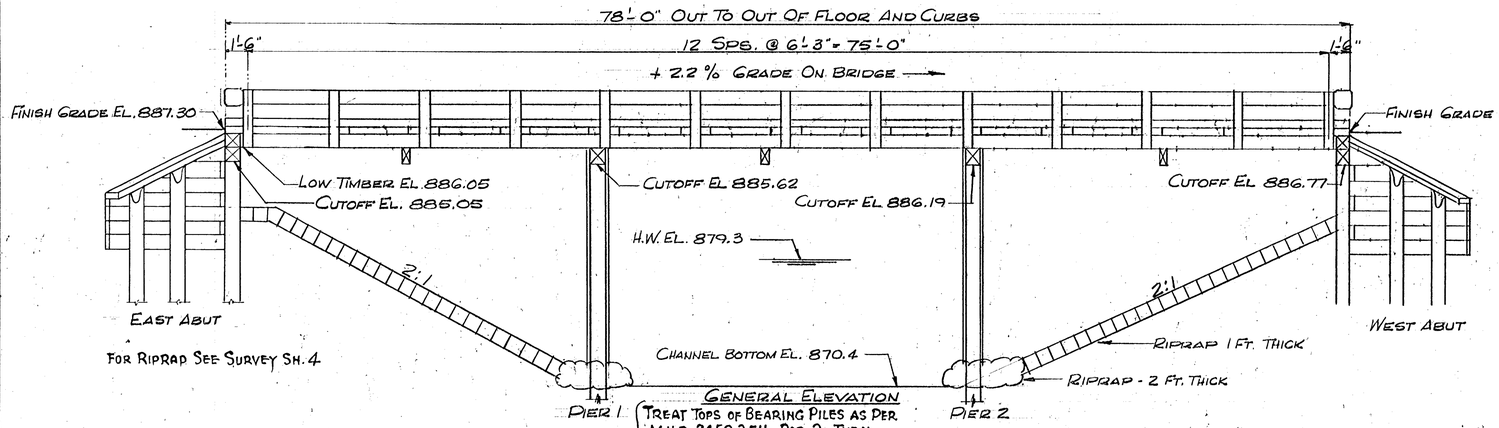
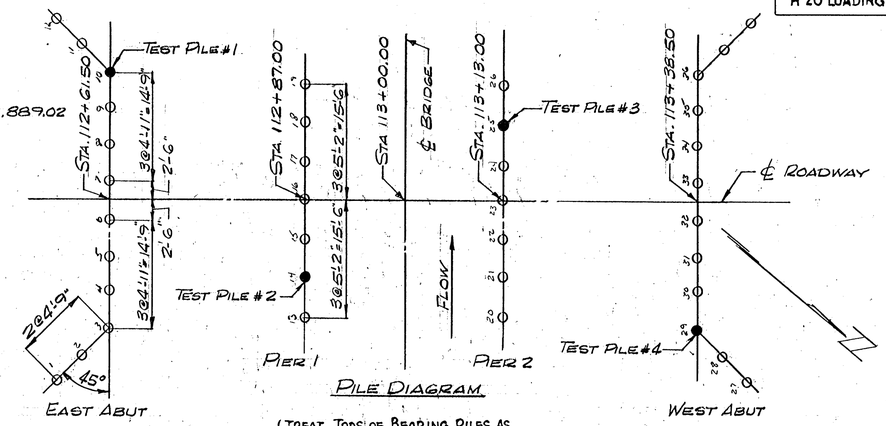
DESIGN DATA
1961 A.A.S.H.O. DESIGN SPECS.
H20 LOADING NO IMPACT 2 LANES



GENERAL ELEVATION



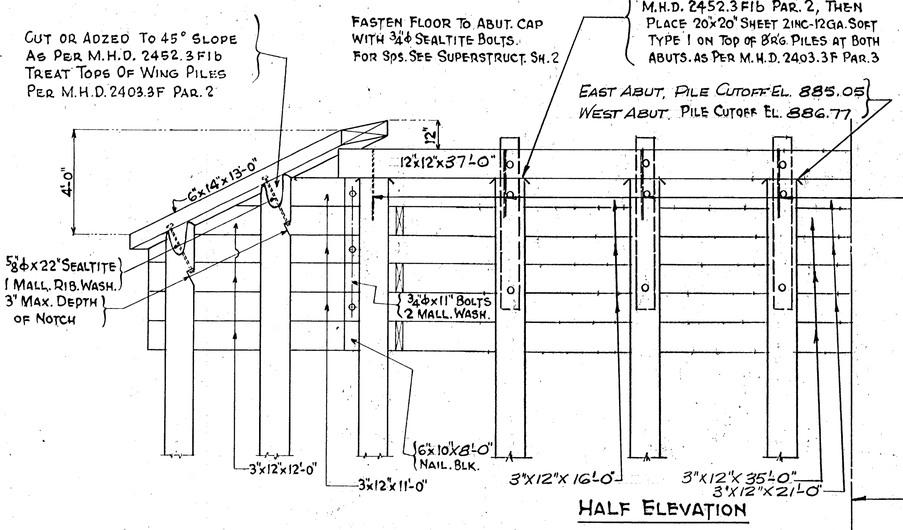
PILE DIAGRAM

CUT OR ADZED TO 45° SLOPE AS PER M.H.D. 2452.3 F1b TREAT TOPS OF WING PILES PER M.H.D. 2403.3F PAR. 2

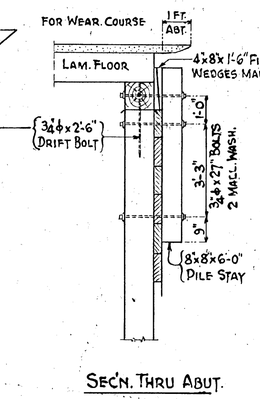
FASTEN FLOOR TO ABUT. CAP WITH 3/4"ϕ SEALTITE BOLTS. FOR SPS. SEE SUPERSTRUCT. SH. 2

TREAT TOPS OF BEARING PILES AS PER M.H.D. 2452.3 F1b PAR. 2, THEN PLACE 20"x20" SHEET ZINC-12GA. SOFT TYPE 1 ON TOP OF BRG. PILES AT BOTH ABUTS. AS PER M.H.D. 2403.3 F PAR. 3

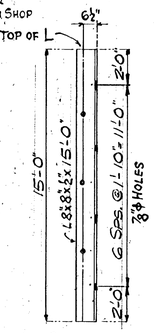
EAST ABUT, PILE CUTOFF EL. 885.05
WEST ABUT, PILE CUTOFF EL. 886.77



HALF ELEVATION



SEC'N. THRU ABUT.



ICE BREAKER ANGLE-
2 THUS REQ'D.
GALVANIZE AFTER FABRICATION
AS PER M.H.D. 3394

3/4"ϕx17" BOLTS & 2 MALL. WASH. & 1 TECO SPLIT RING OR TOOTH RING

3/4"ϕx19" SEALTITE SHEATH. BOLTS-CSK. 1 MALL. WASH.

TREAT TOPS OF BEARING PILES AS PER M.H.D. 2452.3 F1b PAR. 2, THEN PLACE 20"x20" SHEET ZINC 12 GA. SOFT TYPE 1 ON TOP OF ALL PILES AT PIERS AS PER M.H.D. 2403.3 F PAR. 3

FASTEN BRIDGE FLOOR TO CAP, WITH 3/4"ϕx2G SEALTITE BOLTS & 5/8"ϕx32 SEALTITE BOLTS AT STRUT. 1 MALL. WASHER EACH.

PILE CUTOFF EL. 885.62 PIER 1
" " " 886.19 " 2

3/4"ϕx2'-6" DRIFTS

STRUT 6"x12" CUT TO FIT IN FIELD @ ICE BREAKER

SYMM. ABOUT ℄ EXCEPT AS SHOWN AND NOTED.

3/4"ϕ x 22" BOLTS
2-MALL. WASHERS
2-TECO SINGLE CURVE SPIKE GRIDS

3/4"ϕx19" BOLTS 2 MALL. WASH. 1 TECO SINGLE CURVE SPIKE GRID.

3"x12"x30'-0" BRACING

L 8"x8"x1½"x15'-0" ICE BREAKER UPSTREAM ONLY

HALF ELEVATION
TWO PIERS THUS REQ'D.

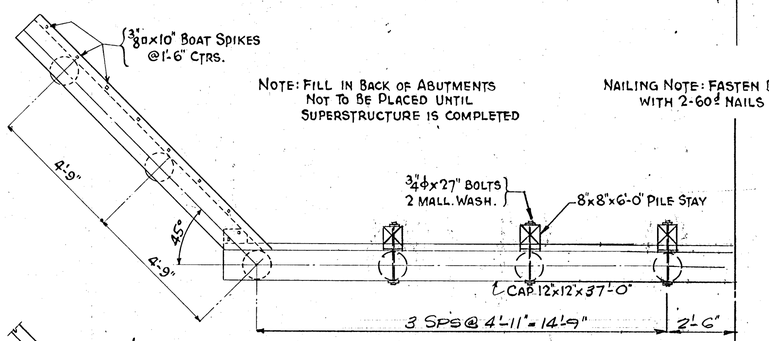
PILE NOTES

4 - TREATED TIMBER TEST PILE 65 FT. LONG.
26 - " " PILES EST. LENGTH 55 FT.
8 - " " WING PILES 30 FT. LONG.
38 " " PILES REQ'D

EST. PENETRATION 2 FT. LESS THAN LENGTH GIVEN. ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 15 TONS PER PILE, EXCEPT WING PILES TO BE DRIVEN TO PILE CUTOFF.

LIST OF SHEETS

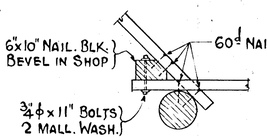
SH. NO.	DESCRIPTION
1	GENERAL ELEVATION - ABUTMENT & PIER DETAILS
2	SUPERSTRUCTURE DETAILS
3	BRIDGE SURVEY
4	BRIDGE SURVEY - PLAN AND PROFILE



NOTE: FILL IN BACK OF ABUTMENTS NOT TO BE PLACED UNTIL SUPERSTRUCTURE IS COMPLETED

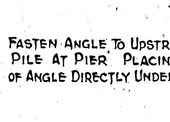
NAILING NOTE: FASTEN BACKING TO PILES WITH 2-60d NAILS AT EA. INTERSECTION

HALF PLAN



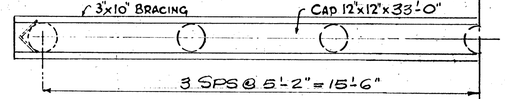
DETAIL OF CORNER NAIL. BLOCK

3"x12"x8'-0" BRACING UPSTREAM ONLY



FASTEN ANGLE TO UPSTREAM PILE AT PIER PLACING TOP OF ANGLE DIRECTLY UNDER CAP

DETAIL OF ICE BREAKER



HALF PLAN

BOLT NOTE:
BOLT PROJECTIONS EXCEEDING 1" SHALL BE CUT OFF. REPAIR END OF BOLT BY PAINTING WITH ALUMINUM PAINT. M.H.D. 3527

B.M. ELEV. 881.22

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	2403.502	2403.506	2452.503	2452.504	2452.517	2402.586	2402.521	2511.501		
ITEM	TREATED TIMBER	HARDWARE	TREAT. TIMB. PILING DELIVERED	TREAT. TIMB. PILING DRIVEN	TREAT. TIMB. TEST PILES IN PL. 65 LG	PLATE RAILING	STRUCTURAL STEEL 20,000	RANDOM RIP RAP CLASS A		
UNIT	M.B.M.	LB.	LIN. FT.	LIN. FT.	PILE	LIN. FT.	LB.	CU. YD.		
QUANTITY	37.28	2470	1670	1602	4	156	805	175		

APPROVED:
E.J. Luxdahlem
COUNTY ENGINEER
DATE 6/20/66

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/20/66
Robert E. Erickson
REG. NO. 2317

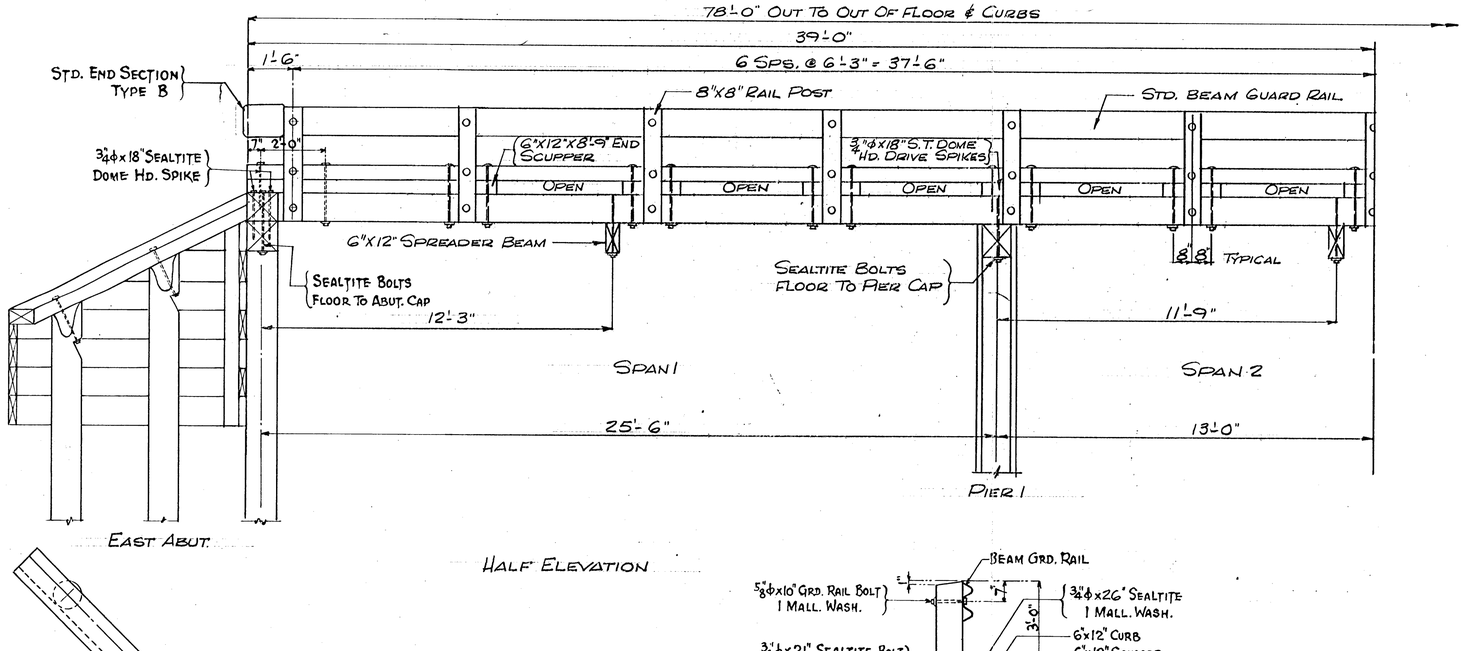
PLANS PREPARED BY
ROBERT E. ERICKSON ENGINEERING CO.
3340 REPUBLIC AVE. ST. LOUIS PARK MINN.

C.S.A.H. NO. 13 ANOKA COUNTY
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

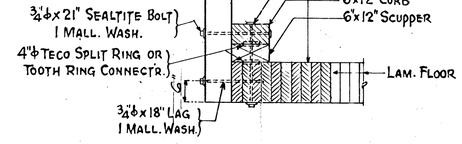
BRIDGE NO 02518
OVER CEDAR CREEK
1 MILE NORTH OF CEDAR
3-26 FT. TREATED TIMBER SPANS
29 FT. ROADWAY
GENERAL ELEVATION AND ABUTMENT AND PIER DETAILS
SEC. 24 TWP 33 N R 24 W
OAK GROVE TWP ANOKA COUNTY

DATE
ASST. BRIDGE ENGR.

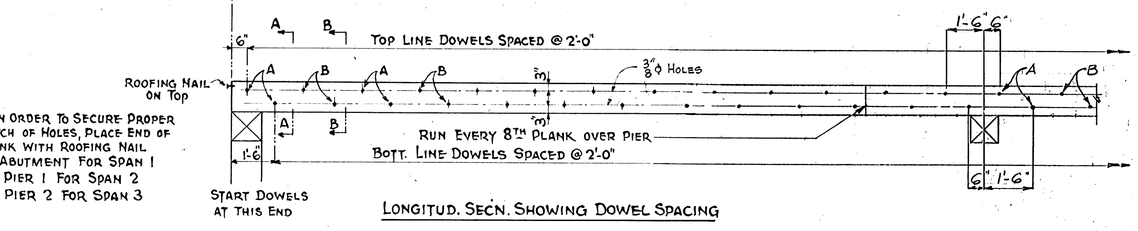
SHEET 1 OF 4 SHEETS
02518



Half Elevation



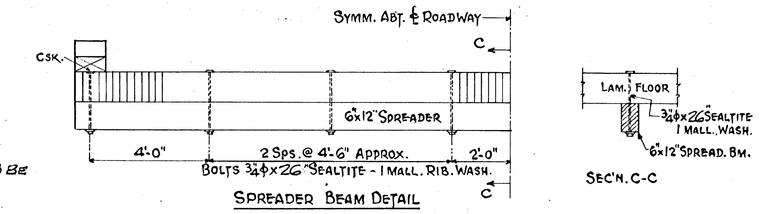
Detail of Rail Post & Curb



Note: In order to secure proper match of holes, place end of plank with roofing nail at Abutment for Span 1 at Pier 1 for Span 2 at Pier 2 for Span 3

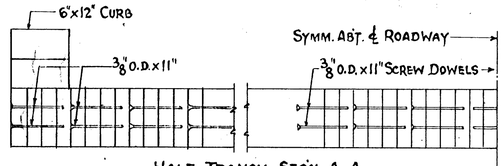
Longitud. Secn. Showing Dowel Spacing

Half Transv. Secn. At Abutments

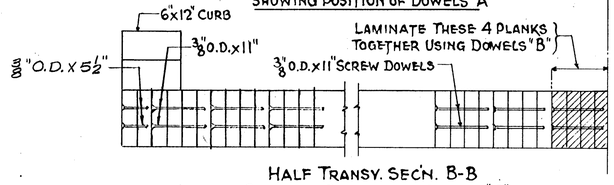


Spreader Beam Detail

Sec'n. C-C



Half Transv. Secn. A-A
Showing Position of Dowels "A"



Half Transv. Secn. B-B
Showing Position of Dowels "B"

Construction Notes

The Minnesota Highway Department's "Standard Specifications For Highway Construction" Dated Jan. 1, 1964 As Ammended By Supplemental Specifications" Dated Feb. 1, 1966 Shall Govern.

Construction Requirements Shall Conform To M.H.D. 2403
All Timber Shall Be As Follows: Rail Posts Shall Be 1900#f M.H.D. 3426
Thickness of Timber 4" or Less Shall Be 1500#f M.H.D. 3426
Thickness of Timber More Than 4" Shall Be 1500#c M.H.D. 3426
All Timber Is Rough Unless Designated.
All Piling & Timber To Be Creosote Pressure Treated As Per M.H.D. 3491
All Piling To Meet Requirements Of M.H.D. 3471
Dowels For Floor To Be Pittsburg Screw & Bolt Double Grip Screw Type - Independent Nail Co. Stronghold or Approved Equal.
Wherever any item is specified by Trade Name An Approved Equal Will Be Allowed.
All Hardware Shall Be Galvanized As Per M.H.D. 3392.

Flooring Note:
Laminate 4 Planks Together Using Screw Dowels In Holes "B" And Toe Nail To Cap, So One Edge Is On ℄ Roadway. Thereafter Place Planks In Pairs. For Pairs On Either Side Of The 4 Planks Drive Dowels In Holes "A." For Succeeding Pairs On Both Sides Of ℄ Use "B" & "A" Alternately.
Before Driving Screw Dowels, Planks Must Be Spiked Together With 60d Nails, So Dowel Holes Are Lined Up And Each Plank Is In Contact With Adjacent Plank Throughout Its Entire Length.
Laminations Must Be Tight Over Entire Roadway.
Teco Split Ring, Tooth Ring Connectors And Single Curve Spike Grids Shall Be Installed By Using Installation Tools & Methods Recommended By The Manufacturer.

Plate Railing Note:- 8309A
Guard Rail To Be As Per M.H.D. Std. Plt. No. 8307C "Plate Railing" To Include Guard Rail, 4 Curved End Terminal Sections, and All Bolts, Nuts and Washers Required To Assemble Railing And Fasten It To Timber Rail Posts. Railing and Curved End Terminal Sections To Be Galvanized After Fabrication As Per M.H.D. 3394. All Bolts, Nuts And Washers To Be Galvanized As Per M.H.D. 3392.
Length Of Railing For Payment To Be Measured From End To End Of Guard Rail. See Special Provisions.
Shop Details To Be Submitted To County For Approval.

Bill of Timber For Superstructure

Item	No.	Fin.	Size	Length	F.B.M.
Laminated Floor	15	S1S	3x12	22'-0	990
" "	15	S1S	3x12	30'-0	1350
" "	342	S1S	3x12	26'-0	26676
Spreader Beam	3	R	6x12	31'-0	558
Rail Posts	26	R	8x8	41'-0	5547
Curb End	4	S4S	6x12	14'-0	336
" Int.	4	S2S	6x12	25'-0	600
End Scupper	4	S4S	6x12	8'-9	210
Int. "	18	"	6x12	2'-0	216
Total F.B.M. For Superstructure					31491

Bill of Timber For Two Abutments

Pile Caps	2	R	12x12	37'-0	888
Abutment Backing	6	R	3x12	35'-0	630
" "	6	R	3x12	16'-0	288
" "	6	R	3x12	21'-0	378
Wing Backing	12	R	3x12	11'-0	396
" "	12	R	3x12	12'-0	432
Wing Corner Nail Blks.	4	3x5 DF	6x10	8'-0	160
O.S. Blocks on Cap	4	R	12x12	3'-0	144
Pile Stays	12	R	8x8	8'-0	384
Wing Caps	4	S4S	6x14	13'-0	364
Fillers	12	R	4x8	1'-6"	48
Total F.B.M. For Two Abutments					4112

△

Bill of Hardware For Superstructure

Unit wt.	No.	Item		Tot. Wt.
	26	5/8ϕx10" Bolts-Hex. Nuts	Rail To Post	
3.33	26	3/4ϕx21" Sealtite Bolts	Post To Curb	87
3.93	24	3/4ϕx26" Sealtite "	Spreader Bms.	94
3.93	14	3/4ϕx26" " "	Floor To Abut. Cap	55
3.93	10	3/4ϕx26" " "	" Pier "	39
3.93	44	3/4ϕx26" " "	Curb To Floor	173
4.65	2	3"ϕx32" "	Floor To Curb	9
2.02	26	3/4ϕx18" Lag Screws	Rail Post To Floor	53
2.30	8	3/4ϕx18" Sealtite Dome Hd. Spikes	Curb To Fl.	18
2.30	8	3/4ϕx18" " " "	O.S. Blk. To Cap	18
.22	72	3/8 O.D. x 5 1/2" Screw Dowels - Floor		16
.40	2382	3/8" O.D. x 11" " " "		953
.43	146	Mall. Rib. Wash. For 3/4ϕ Bolts		63
	26	" " " " 5/8ϕ "		
.70	104	4"ϕ Teco Split Ring or Tooth Ring Conn.		73
10/#		60d Nails		220
		156 Lin. Ft. Plate Railing		
		Total Hardware For Superstructure		1871

□

Bill of Hardware For Two Abutments

Unit wt.	No.	Item		Tot. Wt.
3.78	16	3/4ϕx2'-6" Drifts	Cap To Pile	60
3.74	36	3/4ϕx27" Bolts	Pile Stays	135
1.73	12	3/4ϕx11" "	Wing Cor. Nail. Blks.	21
2.12	8	5/8ϕx22" Sealtite Bolts	Wing Cap To Pile	17
.41	36	3/8"ϕx10" Boat Spikes		15
.43	96	Mall. Rib. Wash. For 3/4ϕ Bolts		41
.28	8	" " " " 5/8ϕ "		2
10/#		60d Nails		40
‡		16 Pcs. Sheet Zinc 20"x20" 12 Ga. Type I Soft M.H.D. 3333		
		Total Hardware For Two Abutments		331 lbs.

Bill of Hardware For Two Piers

Unit wt.	No.	Item		Tot. Wt.
3.78	14	3/4ϕx2'-6" Drifts	Cap To Pile	53
2.72	12	3/4ϕx19" Bolts	Sway Bracing	33
3.12	14	3/4ϕx22" "	" "	44
2.43	8	3/4ϕx17" "	" "	19
3.09	4	3/4ϕx19" Sealtite	Pile Cap To Strut.	12
2.35	14	3/4ϕx16" Bolts	Ice Breaker	33
.70	8	Teco Split Ring or Tooth Ring Conn.		6
.70	40	Teco Single Curve Spike Grids.		28
.43	186	Mall. Rib. Wash. For 3/4ϕ Bolts		37
‡		14 Pcs. Sheet Zinc 20"x20" 12 Ga. Type I Soft M.H.D. 3333		
		Total Hardware For Two Piers		265

Bill of Timber For Two Piers

Item	No.	Fin.	Size	Length	F.B.M.
Pile Cap	2	R	12x12	33'-0	792
Sway Bracing	8	R	3x12	30'-0	720
Struts	2	S4S	6x12	6'-0	72
Bracing	4	2	3x12	8'-0	96
Total F.B.M. For Two Piers					1680
Two Galv. L 8"x8"x2"x15'-0" Ice Breakers					
Total Struct. Steel For Two Piers 805 lbs.					

‡ Included In Price Bid For Other Items.
□ " " " " " Item Plate Railing
△ Wedges Cut 2 From 1 In Shop

Plans Prepared By
Robert E. Erickson Engineering Co.
3340 Republic Ave. St. Louis Park, Minn.

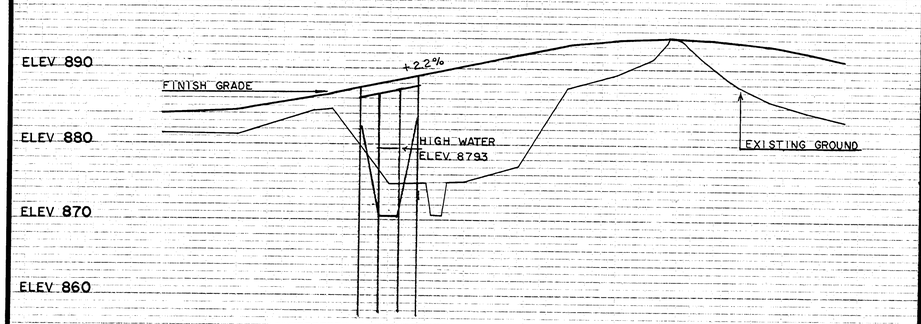
C.S.A.H. No. 13 Anoka County
State of Minnesota
Department of Highways

Bridge No 02518
Superstructure Details

Approved

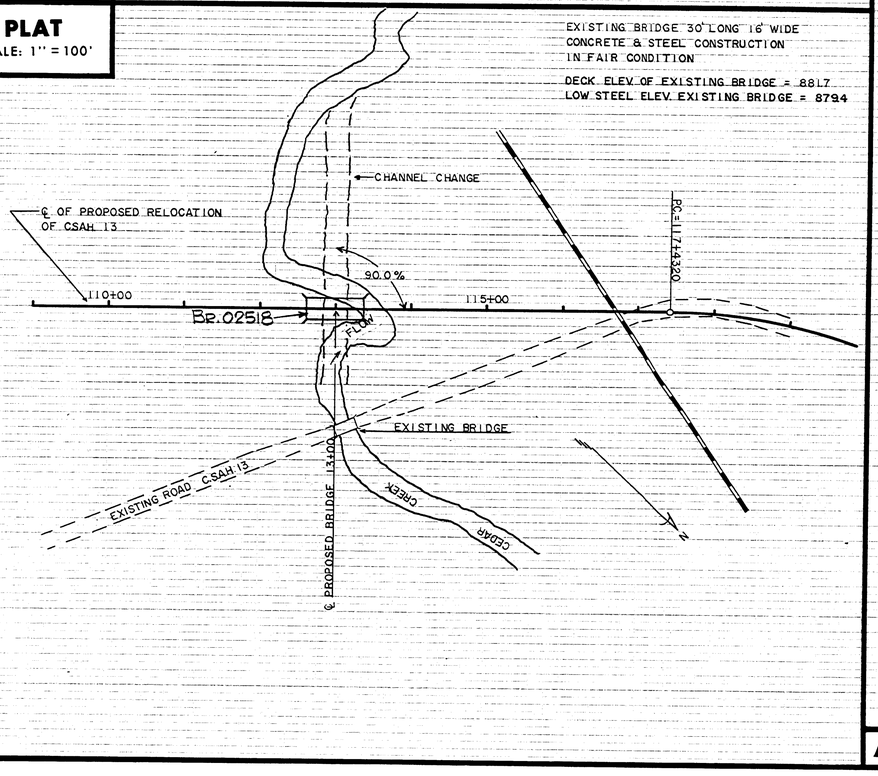
CONTRACTED PROFILE

SCALE: HOR. 1" = 100' VER. 1" = 10'



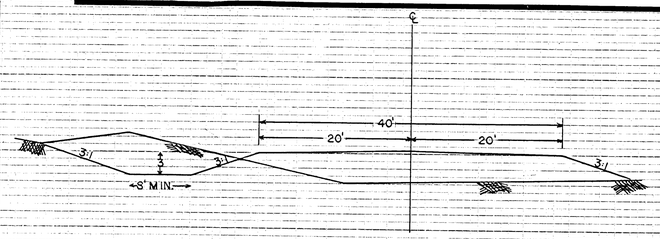
PLAT

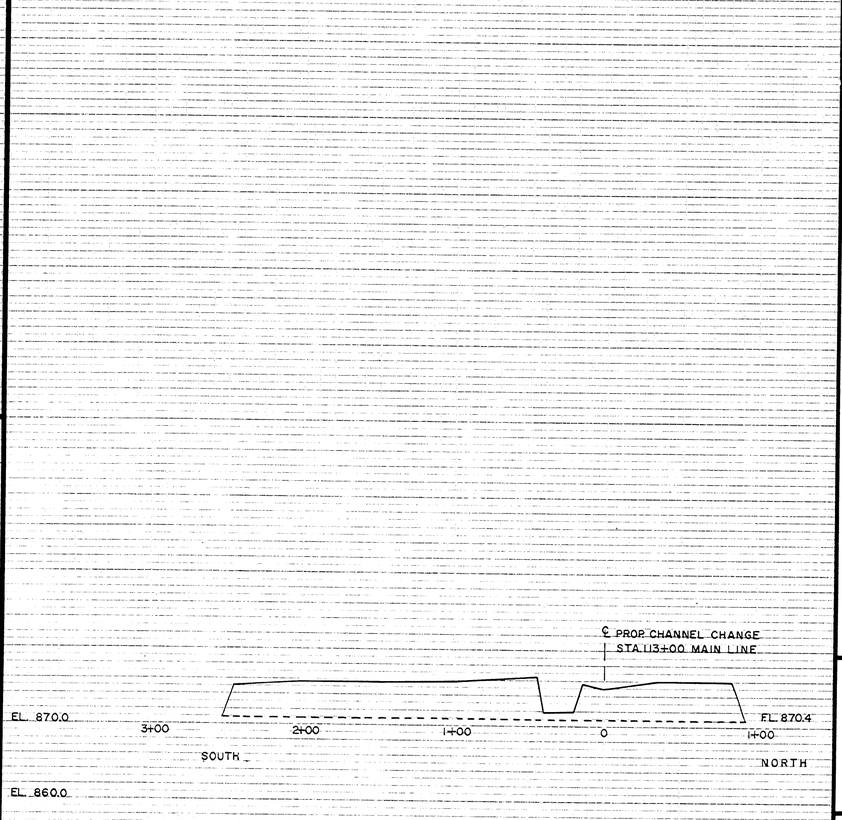
SCALE: 1" = 100'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



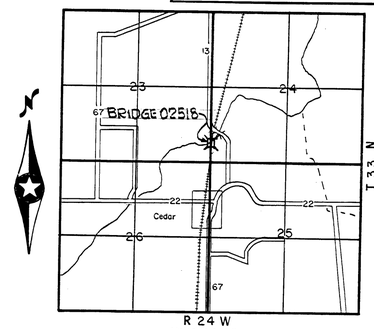


PROFILE OF CHANNEL CHANGE

B.M. ELEV. 881.22 (M.S.L. 19 ADJ.)

SEE SHEET 4 OF 4 SHEETS FOR PLAN AND PROFILE

Fed. Proj. No. S-7417 (1)



R 24 W
INDEX MAP
(FOUR SECTIONS)

FOLLOW SEPARATE "INSTRUCTIONS FOR PREPARATION OF BRIDGE SURVEYS" WHEN MAKING BRIDGE SURVEYS.

DATA

1. Preliminary recommendations of Engineer in charge of Bridge Survey.
   a. Net span length and type of bridge.... 78' 13 Spans (@ 26') Treated Timber Bridge
   b. Width of roadway on bridge.... 29'-0" Clear
   c. Number and width of sidewalks, if any .... NONE
   d. Locate center of bridge at station .... 113+00
   e. If a skew bridge is recommended, the angle of skew should be .... None
   f. Is piling required? .... YES
2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.
   None
3. Changes: In height or length from that of old bridge, and reasons why .... RELOCATION OF ROAD
4. Other bridges in vicinity:
   a. Over same stream (particularly structures which carry high water without overflow of roadway); give location, length, height above water, net cross-sectional area at high water stage and estimated age .... APROX. 2 MILES UPSTREAM 1-30' SPAN STEEL & CONCRETE LOW STEEL 5' ABOVE CREEK BOTTOM NET CROSS SECTIONAL AREA 150 SQ. FT. AGE APPROX. 38 YRS.
   b. Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age ....
   c. Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be ....
5. If structure is over a drainage ditch, is ditch gradient liable to be altered? .... NO
6. Navigation clearances required, if any .... NO
7. Information and evidence in regard to high water stages was obtained as follows.... LOCAL RESIDENTS
8. Must contractor provide for traffic during construction of proposed bridge? .... NO
   If so, by what means? ....

HYDRAULIC ENGINEERS RECOMMENDATION

HIGH AND LOW WATER ELEVATIONS

Data obtained from.... LOCAL RESIDENTS .... reflects highest water elevation in the area of this construction to be.... 879.5 .... and the lowest water elevation to be.... The above figures are for informational purposes only. The state neither warrants nor represents that these figures for high water and low water are in any way indicative of the high water or low water to be expected or encountered during this construction.

SHIPPING POINT

Proposed Bridge is.... 1 .... miles .... NORTH .... of * .... CEDAR .... which is the nearest Railroad shipping point.

*(Give name of town, station or siding)

.... Date .... County Engineer

.... Date .... District Engineer

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

FOR

PROPOSED BRIDGE LOCATED .... 1 .... MILES .... NORTH .... OF .... CEDAR .... (TOWN OR CITY) .... ON .... C.S.A.H. 13 .... (T.H., C.S.A.H. OR C.A.R. NUMBER)

SEC. .... 24 .... TWP. .... 33 N .... R. .... 24 W

TOWNSHIP .... OAK GROVE .... COUNTY .... ANOKA

SURVEY MADE DURING MONTH OF .... DEC. 19 65

SURVEY MADE BY .... E.J. LUNDHEIM

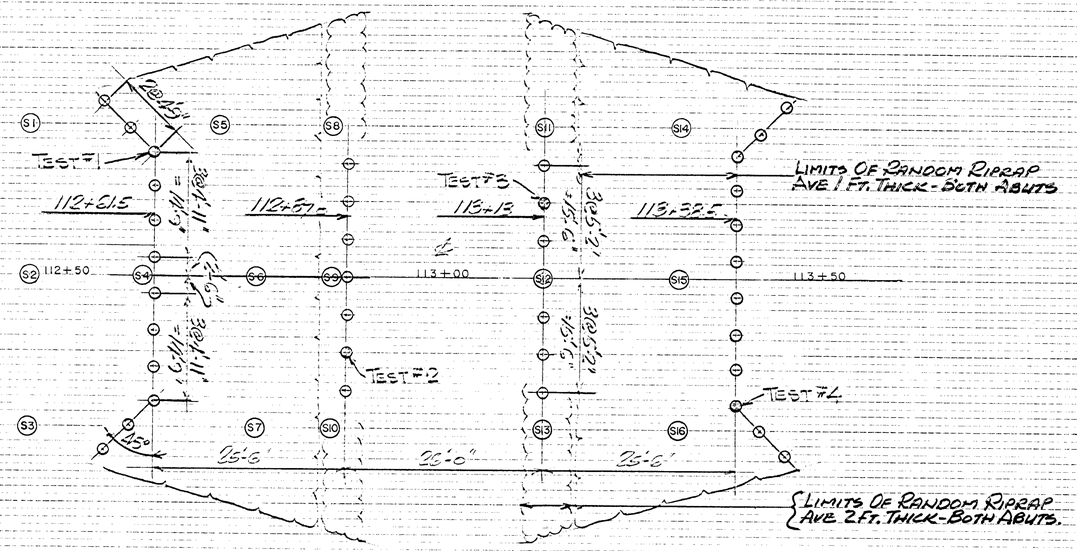
BRIDGE NO. 02518

Bridge Survey Sheet (Sheet 1 of 2)

Area No. **Job No.** **State Proj. No.** 02-613-01 **Sheet No.** 3 **of** 4 **Sheets**

Fed. Proj. No. S-7417(1)

SCALE: 1" = 10'



Limits of Rand Riprap as shown are approx. only. Exact limits to be determined by the Engineer in field.

CENTER LINE OF LAYOUT

ELEV

ELEV 890.0

ELEV 880.0

ELEV 870.0

ELEV 860.0

ELEV 850.0

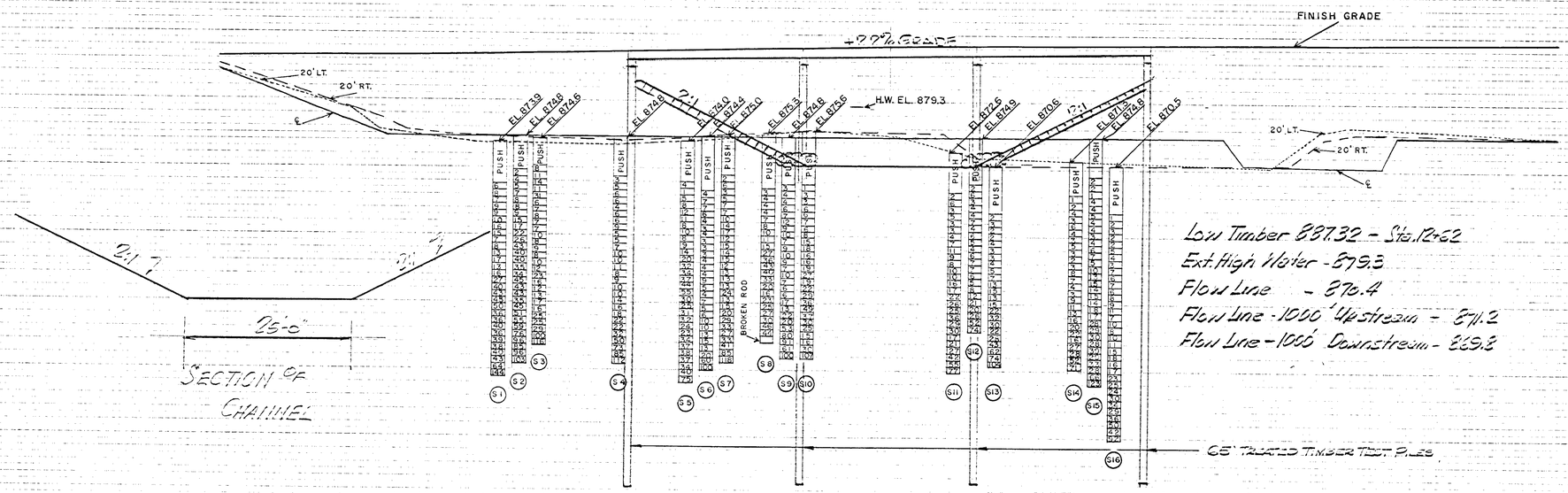
ELEV

ELEV

ELEV

ELEV

ELEV



Low Timber 887.32 - Sta. 112+62
Ext. High Water - 879.3
Flow Line - 870.4
Flow Line - 1000' Upstream - 871.2
Flow Line - 1000' Downstream - 869.3

B.M. ELEV. 881.22 (M.S.L. 19 ADJ.)

SOUNDINGS TAKEN WITH
STANDARD 50 LB. HAMMER
1/2" ◊ ROD 2' DROP

BORINGS SHOWN T TAKEN WITH
STD. 140 LB. HAMMER
30 INCH DROP
2 INCH O.D. SAMPLER

TRUNK HIGHWAY NO.
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02518

BRIDGE SURVEY
PLAN AND PROFILE

SEE SHEET NO 3 FOR ADDITIONAL INFORMATION

State Proj. No. 02-613-01

Sheet No. 4 **of** 4 **Sheets**

Bridge Survey Sheet (Sheet 2 of 2)