C-39
S. Abutment	120.5	520	47		A-5-C-39
<b>Total</b>	<b>241.0</b>	<b>1040</b>	<b>94</b>		

**PILE OF REINFORCING STEEL FOR TWO ABUTMENTS**

Mark	A	B	C	D	Length	No.	Size	Kind	Weight
A	4'-0"	3"	41"	5'-2"	46	36	PI		371
B	6'-0"	3"	41"	7'-8"	50	36	PI		375
C	27'-0"			27'-0"	4	1	PI		74
<b>Total</b>									<b>1040</b>

**Notes:-**  
 All material and workmanship to be in accordance with Michigan State Highway Department's Specifications for Steel and Concrete Highway Bridges, 1922 Edition.  
 All sections shown as distinct units, on these plans are to be poured in one continuous run.  
 No unscreened gravel will be permitted.  
 Piles will not be required unless ordered by the Engineer after excavations are made. If piles are required, they shall be driven to 12 tons capacity.  
 All the exposed surfaces are to be rubbed with carborundum brick in the manner prescribed and within the time specified in par 124 of the specifications.  
 Brass reference bars, 1/2" x 6" long, furnished by the State Highway Department are to be carefully set by the inspector in the positions shown, so as to project 18" out from the surface after placing. The inspector is to furnish a diagram showing the elevations of the bars and their distances from reference lines using Monument Plan B-18-D-23.  
 The Contractor is to dismantle the old superstructure and remove the old abutments to the natural ground level, piling all salvaged material neatly on the bank as directed by the Engineer.  
 The Contractor will backfill both in front and behind the new abutments to the natural ground surface, and he will dispose of all excess excavated material as directed by the Engineer. Grading the approaches to the bridge is not a part of this contract.  
 The Contractor will make the channel change as indicated involving about 600 cu yds of excavation, material to be disposed of as directed by the engineer.

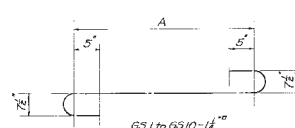
MICHIGAN STATE HIGHWAY DEPARTMENT.  
 SECT. T.9N. R.11W. ALGOMA TWP. KENT CO.  
 BRIDGE FILE NO. 410202 S.R. OVER ROUGE RIVER  
**ABUTMENT DETAILS**  
 1-100' Low Truss. 18'-Roadway 2-18' Pl. Abutments

CORRECT *[Signature]*  
 APPROVED *[Signature]*  
 Bridge Engineer

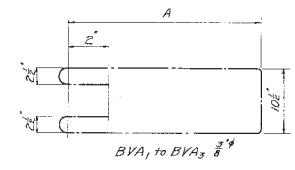
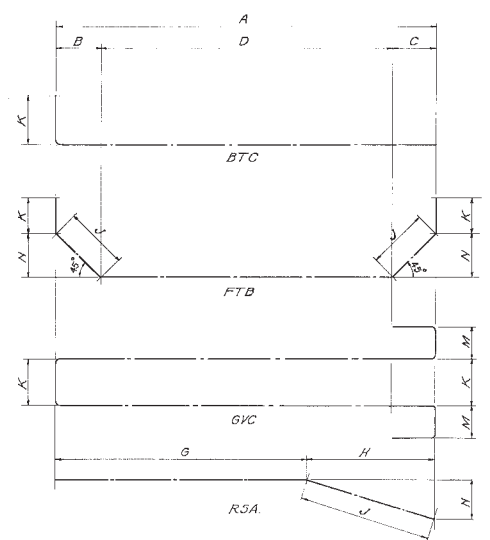
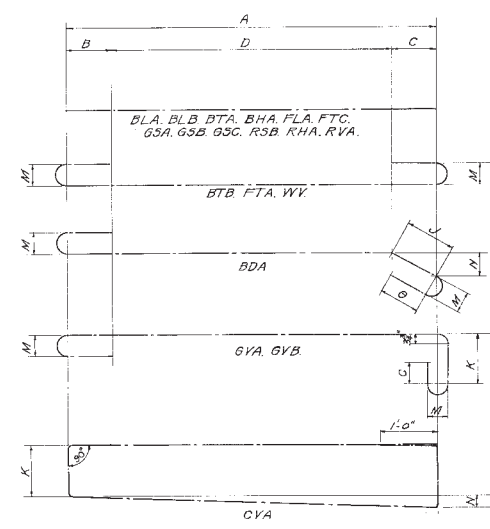
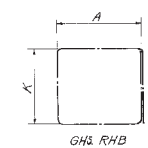
Drawn by: R.L.E. 7-1-22  
 Checked by: R.L.E. 7-6-22  
 Filed by: R.L.E. 7-6-22

ORIGINAL PLAN SHEET FROM 1924. PROVIDED FOR REFERENCE ONLY. THERE ARE NO WORK ITEMS PROVIDED ON THIS SHEET.

Scale 1/8" = 1'-0" JAN 03 2013  
 Kent County Road Commission

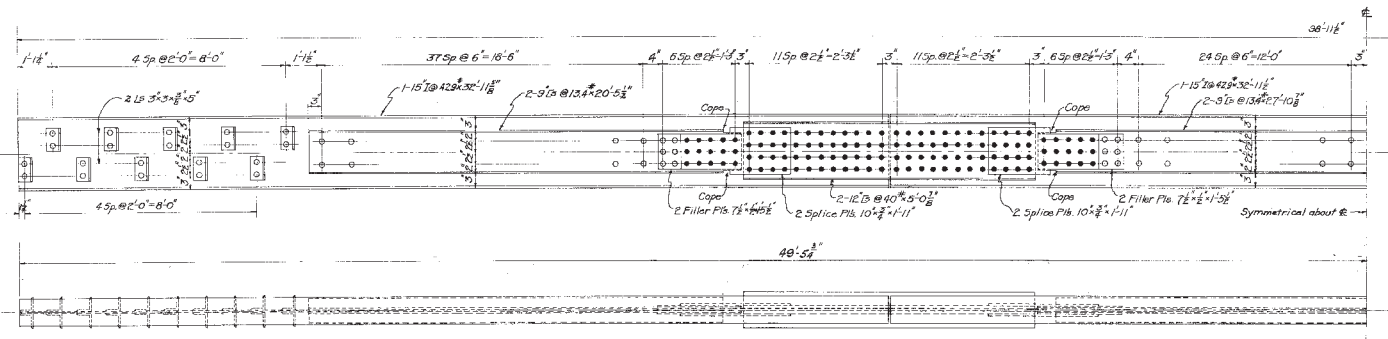


Mark	No.	A	Length	Weight
GS1	8	13'-0"	253	
GS2	8	15'-6"	659	
GS3	8	12'-0"	669	
GS4	8	12'-6"	707	
GS5	8	14'-6"	787	
GS6	8	15'-6"	779	
GS7	8	17'-1"	846	
GS8	8	12'-3"	838	
GS9	8	2'-8"	1040	
GS10	8	2'-4"	1161	
Total Wt.				8080



Mark	No.	A	Length	Weight
BVA	8	3'-6"	672	27
BVA	8	2'-7"	703	27
BVA	8	2'-0"	510	18
Total Weight				66

LOCATION	Mark	A	B	C	D	G	H	J	K	M	N	No.	Size	Length	Weight
<b>Floor</b>															
FLA	345											76	7/8	34'-8"	2710
FTA	246	4'-0"	4'-0"	4'-0"						1'-0"		76	7/8	34'-8"	8889
FTB		1'-5"	1'-5"	2'-4"					2'-0"	3'-0"		76	7/8	35'-4"	7870
FTC	19'-8"											6	1"	19'-8"	400
<b>Backwall</b>															
BHA	26'-6"											12	1/2"	26'-6"	270
CVA	4'-8"								1'-1"			32	3/8"	12'-8"	800
<b>Girder</b>															
GVA	15'-0"	5'	5'						1/8"	7/8"		40	7/8"	18'-8"	1580
GVC	4'-0"	5'	5'						5/8"	6/8"		100	7/8"	27'-1"	3380
GHS	1'-6"								1'-0"			56	3/8"	6'-0"	130
GS	See Diagram												1/2"		8080
GSA	28'-0"											8	1/2"	28'-0"	190
GSB	37'-0"											8	1/2"	37'-0"	210
GSC	38'-0"											8	1/2"	38'-0"	260
<b>Top Bracing</b>															
BTA	26'-2"											8	1/2"	26'-2"	164
BLA	28'-3"											4	1/2"	28'-3"	37
BTC	6'-6"								2'-0"			26	3/8"	8'-6"	420
BLB	27'-11"											3	3/8"	27'-11"	126
BTD	25'-2"	4'	4'						6'			12	3/8"	27'-5"	674
BDA	8'-8"	1'	7'						6'	4'		26	3/8"	17'-0"	545
BVA	See Diagram												3/8"		66
<b>Ying Wall</b>															
WY	2'-4"	3'	3'									24	3/8"	3'-7"	74
<b>Railing</b>															
R3A			3'	3'		1'-4"	8'	6'	3'			2	6/8"	1'-0"	20
RSB	3'-0"											16	2"	3'-0"	30
RHA	6'-6"											24	2"	6'-6"	100
RHB	1'-0"								3'			16	3/8"	4'-0"	27
RVA	4'-3"											48	1/2"	4'-3"	152
Total Weight															39350



DETAILS OF STRUCTURAL STEEL REINFORCING MEMBER  
 4 Required

All material and workmanship to be in accordance with Michigan State Highway Department's General Specifications for Steel and Concrete Highway Bridges, 1922 Edition, Revised Rivers, 1 1/4" Open Holes 3/16" No painting is required.

Estimated Structural Steel - 30,300#

MICHIGAN STATE HIGHWAY DEPARTMENT  
 Sec 31, T3N. R. 11W. ALGOMA TWP. KENT COUNTY  
 BRIDGE FILE No. 410202 S.R. OVER ROUGE RIVER  
 BAR BILL AND STRUCTURAL STEEL DETAILS  
 1-100 REINF. CONC. GIRDER, 20' ROADWAY, 18" PL. CONC. ABUTMENTS.

CORRECT  
 Asst. Bridge Engineer  
 APPROVED  
 Bridge Engineer

Drawn by WMO 6-29-25  
 Traced by  
 Checked by C.V.E. 8-10-23  
 Filled by  
 410202 Sh. 3 of 3

ALGOMA BRIDGE No. 47

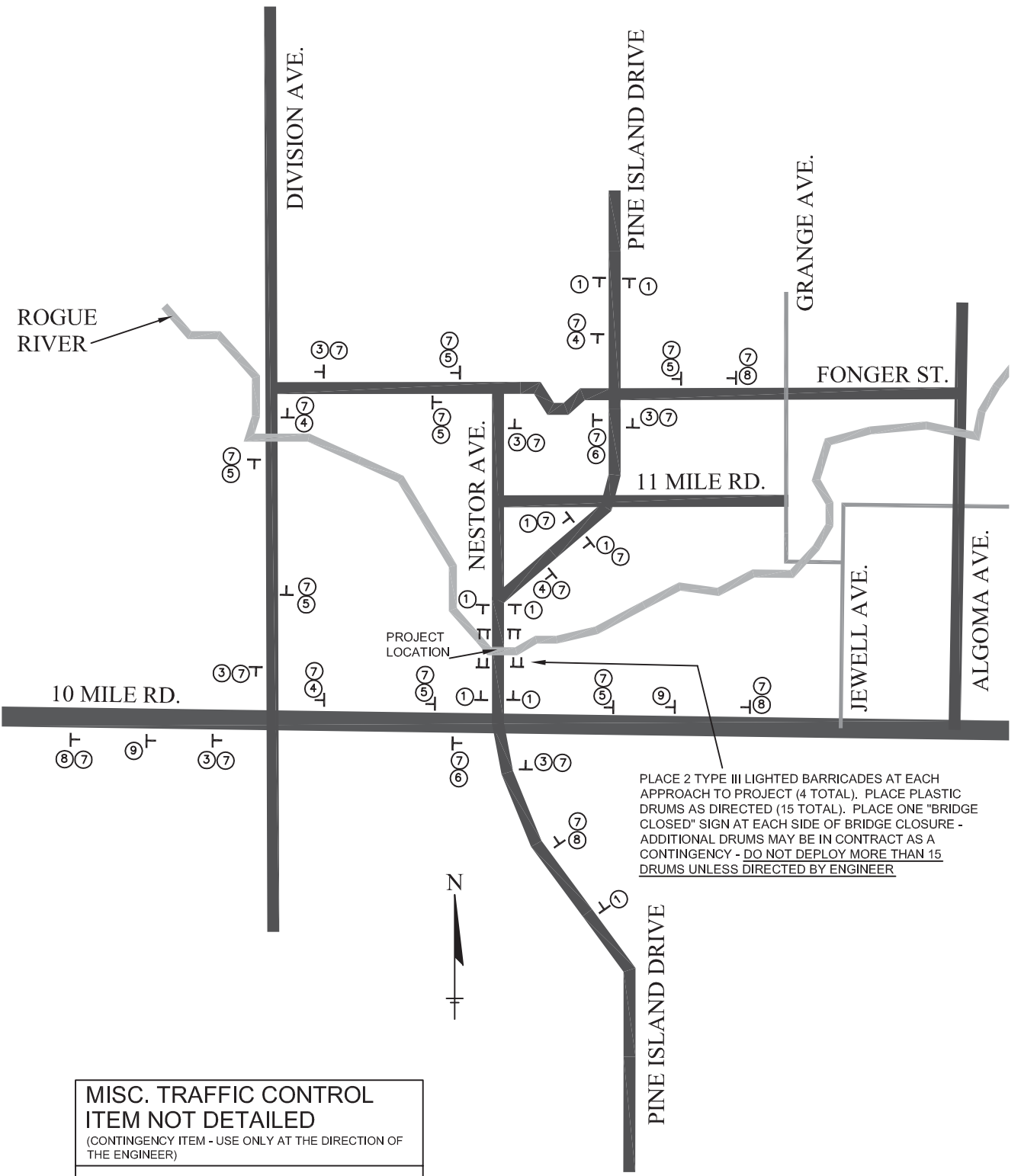
Dr. 1 of 41-2-21

ORIGINAL PLAN SHEET FROM 1924. PROVIDED FOR REFERENCE ONLY. THERE ARE NO WORK ITEMS PROVIDED ON THIS SHEET.

DATE: AS CONSTRUCTED BY: SURVEYED BY: \*\* DATE: \*\* PLAN PLOTTED BY: TENBROCK DATE: 10/24/13

F.H.W.A. REG. NO.	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
5	MICH.	ALGOMA NO. 47 PINE ISLAND DRIVE	11	11
YEAR BUILT	COUNTY	CONTROL SECTION	JOB NO.	
	KENT		119727A	

SURVEYED BY: \*\* DATE: \*\*  
 PLAN PLOTTED BY: TENBROCK DATE: 1/14/14  
 AS CONSTRUCTED BY: DATE:



PLACE 2 TYPE III LIGHTED BARRICADES AT EACH APPROACH TO PROJECT (4 TOTAL). PLACE PLASTIC DRUMS AS DIRECTED (15 TOTAL). PLACE ONE "BRIDGE CLOSED" SIGN AT EACH SIDE OF BRIDGE CLOSURE - ADDITIONAL DRUMS MAY BE IN CONTRACT AS A CONTINGENCY - DO NOT DEPLOY MORE THAN 15 DRUMS UNLESS DIRECTED BY ENGINEER

MISC. TRAFFIC CONTROL ITEM NOT DETAILED	
(CONTINGENCY ITEM - USE ONLY AT THE DIRECTION OF THE ENGINEER)	
ITEM	ESTIMATED QTY.
TRAFFIC CONTROL REGULATOR, LS	1

SIGN, TYPE B, TEMP

SCHEDULE	SIGN	QUANTITY	SFT.	TOTAL SFT.
1	ROAD CLOSED AHEAD W20-1A 48" x 48"	9	16	144
2	BRIDGE CLOSED R-112B 60" x 30"	2	12.5	25
3	DETOUR M4-9 30" x 24"	6	5	30
4	DETOUR M4-9 30" x 24"	4	5	20
5	DETOUR M4-9 30" x 24"	7	5	35
6	DETOUR M4-9 24" x 18"	2	3	6
7	PINE ISLAND DR. D3-2 24" x 6"	25	1	25
8	DETOUR AHEAD W20-1A 48" x 48"	4	16	64
9	PINE ISLAND BRIDGE CLOSED - FOLLOW DETOUR SPECIAL 60" x 36"	1	15	15
TOTAL:				364

ESTIMATED PROJECT QUANTITIES

CATEGORY	ITEM NO.	DESCRIPTION	NOTES	UNITS	EST. QTY.
1	2040035	Guardrail, Rem		Ft	200
1	2080036	Erosion Control, Silt Fence		Ft	500
1	5010057	HMA, 5E3		Ton	35
1	5017011	Cold Milling HMA Surface, Modified		Syd	550
1	8070000	Guardrail, Type B		Ft	138
1	8070040	Guardrail Approach Terminal, Type 1B	(SRT)	Ea	3
1	8070080	Guardrail Reflector		Ea	50
1	8077050	Guardrail, Anch, Bridge, Det T-3, Modified		Ea	4
1	8077050	Guardrail, Splice, Proposed to Existing		Ea	1
1	8160027	Mulch Blanket		Syd	300
1	8160028	Mulch Blanket, High Velocity		Syd	200
1	8160035	Seeding, Mixture CR		Lb	25
2	1500001	Mobilization, Max. _____		LS	1
2	2017002	Clearing, Modified		Sta	2
2	2097051	Project Cleanup, Modified (Min. \$5,000)		LS	1
2	7060090	Reinforcement, Steel		Lb	200
2	7060092	Reinforcement, Steel, Epoxy Coated		Lb	200
2	7067011	Penetrating Floodcoat On Bridge Deck		Syd	230
2	7067021	Conc, Grade S2, Modified		Cyd	5
2	7067051	Bridge Cleaning, Modified		LS	1
2	7067051	False Decking, Modified		LS	1
2	7067051	Concrete and Patching Concrete Mix Design Development		LS	1
2	7120003	Hand Chipping, Shallow		Syd	20
2	7120004	Hand Chipping, Deep		Syd	20
2	7120007	Hand Chipping, Other Than Deck		Cft	60
2	7120017	Patch, Forming		Sft	250
2	7120033	Adhesive Anchoring of Vertical Bar, 5/8 inch		Ea	50
2	7120070	Structures, Rehabilitation, Rem Portions		LS	1
2	7120112	Patching Conc, C-L		Cyd	3
2	7120120	Embedded Galvanic Anode		Ea	120
2	7127021	Patching Conc, C-L, Modified		Cyd	5
2	7127050	Adhesive Anchoring of Horizontal Bar, 5/8 inch		Ea	25
2	7127051	Bridge Railing, Facsimile of Existing		LS	1
2	8120020	Barricade, Type III, High Intensity, Furn		Ea	8
2	8120021	Barricade, Type III, High Intensity, Oper		Ea	8
2	8120170	Minor Traf Devices		LS	1
2	8120250	Plastic Drum, High Intensity, Furn		Ea	20
2	8120251	Plastic Drum, High Intensity, Oper		Ea	20
2	8120350	Sign, Type B, Temp, Prismatic, Furn		Sft	364
2	8120351	Sign, Type B, Temp, Prismatic, Oper		Sft	364
2	8120370	Traffic Regulator Control		LS	1

TRAFFIC CONTROL / ESTIMATE OF PLAN QUANTITIES