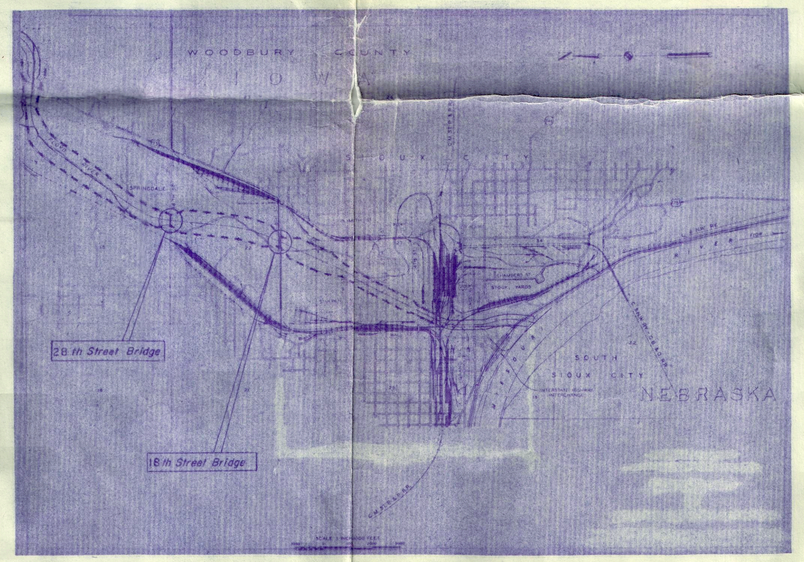
CITY OF SIOUX CITY, IOWA

EIGHTEENTH STREET
AND
TWENTYEIGHTH STREET

BRIDGES



LOCATION MAP

HENNINGSON, DURHAM & RICHARDSON, INC.

ENGINEERS · PLANNERS · CONSULTANTS

OMAHA · PHOENIX · COLORADO SPRINGS · DALLAS

ENGINEERS · PLANNERS · CONSULTANTS
OMAHA COLORADO SPRINGS PHOENIX
DRAWN TRACED CHECKED
DATE DATE DATE

SUMMARY OF ESTIMATED QUANTITIES

	18 TH. ST.	28 TH. ST.	6 TH. ST.	11 TH. ST.	TOTAL
BRIDGE ITEMS					
12" STEEL PILES	4,550 L.F.	4,090 L.F.			8,640 L.F.
CONCRETE FOR SUBSTRUCTURE	666 C.Y.	545 C.Y.			1,211 C.Y.
REINFORCING STEEL FOR SUBSTRUCTURE	93,910 LBS.	76,960 LBS.			170,870 LBS.
SUPERSTRUCTURE	L.S.	L.S.			L.S.
PILE LOAD TEST	1 EACH	1 EACH			2 EACH
REMOVAL OF EXISTING BRIDGE	1 EACH	1 EACH		1 EACH	3 EACH
REMOVAL OF 31ST. ST. FOOT BRIDGE					L.S.
PAVEMENT ITEMS					
8" REINFORCED CONCRETE PAVEMENT	4,733 S.Y.	5,450 S.Y.	2,772 S.Y.	2,763 S.Y.	15,718 S.Y.
CONCRETE FOR APPROACH SLABS	184.8 C.Y.	180.0 C.Y.	183.3 C.Y.	202.8 C.Y.	750.9 C.Y.
REINFORCING STEEL FOR APPROACH SLABS	17,256 LBS.	16,984 LBS.	17,731 LBS.	18,296 LBS.	70,267 LBS.
GRADING FRONTAGE ROAD		L.S.			L.S.
GRANULAR SURFACING	1,760 TONS	1,771 TONS			3,531 TONS
4" CONCRETE SIDEWALK		5,560 S.F.		7,140 S.F.	12,700 S.F.
STORM SEWER ITEMS					
15" R.C. PIPE	692 L.F.	419 L.F.	176 L.F.		1,287 L.F.
18" R.C. PIPE	150 L.F.	106 L.F.			256 L.F.
18" C.M. PIPE	144 L.F.	100 L.F.	36 L.F.		280 L.F.
MANHOLES	4 EACH	1 EACH			5 EACH
ADJUST MANHOLES TO GRADE	(1) 1 V.F.	(3) 18 V.F.			(4) 19 V.F.
INLETS	12 EACH	12 EACH	3 EACH		27 EACH
HEADWALLS WITH SPLASH BASIN	2 EACH		1 EACH		3 EACH
ELECTRICAL ITEMS					
4" FIBER DUCT	382 L.F.	268 L.F.	338 L.F.	358 L.F.	1,346 L.F.
2" RIGID GALV. CONDUIT UNDER PAVEMENT	377 L.F.	238 L.F.	310 L.F.	331 L.F.	1,256 L.F.

GENERAL NOTES FOR EIGHTEENTH ST. AND TWENTYEIGHTH ST. BRIDGES

Specifications:

Design - AASHO 1961 edition with minor modifications.
Construction - Iowa Highway Commission Standard Specifications 1960 edition, except as amended by the Special Provisions.

Materials:

All Concrete for bridges shall be Class S air-entrained (See Special Provision.)
All girder flange plates and girder web plates shall conform to the requirements of A.S.T.M. Specification A36-60T
All other structural steel plates and shapes shall conform to the requirements of A.S.T.M. Specification A7-56T
Aluminum bridge rail post shall be Alloy No. 356-T6. Aluminum pipe rails shall be Alloy No. 6061-T6, A.S.T.M. GS11A, Temper T6

Fabrication:

Butt welded shop splices may be incorporated in girder flanges and webs to suit the fabricator's methods of operation.
Girder shall be fabricated in straight lines between splices as shown in the erection diagrams.
Girder shall not be cambered.
All stiffener plates and cross bracing connection plates shall be set normal to girder flanges.

Construction:

Anchor bolts shall be set prior to the placing of the concrete.

All girder splices as called for on the plans shall be welded.
All rip rap shall be furnished and placed by the Corps of Engineers.
Chamfer all corners of concrete 3/4 inches.

Welding:

The bridge contractor shall furnish certification that all welding operators, to be employed, have been qualified in accordance with the requirements of the Standard Specifications.

Manholes & Inlets:

Manholes shall be constructed in accordance with the City of Sioux City Standard Manhole details.
Inlets shall be constructed in accordance with the City of Sioux City Standard Special Inlet Details.

Street Surfacing:

The bridge contractor shall restore, at his expense, any street surfacing disturbed by his operations beyond the limits of this contract.

Borings:

The borings shown on these plans represents the character of the subsoil at locations shown, it is not implied that these soil conditions vary uniformly between or outside of the location shown.

Design Stresses:

Concrete	f_c = 1200 psi
Reinforcing Steel	f_c = 20,000 psi
Structural Steel (A7-56T)	f_s = 18,000 psi
Structural Steel (A36-60T)	f_s = 20,000 psi
Piles (At abutments)	50 tons max.
Piles (At piers)	50 tons max.

Electrical Construction:

All materials shall be in accordance with the requirements of National Board of Underwriters, National Electrical Code, and with the State and Municipal laws and ordinances relating to this work. All electrical materials used in this work shall be approved by the Underwriter Laboratories and shall bear their label of approval.

All exposed conduit ends shall be capped.

Detour:

Any detours required for this construction will be constructed, marked and maintained by the City.

Removal of Existing Bridges:

All material shall remain property of the City.
Handrail and steel beams shall be matchmarked and carefully dismantled, and stored as directed by the Engineer.
Concrete, reinforcing steel and other material of no salvage value shall be disposed of as directed by the Engineer.
Abutments, piers and foundations shall be removed to an elevation determined by the Engineer, this elevation being at least two feet below either existing or final ground line.

Channel Excavation and Backfill:

All channel excavation and backfill shall be done by the U.S. Government.
At 18th Street, Area I will be completed to the final ground lines shown on or before June 1, 1963.
Water will be diverted to the new channel on or about August 1, 1963.
Area II will be completed on or before September 1, 1963.

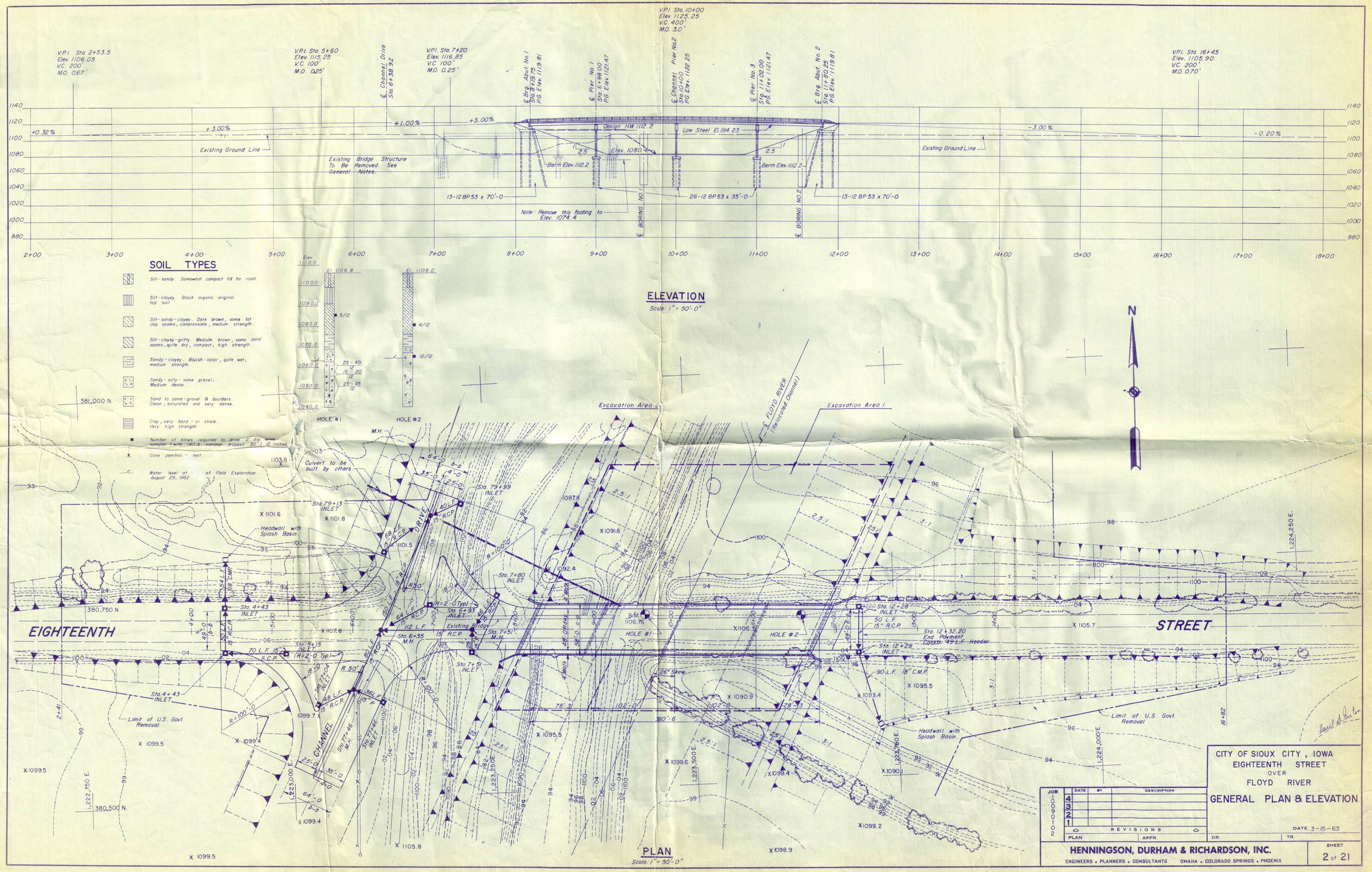
Donald Sutton

JOB 100901-02		DATE	BY	DESCRIPTION
	4			
	3			
	2			
	1			
	REVISIONS			
PLAN		APPR.		

CITY OF SIOUX CITY, IOWA
EIGHTEENTH & TWENTYEIGHTH STREET OVER FLOYD RIVER
GENERAL NOTES & SUMMARY OF QUANTITIES
DATE 3-15-63
DR. | TR.

HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

SHEET 1 OF 21



CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER

GENERAL PLAN & ELEVATION

JOB	DATE	BY	DESCRIPTION
4			
3			
2			
1			

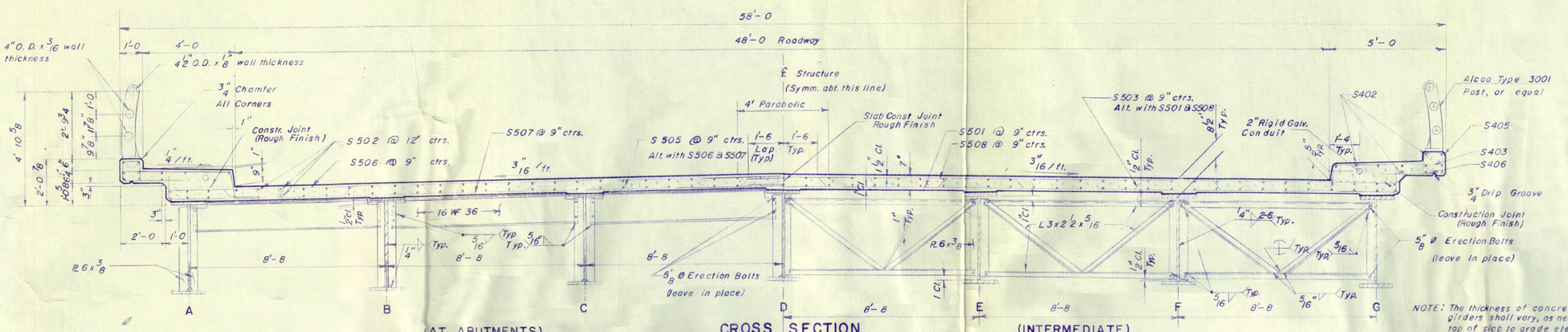
REVISIONS

PLAN | APPR. | DR. | TR.

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

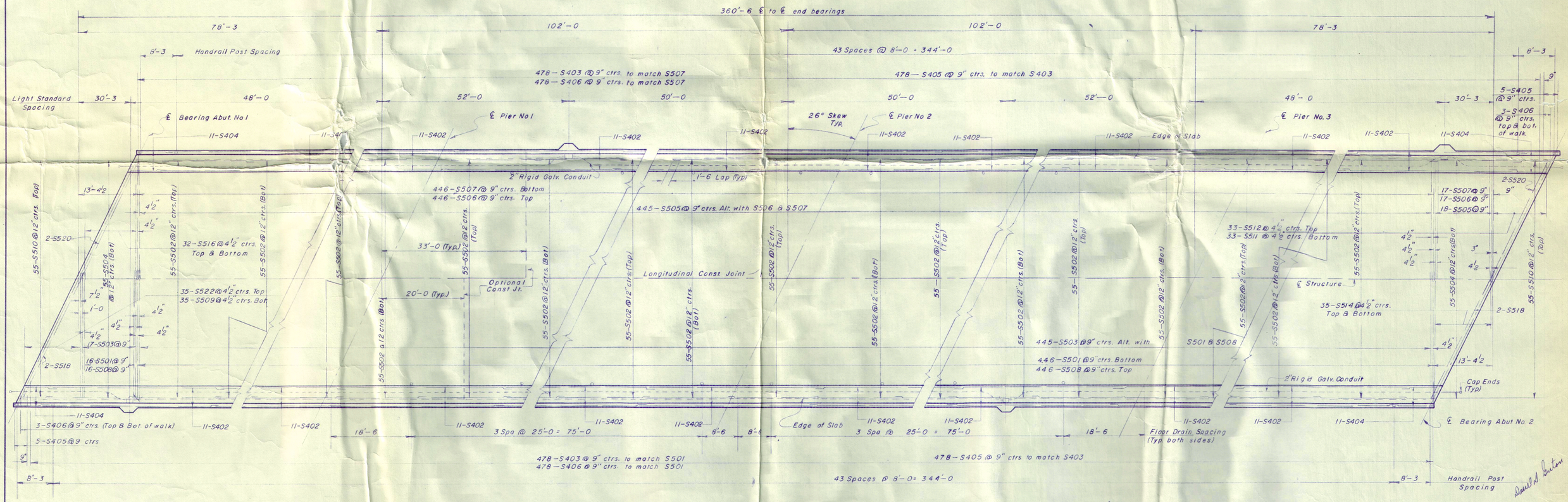
SHEET 2 of 21



(AT ABUTMENTS) CROSS SECTION (INTERMEDIATE)

Scale 3/8" = 1'-0

NOTE: The thickness of concrete haunches over the girders shall vary, as necessary, to bring the top of slab to grade elevation after dead load deflections have taken place.



Notes: See Miscellaneous Details Sheet for floor drain details & Light standard details.

Spacing of floor drains is measured along gutter lines.

All slab concrete pours shall preferably be continuous between abutments, and shall be made in one direction.

FLOOR PLAN

Scale 3/32" = 1'-0

ESTIMATED QUANTITIES		
	CONCRETE	REINF. STEEL
Slab & Curbs	532.2 C.Y.	142,675 lbs.

N

JOB 1009010-2	DATE	BY	DESCRIPTION
	4		
	3		
	2		
	1		
	REVISIONS		
PLAN	APPR.		

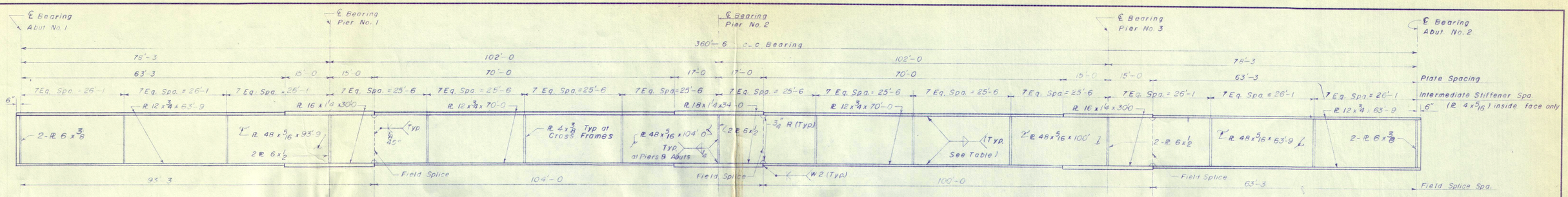
CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER
CROSS SECTION
AND
FLOOR PLAN

DATE 3-15-63

DR. D.C.P. TR.

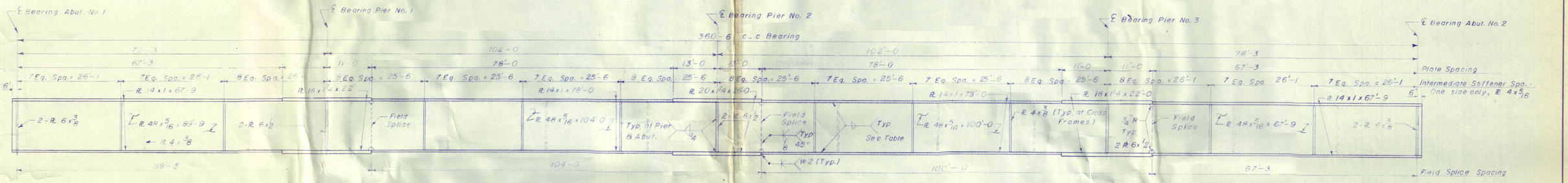
HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

SHEET 3 OF 21



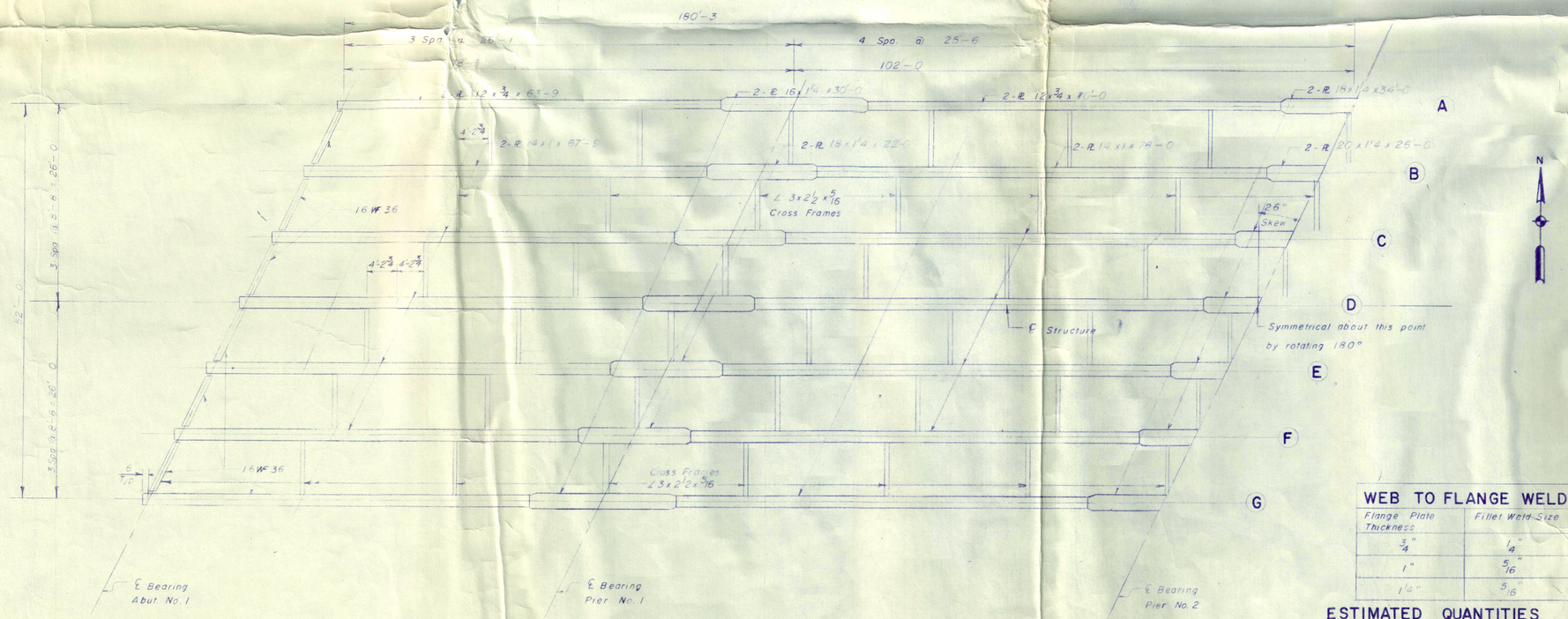
EXTERIOR GIRDER ELEVATION (A & G)

NO SCALE



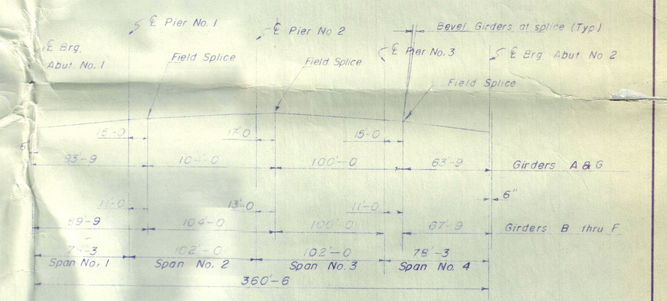
INTERIOR GIRDER ELEVATION (B thru F)

NO SCALE



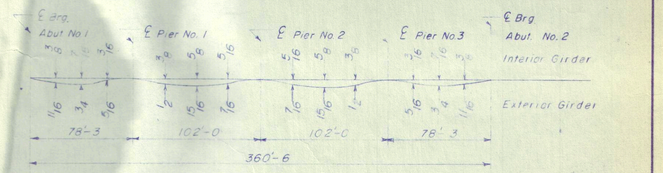
HALF FRAMING PLAN

NO SCALE



ERECTION DIAGRAM

NO SCALE



DEFLECTION DIAGRAM

NO SCALE

Note: Deflections are given in inches at span quarter points.

WEB TO FLANGE WELD	
Flange Plate Thickness	Fillet Weld Size
3/4"	1/4"
1"	5/16"
1 1/4"	5/16"

ESTIMATED QUANTITIES

Girders, Separators, Stiffeners, & Brg. Devices	419,300	Lbs.

JOB	DATE	BY	DESCRIPTION
1			
0			
9			
0			
1			
0			
2			

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CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER

GIRDER ELEVATION & HALF FRAMING PLAN

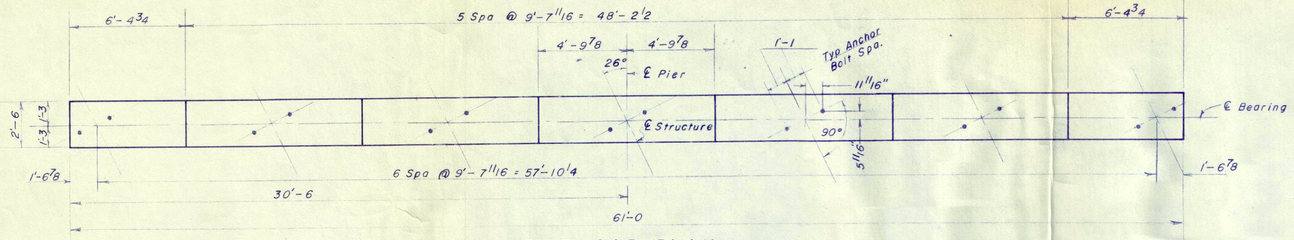
DATE 3-15-63

DR. H.A. | TR.

HENNINGSON, DURHAM & RICHARDSON, INC.

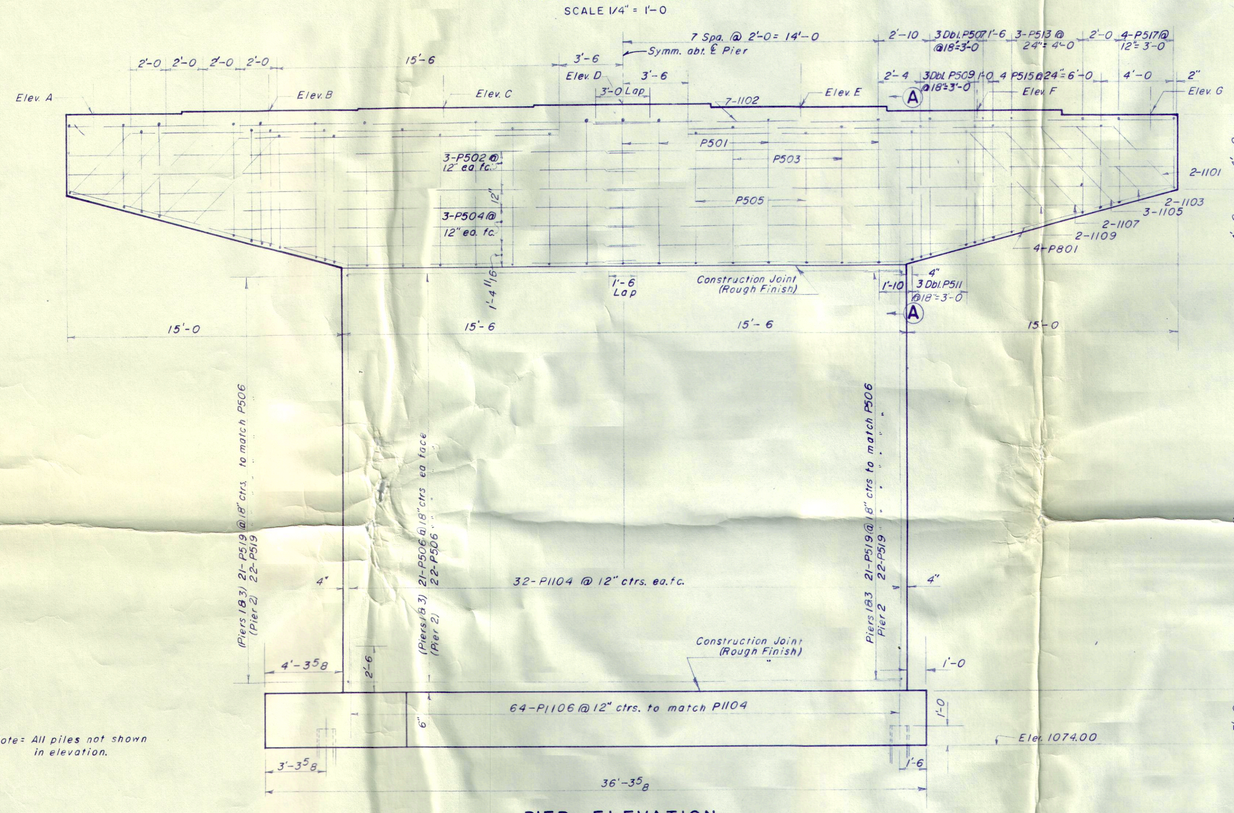
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

SHEET 4 OF 21



PIER CAP PLAN

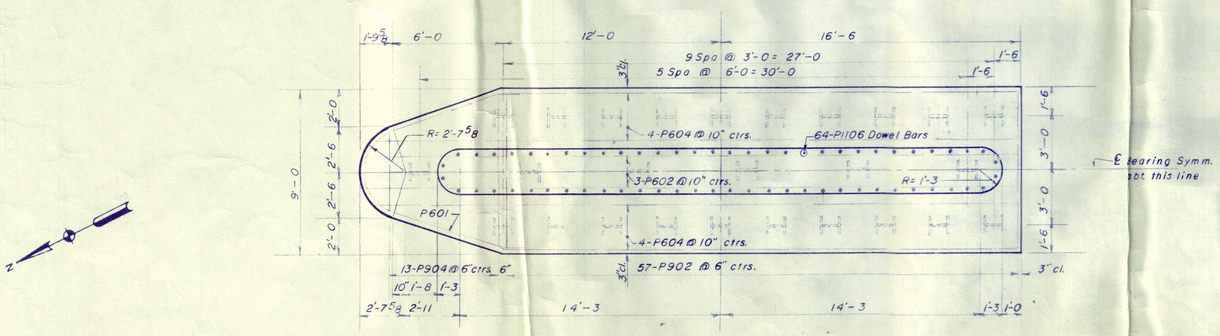
SCALE 1/4" = 1'-0



PIER ELEVATION

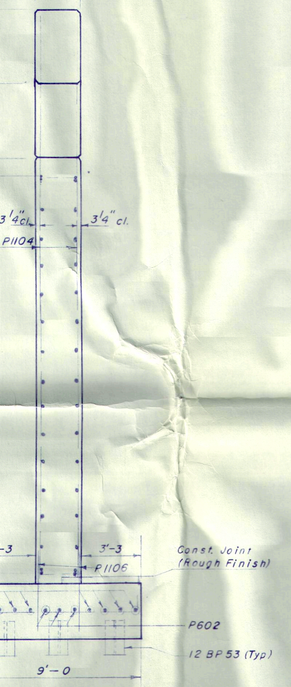
SCALE 1/4" = 1'-0

Note: All piles not shown in elevation.



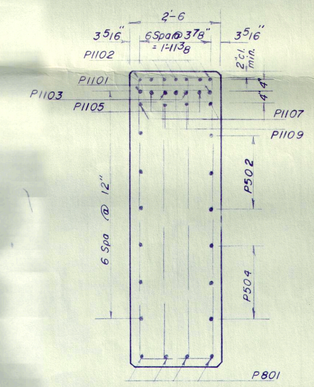
PIER FOOTING PLAN

SCALE 1/4" = 1'-0



END VIEW

SCALE 1/4" = 1'-0



SECTION A-A

SCALE 1/2" = 1'-0

PIER DATA

	Pier No 1	Pier No 2	Pier No 3
Elev. A	1116.17	1116.75	1115.78
Elev. B	1116.24	1116.90	1115.99
Elev. C	1116.32	1117.04	1116.19
Elev. D	1116.38	1117.16	1116.38
Elev. E	1116.19	1117.04	1116.32
Elev F	1115.99	1116.90	1116.24
Elev G	1115.78	1116.75	1116.17
H	30.78'	31.75'	30.78'

ESTIMATED QUANTITIES

	Concrete	Re-Steel
Pier No 1	157.4 C.Y.	26,520 lbs.
Pier No 2	158.5 C.Y.	26,600 lbs.
Pier No 3	157.4 C.Y.	26,520 lbs.

Daniel A. Burton

JOB 1-09012	DATE	BY	DESCRIPTION
4			
3			
2			
1			

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CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER

PIER DETAILS

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
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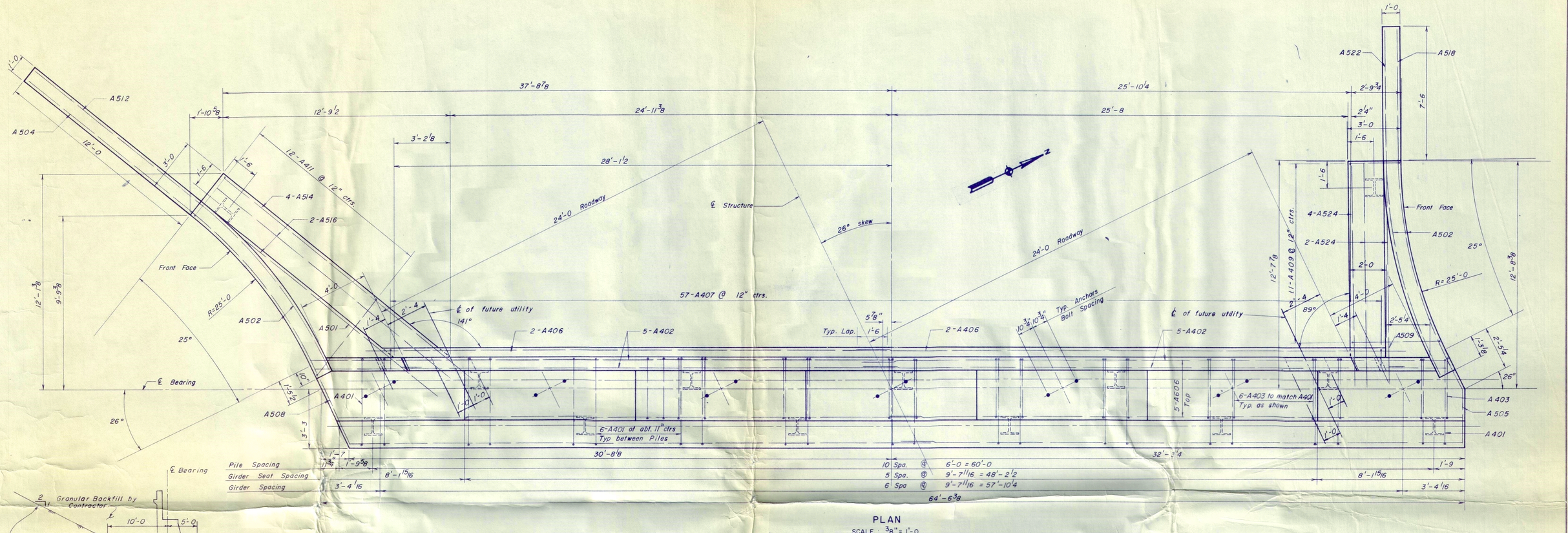
SHEET 5 OF 21



PLAN
SCALE : 3/8" = 1'-0

ELEVATION
SCALE : 3/8" = 1'-0

SECTION A-A
SCALE : 3/8" = 1'-0

ESTIMATED QUANTITIES	CONCRETE	REINF. STEEL
Abutment No. 1	96.2 C.Y.	7135 lbs.
Abutment No. 2	96.2 C.Y.	7135 lbs.

Note :
Abutment No. 1 shown, Abutment No. 2 similar except opposite hand.

JOB	DATE	BY	DESCRIPTION
100301-02	4		
	3		
	2		
	1		

REVISIONS
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CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER
ABUTMENT DETAILS
DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
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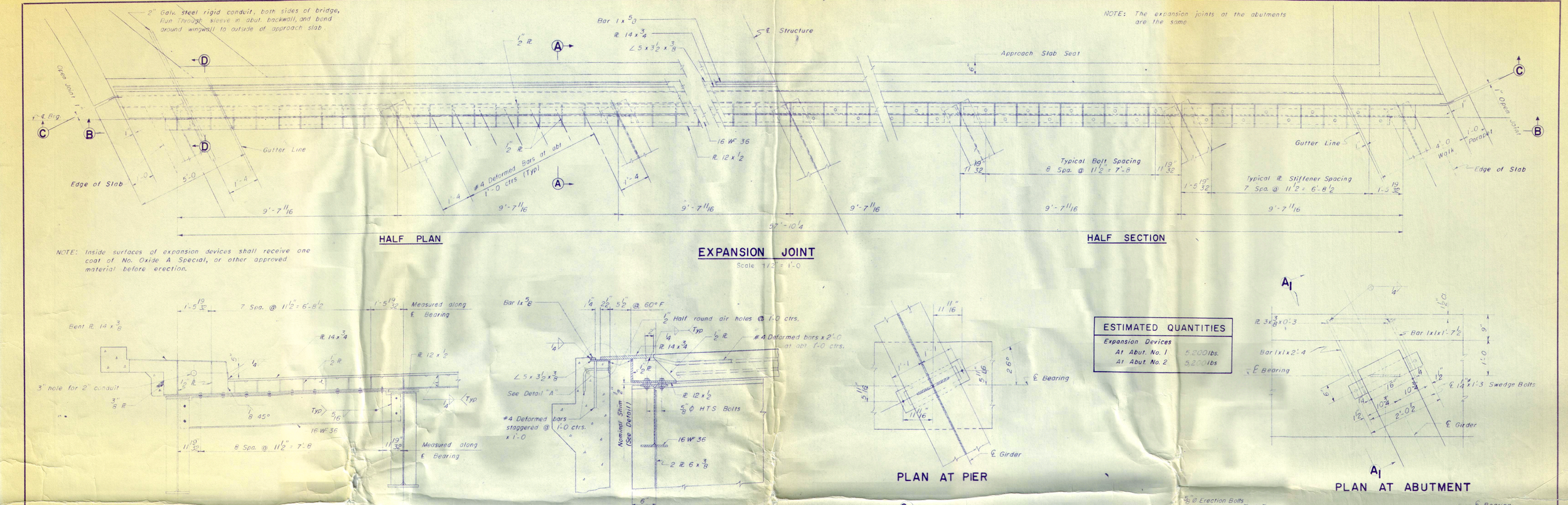
SHEET 6 OF 21



EXPANSION JOINT

Scale 1/2" = 1'-0

NOTE: Inside surfaces of expansion devices shall receive one coat of No. Oxide A Special, or other approved material before erection.

PART SECTION B-B

Scale 1/2" = 1'-0

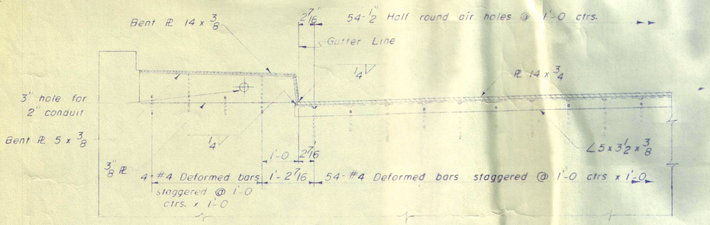
SECTION A-A

Scale 1" = 1'-0

PLAN AT PIER

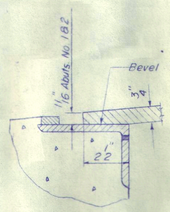
ESTIMATED QUANTITIES	
Expansion Devices	
At Abut. No. 1	5,200 lbs.
At Abut. No. 2	5,200 lbs

PLAN AT ABUTMENT



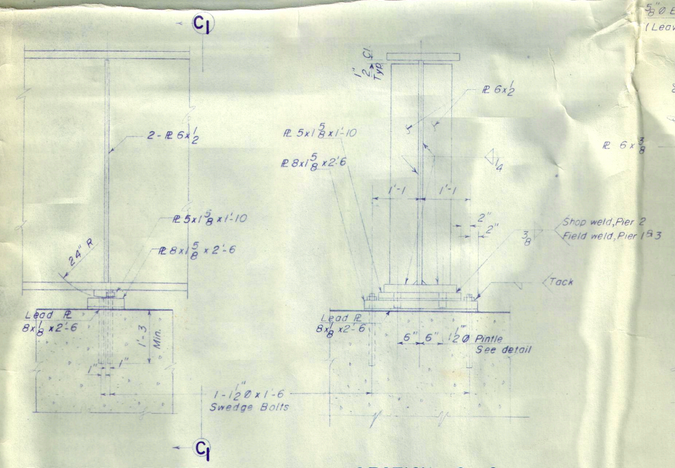
PART SECTION C-C

Scale 1/2" = 1'-0



DETAIL "A"

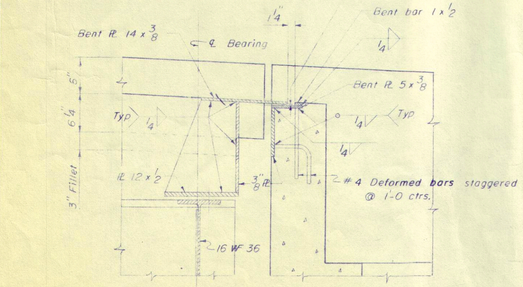
Scale 3" = 1'-0"



ELEVATION AT PIER — SECTION C1 - C1 — SECTION B1 - B1 — SECTION A1 - A1

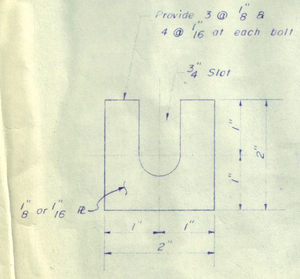
BEARING DEVICE DETAILS

No Scale



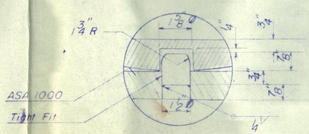
SECTION D-D

Scale 1" = 1'-0



SHIM DETAIL

Scale 3/4" = 1"



PINTLE DETAIL AT PIER

SCALE: 3" = 1'-0

CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER
EXPANSION DEVICE & BEARING DEVICE DETAILS
DATE 3-15-63

JOB 1009010-02	DATE	BY	DESCRIPTION
4			
3			
2			
1			

REVISIONS — PLAN — APPR. — DR. — TR.

HENNINGSON, DURHAM & RICHARDSON, INC.
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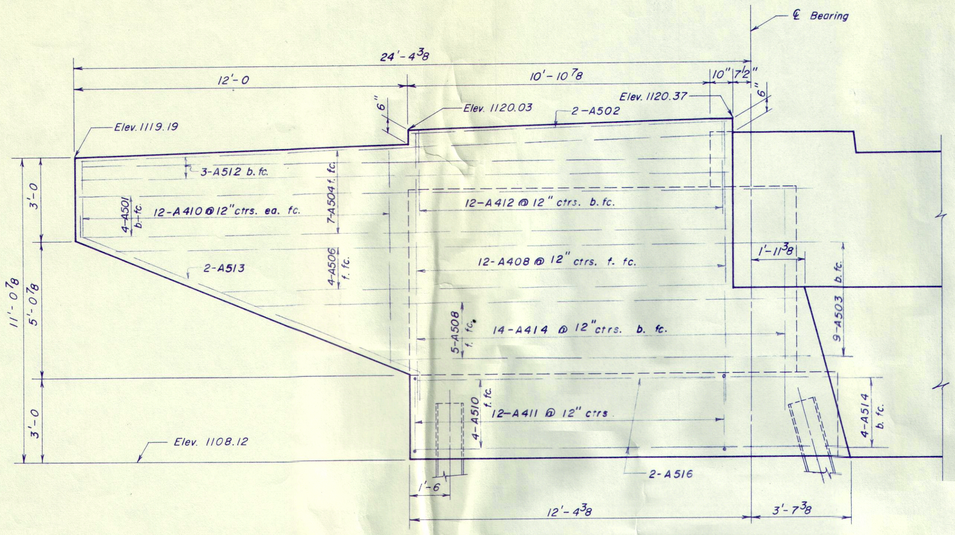
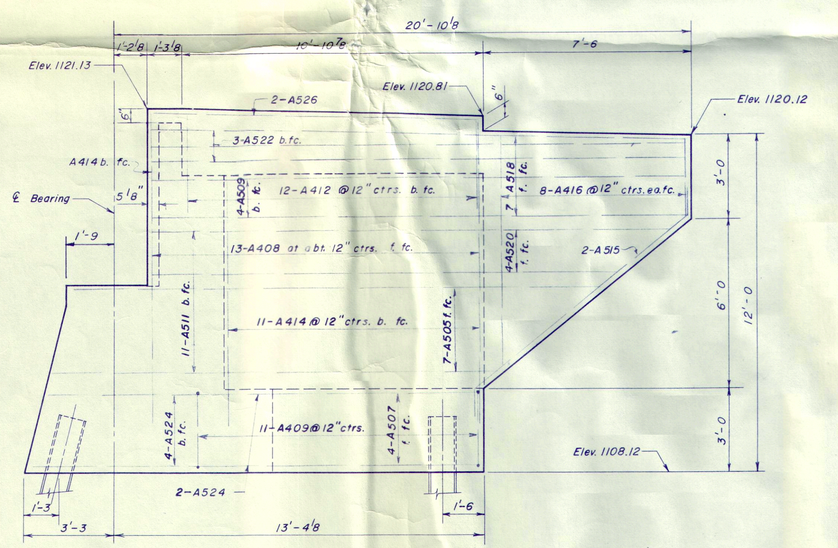
SHEET 7 OF 21



(ABUT. NO. 1 SOUTH & ABUT. NO. 2 NORTH)

Note: f. fc. denotes front face.
b. fc. denotes back face.
ea. fc. denotes each face.

Note Horizontal Reinf. in wingwalls to be at 6" ctrs. except in footings.



(ABUT. NO. 1 NORTH & ABUT. NO. 2 SOUTH)

DEVELOPED WING WALL ELEVATIONS

SCALE : 3/8" = 1'-0

EIGHTEENTH STREET

BILL OF BARS

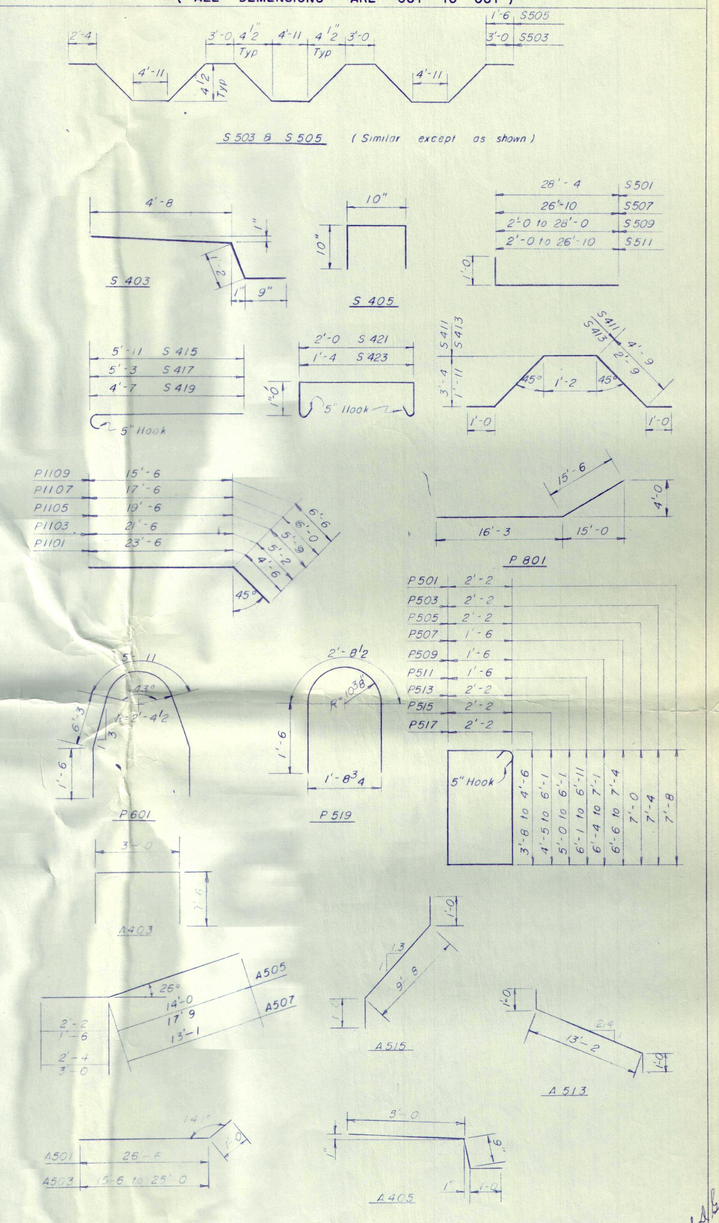
	MARK	NO.	LENGTH
SLAB, CURBS, & LIGHT STANDARD SUPPORTS	S402	198	40'-0
	S403	956	6'-7
	S404	44	8'-3
	S405	966	2'-6
	S406	968	2'-9
	S411	4	12'-8
	S413	4	8'-8
	S415	8	6'-4
	S417	8	5'-8
	S419	32	5'-0
	S421	8	4'-10
	S423	8	4'-2
	S501	462	29'-4
	S502	935	40'-0
	S503	462	29'-3
	S504	110	27'-6
	S505	453	27'-9
	S506	453	26'-10
	S507	453	27'-10
	S508	462	28'-4
	S509	1 Set of 35	3'-0 To 29'-0
	S510	110	8'-3
	S511	1 Set of 33	3'-0 To 27'-10
	S512	1 Set of 33	2'-0 To 26'-10
	S514	2 Sets of 35	2'-0 To 28'-4
	S516	2 Sets of 32	2'-0 To 26'-10
	S518	4	31'-4
	S520	4	29'-10
	S522	1 Set of 35	2'-0 To 28'-0
PIERS	P501	21	20'-6
	P502	36	31'-0
	P503	12	19'-10
	P504	12 Sets of 3	21'-0 To 28'-6
	P505	12	19'-2
	P506	128	28'-6
	P507	12 Sets of 3	16'-10 To 18'-6
	P509	12 Sets of 3	16'-6 To 18'-0
	P511	12 Sets of 3	16'-0 To 17'-8
	P513	6 Sets of 3	15'-2 To 17'-4
	P515	6 Sets of 4	14'-0 To 17'-4
	P517	6 Sets of 4	12'-6 To 14'-2
	P519	128	5'-8
	P601	3	21'-5
	P602	9	35'-8
	P604	6 Sets of 4	28'-2 To 35'-0
	P801	24	31'-9
	P902	171	8'-6
	P904	3 Sets of 13	4'-3 To 8'-4
	P1101	12	28'-0
	P1102	42	32'-0
	P1103	12	26'-8
	P1104	192	37'-6
	P1105	18	25'-3
	P1106	192	5'-3
	P1107	12	23'-6
	P1109	12	22'-0
ABUTMENTS	A401	124	19'-8
	A402	40	33'-0
	A403	92	6'-0
	A404	252	6'-6
	A405	8	6'-9
	A406	8	29'-6
	A407	114	2'-6
	A408	50	11'-0
	A409	2 Sets of 11	10'-10 To 15'-2
	A410	4 Sets of 12	2'-9 To 7'-6
	A411	2 Sets of 12	10'-10 To 15'-6
	A412	48	3'-6
	A414	52	9'-0
	A416	4 Sets of 8	2'-9 To 8'-3
	A501	8	27'-6
	A502	4	11'-6
	A503	2 Sets of 9	16'-6 To 26'-0

	MARK	NO.	LENGTH
ABUTMENTS (Cont)	A504	14	23'-6
	A505	2 Sets of 7	16'-2 To 19'-3
	A506	2 Sets of 4	18'-9 To 22'-4
	A507	2 Sets of 4	15'-5 To 16'-1
	A508	2 Sets of 5	16'-0 To 20'-2
	A509	8	19'-10
	A510	2 Sets of 4	14'-9 To 15'-6
	A511	2 Sets of 11	13'-0 To 19'-3
	A512	6	23'-9
	A513	4	15'-2
	A514	8	18'-0
	A515	4	11'-8
	A516	8	17'-0
	A518	14	19'-6
	A520	2 Sets of 4	17'-0 To 18'-10
	A522	6	19'-9
	A524	16	12'-6
	A526	4	12'-0
	A602	76	33'-0
	A604	6	19'-0
	A606	10	45'-4

Note: The prefixes S, P, & A of the bar marks indicates the bar is located in the slab, piers or abutments respectively.

BENDING DIAGRAMS

(ALL DEMENSIONS ARE OUT TO OUT)



JOB	DATE	BY	DESCRIPTION
100390-02	4		
	3		
	2		
	1		

REVISIONS

PLAN | APPR. | DR. | TR.

CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER

BILL OF BARS AND ABUTMENT WING WALLS

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
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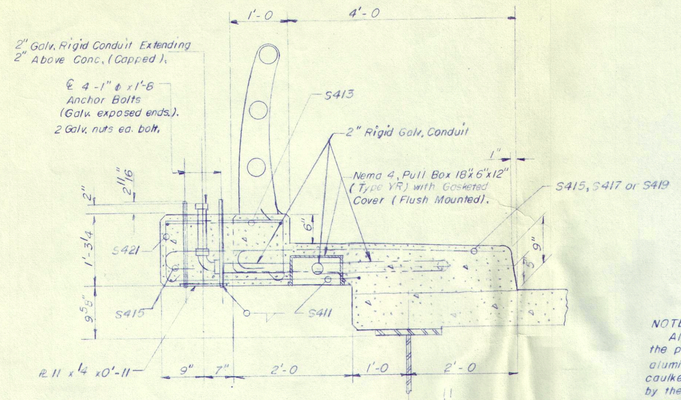
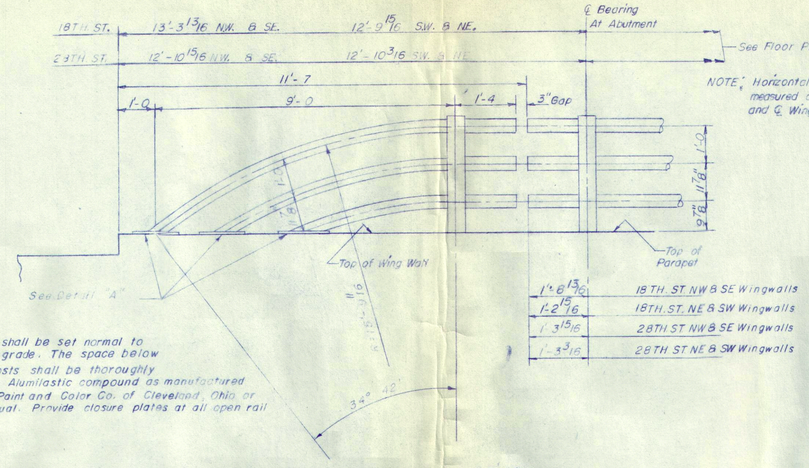
SHEET 8 OF 21



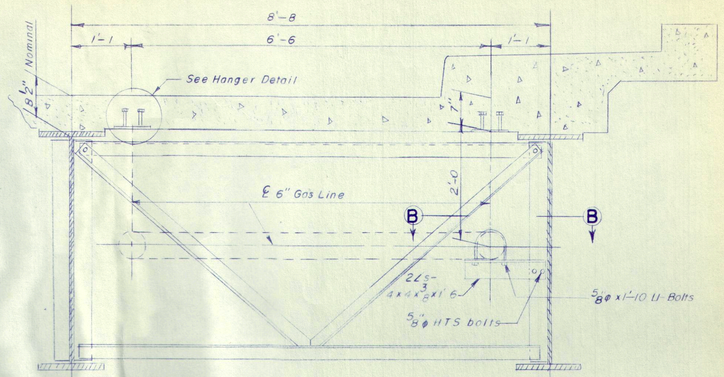
SECTION A-A



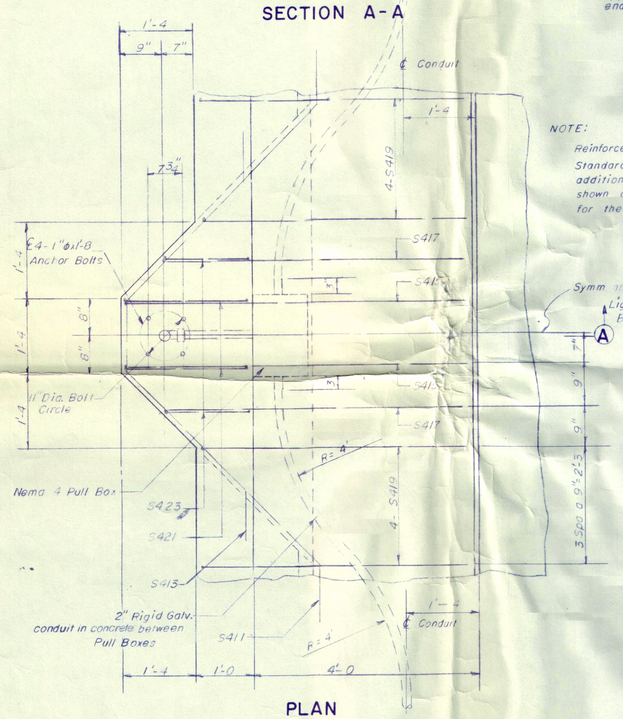
NOTE; Horizontal dimensions are measured along ℄ Parapet and ℄ Wingwalls;

NOTE
All posts shall be set normal to the profile grade. The space below aluminum posts shall be thoroughly caulked with Alumilastic compound as manufactured by the Parr Paint and Color Co. of Cleveland, Ohio or approved equal. Provide closure plates at all open rail ends.

END OF HANDRAIL DETAIL
SCALE 1/2" = 1'-0



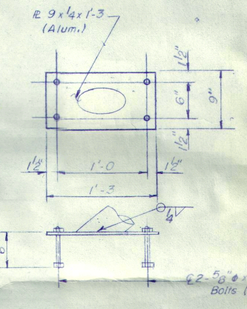
GAS LINE DETAIL
(28TH ST. ONLY)
SCALE 3/4" = 1'-0



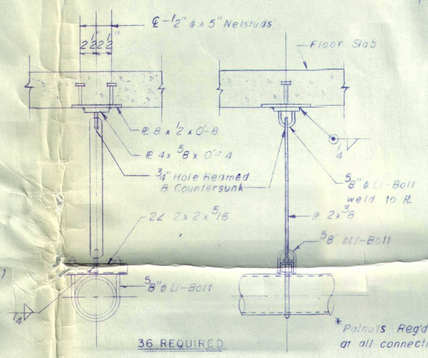
PLAN

LIGHT STANDARD BASE DETAILS
SCALE 3/4" = 1'-0

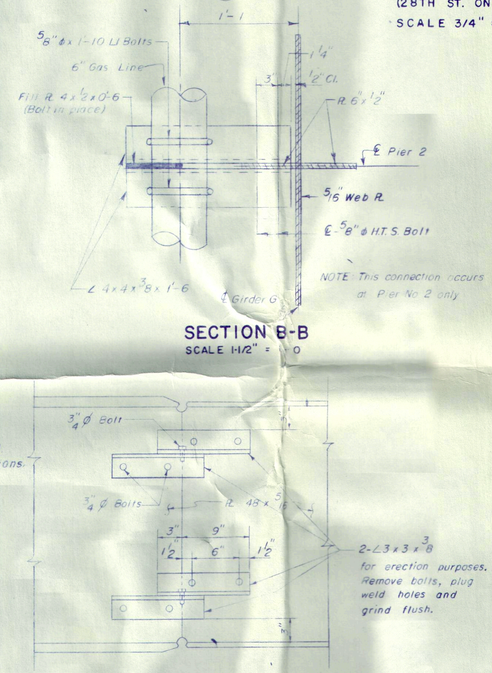
NOTE:
Reinforcement shown in Light Standard Base Details, is in addition to the reinforcement shown on the Floor Plan sheets for the sidewalk and parapet.



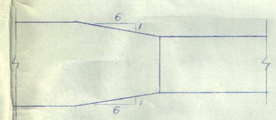
DETAIL A
SCALE 1" = 1'-0



GAS LINE HANGER DETAIL
SCALE 1" = 1'-0

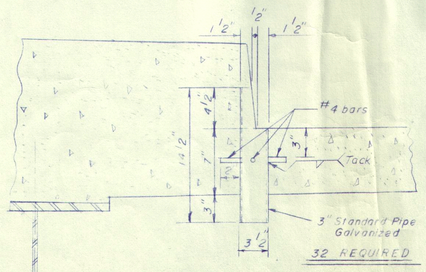


SECTION B-B
SCALE 1-1/2" = 1'-0

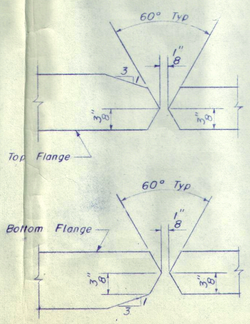


GIRDER FLANGE TAPER
NO SCALE

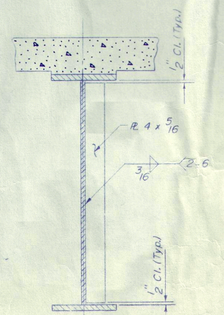
SUGGESTED ERECTION DETAIL
NO SCALE



FLOOR DRAIN DETAIL
NO SCALE



TYPICAL FLANGE SPLICE DETAIL
NO SCALE



INTERMED. STIFFENER DETAIL
SCALE: 3/4" = 1'-0

JOB	DATE	BY	DESCRIPTION
100902	4		
	3		
	2		
	1		

REVISIONS

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CITY OF SIOUX CITY, IOWA
EIGHTEENTH & TWENTYEIGHTH STREET
OVER
FLOYD RIVER

MISCELLANEOUS DETAILS

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS · PLANNERS · CONSULTANTS OMAHA · COLORADO SPRINGS · PHOENIX · DALLAS

SHEET 9 OF 21

COLORADO SPRINGS | PHOENIX
DRAWN | CHECKED
TRACED | DATE
OMAHA
DRAWN R.L.B.N.
DATE 2-7-61

LEGEND

- Expansion Joint
- Longitudinal Joint
- Contraction Joint

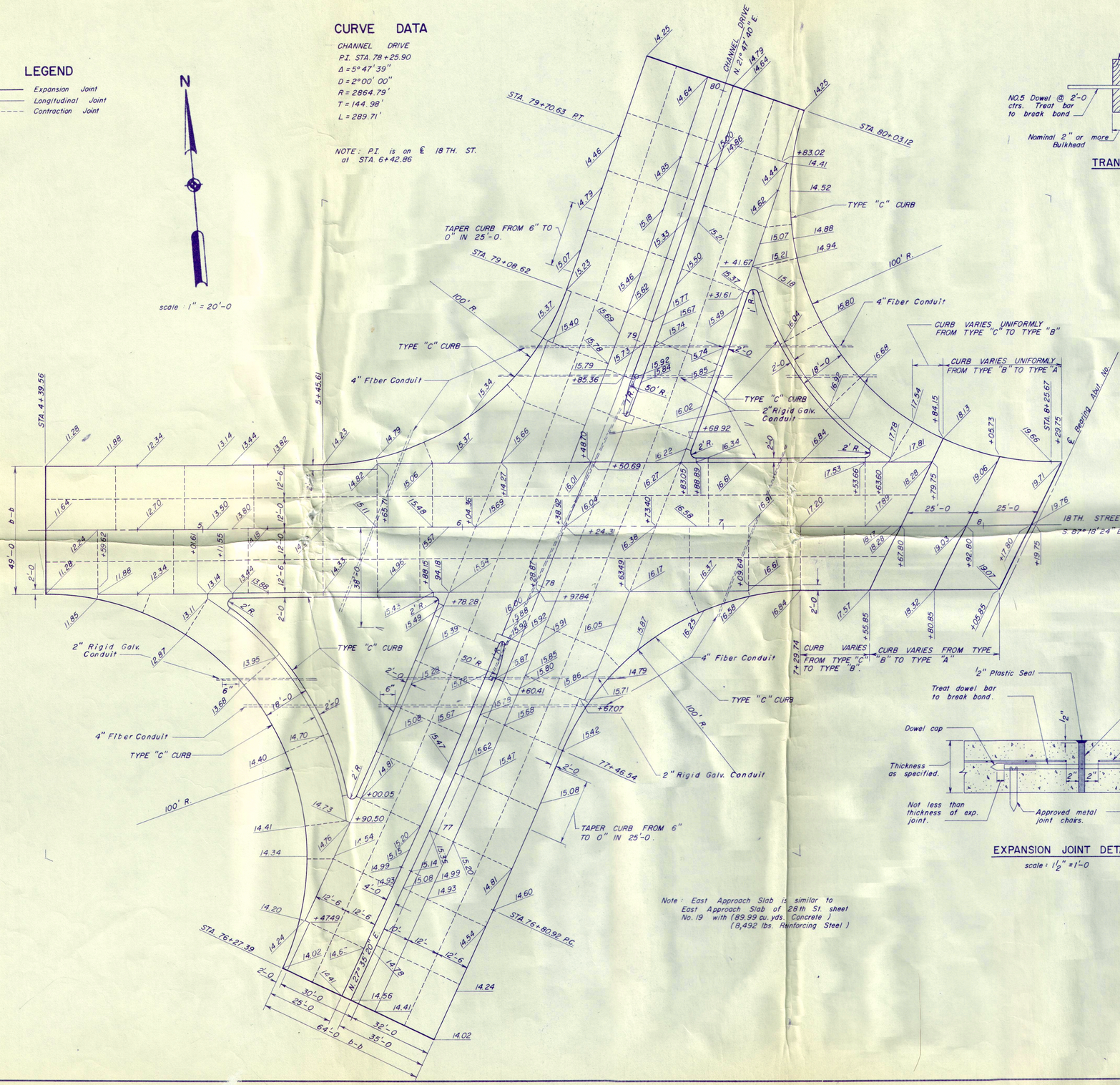
N

scale : 1" = 20'-0

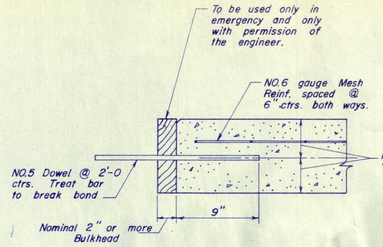
CURVE DATA

CHANNEL DRIVE
P.I. STA. 78+25.90
Δ = 5° 47' 39"
D = 2° 00' 00"
R = 2864.79'
T = 144.98'
L = 289.71'

NOTE: P.I. is on ℄ 18 TH. ST. at STA. 6+42.86

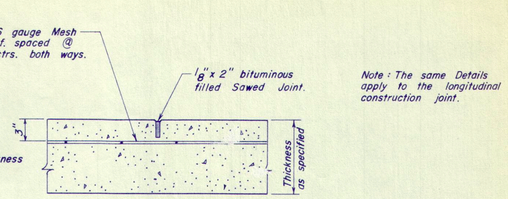


Note: East Approach Slab is similar to East Approach Slab of 28th St. sheet No. 19 with (89.99 cu. yds. Concrete) (8,492 lbs. Reinforcing Steel)



TRANSVERSE CONST. JOINT

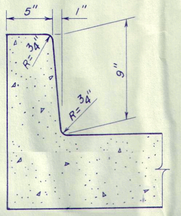
scale : 1½" = 1'-0



Note: The same Details apply to the longitudinal construction joint.

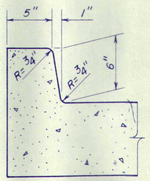
TRANSVERSE DUMMY GROVE CONTRACTION JOINT DETAIL

scale : 1½" = 1'-0



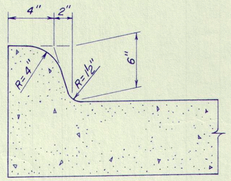
TYPE "A" CURB

scale : 1½" = 1'-0



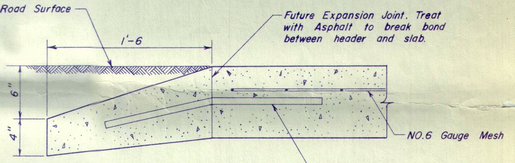
TYPE "B" CURB

scale : 1½" = 1'-0



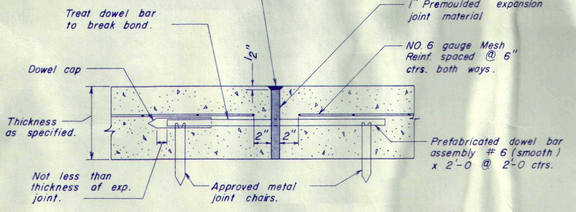
TYPE "C" CURB

scale : 1½" = 1'-0



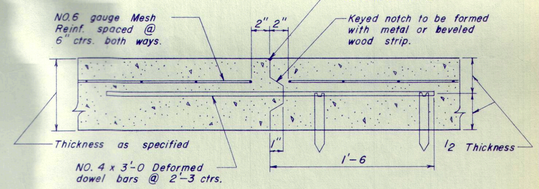
HEADER DETAIL

scale : 1½" = 1'-0



EXPANSION JOINT DETAIL

scale : 1½" = 1'-0



LONGITUDINAL CONSTRUCTION JOINT DETAIL

scale : 1½" = 1'-0

JOB	DATE	BY	DESCRIPTION
100901-02	4		
	3		
	2		
	1		

REVISIONS

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CITY OF SIOUX CITY, IOWA
EIGHTEENTH STREET
OVER
FLOYD RIVER
PLAN OF WEST
APPROACH PAVEMENT
DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON,
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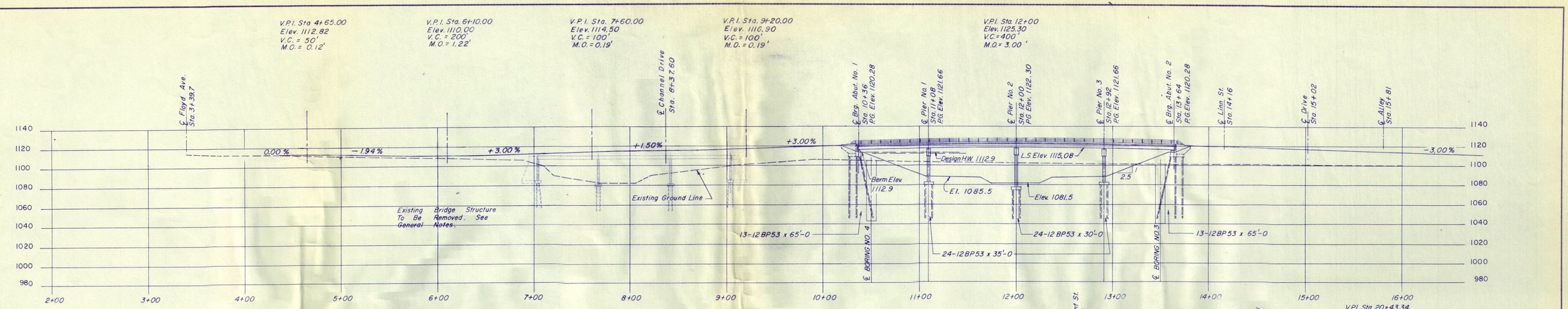
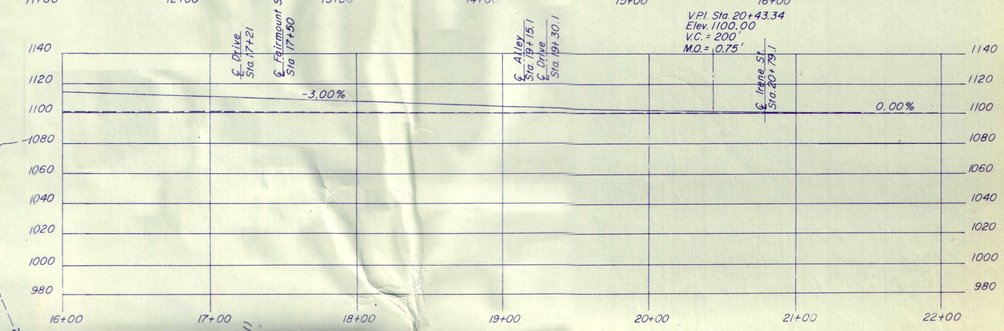
SHEET 10 OF 21

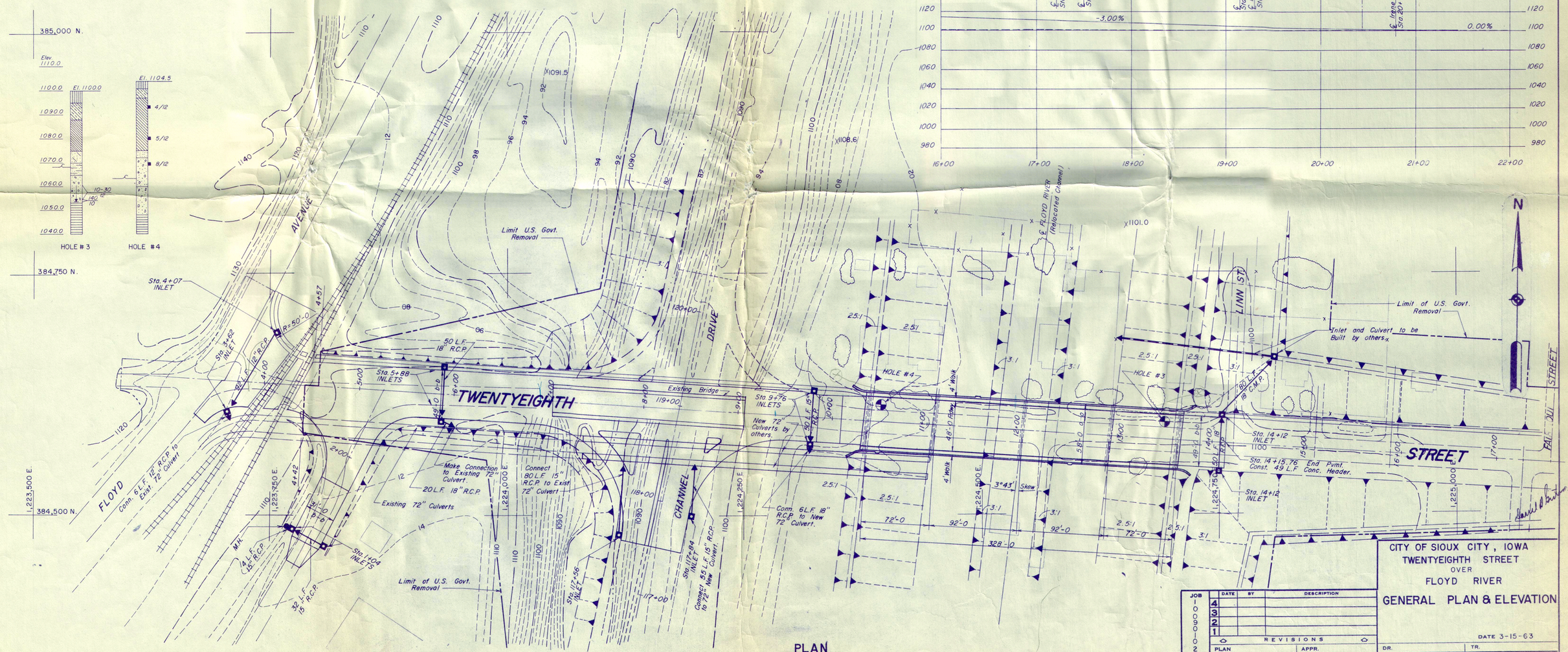


ELEVATION

Scale: 1" = 50'-0"

Note: For "SOIL TYPES" see sheet R-1.





PLAN

Scale: 1" = 50'-0

JOB	DATE	BY	DESCRIPTION
100902			
4			
3			
2			
1			

REVISIONS

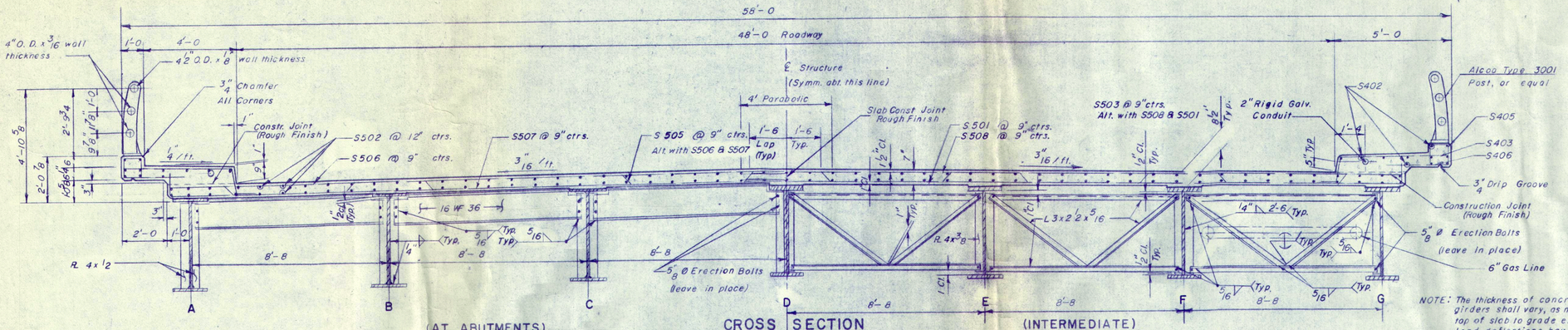
PLAN | APPR. | DR. | TR.

CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER
GENERAL PLAN & ELEVATION

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

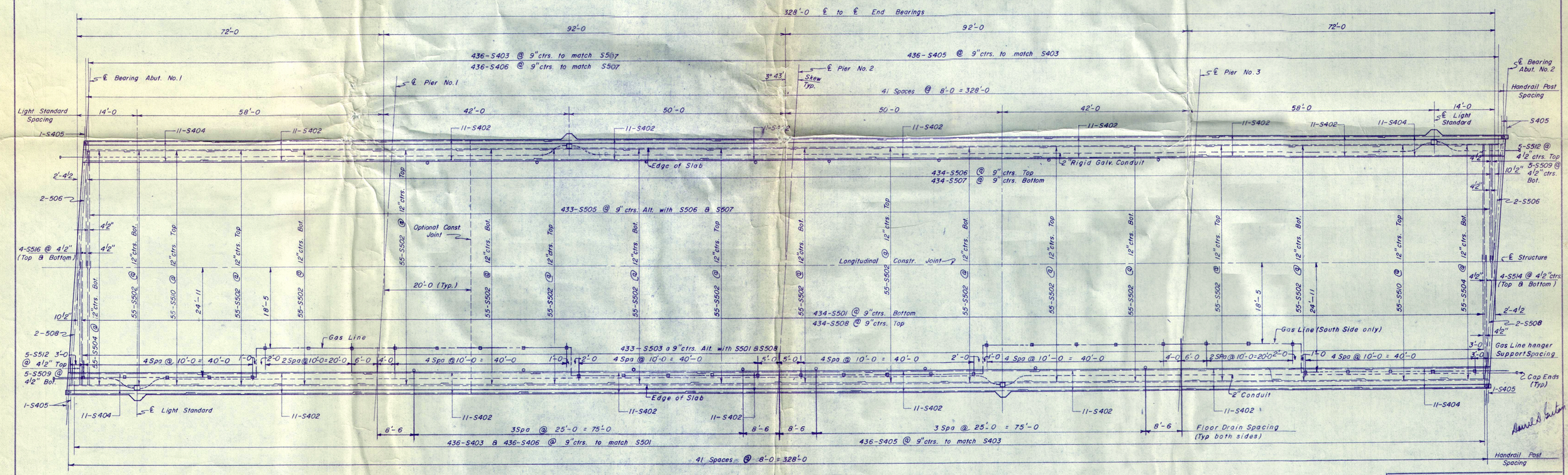
SHEET 11 of 21



CROSS SECTION

Scale 3/8" = 1'-0

NOTE: The thickness of concrete haunches over the girders shall vary, as necessary, to bring the top of slab to grade elevation after dead load deflections have taken place.



FLOOR PLAN

SCALE : 3/32" = 1'-0

ESTIMATED QUANTITIES		
	CONCRETE	REINF-STEEL
Slab & Curbs	480 C.Y.	128,733 lbs

Notes: See Miscellaneous Details Sheet, for gas hanger support, floor drain, & Light standard support details.

Spacing of gas line supports and floor drains is measured along gutter lines.

All slab concrete pours shall preferably be continuous between abutments and shall be made in one direction.

JOB 100900-02		DATE	BY	DESCRIPTION
	4			
	3			
	2			
	1			

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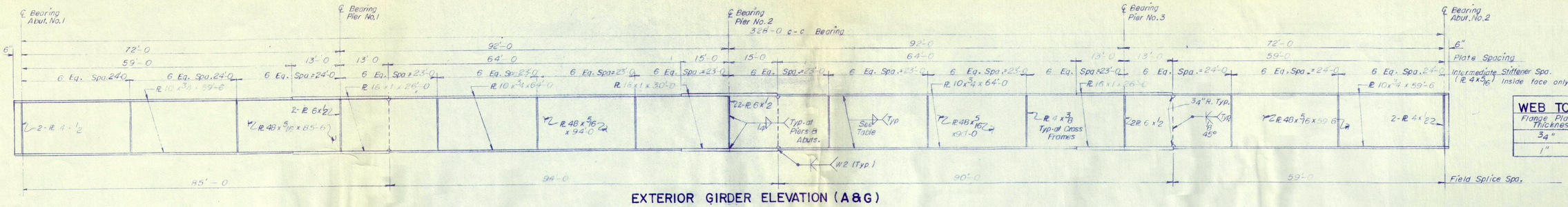
CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER
CROSS SECTION AND FLOOR PLAN

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
ENGINEERS • PLANNERS • CONSULTANTS OMAHA • COLORADO SPRINGS • PHOENIX

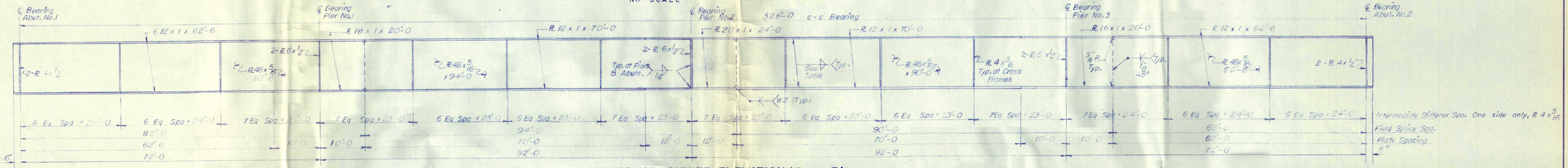
SHEET 12 OF 21



EXTERIOR GIRDER ELEVATION (A & G)

NO SCALE

WEB TO FLANGE WELD	
Flange Plate Thickness	Fillet Weld Size
3/4"	1/4"
1"	5/16"

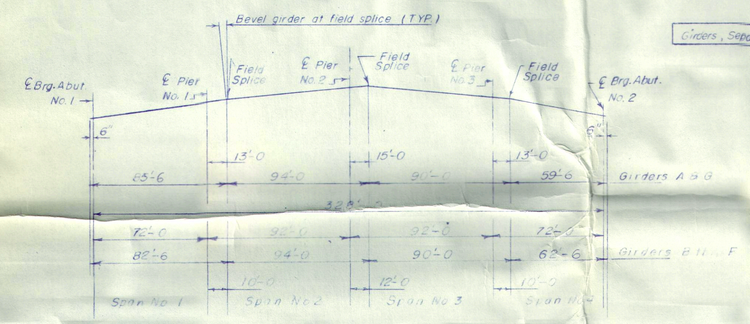


INTERIOR GIRDER ELEVATION (B thru F)

NO SCALE

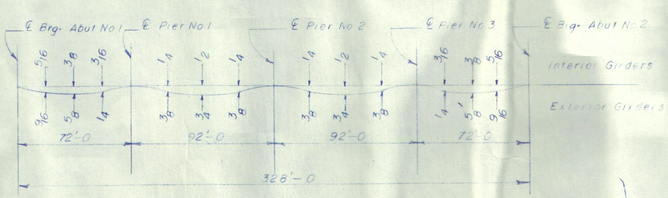
ESTIMATED QUANTITIES

Girders, Separators, Stiffeners & Brg. Devices	343,600 lbs.



ERECTION DIAGRAM

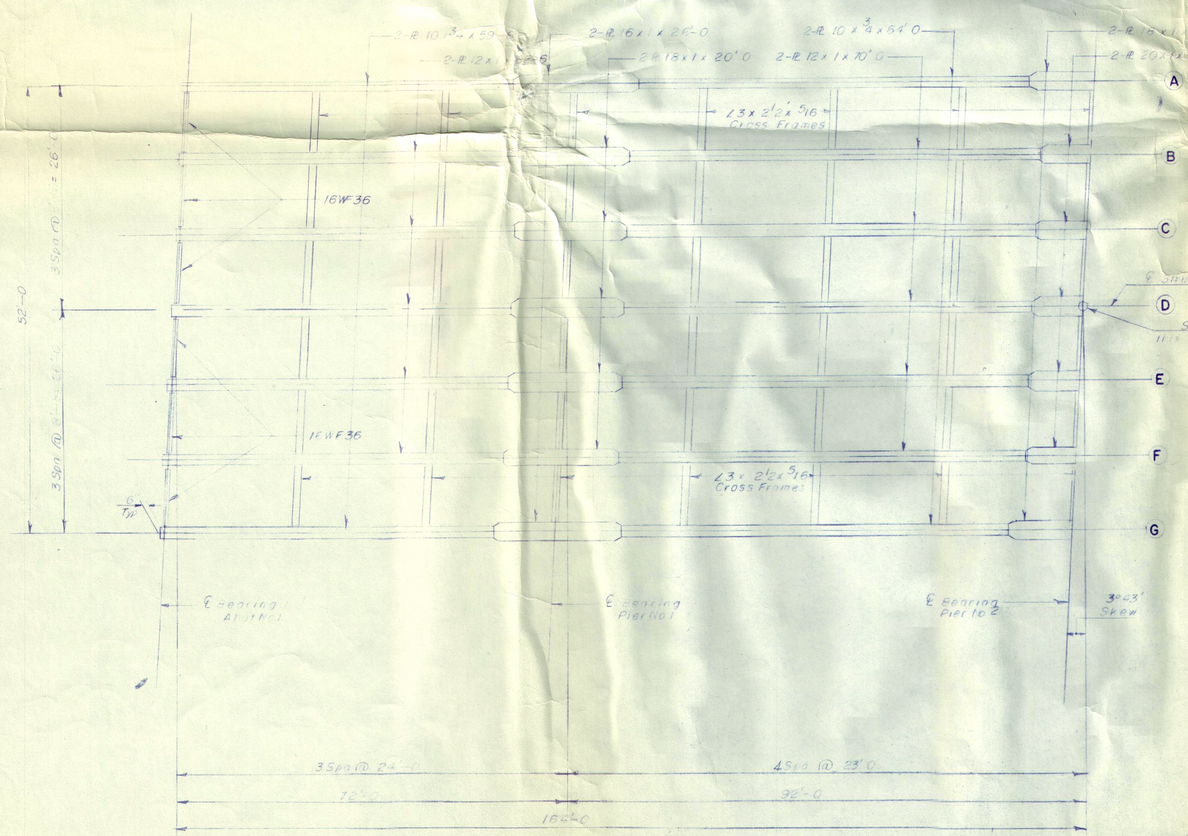
NO SCALE



DEFLECTION DIAGRAM

NO SCALE

Note — Deflections are given in inches at span quarter points.



HALF FRAMING PLAN

NO SCALE

NOTE: The sequence of welding girder splices shall be such that weld metal is deposited symmetrically over the cross section, and that the web shall be completely welded at the time 50% of the flange welds are made.
All bearing stiffeners and stiffeners at cross frames are set parallel to ℄ bearings.

Samuel A. Guthrie

CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER
GIRDER ELEVATIONS & HALF FRAMING PLAN
DATE 3-15-63

JOB 1009010 2	DATE	BY	DESCRIPTION
	4		
	3		
	2		
	1		

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PLAN | APPR. | DR. VEA | TR.

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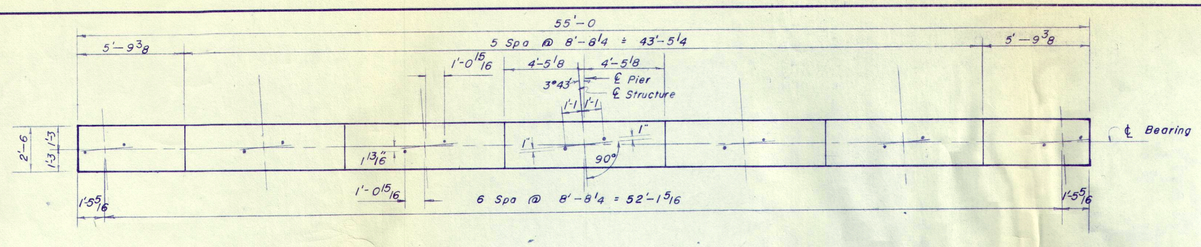
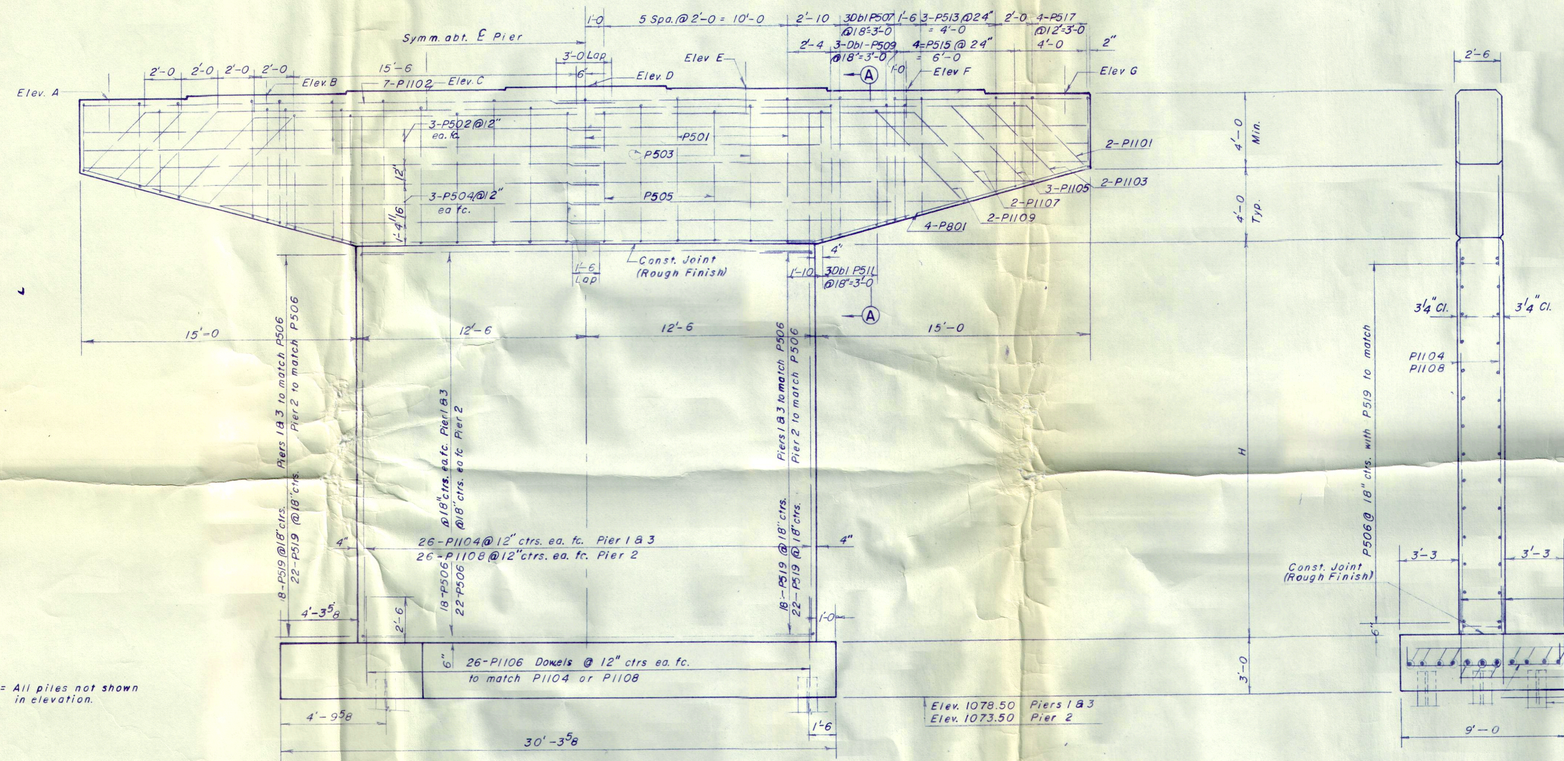
SHEET 13 OF 21

DRAWN W.R.H. DATE | TRACED DATE | CHECKED DATE | PHOENIX



PIER CAP PLAN

SCALE 1/4" = 1'-0



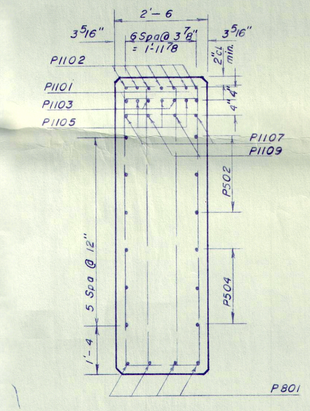
Note = All piles not shown in elevation.

PIER ELEVATION

SCALE 1/4" = 1'-0

END VIEW

SCALE 1/4" = 1'-0

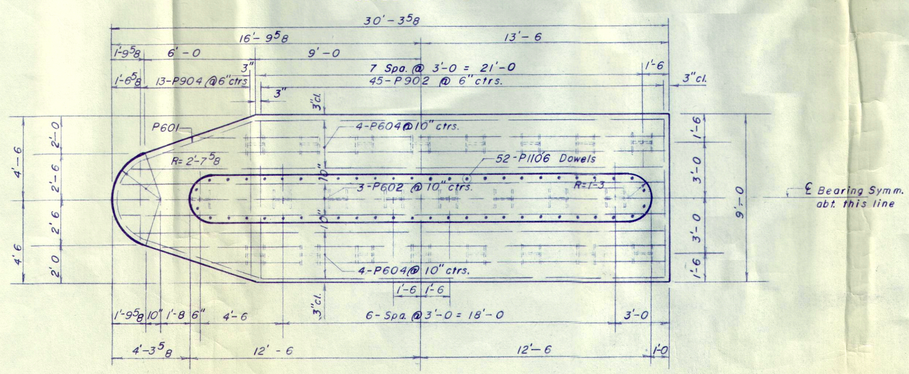


SECTION A-A

SCALE 1/2" = 1'-0

PIER DATA

	Pier No.1	Pier No.2	Pier No.3
Elev. A	1116.22	1116.84	1116.18
Elev. B	1116.35	1116.97	1116.32
Elev. C	1116.48	1117.11	1116.46
Elev. D	1116.59	1117.23	1116.59
Elev. E	1116.46	1117.11	1116.48
Elev. F	1116.32	1116.97	1116.35
Elev. G	1116.18	1116.84	1116.22
H	26.68	32.34	26.68



PIER FOOTING PLAN

SCALE 1/4" = 1'-0

ESTIMATED QUANTITIES

	Concrete	Re-Steel
Pier No 1	122.5 C.Y.	20,990 lbs.
Pier No 2	135.1 C.Y.	23,160 lbs.
Pier No 3	122.5 C.Y.	20,990 lbs.

Saul D. Burton

CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER
PIER DETAILS

DATE 3-15-63

JOB	DATE	BY	DESCRIPTION
100090102	4		
	3		
	2		
	1		

REVISIONS

PLAN | APPR. | DR. D.C.P. | TR.

HENNINGSON, DURHAM & RICHARDSON, INC.
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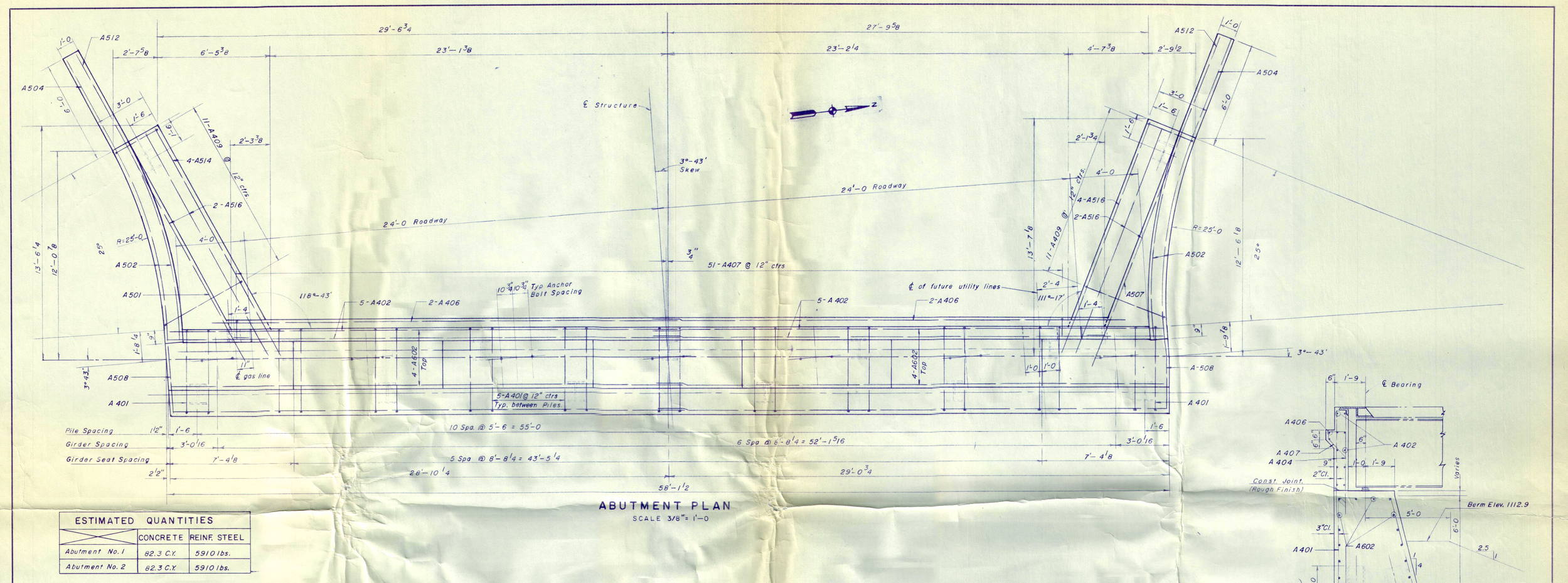
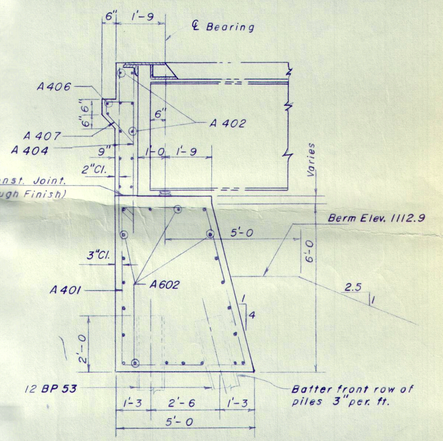
SHEET 14 OF 21



ABUTMENT PLAN

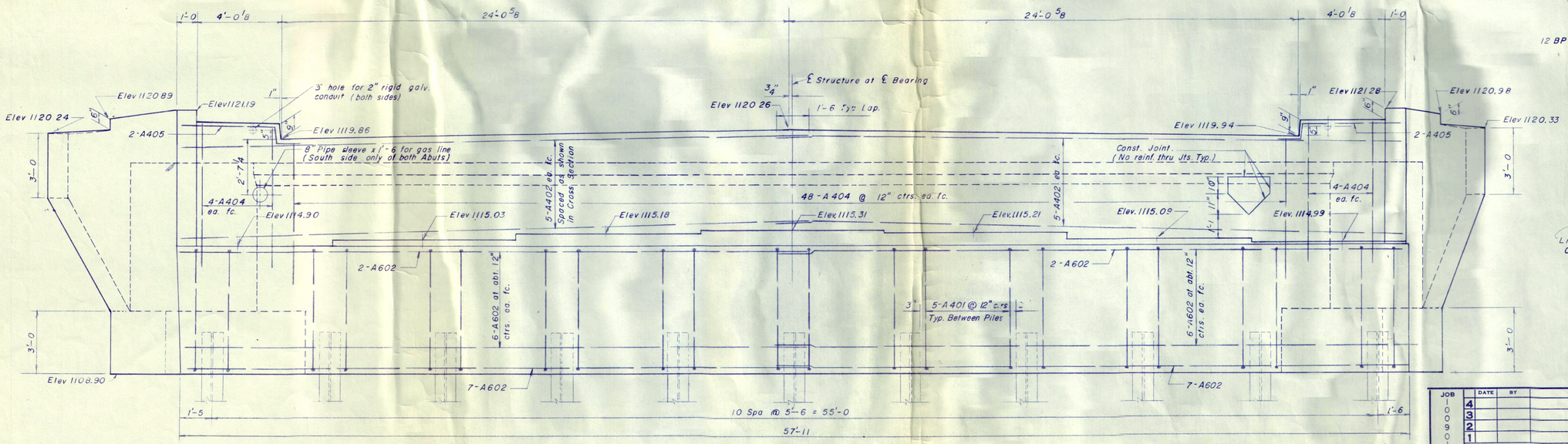
SCALE 3/8" = 1'-0

ESTIMATED QUANTITIES	CONCRETE	REINF. STEEL
Abutment No. 1	82.3 C.Y.	5910 lbs.
Abutment No. 2	82.3 C.Y.	5910 lbs.



TYPICAL CROSS SECTION

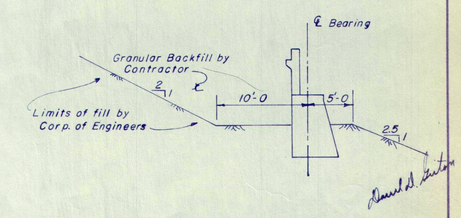
SCALE 3/8" = 1'-0



ABUTMENT ELEVATION

SCALE 3/8" = 1'-0

Note = Abutment No. 1 shown, Abutment No. 2 similar except opposite hand.



JOB	DATE	BY	DESCRIPTION
0	4		
0	3		
9	2		
0	1		
0			
2			

REVISIONS

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CITY OF SIOUX CITY, IOWA

TWENTYEIGHTH STREET

OVER

FLOYD RIVER

ABUTMENT DETAILS

DATE 3-15-63

DR. DCP | TR.

HENNINGSON, DURHAM & RICHARDSON, INC.

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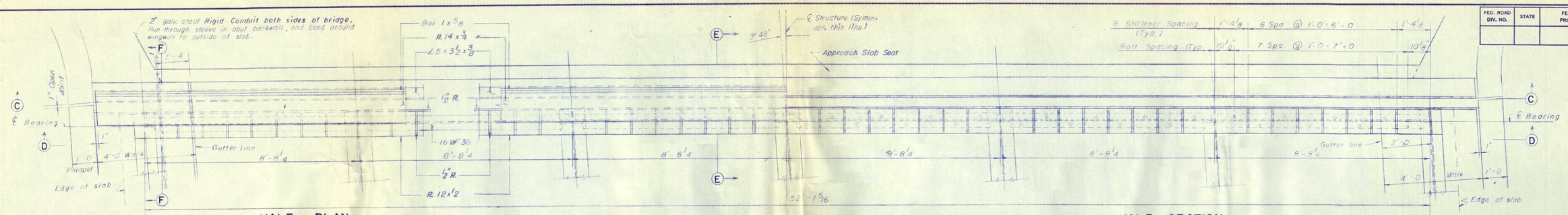
SHEET 15 OF 21

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.

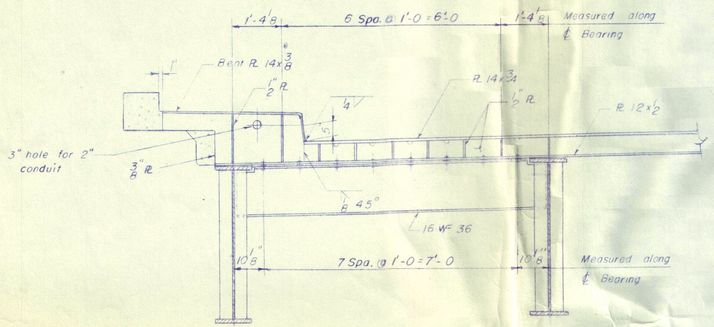


HALF PLAN

HALF SECTION

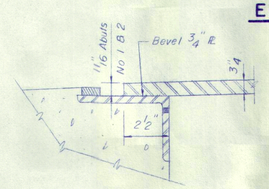
EXPANSION JOINT

SCALE: 1/2" = 1'-0



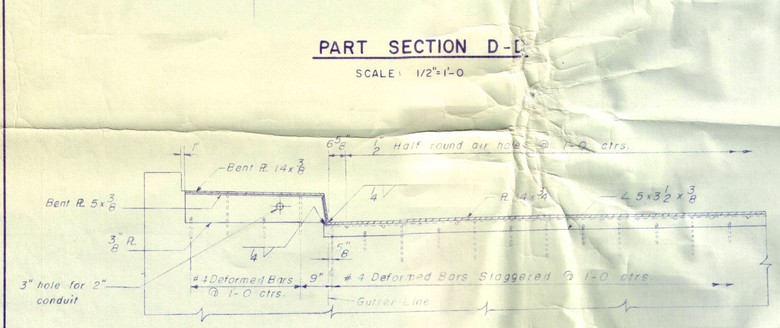
PART SECTION D-D

SCALE: 1/2" = 1'-0



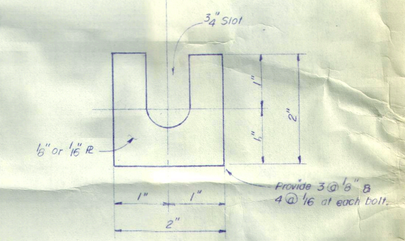
DETAIL "A"

SCALE: 3" = 1'-0"



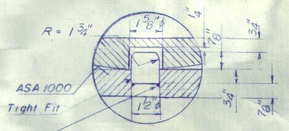
PART SECTION C-C

SCALE: 1/2" = 1'-0



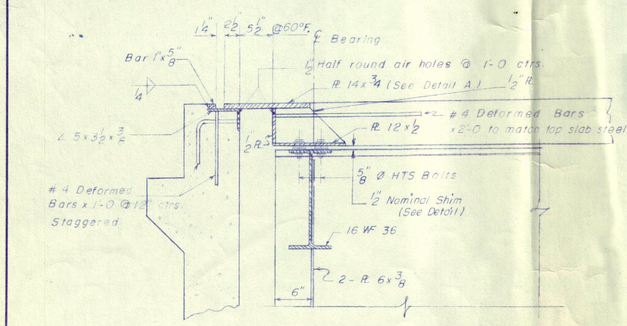
SHIM DETAIL

SCALE 3/4" = 1"



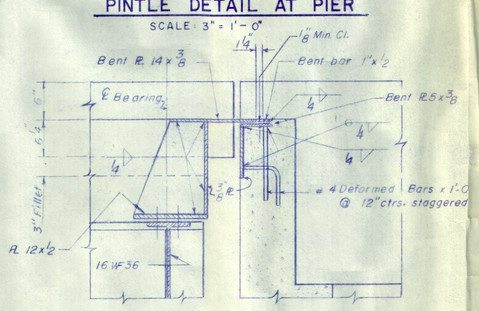
PINTLE DETAIL AT PIER

SCALE: 3" = 1'-0"



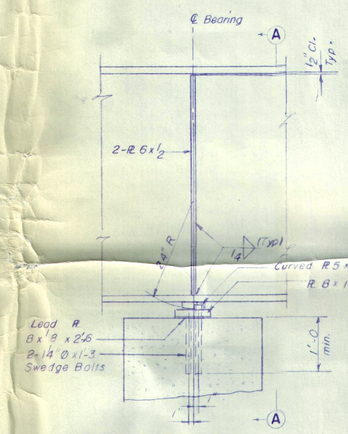
SECTION E-E

SCALE: 1" = 1'-0

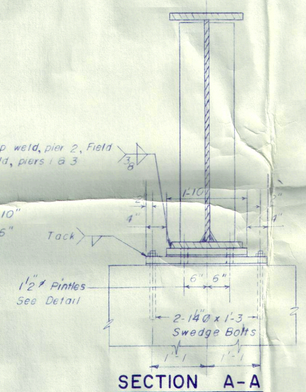


SECTION F-F

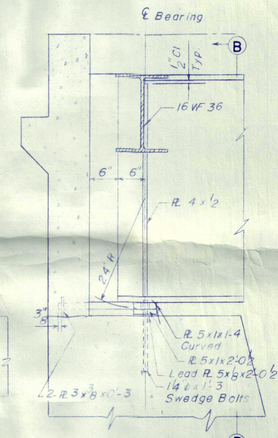
SCALE: 1" = 1'-0



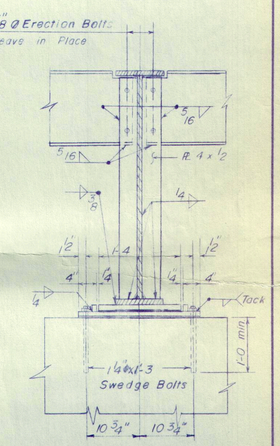
ELEVATION



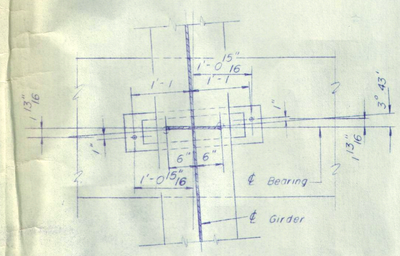
SECTION A-A



ELEVATION

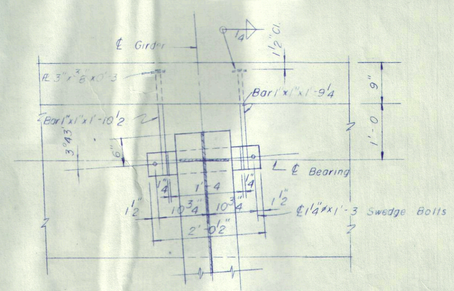


SECTION B-B



PLAN AT PIERS

SCALE: 3/4" = 1'-0



PLAN AT ABUTMENTS

BEARING DEVICE DETAILS

SCALE: 3/4 = 1'-0"

NOTE: Inside surfaces of expansion devices shall recieve one coat of No. Oxide A Special, or other approved material before erection.

ESTIMATED QUANTITIES

Expansion Devices
At Abut No. 1 4908 lbs.
At Abut No. 2 4908 lbs.

JOB 100901-02	DATE	BY	DESCRIPTION
4			
3			
2			
1			

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CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER

EXPANSION DEVICE AND BEARING DEVICE DETAILS

DATE 3-15-63

HENNINGSON, DURHAM & RICHARDSON, INC.
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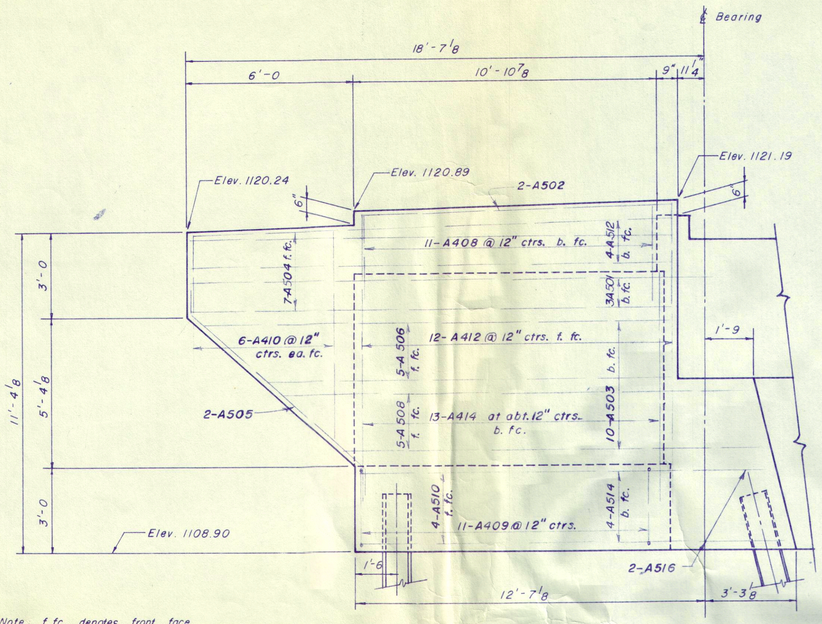
SHEET 16 OF 21

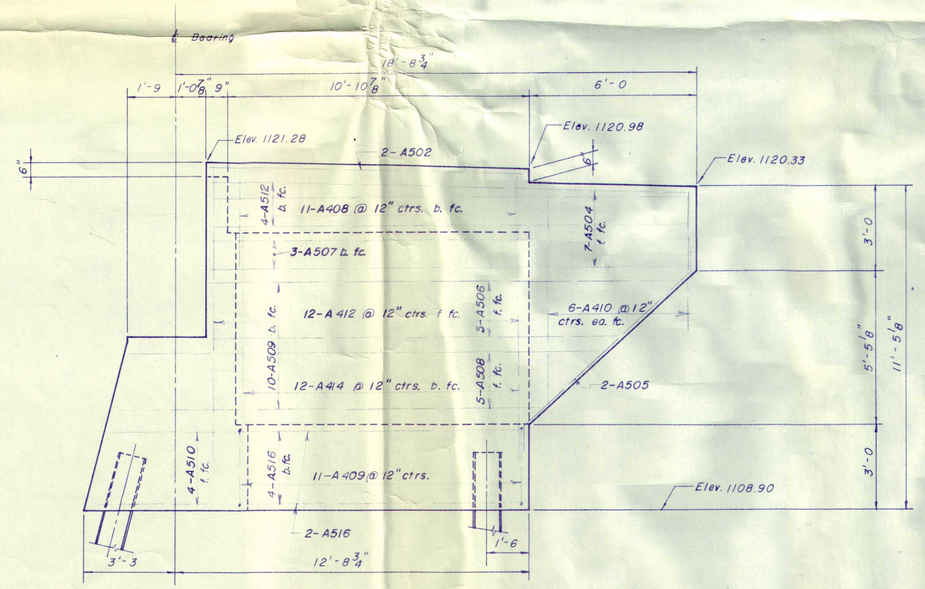
COLORADO SPRINGS PHOENIX
DRAWN DATE
TRACED DATE
CHECKED DATE



Note f fc denotes front face
b fc denotes back face
ea fc denotes each face.

Note: Horizontal Reinf. in wingwalls to be at 6" ctrs. except in footings.

(ABUT. NO. 1 SOUTH & ABUT. NO. 2 NORTH)



(ABUT. NO. 1 NORTH & ABUT. NO. 2 SOUTH)

DEVELOPED WING WALL ELEVATIONS

SCALE: 3/8" = 1'-0"

TWENTYEIGHTH STREET

BILL OF BARS

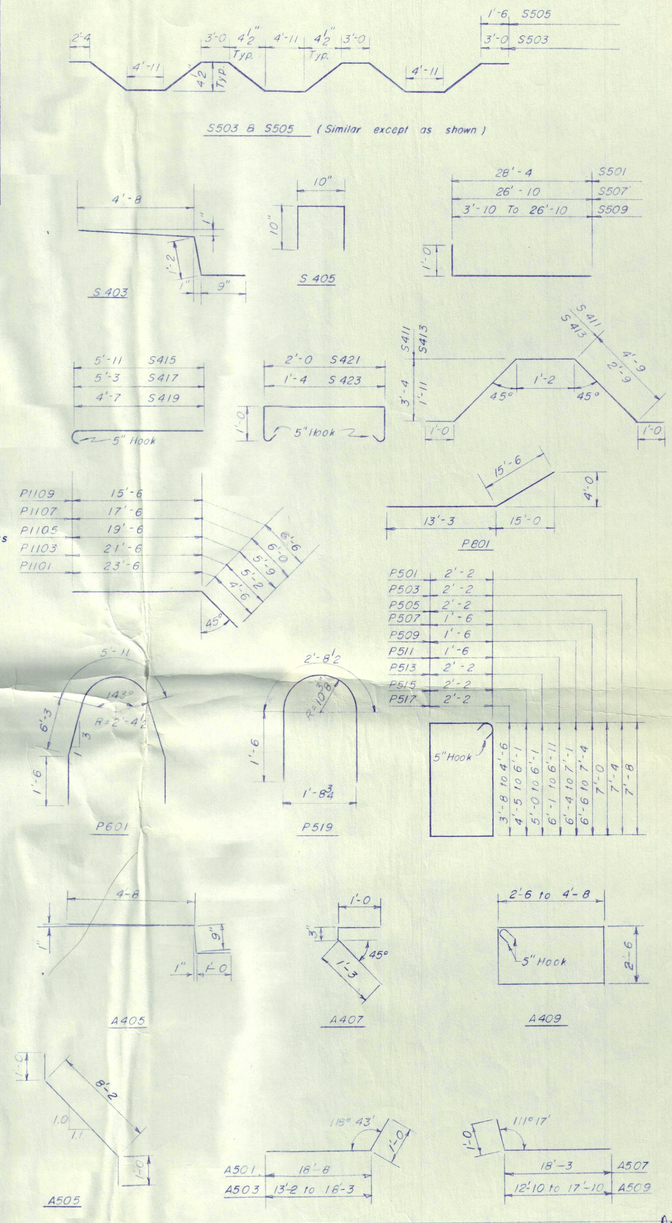
	MARK	NO.	LENGTH
SLABS, CURBS, & LIGHT STANDARD SUPPORTS	S402	154	40'-0
	S403	872	6'-7
	S404	44	30'-3
	S405	878	2'-6
	S406	872	2'-9
	S411	4	12'-8
	S413	4	8'-8
	S415	8	6'-4
	S417	8	5'-8
	S419	32	5'-0
	S421	8	4'-10
	S423	8	4'-2
	S501	434	29'-4
	S502	825	40'-0
	S503	433	29'-3
	S504	110	11'-0
	S505	433	27'-9
	S506	438	26'-10
	S507	434	27'-10
	S509	438	28'-4
	S509	2 Sets of 5	4'-10 To 27'-10
	S510	110	30'-3
	S512	2 Sets of 5	3'-10 To 26'-10
	S514	2 Sets of 4	7'-3 To 24'-6
	S516	2 Sets of 4	5'-9 To 23'-0
PIERS	P501	15	20'-6
	P502	36	28'-0
	P503	12	19'-10
	P504	12 Sets of 3	18'-0 To 25'-8
	P505	12	19'-2
	P506	116	22'-6
	P507	12 Sets of 3	16'-10 To 18'-6
	P509	12 Sets of 3	16'-6 To 18'-0
	P511	12 Sets of 3	16'-0 To 17'-8
	P513	6 Sets of 3	15'-2 To 17'-4
	P515	6 Sets of 4	14'-0 To 17'-4
	P517	6 Sets of 4	12'-6 To 14'-2
	P519	116	5'-8
	P601	3	21'-5
	P602	9	29'-9
	P604	6 Sets of 4	22'-3 To 29'-0
	P801	24	28'-9
	P902	135	8'-6
	P904	3 Sets of 13	4'-3 To 8'-4
	P1101	12	28'-0
	P1102	42	29'-0
	P1103	12	26'-8
	P1104	104	32'-0
	P1105	18	25'-3
	P1106	156	5'-3
	P1107	12	23'-6
	P1108	52	39'-0
	P1109	12	22'-0
ABUTMENTS	A401	104	19'-8
	A402	40	29'-10
	A404	224	6'-6
	A405	8	6'-5
	A406	8	27'-3
	A407	102	2'-6
	A408	44	3'-6
	A409	4 Sets of 11	10'-10 To 15'-2
	A410	8 Sets of 6	2'-9 To 7'-6
	A412	48	10'-3
	A414	50	8'-6
	A501	6	19'-8
	A502	8	11'-6
	A503	2 Sets of 10	14'-2 To 19'-3
	A504	28	17'-5
	A505	8	10'-2
	A506	4 Sets of 5	14'-8 To 17'-0

	MARK	NO	LENGTH
ABUTMENTS (Cont)	A507	6	19'-3
	A508	4 Sets of 5	15'-3 To 16'-9
	A509	2 Sets of 10	13'-10 To 18'-10
	A510	4 Sets of 4	14'-9 To 15'-5
	A512	16	17'-8
	A514	8	15'-0
	A516	24	14'-0
	A602	84	29'-10

Note: The prefixes S, P, & A of the bar marks indicates the bar is located in the slab, piers or abutments respectively.

BENDING DIAGRAMS

(ALL DEMENSIONS ARE OUT TO OUT)



CITY OF SIOUX CITY, IOWA
TWENTYEIGHTH STREET
OVER
FLOYD RIVER

BILL OF BARS AND ABUTMENT WING WALLS

DATE 3-15-63

JOB 100900-02	DATE	BY	DESCRIPTION
4			
3			
2			
1			

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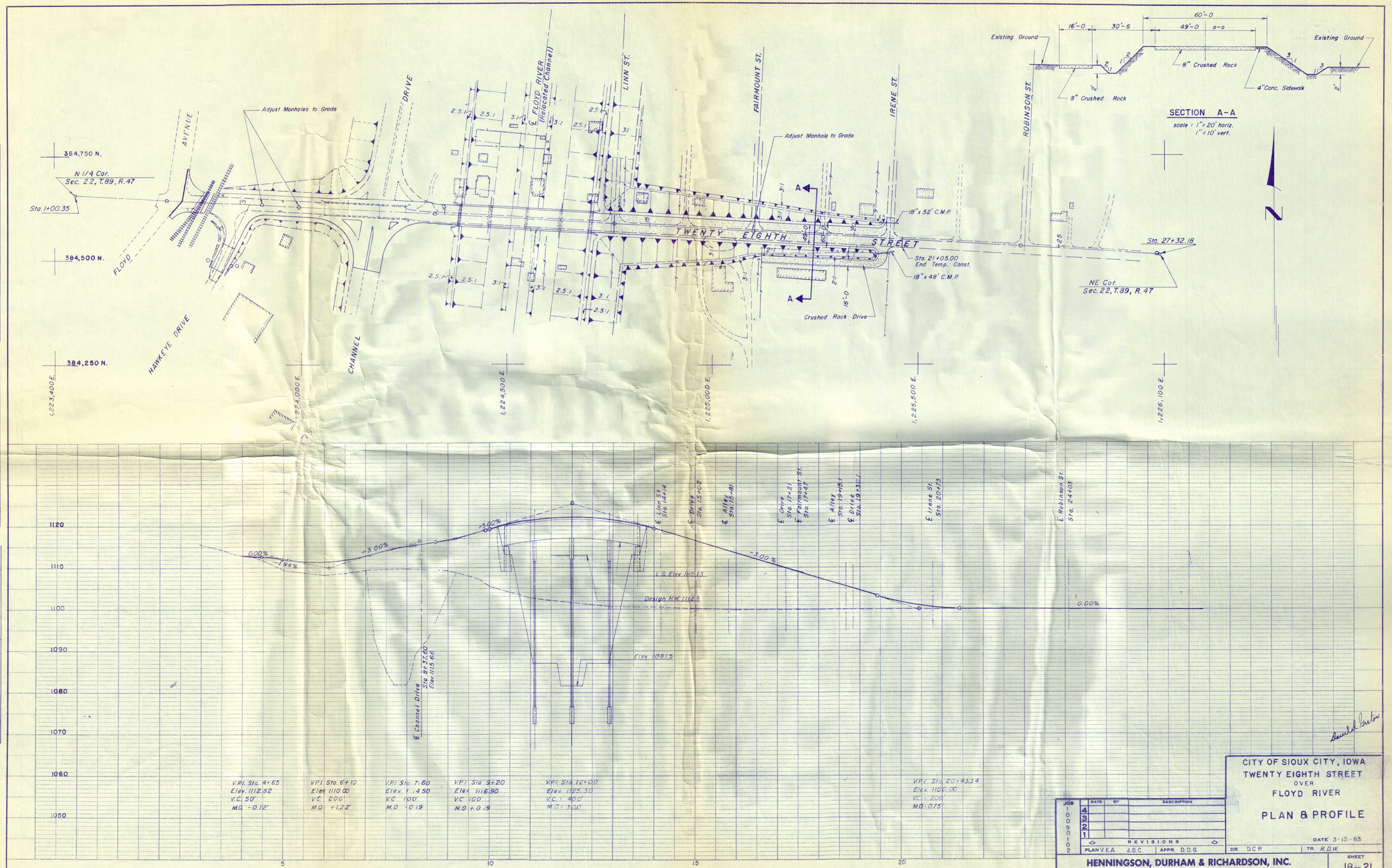
SHEET 17 OF 21



CITY OF SIOUX CITY, IOWA
TWENTY EIGHTH STREET
OVER
FLOYD RIVER

PLAN & PROFILE

DATE 3-15-63

JOB	DATE	BY	DESCRIPTION
1009102	4		
	3		
	2		
	1		

REVISIONS

PLAN V.E.A. J.G.C. APPR. D.D.G. DR. D.C.P. TR. R.D.W.

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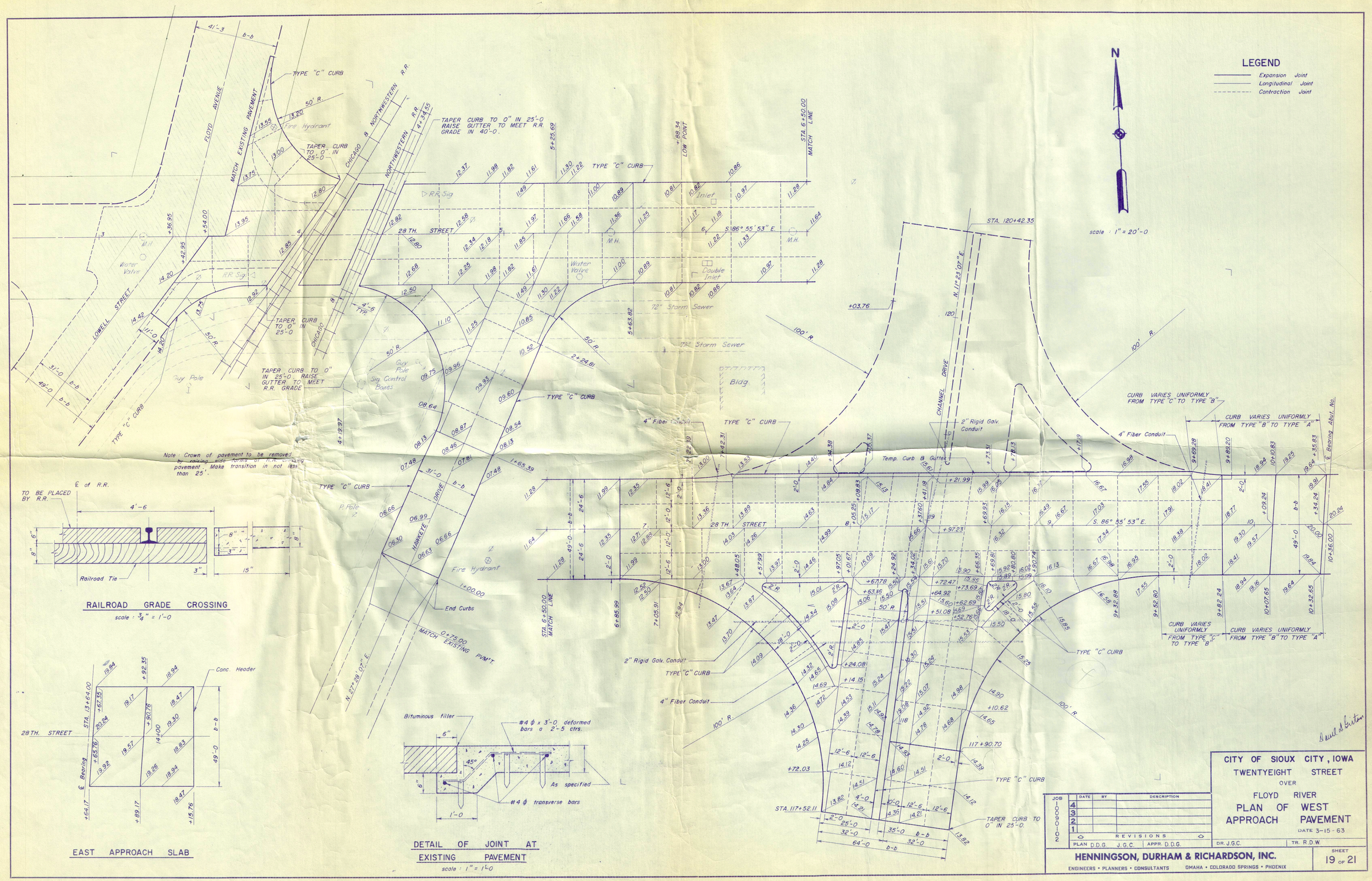
SHEET 18 OF 21

NOTE BOOK NO. ALIGNMENT CHECKED RT. OF WAY CHECKED
COLORADO SPRINGS PHOENIX TRACED DATE CHECKED DATE
DRAWN DATE
B. M.s NOTED STRUCTURE NOTATNS CH'KD



JOB	DATE	BY	DESCRIPTION
4			
3			
2			
1			

REVISIONS

PLAN D.D.G. J.G.C. APPR. D.D.G.

CITY OF SIOUX CITY, IOWA

TWENTYEIGHT STREET

OVER

FLOYD RIVER

PLAN OF WEST APPROACH PAVEMENT

DATE 3-15-63

DR. J.G.C. TR. R.D.W.

HENNINGSON, DURHAM & RICHARDSON, INC.

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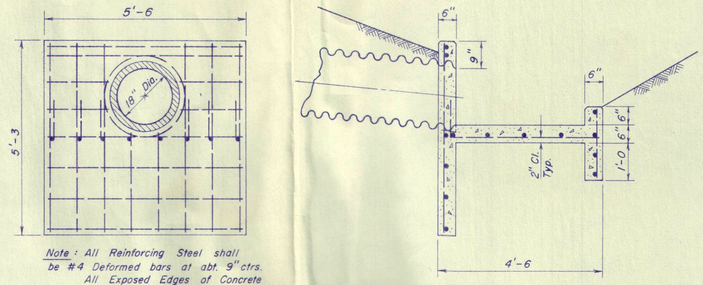
SHEET 19 OF 21



Note : All Reinforcing Steel shall be #4 Deformed bars at abt. 9" ctrs. All Exposed Edges of Concrete shall be Chamfered.

HEADWALL WITH SPLASH BASIN DETAILS

scale : 1/2" = 1'-0

SECTION B-B

scale : 1/8" = 1'-0 horiz.
1/4" = 1'-0 vert.

SECTION A-A

scale : 1/8" = 1'-0 horiz.
1/4" = 1'-0 vert.

Stand W. Watson

File 3335

CITY OF SIOUX CITY, IOWA

SIXTH STREET & CHANNEL DRIVE INTERSECTION

PAVEMENT PLAN & ELEVATIONS

DATE 3-15-63

JOB 100-0802	DATE	BY	DESCRIPTION
4			
3			
2			
1			

REVISIONS

PLAN DDG | JGC. | APPR. D.D.G. | DR. J.G.C. | TR. R.D.W.

HENNINGSON, DURHAM & RICHARDSON, INC.

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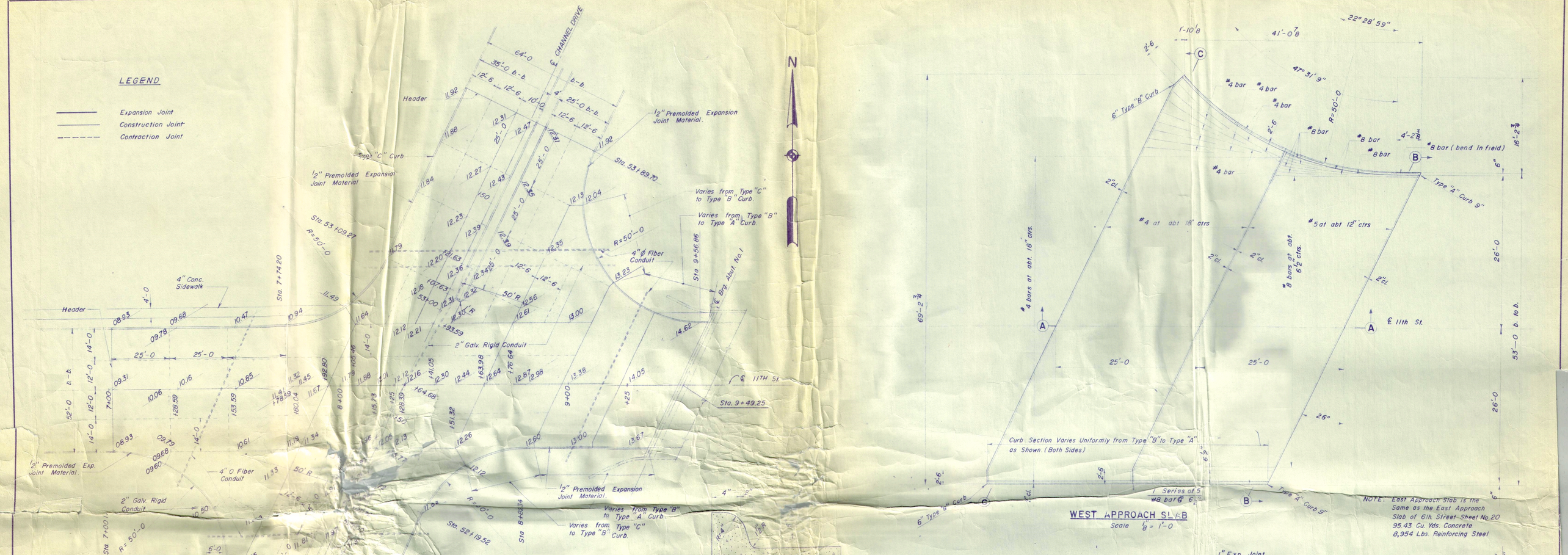
SHEET 20 OF 21



PLAN OF 11TH. ST. AND CHANNEL DRIVE INTERSECTION
scale: 1" = 20'-0

WEST APPROACH SLAB
Scale 1/8" = 1'-0

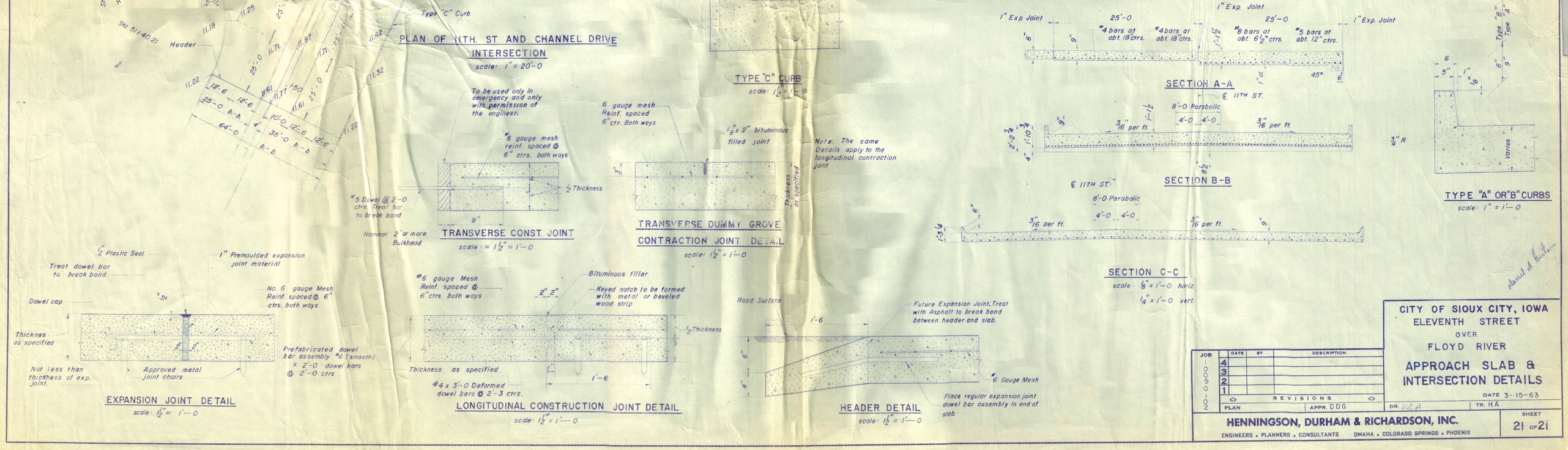
TYPE "C" CURB
scale: 1 1/2" = 1'-0

SECTION A-A

SECTION B-B

SECTION C-C
scale: 1/8" = 1'-0 horiz.
1/4" = 1'-0 vert.

TYPE "A" OR "B" CURBS
scale: 1" = 1'-0



NOTE: East Approach Slab is the Same as the East Approach Slab of 6th Street-Sheet No. 20
95.43 Cu. Yds. Concrete
8,954 Lbs. Reinforcing Steel

JOB	DATE	BY	DESCRIPTION
100590-102	4		
	3		
	2		
	1		

REVISIONS
PLAN | APPR. D.D.G.

CITY OF SIOUX CITY, IOWA
ELEVENTH STREET
OVER
FLOYD RIVER

APPROACH SLAB & INTERSECTION DETAILS

DATE 3-15-63
DR. V.E.A. | TR. H.A.

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