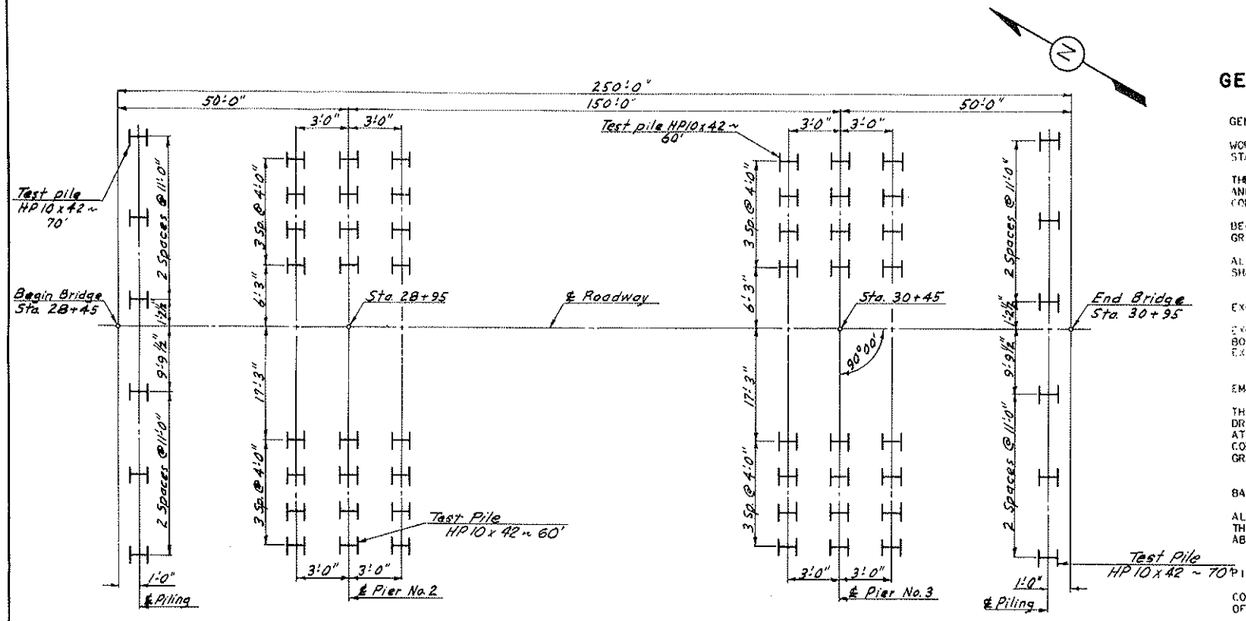
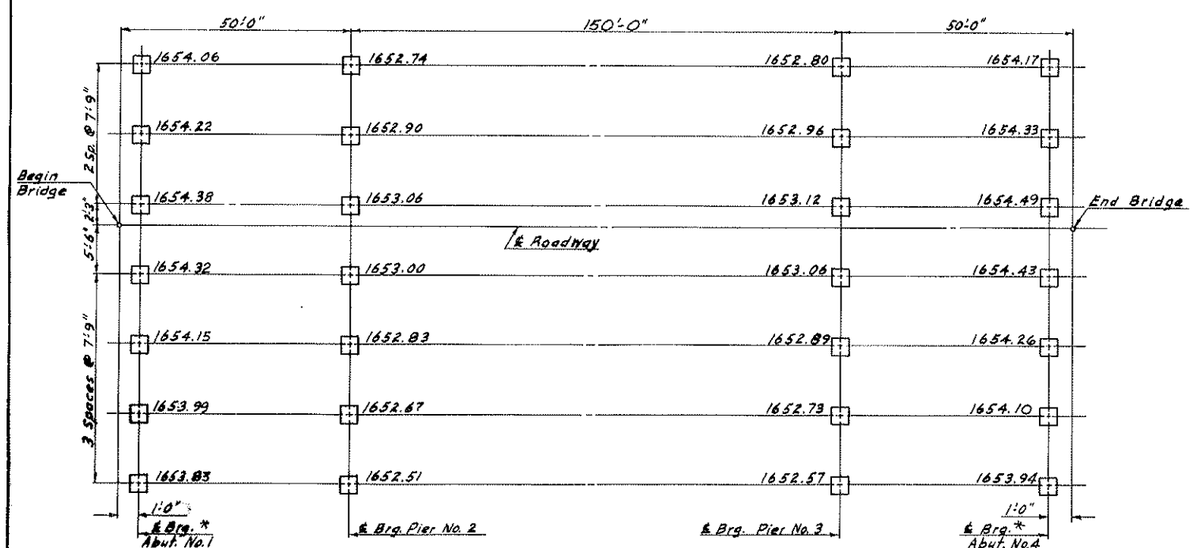
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	BRS-1-806(69)069	15	



PILING LAYOUT
(Not to Scale)
Stations are on Office Location



BEARING PLATE LAYOUT
Elevations shown are to top of finished concrete
(Not to Scale)
Stations are on Office Location

*Abut. brg. surface shall be on 2 % grade.

GENERAL NOTES:

GENERAL:

WORK SHALL CONFORM TO ALL APPLICABLE PARAGRAPHS OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

THE COST OF FURNISHING AND PLACING JOINT FILLER, ASPHALT CURB SEAL, AND OTHER MISCELLANEOUS ITEMS SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE.

BEARING AREAS SHALL BE FINISHED TRUE TO PLAN AND ELEVATION BY GRINDING, IF NECESSARY, BEFORE BEARING PLATES ARE SET.

ALL HIGH STRENGTH BOLTS ARE TO BE 7/8 INCH DIAMETER. FIELD CONNECTIONS SHALL BE MADE WITH HIGH TENSILE STRENGTH BOLTS.

EXCAVATION:

EXCAVATION FOR ABUTMENTS SHALL BE CLASS 1 AND SHALL EXTEND FROM THE BOTTOM OF THE FOOTING TO THE LIMITS SHOWN ON THE BRIDGE LAYOUT DRAWING. EXCAVATION AT PIERS SHALL BE CLASSIFIED AS CLASS 2.

EMBANKMENT:

THE EMBANKMENT AT THE ABUTMENTS SHALL BE IN PLACE BEFORE PILING ARE DRIVEN. THE CONTRACTOR WILL BE REQUIRED TO PREDRILL THROUGH THE FILL AT THE ABUTMENTS BEFORE DRIVING PILING. ALL PILOT HOLES, NOT COMPLETELY FILLED BY THE PILES, SHALL BE BACKFILLED WITH SAND OR FINE GRAVEL BEFORE THE SUBSTRUCTURE IS PLACED.

BACKFILL:

ALL BACKFILLING SHALL BE DONE ACCORDING TO SECTIONS 228 AND 203-2.3.2 OF THE STANDARD SPECIFICATIONS. SELECTED BACKFILL SHALL NOT BE PLACED ABOVE THE ELEVATION OF THE BERM UNTIL THE SUPERSTRUCTURE HAS CURED.

PILING:

CONCRETE PILING IN ACCORDANCE WITH STANDARD H-0402 MAY BE USED IN PLACE OF THE STEEL PILING INDICATED ON THE PLANS.

THE TEST PILES SHALL BE DRIVEN TO A BEARING OF NOT LESS THAN 125% OF THE DESIGN LOAD AS DETERMINED BY THE DYNAMIC FORMULA.

THE PILES FOR THIS STRUCTURE SHALL BE DRIVEN BY A STEAM (OR AIR) OR DIESEL HAMMER HAVING A RATED ENERGY AND RAM WEIGHT NOT LESS THAN 23,562 FOOT-POUND-TONS AS COMPUTED BY THE FORMULA $W(E-8662)+0.544E$ WHERE W IS THE WEIGHT OF THE RAM IN TONS AND E IS THE RATED HAMMER ENERGY AS ALLOWED IN THE STANDARD SPECIFICATION. IN NO CASE SHALL THE RAM WEIGHT BE LESS THAN 4,800 POUNDS.

REINFORCING STEEL:

BENT BARS SHALL BE BENT AROUND A.C.I. STANDARD SIZE PINS FOR GRADE 60 REINFORCING.

THE TOP LAYER OF TRANSVERSE DECK SLAB REINFORCEMENT SHALL BE TIED DOWN WITH WIRE TIES TO THE SHEAR CONNECTORS OF THE BEAMS. IF CHANNELS ARE USED, SMALL HOLES MAY BE BURNED THROUGH THE TOP PORTION OF THE SHEAR CONNECTOR WEB TO FACILITATE MAKING THE TIE. THE TIES SHALL BE AT INTERVALS OF 5 TO 6 FEET ALONG THE FULL LENGTH OF ALL BEAMS TO PREVENT THE SLAB REINFORCEMENT FROM RISING WHEN THE CONCRETE IS PLACED.

REINFORCING STEEL IS TO BE GRADE 60.

CONCRETE:

THE DECK SLAB CONCRETE SHALL BE STRUCK OFF AND COMPACTED BY AN APPROVED DECK FINISHING MACHINE.

CONCRETE FOR SLAB, CURB AND RAIL, POSTS, AND END WALLS SHALL BE CLASS AAE-3. CONCRETE FOR PIERS AND ABUTMENTS SHALL BE AE-1 CONCRETE.

THE "RUBBED SURFACE FINISH" (SECTION 602-3.10.3) OR THE "SPECIAL SURFACE FINISH" (SECTION 602-3.10.5) WILL BE REQUIRED FOR EXPOSED FACES OF THE ABUTMENTS AND PIERS. IT WILL ALSO BE REQUIRED ON BOTH FACES OF CURBS, EDGES OF SLABS, ALL FACES OF THE RAILS, RAIL POSTS, AND END POSTS. ALL OTHER SURFACES SHALL BE GIVEN THE "ORDINARY SURFACE FINISH".

THE CONTRACTOR MAY SUBSTITUTE AE-3 CONCRETE FOR AE-1 CONCRETE. ANY SUBSTITUTION, HOWEVER, WILL BE AT THE CONTRACTOR'S EXPENSE AND THE CLASS OF CONCRETE PAID FOR WILL BE THAT CLASS SHOWN ON THE PLANS.

CURING CONCRETE:

LIQUID MEMBRANE CURING COMPOUND SHALL NOT BE USED ON ANY CONCRETE WHICH IS TO RECEIVE FURTHER TREATMENT EXCEPT AS PROVIDED IN THE FOLLOWING PARAGRAPHS.

THE WATER SOLUBLE LIQUID MEMBRANE CURB (SECTION 550-4.13.2.1 AND 880-5 OF THE STANDARD SPECIFICATIONS) MAY BE USED FOR CURING THE DECK SLAB CONCRETE. A PROTECTIVE COVER SHALL BE USED SO THAT LINSEED OIL IS NOT APPLIED TO THE AREA WITHIN THREE INCHES OF THE GUTTER LINE UNTIL AFTER THE ASPHALT CURB SEAL IS IN PLACE.

IF THE CONTRACTOR ELECTS TO USE THIS METHOD OF CURING THE DECK CONCRETE, THE QUANTITY FOR LINSEED OIL TREATMENT MAY BE REDUCED WITHOUT ADJUSTMENT TO ITS BID PRICE.

THE COST OF LIQUID MEMBRANE CURING COMPOUND SHALL BE INCLUDED IN THE BID PRICE FOR CONCRETE CLASS AAE-3.

LINSEED OIL TREATMENT:

LINSEED OIL TREATMENT SHALL NOT BE DONE UNTIL ALL CONCRETE WORK IS COMPLETED AND THE ASPHALT CURB SEAL HAS BEEN INSTALLED. ONLY ONE UNIFORM APPLICATION OF .015 GALLONS PER SQUARE YARD SHALL BE APPLIED TO THE DECK, CURB AND SIDEWALK.

PAINT:

PAINT AND PAINTING SHALL CONFORM TO THE STANDARD SPECIFICATIONS, SECTIONS 718 AND 870-1.2. ALL EXPOSED STEEL SURFACES SHALL BE GIVEN ONE SHOP COAT OF RED LEAD PAINT (INCLUDING TOP OF UPPER FLANGES BUT NOT SHEAR CONNECTORS), ONE SPOT COAT OF RED LEAD PAINT AFTER ERECTION AND CONCRETE WORK IS COMPLETED AND TWO FINISH COATS OF ENAMEL. THE FIRST FINISH COAT SHALL CONFORM TO RED COLOR NO. 31158 AND THE SECOND COAT SHALL CONFORM TO RED COLOR NO. 31302. BOTH FINISH COATS SHALL MEET THE FEDERAL STANDARD NO. 595 FOR COLOR. COLOR CHIPS ARE ON FILE IN THE BRIDGE DIVISION OF THE NORTH DAKOTA STATE HIGHWAY DEPARTMENT, BISMARCK.

STRUCTURAL STEEL:

SEE DRAWING 1806-69.93-10

REMOVAL OF STRUCTURE:

THE EXISTING STRUCTURE IS A THREE SPAN BRIDGE WITH A CLEAR ROADWAY OF 19 FEET. THE TWO END SPANS ARE EACH 45 FEET IN LENGTH AND CONSIST OF A CONCRETE SLAB SUPPORTED BY ROLLED BEAMS. THE CENTER SPAN IS A 150 FOOT STEEL TRUSS WITH A CONCRETE SLAB.

THE STRUCTURAL STEEL IS TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. THE CONCRETE SHALL BE BROKEN UP AND DISPOSED OF WITHIN ONE MILE OF THE SITE AS DIRECTED BY THE ENGINEER.

THE TELEPHONE CONDUIT, GAS LINE, TV CABLE AND SEWER LINE WILL BE REMOVED BY THE OWNERS.

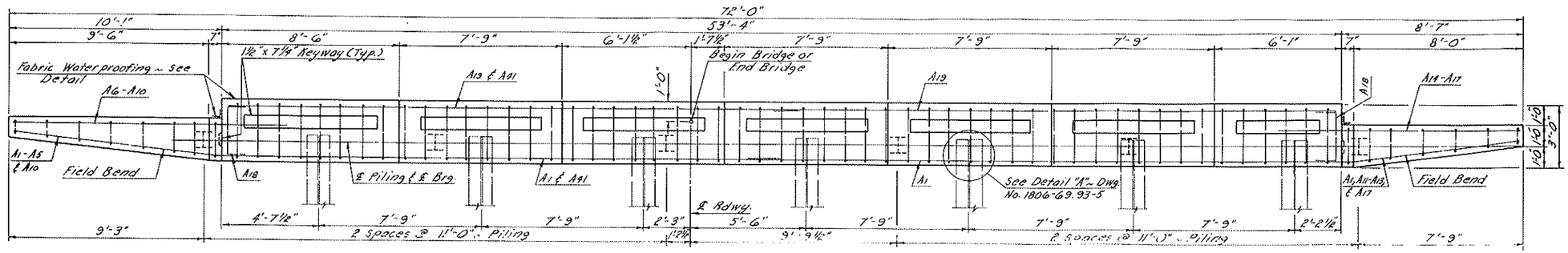
QUANTITIES

HEART RIVER BRIDGE

PILING LAYOUT
BEARING PLATE LAYOUT
GENERAL NOTES

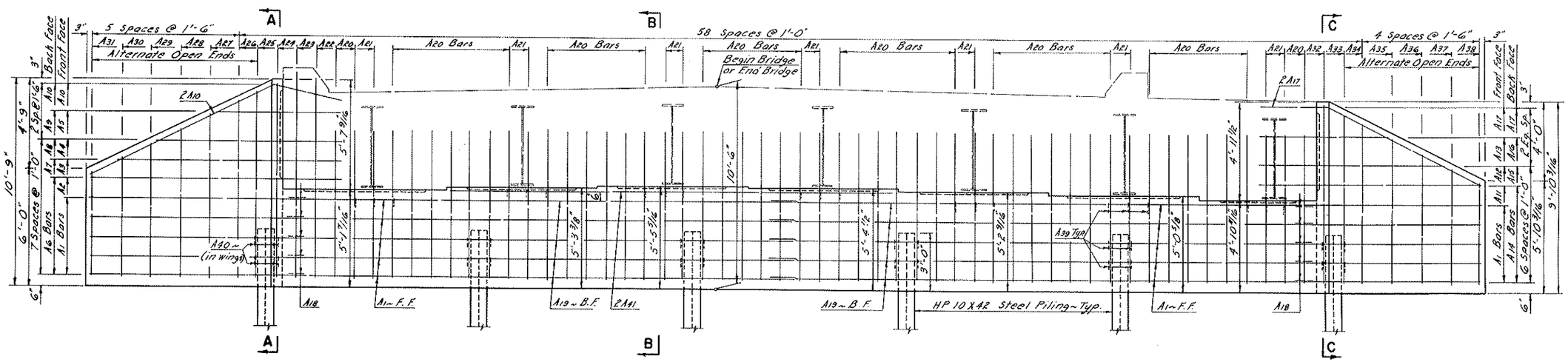
1806-69.93-3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	N. D.	BRS-1-806(9)&069	16	



PLAN

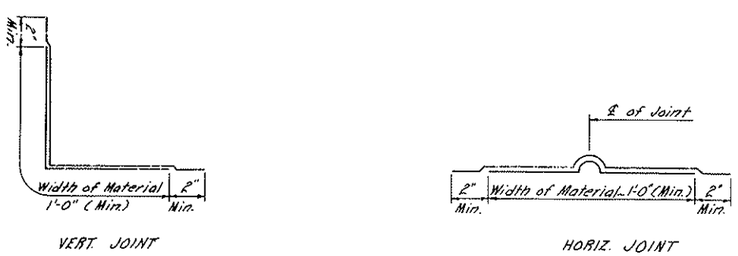
Abut. No. 4 Shown ~ Abut No. 1 Reversed



ELEVATION

Abut. No. 4 Shown ~ Abut No. 1 Reversed

Nomenclature:
F.F. = Front Face
B.F. = Back Face



FABRIC WATERPROOFING DETAIL

NOTE:

Two Ply Fabric Waterproofing shall consist of furnishing materials and placing damp-proofing and fabric waterproofing at areas designated on this sheet in accordance with Sec. 786 of the "Standard Specifications" for Two Ply Fabric Waterproofing. All materials and work shall be considered incidental to the pay item for Class AE-1 Concrete.

See Dwg. 1806-69.93-5 for sections A-A, B-B & C-C.

QUANTITIES

See Dwg. 1806-69.93-5

HEART RIVER BRIDGE

ABUTMENT DETAILS

1806-69.93-4