12/23/2003

BRIDGE REHABILITATION
LETTING DATE

BRFN-075-2(66)--39-75

i:\Dept\GJ\6060-08\Plymouth\1104\Struct\H75I104.s00

PLYMOUTH COUNTY

PLYMOUTH COUNTY - DESIGN NO. 1104

## CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- (000) INTERSTATE HIGHWAY
- 000 UNITED STATES HIGHWAY
- (000) STATE HIGHWAY
- 000 COUNTY HIGHWAY
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

**Iowa Department of Transportation**
*Highway Division*

PLANS OF PROPOSED IMPROVEMENTS ON THE

# PRIMARY ROAD SYSTEM

# PLYMOUTH COUNTY

## BRIDGE REHABILITATION

## *ON U.S.75 OVER*

## *WEST FORK FLOYD RIVER IN MERRILL*

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

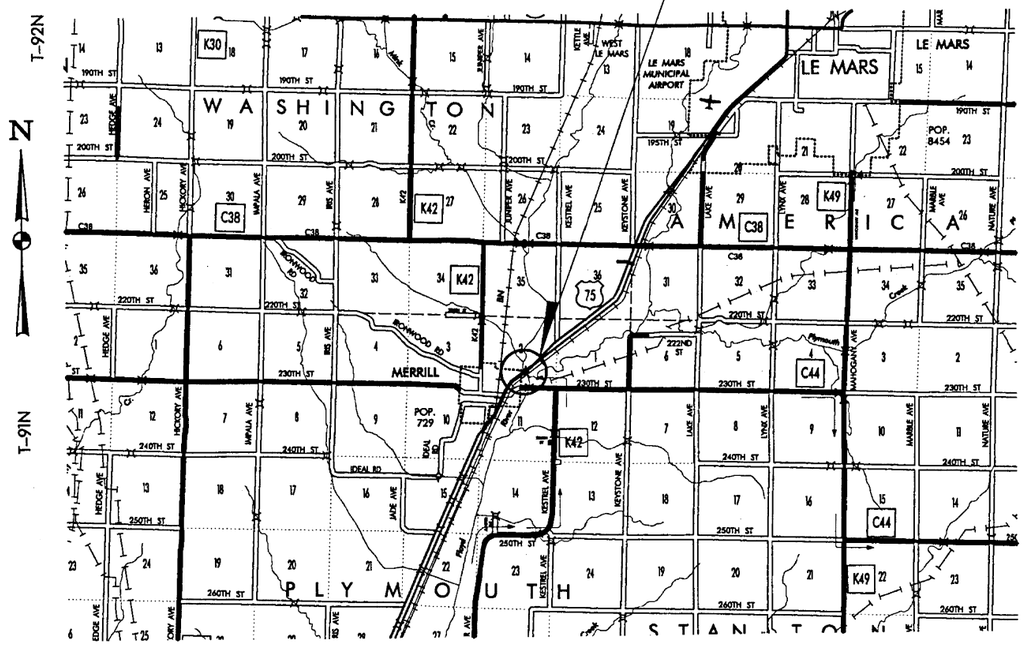
VALUE ENGINEERING SAVES. REFER TO THE GENERAL NOTES IN THESE PLANS.

| TOTAL SHEETS |
|---|
| 21 |
| PROJECT NUMBER |
| BRFN-075-2(66)--39-75 |
| R.O.W. PROJECT NUMBER |
| |
| PROJECT IDENTIFICATION NUMBER |
| 01-75-075-020 |

## INDEX OF SHEETS


| NO. | DESCRIPTION |
|---|---|
| 1 | TITLE SHEET |
| 2 | BRIDGE ESTIMATE SHEET |
| 2-11 | BRIDGE DESIGN NO. 1104 |
| 12 | ROAD ESTIMATE SHEET |
| 12-19 | ROAD SHEETS |
| 20-21 | TRAFFIC CONTROL |


DESIGN NO. 1104




LOCATION MAP

74/KSB

150

## THIS AS BUILT PLAN INCLUDES

| YEAR | WORK | CONTRACTOR | PROJ. INSPECTOR |
|---|---|---|---|
| 2004 | Bridge Rehabilitation | Cramer & Assoc, Inc | Jeff Marineau |
| | | | |
| | | | |

## CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Darwin L. Bishop
Resident Construction Engineer

Date 1/27/05 Iowa Reg. No. 12844

REVIEWED AND FORWARDED TO AMES

District Construction Engineer Date

One 50% Reduced and Two Full-Size Prints To Be Made and Returned To

District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO DISTRICT NO. 3

DARWIN L. BISHOP 12844 LICENSED PROFESSIONAL ENGINEER IOWA

## STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET 13

## DESIGN DATA RURAL

1999 AADT 8500 V.P.D.

REVISIONS

## INDEX OF SEALS

| SHEET NO. | NAME | TYPE |
|---|---|---|
| 1 | STANLEY T. STALLSMITH | PRIMARY SIGNATURE BLOCK |
| 12 | JAMES L. AUDINO | ROADWAY DESIGN |
| 20 | TIMOTHY CROUCH | TRAFFIC CONTROL |
| | | |
| | | |
| | | |
| | | |
| | | |

STANLEY T. STALLSMITH 12571 LICENSED PROFESSIONAL ENGINEER IOWA

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.

Stanley T. Stallsmith 12/23/03

Stanley T. Stallsmith, P.E. Date

License Number 12571

My license renewal date is December 31, 2004

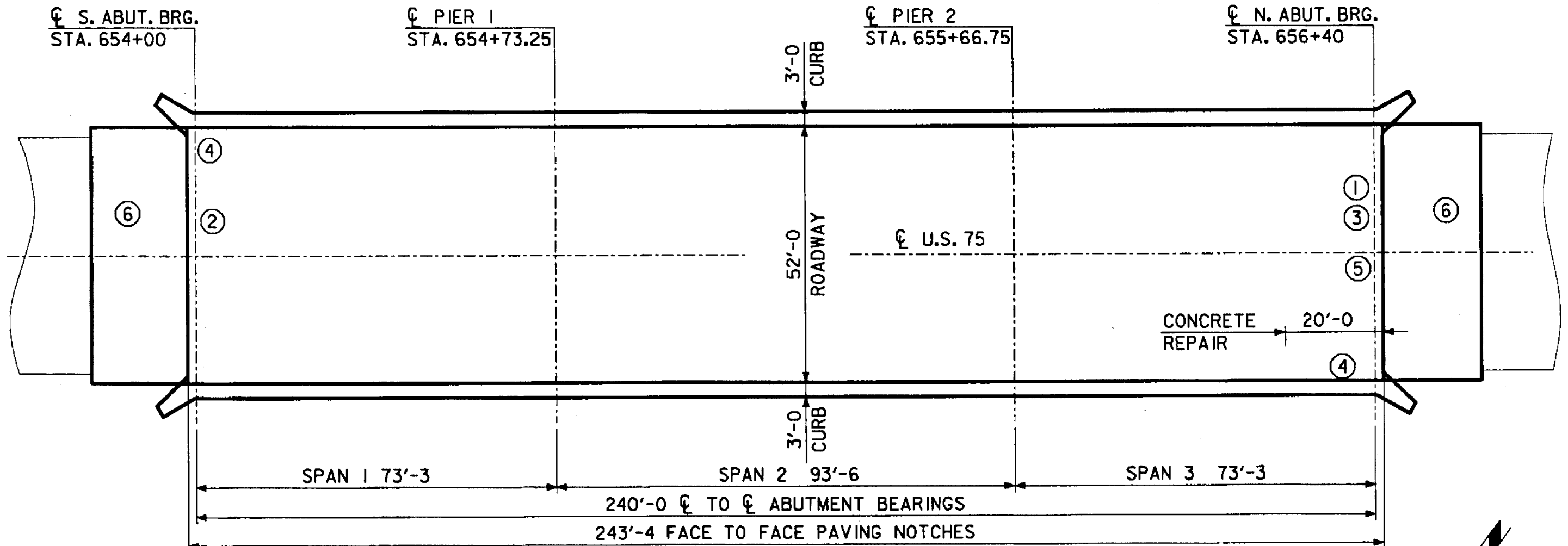
Pages or sheets covered by this seal:
SHEETS 1 THRU 11 OF 21

PROJECT DIRECTORY NAME: 7507502001

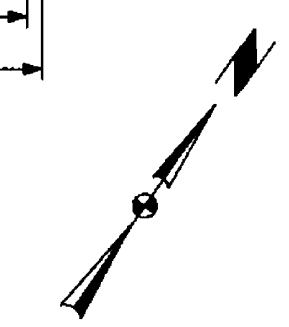
| DESIGN TEAM: WHKS & CO. | ENGLISH | IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES | FILE NO. 29950 | PLYMOUTH COUNTY | PROJECT NUMBER: BRFN-075-2(66)--39-75 | SHEET NUMBER 1 |
|---|---|---|---|---|---|---|

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

Copy




## SITUATION PLAN



## ESTIMATED BRIDGE QUANTITIES

| ITEM NO. | ITEM CODE | ITEM | UNIT | TOTAL | AS BUILT QUANTITY |
|---|---|---|---|---|---|
| 1 | 2401-6750001 | REMOVALS, AS PER PLAN | LS | 1.000 | 1.000 |
| 2 | 2402-2720000 | EXCAVATION, CLASS 20 | CY | 24.000 | 24.000 |
| 3 | 2403-0100000 | STRUCTURAL CONCRETE (MISCELLANEOUS) | CY | 24.600 | 29.250 |
| 4 | 2404-7775005 | REINFORCING STEEL, EPOXY COATED | LB | 2869.000 | 2,869.000 |
| 5 | 2413-1200000 | STEEL EXTRUSION JOINT WITH NEOPRENE | LF | 54.000 | 54.000 |
| 6 | 2426-6772016 | CONCRETE REPAIR | SF | 24.000 | 24.000 |
| 7 | 2499-0700070 | BRIDGE RAISING | LS | 1.000 | 1.000 |
| 8 | 2508-0805000 | BLAST CLEANING OF STRUCTURAL STEEL | LS | 1.000 | 1.000 |
| 9 | 2508-0970000 | CONTAINMENT | LS | 1.000 | 1.000 |
| 10 | 2508-0991000 | PAINTING OF STRUCTURAL STEEL | LS | 1.000 | 1.000 |
| 11 | 2528-8400048 | TEMPORARY BARRIER RAIL, CONCRETE | LF | 1225.000 | 1,225.000 |
| 12 | 2533-4980005 | MOBILIZATION | LS | 1.000 | 1.000 |
| 13 | 2599-9999010 | BEARING RESETTING | LS | 1.000 | 1.000 |

*EXTRA WORK ORDERS SEE BELOW*

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

| ITEM NO. | DESCRIPTION |
|---|---|
| 2 | INCLUDES COST OF FURNISHING AND INSTALLING GRANULAR BACKFILL AND SPECIAL BACKFILL. INCLUDES COST OF SHORING DURING STAGED CONSTRUCTION. |
| 3 | INCLUDES FURNISHING AND PLACING CONCRETE SEALER. |
| 4 | INCLUDES MECHANICAL SPLICE ASSEMBLIES AS REQUIRED |
| 11 | ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 12'-6 LONG CONCRETE UNITS. |
| 13 | INCLUDES COST OF FURNISHING AND INSTALLING THE 1" X 1" BARS ATTACHED TO THE EXISTING ANCHOR BARS. |

## GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 240'-0 x 52' CONTINUOUS I-BEAM BRIDGE OVER THE WEST FORK FLOYD RIVER IN PLYMOUTH COUNTY. COPIES OF THE ORIGINAL PLANS, PRIOR DECK OVERLAY, AND RETROFIT BARRIER RAIL PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES.

REPAIR SHALL CONSIST OF:

1. INSTALLING NEW STEEL EXTRUSION WITH NEOPRENE SEALS AT THE NORTH ABUTMENT.
2. RECONSTRUCTING THE ABUTMENT BACKWALL AT THE SOUTH ABUTMENT TO BOTTOM OF THE DIAPHRAGM INCLUDING PORTIONS OF CURB AND BARRIER RAIL AT EACH END.
3. REPLACING THE ABUTMENT BACKWALL AT THE NORTH ABUTMENT TO TOP OF FOOTING. REPLACING SLAB DIAPHRAGM AND PORTIONS OF SLAB, CURB AND BARRIER RAIL AT NORTH ABUTMENT
4. REPAIRING SPALLED CONCRETE ON CURB AT NORTHEAST CORNER AND SOUTH ABUTMENT NEAR GIRDER #1, AT SOUTHWEST CORNER.
5. RESETTING MASONRY PLATES AT THE NORTH ABUTMENT
6. REPLACING PORTION OF APPROACH PAVEMENT AT BOTH ENDS OF BRIDGE.
7. ZONE AND SPOT PAINTING

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION IN RELATION TO EXISTING PORTIONS OF THE STRUCTURE SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE STARTING DATE.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.09, THE VERTICAL, ROADWAY FACE AND THE TOP OF THE EXISTING CONCRETE BARRIER RAILS, BOTH ABUTMENT BRIDGE SEATS AND ONE FOOT UP THE BACKWALL FROM THE BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.21 (D). SEE DES. SHT. 6 FOR CONCRETE SEALER DETAIL.

THE EXISTING EXPANSION JOINT AT THE NORTH ABUTMENT SHALL BE REPLACED WITH STEEL EXTRUSIONS WITH NEOPRENE JOINTS AS SHOWN IN THESE PLANS. THE EXPANSION ANGLES ARE TO BECOME THE PROPERTY OF THE CONTRACTOR.

CONSTRUCTION SHALL BE DONE IN STAGES WITH AT LEAST ONE LANE TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH 'TRAFFIC CONTROL PLAN' NOTE.

THE PRICE BID FOR 'REMOVALS, AS PER PLAN' SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE BACKWALL AND BARRIER RAIL END SECTIONS AND PORTIONS OF THE SLAB, CURB, BARRIER RAIL AND THE EXISTING EXPANSION DEVICE AT THE NORTH ABUTMENT AND PORTIONS OF THE BACKWALL AND BARRIER RAIL END SECTIONS AT THE SOUTH ABUTMENT. THE DISMANTLED MATERIAL IS TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

CLASS 20 EXCAVATION QUANTITY IS BASED ON THE EXCAVATION LIMITS AND DIMENSIONS SHOWN IN 'BACKFILL DETAIL ON DES. SHT. 2.

IT WILL BE NECESSARY TO SUPPORT THE EARTH AND/OR GRANULAR MATERIAL BEHIND THE ABUTMENT DURING RECONSTRUCTION OF THE ABUTMENT BACKWALLS BY SOME METHOD APPROVED BY THE ENGINEER. ALL COSTS FOR SUPPORTING THE EARTH AND/OR GRANULAR MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR 'CLASS 20 EXCAVATION'.

IT SHALL BE THE BRIDGE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SITES FOR EXCESS EXCAVATED MATERIAL.

NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES'.

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

EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK WHERE NOTED OR SHOWN. REINFORCING BARS WHICH ARE DAMAGED OR RENDERED UNSERVICEABLE BY REMOVAL OPERATIONS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

## PAINTING NOTES:

SPOT CLEANING AND PAINTING OF THE FOLLOWING AREAS OF THE BRIDGE SHALL BE DONE IN ACCORDANCE WITH ARTICLE 2508 OF THE SPECIFICATIONS:

A. ALL STEEL IN THE END TWO FEET OF EACH GIRDER AT BOTH ABUTMENTS, INCLUDING THE BEARINGS AND STIFFENER PLATES.
B. NUMEROUS RUSTED AREAS, AS DESIGNATED BY THE ENGINEER, ON EAST EXTERIOR GIRDER IN SPANS 2 AND 3, (APPROXIMATELY 167 SQUARE FEET).
C. EAST EDGE OF SLAB BEAM IN SPANS 1 AND 3, (APPROXIMATELY 147 SQUARE FEET).
D. EAST EDGE OF CURB BEAM IN SPAN 1, (APPROXIMATELY 73 SQUARE FEET).
E. PIER BEARINGS, INCLUDING ANCHOR BOLTS.

SEE DES. SHT. 6 FOR LOCATION OF SLAB BEAM AND CURB BEAM.

THE SPOT CLEANING SHALL BE DONE BY THE BLAST CLEANING METHOD IN ACCORDANCE WITH SUB-ARTICLE 2508.01.A.3.B(1). PAINTING REQUIREMENTS FOR THIS STRUCTURE SHALL BE IN ACCORDANCE WITH SUB-ARTICLE 2508.02.D(3) FOR A ZINC SILICATE PRIMER WITH A WATERBORNE ACRYLIC TOP COAT PAINT SYSTEM.

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 1075 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 775 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 DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

SPECIFICATIONS:
THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1996, PLUS CURRENT INTERIM SPECIFICATIONS.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10, ASTM A-36.

## EXTRA WORK ORDERS

| NO. | DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 1 | BLAST CLEAN STRUCTURAL STEEL | EACH | 1 |
| 2 | PAINTING STRUCTURAL STEEL | EACH | 1 |
| 3 | BEARING RESETTING | LS | 1 |
| | | | |

## LOCATION:

MAINT. NO. 7512.6S075
ON U.S.75 OVER THE
WEST FORK FLOYD RIVER
T-91N, R-46W
SECTION 2
PLYMOUTH TOWNSHIP
PLYMOUTH COUNTY
FHWA #039600

## DESIGN HISTORY AT THIS SITE

| DES. NO. | TYPE OF WORK |
|---|---|
| 255 | ORIGINAL DESIGN |
| 482 | OVERLAY |
| 396 | RETROFIT BARRIER RAIL |
| 104 | BACKWALL REPAIR |

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

TRAFFIC CONTROL PLAN:
THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN SHOWN ELSEWHERE IN THESE PLANS.

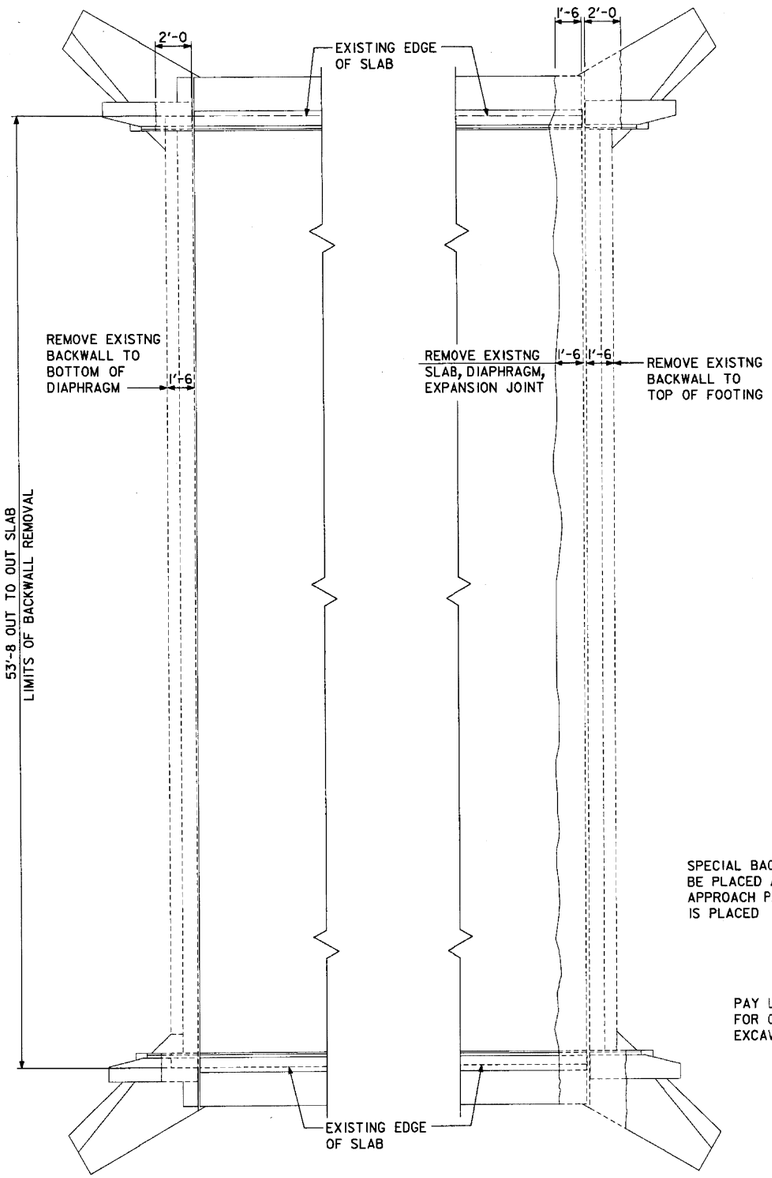
THE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

DESIGN FOR REPAIRS TO 0° SKEW
# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE
OVER WEST FORK FLOYD RIVER
73'-3 END SPANS — 93'-6 CENTER SPAN
# SITUATION PLAN & QUANTITIES
STATION: 655+20 — OCTOBER, 2003
## PLYMOUTH COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 10 FILE NO. 29950 DESIGN NO. 1104

WHKS & CO.
ENGINEERS — PLANNERS — LAND SURVEYORS
MASON CITY, IA — DUBUQUE, IA — AMES, IA — ROCHESTER, MN — EAST DUBUQUE, IL

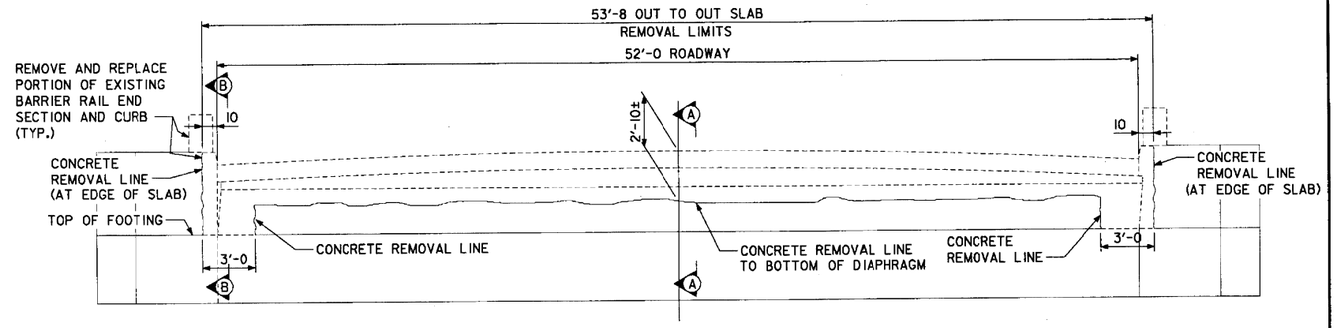
DESIGNED BY S.T.S. CHECKED BY D.J.T.
DETAILED BY T.E.A. CADD FILE H751104.S01

12/19/2003
I:\dept\65\6060-08\plymouth\1104\struct\h75_104.s02

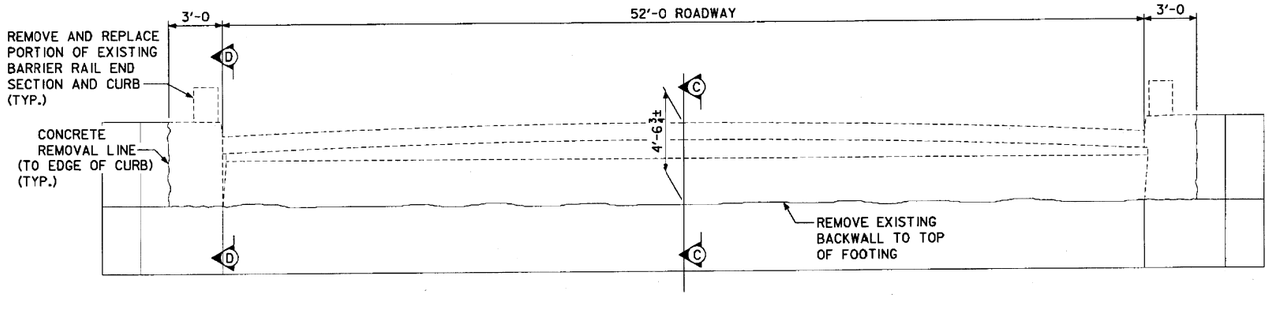



SOUTH ABUT. NORTH ABUT.

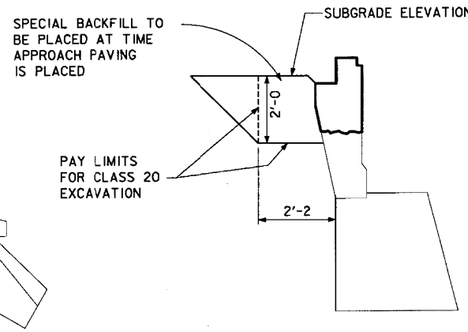
ABUTMENT PLAN VIEW




REAR ELEVATION AT SOUTH ABUTMENT

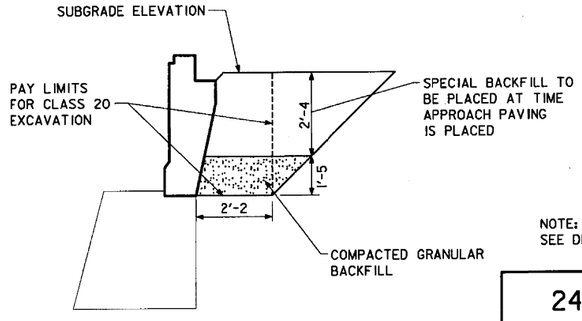



REAR ELEVATION AT NORTH ABUTMENT




BACKFILL DETAILS
SOUTH ABUTMENT

NOTE: THE COST OF FURNISHING AND PLACING SPECIAL BACKFILL IS TO BE INCLUDED IN THE PRICE BID FOR "EXCAVATION, CLASS 20". NO EXTRA PAYMENT WILL BE MADE.




BACKFILL DETAILS
NORTH ABUTMENT

NOTES: SPECIAL BACKFILL MAY BE SUBSTITUTED FOR GRANULAR BACKFILL

NOTE:
SEE DESIGN SHEET 3 FOR SECTIONS A-A, B-B, C-C & D-D.

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS 93'-6 CENTER SPAN

## ABUTMENT REMOVAL DETAILS

STATION: 655+20 OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 10 FILE NO. 29950 DESIGN NO. 1104

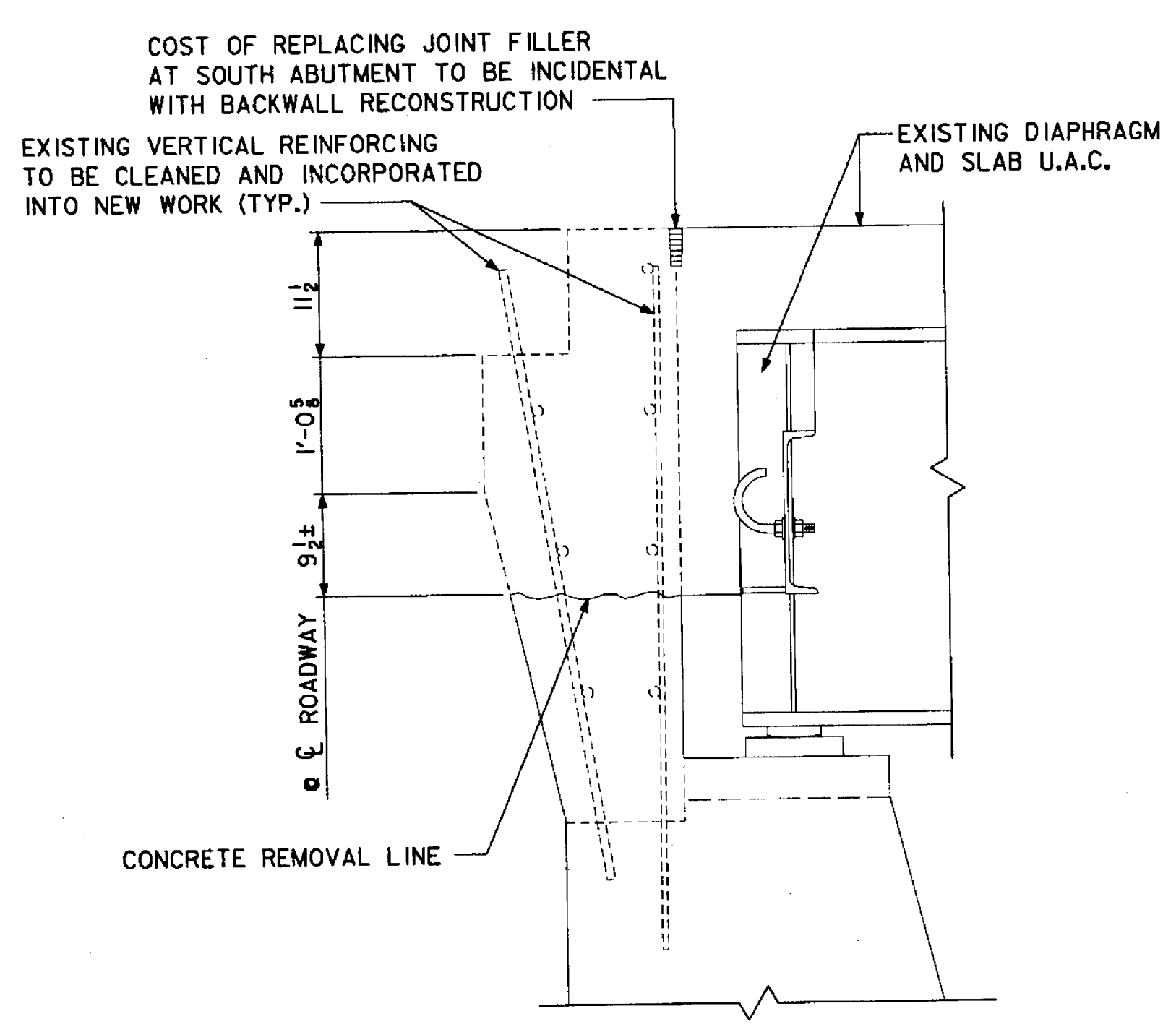
WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

DESIGNED BY S.T.S. CHECKED BY D.J.T.
DETAILED BY T.E.A. CADD FILE H751104.S02

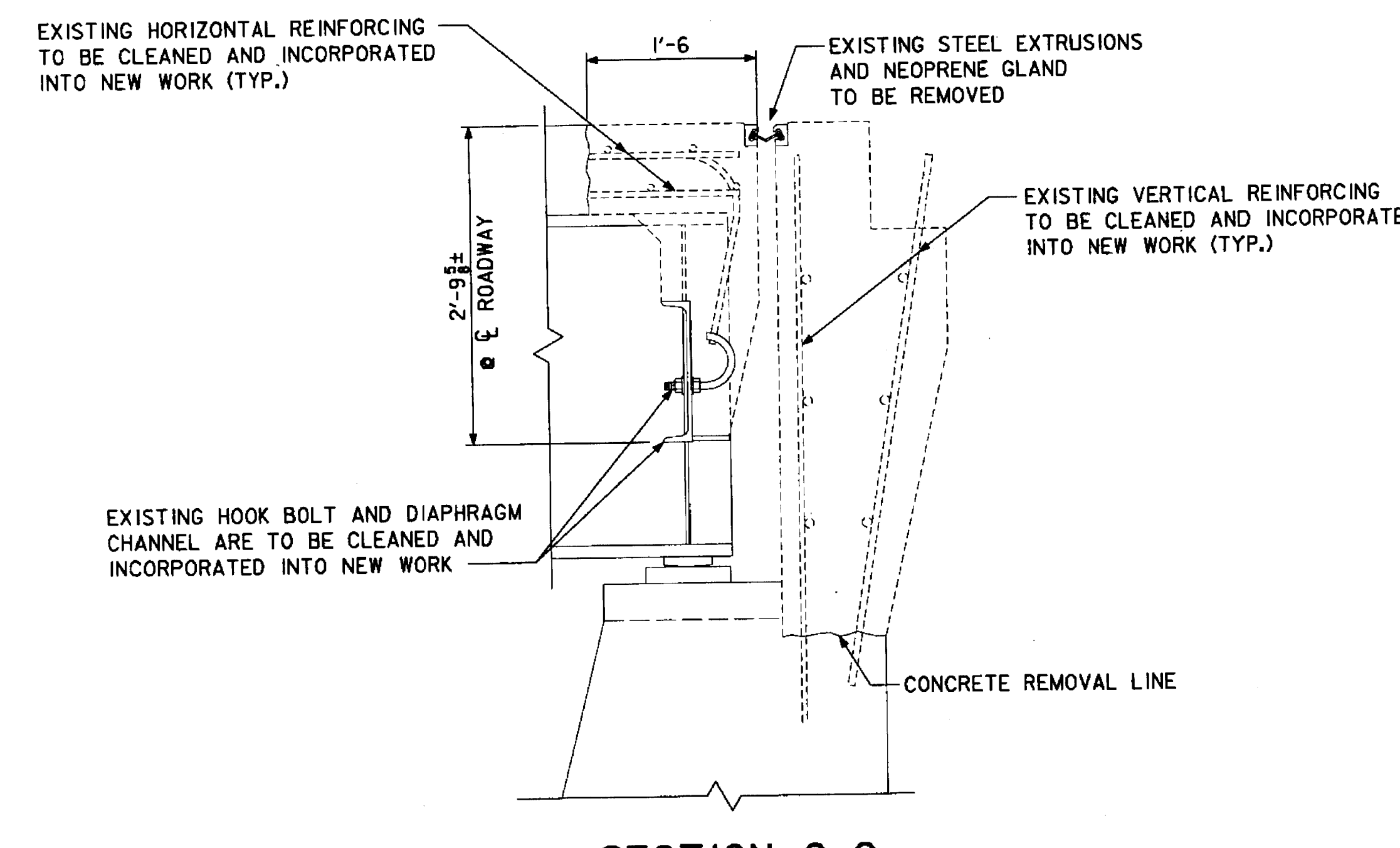
PLYMOUTH COUNTY | PROJECT NUMBER BRFN-075-2(66)-39-75 | SHEET NUMBER 3

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

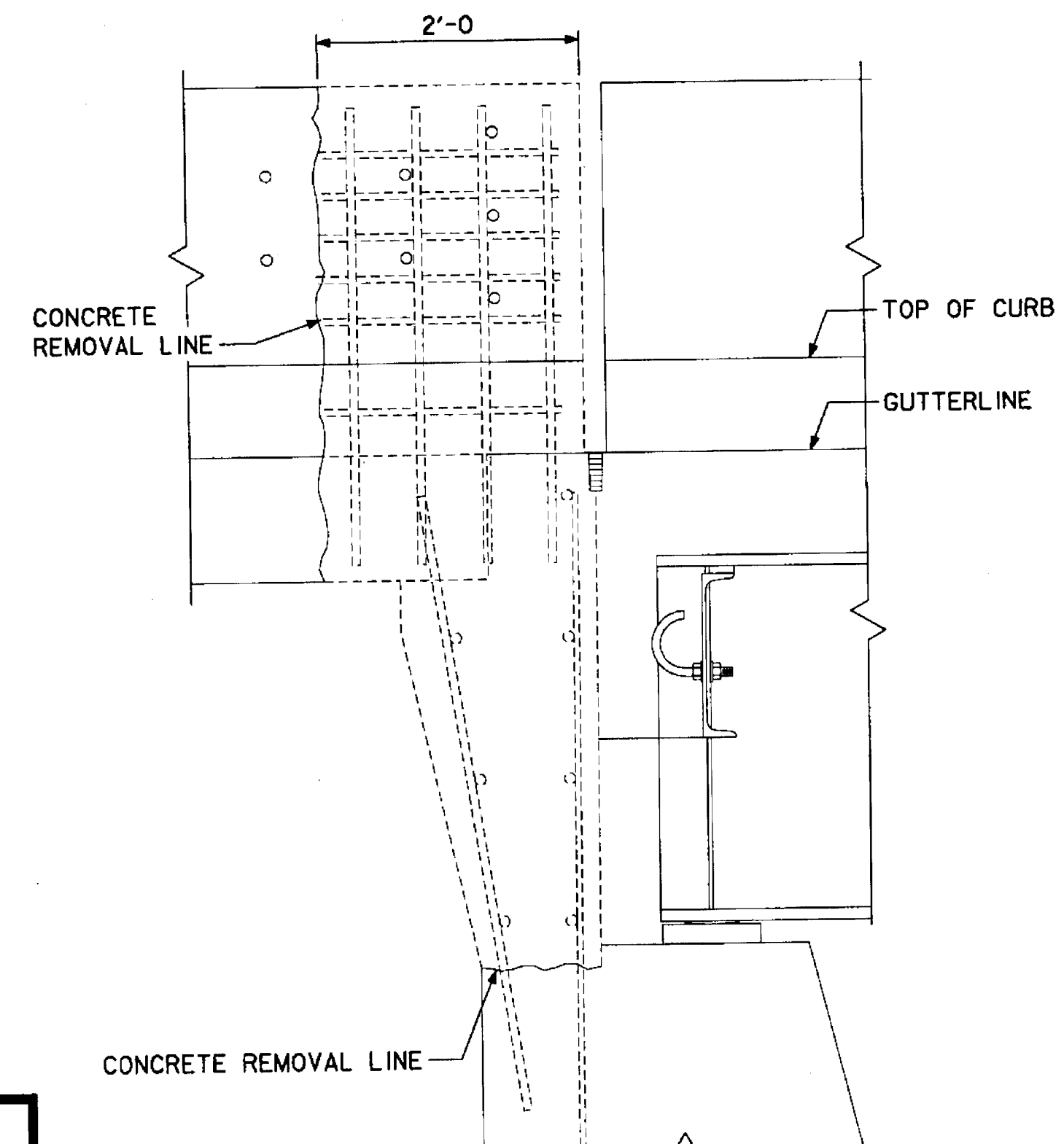
I:\dept\6\6060-08\plymouth\1104\struct\h751104.s03



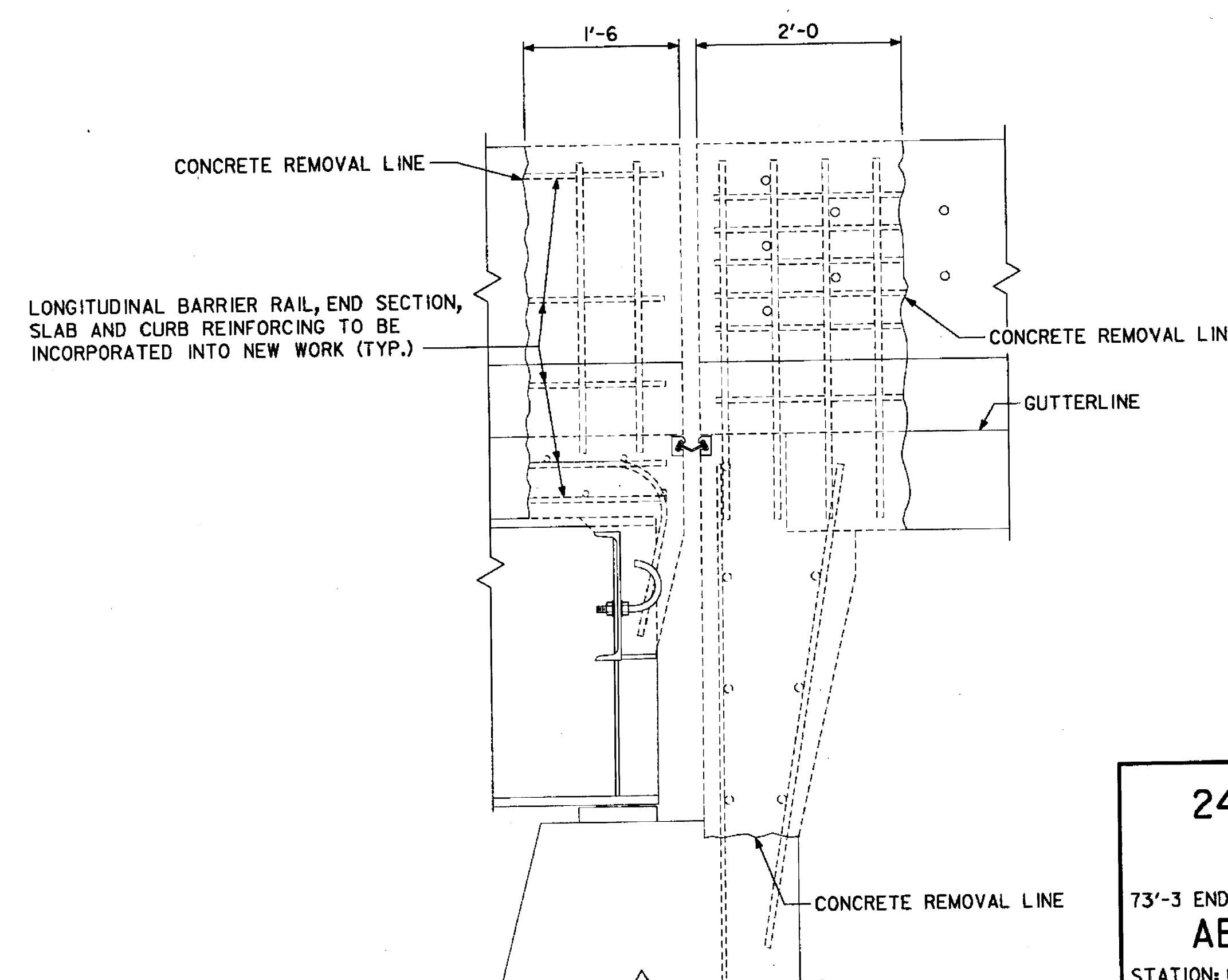

SECTION A-A
(SOUTH ABUTMENT)




SECTION C-C
(NORTH ABUTMENT)




SECTION B-B
(SOUTH ABUTMENT)




SECTION D-D
(NORTH ABUTMENT)

NOTE:
SEE DESIGN SHEET 2 FOR LOCATION OF SECTIONS A-A, B-B, C-C & D-D.

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## ABUTMENT REMOVAL DETAILS

STATION: 655+20 — OCTOBER, 2003

PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 10 FILE NO. 29950 DESIGN NO. 1104

WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

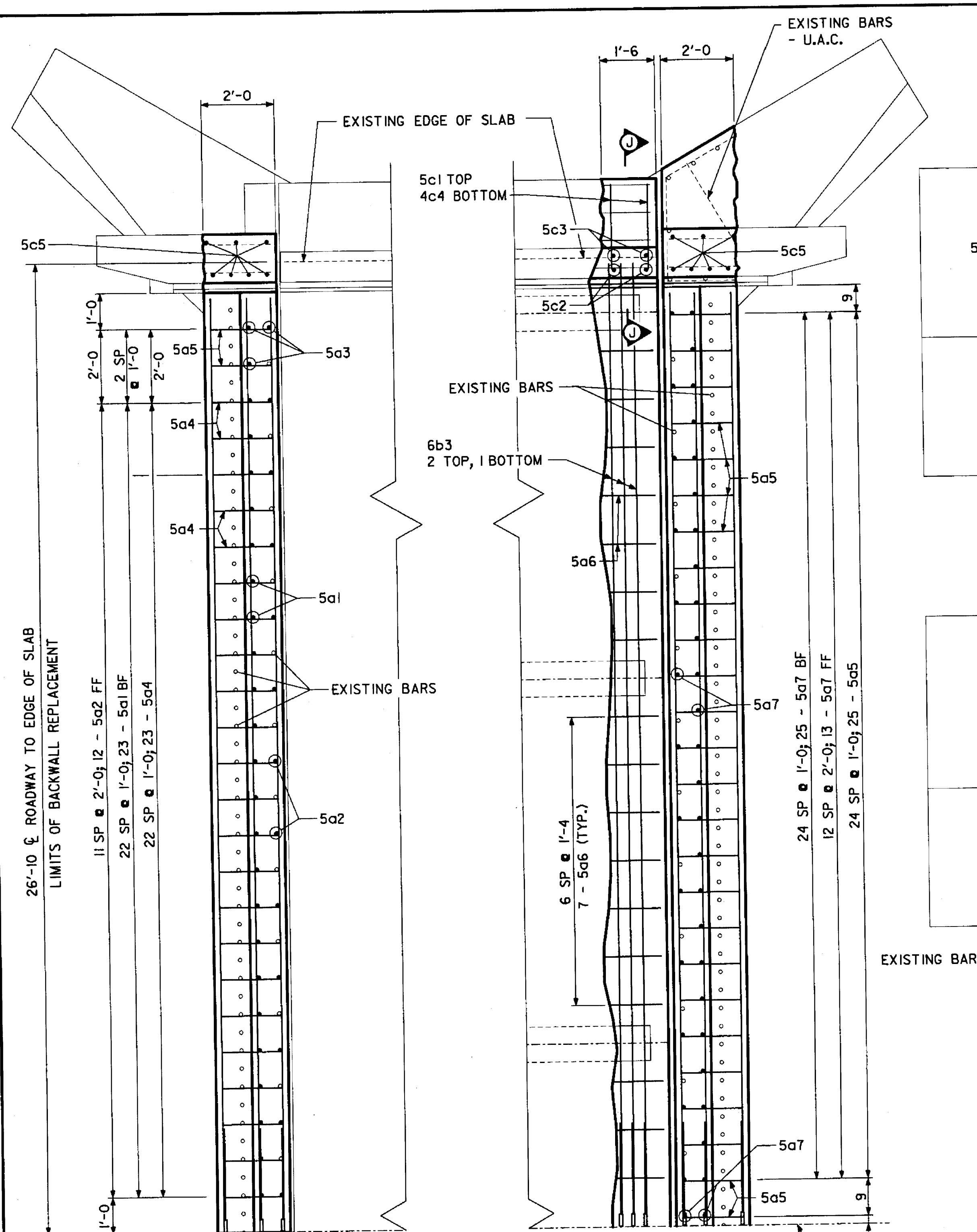
| | | | |
|---|---|---|---|
| DESIGNED BY | S.T.S. | CHECKED BY | D.J.T. |
| DETAILED BY | T.E.A. | CADD FILE | H751104.S03 |

PLYMOUTH COUNTY

PROJECT NUMBER BRFN-075-2(66)-39-75



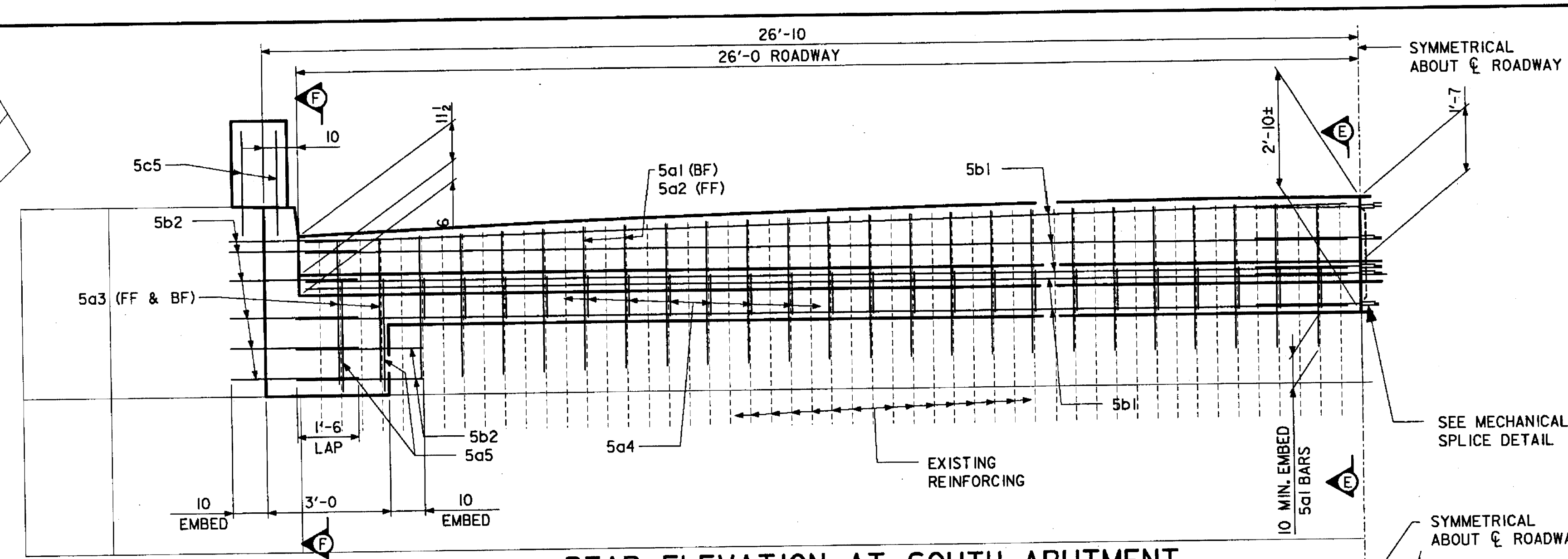
XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC



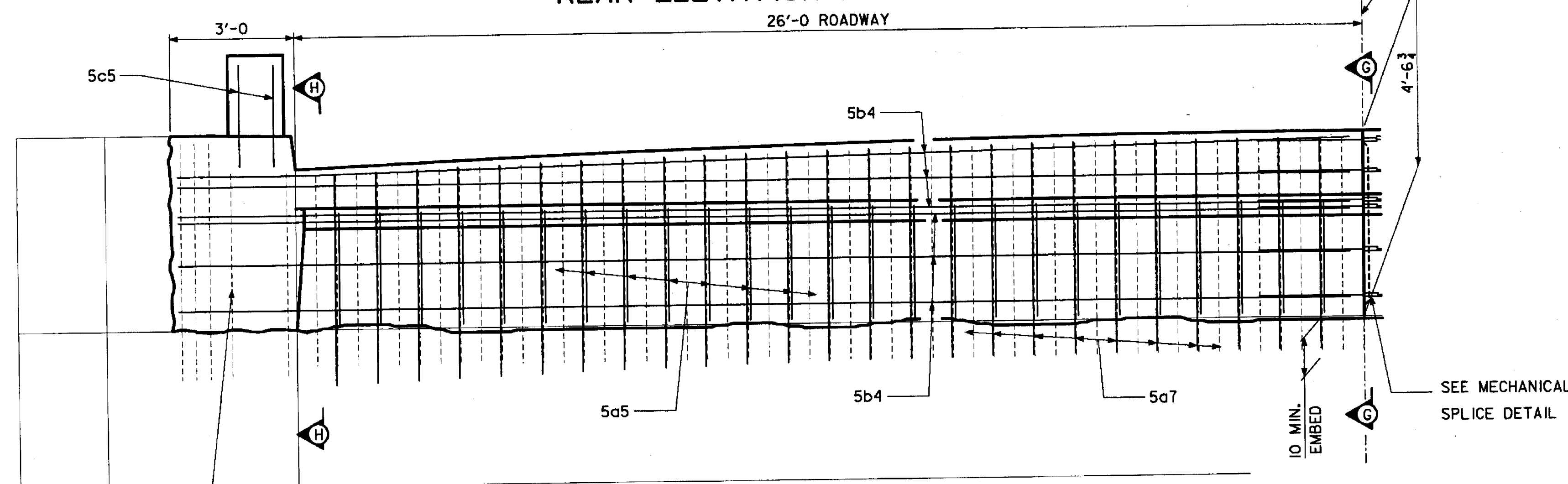

SOUTH ABUT.

NORTH ABUT.

ABUTMENT PLAN VIEW




REAR ELEVATION AT SOUTH ABUTMENT



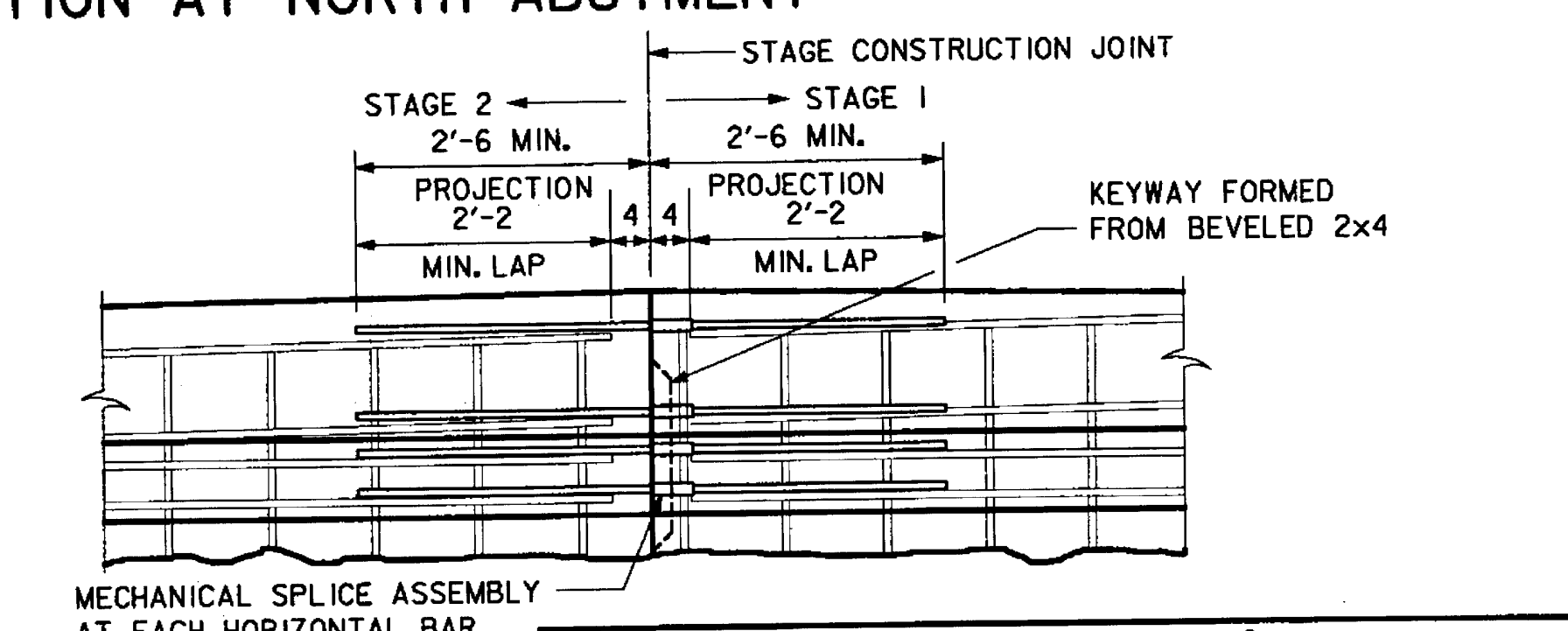

REAR ELEVATION AT NORTH ABUTMENT

## MECHANICAL SPLICE ASSEMBLIES:

THE HORIZONTAL BARS IN THE ABUTMENT BACKWALLS AND END OF SLAB SHALL BE SPLICED AT THE LOCATIONS SHOWN USING COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES. COIL TIE ASSEMBLIES CONSIST OF COIL TIES AND THREADED COIL RODS. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE COIL TIE ASSEMBLY OR MECHANICAL SPLICE ASSEMBLY USED SHALL BE CAPABLE OF DEVELOPING 90 KSI TENSILE STRENGTH IN THE ASSEMBLY BARS. THREADED COIL RODS OR REINFORCING SPLICE BARS SHALL BE A MINIMUM OF ⅝" DIA.

ALL COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING THE HORIZONTAL BARS IN THE ABUTMENT BACKWALLS AND END OF SLAB SHALL BE EPOXY COATED. THREE ADDITIONAL NON EPOXY COATED SPLICE ASSEMBLIES SHALL BE FURNISHED TO THE ENGINEER FOR TESTING AND APPROVAL.

THE COST OF ALL SPLICE ASSEMBLIES, INCLUDING THE 3 TO BE FURNISHED FOR TESTING, IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF COIL TIE ASSEMBLIES OR MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 28 SPLICE ASSEMBLIES WILL BE REQUIRED. (25 EPOXY COATED AND 3 NON COATED).




DETAIL OF MECHANICAL SPLICE ASSEMBLIES

NOTE:
SEE DESIGN SHEET 5 FOR SECTIONS E-E, F-F, G-G, H-H & J-J.

DESIGN FOR REPAIRS TO 0° SKEW
# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE
OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## ABUTMENT REPAIR DETAILS

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 10 FILE NO. 29950 DESIGN NO. 1104

WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

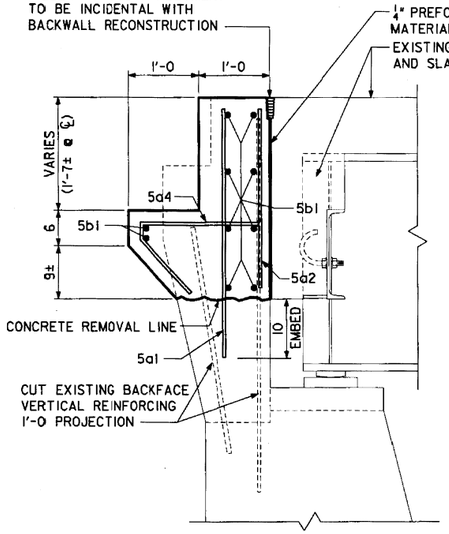
| | | | |
|---|---|---|---|
| DESIGNED BY | S.T.S. | CHECKED BY | D.J.T. |
| DETAILED BY | T.E.A. | CADD FILE | H751104.S04 |



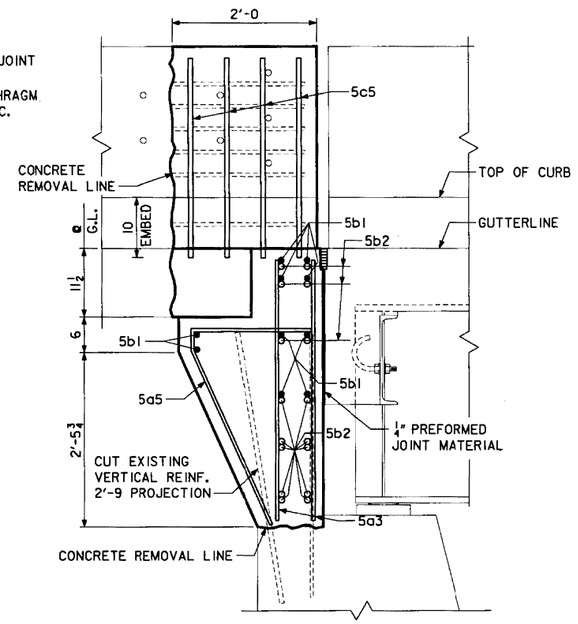
XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

12/19/2003
i:\dept\61\6060-08\plymouth\1104\struct\h751104.s05

COST OF REPLACING JOINT FILLER AT SOUTH ABUTMENT TO BE INCIDENTAL WITH BACKWALL RECONSTRUCTION

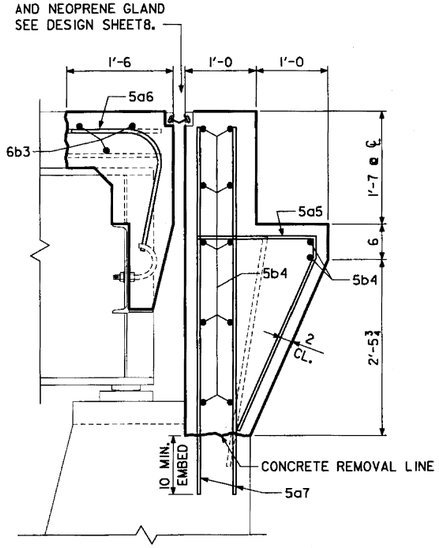



## SECTION E-E
(SOUTH ABUTMENT)




## SECTION F-F
(SOUTH ABUTMENT)

FOR DETAILS OF NEW STEEL EXTRUSIONS AND NEOPRENE GLAND SEE DESIGN SHEET 8.



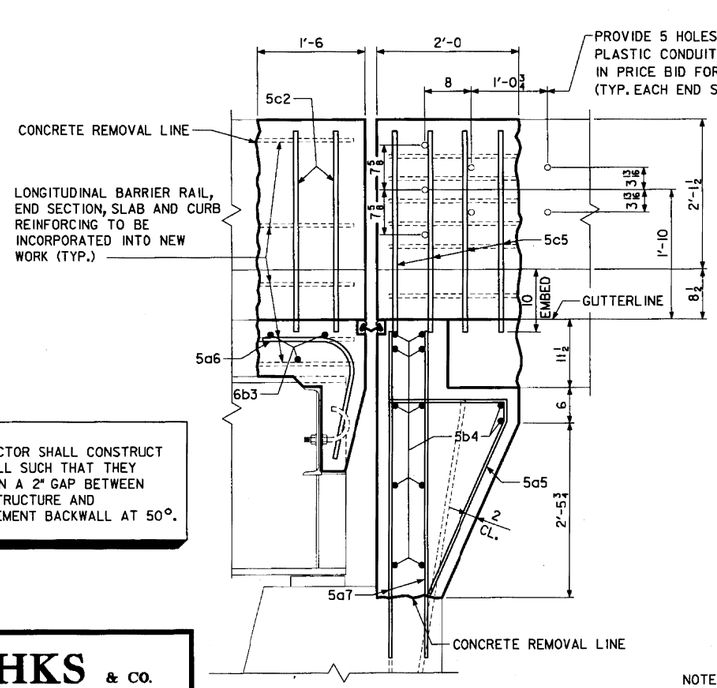

## SECTION G-G
(NORTH ABUTMENT)

## EPOXY COATED REINFORCING STEEL - BOTH ABUTS.

| BAR | LOCATION | SHAPE | NO. | LENGTH | WEIGHT |
|---|---|---|---|---|---|
| 5a1 | VERTICAL, BACKWALL, S ABUT., DOWEL | —— | 46 | VARIES | 154 |
| 5a2 | VERTICAL, BACKWALL, S ABUT. | —— | 24 | VARIES | 59 |
| 5a3 | VERTICAL, BACKWALL, S ABUT. | —— | 6 | 3'-9 | 23 |
| 5a4 | PAVING NOTCH, S ABUT. | ⌐ | 46 | 2'-11 | 140 |
| 5a5 | PAVING NOTCH, BOTH ABUT. | ⌐¬ | 54 | 4'-8 | 263 |
| 5a6 | END DIAPHRAGM | ⌐ | 35 | 2'-8 | 97 |
| 5a7 | VERTICAL, BACKWALL, N ABUT., DOWEL | —— | 80 | VARIES | 421 |
| | | | | | |
| 5b1 | HORIZONTAL, BACKWALL, S. ABUT. | —— | 20 | 25'-6 | 532 |
| 5b2 | HORIZONTAL, BACKWALL, DOWEL, S. ABUT. | —— | 32 | 3'-1 | 103 |
| 6b3 | TRANSVERSE, SLAB | —— | 6 | 26'-4 | 237 |
| 5b4 | HORIZONTAL, BACKWALL, N. ABUT. | —— | 24 | 28'-6 | 713 |
| | | | | | |
| 5c1 | HORIZONTAL, CURB | ⌐¬ | 4 | 3'-6 | 15 |
| 5c2 | VERTICAL, BARRIER RAIL | —— | 4 | 2'-10 | 12 |
| 5c3 | VERTICAL, BARRIER RAIL | —— | 4 | 2'-6 | 10 |
| 4c4 | HORIZONTAL, CURB | —— | 4 | 2'-7 | 7 |
| 5c5 | VERTICAL, END SECTION | —— | 28 | 2'-10 | 83 |
| | | | | | |
| | | | | TOTAL (lbs) | 2869 |

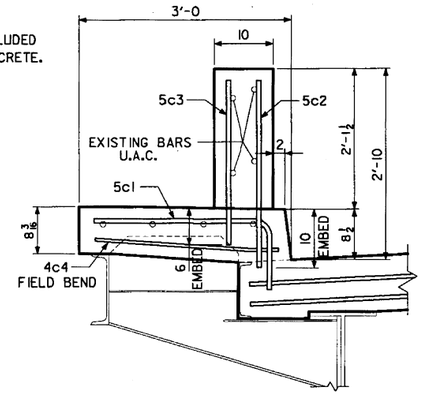
## CONCRETE PLACEMENT QUANTITY

| LOCATION | TOTAL |
|---|---|
| SOUTH BACKWALL | 6.4 |
| NORTH BACKWALL | 12.7 |
| NORTH DIAPHRAGM AND SLAB END | 4.0 |
| NORTH BARRIER RAIL 2 @ 0.1 | 0.2 |
| END SECTION 4 @ 0.28 | 1.1 |
| NORTH CURB OVERHANG 2 @ 0.11 | 0.2 |
| | |
| TOTAL (CY) | 24.6 |




## SECTION H-H
(NORTH ABUTMENT)

NOTE:
CONTRACTOR SHALL CONSTRUCT BACKWALL SUCH THAT THEY MAINTAIN A 2" GAP BETWEEN SUPERSTRUCTURE AND REPLACEMENT BACKWALL AT 50°.




## SECTION J-J
(NORTH ABUTMENT)

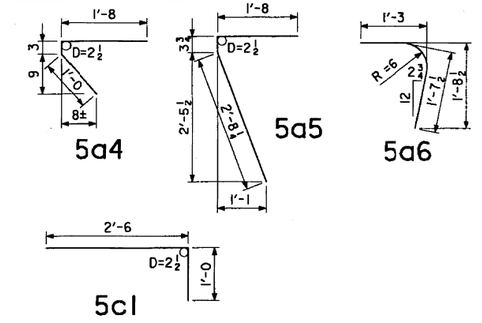
NOTE:
SEE DESIGN SHEET 4 FOR LOCATION OF SECTIONS.

DOWEL SETTING NOTE :
THE 5a1, 5a7 & 5b2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE VERTICAL DOWELS, BUT ONLY SYSTEM A IS TO BE USED FOR HORIZONTAL DOWELS.

A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.12 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.

B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

## BENT BAR DETAILS




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

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## ABUTMENT REPAIR DETAILS

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 10 — FILE NO. 29950 — DESIGN NO. 1104

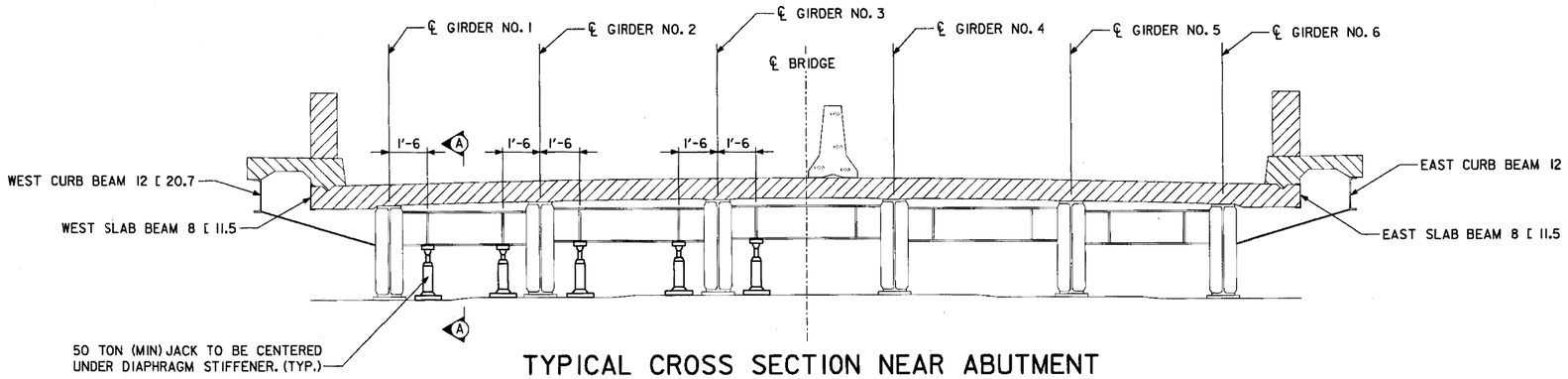
WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

DESIGNED BY S.T.S. — CHECKED BY D.J.T.
DETAILED BY T.E.A. — CADD FILE H751104.S05

PLYMOUTH COUNTY | PROJECT NUMBER BRFN-075-2(66)-39-75 | SHEET NUMBER 6

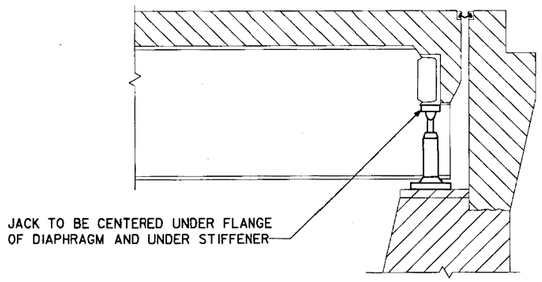
XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

12/19/2003
I:\dept\6\6060-08\plymouth\1104\struct\h751104.s06

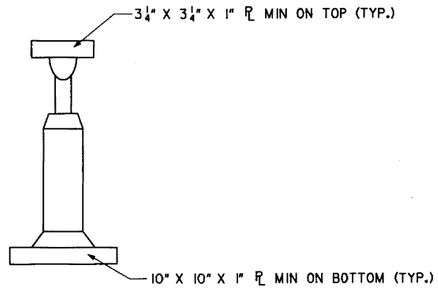



## TYPICAL CROSS SECTION NEAR ABUTMENT

NORTH ABUTMENT - LOOKING NORTH
NOTE: THE LAYOUT SHOWN IS FOR RAISING ONE SIDE OF THE BRIDGE.
MIRROR THE JACKS ABOUT ℄ TO COMPLETE OTHER SIDE.




## SECTION A-A




## JACK DETAIL

USE 5-50 TON (MIN) JACKS

## BRIDGE RAISING NOTES

THE NORTH END OF THE BRIDGE SHALL BE RAISED TO FACILITATE THE BEARING RESETTING AT THE NORTH ABUTMENT. THE RAISING OF THE BRIDGE SHALL BE DONE ½ OF THE BRIDGE AT A TIME, CORRESPONDING TO THE STAGING SET UP FOR THE OTHER REPAIRS. IT IS ANTICIPATED THAT THE BEARINGS CAN BE RESET BY RAISING THE BRIDGE NO MORE THAN ½ INCH USING FIVE 50 TON HYDRAULIC JACKS CENTERED UNDER THE DIAPHRAGM STIFFENERS AS SHOWN ON THIS SHEET. IF THE CONTRACTOR DETERMINES THAT THE BRIDGE WILL NEED TO BE RAISED MORE THAN ½ INCH, THE ENGINEER SHALL BE CONTACTED FOR APPROVAL.

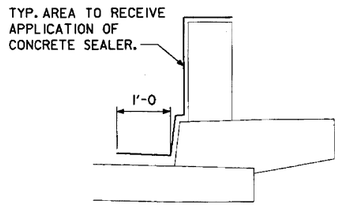
THE CONTRACTOR MAY RESET THE BEARINGS EITHER BEFORE OR AFTER THE BACKWALL AND JOINT REPAIRS ARE COMPLETE BUT THE RAISING OF THE BRIDGE SHALL NOT TAKE PLACE WITHOUT THE CONCRETE IN PLACE AT THE END OF THE SLAB OR WITH THE NEW NEOPRENE SEAL INSTALLED.

THE CONTRACTOR SHALL RAISE THE SUPERSTRUCTURE THE SAME AMOUNT AT EACH JACK SIMULTANEOUSLY.

THE CONTRACTOR SHALL PROVIDE ADEQUATE LONGITUDINAL AND LATERAL SUPPORT OF THE SUPERSTRUCTURE DURING THE LIFTING OPERATION AND WHILE THE BRIDGE IS IN THE RAISED POSITION.

NO TRAFFIC WILL BE ALLOWED ON THE RAISED PORTION OF THE BRIDGE DURING THE LIFTING OPERATION OR WHILE THE BRIDGE IS IN THE RAISED POSITION.

ALL COSTS ASSOCIATED WITH RAISING AND SUPPORTING THE SUPERSTRUCTURE SHALL BE INCLUDED IN THE PRICE BID FOR "BRIDGE RAISING". THE PRICE SHALL INCLUDE ALL LABOR, MATERIALS, AND EQUIPMENT COSTS ASSOCIATED WITH RAISING AND SUPPORTING THE SUPERSTRUCTURE.




## DETAIL OF CONCRETE SEALER AREA

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## BRIDGE RAISING DETAILS

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

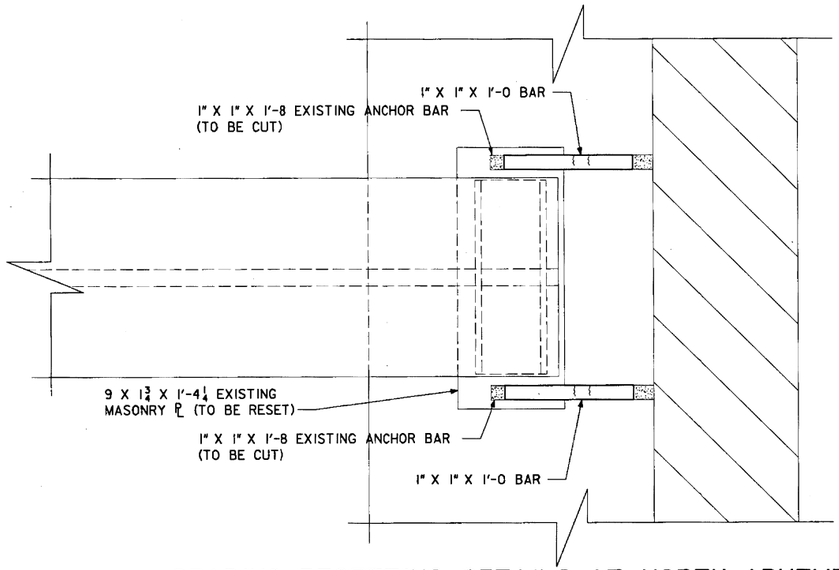
DESIGN SHEET NO. 6 OF 10 FILE NO. 29950 DESIGN NO. 1104

WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

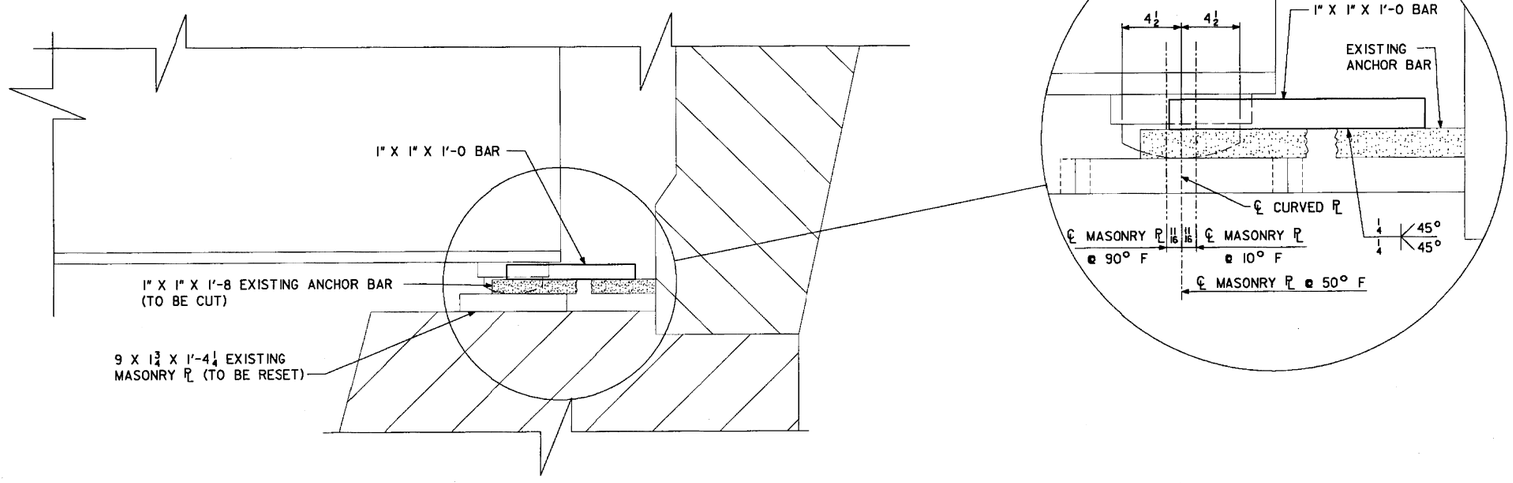
| | | | |
|---|---|---|---|
| DESIGNED BY S.T.S. | CHECKED BY D.J.T. | PLYMOUTH COUNTY | PROJECT NUMBER BRFN-075-2(66)-39-75 |
| DETAILED BY T.E.A. | CADD FILE H751104.S06 | | SHEET NUMBER 7 |

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

12/19/2003
I:\dept\6\6060_08\plymouth\1104\struct\h75l104s07




## BEARING RESETTING DETAILS AT NORTH ABUTMENT PLAN VIEW




## BEARING RESETTING DETAILS AT NORTH ABUTMENT ELEVATION VIEW

## BEARING SETTING NOTES:

THE BEARINGS AT THE NORTH ABUTMENT SHALL BE RESET THE 1" X 1" ANCHOR BARS SHALL BE CUT IN ORDER FOR THE MASONRY PLATE TO BE SHIFTED TO THE PROPER POSITION (ACCORDING TO THE TEMPERATURE SETTING FOR THE BEARING), A 1" X 1" BAR SHALL BE WELDED TO THE CUT ANCHOR BARS AS SHOWN TO SECURE THE MASONRY PLATE. THE 1" X 1" BARS SHALL BE CLEANED AND PAINTED FOLLOWING WELDING. THE CLEANING IS TO BE BY VACUUM BLAST OR BY A NON-BLASTING METHOD AND IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNSEL SPECIFICATIONS SSPC-SP3. THE 1" X 1" BARS SHALL BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR AN APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF EXISTING ANCHOR BARS. ALL COST ASSOCIATED WITH RESETTING THE BEARINGS ON NORTH ABUTMENT SHALL BE INCLUDED IN THE BID ITEM "BEARING RESETTING" EXCEPT COSTS INCLUDED IN THE BID ITEMS "BLAST CLEANING OF STRUCTURAL STEEL", "PAINTING OF STRUCTURAL STEEL" AND "CONTAINMENT". THE PRICE BID FOR "BEARING RESETTING" SHALL INCLUDE THE COST OF FURNISHING, AND INSTALLING THE 1" X 1" BARS ATTACHED TO THE ANCHOR BARS.

NOTE:

MASONRY PLATE SHALL BE SET SO THAT AT 50° F, THE CENTER OF CURVED SOLE PLATE WILL BE DIRECTLY ABOVE THE CENTER OF THE MASONRY PLATE.

FOR TEMPERATURES ABOVE 50° F, SET CENTER OF MASONRY PLATE SOUTH OF CENTER OF CURVED PLATE.

FOR TEMPERATURES BELOW 50° F, SET CENTER OF MASONRY PLATE NORTH OF CENTER OF CURVED PLATE.

SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL TO THOSE SHOWN FOR A 40° TEMPERATURE CHANGE.

SEE DES. SHT. 6 FOR BRIDGE RAISING DETAILS.

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## BEARING RESETTING DETAILS

STATION: 655+20

OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 10 FILE NO. 29950 DESIGN NO. 1104

WHKS & CO.

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

DESIGNED BY S.T.S. CHECKED BY D.J.T.

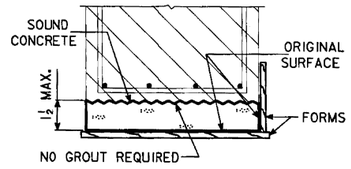
DETAILED BY T.E.A. CADD FILE H75l104.S07

PLYMOUTH COUNTY

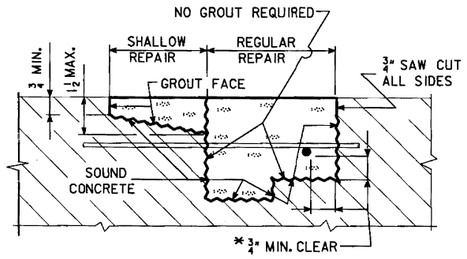
PROJECT NUMBER BRFN-075-2(66)-39-75

SHEET NUMBER 8

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

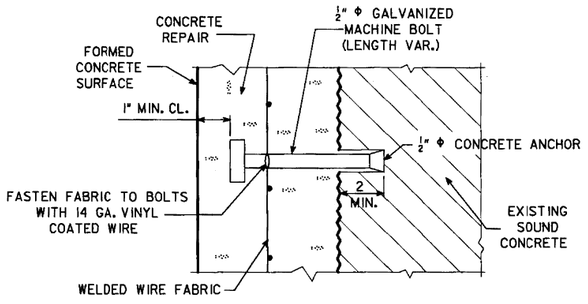



## SHALLOW REPAIR BOTTOM SURFACE



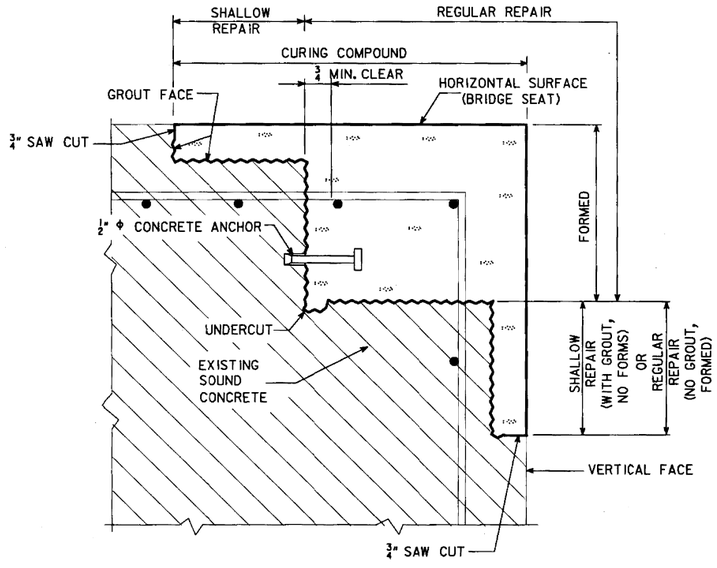

## REPAIR DEFINITION

* INDICATES CLEARANCE FOR AN UN-BONDED REBAR.

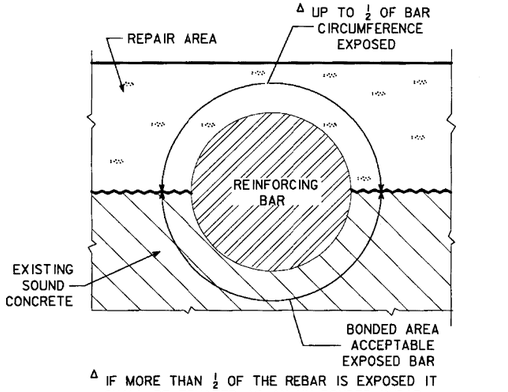



## ANCHOR DETAIL

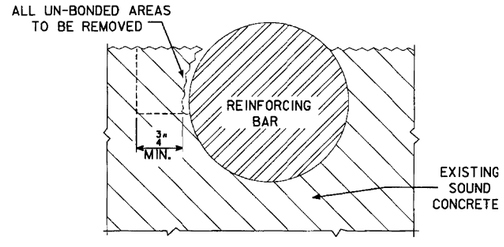
FOR SPACING AND USE OF CONCRETE ANCHORS AND WWF SEE THE STANDARD NOTES.



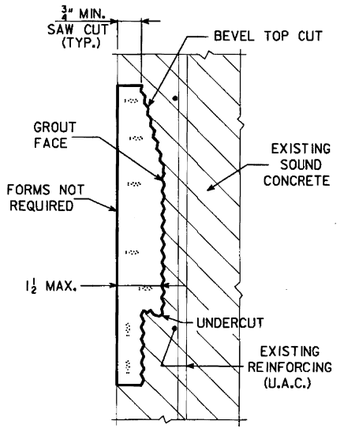

## CORNER REPAIR



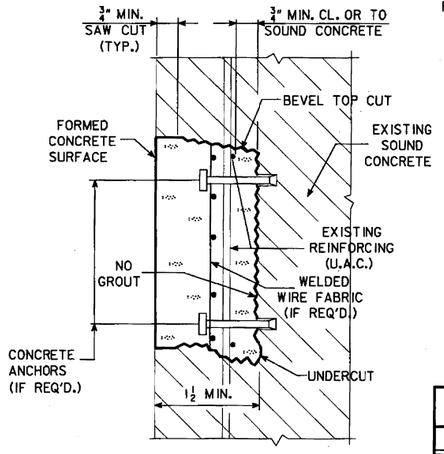

Δ IF MORE THAN ½ OF THE REBAR IS EXPOSED IT SHALL BE TREATED AS AN UN-BONDED REBAR.




## CONCRETE REMOVAL ADJACENT TO REINFORCING




## SHALLOW REPAIR VERTICAL FACE




## REGULAR REPAIR VERTICAL FACE

STANDARD NOTES:

THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE AS NOTED AND SHOWN IN THESE PLANS SHALL BE REPAIRED AS FOLLOWS:

ALL THE COSTS OF EQUIPMENT AND MATERIALS REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS OF THIS BRIDGE SHALL BE INCLUDED IN THE PRICE BID FOR " CONCRETE REPAIR".

THE PRICE BID FOR "CONCRETE REPAIR" SHALL INCLUDE THE COST OF ALL CONCRETE ANCHORS AND MESH REQUIRED BY THE PLANS.

THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIRS. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT.

ALL EXISTING REINFORCING BARS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK, EXCEPT BADLY DETERIORATED EXISTING REINFORCING WHICH SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

THE CONCRETE ANCHORS REQUIRED SHALL HAVE A MINIMUM PULL OUT OF 5000 LBS. BASED ON 4000 PSI CONCRETE. AN ANCHOR MEETING THE REQUIREMENTS OF IOWA D.O.T. MATERIALS I.M. 453.09 AND THE PULL OUT LOAD ABOVE IS REQUIRED. THE ANCHORS SHALL BE GALVANIZED AND SHALL BE INSTALLED ACCORDING TO RECOMMENDATIONS OF THE MANUFACTURER. THE COST OF FURNISHING AND INSTALLING THE CONCRETE ANCHORS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".

THE WELDED WIRE FABRIC SHALL BE ASTM A185 AND GALVANIZED AS PER ASTM A-641. THE WWF WIRES SHALL BE SPACED 3 X 3 OR 4 X 4 AND THE WIRES SHALL HAVE A NOMINAL AREA OF 0.014 TO 0.029 SQUARE INCHES INCLUSIVE, EXAMPLE "WWF 3 X 3 - W1.4 X W2.9".

WHERE REINFORCEMENT HAS BEEN EXPOSED AND CLEARANCE AROUND THE PERIPHERY OF THE EXISTING BAR IS PROVIDED NO SUPPLEMENTAL REINFORCING IS REQUIRED, EXCEPT WHERE EXISTING REINFORCEMENT DENSITY AND PATTERN ARE SUCH THAT INDIVIDUAL OPEN SPACES BETWEEN BARS ARE OF 1.5 SQUARE FOOT OR LARGER. FOR THIS CONDITION ½" Φ CONCRETE ANCHORS AND WELDED WIRE FABRIC SHALL BE INSTALLED AT THE RATE OF ONE CONCRETE ANCHOR WITH WWF PER EACH 1.5 SQUARE FEET OF AREA WITHIN EACH OPEN SPACE.

SEE "STRUCTURAL CONCRETE REPAIR" IN CURRENT STANDARD SPECIFICATIONS FOR MORE INFORMATION CONCERNING THIS WORK.

## CONCRETE PLACEMENT QUANTITIES

| MARK | TYPE | UNITS | QUANTITY |
|---|---|---|---|
| ① | SHALLOW REPAIR * | SQ. FT. | 24.0 |
| ② | REGULAR REPAIR | SQ. FT. | 0.0 |
| | TOTAL (SQ. FT.) | | 24.0 |

## ESTIMATED CONCRETE REPAIR QUANTITIES

| DESCRIPTION | UNITS | AMOUNT |
|---|---|---|
| CONCRETE REPAIR | SQ. FT. | 24.0 |

* INCLUDES 20 SQ. FT. ALONG CURB FACE AT NORTHEAST CORNER OF BRIDGE AND 4 SQ. FT. ON FACE OF ABUTMENT AT SOUTHWEST CORNER.

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## CONCRETE REPAIR DETAILS

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 10 FILE NO. 29950 DESIGN NO. 1104

DESIGNED BY S.T.S. CHECKED BY D.J.T.
DETAILED BY T.E.A. CADD FILE H75I104.S08

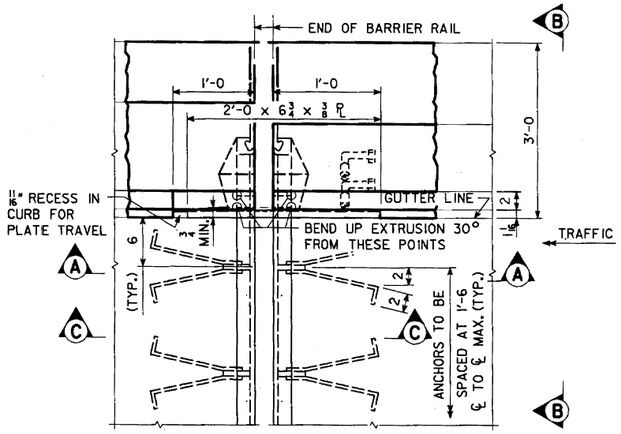
STANDARD SHEET 1045 | PLYMOUTH COUNTY | PROJECT NUMBER BRFN-075-2(66)-39-75 | SHEET NUMBER 9

REVISED: MINOR CHANGES MADE IN "STANDARD NOTES". TAPE NO. 19. DATED 11-9-92.
RE1045.SOI (HSTD0I045.SOI-- LEP ; THIS SHEET ISSUED. TAPE NO. DATE )

I:\dept\6\6060-08\plymouth\1104\struct\h75I104.s08 12/19/2003

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

12/9/2003
i:\dept\6\6060-08\plymouth\1104\struct\h75l104.s09

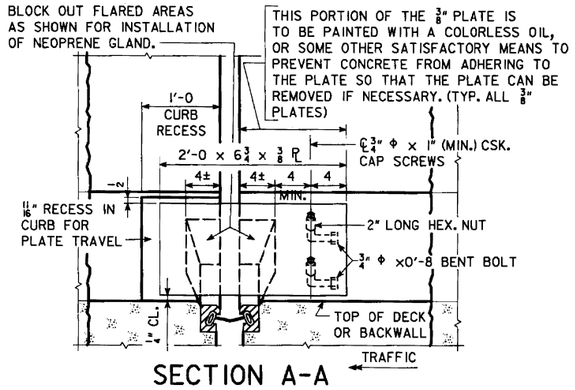



## PART PLAN VIEW OF EXPANSION DEVICE

CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE ⅜" CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

## CURB PLATE NOTE:

THE MATERIAL USED FOR THE CURB PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.




## SECTION A-A

## EXPANSION DEVICE NOTES:

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICES SHOWING LAYOUT, MATERIAL TO BE USED, AND PROVISIONS FOR HOLDING DEVICE DURING PLACEMENT OF CONCRETE.

THE EXPANSION DEVICE SHALL BE GALVANIZED AFTER WELDING.

THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.

CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF THE PLATE.

THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSIONS.

THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.

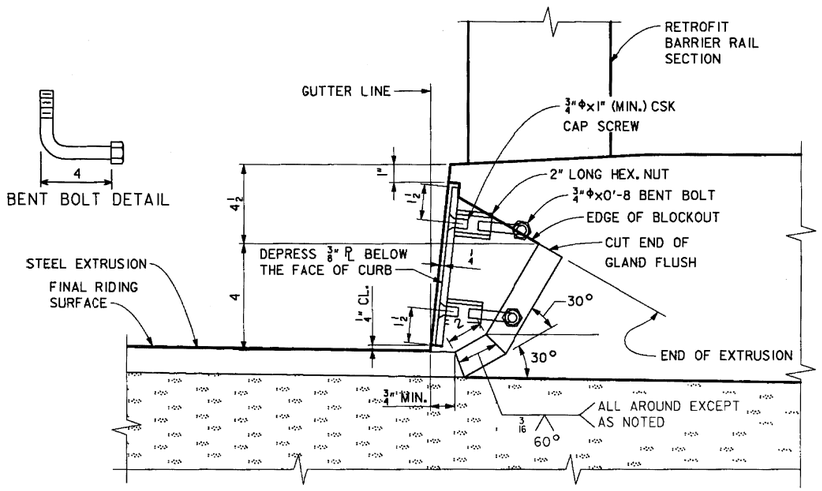
THE NEOPRENE GLAND SHALL CONFORM TO ASTM D-2628 MODIFIED TO EXCLUDE RECOVERY TESTS AND COMPRESSION SET.

BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY.

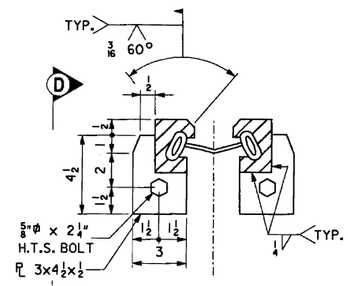
THE CONTRACT UNIT PRICE BID FOR "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE EXPANSION JOINTS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS, (INCLUDING THE ⅜" PLATES AT THE CURBS AND THEIR ANCHORAGE SYSTEMS), AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINTS IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.

FIELD SPLICES OF THE STEEL EXTRUSION SHALL BE MADE AT THE STAGING JOINT. PIECES OF STEEL EXTRUSION IN THE 12 FT. TO 22 FT. RANGE SHALL BE USED TO FORM THE REQUIRED GUTTER TO STAGING JOINT LENGTH. NUMBER OF SPLICES IS REQUIRED. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.

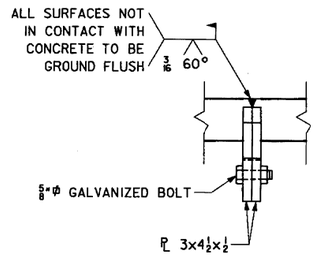
NOTE: IT IS INTENDED THAT THE 11/16 INCH RECESSED AREA BE FORMED SO THAT WHEN THE ⅜" PLATE IS INSTALLED THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.




## SECTION B-B

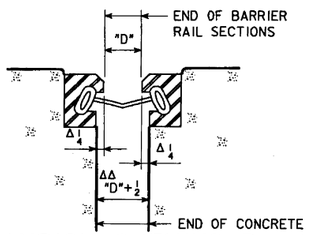



## EXTRUSION FIELD SPLICE DETAIL




## SECTION D-D

NOTE: LOCATE FIELD SPLICE FOR EXTRUSIONS APPROXIMATELY 6" BEYOND CONSTRUCTION JOINT.

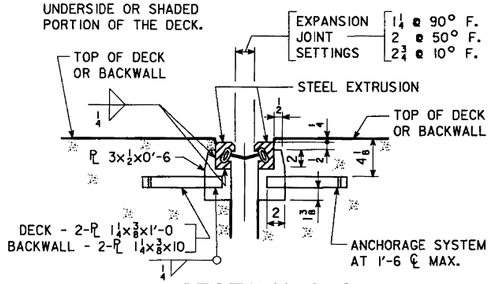



## EXPANSION OPENING DETAIL

ΔTHIS DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

ΔΔUSED FOR ALL OUT TO OUT DIMENSIONS OF SLAB. THE DIMENSION MAY VARY SLIGHTLY DEPENDING ON MANUFACTURER FURNISHING THE JOINT.

NOTE: JOINT SETTINGS FOR OTHER TEMPERATURES ARE PROPORTIONAL. TEMPERATURES SHOWN ARE CONCRETE DECK TEMPERATURES ON THE UNDERSIDE OR SHADED PORTION OF THE DECK.




## SECTION C-C

## TABLE OF APPROVED EXPANSION DEVICES

| MANUFACTURER | TYPE OF STEEL EXTRUSION | NEOPRENE GLAND |
|---|---|---|
| WATSON-BOWMAN & ACME CORP. | A | SE-400 |
| D.S. BROWN CO. | SSA2 | A2R-400 |
| APPROVED EQUAL | | |

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## EXPANSION DEVICE DETAILS

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 10 — FILE NO. 29950 — DESIGN NO. 1104

WHKS & CO.
ENGINEERS PLANNERS LAND SURVEYORS
MASON CITY, IA DUBUQUE, IA AMES, IA ROCHESTER, MN EAST DUBUQUE, IL

DESIGNED BY S.T.S. — CHECKED BY D.J.T.
DETAILED BY T.E.A. — CADD FILE H75l104.S09

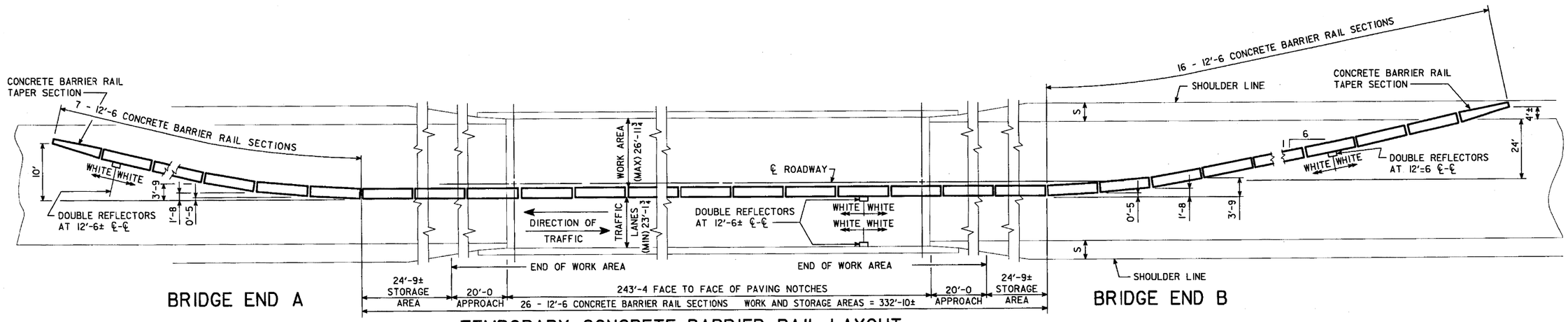
PLYMOUTH COUNTY

PROJECT NUMBER — BRFN-075-2(66)-39-75

SHEET NUMBER 10

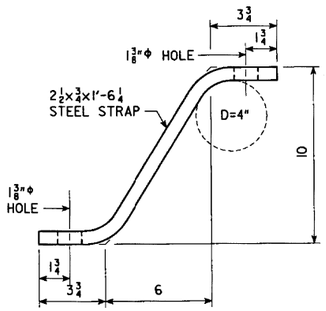
XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

12/9/2003
REVISED 01-00 - REFERENCE TO ROAD STANDARDS FOR BARRIER DETAILS, TIE-DOWN DETAILS AND NOTE CHANGED.
H:\dept\61\6066-08\plymouth\104struct\h751104.s10
HE1050.SOI--GAN; 9-97, THIS SHEET REDRAWN.

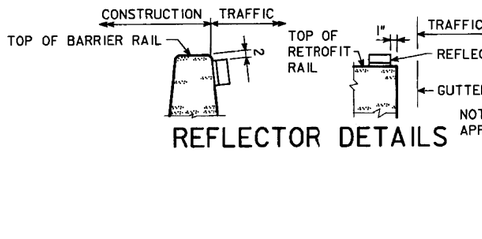



## TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR TWO WAY TRAFFIC

NOTE: THE LAYOUT SHOWN IS FOR ONE STAGE OF CONSTRUCTION AND WOULD BE THE SAME FOR THE OTHER STAGE BY ROTATING 180°.

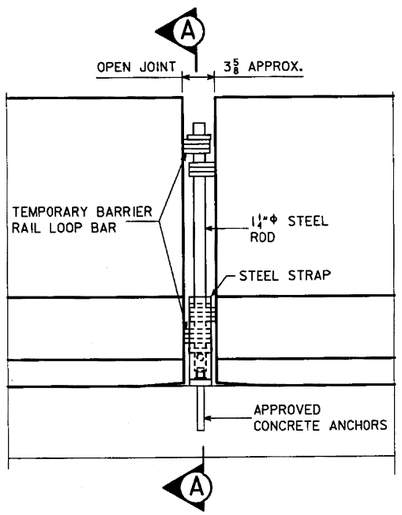



### STRAP DETAIL

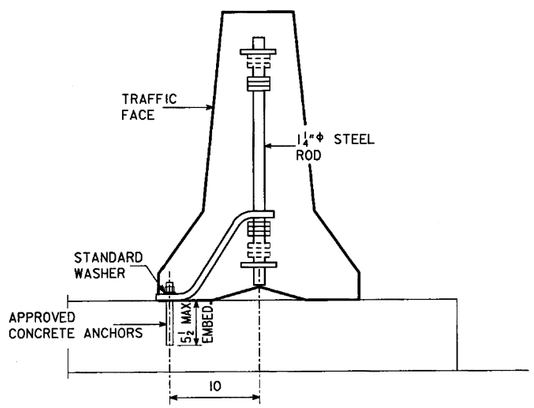



NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

### REFLECTOR DETAILS




### PART ELEVATION




### SECTION A-A

## TEMPORARY BARRIER RAIL TIE DOWN DETAILS

### CONCRETE TEMPORARY BARRIER RAIL NOTES:

CONCRETE TEMPORARY BARRIER RAIL SHALL BE CONSTRUCTED AS DETAILED AND NOTED ON THE ENGLISH RE-71(1), RE-71(2) AND RE-72 STANDARD ROAD PLANS.

TRAFFIC REFLECTORS SHALL BE A RETRO-REFLECTIVE TYPE, APPROVED BY THE ENGINEER, AND THEY SHALL BE LOCATED AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAINTAIN THE REFLECTORS AND SHALL PROMPTLY REPLACE ANY MISSING OR DAMAGED UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR THE TEMPORARY BARRIER RAIL.

REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.

NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.

TIE-DOWNS WITH CONCRETE ANCHORS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING THE TEMPORARY BARRIER RAIL. IF CONCRETE ANCHORS ARE THE TYPE WHICH CAN BE SET AND REMOVED AT LEAST 1½ INCHES BELOW THE CONCRETE SURFACE WITHOUT DAMAGING THE CONCRETE (PREFERRED ANCHOR TYPE), THE REMAINING HOLES, AFTER REMOVALS, SHALL BE FILLED WITH A NEAT MIXTURE OF SAND/CEMENT GROUT. OTHER ANCHOR TYPES MAY REQUIRE COMPLETE REMOVAL OF THE ANCHOR INCLUDING CONCRETE SURROUNDING THE ANCHOR. IF THIS IS NECESSARY, THE CONCRETE SHALL BE CORED OUT WITH A 2 INCH DIAMETER CORE BIT AND THE HOLE FILLED WITH NEAT MIXTURE OF SAND/CEMENT GROUT. COST FOR THE REMOVAL OF THE CONCRETE ANCHORS INCLUDING ANY CONCRETE REMOVAL NECESSARY, AND PLACEMENT OF THE SAND/CEMENT GROUT, WILL BE INCIDENTAL TO THE COST OF THE TEMPORARY BARRIER RAIL. THE CONCRETE ANCHORS ARE TO BE REMOVED ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.

CONCRETE ANCHORS ARE TO BE A MINIMUM OF 1" DIAMETER AND AS OTHERWISE SPECIFIED IN THE CURRENT MATERIALS I.M. 453.09, WITH A PULL- OUT STRENGTH OF 22 KIPS BASED ON 4000 PSI CONCRETE.

ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR TEMPORARY BARRIER RAIL.

### ESTIMATED QUANTITIES

| ITEM | AMOUNT |
|---|---|
| TEMPORARY BARRIER RAIL | 1225.0 L.F. |
| | |

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 12'-6 LONG CONCRETE UNITS.

DESIGN FOR REPAIRS TO 0° SKEW

# 240'-0 x 52'-0 CONTINUOUS I-BEAM BRIDGE

OVER WEST FORK FLOYD RIVER

73'-3 END SPANS — 93'-6 CENTER SPAN

## TEMPORARY BARRIER RAIL

STATION: 655+20 — OCTOBER, 2003

## PLYMOUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 10 — FILE NO. 29950 — DESIGN NO. 1104

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED BY S.T.S. / DETAILED BY T.E.A. | CHECKED BY D.J.T. / CADD FILE H751104.S10 | F-SHAPE TEMPORARY BARRIER RAIL-CONCRETE | STANDARD 1050 | PLYMOUTH COUNTY | PROJECT NUMBER | BRFN-075-2(66)-39-75 | SHEET NUMBER 11 |

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

# ESTIMATED ROADWAY QUANTITIES

100-0A
10-28-97

| ITEM NO. | ITEM CODE | ITEM | UNIT | TOTAL | AS BUILT QUAN. |
|---|---|---|---|---|---|
| 1 | 2301-0685100 | BRIDGE APPROACH SECTION | SY | 232 | 232 |
| 2 | 2510-6745850 | REMOVAL OF PAVEMENT | SY | 232 | 232 |
| 3 | 2527-9263109 | PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED | STA | 81 | 76.2 |
| 4 | 2527-9263130 | REMOVABLE TAPE MARKINGS | STA | 153 | 142.6 |
| 5 | 2527-9263180 | PAVEMENT MARKINGS REMOVED | STA | 81 | 76.188 |
| 6 | 2528-8400157 | TEMPORARY FLOODLIGHTING LUMINAIRE | EACH | 2 | 2 |
| 7 | 2528-8445110 | TRAFFIC CONTROL | LS | 1 | 1 |
| 8 | 2602-0000020 | SILT FENCE | LF | 50 | 0 |

# ESTIMATE REFERENCE INFORMATION

100-4A
10-29-02

| Item No. | Item Code | Description |
|---|---|---|
| 1 | 2301-0685100 | See Tab. WHKS 112-6. Contractor shall exercise care in replacing approach slab not to disturb existing guardrail, posts, and remaining portions of paved shoulders. Any damage shall be repaired at the Contractor's expense. |
| 2 | 2510-6745850 | See Tab. 110-1 Disposal shall be as per Standard Note 213-1 and 213-7. |
| 3 | 2527-9263109 | See Tab. 108-22. |
| 4 | 2527-9263130 | |
| 5 | 2527-9263180 | |
| 6 | 2528-8400157 | See Tab. 108-23, Tab.108-26 and Tab. 108-27. |
| 7 | 2528-8445110 | |
| 8 | 2602-0000020 | Silt fence shall be used to protect and restore areas disturbed by necessary construction activities, as directed by the Engineer. Item includes 50 linear feet (nominal) to establish bid item. The Engineer shall adjust the locations to fit field conditions. |

LICENSED PROFESSIONAL ENGINEER
JAMES L. AUDINO
13099
IOWA

I hereby certify that this plan 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 James L. Audino Date 12/23/03

James L. Audino
Printed or Typed Name

My license renewal date is December 31, 2003

Pages or sheets covered by this seal: 12 -19

DESIGN NO. 1104
FILE NO. 29950

L:\Dept\6\6060-08\Plymouth\1104\Highway\H751104.s51

12/23/2003

| DESIGN TEAM | WHKS & CO. | ENGLISH | IOWA DOT * OFFICE OF DESIGN | PLYMOUTH | COUNTY | PROJECT NUMBER | BRFN-075-2(66)--39-75 | SHEET NUMBER | 12 |
|---|---|---|---|---|---|---|---|---|---|

SYSTEMTIME USERNAME DGNSPEC

04-03-01 203-2

During construction of this project, the contractor will be required to coordinate his operations with those of other contractors working within the same area. Other work in progress during the same period of the time will include construction of the following projects:

| Project | Type of Work |
|---|---|
| None anticipated | |
| Verify at time of construction | |

09-29-92 203-4

The contractor is encouraged to take full advantage of specification 1105.15 - Value Engineering Incentive Proposal. A pamphlet and conceptual proposal form will be available at the preconstruction conference.

01-20-84 204-2

All holes resulting from operations of the contractor, including removal of guardrail posts, fence posts, utility poles, or foundation studies, shall be filled and consolidated to finished grade as directed by the engineer to prevent future settlement. The voids shall be filled as soon as practical - preferably the day created and not later than the following day. Any portion of the right-of-way or project limits (including borrow areas and operation sites) disturbed by any such operations shall be restored to an acceptable condition. This operation shall be considered incidental to other bid items in project.

10-29-02 213-1

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. These areas shall not impact wetlands or "Waters Of The U.S." 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.

04-30-02 213-7

Unless otherwise directed or authorized, all hot mix asphalt and other bituminous materials which are not specifically addressed or described in the contract documents shall become the property of the contractor.

The contractor, in accordance with current rules and regulations of the Iowa Department of Natural Resources, may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.
2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.
3. Remove the material from the project and stockpile for the contractor's future use.

01-20-84 221-4

In order to avoid any unnecessary surface breaks or premature spalling, the contractor is cautioned to exercise extreme care when performing any of the necessary saw cutting operations for the proposed pavement removal.

03-28-95 232-3

EROSION CONTROL:

Following completion of work on this project seeding, fertilizing, and mulching of all disturbed areas shall be done as directed by the Engineer.

SEEDING:

3 lbs. of Fescue, Kentucky 31 or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs. of 13-13-13 (or equivalent) chemically combined fertilizer per 1000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1000 sq. ft. All mulch to be consolidated into the soil with the mulch stabilizer.

The preparation of the seedbed, furnishing and application of seed, fertilizer, and mulch to all disturbed areas on this project shall be considered incidental to work on this project and no extra compensation will be allowed.

01-20-84 232-5

The contractor shall not disturb desirable grass areas and desirable trees outside the construction limits. The contractor will not be permitted to park or service vehicles and equipment or use these areas for storage of materials. Storage, parking and service area(s) will be subject to the approval of the resident engineer.

06-07-94 232-8

The top six (6) inches of the disturbed areas shall be free of rock and debris and shall be suitable for the establishment of vegetation, subject to the approval of the Engineer.

10-28-97 232-10

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.

06-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the Engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

10-31-95 251-4

The centerline pavement marking shall always be placed on one side of the roadway except where a "No Passing Zone" line is used, at which point it is placed on the opposite side of the roadway. The centerline shall be placed on the same side of the roadway as to match existing markings near the project.

10-29-02 262-3

BEFORE YOU DIG:
IOWA ONE CALL# 1-800-292-8989

## TRAFFIC CONTROL PLAN

108-23
04-04-89

1 Traffic will be maintained on US 75 at all times.

2 Traffic control on this project shall be in accordance with Standard Road Plans and Detail Sheets contained in the plans. For additional complementary information, refer to Part VI of the Manual on Uniform Traffic Control Devices and to the current Standard Specifications.

3 The contractor shall coordinate traffic control with other projects in the area.

4 All traffic control devices shall be furnished, erected, maintained, and removed by the contractor.

5 Where possible, all post-mounted signs shall be placed at least 2 feet beyond the curb or edge of shoulder.

6 The location for storage of equipment by the contractor during nonworking hours shall be as approved by the engineer in charge of construction.

7 The engineer may require modifications to the pavement marking details shown. Conflicting permanent edge lines, centerlines, or lane lines shall be removed. As applicable, permanent edge lines, centerlines, and lane lines shall be placed before the roadway is returned to normal traffic. The current Standard Specifications and Supplemental Specifications shall apply.

8 Proposed sign spacing may be modified as approved by the engineer to meet existing field conditions or to prevent obstruction of the motorist's view of permanent signing.

9 Permanent signing that conveys a message contrary to the message of the temporary signing and not applicable to the working conditions shall be covered by the contractor when directed by the engineer.

10 Proposed changes in the traffic control plan shall be approved by the Resident Construction Engineer before changes are made.

11 Additional signing will be required for intersecting streets and alleys within the town of Merrill.

12 Gore area signing shall be relocated to accommodate the routing of traffic during construction. Upon completion of the project, the Contractor shall relocate the signing to its original location.

## STAGING NOTES

108-26
08-30-88

Contractor shall stage construction to minimize inconvenience to traffic, maximize use and preservation of existing pavement, and improve coordination among projects within the corridor.

Situations may arise which preclude adhering to the original construction sequence or which, in the opinion of the Contractor, would readily lend themselves to more efficient staging operations. Should the Contractor desire to deviate from the original plan, an alternate plan shall be submitted to the Engineer for review and approval.

## STANDARD ROAD PLANS

105-4
12-03-96

The following Standard Road Plans shall be considered applicable to construction work on this project.

| NUMBER | DATE | NUMBER | DATE | NUMBER | DATE |
|---|---|---|---|---|---|
| | | | | | |
| RC-16A | 10-27-98 | | | | |
| RC-16B | 09-21-99 | | | | |
| | | | | | |
| RE-71(1) | 04-15-03 | | | | |
| RE-71(2) | 04-15-03 | | | | |
| RE-72 | 04-15-03 | | | | |
| | | | | | |
| RH-50 | 10-21-03 | | | | |
| RH-51 | 10-21-03 | | | | |
| RH-52 | 10-21-03 | | | | |
| RH-55 | 10-21-03 | | | | |
| | | | | | |
| RK-16 | 10-03-00 | | | | |
| RK-19A | 10-29-02 | | | | |
| RM-49 | 10-21-03 | | | | |

W-1

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 responsibilty 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.

DESIGN NO. 1104
FILE NO. 29950

L:\Dept\6\6060-08\Plymouth\1104\Highway\H751104.s52

12/18/2003

| DESIGN TEAM | WHKS & CO. | ENGLISH | IOWA DOT * OFFICE OF DESIGN | PLYMOUTH | COUNTY | PROJECT NUMBER | BRFN-075-2(66)--39-75 | SHEET NUMBER | 13 |
|---|---|---|---|---|---|---|---|---|---|

SYSTEMTIME USERNAME DGNSPEC

# TABULATION OF PAVEMENT MARKINGS

108-22
10-21-03

② Broken Center Line (Yellow) ⑤ No-Passing Zone Line (Yellow) ⑦ Edge Line Right (White) ⑨ Dotted Line (White) ⑪ Channelizing Line (White) ⑬ Stop Line (White) ⑮ Yellow Curb ⑰ Yield Line (White)
③ Double Center Line (Yellow) ⑥ Broken Lane Line (White) ⑧ Edge Line Left (Yellow) ⑩ Solid Lane Line (White) ⑫ Channelizing Line (Yellow) ⑭ Crosswalk Line (White) ⑯ White Curb ⑱ Double Dotted Line (Yellow)

| Road Identification | Station to Station | | | Side L | Side R | Length (In Stations) ② | ③ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REMOVE | | | | | | | | | | | | | | | | | | | | | | |
| US 75 | 640+35 | to | 659+35 | - | - | | 19.0 | | | | | | | | | | | | | | | Remove Existing Centerline |
| US 75 | 659+35 | to | 662+65 | SB | - | | | | | | | | | | 3.3 | | | | | | | Remove Median Channelizing Line - SB |
| US 75 | 659+35 | to | 661+85 | NB | - | | | | | | | | | | 2.5 | | | | | | | Remove Median Channelizing Line - NB |
| US 75 | 640+35 | to | 672+55 | - | - | | | | 32.2 | | | | | | | | | | | | | Remove Lane Line - SB |
| US 75 | 637+85 | to | 663+60 | - | - | | | | 25.8 | | | | | | | | | | | | | Remove Lane Line - NB |
| US 75 | 651+05 | to | 658+85 | - | SB | | | | | 7.8 | | | | | | | | | | | | Remove Edge Line - SB |
| US 75 | 650+25 | to | 659+35 | - | NB | | | | | 9.1 | | | | | | | | | | | | Remove Edge Line - NB |
| | | | | | | | 2.0 | | 0.25 | 1.0 | | | | | 2.0 | | | | | | | QUANTITY FACTORS |
| | | | | | | | 38.0 | | 14.5 | 16.9 | | | | | 11.6 | | | | | | | REMOVE PAVEMENT MARKINGS |
| REMOVABLE | | | | | | | | | | | | | | | | | | | | | | |
| For NB Lane Closure | | | | | | | | | | | | | | | | | | | | | | |
| US 75 | 651+05 | to | 658+85 | - | - | | 7.8 | | | | | | | | | | | | | | | Centerline |
| US 75 | 637+85 | to | 663+60 | - | NB | | | | | 25.8 | | | | | | | | | | | | Edge Line - NB |
| US 75 | 647+75 | to | 651+05 | NB | - | | | | | | 3.3 | | | | | | | | | | | Edge Line - NB |
| US 75 | 658+85 | to | 663+60 | NB | - | | | | | | 4.8 | | | | | | | | | | | Edge Line - NB |
| US 75 | 651+05 | to | 658+85 | - | SB | | | | | 7.8 | | | | | | | | | | | | Edge Line - SB |
| US 75 | 647+75 | to | 651+05 | SB | - | | | | | | 3.3 | | | | | | | | | | | Edge Line - SB |
| US 75 | 658+85 | to | 668+75 | SB | - | | | | | | 9.9 | | | | | | | | | | | Edge Line - SB |
| | | | | | | | 2.0 | | | 1.0 | 1.0 | | | | | | | | | | | QUANTITY FACTORS |
| | | | | | | | 15.6 | | | 33.6 | 21.3 | | | | | | | | | | | REMOVABLE MARKINGS NB CLOSURE |
| For SB Lane Closure | | | | | | | | | | | | | | | | | | | | | | |
| US 75 | 650+25 | to | 659+35 | - | - | | 9.1 | | | | | | | | | | | | | | | Centerline |
| US 75 | 650+25 | to | 659+35 | - | NB | | | | | 9.1 | | | | | | | | | | | | Edge Line - NB |
| US 75 | 640+35 | to | 650+25 | NB | - | | | | | | 9.9 | | | | | | | | | | | Edge Line - NB |
| US 75 | 659+35 | to | 662+65 | NB | - | | | | | | 3.3 | | | | | | | | | | | Edge Line - NB |
| US 75 | 643+65 | to | 672+55 | - | SB | | | | | 28.9 | | | | | | | | | | | | Edge Line - SB |
| US 75 | 640+35 | to | 650+25 | SB | - | | | | | | 9.9 | | | | | | | | | | | Edge Line - SB |
| US 75 | 659+35 | to | 662+65 | SB | - | | | | | | 3.3 | | | | | | | | | | | Edge Line - SB |
| | | | | | | | 2.0 | | | 1.0 | 1.0 | | | | | | | | | | | QUANTITY FACTORS |
| | | | | | | | 18.2 | | | 38.0 | 26.4 | | | | | | | | | | | REMOVABLE MARKINGS SB CLOSURE |
| PAINTED | | | | | | | | | | | | | | | | | | | | | | |
| US 75 | 640+35 | to | 659+35 | - | - | | 19.0 | | | | | | | | | | | | | | | Centerline |
| US 75 | 659+35 | to | 662+65 | SB | - | | | | | | | | | | 3.3 | | | | | | | Median Channelizing Line - SB |
| US 75 | 659+35 | to | 661+85 | NB | - | | | | | | | | | | 2.5 | | | | | | | Median Channelizing Line - NB |
| US 75 | 640+35 | to | 672+55 | - | - | | | | 32.2 | | | | | | | | | | | | | Lane Line - SB |
| US 75 | 637+85 | to | 663+60 | - | - | | | | 25.8 | | | | | | | | | | | | | Lane Line - NB |
| US 75 | 651+05 | to | 658+85 | - | SB | | | | | 7.8 | | | | | | | | | | | | Edge Line - SB |
| US 75 | 650+25 | to | 659+35 | - | NB | | | | | 9.1 | | | | | | | | | | | | Edge Line - NB |
| | | | | | | | 2.0 | | 0.25 | 1.0 | | | | | 2.0 | | | | | | | QUANTITY FACTORS |
| | | | | | | | 38.0 | | 14.5 | 16.9 | | | | | 11.6 | | | | | | | PAINTED PAVEMENT MARKINGS |

## TABULATION OF BRIDGE APPROACH SECTION

(Refer to Standard Road Plan RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J)

① Not a bid item

WHKS 112-6

| LOCATION | | APPROACH PAVEMENT | | | | | SUBDRAIN | | | | | APPROACH SUBGRADE | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bridge Station | End | ① Thickness Inches | Pay Length Feet | Non-Reinf. Pavement Area Sq. Yds. | Reinforced Pavement Area Sq. Yds. | Fixed or Movable Abutment F or M | Perforated Subdrain ① 4" Lin. Ft. | Subdrain Outlet ① Station | Side | Porous ① Backfill Cu. Yds. | Class 'A' Crushed Stone ① Backfill Cu. Yds. | Modified Subbase ① Cu. Yds. | Polymer Grid ① Sq. Yds. | |
| 655+20 | South | 10 | 20 | --- | 116 | F | --- | --- | | --- | --- | 11 | 152 | Width = 52 feet, without sloped curb (tie in flush with remainder of existing paved shoulder). |
| 655+20 | North | 10 | 20 | --- | 116 | F | --- | --- | | --- | --- | 11 | 152 | |

## REMOVAL OF PAVEMENT

* Not a Bid Item

110-1
10-21-03

| Station to Station | | Pavement Type | Area (Sq. Yds.) | Saw Cut (Lin. Ft.) | Remarks |
|---|---|---|---|---|---|
| 653+80 | 654+00 | 10" PCC | 116 | 112 | Saw Cut: Reinforced Bridge Approach Section (Width = 52 feet), plus 20 feet adjacent to ℄ and along each outside edge of lanes (Refer to Note 221-4. Any repairs required because of damage by the Contractor shall be completed at the Contractor's expense, without cost to the State of Iowa). |
| 656+40 | 656+60 | 10" PCC | 116 | 112 | |

## TABULATION OF TEMPORARY FLOODLIGHTING LUMINAIRES

108-27
04-30-96

| NO. | LOCATION STATION | TYPE | NUMBER LUMIN. | REMARKS |
|---|---|---|---|---|
| 1 | 651+55 | RM-49 | 1 | For NB Lane Closure |
| 2 | 658+85 | RM-49 | 1 | For SB Lane Closure |

DESIGN NO. 1104
FILE NO. 29950

| DESIGN TEAM | WHKS & CO. | ENGLISH | IOWA DOT * OFFICE OF DESIGN | PLYMOUTH | COUNTY | PROJECT NUMBER | BRFN-075-2(66)--39-75 | SHEET NUMBER | 14 |
|---|---|---|---|---|---|---|---|---|---|

SYSTEMTIME USERNAME DGNSPEC

L:\Dept\6\6060-08\Plymouth\1104\Highway\H751104.s53

12/18/2003