

**HARTLAND BRIDGE
CLAY COUNTY, WEST VIRGINIA
STATE PROJECT S308-16-14.77
FEDERAL PROJECT BR-0016(171)E**



STATE LEVEL DOCUMENTATION

MAY 2012

West Virginia
Department of Transportation
Division of Highways
Engineering Division
Environmental Section
(304) 558- 2885

STATE LEVEL HISTORIC DOCUMENTATION
HARTLAND BRIDGE

Location: West Virginia State Route 16
Hartland
Clay County
West Virginia

USGS Hartland Quadrangle

Date of Construction: 1924

Builder: Roanoke Iron and Bridge Company (Superstructure)
Fidelity Construction Company (Substructure)

Designer: West Virginia State Road Commission

Present Owner: West Virginia Department of Transportation
Division of Highways
1900 Kanawha Boulevard, Building 5, Room A-110
Charleston, WV 25305

Present Use: Vehicular Bridge

Significance: The Hartland Bridge is significant under Criterion A for its local transportation significance and under Criterion C for engineering design.

Project Information: The project has been undertaken due to the poor condition of the bridge. Any future deterioration of the bridge would result in its closure, the existing bridge warrants replacement. The documentation was undertaken in May 2012 in accordance with a Memorandum of Agreement among the West Virginia Department of Transportation and West Virginia State Historic Preservation Office. These measures are required prior to replacement of this National Register eligible structure.

Sondra L. Mullins, Structural Historian
West Virginia Division of Highways
Charleston, WV 25305
May 21, 2012

Hartland Bridge is located in Clay County in the small community of Hartland. The bridge carries West Virginia Route 16 over the Elk River. The surrounding landscape is rural and mountainous in nature.



Hartland Bridge was built in 1924 by Roanoke Iron and Bridge Company and was designed by the West Virginia State Road Commission. Hartland Bridge consists of four steel simple span riveted deck girders with span lengths of 60' each and two steel riveted simple Pratt deck trusses with span lengths of 160' each. The overall length of the bridge is 571'-5" and the deck width is 20'-0". The piers and abutments consist of reinforced concrete. The bridge railings consist of vertical steel I-sections which support typical metal guardrail. The deck is concrete-filled steel grid. There are no bridge plates.

According to the West Virginia Archives and History website, Hartland was first known by that name in 1918. The area is labeled as Middle Creek on the 1908 United States Geological Survey topographical map. The 1908 USGS map also shows the Coal and Coke Railroad and a ford across the Elk River around the location of Hartland Bridge. Jacob Salisbury, first court clerk of Clay County, owned most of the land in and around Hartland. In 1917, his son sold lots in the area and a number of homes were built. The road along the Elk River between Clay and Hartland that later became WV 16 is shown on the 1908 topographical map, but appears to have been improved around the time of the construction of Hartland Bridge or slightly after.

Hartland Bridge was built across the Elk River in 1923-24. D.H. Stephenson, member of the West Virginia House of Delegates, secured the funding for the bridge. It was constructed by the Roanoke Bridge Works, which began in 1906 as the Roanoke Bridge Company. The company operated in the southern United States and by 1911 had constructed over 600 bridges including a 700' bridge with 200' draw span over the Nanticoke River in Maryland, and various steel buildings. The company failed around 1912 and was acquired by the Camden Iron Works of Salem, Virginia and reorganized as the Roanoke Iron and Bridge Works around 1915. No information could be found regarding the Fidelity Construction Company of Mount Hope.

Hartland Bridge is one of two bridges in the state that are riveted deck trusses. The structure is an uncommon bridge type and has an exceptional span length for its type and year of construction.

Hartland Bridge was the first bridge to cross over the Elk River at this location. County histories indicate that the construction of this bridge was a point of pride and excitement for the local community. For example, one author wrote “In 1923, one of the best highway bridges was built across the river.” This large bridge represented a major transportation improvement for the very rural county.

Original bridge plans and shop drawings as well as repair plans from 1961 and 1976 were available in WVDOH records. The most significant alterations made to the bridge occurred in 1976 and included the complete replacement of the concrete deck with a concrete-filled steel grid deck and the welding of steel angles and plates to the deck trusses, girder spans, floor beams and stringers in order to increase the strength capacity. The original railing, which consisted of three horizontal angles at a spacing of 1'-6" and diamond-pattern lacing, has been replaced with standard galvanized metal guardrail (date unknown.) In spite of these alterations, the scale and form of the original long-span riveted deck trusses is still intact.



The Hartland Bridge is eligible for the National Register of Historic Places under Criterion A for local transportation significance and under Criterion C for engineering design.

BIBLIOGRAPHY

West Virginia Division of Highways, Bridge Files, Maintenance Division, Building 5, Capitol Complex, Charleston, West Virginia, 2011.

West Virginia Division of Highways, Historic Property Inventory Form, Engineering Division, Building 5, Capitol Complex, Charleston, West Virginia, August 2011.

West Virginia Division of Highways, Phase 1 Cultural Resource Management Report, Engineering Division, Building 5, Capitol Complex, Charleston, West Virginia, May 2010.

WV Culture and History Website, <http://www.wvculture.org/>, accessed in April 2010.

STATE LEVEL HISTORIC DOCUMENTATION
INDEX TO PHOTOGRAPHS

Hartland Bridge

West Virginia State Route 16, over Elk River

Hartland

Clay County, West Virginia

Photographer: Courtney Fint and Sondra Mullins

April 2010 & May 2012

HARTLAND -1	Deck of bridge looking north to south (2010)
HARTLAND -2	Downstream side of bridge (2010)
HARTLAND -3	Pier at girder spans, south bank (2012)
HARTLAND -4	Southside of bridge looking northeast (2012)
HARTLAND -5	Truss at Pier 3 (2010)
HARTLAND -6	Underneath bridge deck at south end (2012)
HARTLAND -7	Upstream side looking underneath the bridge (2012)
HARTLAND -8	Upstream side of the bridge (2010)
HARTLAND -9	View from south side bank (2010)
HARTLAND -10	Riveted steel bent with pin connection at the base (2012)

Original bridge plans and 1976 repair plans are attached.













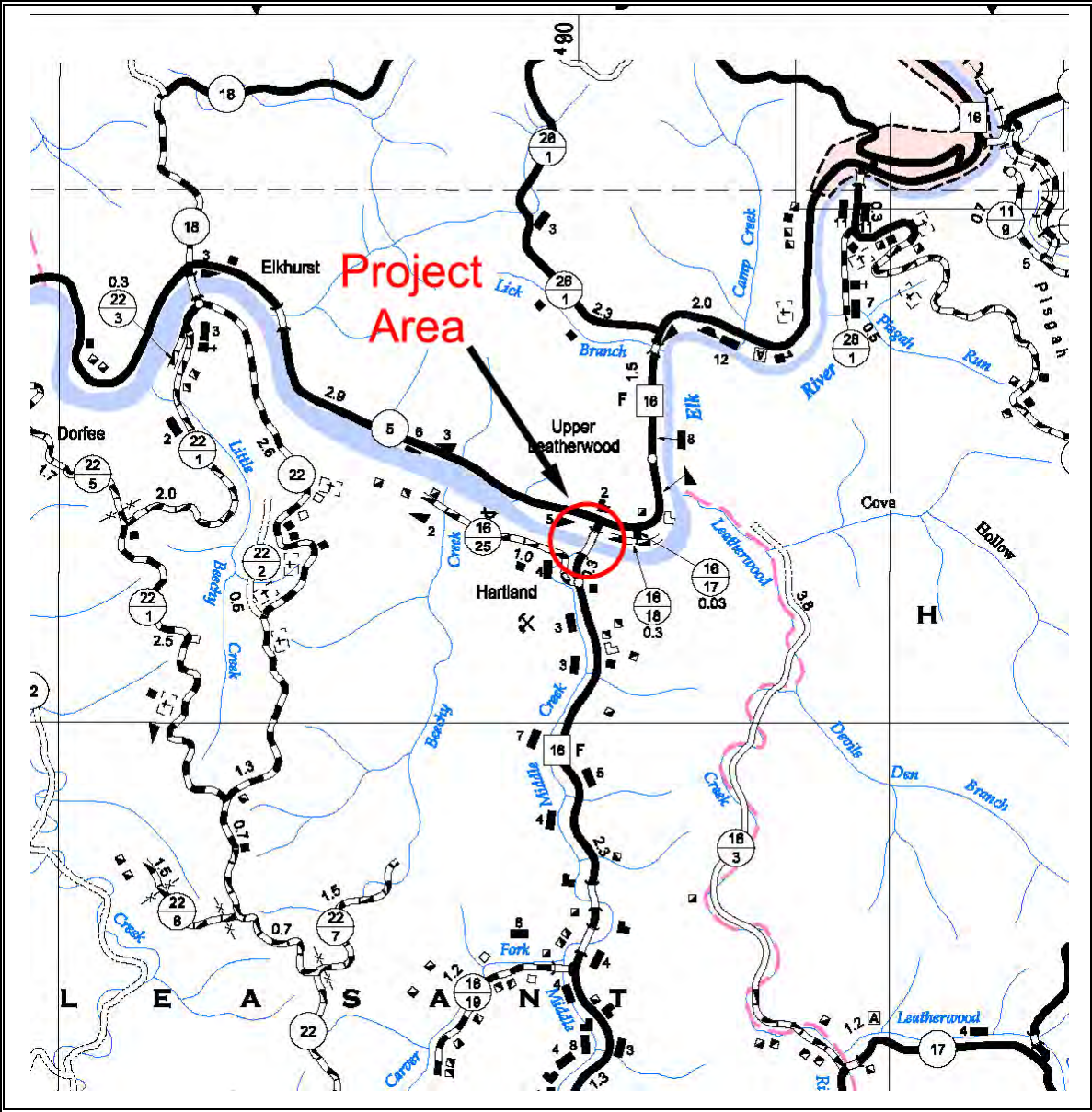








HIGHWAY MAP



Hartland Bridge Replacement Clay County

State Project S208-16-14.77
Federal Project BR-0006(171)D

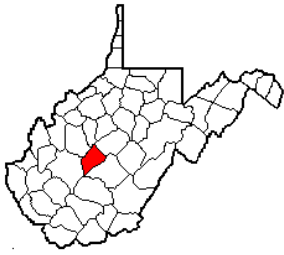
TOPOGRAPHIC MAP

Hartland USGS 7½' Topographic Quadrangle



Hartland Bridge Replacement
Clay County
State Project S208-16-14.77
Federal Project BR-0006(171)D

Internal Rating: _____



WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address WV 16 Milepost 14.77	Common/Historic Name/Both <input type="checkbox"/> Hartland Bridge <input type="checkbox"/> <input checked="" type="checkbox"/>	Field Survey # HPI 1	Site # (SHPO Only)
Town or Community Hartland	County Clay	Negative No.	NR Listed Date
Architect/Builder WV State Road Commission (design); Roanoke Bridge Works (superstructure); Fidelity Construction Co. (substructure)	Date of Construction 1924	Style (SHPO Only)	
Exterior Siding / Materials Construction material: steel	Roofing Material Deck material: Asphalt over concrete filled steel grid	Foundation Abutments: concrete Piers: concrete	
Property Use or Function Transportation	UTM Zone 17 NAD 1983 Easting 490,134 Northing 4,253,687		
Survey Organization & Date WVDOH April 1, 2010	Quadrangle Name Hartland		
(Continuation of Survey Organization & Date)	Part of What Survey / FR#		



Site No.

Name: Hartland Bridge
 Survey #: HPI 1
 Survey / FR#:

Present Owners WV DOT	Owners Mailing Address Capitol Complex, Charleston, WV
Describe Setting <div style="float: right;"> <1 Acres <input type="checkbox"/> Archaeological Artifacts Present </div> <p>This bridge crosses the Elk River in a rural area. The surrounding landscape is mountainous and wooded. There is a small community located along the river directly upstream of the bridge.</p>	
Description of Buildings or Site (Original and Present) <div style="float: right;"> Stories Front Bays </div> <p>Hartland Bridge consists of four steel simple span riveted deck girders with span lengths of 60' each and two steel riveted simple Pratt deck trusses with span lengths of 160' each. The overall length of the bridge is 571'-5" and the deck width is 20'-0". The piers and abutments consist of reinforced concrete. The bridge railings consist of vertical steel I-sections which support typical metal guardrail. The deck is concrete-filled steel grid. There are no bridge plates.</p>	
Alterations <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe 1976: Original concrete slab deck replaced with concrete-filled steel grid deck; steel angles and plates welded to truss members, girders, floor beams and stringers for increased strength Date unknown: original horizontal angle railing with diamond pattern lacing replaced with standard galvanized metal guardrail.	
Additions <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe	
Describe All Outbuildings	
Statement of Significance: See Continuation Sheet	
Bibliographical References Sullivan, Ken. The West Virginia Encyclopedia. Charleston, WV: West Virginia Humanities Council, 2003. Jack, George S. and Edward Boyle Jacobs. History of Roanoke County. 1912. History of Clay County Volume I. Clay, WV: Clay County History Book Committee, 1989.	
Form Prepared By: <div style="float: right;">Date: May 22, 2012</div> <p>Name/Organization: Courtney Fint Address: WV Division of Highways Capitol Complex Building 5, Rm. 463 Charleston, WV 25305</p> <p>Phone #: 558-7421</p>	

WEST VIRGINIA HISTORIC PROPERTY FORM CONTINUATION SHEET

Name: Hartland Bridge
Survey Number: HPI 1
Project / FR#:

According to the West Virginia Archives and History website, Hartland was first known by that name in 1918. The area is labeled as Middle Creek on the 1908 United States Geological Survey topographical map. The 1908 USGS map also shows the Coal and Coke Railroad and a ford across the Elk River around the location of Hartland Bridge. Jacob Salisbury, first court clerk of Clay County, owned most of the land in and around Hartland. In 1917, his son sold lots in the area and a number of homes were built. The road along the Elk River between Clay and Hartland that later became WV 16 is shown on the 1908 topographical map, but appears to have been improved around the time of the construction of Hartland Bridge or slightly after.

Hartland Bridge was built across the Elk River in 1923-24. D.H. Stephenson, member of the West Virginia House of Delegates, secured the funding for the bridge. It was constructed by the Roanoke Bridge Works, which began in 1906 as the Roanoke Bridge Company. The company operated in the southern United States and by 1911 had constructed over 600 bridges including a 700' bridge with 200' draw span over the Nanticoke River in Maryland, and various steel buildings. The company failed around 1912 and was acquired by the Camden Iron Works of Salem, Virginia and reorganized as the Roanoke Iron and Bridge Works around 1915. No information could be found regarding the Fidelity Construction Company of Mount Hope.

Hartland Bridge is one of two bridges in the state that are riveted deck trusses. The structure is an uncommon bridge type and has an exceptional span length for its type and year of construction. Therefore, the WVDOH has concluded that Hartland Bridge is eligible for the National Register under Criterion C for engineering design.

Hartland Bridge was the first bridge to cross over the Elk River at this location. County histories indicate that the construction of this bridge was a point of pride and excitement for the local community. For example, one author wrote "In 1923, one of the best highway bridges was built across the river." This large bridge represented a major transportation improvement for the very rural county. Therefore, Hartland Bridge is determined to be eligible under Criterion A for local transportation significance.

No information could be found linking this bridge to any important historical figures and it has little information-yielding potential. Therefore, Hartland Bridge is not eligible under Criteria B or D.

The area surrounding the bridge consists primarily of contemporary residences. The community of Hartland does not have sufficient integrity to be considered an historic district.

Original bridge plans and shop drawings as well as repair plans from 1961 and 1976 were available in WVDOH records. The most significant alterations made to the bridge occurred in 1976 and included the complete replacement of the concrete deck with a concrete-filled steel grid deck and the welding of steel angles and plates to the deck trusses, girder spans, floor beams and stringers in order to increase the strength capacity. The original railing, which consisted of three horizontal angles at a spacing of 1'-6" and diamond-pattern lacing, has been replaced with standard galvanized metal guardrail (date unknown.) In spite of these alterations, the scale and form of the original long-span riveted deck trusses is still intact. Hartland Bridge retains sufficient integrity of materials, design and workmanship to qualify for the National Register of Historic Places.



1. Project environs looking northeast towards bridge.



2. Project environs looking south towards CR 16/25.



3. Girder spans on south end of bridge.



4. Rail lines under bridge on south bank looking east.



5. Ruins of building under bridge on south bank.



6. Project environs looking southwest from under bridge.



7. Viewshed looking north from south bank.



8. View of upstream side of deck truss from south bank.



9. Girder spans and bent at south end of bridge.



10. Downstream side of bridge from south bank.



11. River pier.



12. Pier at girder spans, south bank.



13. River camp buildings on north bank.



14. North approach.



15. Project environs at north end of bridge looking west.



16. Project environs at north end of bridge looking east.



17. Upstream side of bridge from north bank.



18. South approach.



19. Downstream side of bridge from south approach.

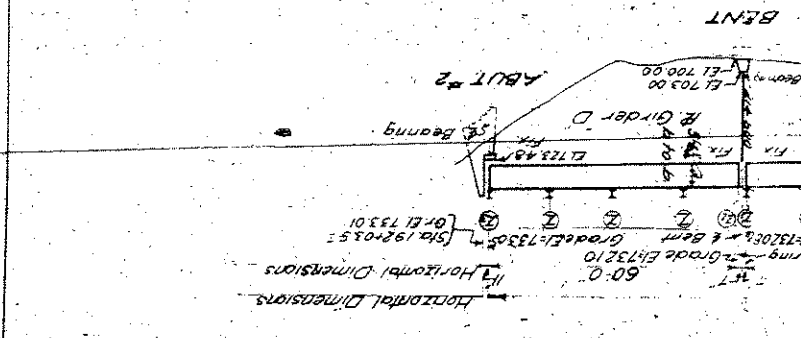
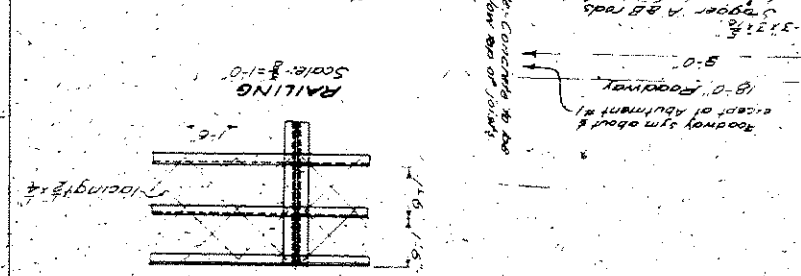
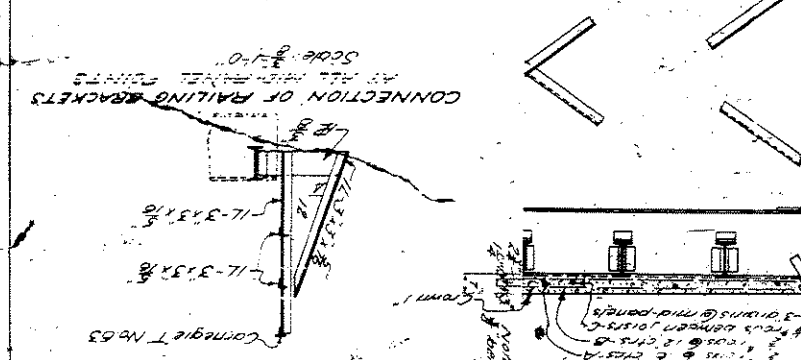


20. Railroad culvert for Middle Creek on south bank.

STATE ROAD COMMISSION, CHARLESTON, W.VA.
 DESIGNED BY
 HARTLAND
 CLAY CO. W.VA.
 ELK RIVER
 OR
 CLAY-HARTLAND ROAD
 STEEL DECK TRUSS
 HARTLAND BRIDGE
 ON
 SPANS: 2 @ 160'-0" @ 60'-0" 18'-0" ROADWAY

SUPERSTRUCTURE
 STEEL DECK TRUSS
 HARTLAND BRIDGE
 ON
 SPANS: 2 @ 160'-0" @ 60'-0" 18'-0" ROADWAY
 PROJECT # 3037 SHEET 1 OF 2
 DATE: NOV. 1922
 SCALE: AS NOTED
 #805

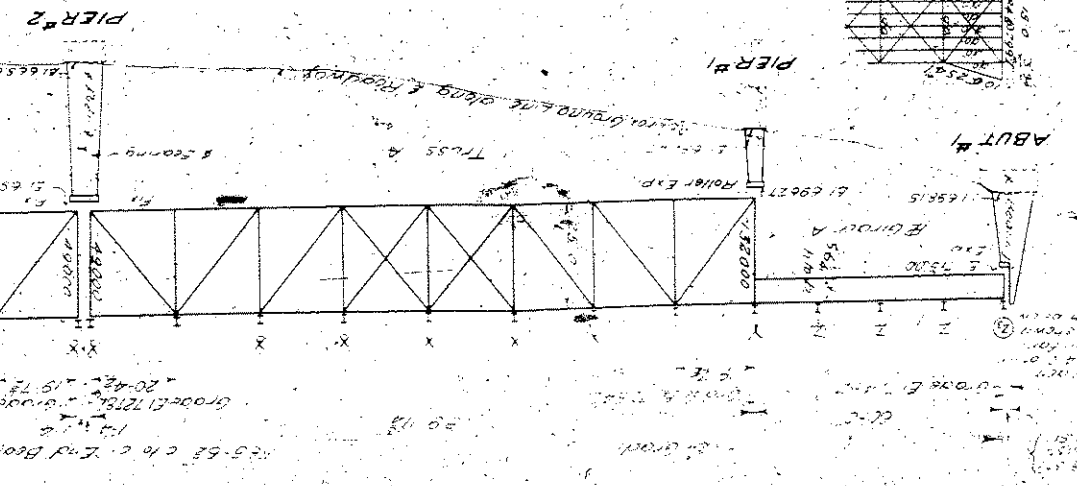
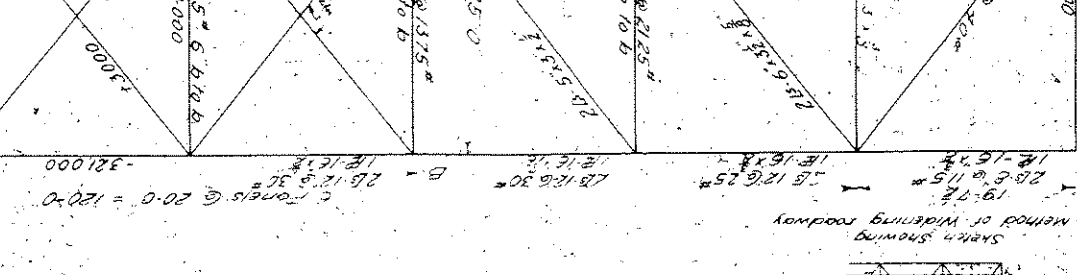
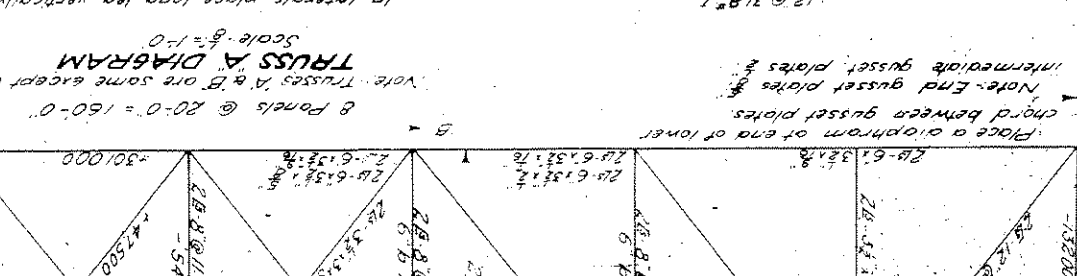
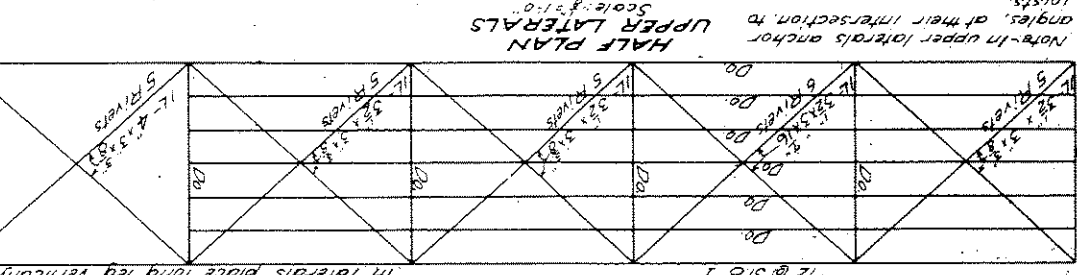
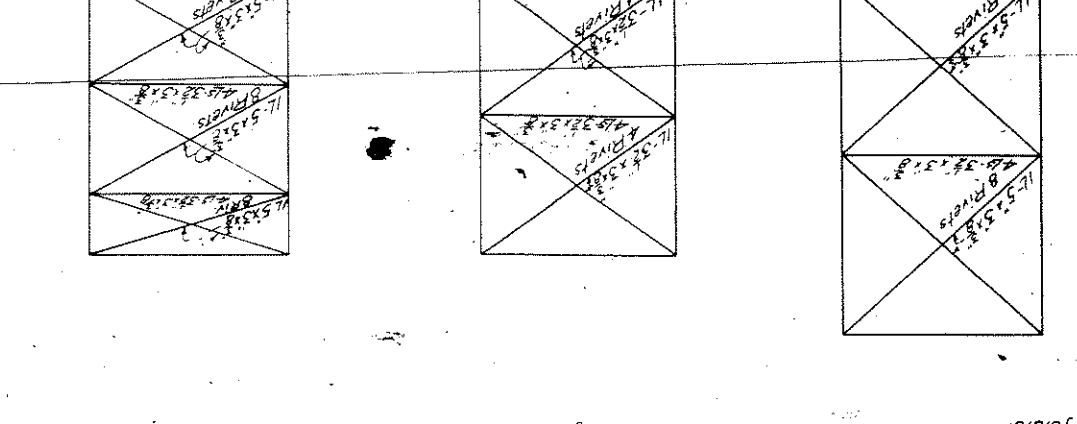
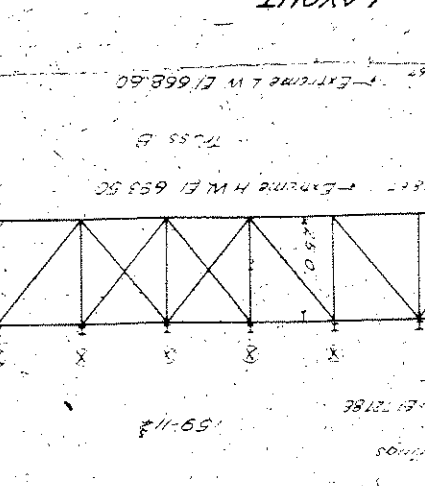
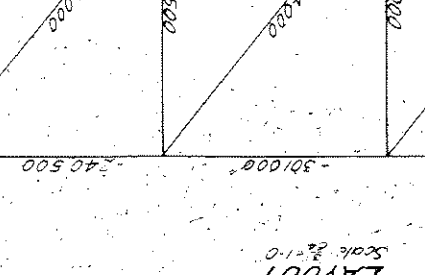
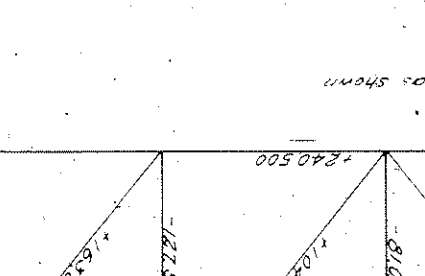
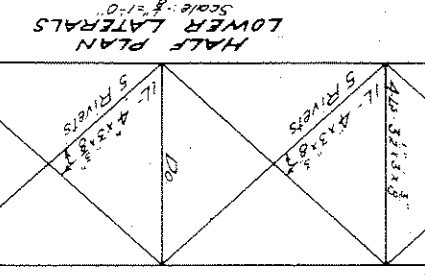
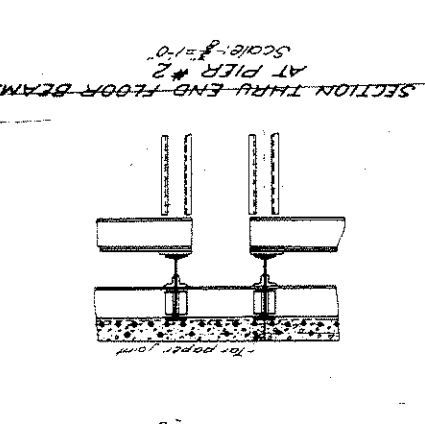
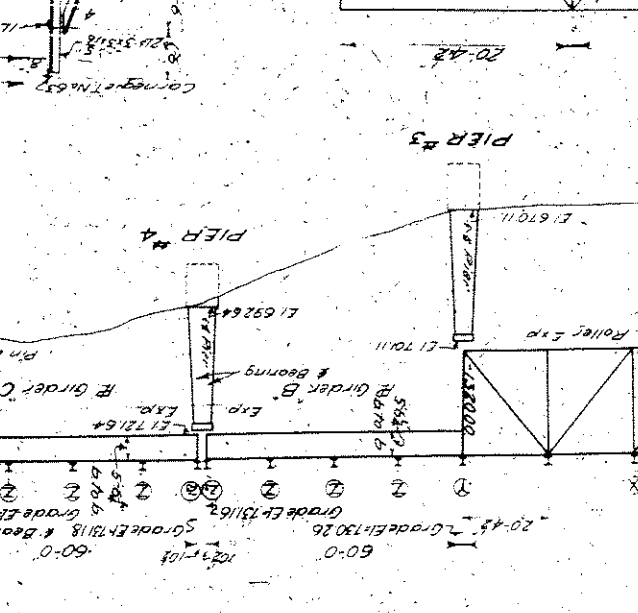
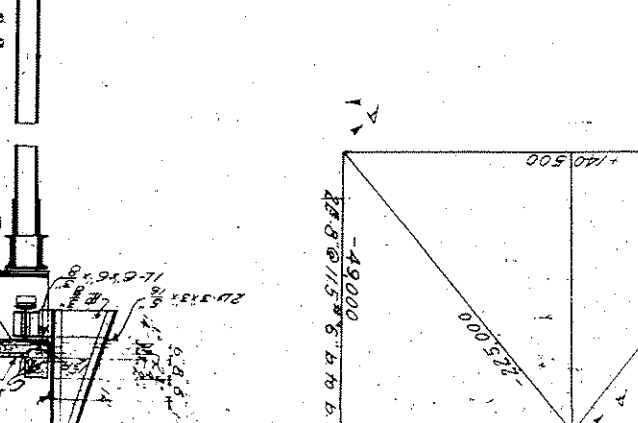
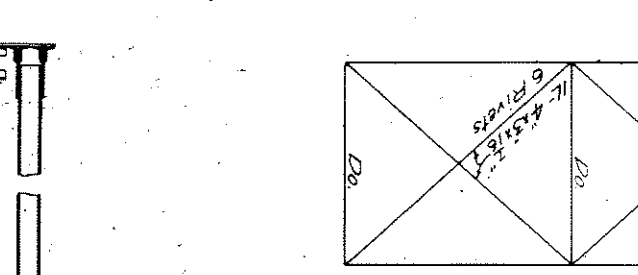
ASSUMED LOADING
 160'-0" Span - 1700' per lin. ft. of Truss
 Live Load = 78' per sq. ft. of Roadway
 Impact = 15% of Live Load
 Max. Live Mom = 511,000 ft. lbs.
 Max. Live Shear = 132,000 lbs.
 Max. Dead Mom = 1,146,000 ft. lbs.
 Plate Girder
 Live Load = 98' per sq. ft. Roadway
 Impact = 15% of Live Load
 or 2-15 Ton Rollers
 Note: This bridge is designed for a wearing surface of 2 1/2" roadways and 2" of gulleys on girders of 12' girder spans.



BILL OF REINFORCING STEEL

NO.	LETTER	SIZE	LENGTH
1	A	1/2"	1100
1	A2	1/2"	19'-9"
1	A3	1/2"	23'-4 1/2"
1	A4	1/2"	21'-0"
1	A5	1/2"	21'-1 1/2"
1	B	1/2"	551
1	B1	1/2"	21'-1 1/2"
1	B2	1/2"	21'-1 1/2"
1	B3	1/2"	21'-1 1/2"
1	B4	1/2"	25'-0"
1	B5	1/2"	25'-0"
1	B6	1/2"	33'-6"
1	C	1/2"	216
1	D	1/2"	3'-6"

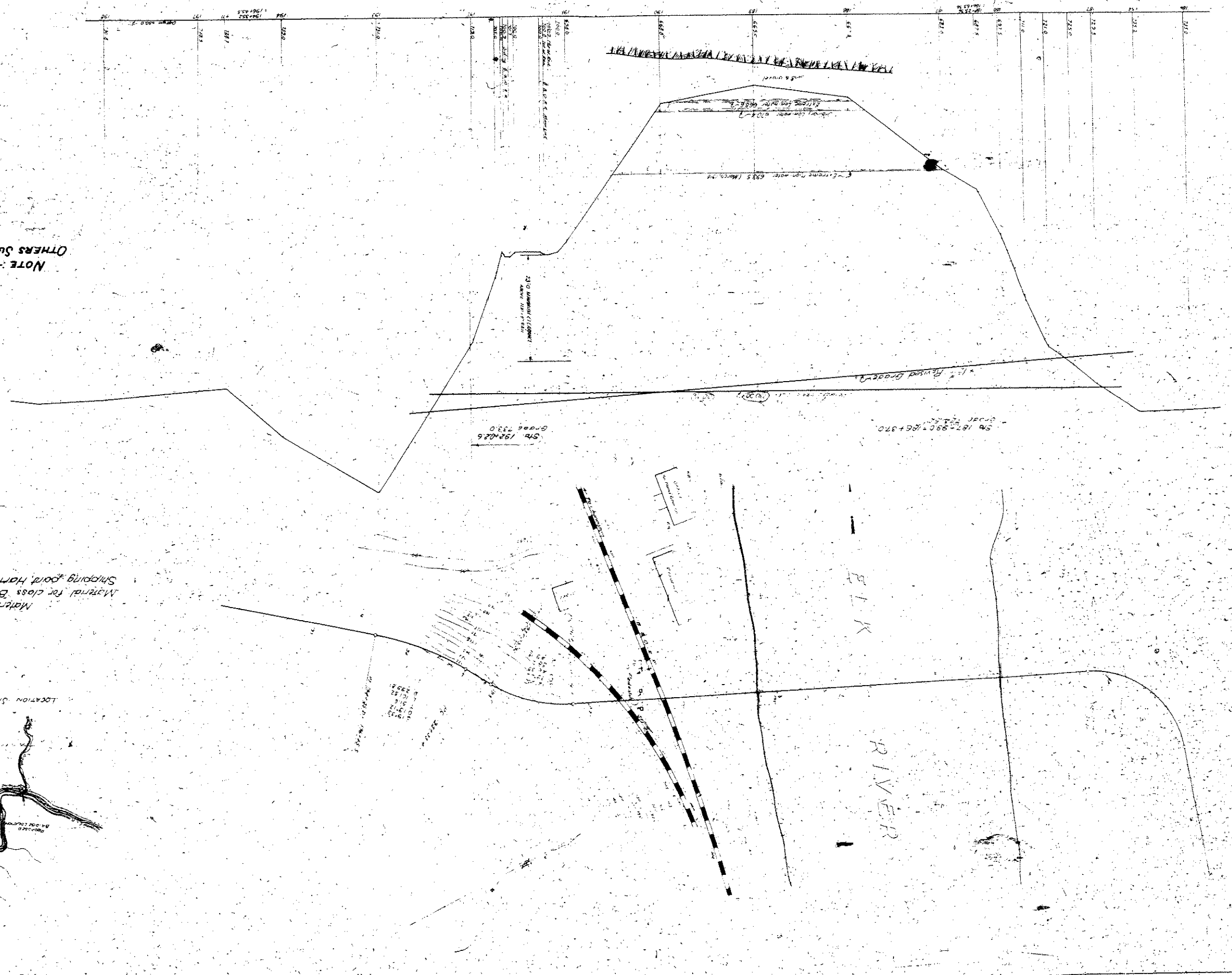
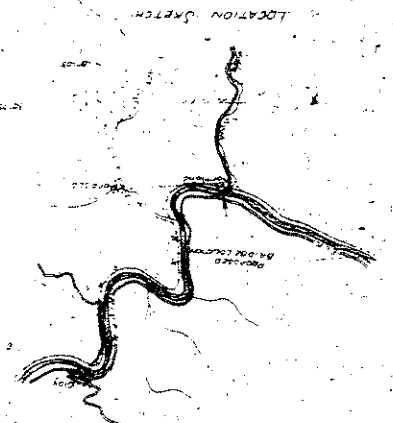
Note: A3, A4, and B3 in this panel of R. Girder.
 Structural Steel
 Cast Steel
 1 1/2" x 4" Concrete
 3/8" Rods
 287 cu. yds.
 2,800 lbs.
 338,000 lbs.
 27,800 lbs.



PLAN & PROFILE
 OF
 BRIDGE SITE
 OVER
 ELK RIVER
 IN
 HARTLAND
 CLAY COUNTY
 MO. 1910
 SCALES
 VERT. 1" = 10'
 HOR. 1" = 50'

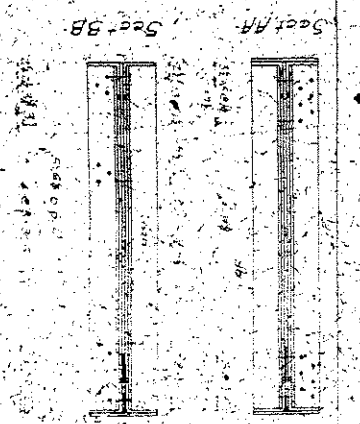
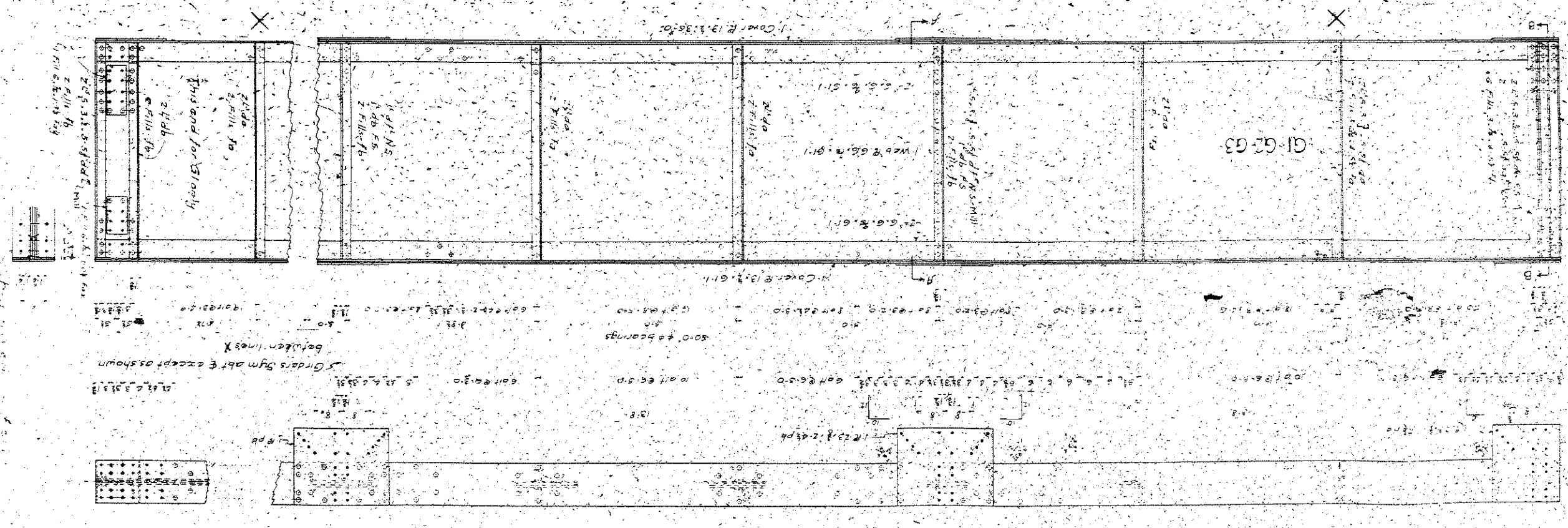
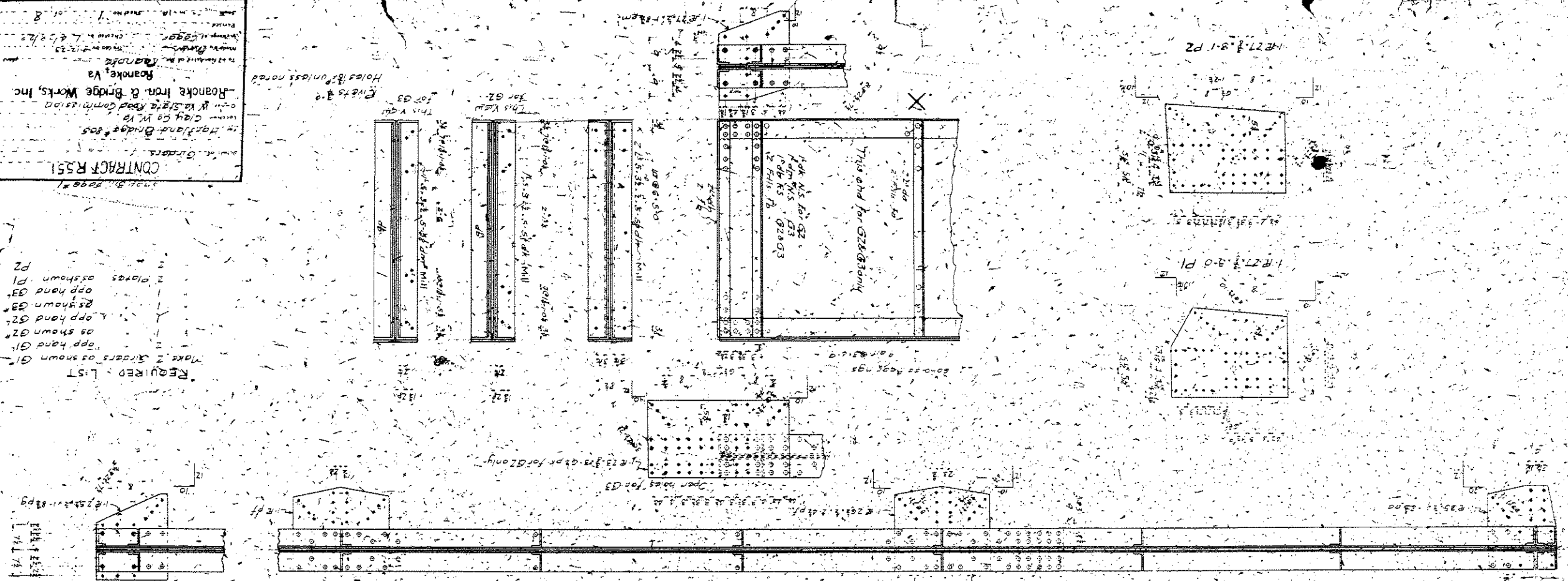
Note: - This Plan Supercedes All
 Others Submitted Herefore, July 20, '22

Material Notes
 Material for class B concrete to be imported
 Shipping point, Harland of bridge site.



CONTRACT R.551
 1991.01.22
 Roanoke, Va
 Roanoke Iron & Bridge Works, Inc.
 100 W. State Road
 Roanoke, Va.
 CONTRACT R.551

REQUIRED LIST
 Make 2 girders as shown G1
 1 opp hand G1
 1 opp hand G2
 1 opp hand G3
 2 plates as shown P1
 P2



Girders sym abt E except as shown
 between lines X

50# # BOARDS

COVER 1.5"

COVER 1.5"

G1 G2 G3

1" WEB 2" G. R. G. 1"

1" COVER 1.5"

This end for G1 only

COVER 1.5"

This end for G2 & G3 only

COVER 1.5"

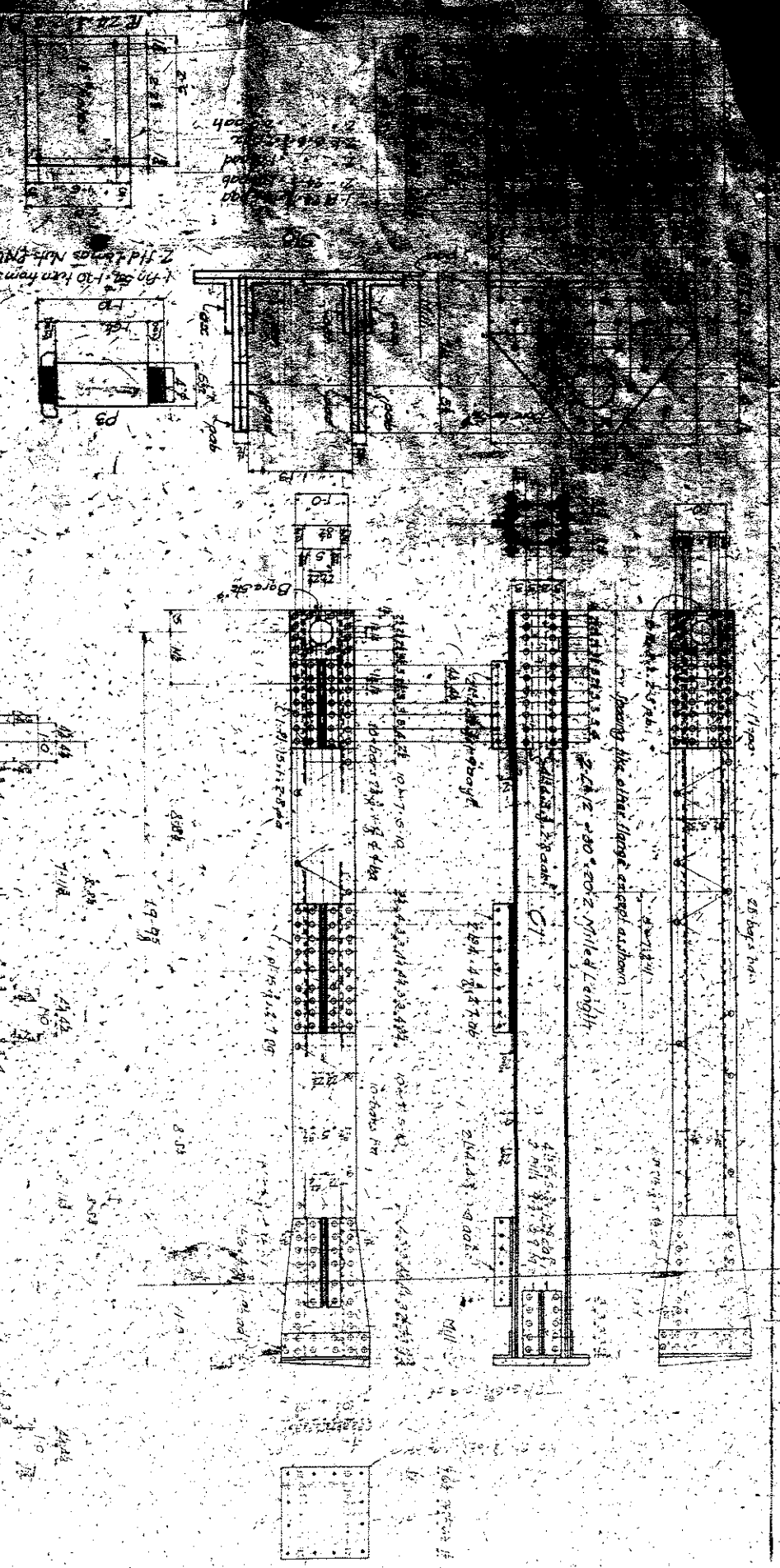
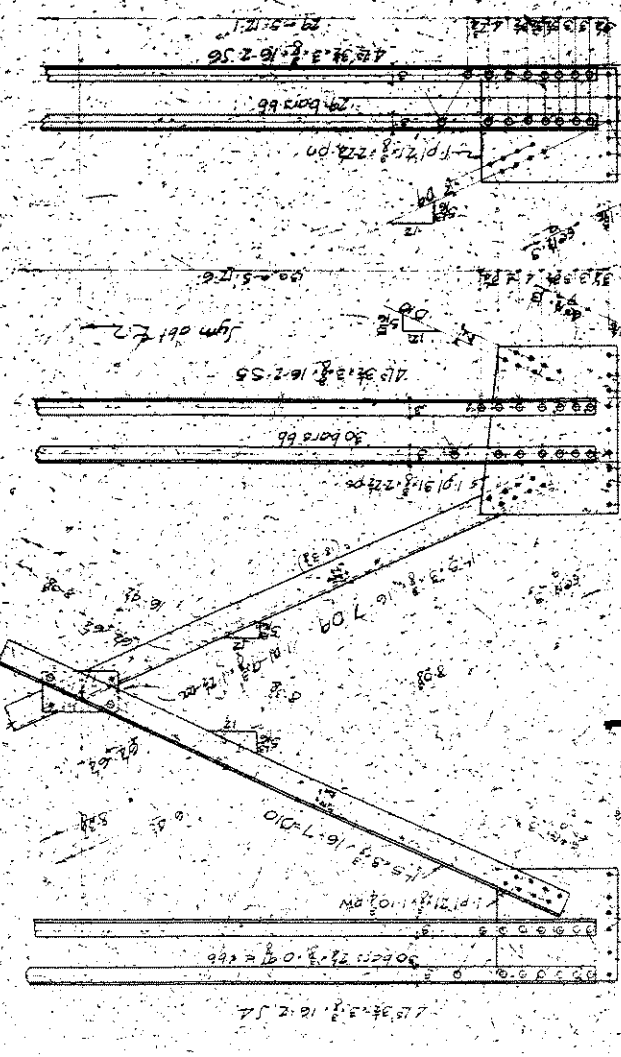
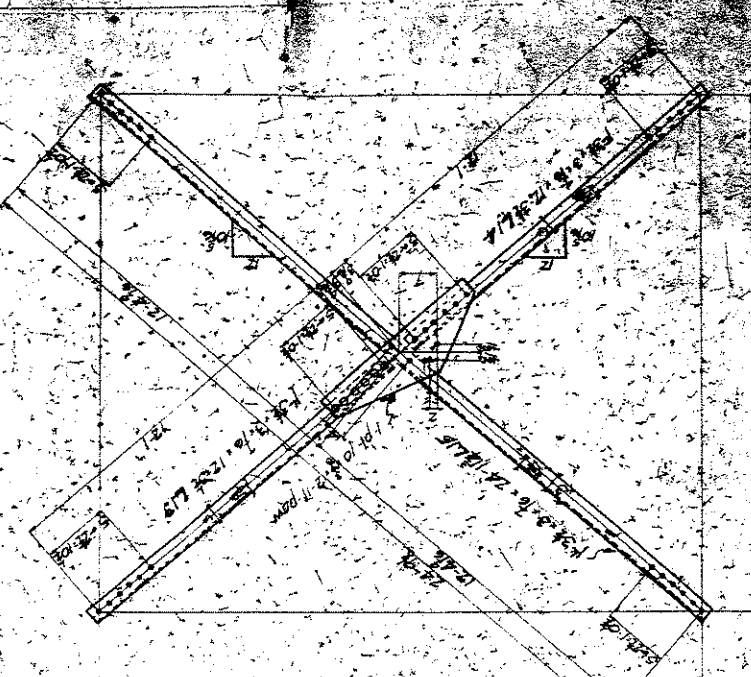
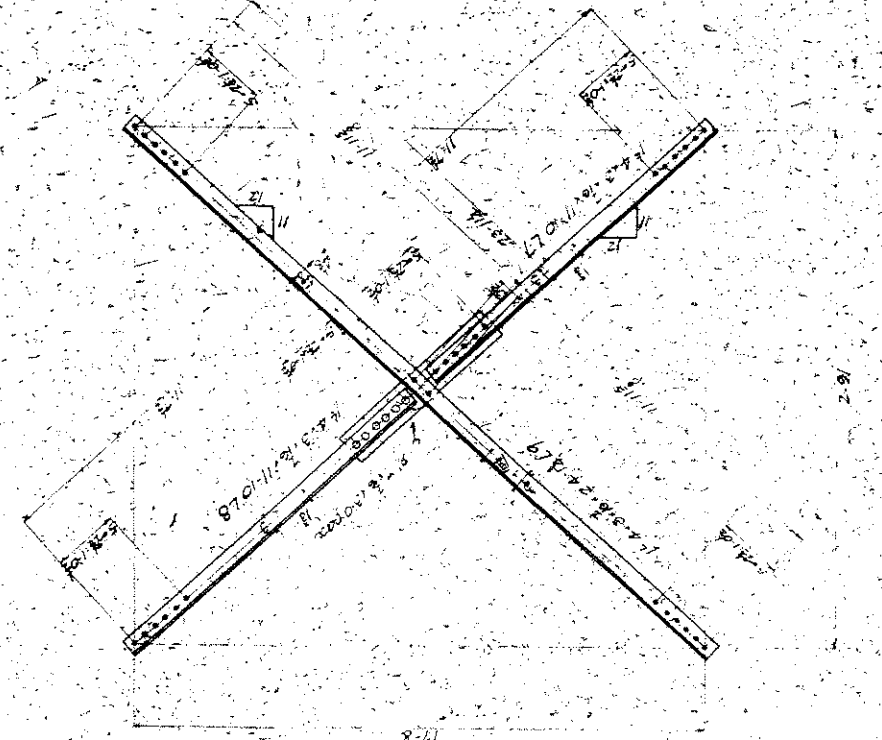
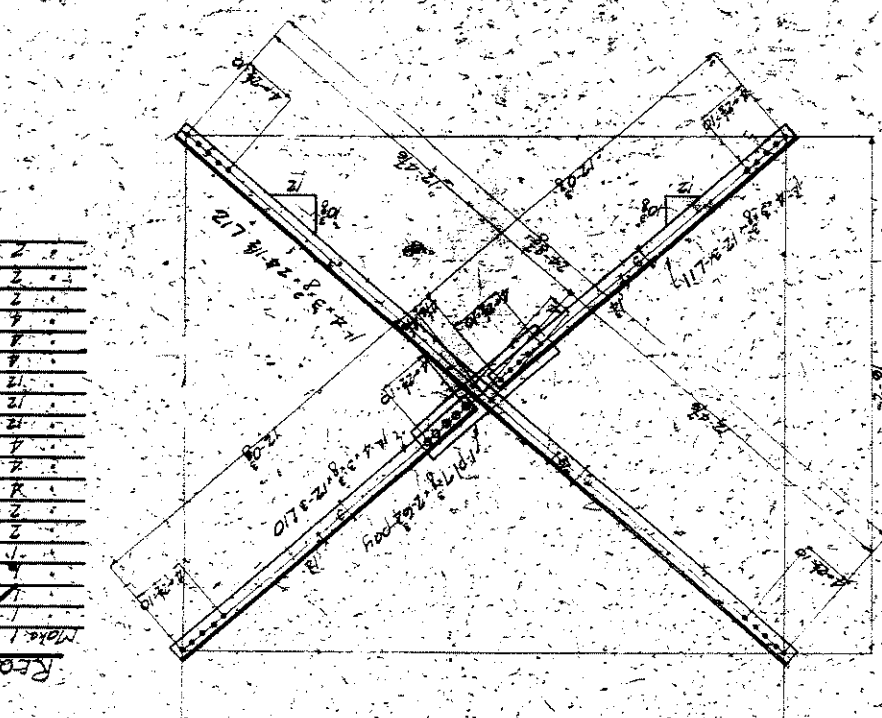
1" R. 27.5-3-0 P1

1" R. 27.5-3-1 P2

CONTRACT 2551
 Obtain of, Center, Building
 For Harland Bridge, 1929
 Location on log-sawing mill
 owned by the State of Virginia
 ROANOKE, VA
 Made by, Plans
 Checked by, Plans
 Scale in 1/4" = 1'-0"

Required List

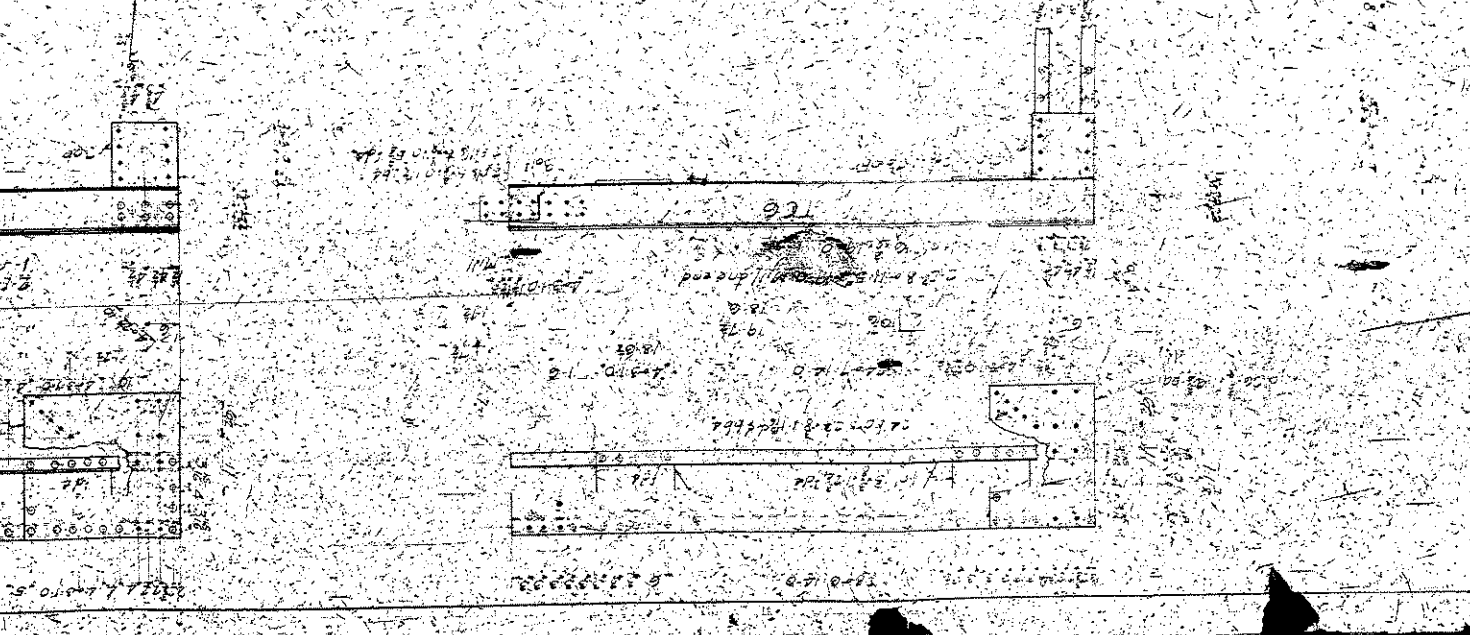
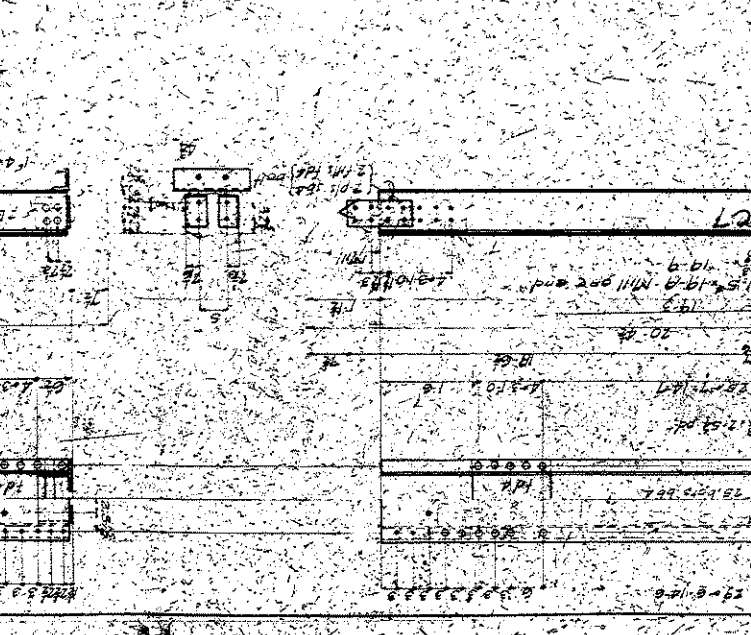
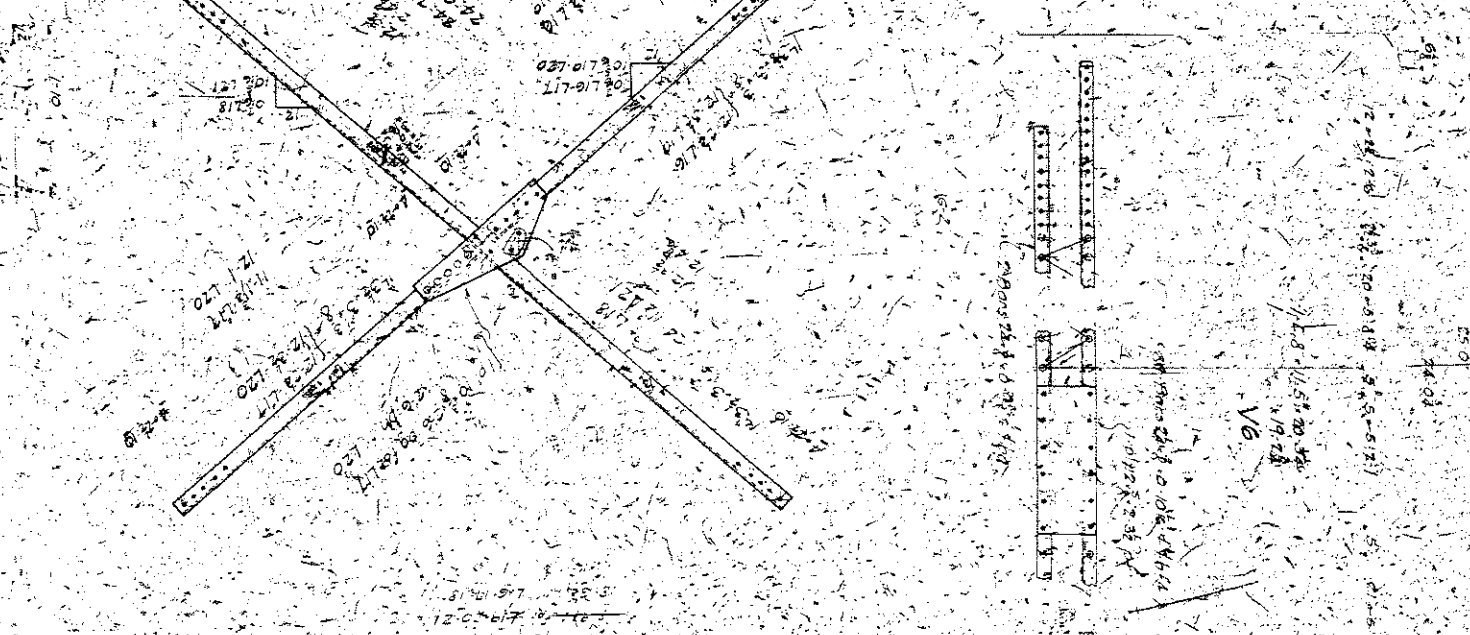
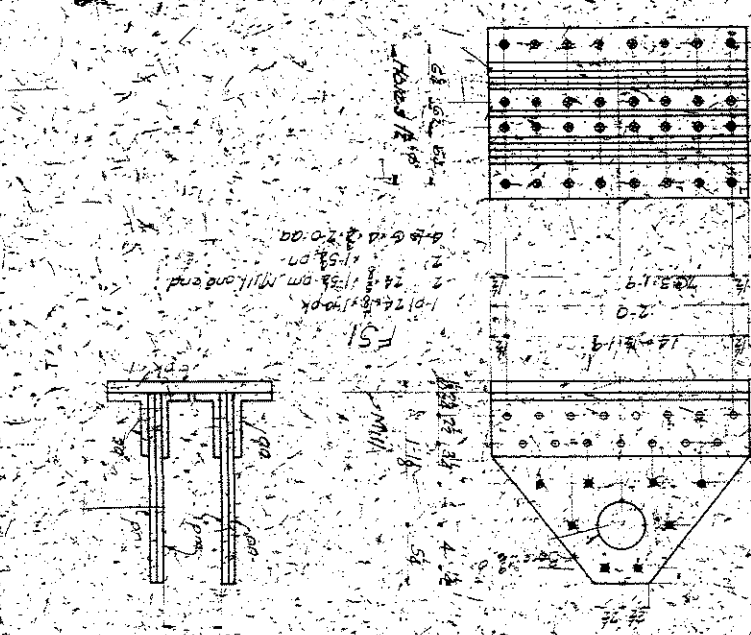
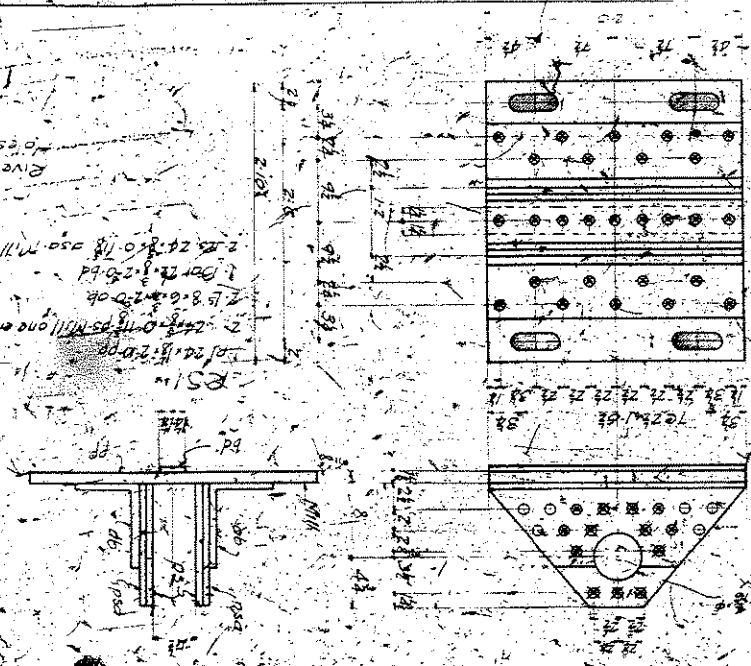
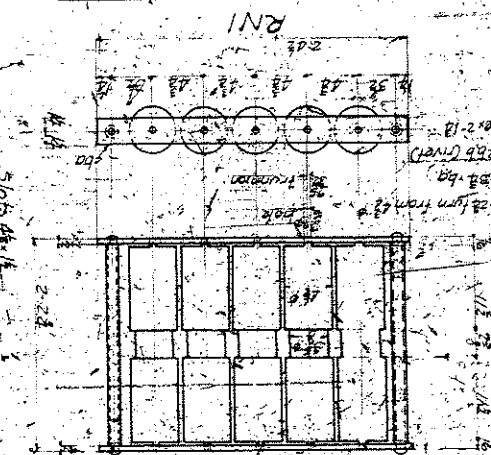
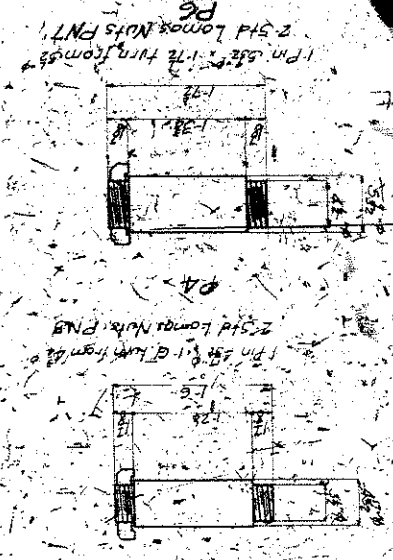
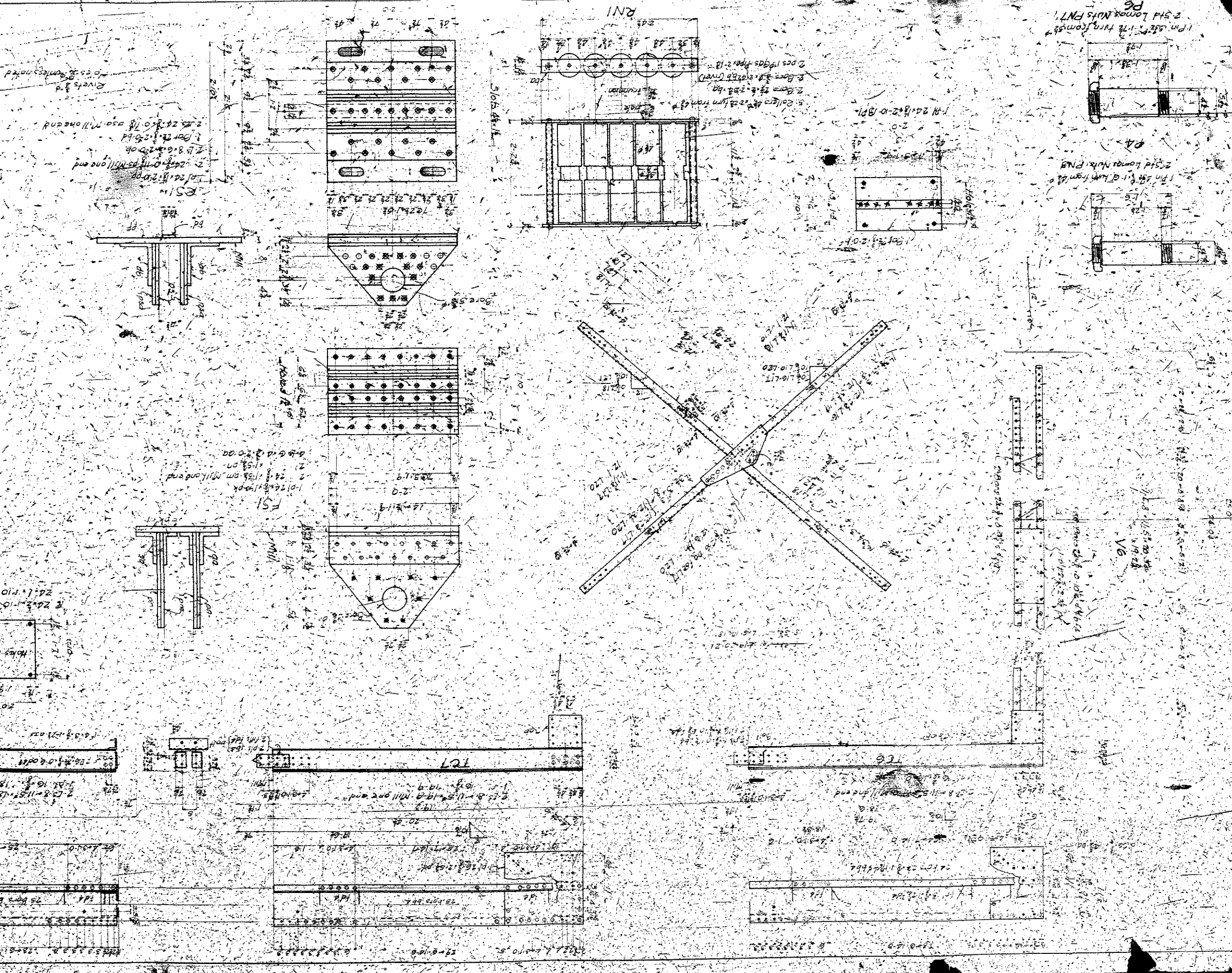
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100	1/2" Dia.



CONTRACT R551
 Shop Bill Pages # 2-31
 Details of Bracing - Shows Top Chords
 For Truss and Bridge Truss
 Design by County Wyo
 Design by State Road Comm
 ROUNOKE RD AND BRIDGE CO
 ROUNOKE, WYO
 Take on drawings checked by
 in charge of design checked by
 Revised
 Scale 1/4" = 1'-0" Sheet No 5 of

REQUIRED LIST

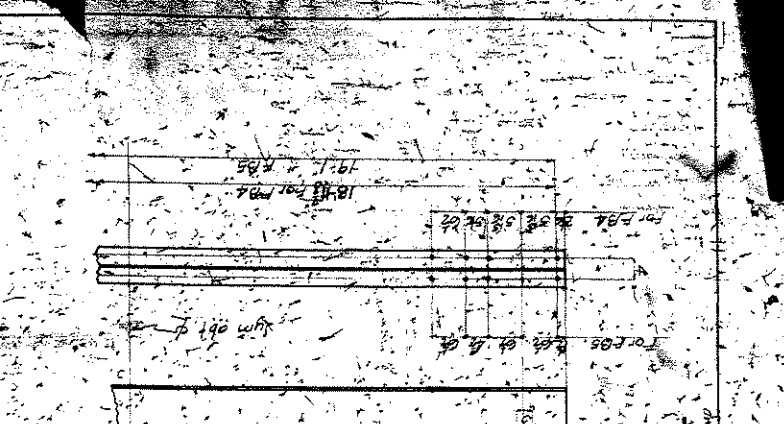
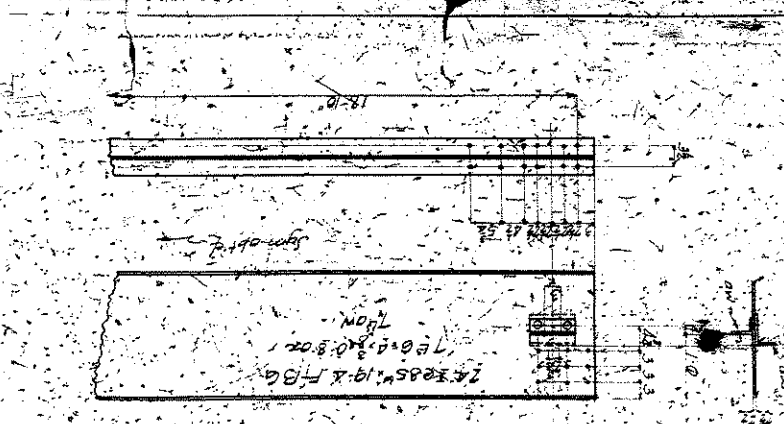
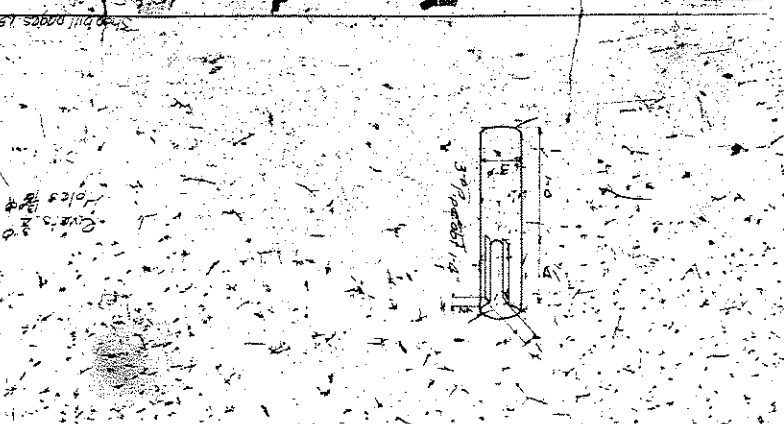
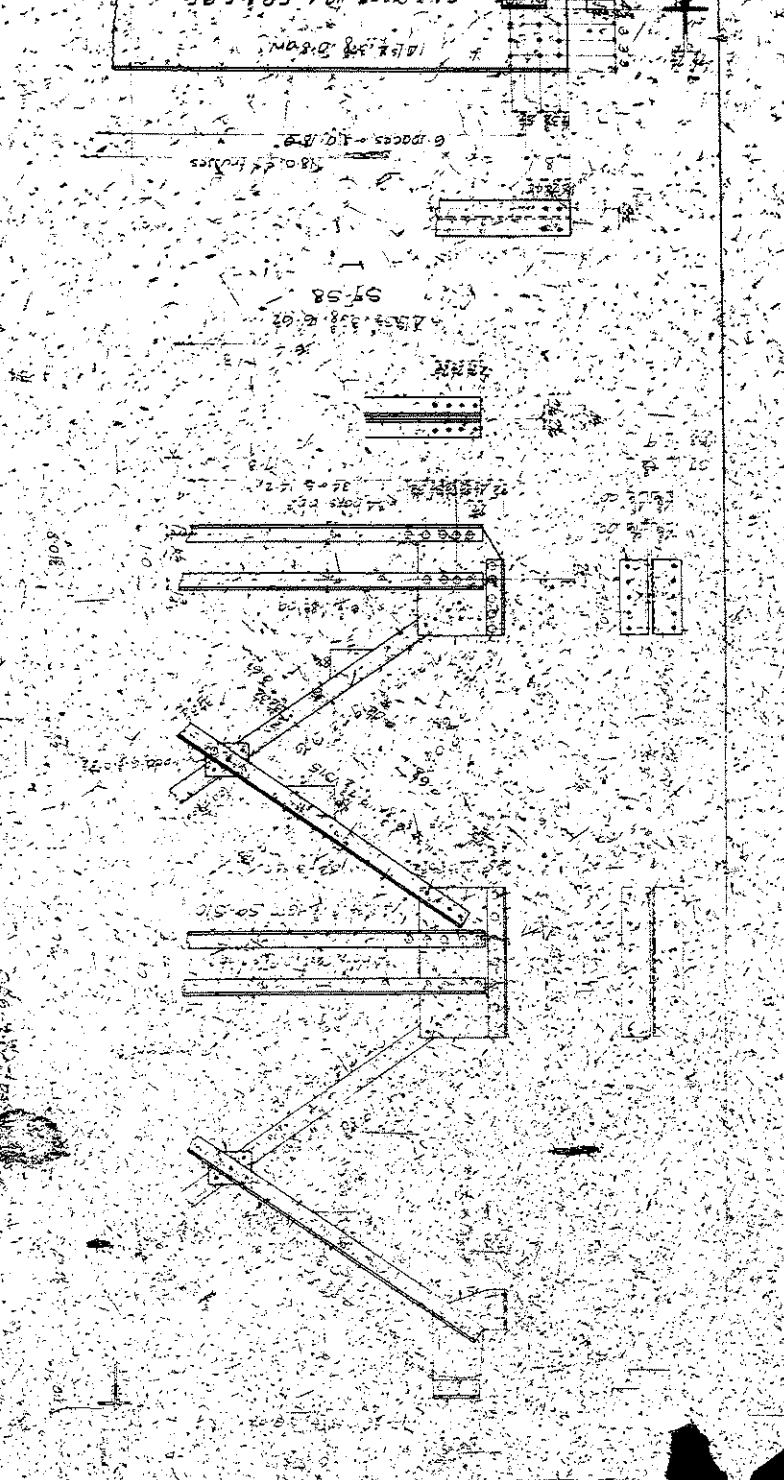
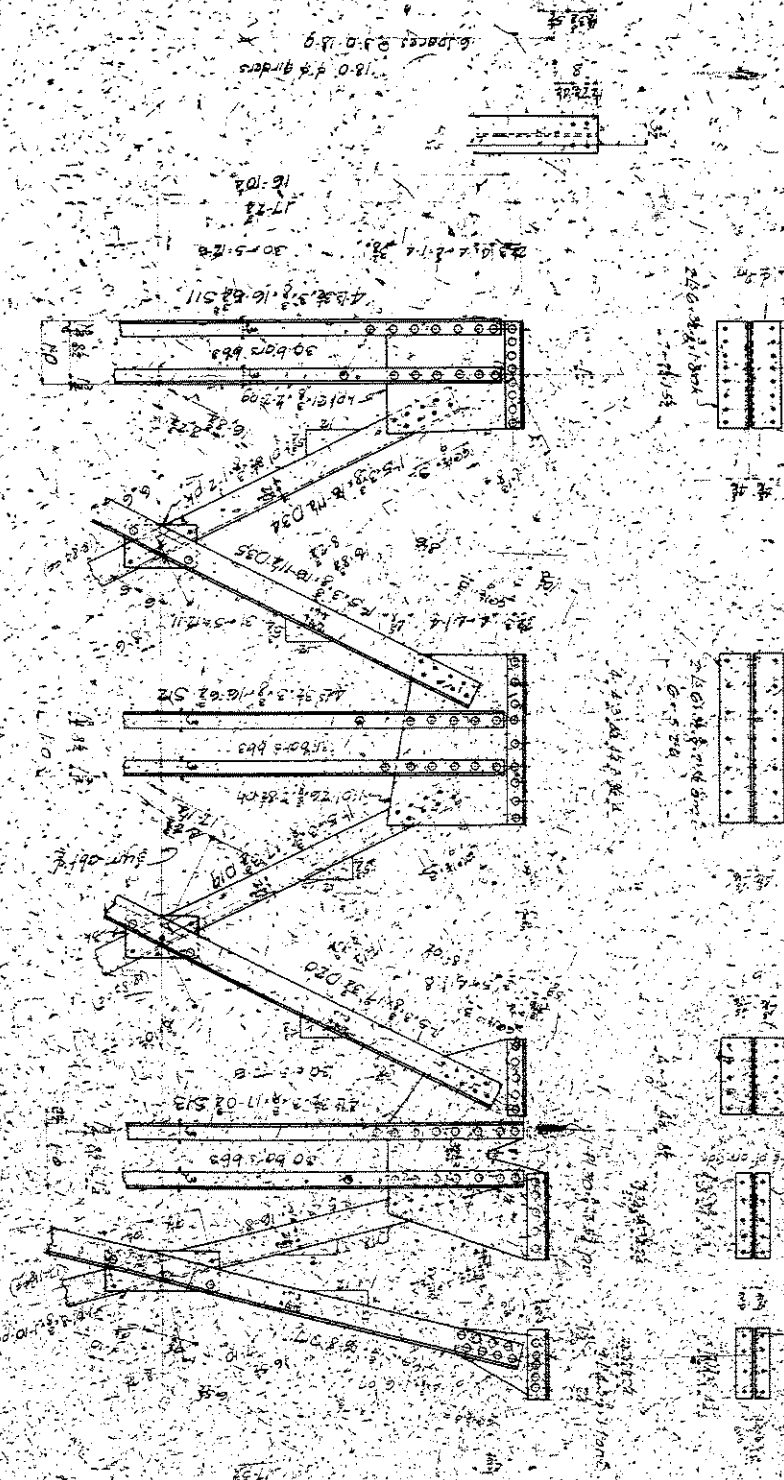
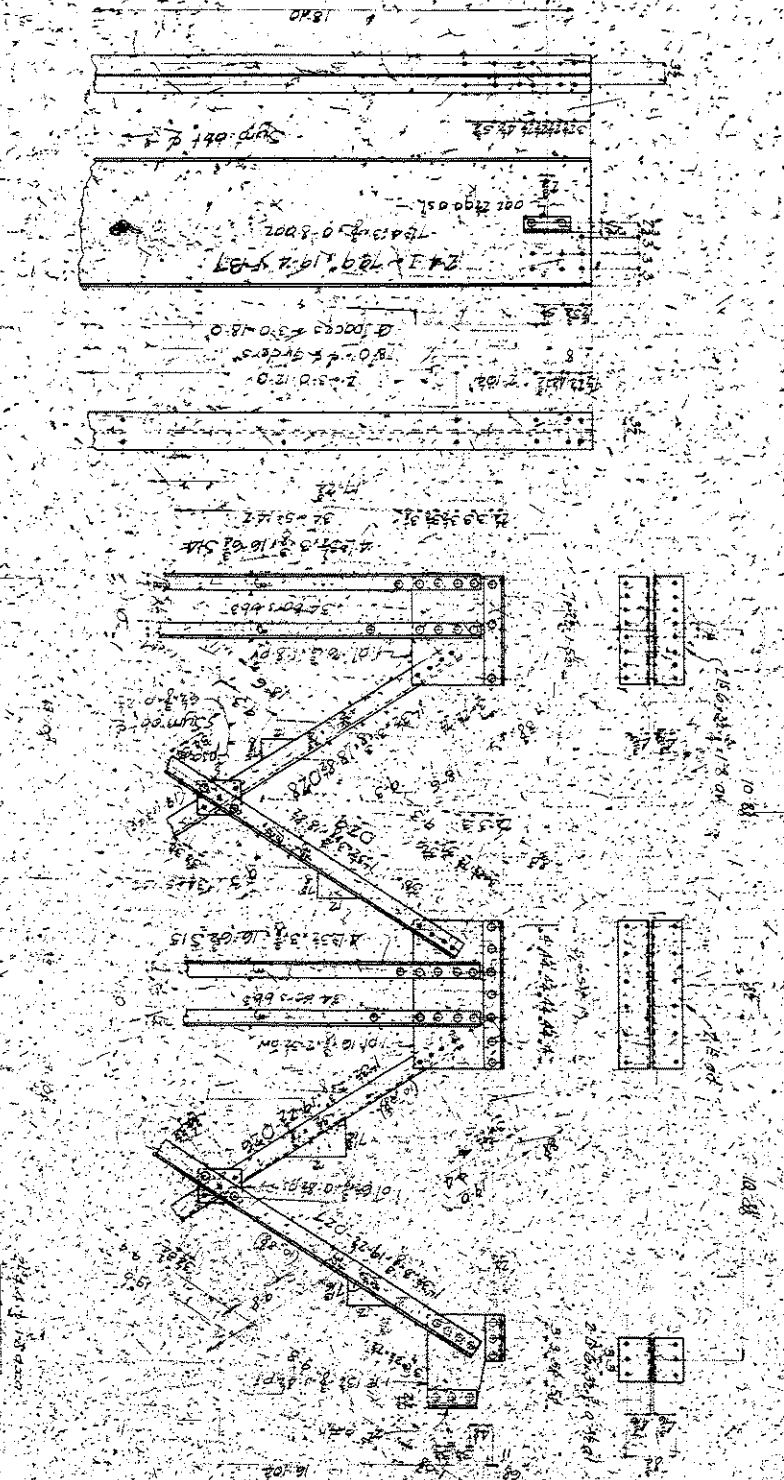
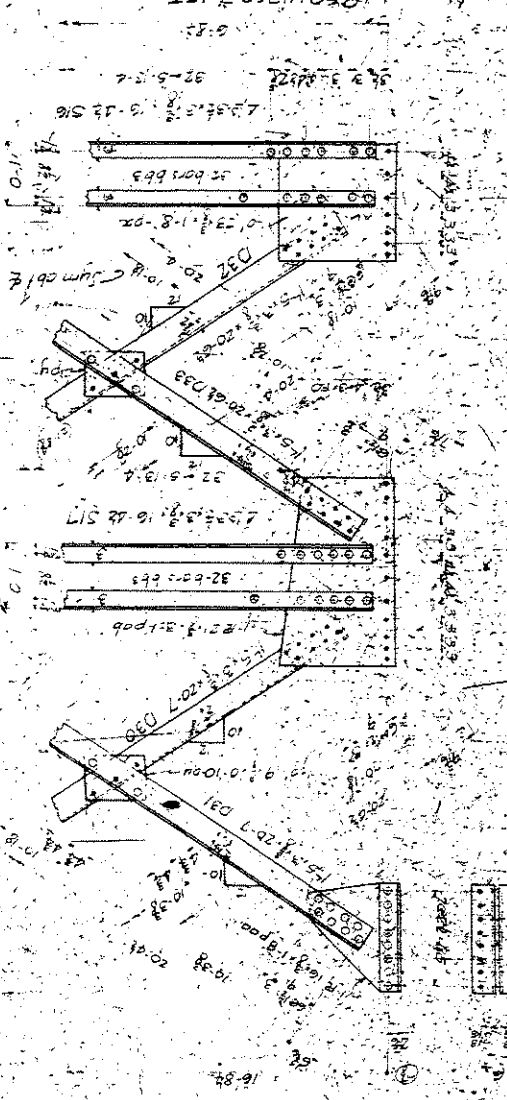
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100	2x4	10



CONTRACT R551
 Details of Covering Floor Beams
 For Steel and Stone Beams
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 Owner, W. W. Stone & Company
 ROANOKE IRON AND BRIDGE CO.
 ROANOKE, VA.
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 Traced by [unclear]
 In charge of [unclear]
 Checked by [unclear]
 Scale 1/4" = 1'-0" Sheet No. 1

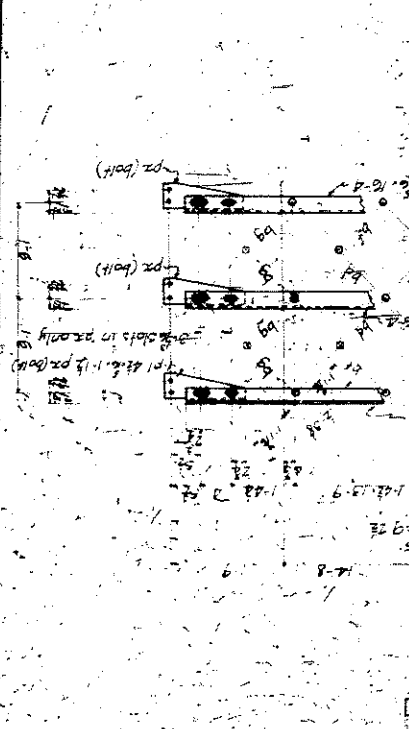
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520	2	1/2"	Diagonals
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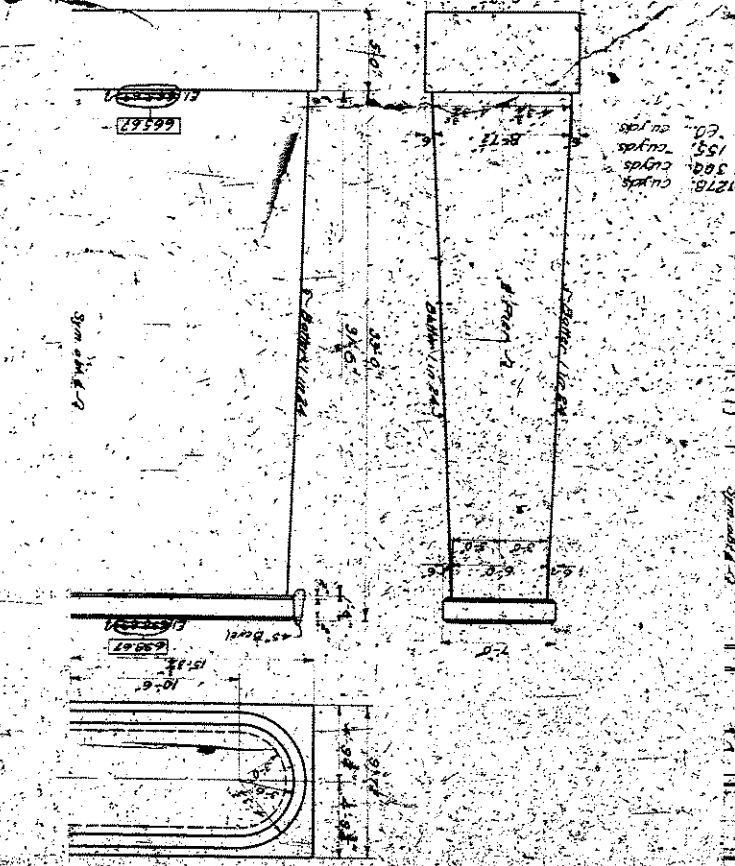
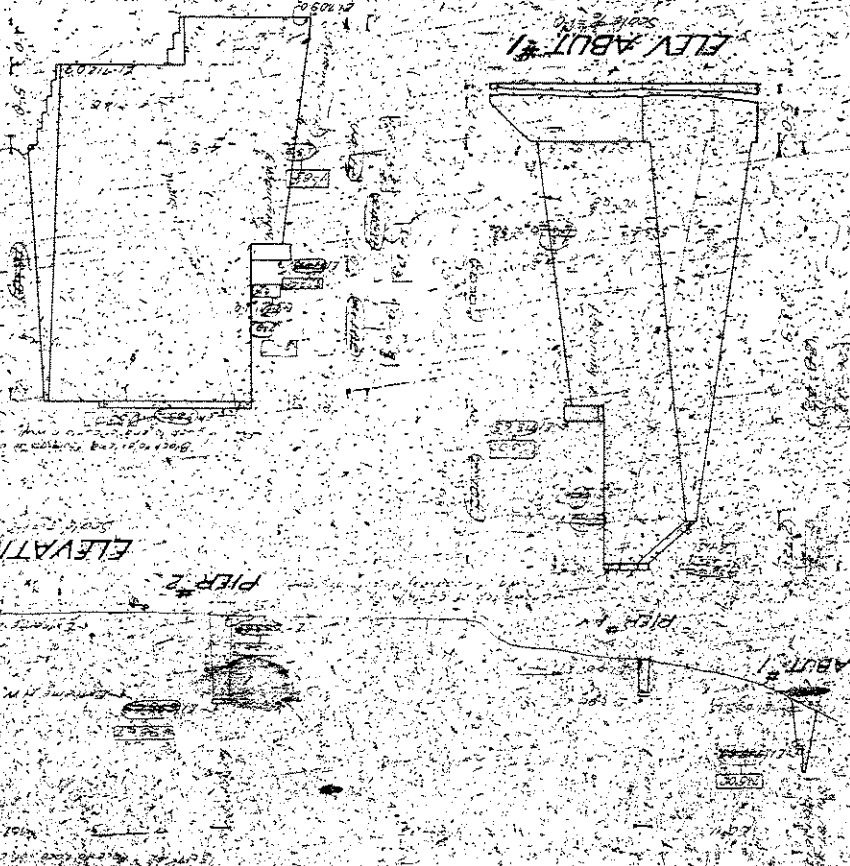
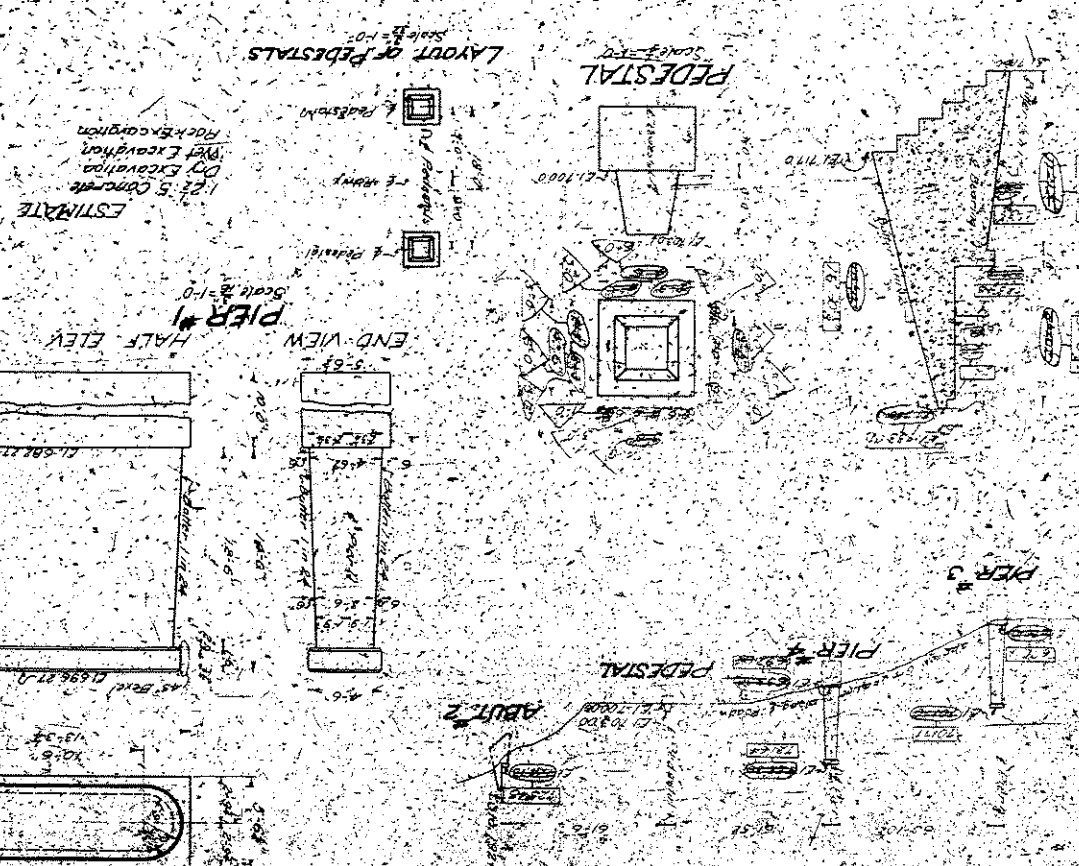
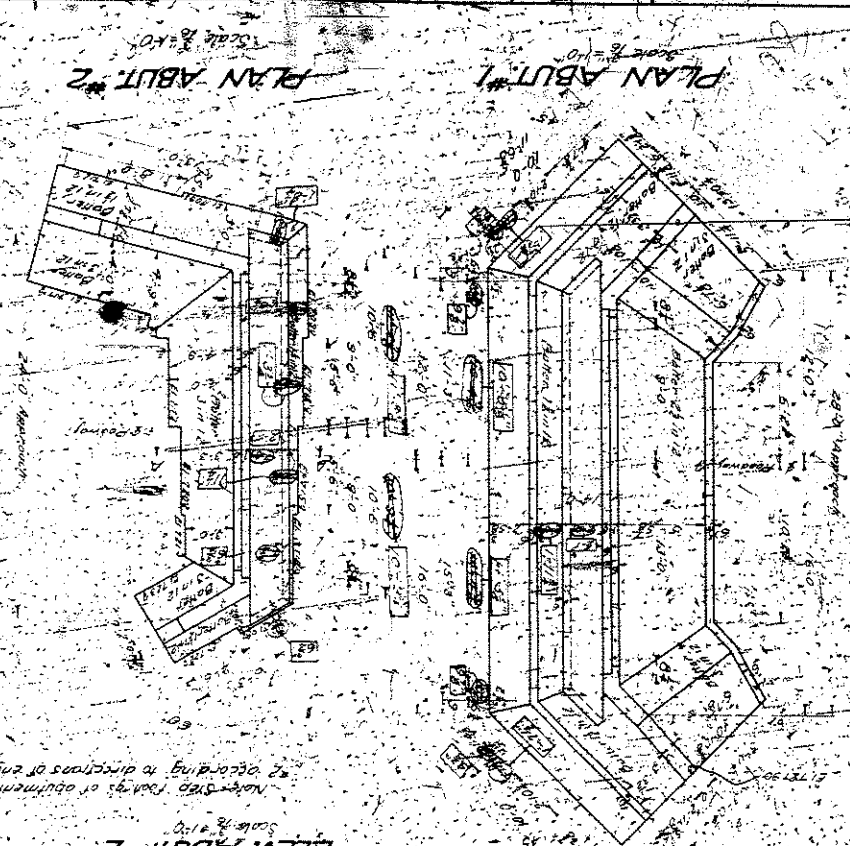
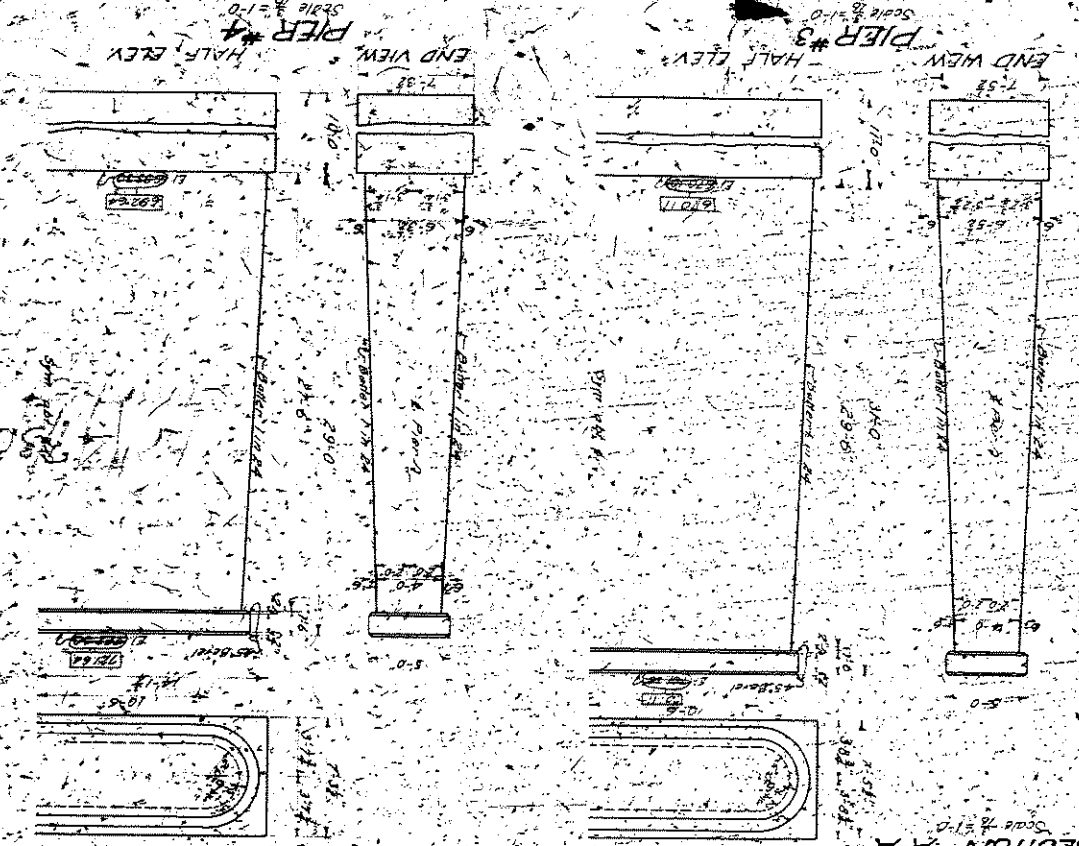
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 In charge of *...* checked by *...*
 Reviewed in *...* sheet No. *...* of *...*
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Shop Bill pages 19-20-21
 CONTRACT R551
 Details of Joist Railings etc



HARTLAND BRIDGE
 STEEL DECK TRUSS
 SUBSTRUCTURE
 SPANS - 2@160'-0" + @60'-0" 18'-0" ROADWAY
 ON
 CLAY-HARTLAND ROAD
 OVER
 ELK RIVER
 HARTLAND
 CLAY CO. W. VA.
 DESIGNED BY
 STATE ROAD COMMISSION, CHARLESTON, W.VA.
 Project # 3058
 Date: Aug. 1922

NOTES
 All concrete to be carried to a depth satisfactory to the engineer.
 Reinforcing to be carried in each abutment and one in the piers.
 Place two #4 drags in each abutment and one in each pier.
 Place a 12" length drags along back of abutments and wings of pier at 4' draught.
 Bond all exposed edges & except as noted, in accordance to submit and also on items shown in drawings.
 Specifications by State Road Commission, July 1922.



GOVERNING SPECIFICATIONS

All work and material to be in accordance with The State

Road Commission Standard Specifications for Roads and Bridges,

adopted in 1960 and the Governing Specifications set forth

herein.

Non-discrimination of Employees, dated December, 1903

Minimum Wage Rates, Clay County, dated 1905

Prosecution and Progress, dated September 26, 1913

Control of Traffic Through Work Area, July 19, 1952

Article 2.71-73.3(h)(2) is modified by adding the following

sentence to the last paragraph of this article: "Concrete so

delivered shall be placed in the forms within one (1) hour

after the cement has been added to the water or aggregate,

unless otherwise authorized by the Engineer"

GENERAL NOTES:

1) The Contractor is to check all pertinent dimensions and

measurements shown on the plans, obtain any additional

measurements and dimensions that may be necessary for the

successful completion of the work and shall be responsible

for the accuracy of the same.

2) The Contractor shall be responsible for any damage to the

span or any part of the existing structure, in case of damage,

he shall repair or repair same to the satisfaction of the Engineer.

3) The Contractor shall furnish and maintain all necessary

barriercs and lights, cost to be included in the bid price

for various items.

4) Non-shrink class A concrete shall be made with non-air

entrained normal portland cement with an additive of

150 lbs. per cubic yard of concrete or approved equal part of cement

and aggregate shall be maintained normal portions

of concrete and one part mortar and

5) All areas to be repaired using Embase concrete shall be

treated with a slush-coat before patching. The slush-

coat shall be proportioned by weight, one part Embase,

one part cement and one part non-air-entrained normal

portland cement. Concrete to which the slush-coat is to be

applied, shall be thoroughly saturated with water and the concrete

shall be kept moist at all times. The Contractor shall maintain at least one way

traffic and the cost shall be included in the various items bid.

SCOPE OF WORK:

Item 11-3 Non-shrink Class A Concrete

Item 10 Reinforcing Steel Bars

Item 09-5 Hook Expansion Anchor Bolts (50')

Item 07-1 Cement for Shotcrete

Item 11-3 Non-shrink Class A concrete

as shown on plans. Also repairing the cuts of equipment and

at pier #4 and the roadway side of pier #2. Concrete for the

repair shall be non-shrink Class A. Proportioning for the

non-shrink concrete is specified in the general notes.

Unit price bid for this item shall include the cost of all

materials, labor, tools and equipment required for the satisfactory

completion of this item.

Item 10 Reinforcing Steel Bars

This item consists of furnishing, drilling holes for,

installing, and grouting the reinforcing steel bars as shown on the plans.

The unit price bid for this item shall include all material, tools,

equipment and labor required for the satisfactory completion of

this item.

Item 09-5 Hook Expansion Anchor Bolts (50' diam)

This item consists of furnishing, drilling holes for, installing,

and grouting the expansion anchor bolts as shown on the plans.

The unit price bid for this item shall include all material,

Garwood, New Jersey.

Completion of this item.

Item 09-6 Hook Expansion Anchor Bolts (3" diam)

This item consists of furnishing, drilling holes for and

installing 3/8" casting type expansion anchor

bolts used for tying new concrete to existing concrete on

piers #2, 3 and 4 as shown on the plans. These bolts shall be

equal to those manufactured by the Diamond Expansion Bolt Co., Inc.

shown on plans.

The unit price bid for this item shall include all material,

tools, equipment and labor required for the satisfactory

completion of this item.

Item 09-5 Hook Expansion Anchor Bolts (50' diam)

This item consists of furnishing, drilling holes for, installing,

and grouting the expansion anchor bolts as shown on the plans.

The unit price bid for this item shall include all material,

tools, equipment and labor required for the satisfactory

completion of this item.

Item 09-6 Hook Expansion Anchor Bolts (3" diam)

This item consists of furnishing, drilling holes for, installing,

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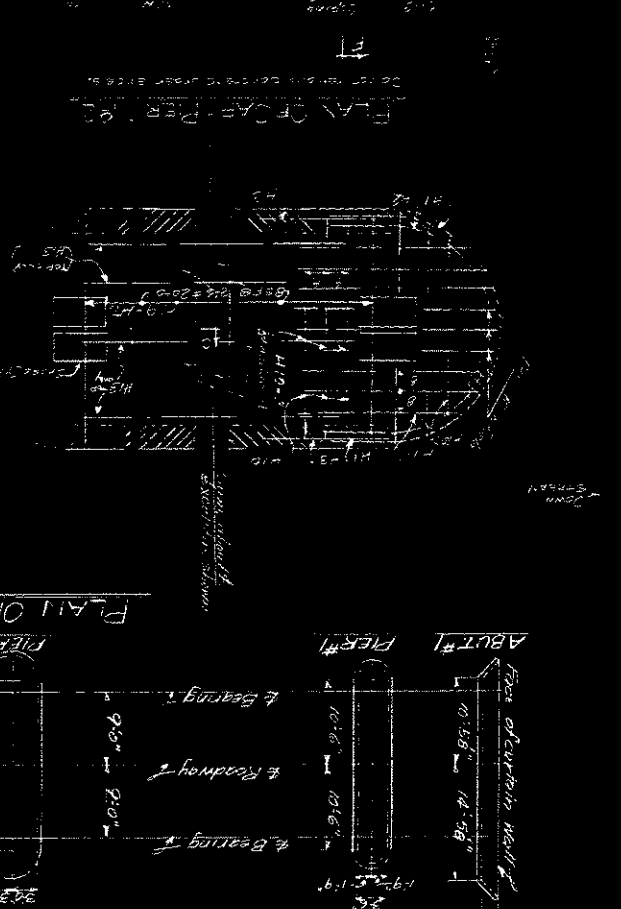
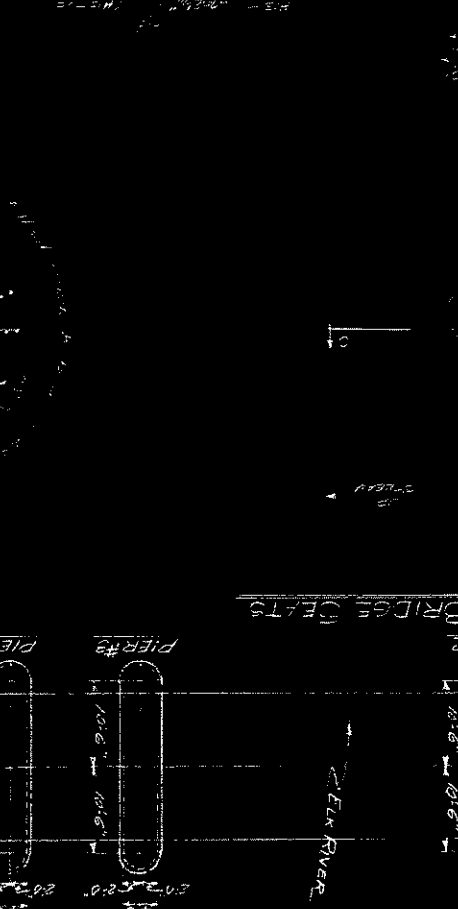
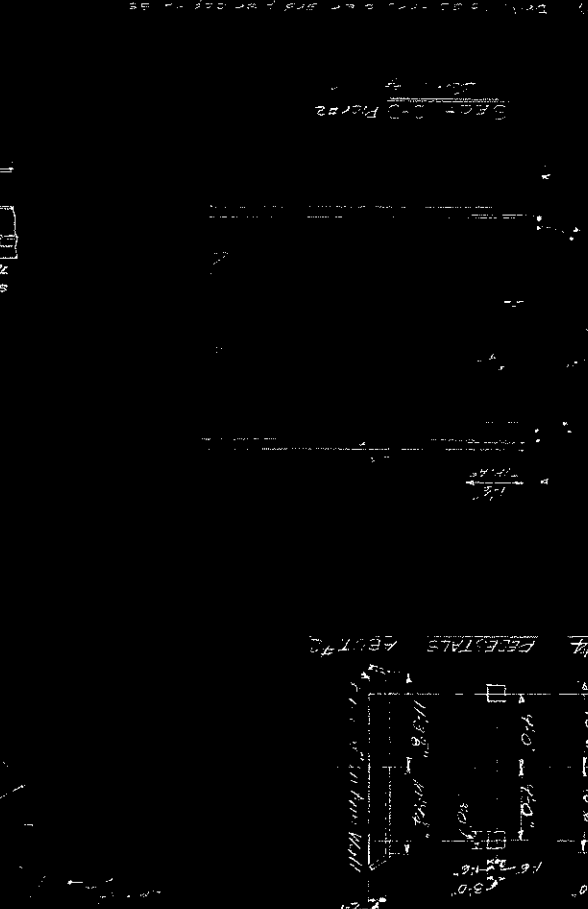
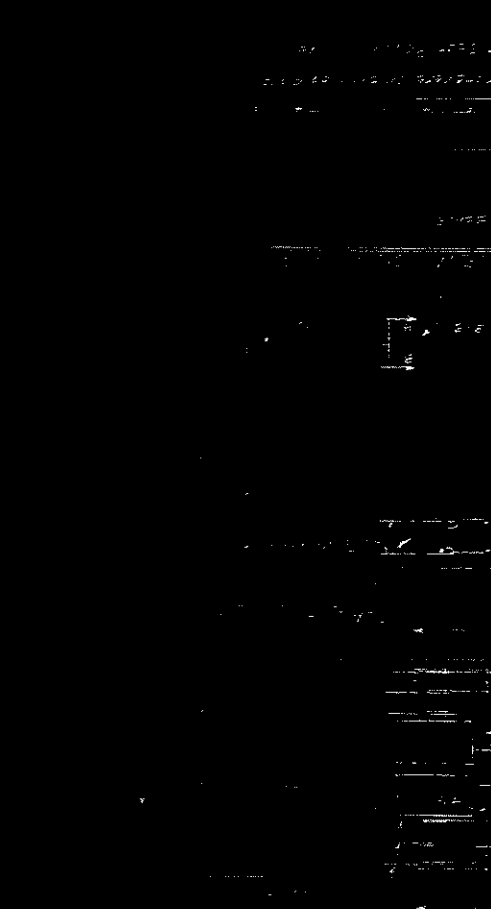
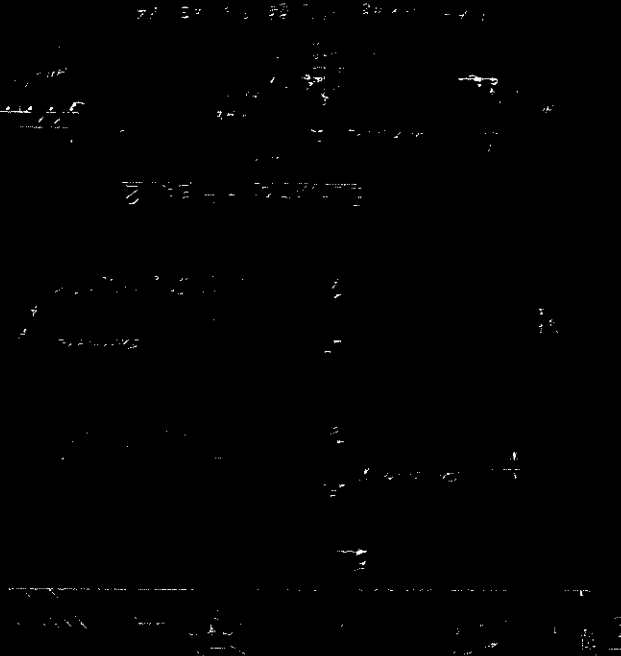
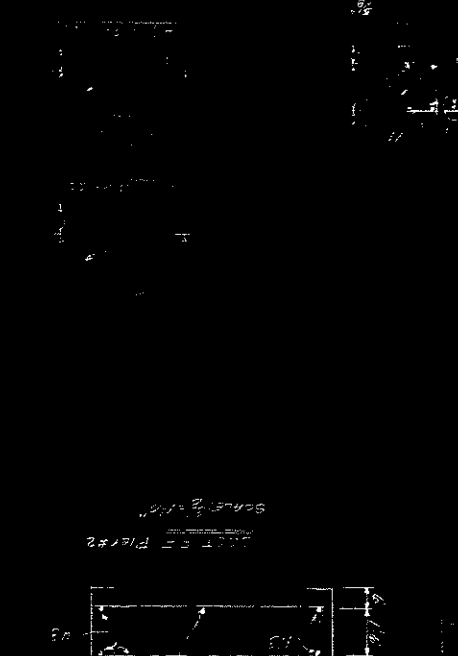
tools, equipment and labor required for the satisfactory

completion of this item.

Item 0

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NO.	DATE	BY	FOR	BY

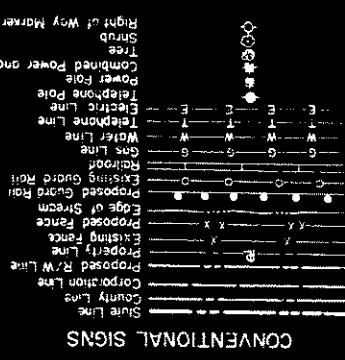
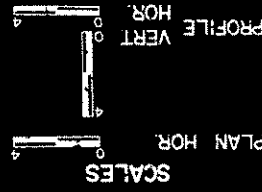
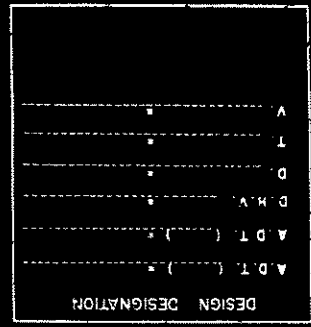
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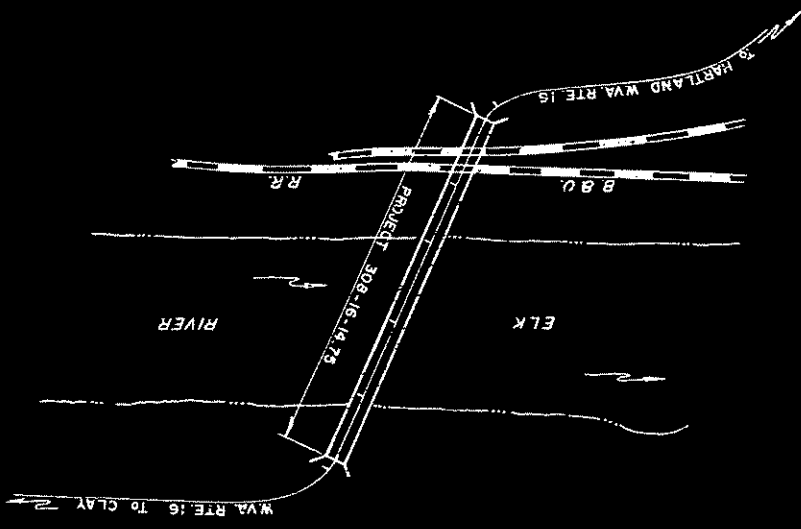
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PLAN OF BRIDGE SEATS
 PLAN OF CAST-PIER #2
 SECTION OF PIER #2
 SECTION THROUGH FLOOR BEAM AT PIER #3

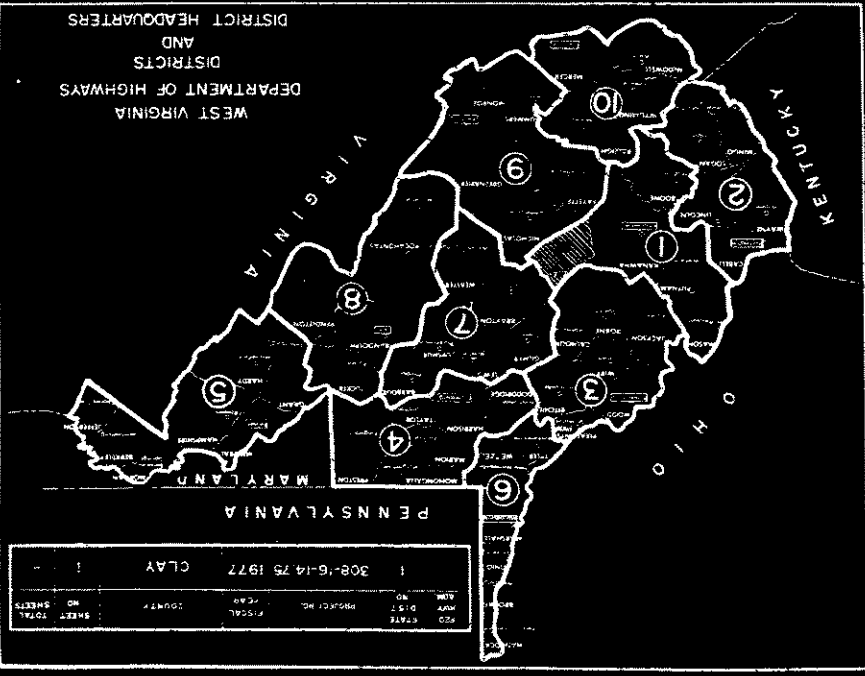
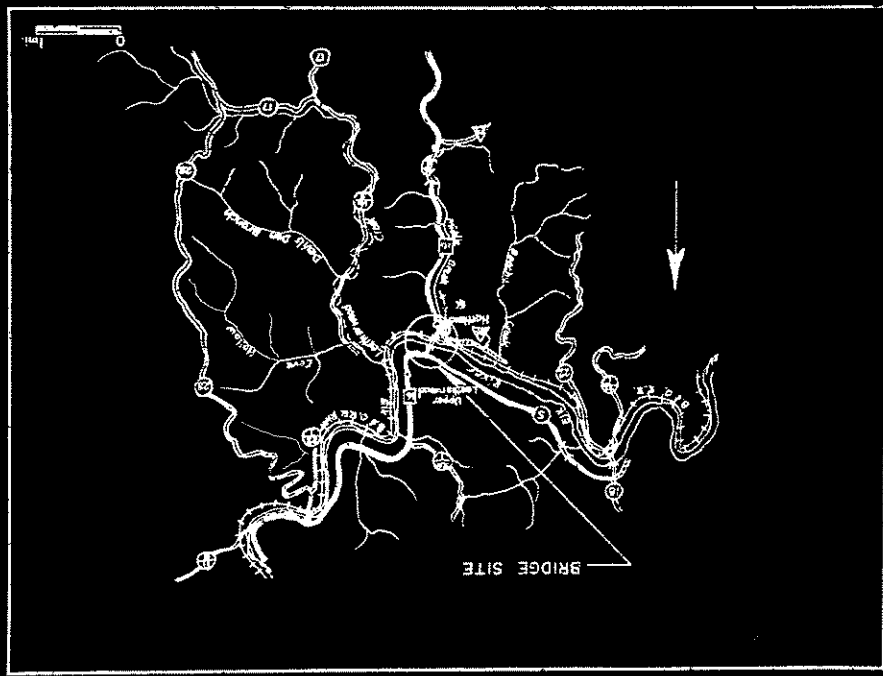


NO.	DESCRIPTION
1	TITLE SHEET
2	NOTES & QUANTITIES
3	REPAIR LOCATIONS & DETAILS
4	GRID DECK DETAILS
5	MISCELLANEOUS DETAILS
6	REPAIR 1, 2 & 3
7	REPAIR 3, 4 & 5
8	REPAIR 6 & 7

INDEX TO SHEETS



WEST VIRGINIA
DEPARTMENT OF HIGHWAYS
PLANS FOR CONSTRUCTION
OF
STATE HIGHWAY
ROUTE NO. W.VA. 16
CLAY COUNTY
HARTLAND BRIDGE REPAIR



TYPE OF CONSTRUCTION
DECK REPLACEMENT
AND TRUSS REPAIR
BRIDGE NO. 805.1

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED BY: *[Signature]*
DIVISION ENGINEER

DATE: _____

RECOMMENDED BY: *[Signature]*
DIRECTOR DESIGN DIVISION

REVIEWED BY: *[Signature]*
CHIEF ENGINEER - DESIGN

RECOMMENDED FOR APPROVAL BY: *[Signature]*
DISTRICT ENGINEER - CONSTRUCTION

APPROVED BY: *[Signature]*
COMMISSIONER OF HIGHWAYS

SEP 9 1976

I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT 308-16-14.75

EXECUTIVE SECRETARY

APPROVED BY OFFICIAL ORDER OF THE WEST VIRGINIA DEPARTMENT OF HIGHWAYS ENTERED 9 21 DAY OF SEP 1976

EXECUTIVE SECRETARY

REVISION NUMBER	SHEET NO.	DATE	BY

PROJECT NO.	308-16-14.75
DISTRICT	CLAY
DATE	1977
SHEET TOTAL	1
NO. SHEETS	1

GOVERNING SPECIFICATIONS

The West Virginia Department of Highways Standard Specifications, Roads and Bridges, adopted 1972, as amended by the Supplemental Specifications, adopted July 1, 1976, the Contract documents and the Contract plans are the governing provisions applicable to this project.

GENERAL NOTES

The Contractor is to check all pertinent dimensions and measurements that may be necessary and obtain any additional information that may be required for the successful completion of the work and shall be responsible for the accuracy of the same.

The Contractor shall use care in performing the work and shall be responsible for damage to any member of the spans or any part of the existing structure. In the case of damage, the Contractor shall replace or repair same to the satisfaction of the Engineer.

After repairs, this structure will have an H-15 capacity.

CONCRETE

Concrete in curb shall be Class B air-entrained. Concrete in deck grid shall be Class A air-entrained.

FABRICATED STRUCTURAL STEEL

Areas to be welded, are not to be painted until welding is completed. Welds shall be cleaned of slag, scale, and loose matter by the use of chisels, hammers, and hand wire brushes. Welding new steel to existing metal clean surfaces between members to have metal before installing new materials. Structural steel may be obtained from stock provided the supplier furnishes certified copies of mill reports indicating that the material conforms to ASTM Specification A36 or provided the supplier makes tests of the material and submits certified copies of test reports to the Shop Inspector showing that the steel conforms to the above Specification. The water content on is to be done until approved. The results of the tests have been received and are to be of the flat on-type to ASTM A325 diameter and shall conform to be included in the work.

INSPECTOR OF WORKS

The Inspector of Works shall be responsible for the inspection of the work and shall be responsible for the accuracy of the same.

CLEANING AND PAINTING EXISTING STEEL BRIDGES

This item consists of cleaning and painting the bridge as herein specified. Approximately 350 tons of metal to be painted.

CLEANING: All rusted surfaces of the girders, stringers, exterior stringers, and the upper chords and cross frames of Deck Truss spans 2 and 3 shall be cleaned to bare metal by sand blasting in accordance with Article 620.3 of the Standard Specifications. All remaining surfaces shall be spot cleaned in accordance with Article 620.3.4 and before welding new steel to existing metal, clean the surfaces between the members to bare metal.

REMOVAL OF EXISTING SUPERSTRUCTURE CONCRETE

The existing concrete deck, curb and curb shall be removed. All concrete, reinforcing steel and other debris resulting from removal of the deck shall be disposed of as directed by the Engineer. Removal of Existing Superstructure Concrete shall be measured as a complete unit and shall include the complete execution of the work of removing and disposing of the superstructure concrete. The quantity determined as provided above shall be paid for at the contract unit price bid for this item, which price and payment shall be full compensation for completing the item.

RE BARS

The Inspector shall pick random bars from the Reinforcing Bar List for test bars. He shall cut 50' from the bars chosen. Re-bars in the list shall be applied to the bars so listed and the Re-bars have been detailed to allow a 30 Diameter splice at each end. One Re-bar for each ten (10) ton on fraction thereof of each size shall be submitted for testing and certification. In the event all bars of one size are not on the list, the Inspector shall furnish a letter of explanation to the Engineer. In the event that any shipment of material has been presented and has been identified in accordance with Material Control Soil and Re-bar List, the shipment may be accepted without further testing subject to record sampling procedures.

PAINTING TRAFFIC

During all phases of construction, the Contractor shall maintain a guardrail along the roadway centerline in the areas where the existing traffic is removed. The contractor shall be in accordance with Section 620.3.4 of the Standard Specifications, adopted 1972, as amended by the Supplemental Specifications, adopted July 1, 1976, and the provisions of the Traffic Control for Street and Highway Construction, dated July 1, 1976.

SCOPE OF WORK

Item 601-1: This item includes furnishing and placing class B concrete for the field grid.

Item 602-1: This item includes furnishing and placing all reinforcing steel, and all other items as shown on the drawings.

Item 603-1: This item includes forming and placing the concrete for the deck and curb.

Item 604-1: This item includes removal of concrete in the following: floor, curb, in the truss and beam areas, and floor supports while the floor is being removed.

Item 605-1: This item includes furnishing and placing class B concrete for the curb.

Item 606-1: This item includes furnishing and placing a temporary guardrail and all items necessary to maintain traffic in accordance with Article 620.3.4 of the Standard Specifications.

Item 607-1: This item includes furnishing and placing a small field office and storage building, including equipment in accordance with Article 620.3.4 of the Standard Specifications.

Item 608-1: This item includes furnishing and placing approximately 350 tons of metal coating in accordance with Section 620.3.4 of the Standard Specifications. Structural steel shall be painted in accordance with Section 711.7, Part 1 of the Standard Specifications, Color shall be Federal Standard Number 5523 - Aztec Gold.

Item 609-1: This item includes furnishing and installing performed elastomeric joint seals at the abutments and piers. The joint seals to be furnished in the form of an extended compartment tube, consisting of an extended compartment tube, conforming to the requirements of Subsection 708.2.

Item 610-1: This item includes furnishing and installing approximately 350 tons of metal coating in accordance with Section 620.3.4 of the Standard Specifications. Structural steel shall be painted in accordance with Section 711.7, Part 1 of the Standard Specifications, Color shall be Federal Standard Number 5523 - Aztec Gold.

Item 611-1: This item includes furnishing and placing class B concrete for the curb.

Item 612-1: This item consists of cleaning and painting approximately 350 tons of metal coating in accordance with Section 620.3.4 of the Standard Specifications. Structural steel shall be painted in accordance with Section 711.7, Part 1 of the Standard Specifications, Color shall be Federal Standard Number 5523 - Aztec Gold.

Item 613-1: This item includes furnishing and placing a temporary guardrail and all items necessary to maintain traffic in accordance with Article 620.3.4 of the Standard Specifications.

Item 614-1: This item includes furnishing and placing class B concrete for the curb.

Item 615-1: This item includes furnishing and placing approximately 350 tons of metal coating in accordance with Section 620.3.4 of the Standard Specifications. Structural steel shall be painted in accordance with Section 711.7, Part 1 of the Standard Specifications, Color shall be Federal Standard Number 5523 - Aztec Gold.

Item 616-1: This item includes furnishing and placing a temporary guardrail and all items necessary to maintain traffic in accordance with Article 620.3.4 of the Standard Specifications.

Item 617-1: This item includes furnishing and placing class B concrete for the curb.

Item 618-1: This item includes furnishing and placing approximately 350 tons of metal coating in accordance with Section 620.3.4 of the Standard Specifications. Structural steel shall be painted in accordance with Section 711.7, Part 1 of the Standard Specifications, Color shall be Federal Standard Number 5523 - Aztec Gold.

Item 619-1: This item includes furnishing and placing a temporary guardrail and all items necessary to maintain traffic in accordance with Article 620.3.4 of the Standard Specifications.

ITEM	DESCRIPTION	ESTIMATE OF QUANTITIES
601-1	Class B Concrete	88
602-1	Reinforcing Steel Bars	4011
603-1	Removal of Existing Superstructure Concrete	56,851
604-1	Steel and Fiberglass Filled Type	11,810
605-1	Small Field Office and Storage Building	1
606-1	Removal of Existing Superstructure Concrete	1
607-1	Class B Concrete	1
608-1	Removal of Existing Superstructure Concrete	1
609-1	Class B Concrete	1
610-1	Removal of Existing Superstructure Concrete	1
611-1	Class B Concrete	1
612-1	Removal of Existing Superstructure Concrete	1
613-1	Class B Concrete	1
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615-1	Class B Concrete	1
616-1	Removal of Existing Superstructure Concrete	1
617-1	Class B Concrete	1
618-1	Removal of Existing Superstructure Concrete	1
619-1	Class B Concrete	1

W. VA DEPARTMENT OF HIGHWAYS

NOTES

ARTLAND BR 032

REINFORCING STEEL

INCREASED QUANTITY OF STRUCTURAL STEEL

REVISIONS

NO. 1376 HB

7-21-76

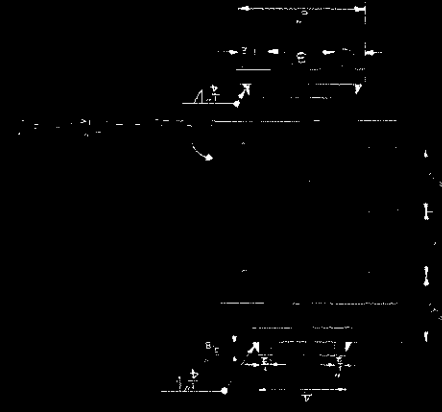
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HB

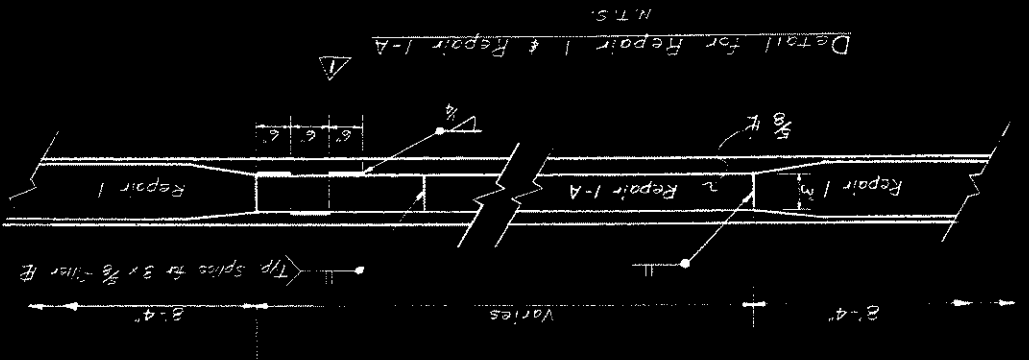
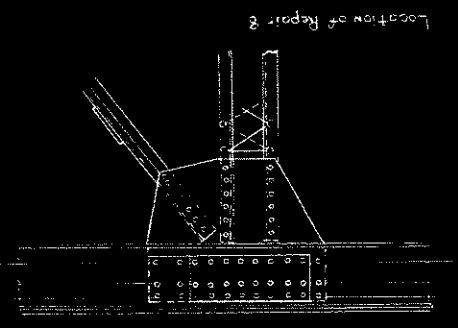
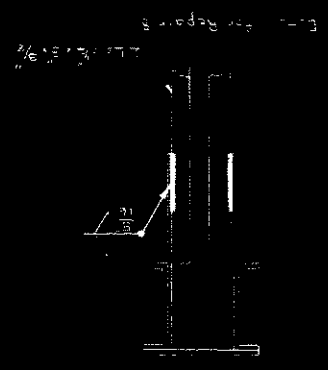
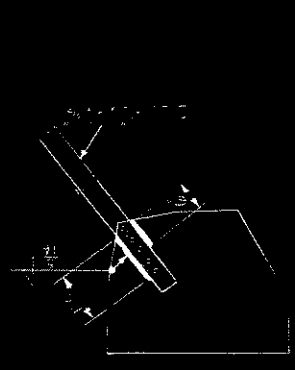
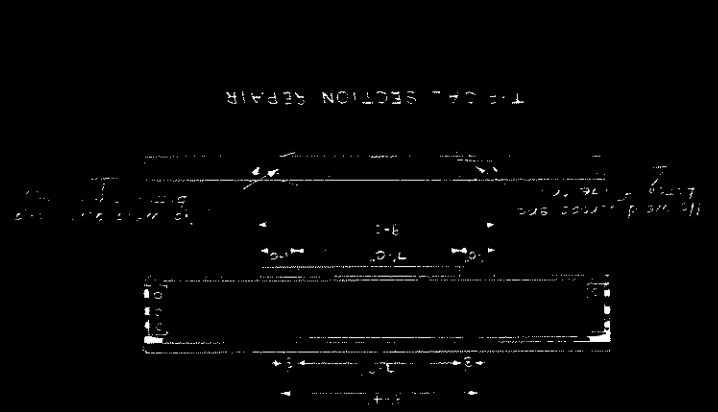
7-21-76

SHEET NO. 5
 DEPARTMENT OF HIGHWAYS
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TYPICAL SECTION OF SPRINGER REPAIR



TYPICAL SECTION REPAIR

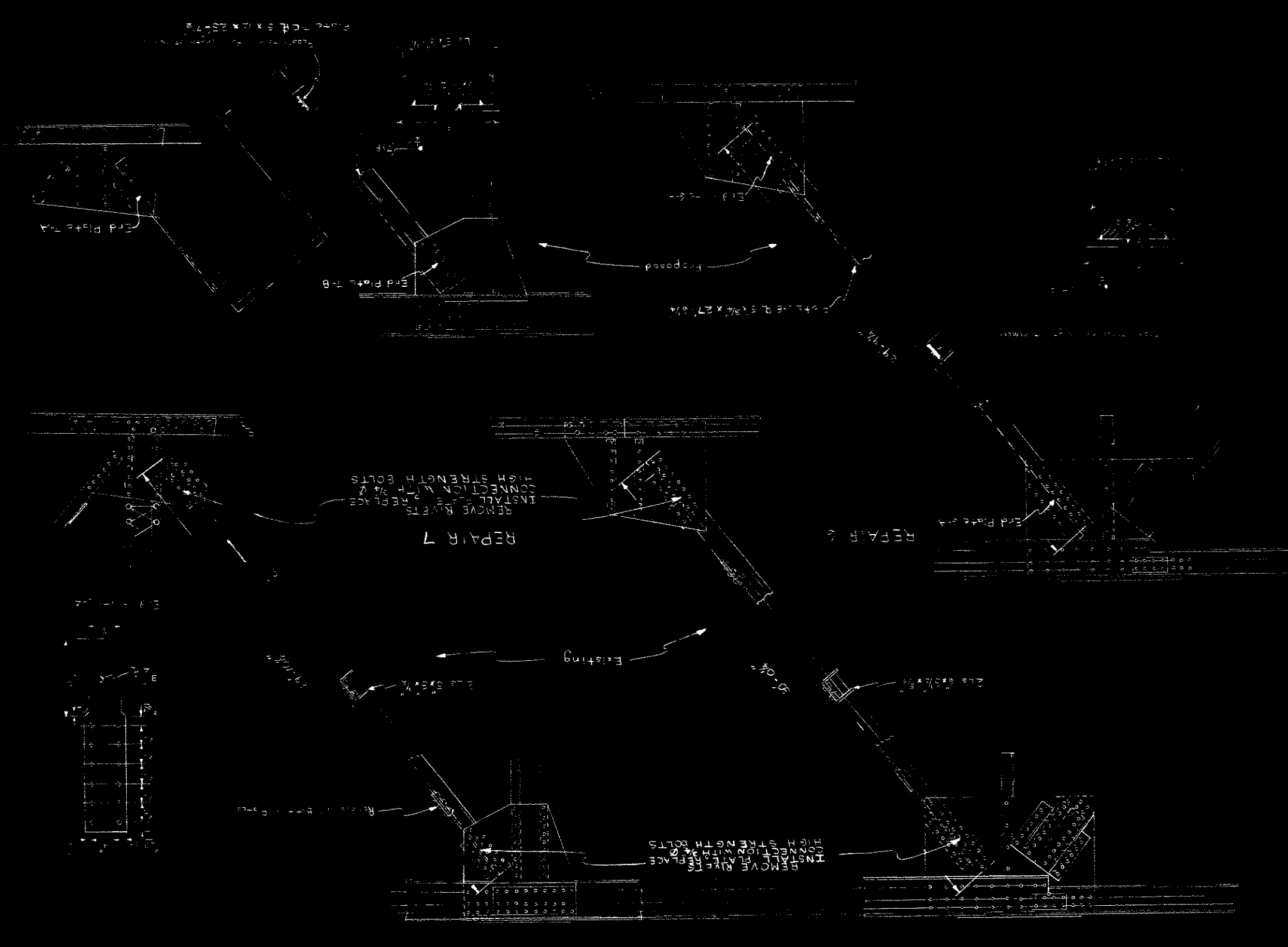


Repair 1-A on top flange of stringer only is continuous over top flange of timbers.

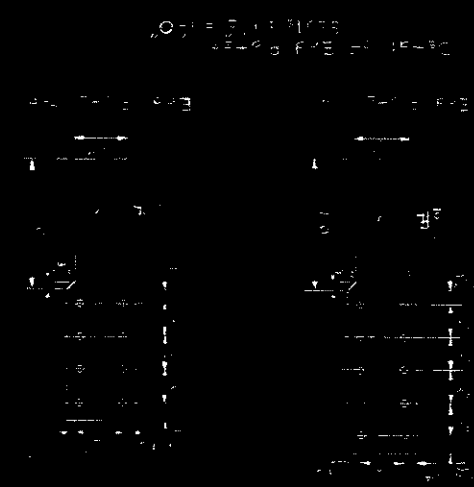
PUBLIC STATE
 ROAD DIST
 DESIGN UNIT
 COUNTY
 NO
 DATE

1051
 SHEET NO. 8 SHEETS
 W. VA. DEPARTMENT OF HIGHWAYS

NO.	REVISION



NO.	REVISION



W. VA. DEPARTMENT OF HIGHWAYS
 SHEET NO. 8 SHEETS
 1051

**MEMORANDUM OF AGREEMENT
BY AND AMONG
THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER
THE WEST VIRGINIA DIVISION OF HIGHWAYS
AND THE FEDERAL HIGHWAY ADMINISTRATION**

**REGARDING IMPLEMENTATION OF THE HARTLAND BRIDGE
REPLACEMENT PROJECT
STATE PROJECT #S208-16-14.77
FEDERAL PROJECT #BR-0016(171)D
CLAY COUNTY, WEST VIRGINIA
JANUARY 2011**

WHEREAS, the Federal Highway Administration (FHWA), in cooperation with the West Virginia Division of Highways (WVDOH) proposes to replace Hartland Bridge, which spans the Elk River in Clay County, hereinafter referred to as the "Project." The Project involves improvements including the construction of a new bridge structure to be located approximately 100' downstream of the existing bridge location and the removal of the existing structure; and

WHEREAS, the FHWA has determined that the Project will have an adverse effect upon the Hartland Bridge, a property eligible for the National Register of Historic Places (NRHP); and

WHEREAS, the FHWA has consulted with the West Virginia State Historic Preservation Officer (WVSHPO) pursuant to West Virginia Code Chapter 29, Article 1 and its implementing regulations (82 CSR 2), as well as 36 CFR Part 800.5 (implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f)); and

WHEREAS, the FHWA has consulted with the Clay County Historic Landmarks Commission (HLC) regarding the effects of the undertaking on historic properties; and

WHEREAS, the HLC is organized under the auspices of the Clay County Commission (CC); and

WHEREAS, the FHWA has determined that the Project will not affect any archaeological properties; and

WHEREAS, in accordance with 36 CFR 800.6(a)(1), the Federal Highway Administration (FHWA) has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect determination and provided the specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR 800.6(a)(1)(iii);

NOW, THEREFORE, the FHWA, the WVSHPO, the WVDOH, the HLC and the CC agree that the Project will be implemented in accordance with the following stipulations in order to take into account the effects of the Project on historic properties.

STIPULATIONS

The FHWA shall ensure that the following stipulations are carried out:

Hartland Bridge

- I. The Hartland Bridge will be documented in its present historic setting. The documentation package will include 5"x7" black and white digital prints prepared in accordance with the Interim National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion of January 2009.
- II. A brief history of the structure will be included in the aforementioned documentation package, along with fully completed West Virginia Historic Property Inventory forms.
- III. WVDOH staff will provide the Clay County Public Library and the Clay County Historic Landmarks Commission a copy of the Hartland Bridge State Level Historic Documentation package for reference and educational purposes.
- IV. The Hartland Bridge will be included in any comprehensive mitigation plan developed collaboratively by the WVDOH, the FHWA and the WVSHPO following completion of the West Virginia Statewide Historic Bridge Survey.
- V. The WVDOH will provide a sum of \$10,000 to the Clay County Commission/HLC to be used for preservation activities and projects within Clay County. The HLC will identify projects to be completed using the funds in consultation with the WVDOH and WVSHPO. The project(s) will be identified by the HLC within six (6) months of the execution of this MOA. Funding will be provided to the County Commission upon identification of specific projects. Any work completed on historic buildings must comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties and must be submitted for review by the WVSHPO prior to commencement of work. Any interpretive material, such as signs, posters or brochures, will be submitted for review by the WVSHPO and the WVDOH. The HLC will provide status reports summarizing progress and financial information in writing or via email to the WVDOH every six (6) months.

VI. Duration

This MOA will expire if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the Project, the FHWA shall either (a) execute a MOA pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. Prior to such time, FHWA may consult with other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation X below. The FHWA shall notify the signatories as to the course of action it will pursue.

VII. Post-Review Discoveries

If any unanticipated discoveries of historic properties or archaeological sites, including human burial sites and/or skeletal remains, are encountered during the implementation of this Project, work shall be suspended in the area of the discovery until the WVDOH has developed and implemented an appropriate treatment plan in consultation with the WVSHPO pursuant to 36 CFR 800.13(b).

VIII. Monitoring and Reporting

Each year following the execution of this MOA until it expires or is terminated, the FHWA shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in the FHWA's efforts to carry out the terms of this MOA.

IX. Dispute Resolution

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, the FHWA shall consult with such party to resolve the objection. If the FHWA determines that such objection cannot be resolved, the FHWA will:

- A. Forward all documentation relevant to the dispute, including the FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The FHWA will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, the FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.
- C. The FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

X. Amendments


This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XI. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation X, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

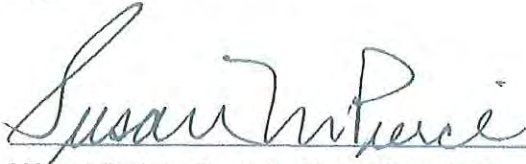
Once the MOA is terminated, and prior to work continuing on the Project, the FHWA must either (a) execute a MOA pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. The FHWA shall notify the signatories as to the course of action it will pursue.

EXECUTION of this Memorandum of Agreement by the FHWA, the WVSHPO, the WVDOH and the ACHP, and implementation of its terms evidence that the FHWA has afforded the ACHP an opportunity to comment on the Hartland Bridge Replacement project and its effects on historic properties, and that the FHWA has taken into account the effects of the Project on the historic property.



Federal Highway Administration

11/16/11
Date



West Virginia Deputy State Historic Preservation Officer

6/27/11

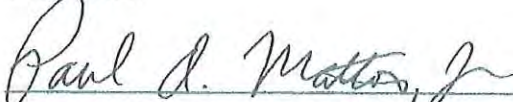
Date

APPROVED:

Advisory Council on Historic Preservation

Date

CONCUR:



West Virginia Division of Highways

6/29/11

Date

CONCUR:



Clay County Historic Landmarks Commission

2-23-2011

Date

CONCUR:



Clay County Commission

2/23/11
Date