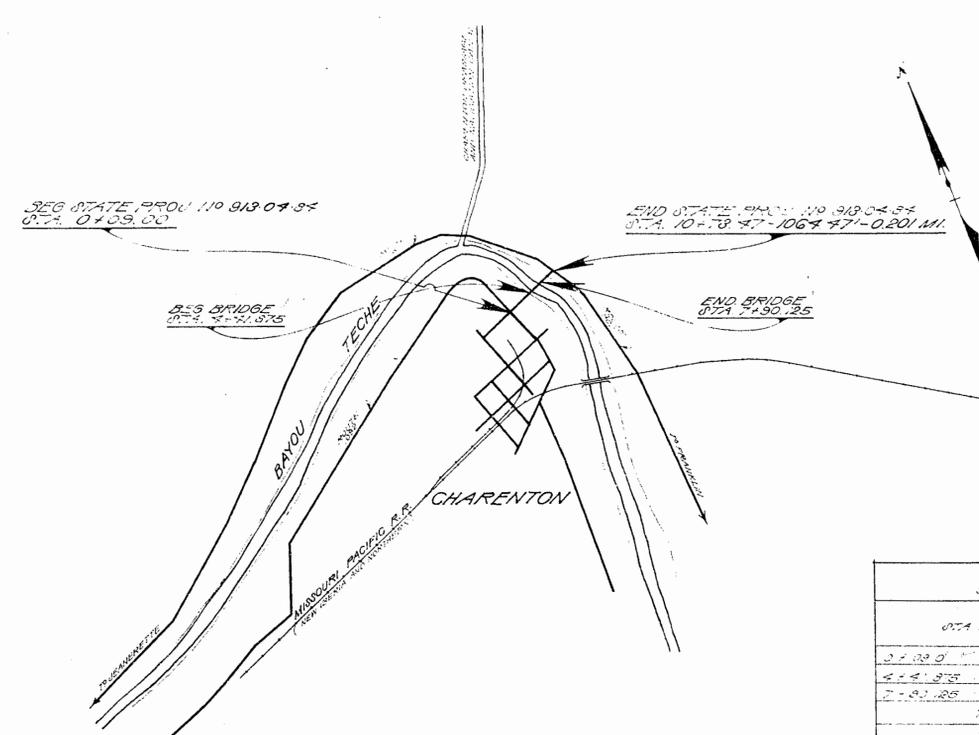
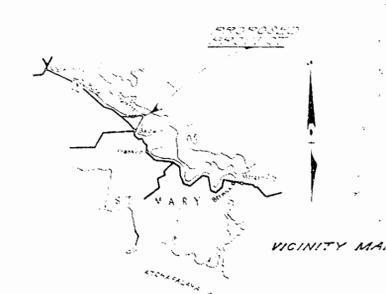


STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS
PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

CHARENTON BRIDGE
OVER BAYOU TECHE
CONNECTING
STATE ROUTE 1092 TO STATE ROUTE 902
AT CHARENTON
ST. MARY PARISH
STATE PROJECT NO 913-04-84
STATE ROUTE 129



LENGTH OF STATE PROJECT 913-04-84

STA TO STA	ROADWAY	BRIDGE
	FEET	FEET
0+00.00	4+48.85	432.35'
4+48.85	7+90.25	341.40'
7+90.25	10+78.47	288.22'
TOTAL FEET		1064.47' = 0.201 MI.
TOTAL MILES		0.201
GROUP LENGTH STATE PROJECT 913-04-84		1064.47 FEET = 0.201 MILE

SCHEDULE OF REVISIONS

DATE	BY	DATE	BY

APPROVED: *[Signature]*
State Highway Engineer 6-23-84

APPROVED: _____

RECOMMENDED FOR APPROVAL: _____
District Engineer, 6th Federal Aid District

RECOMMENDED FOR APPROVAL: _____
Chief Engineer Bureau of Public Roads

APPROVED: _____
Director Bureau of Public Roads

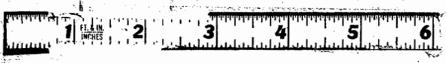
CONVENTIONAL SIGNS

Base Line	---
Grade Line	—+—+—+—
Ground Line	
Right of Way	—+—+—+—
Traveled Roadway	=====
Fences	-----
Levees	=====
Canals	-----
Railroads	-----
Property Lines	-----
Section & Grant Lines	-----
Township & Range Lines	-----
Ward & Road Dist. Boundary Lines	-----
Parish & State Boundary Lines	-----
Telephone & Telegraph Lines	-----
Boundary Lines (General)	-----
Mile Post-at end of mile	-----

FIELD BOOK 19-185

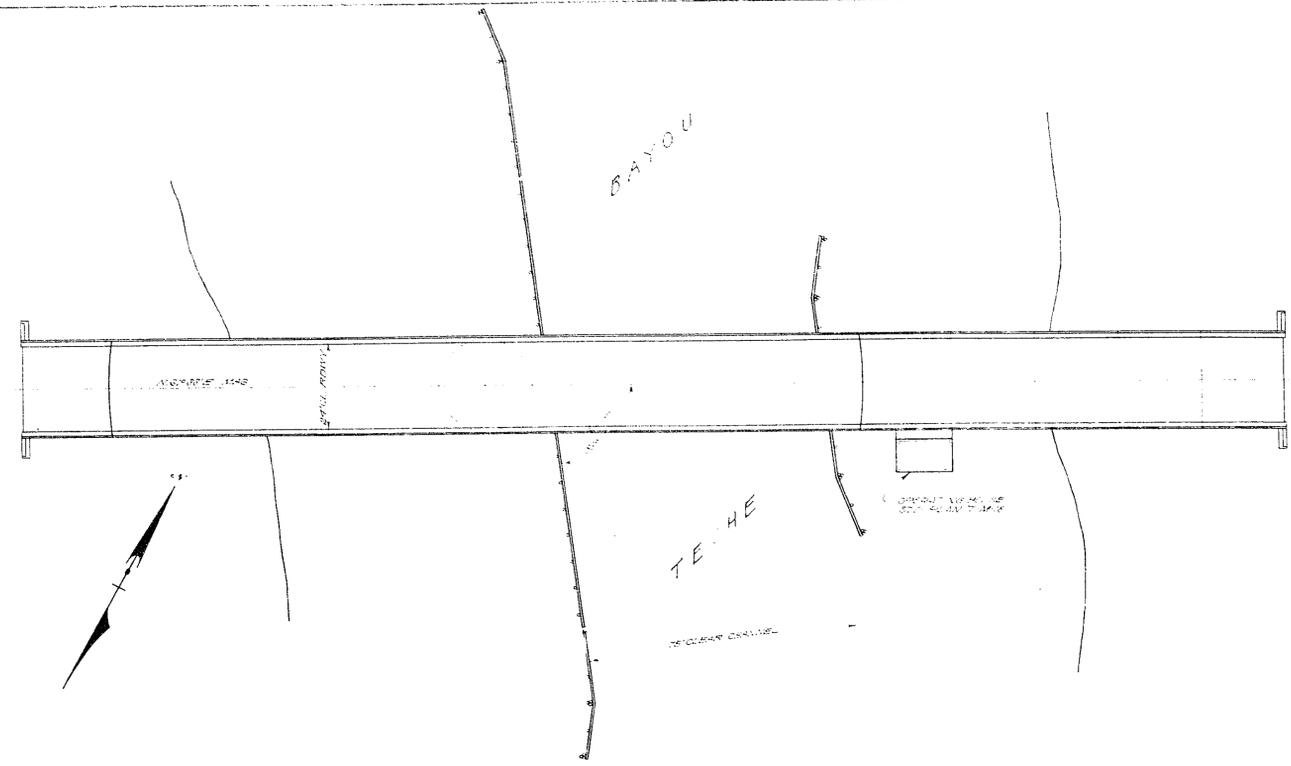
LAYOUT MAP
SCALE: 1 INCH = 1320 FEET

AS BUILT PLANS



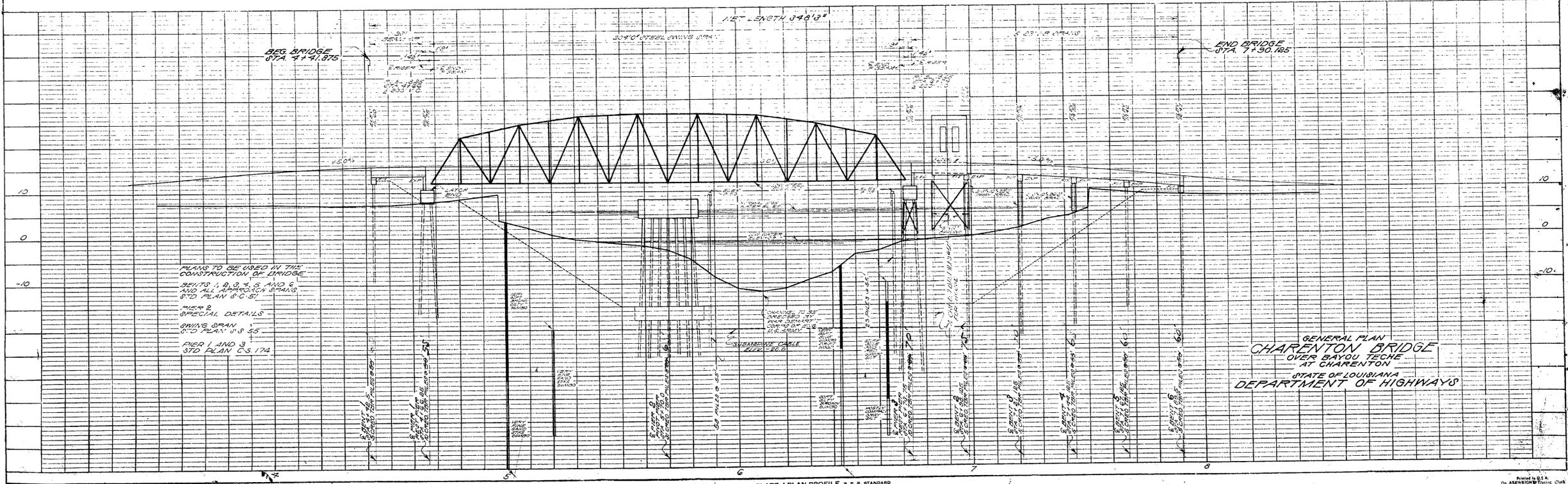
110

DATE	BY	CHECKED	APPROVED	SCALE
				1" = 100'



DATE: _____ BY: _____
 CHECKED: _____ APPROVED: _____
 SCALE: 1" = 100'

DATE: _____ BY: _____
 CHECKED: _____ APPROVED: _____
 SCALE: 1" = 100'



PLANS TO BE USED IN THE
 CONSTRUCTION OF BRIDGE
 BENTS 1, 2, 3, 4, 5 AND 6
 AND ALL APPROACH SPANS
 STD. PLAN C.S. 174

GENERAL PLAN
 CHARENTON BRIDGE
 OVER BAYOU TECNE
 AT CHARENTON
 STATE OF LOUISIANA
 DEPARTMENT OF HIGHWAYS

PLATE I-PLAN-PROFILE & P. R. STANDARD
 BRIDGE DESIGN CO. CHICAGO, ILL.

Printed in U.S.A.
 On ARKRIGHT Tissue Liner

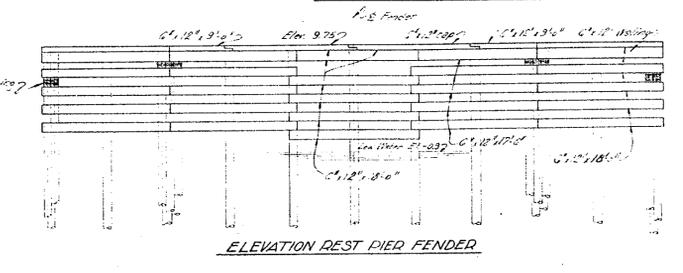
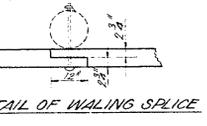
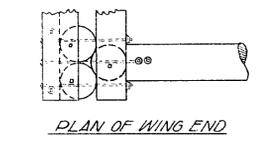
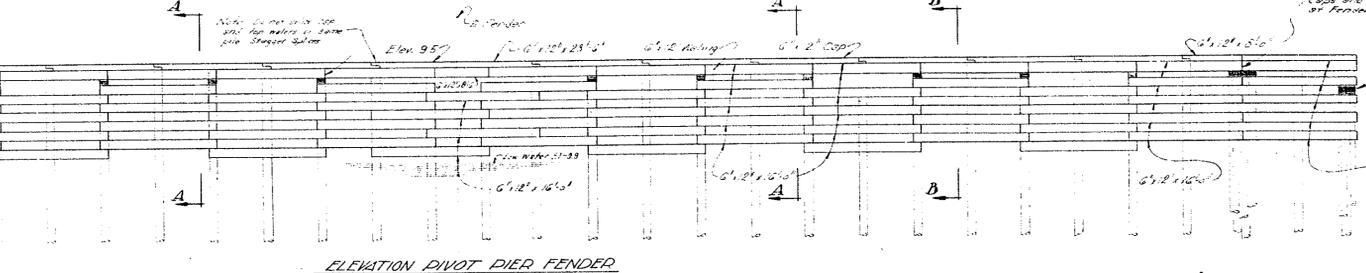
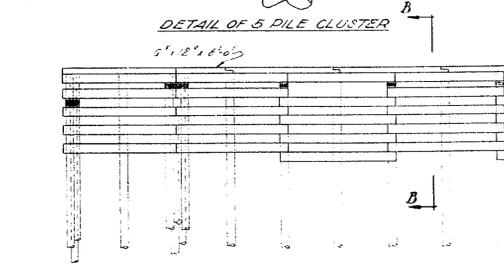
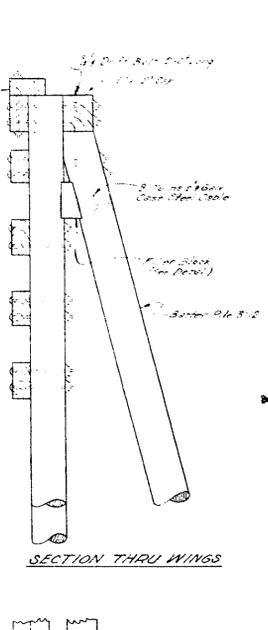
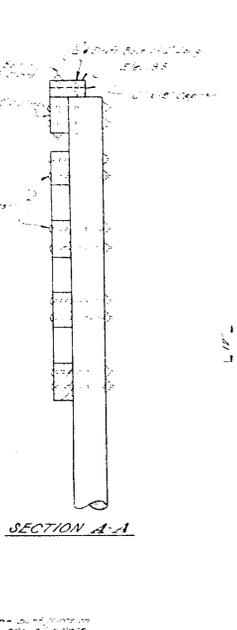
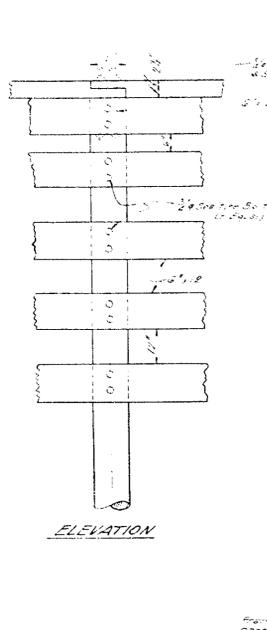
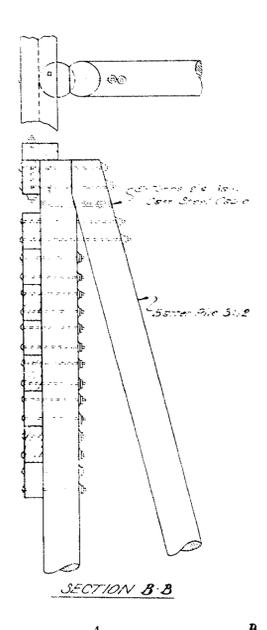
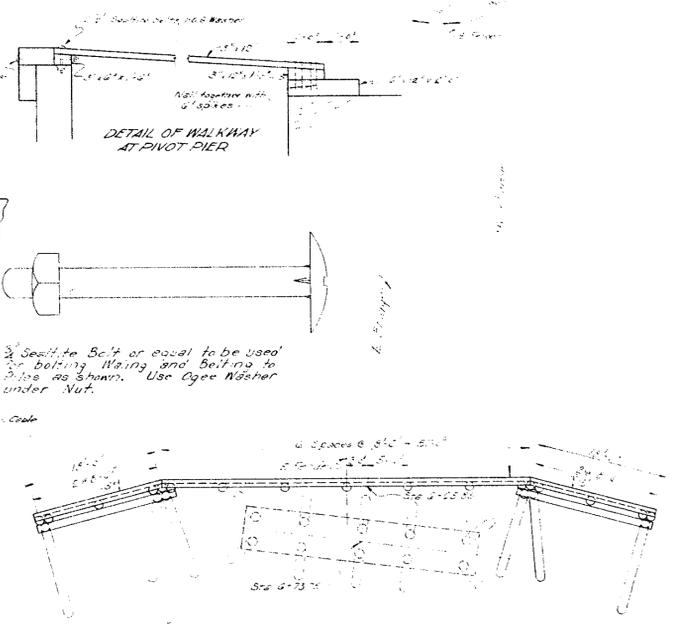
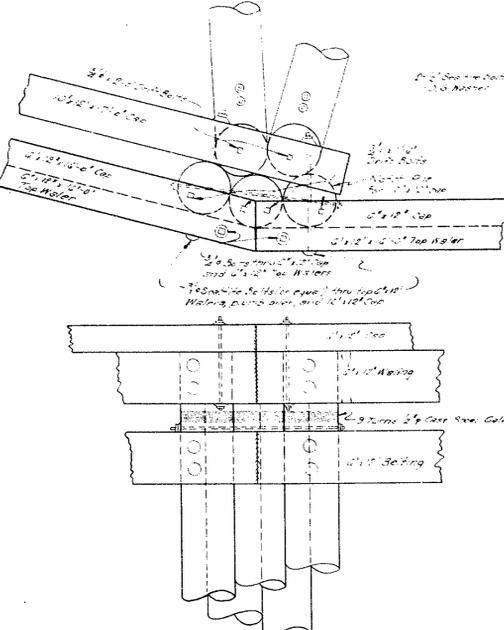
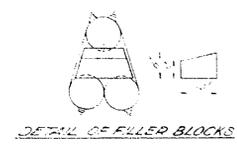
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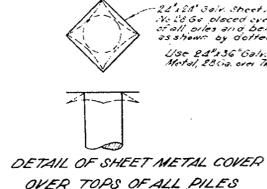
AS BUILT PLANS

PROJECT NAME	DATE	DESIGNED BY	CHECKED BY	IN CHARGE
ST. MARY	5/11/21	ST. MARY	ST. MARY	ST. MARY

111



GENERAL NOTES:
 1. This drawing shows use for anchoring
 purposes only. Use 1/2" washers under
 bolt heads and nuts in each connection.
 2. Spacing where 4" x 4" Spacing for
 equal to the 4" x 4" waling. Spacing
 shall be used. Hardware including nuts,
 washers, bolts, and metal covers, etc. to
 be included in price bid for Creosote
 Timber. All lumber to be Creosote
 Creosoted Timber S4S, Eastern Highway
 Count. Specifications to govern all pile heads,
 caps, trimmings and bolts to be
 thoroughly galvanized with hot creosote all.



Creosoted Structural Timbers S4S
 = 13,698 M.F.B.M.
 Creosoted Timber Piles 8" x 55"
 = 4455 Lin. Ft.

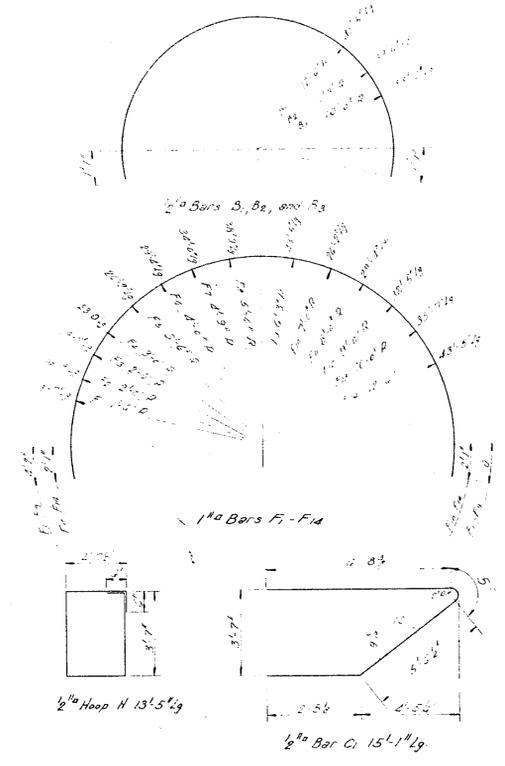
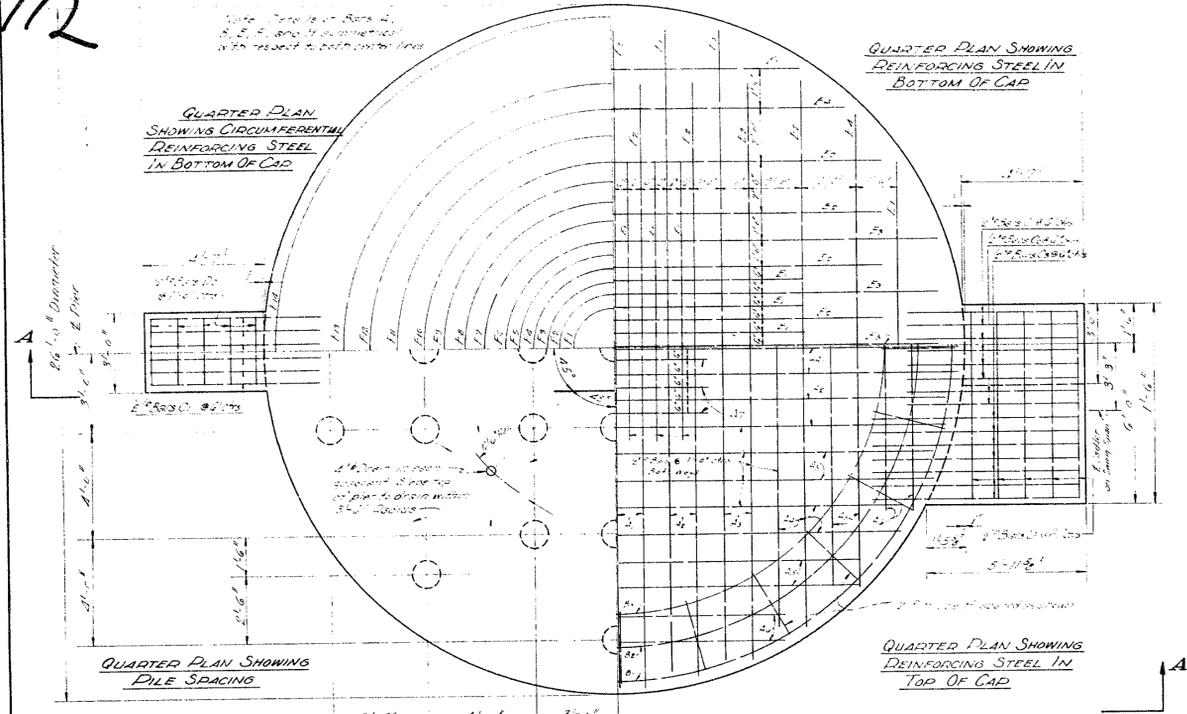
FENDER DETAILS
 BRIDGE OVER BAYOU TECHE
 CHARENTON, LA.

DEPARTMENT OF HIGHWAYS
 BATON ROUGE, LA. MAY 1921

DESIGNED	BY	TRACED	BY
CHECKED	BY	CHECKED	BY
IN CHARGE OF		IN CHARGE OF	



112

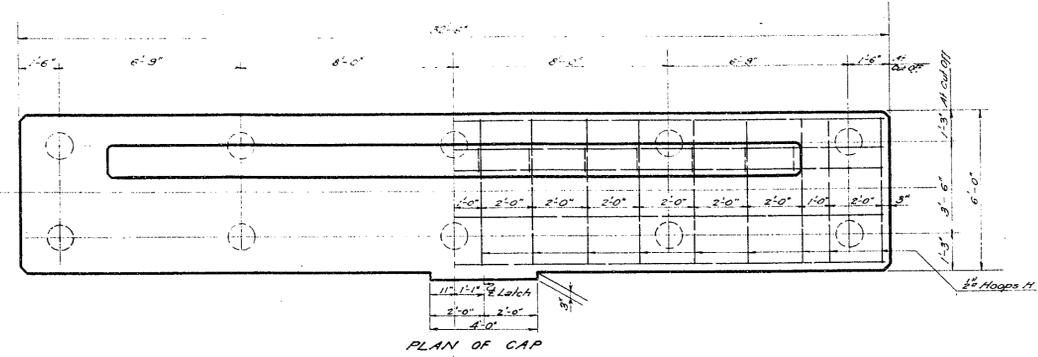


BILL OF REINFORCING STEEL AND ESTIMATE OF QUANTITIES

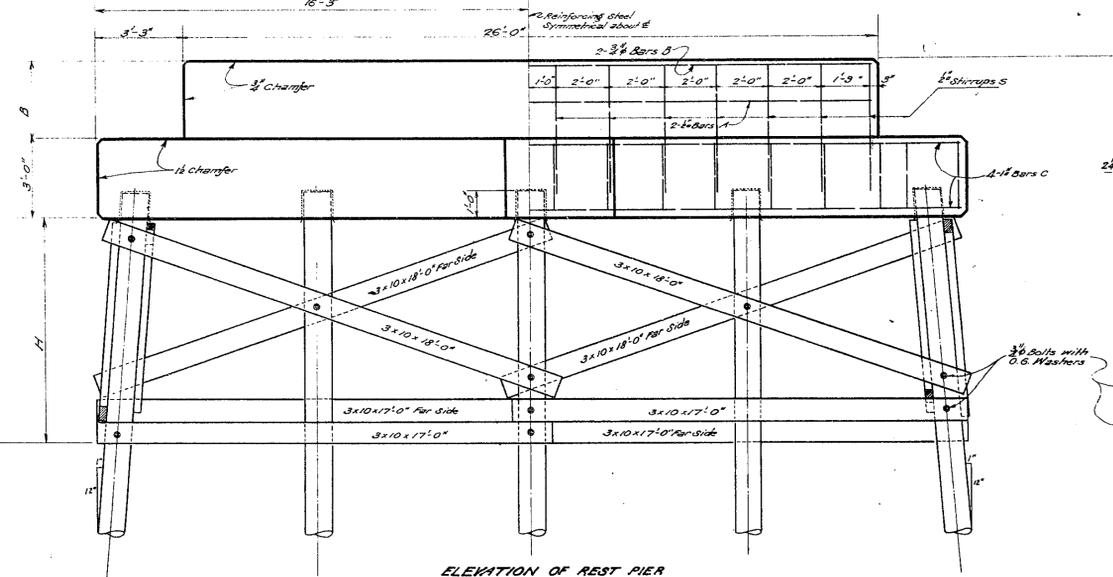
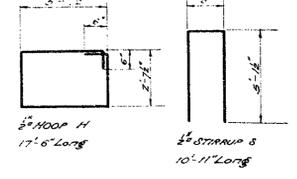
Row	No.	Size	Length	Quantity	Description
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2	2	24'-0"	58'-0"		
3	3	24'-0"	58'-0"		
4	4	24'-0"	58'-0"		
5	5	24'-0"	58'-0"		
6	6	24'-0"	58'-0"		
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117

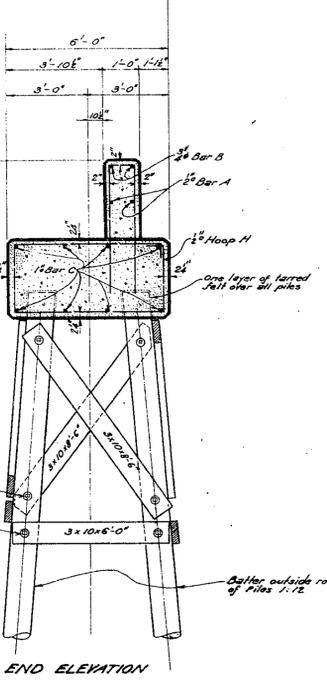
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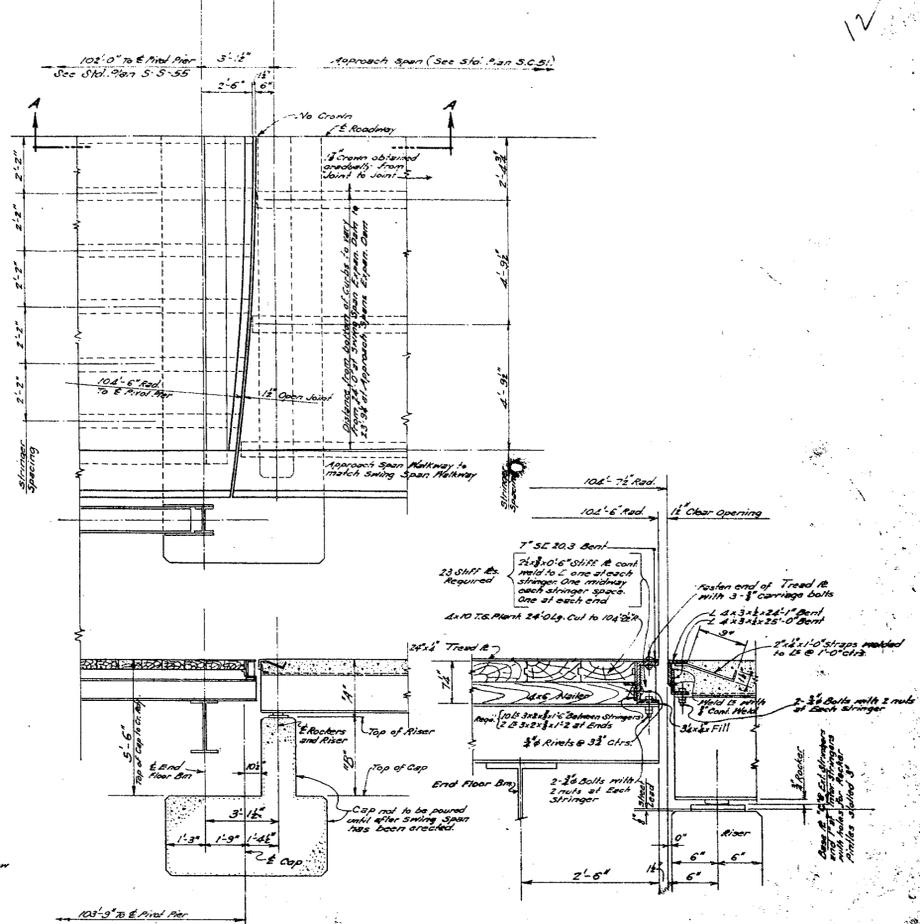
PLAN OF CAP



ELEVATION OF REST PIER



END ELEVATION



SECTION A-A
PILES NOT SHOWN

EXPANSION DAM BETWEEN
SWING SPAN AND APPROACH SPAN
SECTION ON E ROADWAY

Mark	No.	Size	Unit Length	Total Length	Location
A	2	1/2"	25'-8"	51'-4"	Longitudinal in Riser, Straight
H	18	"	17'-6"	315'-0"	Hoops in Cap, Bent
S	14	"	10'-11"	152'-10"	Stirrups in Riser, Bent
Total 1/2" Reinforcing Steel					519'-2" @ 0.85# = 441 Lbs.
B	2	3/8"	25'-8"	51'-4"	Long in Top of Riser, Straight
Total 3/8" Reinforcing Steel					51'-4" @ 1.50# = 77 Lbs.
C	8	1/2"	32'-2"	257'-4"	Longitudinal in Cap, Straight
Total 1/2" Reinforcing Steel					257'-4" @ 3.40# = 875 Lbs.
Total Reinforcing Steel					= 1393 Lbs.

Max. Pile Loading, D.L + L.L. = 13.3 Tons

No.	Size	Unit Length	Total Length	LOCATION
A	3 x 10	18'-0"	72'-0"	Diagonals on Sides
B	3 x 10	17'-0"	68'-0"	Sash on sides
C	3 x 10	8'-6"	34'-0"	Diagonals on Ends
D	2 x 3 x 10	6'-0"	12'-0"	Sash on Ends
Total 3x10 Creos. Timber 186'-0" @ 2.5 = 465 F.B.M.				

Span	Dim. A	Dim. B	Dim. C	Class A Concrete
19	1'-11 1/2"	3'-0 3/8"	18"	24.80
21	1'-11 1/2"	3'-0 3/8"	18"	24.79
23	1'-11 1/2"	3'-0 3/8"	18"	24.78
25	2'-1 1/2"	3'-4 3/8"	18"	24.64
27	2'-1 1/2"	3'-4 3/8"	18"	24.63
29	2'-1 1/2"	3'-4 3/8"	18"	24.62
31	2'-1 1/2"	3'-4 3/8"	18"	24.61

GENERAL NOTES:
Specifications: Louisiana Highway Comm., March 1940.
Dimensions to reinforcing steel are to bar centers.
All exposed surfaces to have a troweled finish.
Cost of tarred felt to be included in price bid for other items.

STANDARD PLAN
REST PIER
CONCRETE CAP ON TIMBER PILES
TO BE USED WITH S-S-55 AND S-51

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS
BATON ROUGE, LA.

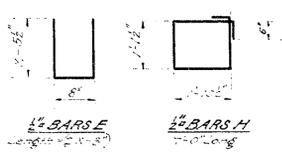
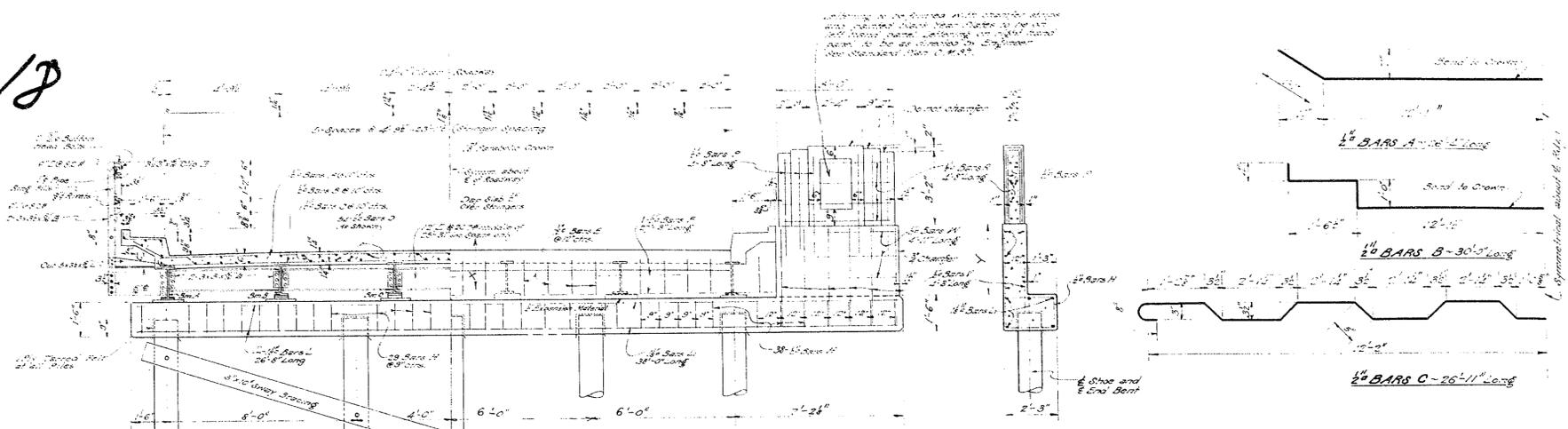
DESIGNED: J. H. ...
CHECKED: J. H. ...
IN CHARGE OF: J. H. ...

DATE	DESCRIPTION	BY



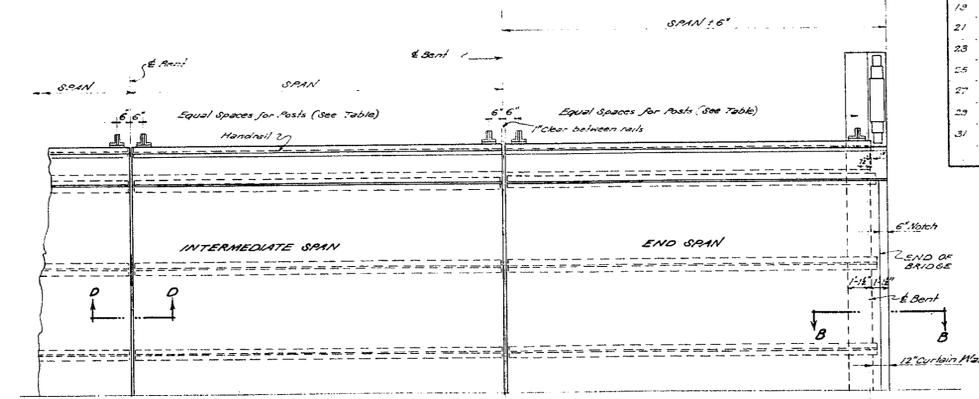
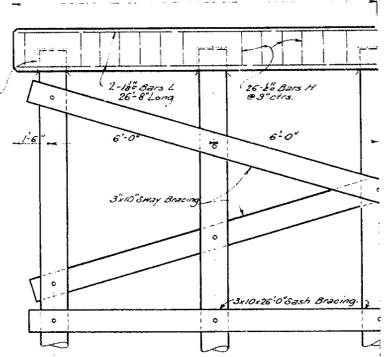
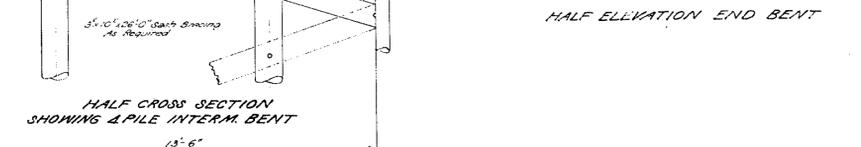
118

114



SWAY and SASH BRACING - ONE BENT

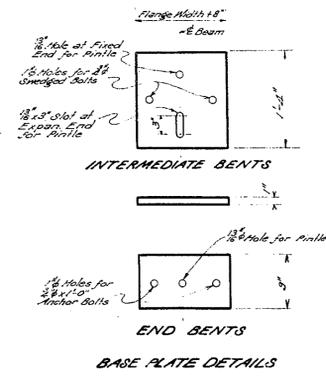
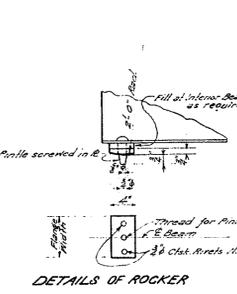
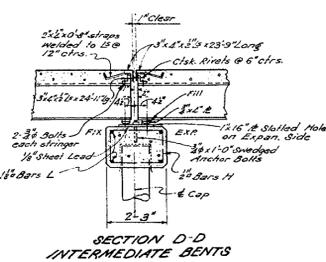
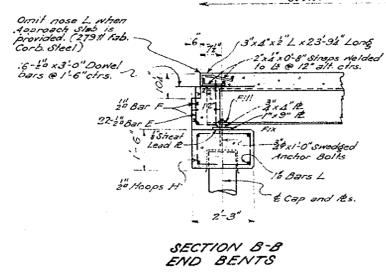
Span	3\"/>					
10	12	1	26'		130	
13	15	1	28'		140	
16	21	2	26'-26'	2	26'	390
22	29	2	28'-28'	2	26'	410



DIMENSIONS and QUANTITIES

Span	Handrail Size of Stringers	Dimensions	END SPAN		INT. SPAN		END BENT		INT. BENT		Number of Piles		LOAD PER PILE	
			W	H	W	H	W	H	W	H	END	INT.	INT.	END
10	3	16 W 36	16	36	16	36	16	36	16	36	5	4	14.2	14.0
13	3	16 W 36	16	36	16	36	16	36	16	36	5	4	15.0	14.3
16	4	18 W 47	18	47	18	47	18	47	18	47	5	5	12.7	14.7
22	4	18 W 47	18	47	18	47	18	47	18	47	5	5	13.3	15.1
27	4	18 W 47	18	47	18	47	18	47	18	47	5	5	13.9	15.4
29	4	18 W 47	18	47	18	47	18	47	18	47	5	5	14.6	15.8
31	5	21 W 53	21	53	21	53	21	53	21	53	5	5	15.2	16.3

GENERAL NOTES
 Specifications: Louisiana Highway Commission 1940
 Size and 1/2\"/>



STANDARD PLAN
 19'-31' I-Beam SPANS-22' ROADWAY
 2'-1'-6\"/>

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS
 BATON ROUGE, LA. APRIL 1941

DESIGNED *D. J. ...* CHECKED *D. J. ...* TRACED *D. J. ...*
 IN CHARGE OF *D. J. ...* Head Bridge Designer

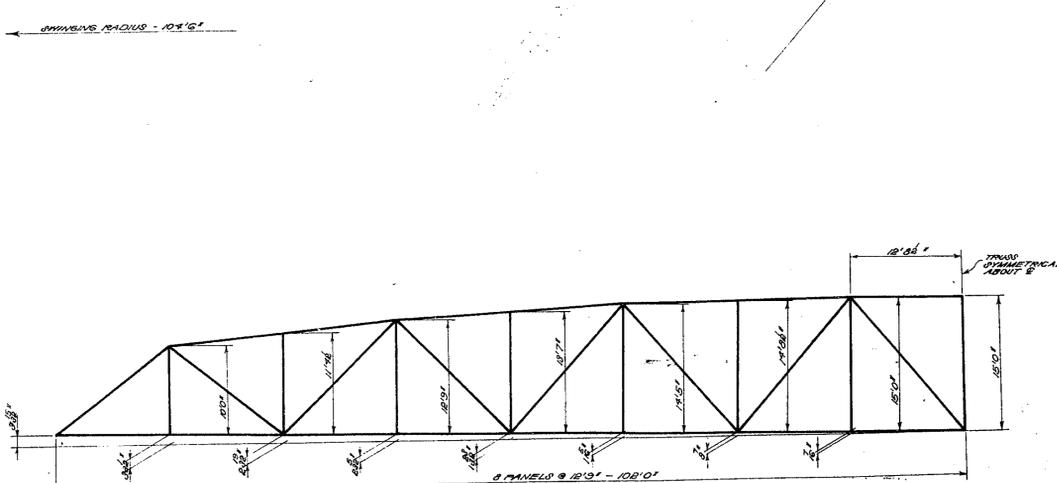
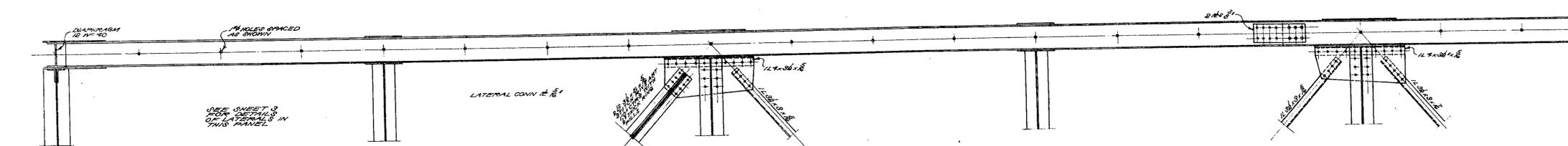
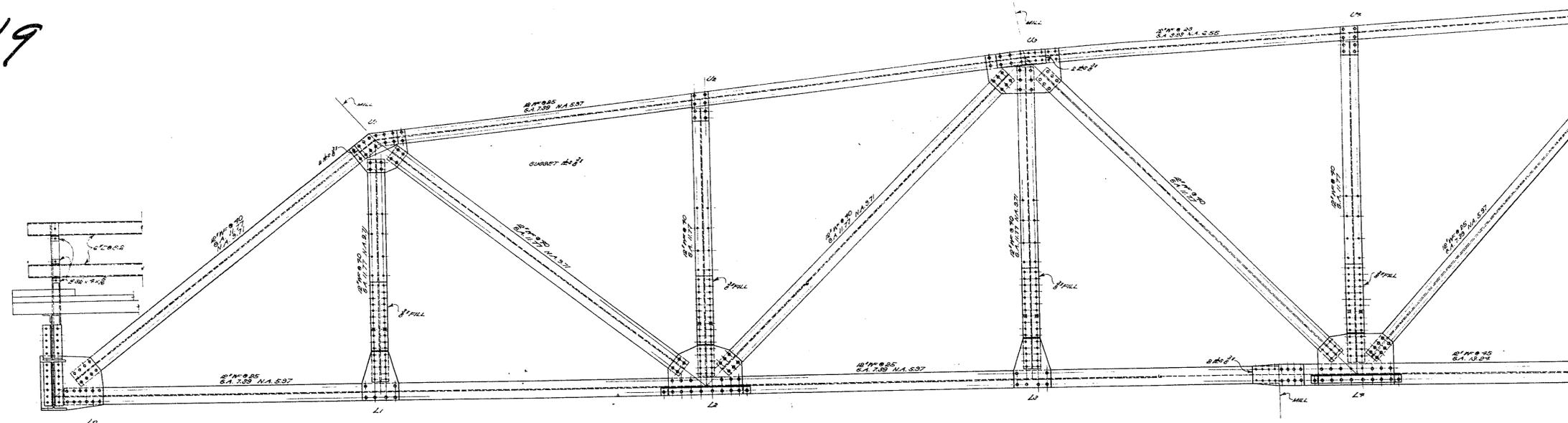


AS BUILT PLANS

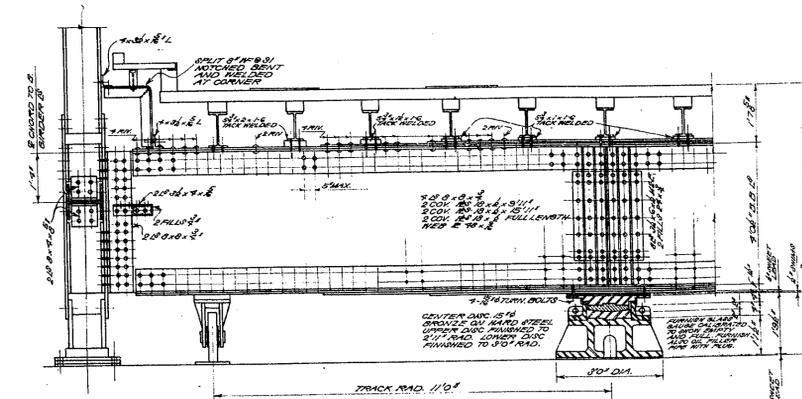
S.C. 51

119

14



GEOMETRIC OUTLINE OF ONE ARM
SHOWING JOINTING DIAGRAM AND METHOD OF CAM-
BERING BY SLOTTING IN UP TO THAT IS WILL DEFLECT
IN DESIGN GRADE WHEN RIGIDLY ARE WITHDRAWN



ESTIMATED QUANTITIES 280,000 LBS
FABRICATED CARBON STEEL 23,500 MFBM
CREOSOTED TIMBER

STANDARD PLAN
204'0\"/>

DATED 7-9-1971

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DATE	DESCRIPTION	BY	IN CHARGE OF	HELD	DESIGNER

SHEET 1 OF 2

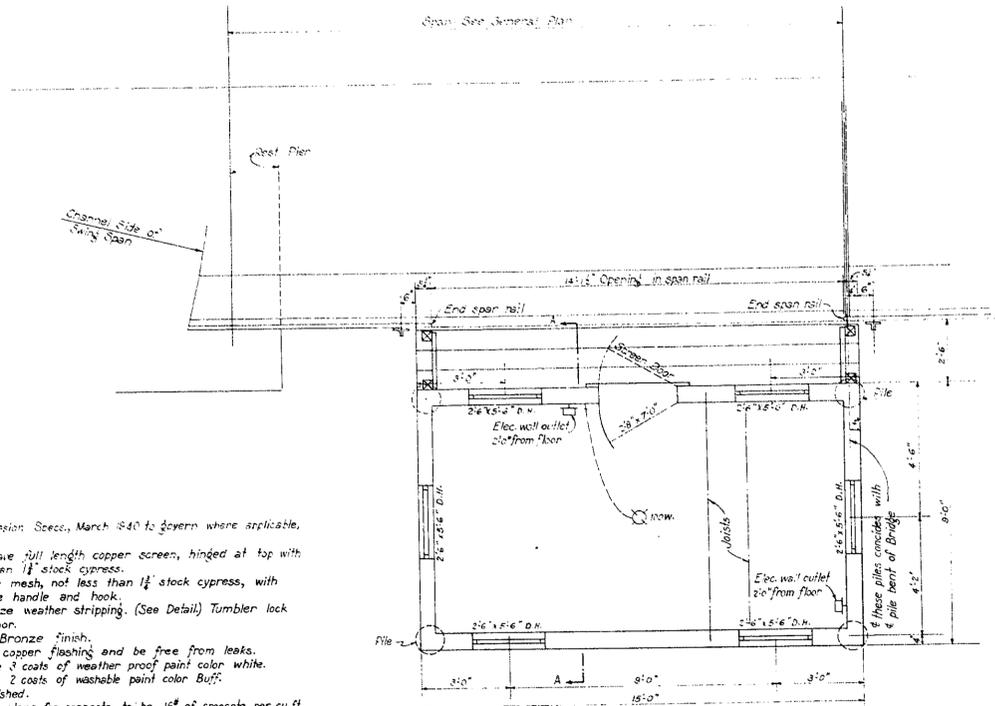
8-8 55



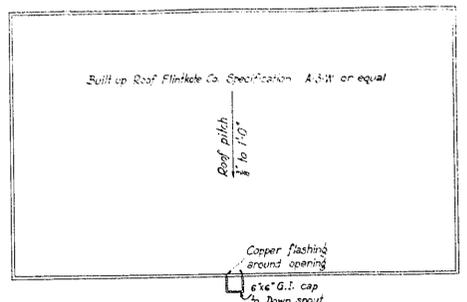
AS BUILT PLANS

128

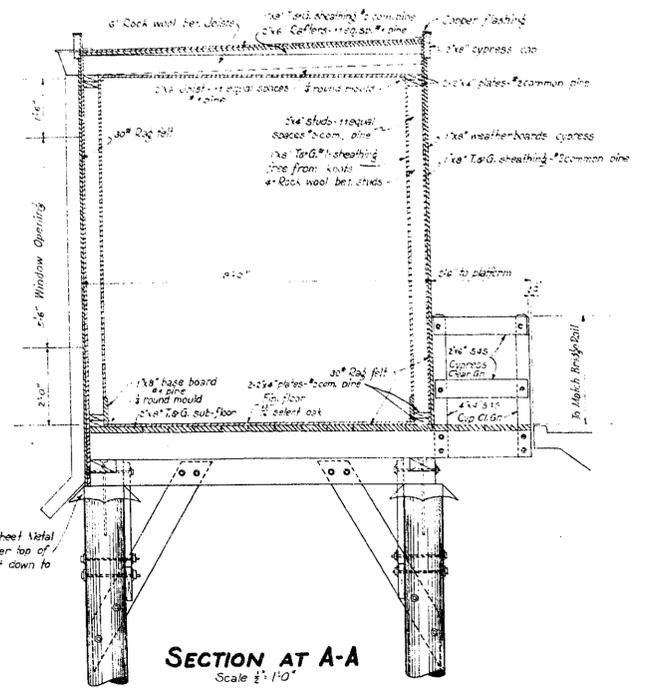
General Notes:
 Louisiana Highway Commission Specs, March 1940 to govern where applicable, except as otherwise noted.
 All window openings to have full length copper screen, hinged at top with hook at bottom, not less than 1/4" stock cypress.
 Screen door to be copper mesh, not less than 1/4" stock cypress, with double spring hinges, provide handle and hook.
 Main door to have Bronze weather stripping. (See Detail) Tumbler lock to be provided for above door.
 All hardware to have Bronze finish.
 Roof and flue to have copper flashing and be free from leaks.
 All exterior walls to have 3 coats of weather proof paint color white.
 All interior walls to have 2 coats of washable paint color Buff.
 Floor to be hard Oil finished.
 All timbers called for in plans for creosote to be 16" of creosote per cu ft.
 Provide G.I. flue with copper flashing location to be determined by contractor.
 All materials required to complete Operators house to be included in lump sum bid for house except creosoted timber piles which are to be paid for at the price bid for that item.
 Provide all necessary materials to complete this job if specified or not.
 All cypress to be clear grade.



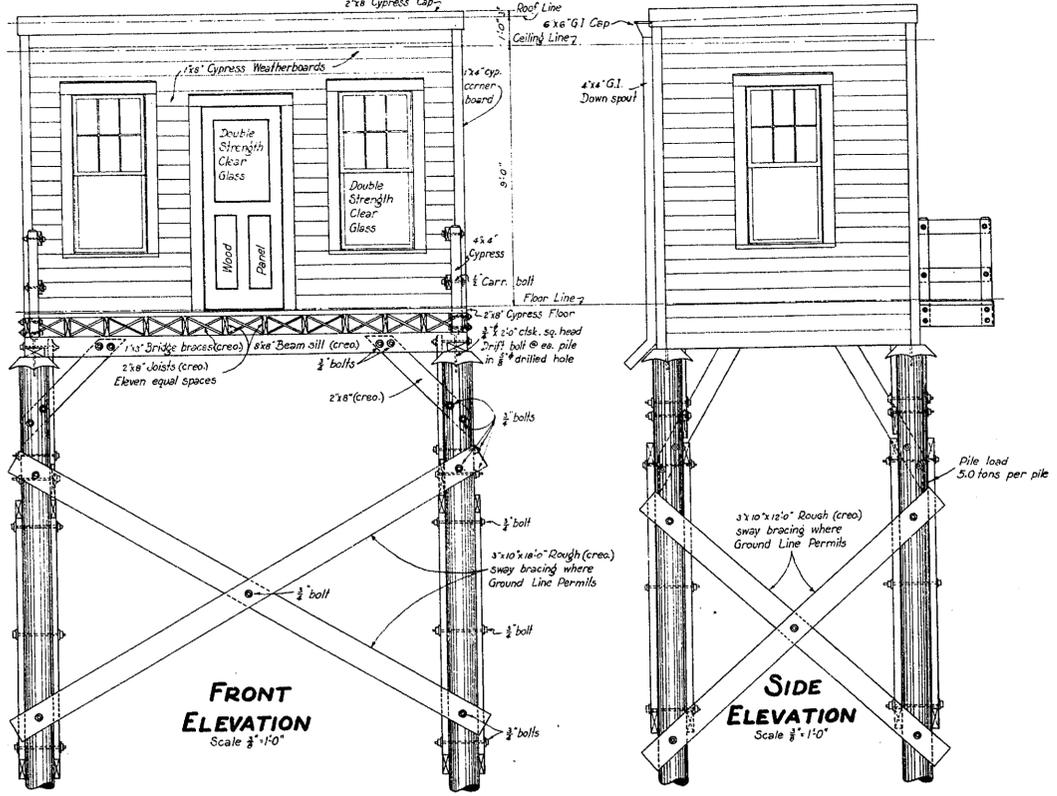
FLOOR PLAN
Scale 3/8" = 1'-0"



ROOF PLAN
Scale 3/8" = 1'-0"

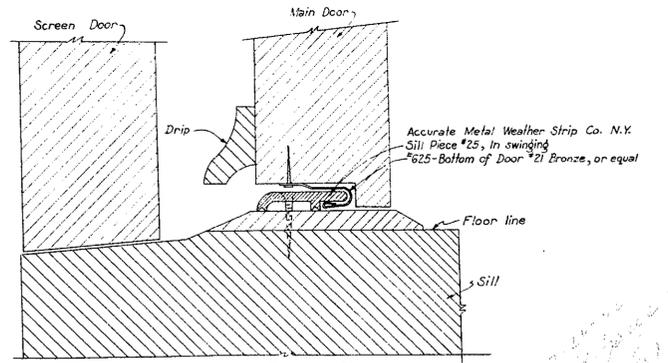


SECTION AT A-A
Scale 1/2" = 1'-0"



FRONT ELEVATION
Scale 3/8" = 1'-0"

SIDE ELEVATION
Scale 3/8" = 1'-0"



SECTION THRU DOOR SILL
Scale Full Size

STANDARD BRIDGE OPERATORS HOUSE
 8'x14' FRAME STRUCTURE

STATE OF LOUISIANA
 DEPARTMENT OF HIGHWAYS
 BATON ROUGE, LA. JUNE 19 41

DESIGNED	TRACED	CHECKED	CHECKED
10-15-41	2"x8" BRACES	L. T.	BY
DATE	DESCRIPTION	BY	IN CHARGE OF
REVISIONS		HEAD BRIDGE DRAFTSMAN	

T-M-18

AS BUILT PLANS



31485

Bridge Scan

Base @ Modern

FS

109-110

Desc

60dset

Note

Measured from water bottom to top of
rail on bridge.

A. Dumas
M. Evans

HAER No. LA-37

(16)

Hwy 326

SK 16-04

3/1/16

75'



Bridge Monitor

Piles

39.2



37.5



46.1



44.4



42.5



40.8



35.0



34.2



25.0



22.0



Hwy 87



31435
31452

Scan 1 (Tripod; Resection)

Targets 108, 103, 104, 105

(Called 108, 100 on this setup)

Scan 2 (Tripod; Resection)

Targets 108, 104, 105, 9000

9000 is a Glabe

Scan 3 (Over point; Tripod)

Sta 105

BS ck 108, 104

Scan 4 (Over point; tripod)

Sta 104

BS ck 102, 105

Scan 5 (Over point; tripod)

Sta 106

BS ck 102

Scan 6 (Over point; tripod)

Sta 107

BS 108

A. Burns
M. Evans

HAER No. LA-37 (15)

BK 16-04

7/29/12

73°

RENAME 108 TO 100 IN C.S.

LABEL PT 105 IN C.S.

" " 104 "

" " 106 "

" " 107 "

31433

Scan 1 (Over known point; tripod)

Targets Str 108

BS CK 107, 105

Scan 2 (Re section; tripod)

Targets 106, 107, 109, 110

Scan 3 (Re section; tripod)

Targets 106, 107, 109, 110

A. Burns
J. Fontenot

HAER No. LA-37 33

BK 16-04

4/6/16

80"

LABEL PT 108 IN CONT. SPACE

SWAP 109 & 110 IN DATA (MISLABELED)

" " " " " "



Bridge 009130.txt

10/5/2017

Status: VALID Registration

Mean Absolute Error:

for Enabled Constraints = 0.035 ft

for Disabled Constraints = 0.000 ft

Date: 2017.10.05 10:29:52

Database name : Bridge 009130 ST MARY

ScanWorlds

FINAL CONTROL.txt (Leveled)
 Station-001: SW-001 (Leveled)
 Station-002: SW-002 (Leveled)
 Station-003: SW-003 (Leveled)
 104: SW-004 (Leveled)
 105: SW-003 (Leveled)
 106: SW-005 (Leveled)
 107: SW-006 (Leveled)
 Station-001: SW-001 (Leveled)
 Station-002: SW-002 (Leveled)
 108: SW-001 (Leveled)
 Station-001: SW-002 (Leveled)
 Station-002: SW-003 (Leveled)

Constraints

Name	ScanWorld	ScanWorld	Type	On/Off	Weight	Error	Error Vector	Horz	Vert
100	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.089 ft	(-0.041, -0.071, -0.032) ft	0.083 ft	-0.032 ft
100	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.082 ft	(-0.029, -0.068, -0.036) ft	0.073 ft	-0.036 ft
100	FINAL CONTROL.txt (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.088 ft	(-0.035, -0.066, -0.046) ft	0.074 ft	-0.046 ft
110	FINAL CONTROL.txt (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.060 ft	(-0.002, 0.013, 0.059) ft	0.013 ft	0.059 ft
110	FINAL CONTROL.txt (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.057 ft	(-0.002, 0.010, 0.056) ft	0.011 ft	0.056 ft
109	FINAL CONTROL.txt (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(0.017, -0.008, 0.002) ft	0.019 ft	0.002 ft
109	FINAL CONTROL.txt (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.018 ft	(0.015, -0.001, 0.009) ft	0.015 ft	0.009 ft
108	FINAL CONTROL.txt (Leveled)	105: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.025 ft	(-0.015, -0.020, -0.001) ft	0.025 ft	-0.001 ft
108	FINAL CONTROL.txt (Leveled)	107: SW-006 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.026 ft	(-0.006, -0.021, 0.013) ft	0.022 ft	0.013 ft
108	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.035 ft	(-0.016, -0.028, 0.015) ft	0.032 ft	0.015 ft
108	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.030 ft	(-0.016, -0.022, 0.014) ft	0.027 ft	0.014 ft
108	FINAL CONTROL.txt (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.023 ft	(0.005, -0.010, 0.021) ft	0.011 ft	0.021 ft
107	FINAL CONTROL.txt (Leveled)	107: SW-006 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.081 ft	(-0.078, -0.020, 0.009) ft	0.081 ft	0.009 ft
107	FINAL CONTROL.txt (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.111 ft	(-0.106, -0.031, 0.012) ft	0.110 ft	0.012 ft
107	FINAL CONTROL.txt (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.106 ft	(-0.097, -0.037, 0.021) ft	0.104 ft	0.021 ft
107	FINAL CONTROL.txt (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.108 ft	(-0.100, -0.036, 0.022) ft	0.106 ft	0.022 ft
106	FINAL CONTROL.txt (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.125 ft	(0.086, 0.049, -0.076) ft	0.099 ft	-0.076 ft
106	FINAL CONTROL.txt (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.136 ft	(0.089, 0.052, -0.089) ft	0.103 ft	-0.089 ft
106	FINAL CONTROL.txt (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.141 ft	(0.094, 0.048, -0.094) ft	0.105 ft	-0.094 ft
105	FINAL CONTROL.txt (Leveled)	105: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.047 ft	(0.037, 0.029, 0.009) ft	0.047 ft	0.009 ft
105	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.044 ft	(0.029, 0.032, -0.009) ft	0.043 ft	-0.009 ft
105	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.053 ft	(0.035, 0.040, -0.005) ft	0.053 ft	-0.005 ft
105	FINAL CONTROL.txt (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.052 ft	(0.043, 0.023, -0.016) ft	0.049 ft	-0.016 ft
104	FINAL CONTROL.txt (Leveled)	104: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.049 ft	(0.042, -0.024, 0.005) ft	0.049 ft	0.005 ft
104	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.053 ft	(0.027, -0.046, 0.001) ft	0.053 ft	0.001 ft
104	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.048 ft	(0.028, -0.039, -0.003) ft	0.048 ft	-0.003 ft
103	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(-0.025, -0.006, 0.011) ft	0.026 ft	0.011 ft
103	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.033 ft	(-0.028, -0.008, 0.016) ft	0.029 ft	0.016 ft
103	FINAL CONTROL.txt (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.023 ft	(-0.010, -0.003, 0.021) ft	0.010 ft	0.021 ft
103	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.026 ft	(-0.007, 0.022, 0.011) ft	0.023 ft	0.011 ft
102	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.061 ft	(0.043, 0.039, 0.018) ft	0.058 ft	0.018 ft
102	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.058 ft	(0.039, 0.037, 0.020) ft	0.054 ft	0.020 ft
102	FINAL CONTROL.txt (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.055 ft	(0.031, 0.033, 0.031) ft	0.045 ft	0.031 ft
102	FINAL CONTROL.txt (Leveled)	104: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.029 ft	(0.010, 0.023, 0.016) ft	0.025 ft	0.016 ft
102	FINAL CONTROL.txt (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.033 ft	(0.010, 0.017, 0.026) ft	0.020 ft	0.026 ft
101	FINAL CONTROL.txt (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.038 ft	(-0.019, 0.033, -0.002) ft	0.038 ft	-0.002 ft
101	FINAL CONTROL.txt (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.041 ft	(-0.023, 0.033, -0.008) ft	0.041 ft	-0.008 ft
101	FINAL CONTROL.txt (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.045 ft	(-0.026, 0.030, -0.020) ft	0.040 ft	-0.020 ft
103	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.006 ft	(-0.002, -0.002, 0.005) ft	0.003 ft	0.005 ft

103	Station-001: SW-001 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(0.015, 0.004, 0.010)	ft	0.016 ft	0.010 ft
103	Station-001: SW-001 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.034 ft	(0.019, 0.028, 0.000)	ft	0.034 ft	0.000 ft
102	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.005 ft	(-0.004, -0.002, 0.002)	ft	0.004 ft	0.002 ft
102	Station-001: SW-001 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(-0.013, -0.005, 0.013)	ft	0.014 ft	0.013 ft
102	Station-001: SW-001 (Leveled)	104: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.037 ft	(-0.033, -0.016, -0.003)	ft	0.037 ft	-0.003 ft
102	Station-001: SW-001 (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.041 ft	(-0.033, -0.022, 0.008)	ft	0.040 ft	0.008 ft
101	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.007 ft	(-0.004, 0.001, -0.006)	ft	0.004 ft	-0.006 ft
101	Station-001: SW-001 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(-0.007, -0.002, -0.018)	ft	0.007 ft	-0.018 ft
100	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.014 ft	(0.013, 0.004, -0.004)	ft	0.013 ft	-0.004 ft
100	Station-001: SW-001 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.016 ft	(0.006, 0.006, -0.014)	ft	0.009 ft	-0.014 ft
101	Station-002: SW-002 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.013 ft	(-0.003, -0.003, -0.012)	ft	0.004 ft	-0.012 ft
100	Station-002: SW-002 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.012 ft	(-0.006, 0.002, -0.010)	ft	0.007 ft	-0.010 ft
103	Station-002: SW-002 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(0.018, 0.005, 0.005)	ft	0.019 ft	0.005 ft
103	Station-002: SW-002 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.037 ft	(0.021, 0.030, -0.005)	ft	0.037 ft	-0.005 ft
102	Station-002: SW-002 (Leveled)	Station-003: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.014 ft	(-0.009, -0.004, 0.011)	ft	0.009 ft	0.011 ft
102	Station-002: SW-002 (Leveled)	104: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.033 ft	(-0.029, -0.014, -0.005)	ft	0.032 ft	-0.005 ft
102	Station-002: SW-002 (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.036 ft	(-0.029, -0.020, 0.006)	ft	0.036 ft	0.006 ft
103	Station-003: SW-003 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.027 ft	(0.003, 0.025, -0.010)	ft	0.025 ft	-0.010 ft
102	Station-003: SW-003 (Leveled)	104: SW-004 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(-0.020, -0.011, -0.015)	ft	0.023 ft	-0.015 ft
102	Station-003: SW-003 (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.027 ft	(-0.021, -0.016, -0.005)	ft	0.027 ft	-0.005 ft
102	104: SW-004 (Leveled)	106: SW-005 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.012 ft	(-0.001, -0.006, 0.011)	ft	0.006 ft	0.011 ft
104	104: SW-004 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.027 ft	(-0.016, -0.022, -0.004)	ft	0.027 ft	-0.004 ft
104	104: SW-004 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.022 ft	(-0.014, -0.015, -0.008)	ft	0.020 ft	-0.008 ft
105	105: SW-003 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.020 ft	(-0.008, 0.003, -0.018)	ft	0.008 ft	-0.018 ft
105	105: SW-003 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(0.002, 0.012, -0.014)	ft	0.012 ft	-0.014 ft
105	105: SW-003 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.027 ft	(0.006, -0.005, -0.025)	ft	0.008 ft	-0.025 ft
108	105: SW-003 (Leveled)	107: SW-006 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.017 ft	(0.008, -0.001, 0.014)	ft	0.008 ft	0.014 ft
108	105: SW-003 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.018 ft	(-0.001, -0.008, 0.016)	ft	0.008 ft	0.016 ft
108	105: SW-003 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.015 ft	(-0.001, -0.002, 0.015)	ft	0.002 ft	0.015 ft
108	105: SW-003 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.031 ft	(0.019, 0.010, 0.022)	ft	0.022 ft	0.022 ft
106	106: SW-005 (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.014 ft	(0.003, 0.003, -0.013)	ft	0.004 ft	-0.013 ft
106	106: SW-005 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.019 ft	(0.008, -0.001, -0.017)	ft	0.008 ft	-0.017 ft
108	107: SW-006 (Leveled)	Station-001: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.012 ft	(-0.009, -0.007, 0.001)	ft	0.012 ft	0.001 ft
108	107: SW-006 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.009 ft	(-0.009, -0.001, 0.000)	ft	0.009 ft	0.000 ft
108	107: SW-006 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.017 ft	(0.011, 0.011, 0.007)	ft	0.015 ft	0.007 ft
107	107: SW-006 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.030 ft	(-0.028, -0.012, 0.003)	ft	0.030 ft	0.003 ft
107	107: SW-006 (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(-0.019, -0.017, 0.012)	ft	0.026 ft	0.012 ft
107	107: SW-006 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.030 ft	(-0.021, -0.016, 0.013)	ft	0.027 ft	0.013 ft
105	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.011 ft	(0.006, 0.008, 0.004)	ft	0.010 ft	0.004 ft
105	Station-001: SW-001 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.018 ft	(0.014, -0.008, -0.007)	ft	0.017 ft	-0.007 ft
104	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.008 ft	(0.002, 0.007, -0.004)	ft	0.007 ft	-0.004 ft
108	Station-001: SW-001 (Leveled)	Station-002: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.006 ft	(0.000, 0.006, -0.001)	ft	0.006 ft	-0.001 ft
108	Station-001: SW-001 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.028 ft	(0.020, 0.018, 0.006)	ft	0.027 ft	0.006 ft
108	Station-002: SW-002 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.024 ft	(0.020, 0.012, 0.007)	ft	0.023 ft	0.007 ft
105	Station-002: SW-002 (Leveled)	108: SW-001 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.022 ft	(0.009, -0.017, -0.011)	ft	0.019 ft	-0.011 ft
107	108: SW-001 (Leveled)	Station-001: SW-002 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.013 ft	(0.008, -0.005, 0.009)	ft	0.010 ft	0.009 ft
107	108: SW-001 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.012 ft	(0.006, -0.004, 0.010)	ft	0.008 ft	0.010 ft
110	Station-001: SW-002 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.003 ft	(0.000, -0.002, -0.002)	ft	0.002 ft	-0.002 ft
107	Station-001: SW-002 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.003 ft	(-0.002, 0.001, 0.001)	ft	0.003 ft	0.001 ft
106	Station-001: SW-002 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.008 ft	(0.005, -0.004, -0.004)	ft	0.006 ft	-0.004 ft
109	Station-001: SW-002 (Leveled)	Station-002: SW-003 (Leveled)	Coincident: Vertex - Vertex	On	1.0000	0.010 ft	(-0.002, 0.006, 0.007)	ft	0.007 ft	0.007 ft

ScanWorld Transformations
 FINAL CONTROL.txt (Leveled)
 translation: (0.000, 0.000, 0.000) ft
 rotation: (0.0000, 1.0000, 0.0000):0.000 deg

Station-001: SW-001 (Leveled)
 translation: (3220494.838, 504347.453, 20.047) ft
 rotation: (-0.0000, -0.0000, -1.0000):43.973 deg

Station-002: SW-002 (Leveled)
 translation: (3220628.062, 504405.260, 20.288) ft
 rotation: (-0.0000, -0.0000, -1.0000):43.075 deg

Station-003: SW-003 (Leveled)
 translation: (3220728.167, 504443.704, 20.162) ft
 rotation: (0.0000, 0.0000, 1.0000):82.197 deg

Bridge 009130.txt

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104: SW-004 (Leveled)
translation: (3220864.831, 504486.634, 15.642) ft
rotation: (-0.0000, -0.0000, -1.0000):76.575 deg

105: SW-003 (Leveled)
translation: (3220828.321, 504461.762, 10.158) ft
rotation: (0.0000, 0.0000, 1.0000):-124.020 deg

106: SW-005 (Leveled)
translation: (3220807.556, 504512.250, 10.665) ft
rotation: (0.0000, 0.0000, 1.0000):59.571 deg

107: SW-006 (Leveled)
translation: (3220519.781, 504400.907, 8.633) ft
rotation: (0.0000, 0.0000, 1.0000):55.948 deg

Station-001: SW-001 (Leveled)
translation: (3220738.925, 504423.086, 19.302) ft
rotation: (0.0000, 0.0000, 1.0000):-140.179 deg

Station-002: SW-002 (Leveled)
translation: (3220755.005, 504429.389, 18.751) ft
rotation: (-0.0000, -0.0000, -1.0000):-178.013 deg

108: SW-001 (Leveled)
translation: (3220548.264, 504329.050, 8.065) ft
rotation: (-0.0000, -0.0000, -1.0000):0.634 deg

Station-001: SW-002 (Leveled)
translation: (3220614.278, 504420.512, 9.043) ft
rotation: (-0.0000, -0.0000, -1.0000):-140.444 deg

Station-002: SW-003 (Leveled)
translation: (3220614.410, 504420.218, 8.781) ft
rotation: (0.0000, 0.0000, 1.0000):-120.199 deg

Unused ControlSpace Objects

Station-001: SW-001 (Leveled):
Vertex : unlabeled

Station-002: SW-002 (Leveled):
Vertex : unlabeled

Station-003: SW-003 (Leveled):
Vertex : unlabeled

Station-001: SW-001 (Leveled):
Vertex : unlabeled

Station-002: SW-002 (Leveled):
Vertex : unlabeled
Sphere : TargetID : 9000

Station-001: SW-002 (Leveled):
Vertex : unlabeled

Station-002: SW-003 (Leveled):
Vertex : unlabeled

State Project No. H.007020
 Historic Bridge Inventory

SJB Group performed terrestrial laser scanning and created deliverables in accordance with HAER 4.0 Measured Drawings for six bridges throughout Louisiana. The six bridges surveyed under this contract were bridge numbers 008970, 009130, 014900, 058710, 200865 and 200896. The following sections are a description of the equipment and procedures used for this project.

Section I – Equipment

The equipment used in the establishment of the primary control network for this project was manufactured by Leica. Real-time kinematic GPS observations were collected using a Leica GS15 Smart Antenna “Performance” and CS15 3.5G Field Controller. Figure 12 is an image of the equipment used.



Figure 1: Photograph of Leica TS15 Total Station and Leica CS/GS15 GPS uni

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Below is a table of the serial numbers for the equipment used for this project.

Description	Model Number	Serial Number
Leica ScanStation	C10	1260997
Leica Base	GS15	1508955
Leica Rover	GS15	1509134
Leica Controller	CS15	25022556

Section II – Field Procedures

Marks set via real-time kinematic GPS observations were established through a series of ten (10) second observations. Each mark was occupied three (3) times throughout the day from at least two (2) different base stations for a total of six (6) observations. Primary control marks were periodically cross checked throughout the day to ensure an accurate basis of measurement.

Section III – Equipment

Scanning was performed with the Leica ScanStation C-10, serial number 120997, in conjunction with HDS 6 inch circular planar fixed height (1.472 meters) targets



Figure 2: Photograph of Leica ScanStation C10

Section IV – Field Procedures

Scanning observations were made by independent instrument locations which included a minimum of four HDS targets on Secondary Control Marks. At each scanning location the C10 collects observed data relative to the instrument and builds a data set which identifies the HDS target marks. Each data set is called a “Scan World” for the purposes of computation.

Section V – Data Processing

The separate Scan Worlds were “registered” using Leica Cyclone Version 8.0 software which merges the independent observations by resection and statistical comparison of the State Plane values associated with each of the HDS target locations. The State Plane resolution data set which merges all scanned information is presented in Appendix “E.” TopoDOT version 9.0.0.0 was used to extract features from the point cloud registered in Leica Cyclone.