Purchasing Division, Finance Department
218-730-5340 | purchasing@duluthmn.gov
Room 120 | 411 West First Street | Duluth, Minnesota 55802
www.duluthmn.gov

Addendum 1
Solicitation 26-99547
Lakewalk and Coastal Improvement Project

This addendum serves to notify all bidders of the following changes to the solicitation documents:

1. The deadline for questions has been extended to the end of day Monday, July 6, 2026**.** Answers will be provided via an Addendum issued by end of day, Wednesday, July 8, 2026.
2. The bid due date and time has been extended to Monday, July 13, 2026, at 2:00 pm central time.
3. Attached are notes and a sign-in sheet from the pre-bid meeting on June 22, 2026.
4. All work west of the line in the image below can be started prior to September 26th. The path east of the line needs to remain operational until after September 26th. Grubbing and brushwork could be done east of the line as long as it doesn't impede the use of the trail.

Additional questions asked are answered in *italics* below.

5. Project staging – plan pages 135 – 142. Can all these stages be worked on simultaneously or are there specific requirements by stage that need to be followed. Considering the total amount of work associated with each stage (total project) and the timelines for completion there will be a need to work them simultaneously. *Scopes of work started on in 2026 must have a fully functional and operational trail by the start of the winter season 2026 or end of construction season due to ground freezing conditions. Contractor may not leave the site due to winter conditions unless the trail is completed and open to the public. Anything outside the trail corridor may be closed for the season due to ground freezing conditions.*
6. Are there designated access points to each of the stages that will be required to be used during construction shown on any of the plan pages? *Specific access points are not designated, and it will be up to the contractor to propose their means and methods of access for the City's approval.*
7. Will access in stage 1 be allowed using the existing trail segment at Endion Station not called out as part of stage 1 construction? *Yes, access for stage 1 could use the existing gravel carriage trail to the south of the Endion Station building.*
8. Per the typical details shown on plan sheet 30, class 5 is incidental to both proposed concrete and bituminous surfaces. Is the excavation for the engineered section covered within the common excavation pay item or is it incidental to the corresponding pay items? *Excavation and aggregate base are incidental for the concrete items (walk, curb and pavement) per note 12 in the SEQ. Aggregate base is incidental for the bituminous trail but the earthwork (including excavation for the engineered section) quantities are included in the earthwork quantities in chart H.*
9. For the site furnishings called out in the SEQ, is the concrete shown in the details incidental to the pay item or covered in the concrete items associated with the SEQ? *The concrete pads for the site furnishings are included in the concrete items in the SEQ.*
10. Earth Retention System – Plan sheet 111 calls out the location of the required system and the depth of refusal. Are the depths of the existing bridge columns known? *The historic plan for the bridge is attached.*
11. Note 2 plan sheet 135 & note 3 plan sheet 136 call out coordination of the closure of the parking ramp at Fitgers. What is the allowed duration of this closure? *The City has been in communication with Fitgers, and they are aware of the scope of work in this area. It has been communicated that construction traffic will be going in an out at this location during the duration of the work. Upon contract award, the awarded contractor will need to propose their schedule for this location and the City will coordinate the scope and schedule with Fitgers in close coordination with the awarded contractor.*
12. Are details for the picnic shelter included anywhere in the plan set? There are items included in the special provisions under LA-2.2 picnic shelter but no details to support what work scope needs to be included in the pay item. *No details for the shelter are provided in the plan, beyond the dimensions, this will be a product & shop drawing submittal.*
13. If questions that were asked prior to the question cutoff date of July 1st are not answered via the addendum or require additional clarification will the question cutoff date be extended? Considering the loss of July 3rd because of the 4th of July holiday and a bid date of July 9th there may need to be further questions asked beyond the cutoff date. *Please refer to items number 1 and 2 above.*
14. With a question cutoff of July 1st, when will the addendum be issued relative to this date? Again, with July 3rd as a holiday and a bid date the week after it is critical to have a timely response to better understand the project for bidding purposes. *Please refer to items number 1 and 2 above.*

Please acknowledge receipt of this Addendum by checking the acknowledgement box within the solicitation at www.bidexpress.com.

Posted: July 1, 2026

Attachments:

- Pre-bid meeting notes
- Pre-bid meeting sign-in sheet
- Bridge historic plan

26-99547 Pre Bid meeting for Lakewalk and coastal improvement project 6/22/26

The following are questions asked in the pre-bid meeting (in italics) and their subsequent answers.

1.There are two ordinary high water marks on the coastal plan, which one should be used?

-DNR determines based on vegetation; USACE sets based on water level. Both are needed for permits.

2. Why did we include a line item for barge work?

- Barges may be used for some of the coastal work such as transporting the armor stones and equipment to the shoreline north of Fitgers. It's a lot of rock to have to haul down the section of improved trail between the Vietnam Veterans Memorial and the Portland Malt Shop steps. For bidders who will not be using a barge, a price of $0.00 can be entered on the bid form.

3. What is the Bat window for this project.

-We have an exemption from the bat and bird window. We can start taking trees down during the summer starting 8/15. There is a spring window; but we'd need a separate exemption for that. All dates are in section SP regarding animals.

4. What are the "hand placed" armor stones in the bid doc?

-Hand placed toe stone means carefully placed. Got creative with bid items to use MNDoT items wherever possible. Same scope we've been doing for the last 4-5 phases.

5. Any testing requirements for stone used?

- If they have been tested in the last 5 years, they are good.

6. Any MNDOT escalation provisions?

-Yes

7. Locations for staging areas and site access?

- Noted on the plans

8. Can contractor completely close portions of the trail during work?

-Yes

9. Can retaining wall at the corner of the lake be cut to make an access point?

-There should be no need to, there are other access points already.

Other Notes

-Schedule is critically important. Need at least one billing in September.

-Work that's started this year must be wrapped up for winter; trail needs to be fully functional over winter. Trail gets plowed and is a transportation corridor, people use it in the winter to commute.

-Bid award will be the base bid and as many alternates as we can award *in numerical order* under the stated contract award amount, which will be announced at the beginning of the bid opening.

-Build America, Buy America Act is applicable to this project. It requires that all steel, iron, manufactured products and construction materials be produced in the US. Certifications or waivers from suppliers are required and must be retained in the project files.

-Signs are a specialty package. Some metal work, specialty sign panels.

-Ulland has a project happening right now that will tie in to this one. Will need to coordinate.

1

SIGN-IN SHEET

PROJECT: 26-99547 Lakewalk and Coastal Improvement Projec Pre-Bid Conference

DATE: 6/22/2026 **TIME: 1:15 PM** **LOCATION: 411 West First Street, Duluth MN 55802**

NAME	COMPANY	PHONE	E-MAIL
Megan Goplin	LHB	218-249-7152	megan.goplin@LHBcorp.com
John Pesonen	Northland Constructors	218-591-5646	john.pesonen@northlandconstructors.us
Duncan Schwensohn	COD	218-730-5107	dschwensohn@duluthmn.gov
Lyssa Goranson	Hunt Electric	210-940-1709	lgoranson@huntelec.com
Max Wyatt	Hunt Electric	218-408-0019	MWyatt@huntelec.com
Ryan Dagger	AMI	218-348-1996	ryan.dagger@amiengineers.com
Rachel Johnson	LHB	612-5106681	Rachel.Johnson@LHBcorp.com
Ashley Olson	AMI	612-860-0187	Ashley.Olson@AMIENGINEERS.com
Patti Stalvig	COD	218-730-5340	purchasing@duluthmn.gov
[illegible]	COD	218 730-4415	[illegible]
Kaeber Andringa	COD	218-730-4433	Kandringa@duluthmn.gov

(2)

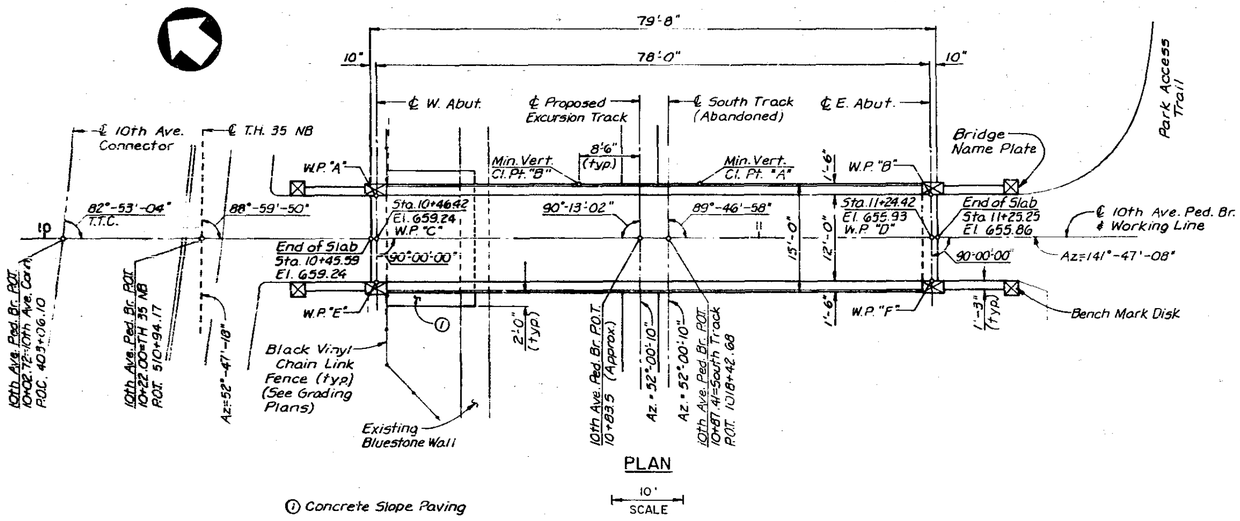
SIGN-IN SHEET

PROJECT: 26-99547 Lakewalk and Coastal Improvement Projec Pre-Bid Conference

DATE: 6/22/2026 **TIME: 1:15 PM** **LOCATION: 411 West First Street, Duluth MN 55802**

NAME	COMPANY	PHONE	E-MAIL
Mike Friend	Rachel Contracting	(218) 355-8487	mfriend@rachelcontracting.com
Mason Ericksan	rachel	218 591 2474	mericksan@rachelcontracting.com
Kevin Hayward	Ulland	218-576-2502	khayward@ulland.com
Joe Ryan	URBAN Co	320 2914465	JRYAN@URBANCOMPANIES USA.com
Jon Brostowitz	Veit	218 350 1037	Jon.Brostowitz@Veitusa.com
Andy Dammer	Veit	218-341-1843	Andy.Dammer@Veitusa.com
~~DAN Tellar~~	VERSACON	763-391-5610	~~bids~~ bids@versaconinc.com
Heath Linc	KGM Contractors	218 780-9267	heath@kgmcontractors.com

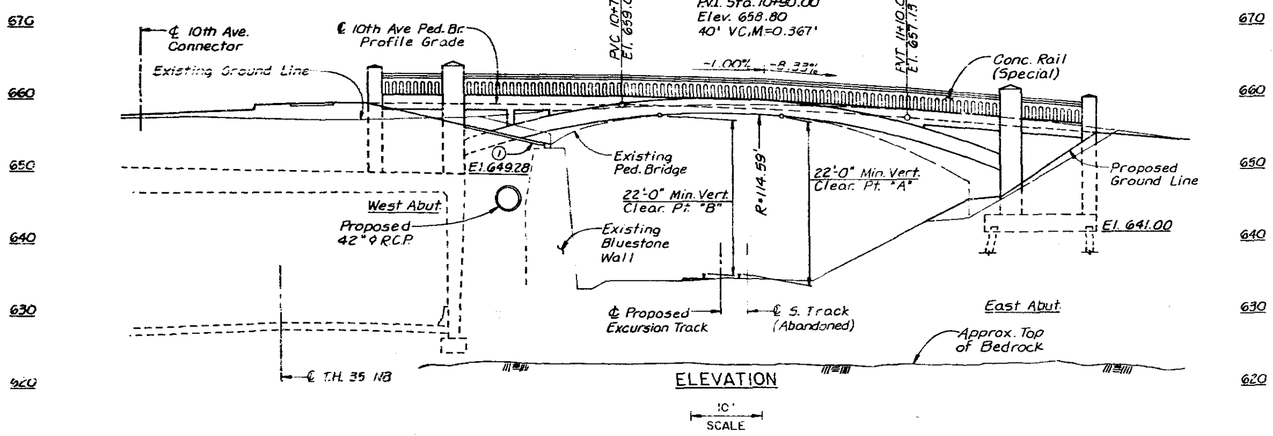
Federal Proj. No. ID 035 - 6(254)



PLAN

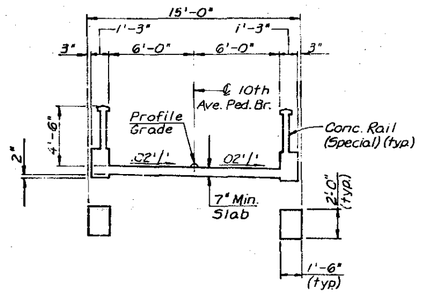
① Concrete Slope Paving

10' SCALE



ELEVATION

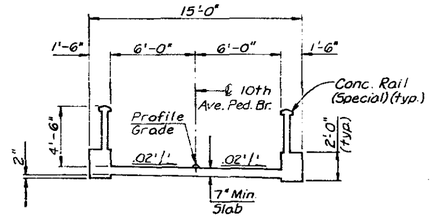
10' SCALE



TYPICAL SECTION

(Near End of Span)

5' SCALE



TYPICAL SECTION

(At Center of Arch)

5' SCALE

DESIGN DATA

1983 and Current Interim A.A.S.H.T.O. Design Specifications.

H20 Design Loading

Load Factor Design Method

Maximum Allowable Design Stresses:
Reinforced Concrete:
f'c = 4,000 p.s.i. n = 8
fy = 60,000 p.s.i. Reinforcement

Deck Area	1195 Sq. Ft.

CONSTRUCTION NOTES

The 1988 edition of the Minnesota Department of Transportation "Standard Specifications for Construction" shall govern.

The first digit or the first two digits of each bar mark indicate the bar size.

Bars marked with the suffix "E" shall be epoxy coated.

Park Access must be maintained at all times. See Special Provisions for Staging Requirements.

Wingwalls should not be placed until after forms are removed from Superstructure to minimize Shrinkage stresses.

SHEET INDEX

SCHEDULE OF QUANTITIES FOR BRIDGE 69804

ITEM NO.	2401.501	2401.511	2401.513	2401.541	2401.541	0401.601	0401.612	2402.585
ITEM	STRUCTURE CONCRETE (1A43)	STRUCTURE CONCRETE (3Y43)	TYPE SPECIAL RAIL CONC (3X46A)	REINFORCEMENT BARS	REINFORCEMENT BARS (EPOXY COATED)	STRUCTURE EXCAVATION	SPECIAL SURFACE FINISH (COLOR SYSTEM)	PIPE RAILING
UNIT	CU. YD.	CU. YD.	LIN. FT.	POUND	POUND	LUMP SUM	SQ. FT.	LIN. FT.
QUANTITY	27 (P)	110 (P)	205 (P)	1780 (P)	31430 (P)	1	5770 (P)	205
ITEM NO.	2514.501	2452.510	2452.511	2452.520	0452.602	0502.603		
ITEM	SPECIAL CONCRETE SLOPE PAVING	STEEL H-PILING DRIVEN 10"	STEEL H-PILING DELIVERED 10"	STEEL H-TEST PILE 30' FT LONG 10"	PILE TIP PROTECTION 10"	DRAINAGE SYSTEM TYPE B910		
UNIT	SQ. YD.	LIN. FT.	LIN. FT.	EACH	EACH	LUMP SUM		
QUANTITY	640 (P)	28 (P)	160	160	1	9	1	

AREA NO. 15 JOB NO. 466 REVIEWED BY R.J. MILLER DESIGN UNIT State Proj. No. 6982-69804 (T.H. 35=396)

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

I hereby certify that these Plans, Sheets 1-14, were 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.

Amado J. Romano
Date 2/15/89 Reg. No. 7477

TRUNK HIGHWAY NO. 35
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

GENERAL PLAN & ELEVATION

PEDESTRIAN BRIDGE OVER
PROPOSED EXCURSION TRACKS
0.8 MILES NE. OF JCT T.H. 35
AND LAKE AVE. (IN DULUTH)

75' CONCRETE ARCH
MINNESOTA SUPERSTRUCTURE ID NO. 112

SEC. 23 TWP. 50N R14W

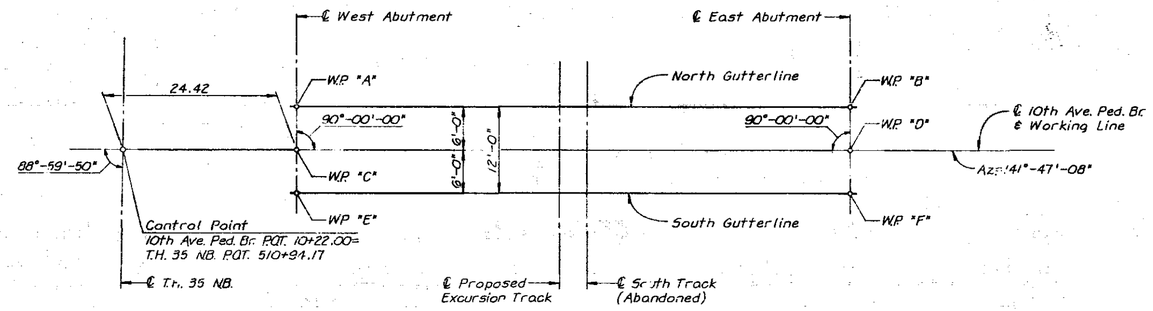
APPROVED: 2-10-89 ST. LOUIS COUNTY

BRIDGE ENGINEER DEPUTY DIVISION DIRECTOR

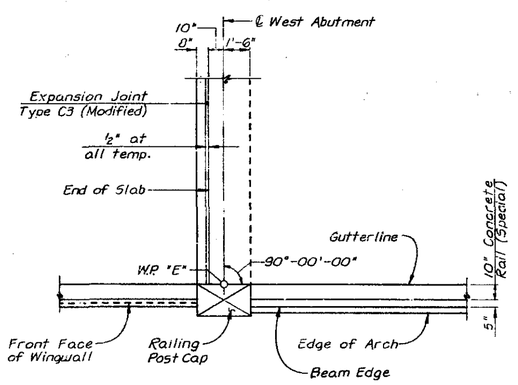
DRAWN BY DJR CHECKED BY DRS IN CHARGE OF JTW

SHEET 1 OF 14 SHEETS 69804

GENPLAN4



WORKING POINT LAYOUT



SOUTHWEST CORNER

(All other Corners similar)

DIMENSIONS BETWEEN WORKING POINTS								TOP OF ROADWAY ELEVATION	W.P. COORDINATE TABLE		POINT	FIELD POINT NUMBERS
									COORDINATES			
POINT	STATION	A	B	C	D	E	F		NORTH	EAST		
A	10+46.42							659.36	49797.56	254363.25	A	
B	11+24.42	78.00						656.05	49736.28	254411.50	B	
C	10+46.42	6.00						659.24	49793.85	254358.53	C	
D	11+24.42	78.23	6.00	78.00				655.93	49732.57	254406.76	D	
E	10+46.42		78.92	6.00				659.12	49790.14	254353.82	E	
F	11+24.42	78.92		78.23	6.00	78.00		655.81	49728.86	254402.07	F	

NOTES:

All distances shown are straight line horizontal distances measured in feet.

All Coordinate values shown are project coordinates defined in feet.

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

BRIDGE LAYOUT

APPROVED: 7-12-89

DRAWN BY DJR CHECKED BY DRS IN CHARGE OF JTW

SHEET 2 OF 14 SHEETS 69804

526184

BRLAY4

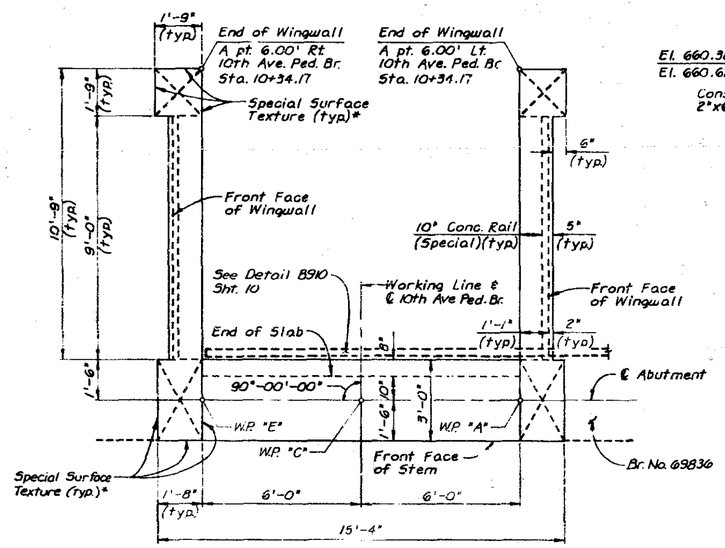
SUMMARY OF QUANTITIES FOR WEST ABUTMENT

	Structure Concrete (3Y43)	28	Cu. Yd.
	Reinforcement Bars (Epoxy Coated)	7370	Pound
①	Special Surface Finish (Color System)	290	Sq. Ft
①	Special Surface Texture	160	Sq. Ft

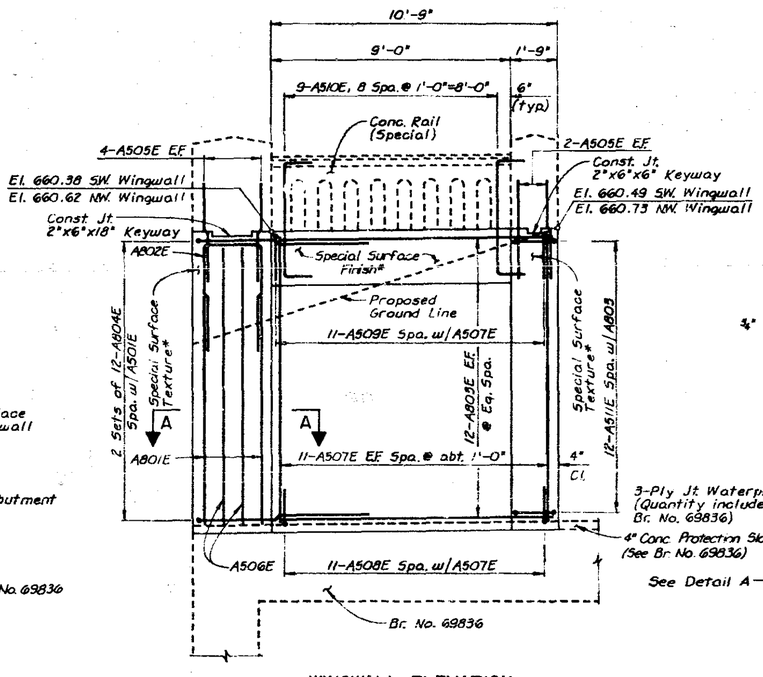
① See Special Provisions

COMPUTED SOIL PRESSURE K/SQ. FT.

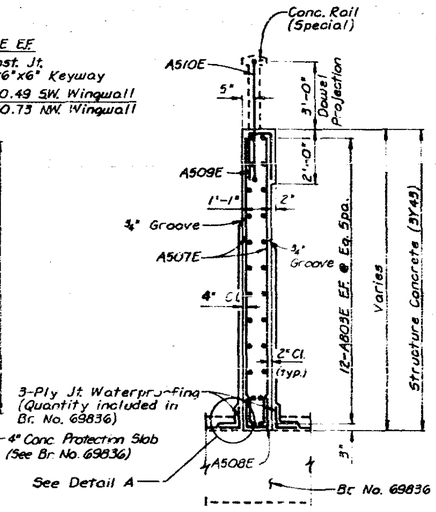
D.L.+ E.P.	LIVE LOAD	DESIGN LOAD
3.8	1.6	5.4



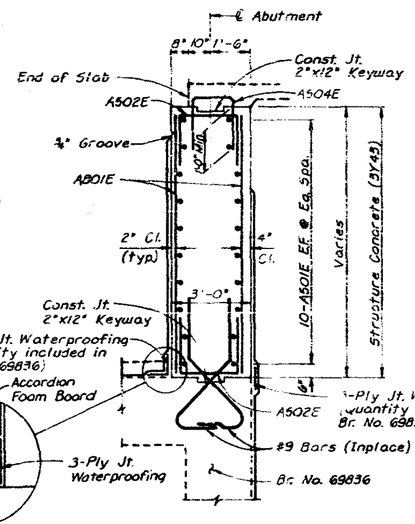
PLAN



WINGWALL ELEVATION



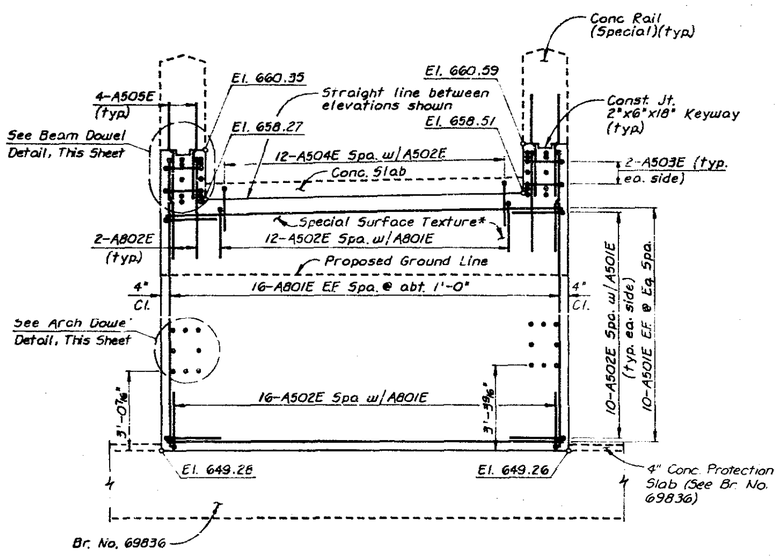
TYPICAL WINGWALL SECTION



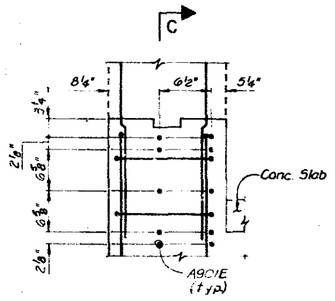
ABUTMENT SECTION
(Located Between Rail Posts)

DETAIL A
(For Waterproofing Details & Quantities see Br. No. 69836)

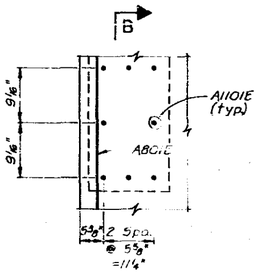
*See Special Provisions.



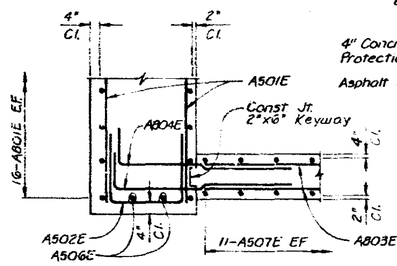
ELEVATION



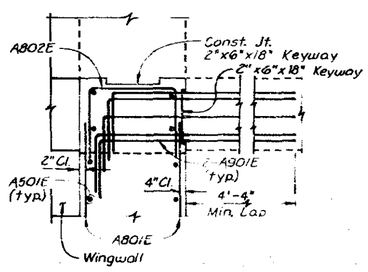
BEAM DOWEL DETAIL



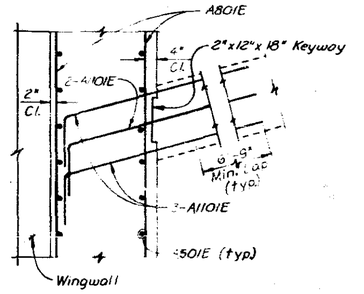
ARCH DOWEL DETAIL



SECTION A-A



SECTION C-C



SECTION B-B

NOTES:

For Bill of Reinforcement, see Sheet 8.
For Bar Bend Details, see Sheet 8.
For Surface Treatment Details and Notes see Sheet 7.
For Drainage Details, see Sheet 10.
For Waterproofing Details and Quantities see Br. No. 69836.
¾" Groove is located 1½ below ground line, see Waterproofing Details, Br No. 69836.
Contractor must repair any punctures in the Membrane Waterproofing, see Special Provisions.

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

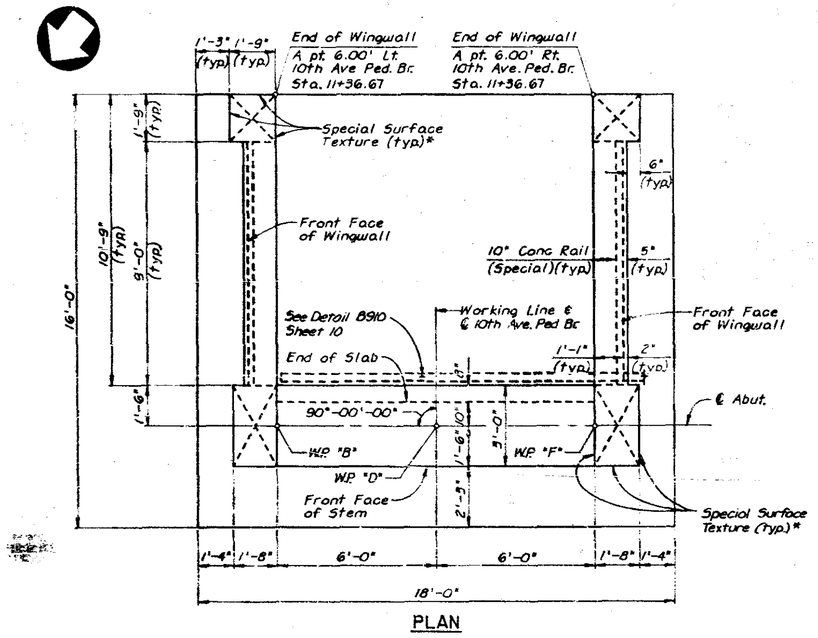
WEST ABUTMENT

APPROVED 7-13-89

DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW

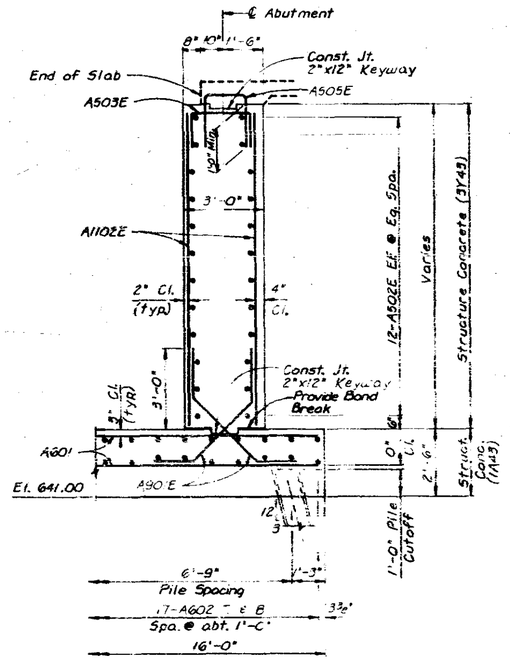
SHEET 3 OF 14 SHEETS 69804

WABUT4



PLAN

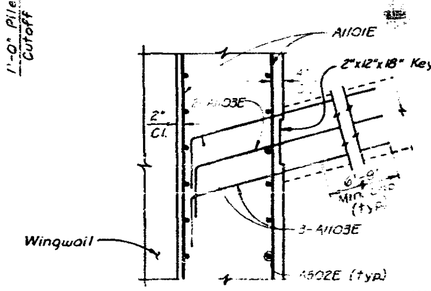
* See Special Provisions.



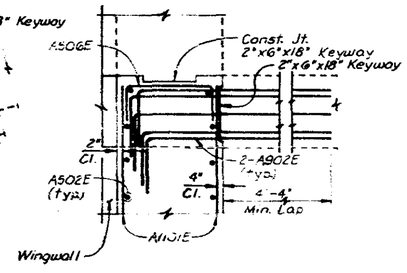
ABUTMENT SECTION
(Located between Rail Posts)

SUMMARY OF QUANTITIES FOR EAST ABUTMENT		
Structure Concrete (1A43)	27	Cu. Yd.
Structure Concrete (3Y43)	34	Cu. Yd.
① Structure Excavation	130	Cu. Yd.
Reinforcement Bars	1780	Pound
Reinforcement Bars (Epoxy Coated)	8400	Pound
② Steel H-Piling Driven 10"	160	Lin. Ft.
② Steel H-Piling Delivered 10"	160	Lin. Ft.
Steel H-Test Pile 30' Long 10"	1	Each
④⑤ Pile Tip Protection, 10"	9	Each
④ Special Surface Finish (Color System)	510	Sq. Ft.
④ Special Surface Texture	510	Sq. Ft.

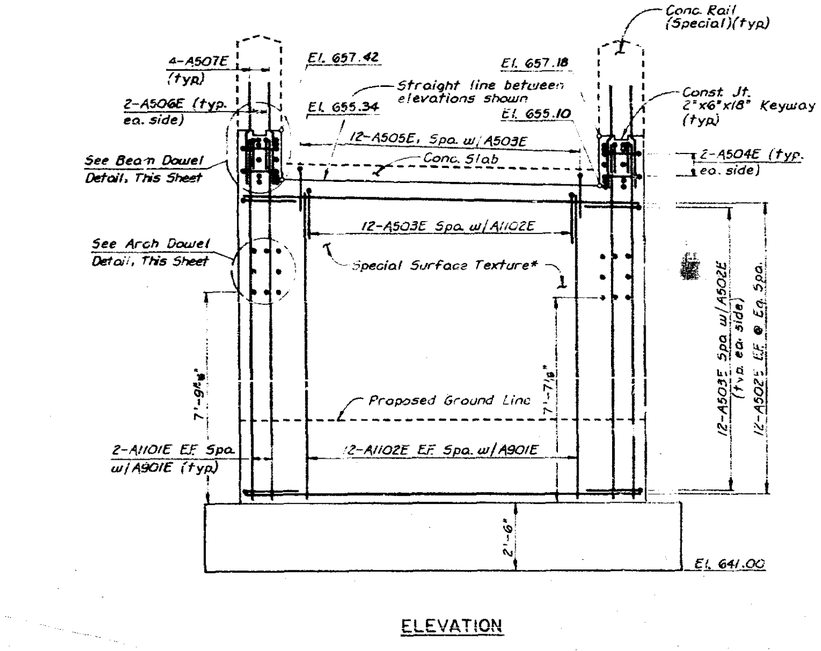
① Computed Quantity for Informational Purposes Only.
② Does not include test piles.
③ Pile Tip Protection shall be capable of penetrating sloping rock surface.
④ See Special Provisions.



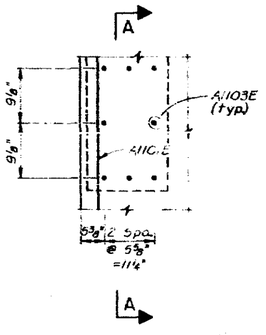
SECTION A-A



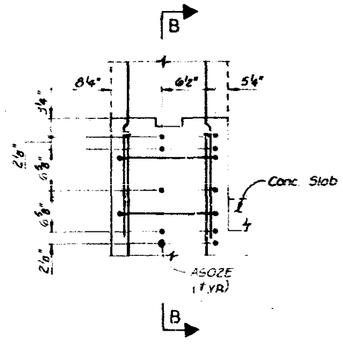
SECTION B-B



ELEVATION



ARCH DOWEL DETAIL



BEAM DOWEL DETAIL

NOTES:

For Pile Notes & Pile Schedule, see Sht. 5.
For Abutment Notes, see Sheet 3.

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

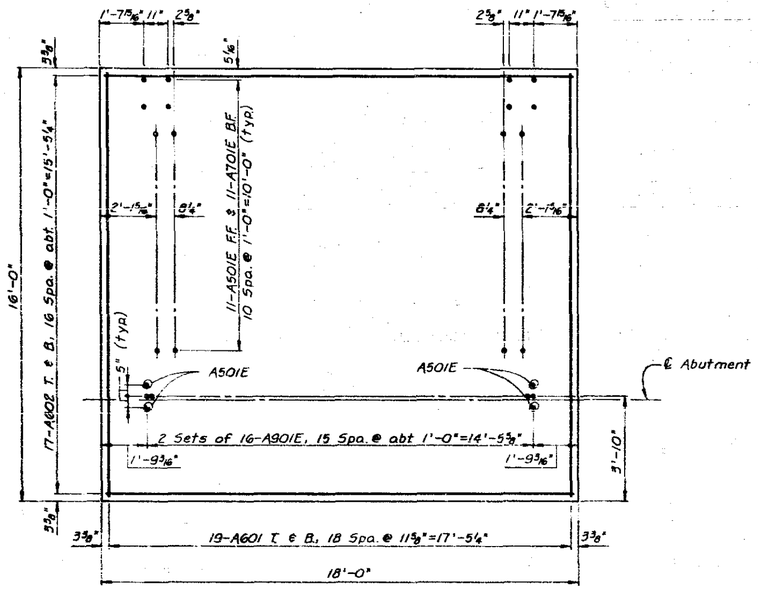
EAST ABUTMENT
(SHEET 1 OF 2)

APPROVED 7-16-89

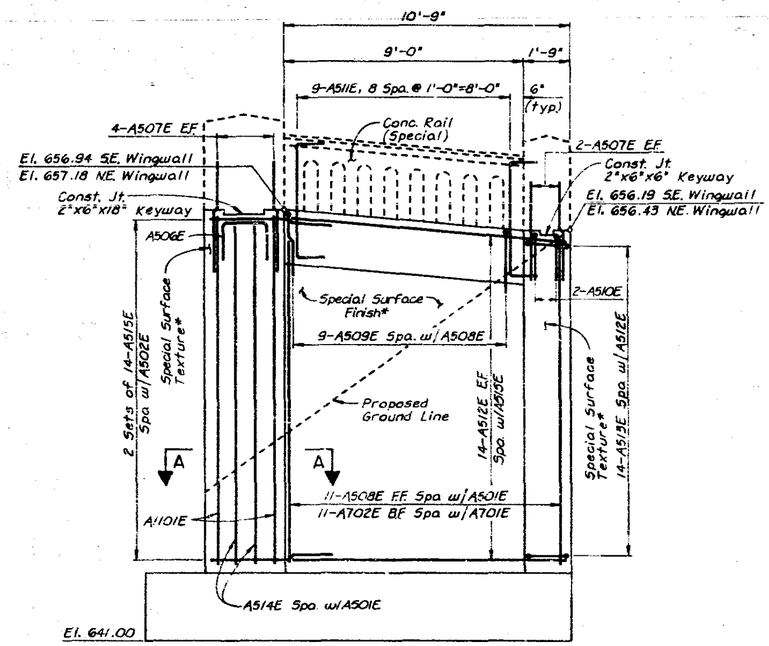
DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW

SHEET 4 OF 14 SHEETS 69804

EABUT4

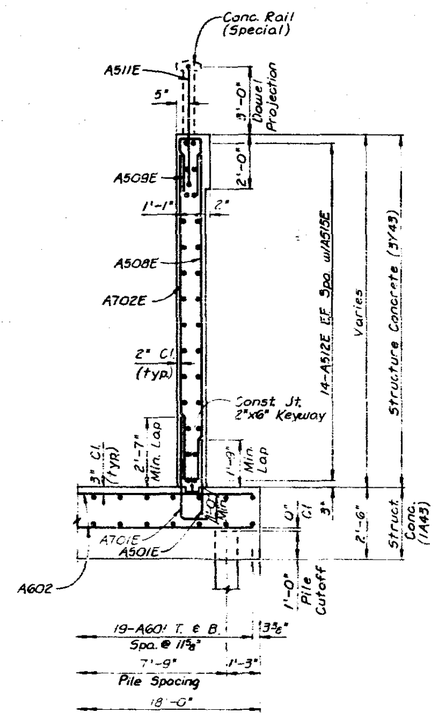


FOOTING REINFORCEMENT

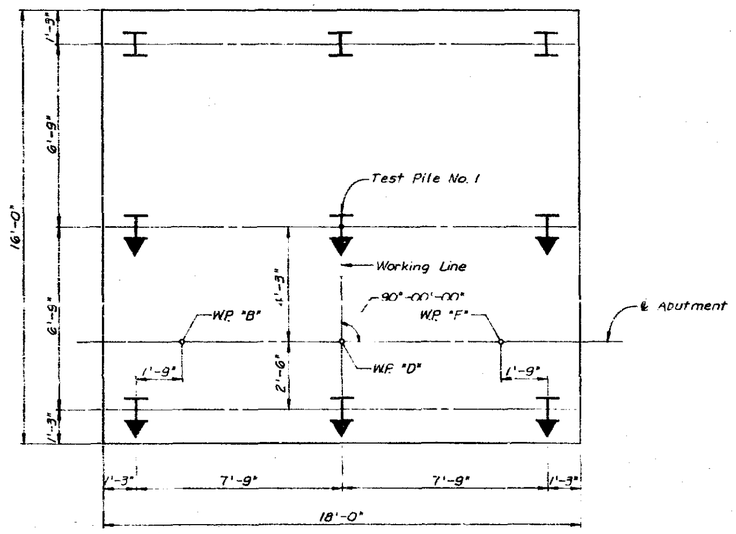


WINGWALL ELEVATION

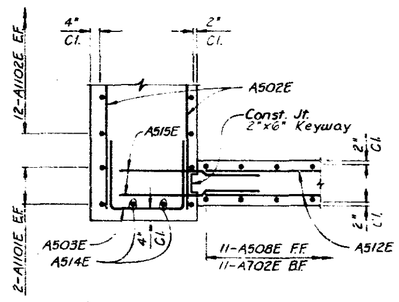
* See Special Provisions.



TYPICAL WINGWALL SECTION



PILE PLAN



SECTION A-A

PILE SCHEDULE					COMPUTED PILE LOAD TONS PER PILE		
TEST PILES		FOUNDATION PILES		TOTAL			
NO.	LENGTH	NO.	LENGTH	NO. ①	D.L.+ E.P.	LIVE LOAD	DESIGN LOAD
1	30'		20'	9	44.4	6.0	50.4

① Total Includes Test Piles

PILE NOTES:

Pile Spacing Shown is at Bottom of Footing.
Piles Marked ↦ are to be Battered 3 Inches Per Foot in Direction Shown.
All Piles to be HP 10X57.
Piles marked ⊢⊣ are test piles.
Pile Points shall be capable of penetrating sloping rock surface. (See Special Provisions.)

For Abutment Notes, see Sheet 3

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

EAST ABUTMENT
(SHEET 2 OF 2)

APPROVED

DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW

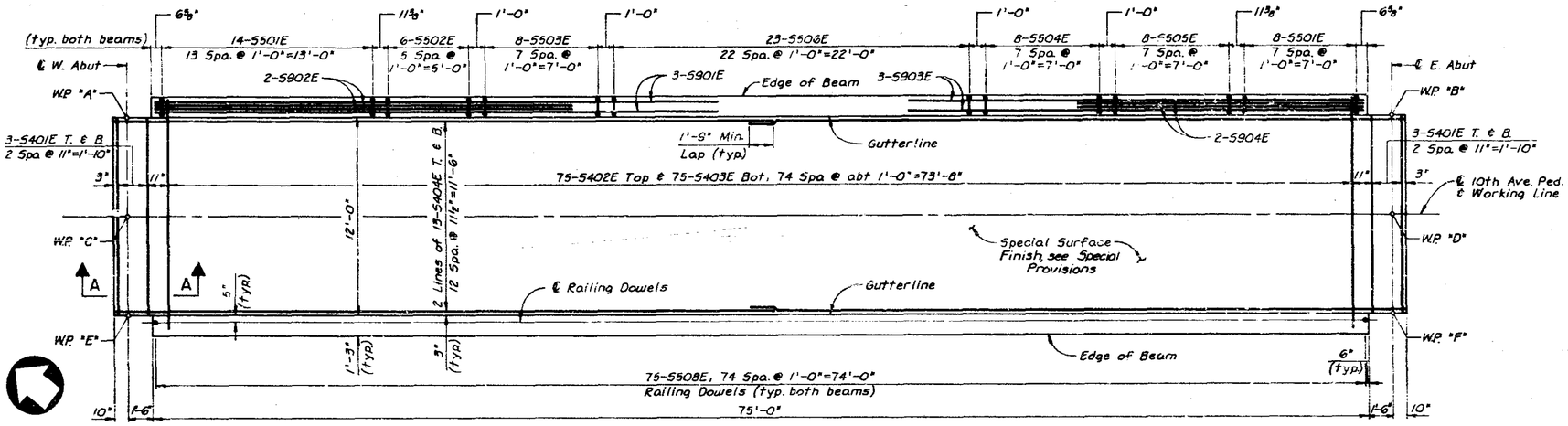
SHEET 5 OF 14 SHEETS 69804

EABUT4-2

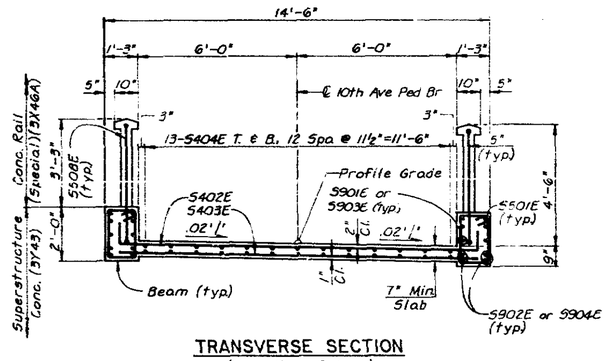
SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

	Structure Concrete (3Y43)	48	Cu. Yd.
③	Type Special Railing Concrete (3X46A)	205	Lin. Ft.
	Reinforcement Bars (Epoxy Coated)	15660	Pound
④	Expansion Joint Type C3 (Modified)	24	Lin. Ft.
①	Bridge Name Plate	1	Unit
②	Bench Mark Disk	1	Unit
⑤	Special Surface Finish (Color System)	4970	Sq. Ft.
⑤	Special Surface Texture	170	Sq. Ft.

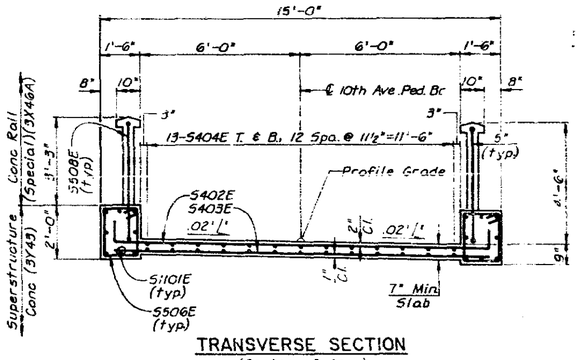
① Include in price bid for other items. See Standard Bridge Details.
② State will furnish disk. Payment for placing to be included in price bid for other items. See Standard Plate No 9301 for placing.
③ Includes Abutment Railing Quantities.
④ For Informational Purposes Only.
⑤ See Special Provisions.



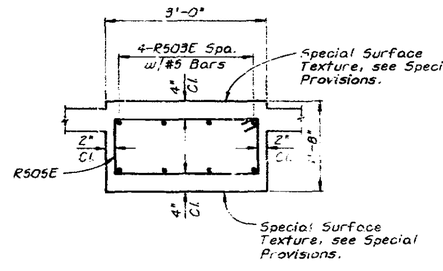
DECK REINFORCEMENT



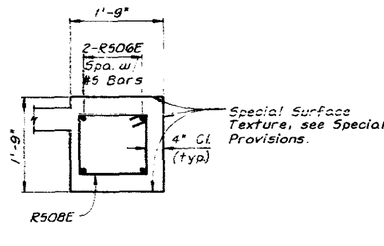
TRANSVERSE SECTION
(Near End of Arch)



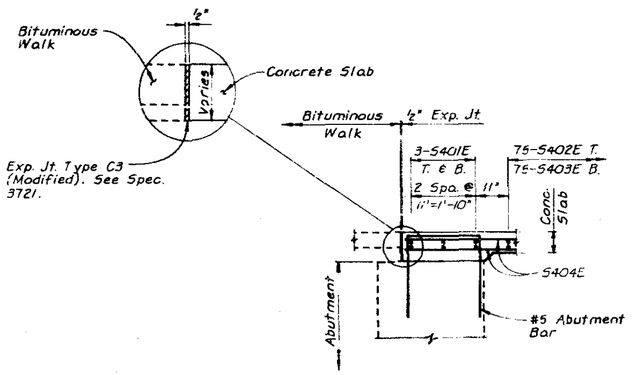
TRANSVERSE SECTION
(Center of Arch)



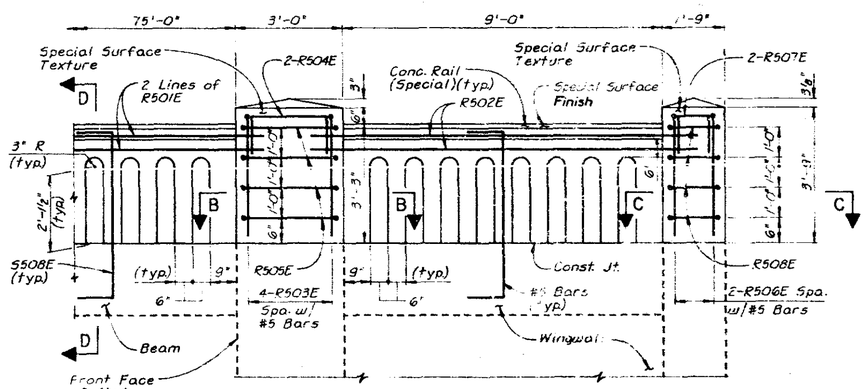
SECTION B-B



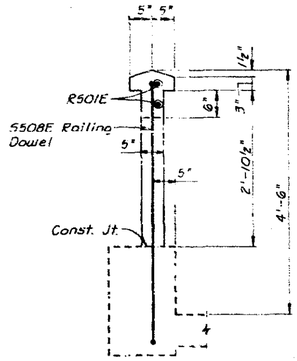
SECTION C-C



SECTION A-A



RAILING ELEVATION
(Rail Pattern continues along length of Span and Wingwall Rails are similar)



SECTION D-D

NOTES:
For Bill of Reinforcement and Bar Bend Details, see Sheet 8.
For Surface Treatment Details and Notes, see Sheet 7.
Handrail not shown for clarity. See Details and Notes, Sheet 11.

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

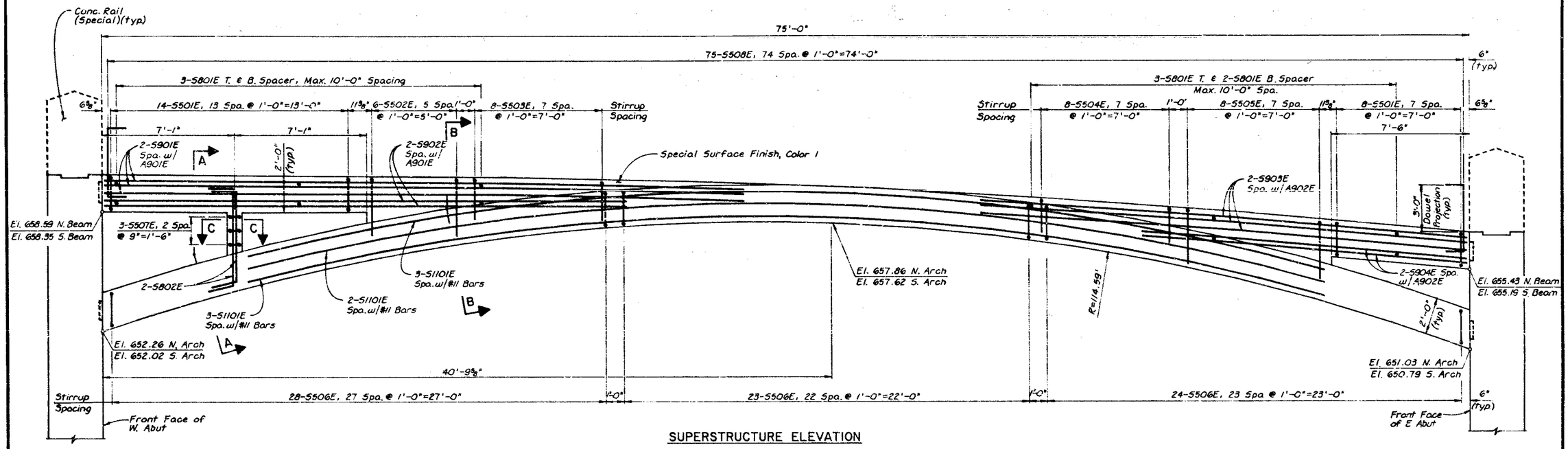
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

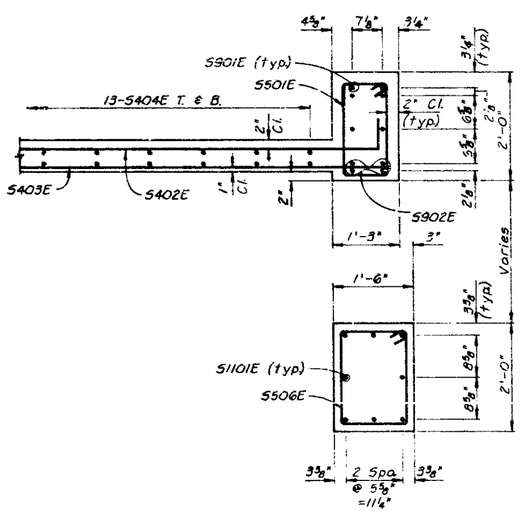
SUPERSTRUCTURE DETAILS
(SHEET 1 OF 2)

APPROVED 2-5-79
DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW
SHEET 6 OF 14 SHEETS 69804

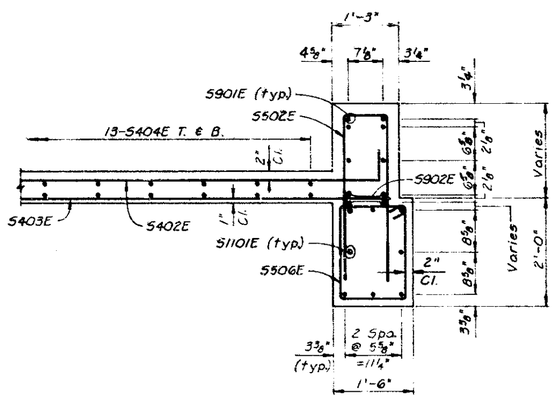
SUPER4-1



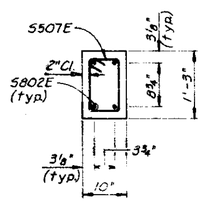
SUPERSTRUCTURE ELEVATION



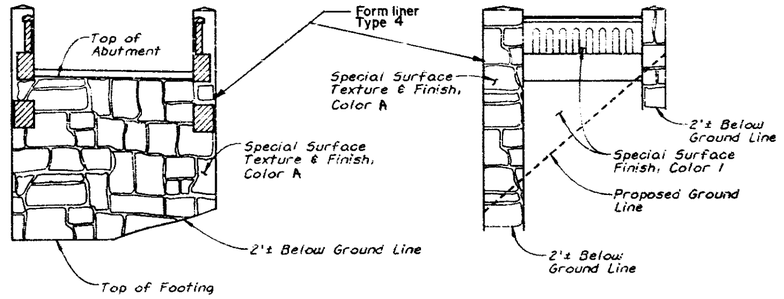
SECTION A-A
(Railing Dowels Not Shown)



SECTION B-B
(Railing Dowels Not Shown)



SECTION C-C



ABUTMENT WINGWALL

SPECIAL SURFACE TREATMENT

① COLOR 1 SHALL BE LIGHT TONE, COLOR A SHALL MATCH EXISTING BLUESTONE WALL.

SPECIAL SURFACE FINISH, SQ. FT. ①			
LOCATION	COLOR 1	COLOR A	TOTAL
W. ABUT.	130	160	290
E. ABUT.	200	310	510
SUPERSTRUCTURE	4800	170	4970
TOTAL	5130	640	5770

NOTES:

Special Surface Finish, Color A will be used with Special Surface Texture.
Special Surface Finish, Color 1 will be used on remaining exposed portions of bridge.
See Special Provisions for Form Liner Specifications and Special Surface Finishes.

For Superstructure Notes, see Sheet 6.

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 69804

SUPERSTRUCTURE DETAILS
(SHEET 2 OF 2)

APPROVED 7-13-99

DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW

SHEET 7 OF 14 SHEETS 69804

SUPER4-2

WEST ABUTMENT

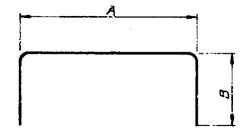
BAR	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	LOCATION
A501E	20	14'-8"	Str.				Horiz. EF
A502E	48	6'-4"	101	2'-6"	1'-11"		Corner Ties
A503E	4	8'-0"	111	2'-6"	1'-0"		Corner Ties
A504E	12	4'-10"	101	1'-10"	1'-6"		Deck Dowels
A505E	24	4'-3"	Str.				Railing Dowels
A506E	4	10'-11"	Str.				Vert.
A507E	44	10'-9"	Str.				WW. Vert.
A508E	22	2'-7"	101	0'-7"	1'-0"		Vert Ties
A509E	22	4'-1"	101	0'-9"	1'-8"		Vert Ties
A510E	18	6'-5"	101	4'-9"	0'-10"		Railing Dowels
A511E	24	5'-4"	111	1'-1"	1'-1"		Column Ties
A801E	32	8'-10"	Str.				Vert. EF.
A802E	4	13'-6"	101	2'-6"	5'-6"		Vert. Ends
A803E	48	10'-5"	Str.				WW. Horiz. EF.
A804E	48	8'-7"	103	7'-3"			WW. Corner Ties
A901E	20	8'-8"	103	7'-1"			Beam Dowels
A1101E	16	19'-9"	104	17'-9"	4		Arch Dowels

EAST ABUTMENT

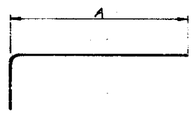
A501E	26	2'-9"	Str.				Ftg. Dowels FF
A502E	24	14'-8"	Str.				Horiz. EF
A503E	36	6'-6"	101	2'-6"	2'-0"		Corner Ties
A504E	4	8'-0"	111	2'-6"	1'-0"		Corner Ties
A505E	12	4'-10"	101	1'-10"	1'-6"		Deck Dowels
A506E	4	6'-0"	101	2'-6"	1'-9"		Corner Ties
A507E	24	4'-3"	Str.				Railing Dowels
A508E	22	12'-6"	Str.				WW. Vert. EF
A509E	18	6'-3"	101	3'-9"	2'-9"		Vert Ties
A510E	4	4'-5"	101	0'-11"	1'-9"		Vert Ties
A511E	18	6'-5"	101	4'-9"	0'-10"		Railing Dowels
A512E	56	10'-5"	Str.				WW. Horiz. EF.
A513E	28	5'-4"	111	1'-1"	1'-1"		Column Ties
A514E	4	13'-4"	Str.				Vert.
A515E	56	4'-10"	Str.				Corner Ties
A601	38	15'-6"	Str.				Ftg. Longit.
A602	34	17'-6"	Str.				Ftg. Trans.
A701E	22	5'-1"	103	3'-11"			Ftg. Dowels BF
A702E	22	12'-6"	Str.				WW. Vert. BF
A901E	32	7'-0"	106	3'-8"	1'-9"	12	Ftg. Dowels
A902E	20	8'-8"	103	7'-1"			Beam Dowels
A1101E	8	13'-4"	Str.				Vert. EF
A1102E	24	11'-5"	Str.				Vert. EF
A1103E	16	19'-9"	104	17'-9"	4		Arch Dowels

SUPERSTRUCTURE

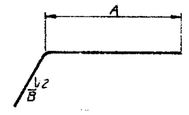
BAR	NO.	LENGTH	TYPE	DIMENSIONS A	B	C	LOCATION
S401E	12	111'-8"	Str.				Deck Trans.
S402E	75	15'-6"	101	13'-6"	1'-0"		Deck Trans-Top
S403E	75	13'-9"	Str.				Deck Trans-Bot.
S404E	52	40'-7"	Str.				Deck Longit.
S501E	44	6'-2"	111	0'-11"	1'-8"		Stirrups
S502E	12	6'-11"	101	0'-11"	3'-0"		Stirrups
S503E	16	5'-1"	101	0'-11"	2'-1"		Stirrups
S504E	16	4'-5"	101	0'-11"	1'-9"		Stirrups
S505E	16	6'-5"	101	0'-11"	2'-9"		Stirrups
S506E	150	6'-8"	111	1'-2"	1'-8"		Stirrups
S507E	6	3'-10"	111	0'-6"	0'-11"		Stirrups
S508E	150	6'-5"	101	4'-9"	0'-10"		Railing Dowels
S801E	11	0'-11"	Str.				Spacers
S802E	8	7'-4"	123	1'-4"	4'-8"	37	Spandrel Vert.
S901E	12	35'-0"	Str.				Longit. Beam
S902E	8	28'-0"	Str.				Longit. Beam
S903E	12	27'-0"	Str.				Longit. Beam
S904E	8	18'-0"	Str.				Longit. Beam
S1101E	16	60'-0"	Str.				Longit. Arch
R501E	8	39'-5"	Str.				Rail Longit.
R502E	8	11'-0"	Str.				Rail Longit. WW
R503E	16	8'-0"	101	0'-10"	3'-7"		Post-Vert.
R504E	8	4'-6"	101	2'-6"	1'-0"		Post-Horiz.
R505E	16	8'-4"	111	2'-8"	1'-0"		Post-Horiz.
R506E	8	8'-1"	101	0'-11"	3'-7"		Post-Vert.
R507E	8	2'-11"	101	0'-11"	1'-0"		Post-Horiz.
R508E	16	5'-4"	111	1'-1"	1'-1"		Post-Horiz.



TYPE 101



TYPE 103



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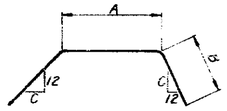

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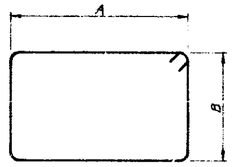

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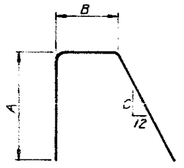


TYPE 123

PLANS PREPARED BY
EDWARDS AND KELCEY
MINNEAPOLIS, MINNESOTA

MINNESOTA DEPARTMENT OF TRANSPORTATION

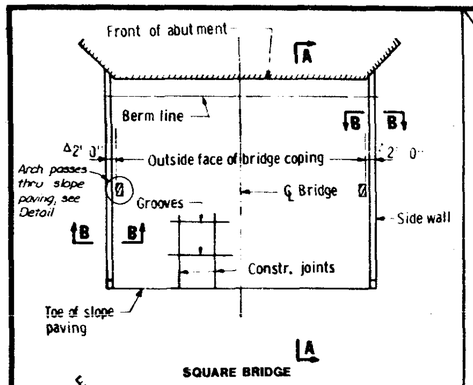
BRIDGE NO 69804

BILL OF REINFORCEMENT & BAR BEND DETAILS

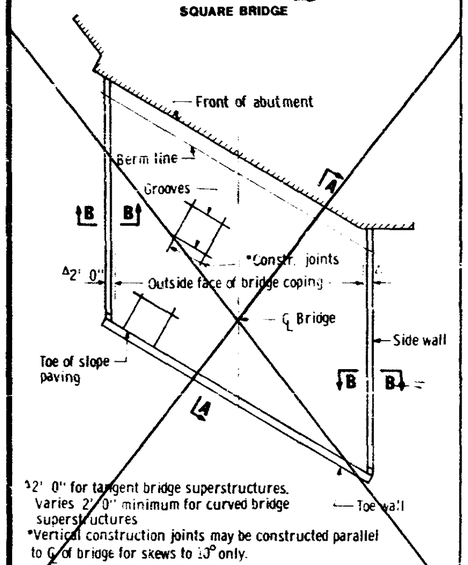
APPROVED 2-12-89

DRAWN BY SAS CHECKED BY DRS IN CHARGE OF JTW

SHEET 8 OF 14 SHEETS 69804



SQUARE BRIDGE

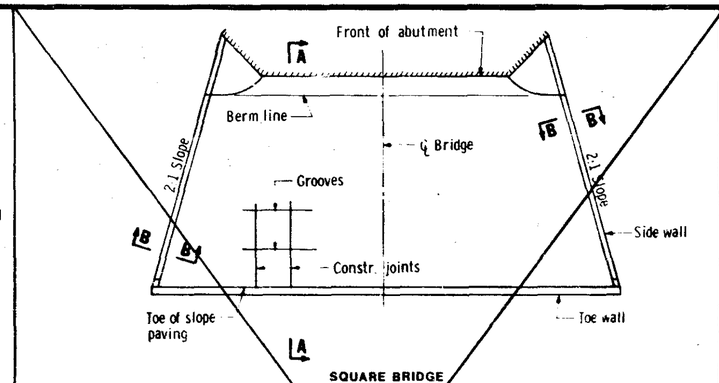


Δ2' 0" for tangent bridge superstructures. Varies 2' 0" minimum for curved bridge superstructures

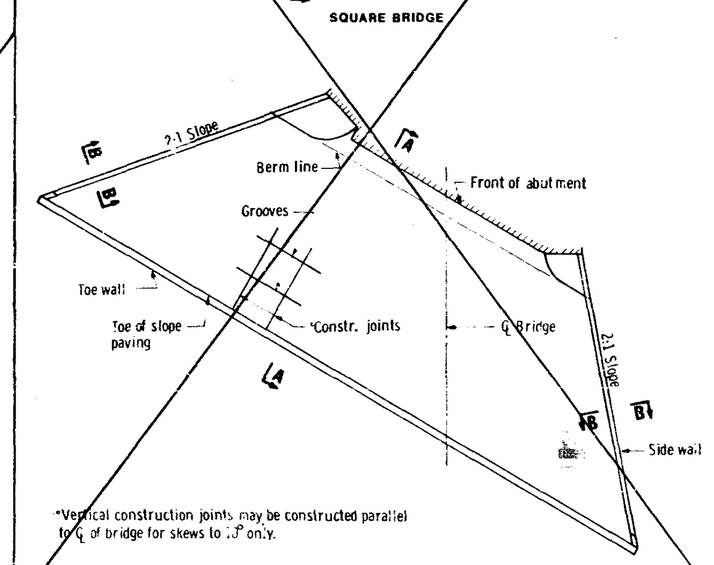
*Vertical construction joints may be constructed parallel to ℄ of bridge for skews to 10° only.

~~SKEWED BRIDGE~~

LAYOUTS FOR SLOPES 2:1 OR FLATTER



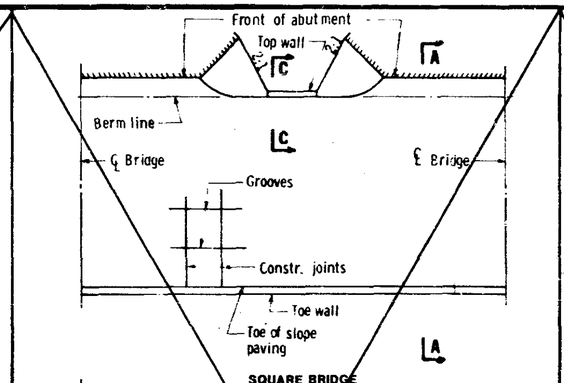
SQUARE BRIDGE



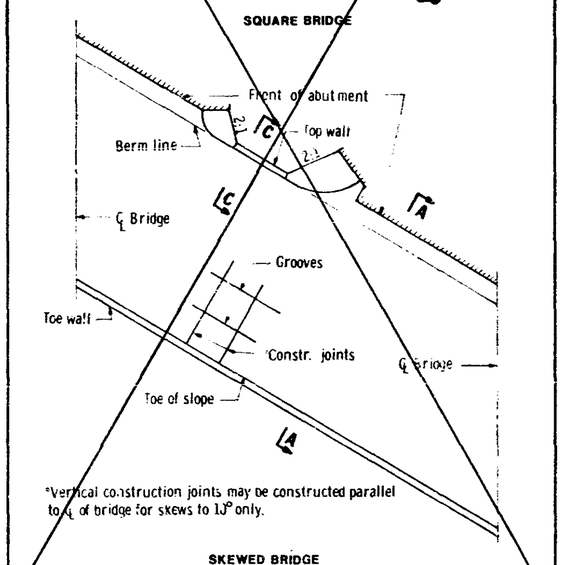
*Vertical construction joints may be constructed parallel to ℄ of bridge for skews to 10° only.

SKEWED BRIDGE

~~LAYOUTS FOR SLOPES STEEPER THAN 2:1~~



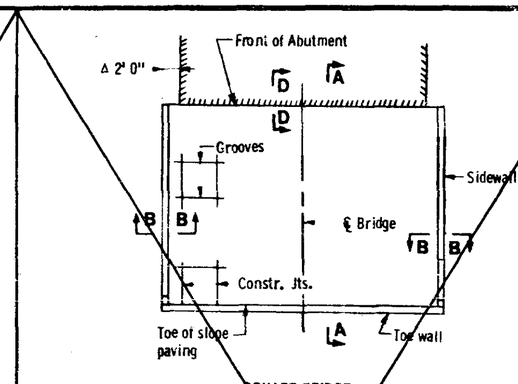
SQUARE BRIDGE



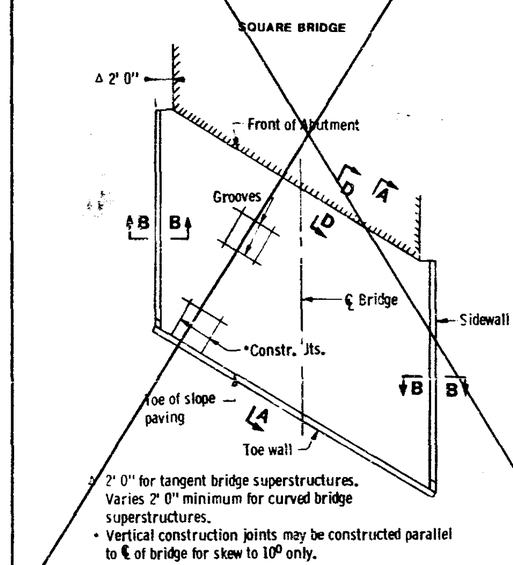
*Vertical construction joints may be constructed parallel to ℄ of bridge for skews to 10° only.

SKEWED BRIDGE

~~LAYOUTS FOR SLOPES STEEPER THAN 2:1 BETWEEN BRIDGES~~



SQUARE BRIDGE



Δ 2' 0" for tangent bridge superstructures. Varies 2' 0" minimum for curved bridge superstructures.

• Vertical construction joints may be constructed parallel to ℄ of bridge for skew to 10° only.

SKEWED BRIDGE

~~LAYOUTS FOR SLOPES AT HIGH ABUTMENTS~~

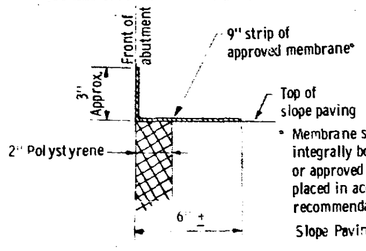
CONCRETE & REINFORCEMENT UNIT QUANTITIES

~~1. 3.00 Sq. Ft. of concrete/Lin. Ft. 1.41 Lbs. of reinforcement/Lin. Ft.~~

2. 1.23 Sq. Ft. of concrete/Lin. Ft. 4.46 Lbs. of reinforcement/Lin Ft.

~~3. 1.56 Sq. Ft. of concrete/Lin. Ft. 3.70 Lbs. of reinforcement/Lin. Ft. Based on a slope of 2:1~~

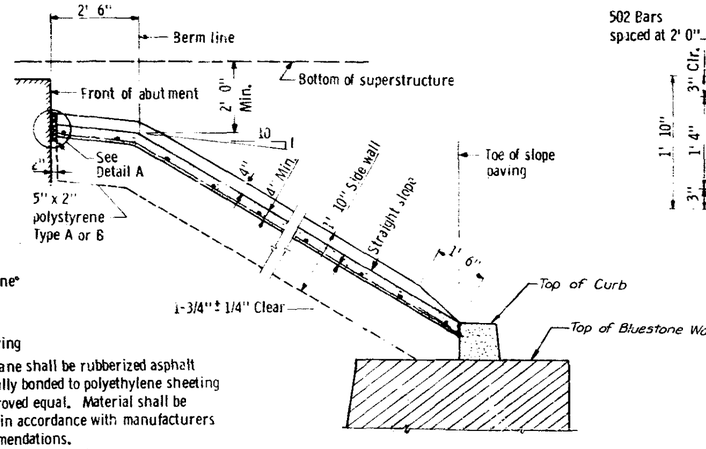
4. .33 Cu. Ft. of concrete/Sq. Ft. .50 Lbs. of reinforcement/Sq. Ft.



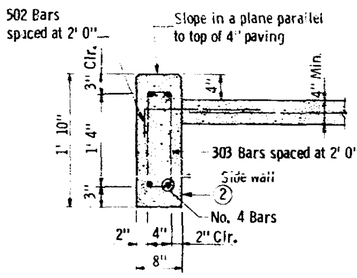
DETAIL A

* Membrane shall be rubberized asphalt integrally bonded to polyethylene sheeting or approved equal. Material shall be placed in accordance with manufacturers recommendations.

Slope Paving as per Spec. 2514.

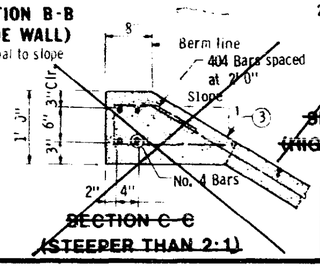


SECTION A-A

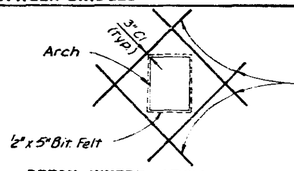


SECTION B-B (SIDE WALL)

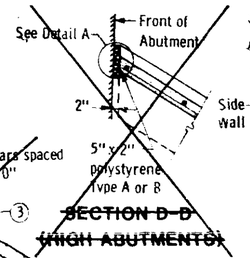
Normal to slope



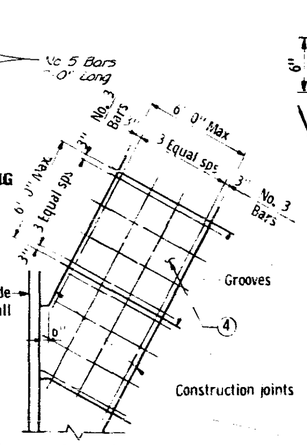
~~SECTION C-C (STEEPER THAN 2:1)~~



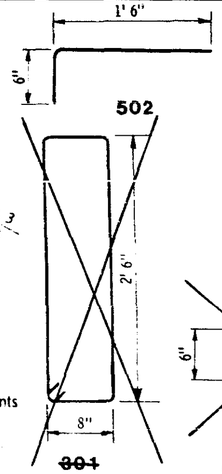
DETAIL WHERE ARCH EXTENDS THRU SLOPE PAVING



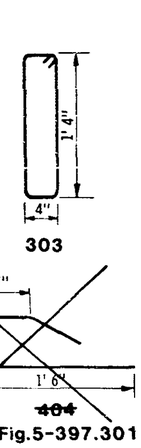
~~SECTION D-D (HIGH ABUTMENTS)~~



PAVING DETAIL



~~301~~

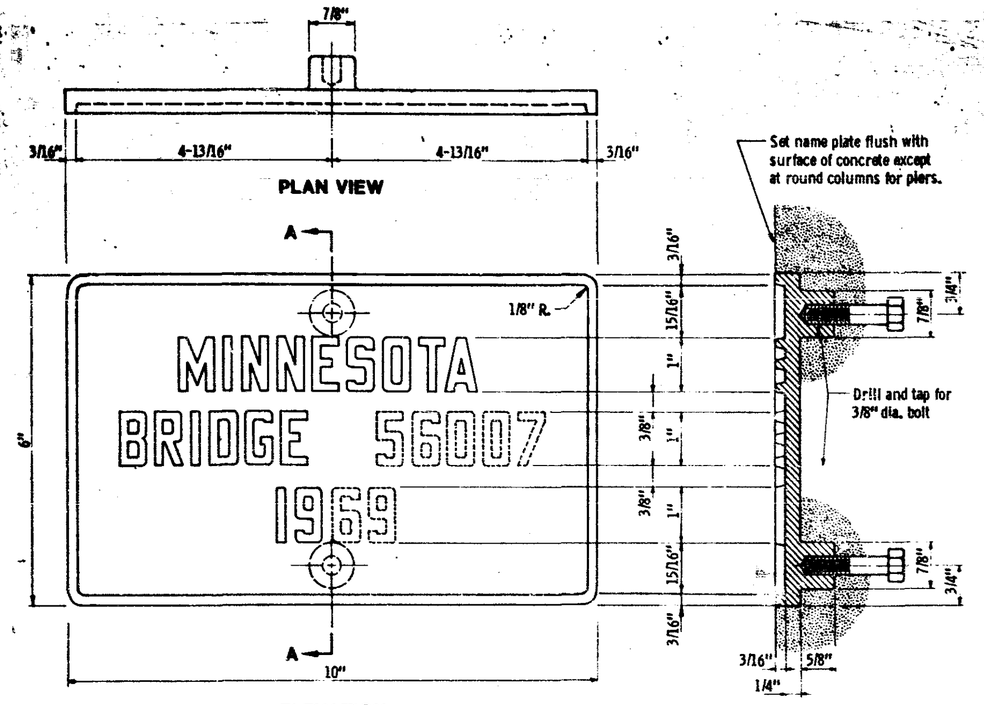


~~404~~

Fig.5-397.301

Approved: April 17, 1985

TITLE					
(Modified) CONCRETE SLOPE PAVING UNDER BRIDGES	DES.	DR	APPROVED 7-15-89	Bridge No. 69804
	CHK	CHK		
	Sheet No. 9 of 14 Sheets			



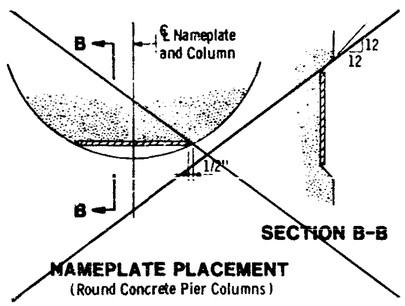
ELEVATION

SECTION A-A

The dotted numbers shown above are for illustration,
Data to be shown on name plate is as follows:

BRIDGE 69804
YEAR 1990

NUMBERS FOR NAMEPLATES



SECTION B-B

NAMEPLATE PLACEMENT
(Round Concrete Pier Columns)

NOTES:

No shop drawing required.

Material shall comply with Spec. 3327

Letters and numbers shall conform to those shown.

Draft on letters and numbers shall not be more than 3" in 12".

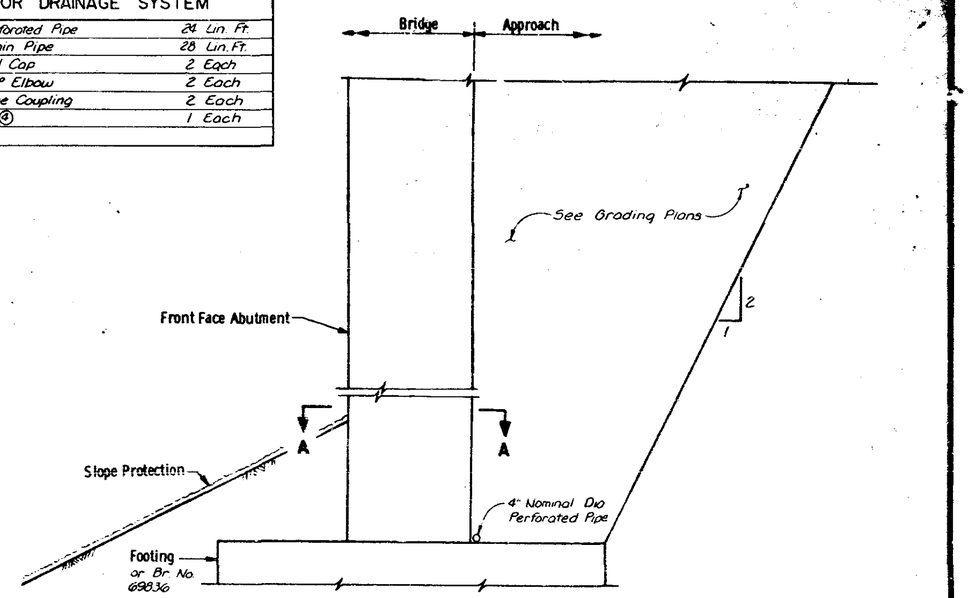
Horizontal spacing of letters and numbers shall produce a balanced layout in proportion to spacing shown.

Top surface of letters, numbers and frames shall be burnished.

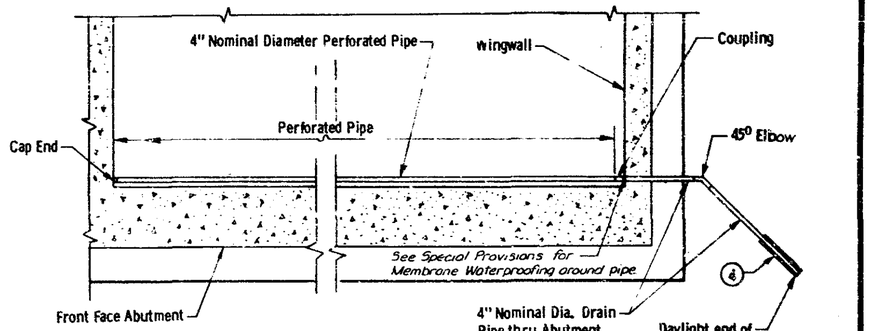
Furnish 2 steel bolts 3/8" dia. x 3" long with each plate.

APPROVED: May 1, 1985 Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **BRIDGE NAMEPLATE** **TRUNK HIGHWAY BRIDGES**	REVISION	DETAIL NO. (Modified) **B101**

SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM	
4" ø Perforated Pipe	24 Lin. Ft.
4" ø Drain Pipe	28 Lin. Ft.
4" ø End Cap	2 Each
4" ø 45° Elbow	2 Each
4" ø Pipe Coupling	2 Each
④	1 Each



SECTION THRU ABUTMENT



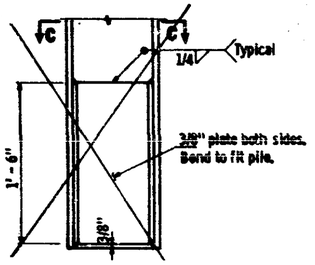
SECTION A-A

NOTES:

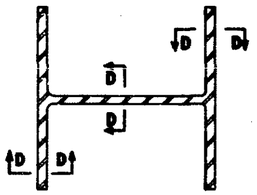
1. All pipe shall be as per Spec. 3285
2. Wrap perforated pipe with Geotextile as per Spec. 3733, Type I. Attach to pipe as per Spec. 2502
3. ~~See bridge plans for notes and "Summary of Quantities".~~
④ 5 ft. long corrugated metal oversleeve with rodent screen on end, or a Precast Concrete Headwall. (East Abut. Only.)

APPROVED: March 13, 1985 Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **DRAINAGE SYSTEM** ~~**FOR HIGH ABUTMENTS**~~	REVISION 4	DETAIL NO. (Modified) **B910**

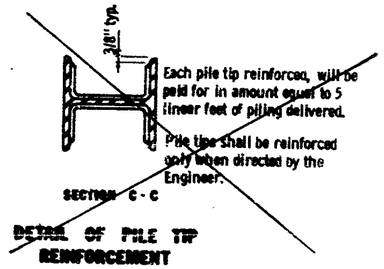
TITLE: DETAILS	DES:	DR:	APPROVED:	Bridge No.
	CHK:	CHK:		
	Sheet No. 10 of 14 Sheets			69804



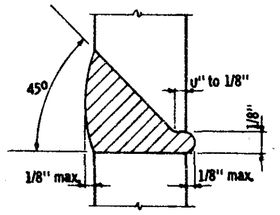
ELEVATION



SECTION AT JOINT



DETAIL OF PILE TIP REINFORCEMENT



SECTION D - D

100% BUTT WELDED PILE SPLICE

NOTES:

A. W. S. Type E7016 or E7018 (low-hydrogen) electrodes shall be used for 100% butt welded splices.

A. W. S. Type E6010, E6011 electrodes, or E7016 or E7018 (low-hydrogen) electrodes, shall be used for the alternate plate type pile splice.

Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.

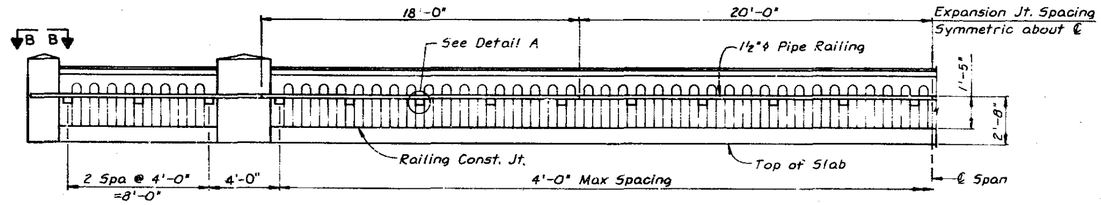
Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F.

Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 2 hours.

Any type electrode which has become wet, soiled, or damaged shall not be used.

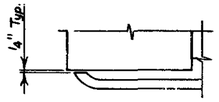
Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.

APPROVED: November 5, 1979 Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION Issued by: ENGINEERING STANDARDS SECTION	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **PILE SPLICE and TIP REINFORCEMENT** STEEL H BEARING PILES 10" TO 14"		DETAIL NO. **B202**

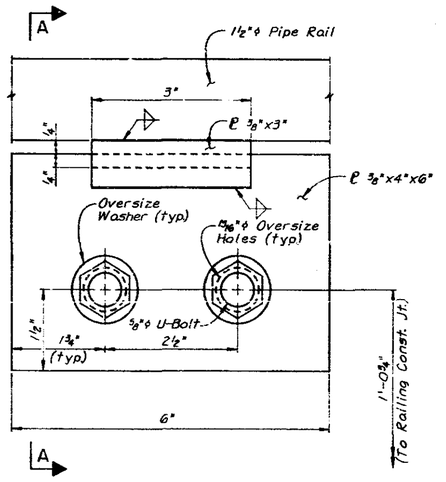


ELEVATION

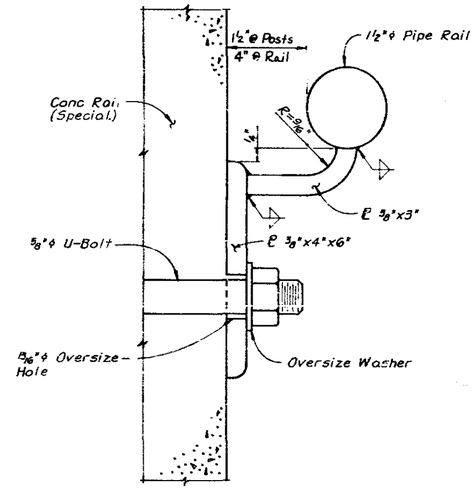
(Half Span Shown, Other Side Similar)



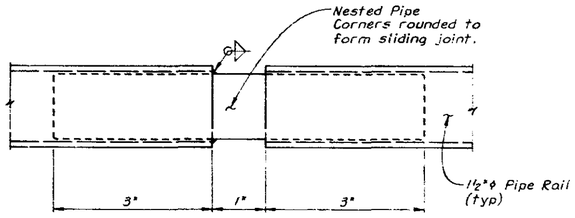
Part Section B-B



DETAIL A



SECTION A-A



EXPANSION JOINT DETAIL

(Located Near Anchorage)

QUANTITIES FOR HAND RAIL		
1½"ϕ Pipe Rail	205	Lin. Ft.

NOTES:

Expansion Joint and Anchorage Spacings are measured horizontally.

See Special Provisions for handrail specifications and finish.

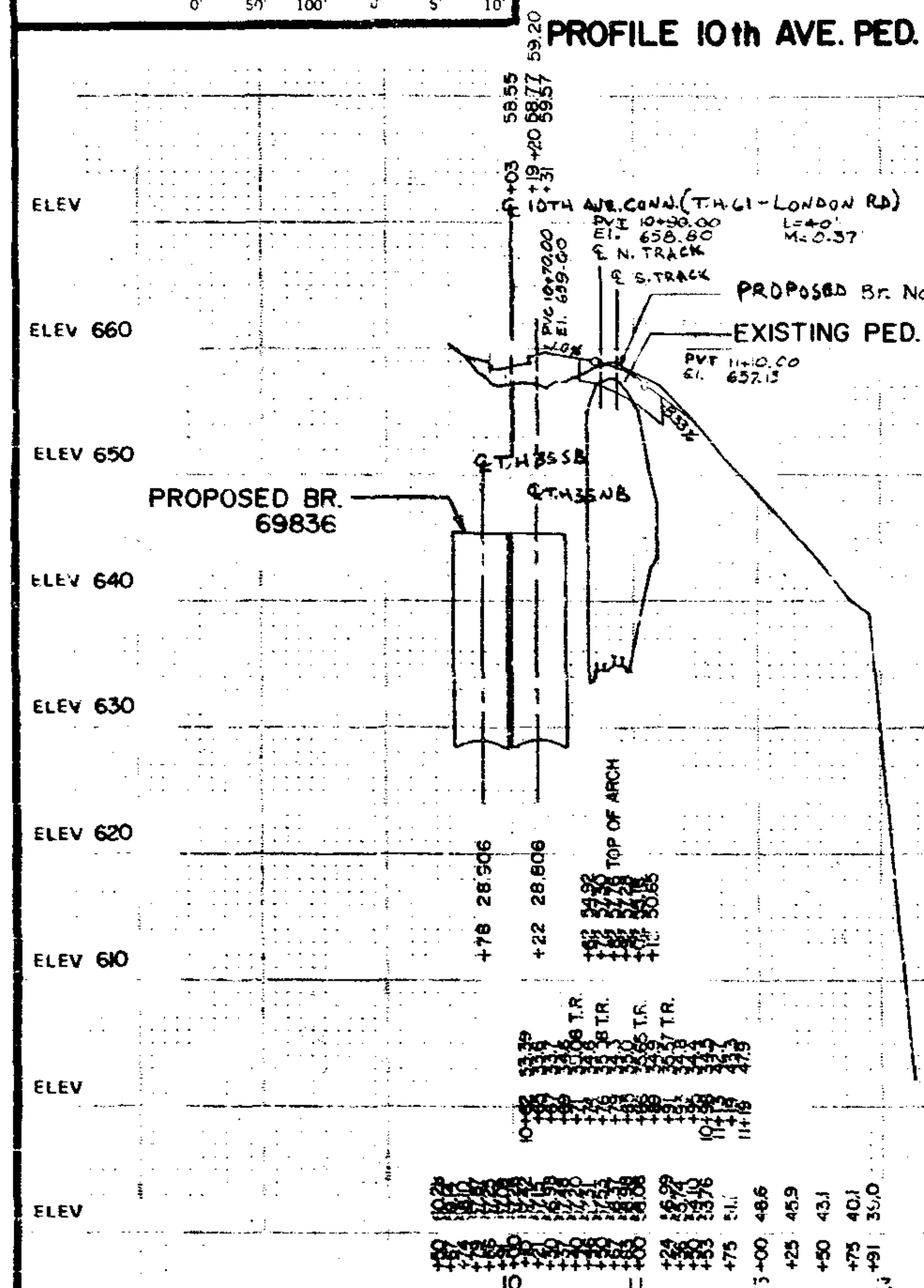
Pipe Rail and all connections to be paid for as Item No. 2402.585 "Pipe Railing".

HANDRAIL DETAILS

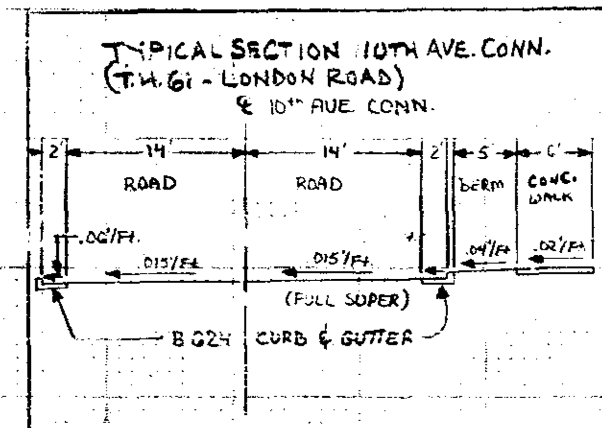
TITLE				
DETAILS	DES: DRS	DR: SAS	APPROVED: 5-10-89	Bridge No. 69804
	CHK	CHK		
	Sheet No. 11 of 14 Sheets			

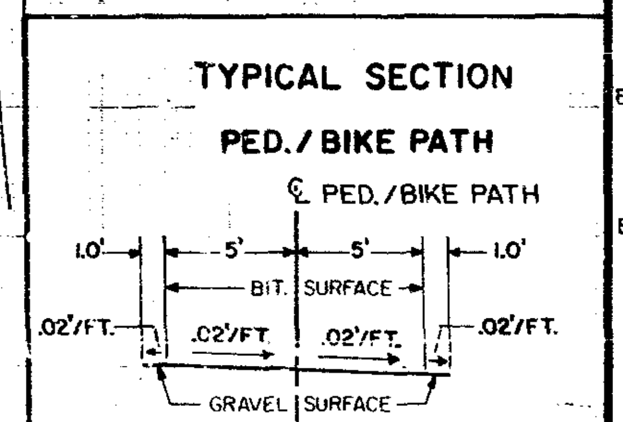
CONTRACTED PROFILE

SCALE: HOR. 0' 50' 100' VER. 0' 5' 10'



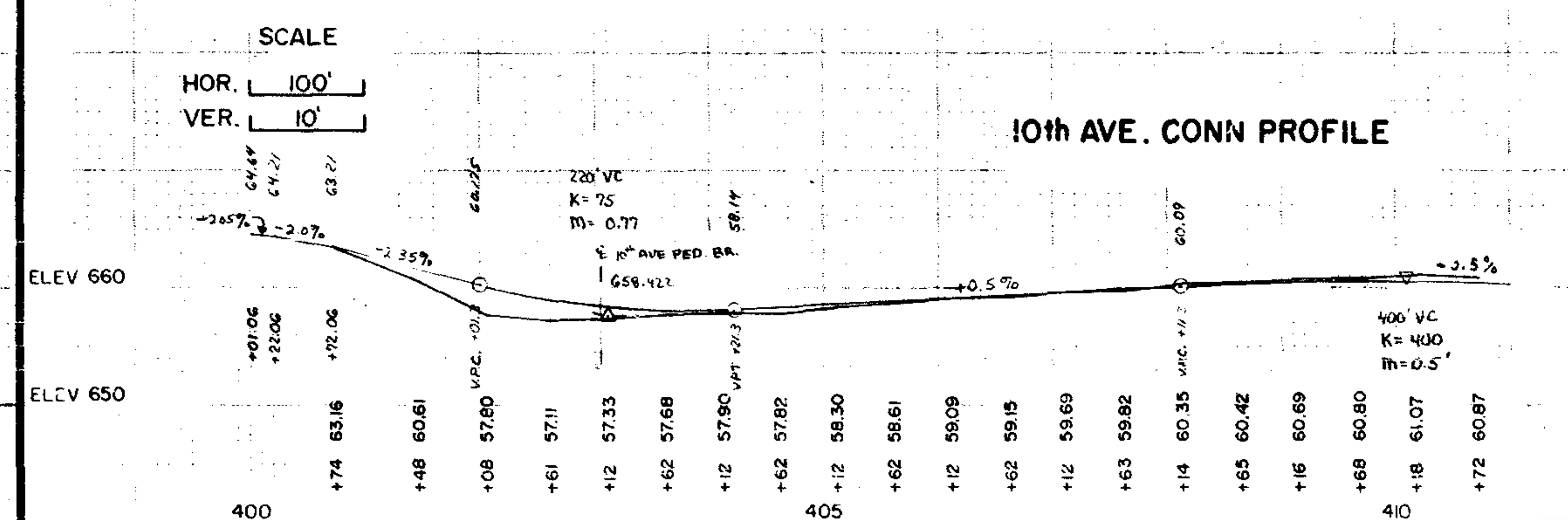
PROFILE 10th AVE. PED. BR.
ELEV 660
ELEV 650
ELEV 640
ELEV 630
ELEV 620
ELEV 610
℄ 10TH AVE.CONN.(T.H.61-LONDON RD)
PVI 10+90.00
El. 658.80
L=40'
M=0.37
℄ N. TRACK
℄ S. TRACK
PROPOSED Br. No. 69804
EXISTING PED. BR.
PVT 11+10.00
El. 657.15
℄ T.H.35 SB
℄ T.H.35 NB
PROPOSED BR. 69836
TOP OF ARCH
+78 28.506
+22 28.806

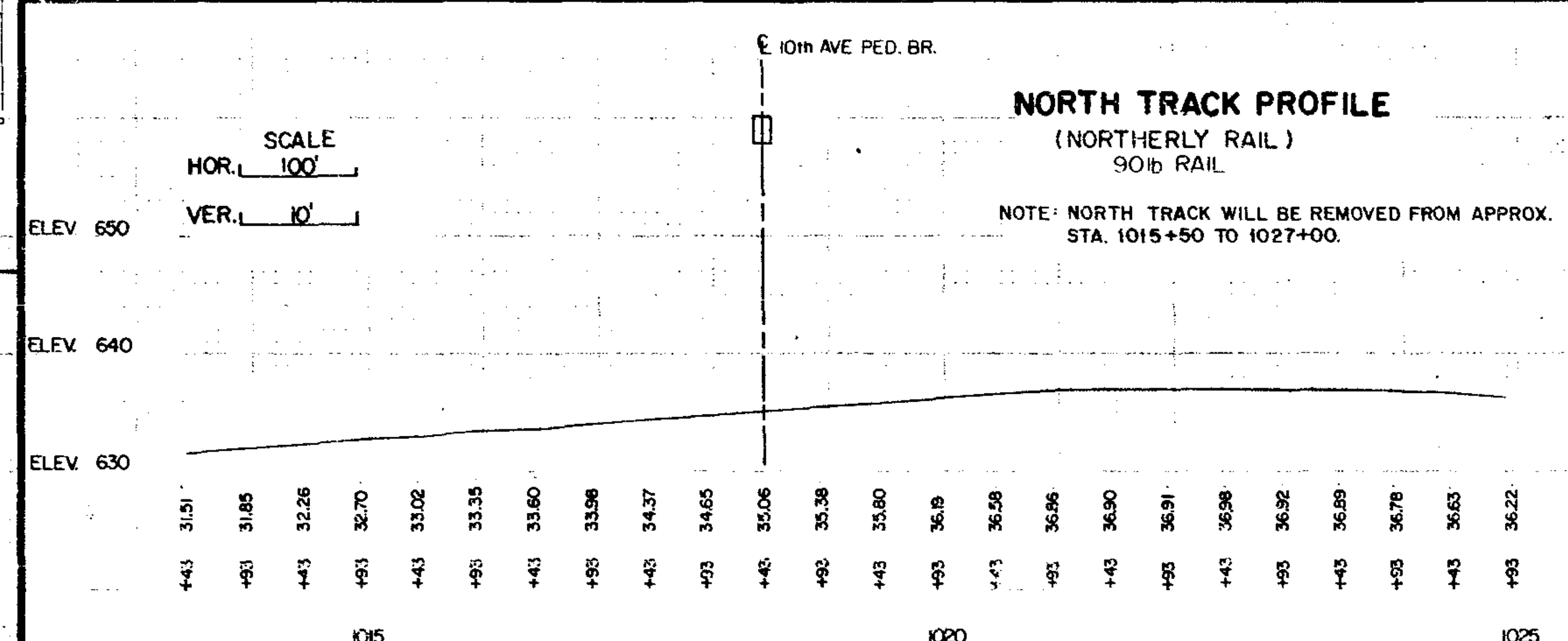


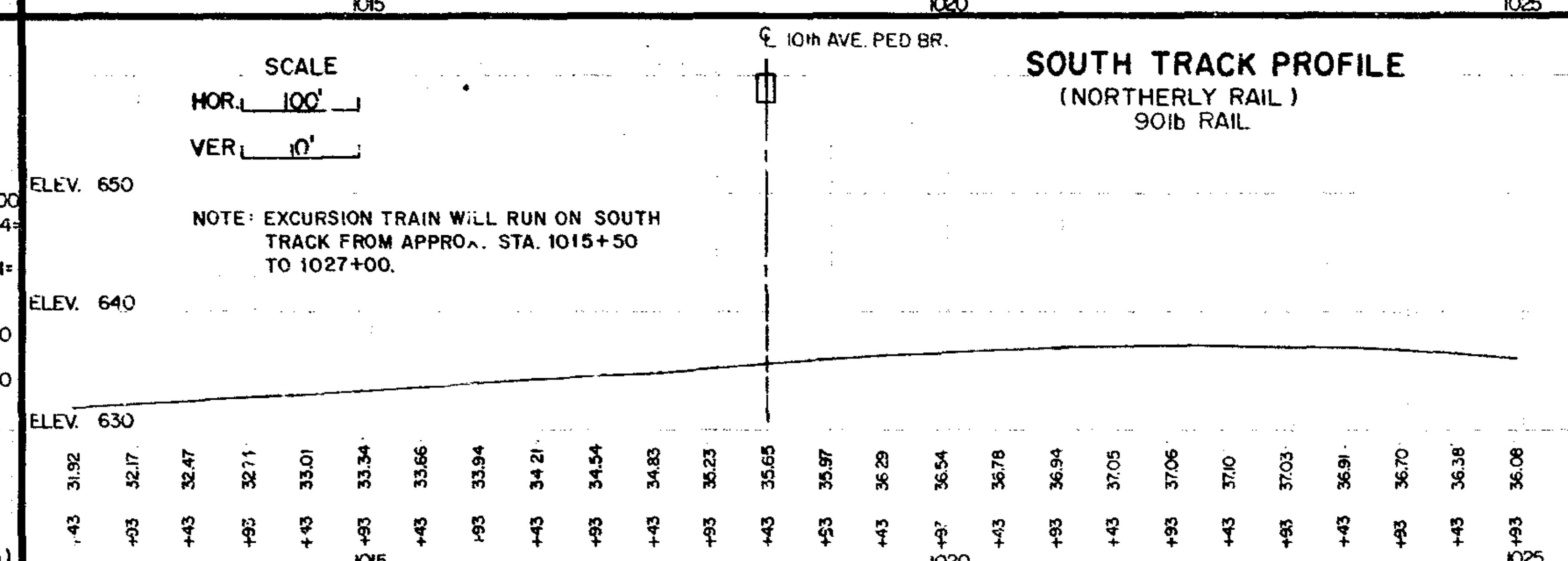


TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

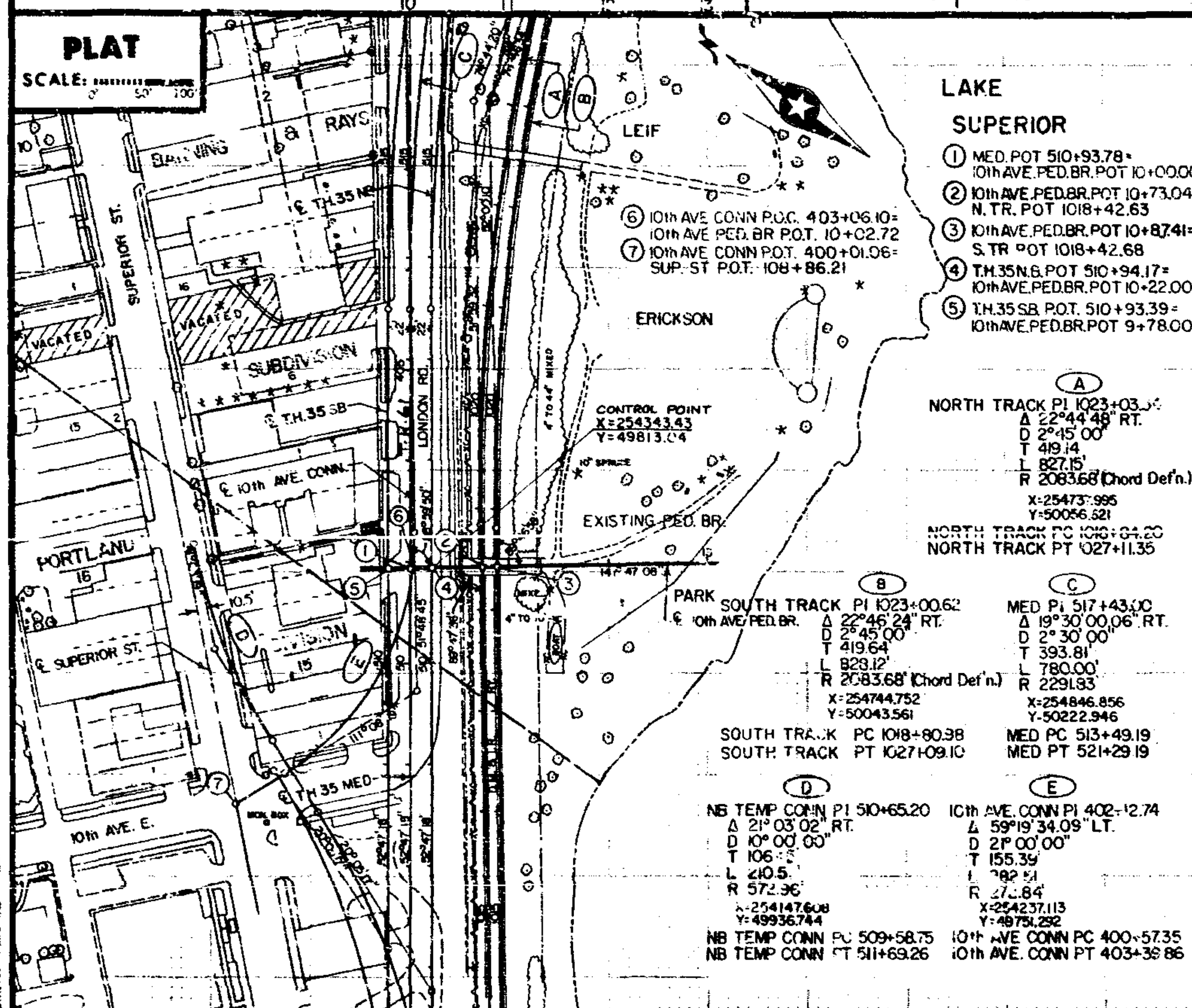




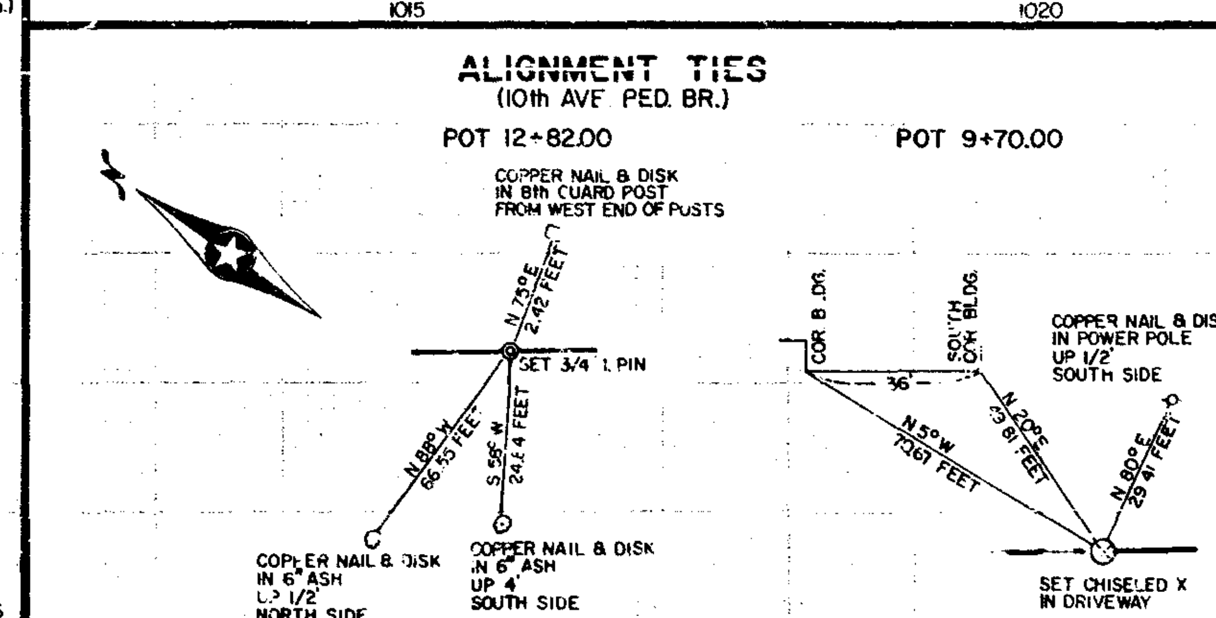


PLAT

SCALE: 0' 50' 100'



LAKE
SUPERIOR
LEIF
ERICKSON
PARK
EXISTING PED. BR.
CONTROL POINT
X=254343.43
Y=49813.04
SUPERIOR ST.
LONDON RD.
℄ T.H.35 NB
℄ T.H.35 SB
℄ 10th AVE. CONN.
℄ SUPERIOR ST.
℄ T.H 35 MED
10th AVE. E.
PORTLAND
VACATED
SUBDIVISION
RAYS
① MED. POT 510+93.78= 10th AVE. PED. BR. POT 10+00.00
② 10th AVE. PED. BR. POT 10+73.04= N. TR. POT 1018+42.63
③ 10th AVE. PED. BR. POT 10+87.41= S. TR POT 1018+42.68
④ T.H.35 N.B. POT 510+94.17= 10th AVE. PED. BR. POT 10+22.00
⑤ T.H.35 S.B. P.O.T. 510+93.39= 10th AVE. PED. BR. POT 9+78.00
⑥ 10th AVE CONN P.O.C. 403+06.10= 10th AVE PED. BR P.O.T. 10+02.72
⑦ 10th AVE CONN P.O.T. 400+01.06= SUP. ST P.O.T. 108+86.21
(A) NORTH TRACK PI 1023+03.54
Δ 22°44'48" RT.
D 2°45'00"
T 419.14
L 827.15'
R 2083.68' (Chord Def'n.)
X=254737.995
Y=50056.521
NORTH TRACK PC 1018+84.20
NORTH TRACK PT 1027+11.35
(B) SOUTH TRACK PI 1023+00.62
Δ 22°46'24" RT.
D 2°45'00"
T 419.64
L 828.12'
R 2083.68' (Chord Def'n.)
X=254744.752
Y=50043.561
SOUTH TRACK PC 1018+80.98
SOUTH TRACK PT 1027+09.10
(C) MED PI 517+43.00
Δ 19°30'00.06" RT.
D 2°30'00"
T 393.81'
L 780.00'
R 2291.83'
X=254846.856
Y=50222.946
MED PC 513+49.19
MED PT 521+29.19
(D) NB TEMP CONN PI 510+65.20
Δ 21°03'02" RT.
D 10°00'00"
T 106.5
L 210.5'
R 572.96'
X=254147.608
Y=49936.744
NB TEMP CONN PC 509+58.75
NB TEMP CONN PT 511+69.26
(E) 10th AVE. CONN PI 402+12.74
Δ 59°19'34.09" LT.
D 21°00'00"
T 155.39'
L 282.51
R 272.84'
X=254237.113
Y=49751.292
10th AVE CONN PC 400+57.35
10th AVE. CONN PT 403+38.86



ALIGNMENT TIES
(10th AVE PED. BR.)
POT 12+82.00
POT 9+70.00
COPPER NAIL & DISK IN 8th GUARD POST FROM WEST END OF POSTS
N 75° E 2.42 FEET
SET 3/4" I. PIN
N 88° W 66.55 FEET
S 5° W 24.4 FEET
COPPER NAIL & DISK IN 6" ASH UP 1/2' NORTH SIDE
COPPER NAIL & DISK IN 6" ASH UP 4' SOUTH SIDE
COR. B. BLDG.
SOUTH COR. BLDG.
36'
N 5° W 70.61 FEET
N 20° E 43.81 FEET
COPPER NAIL & DISK IN POWER POLE UP 1/2' SOUTH SIDE
N 80° E 29.41 FEET
SET CHISELED X IN DRIVEWAY

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating. D.N.A.
2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area etc. D.N.A.
3. Apparent highwater elevation D.N.A. Obtained from ....
4. Other data: Approx. velocity of water at time of survey D.N.A.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE ....

Stream or ditch designation ....

Drainage area ....

Max. flood on record.........Design flood (......... yr. freq.) .........C.F.S.

Max. observed highwater elevation ....Design highwater elevation........

Design mean velocity through structure ........F.P.S. ....

Low superstructure at or above elevation ....

Flowline elevation ....Skew angle........

Waterway area req'd. below elevation .... = ...Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is........C.F.S. at stage........and mean velocity of........F.P.S. with........Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

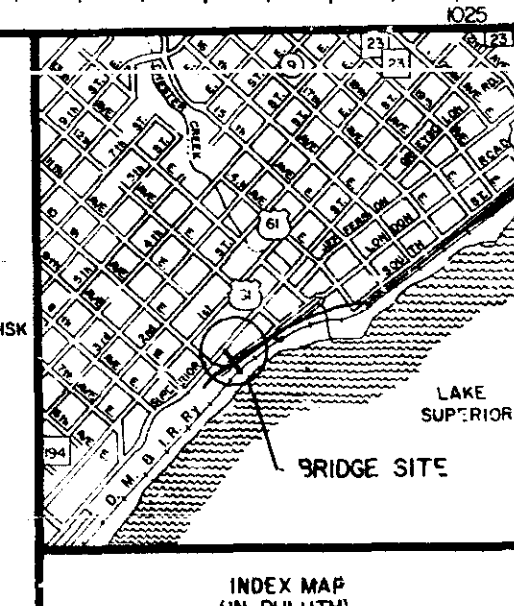
FOUNDATION ENGINEERS RECOMMENDATION

DATE ....

Bridge survey sheets made from: 1984 PLANIMETRIC MAPPING AND JULY 1987 FIELD SURVEY

Bench mark elevation 663.14 (M.S.L. 1929 Adj.)

Location TOP OF 2 DRAIN PIPE PROJECTING 2 OUT OF SOUTH WALL OF WALL TO WALL STORE FOUNDATION 209 E. OF 12th AVE. E. 64 N. OF LONDON RD. 18.5 W. OF S.E. BLDG. COR.



INDEX MAP (IN DULUTH)

BENCH MARK ELEVATION 631.11 (M.S.L. 1929 Adj.) CHISELED SQUARE IN N. EASTERLY COR. OF R.R. ARCH BOX CULVERT OVER CHESTER CREEK.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT .... ON TH 35 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED .... ~~MILES~~ .... ~~OF~~

IN DULUTH

SEC. 23 TWP. 50 N. R. 14 W.

TOWNSHIP ———— COUNTY ST. LOUIS

BRIDGE NO. 69804

Area No. 15 **Job No.** 466 | **State Proj. No.** 6982-69804 (T.H. 35 = 396) | **Sheet No.** 12 **of** 14 **Sheets**

Fed. Proj. No.

SCALE
HOR. 10'

N TR PC 1018+84.20
S TR PC 1018+80.98
10th AVE CONN P.T. 403+39.86
T.H. 35 S.B. P.O.T. 510+93.39 = 10th AVE. PED. BR. P.O.T. 9+78.00
10th AVE. PED. BR. POT 10+73.04 = NORTH TRACK POT 1018+42.63
℄ W. ABUT.
℄ E. ABUT.
MED POT 510+93.78 = 10th AVE. PED. BR. POT 10+00.00
10 CONN P.O.C 403+06.10
10th AVE PED BR P.O.T. 10+02.722
T.H. 35 N.B. P.O.T. 510+94.17 = 10th AVE. PED. BR. P.O.T. 10+22.00
10th AVE. PED. BR. POT 10+87.41 = SOUTH TRACK POT 1018+42.68
10th AVE. PED. BR. POT 10+83.5 (APPROX.)
T814 & T814A
TEST PILE NO. 1
℄ 10th AVE. PED. BR.
℄ PROPOSED EXCURSION TRACK
℄ TH 35 SB
℄ TH35 MED
℄ T.H. 35 N.B.
℄ NORTH TRACK (REMOVED)
℄ SOUTH TRACK (ABANDONED)
T-805

88°-53'-04"
89°-47'-36"
89°-46'-58"
141°-47'-08"
89°-46'-58"
52°-47'-18"
52°-47'-18"
52°-47'-18"
51°-59'-32"
52°-00'-10"
52°-00'-10"

SCALE
HOR. 10'
VER. 10'

L5 #6, Bwn. Damp
Fat C
Red-Bwn Damp
Refusal @ 20.7 w/TW
Si. Cl. Bwn, Damp
Si. Fl. Si.L, Bwn, Moist
Refusal w/ST @ 24.8'
Broken Rock, Basalt w/Mixture of Gabbro, Granite & Concrete
No Core Lengths >3" and most are < 1", Color & Texture of Core pieces is not uniform, indicating Material is probably not inplace. Blk w/ some Reddish Bwn,
Possible Top of Bedrock - Elev. 623±
Basalt, Slightly Wx w/some Discoloration in most of Rock, Most Joints sealed w/secondary Mineral and are Dipping 45-50° w/ a few near vertical & one near horizontal, Dark Reddish Gray
Sand, Fine GR, Angular, Bwn, w/G (somewhat rounded) near the Bottom, possibly washed into void
Basalt, Sl. Wx, w/Discoloration through Rock, Most Joints are sealed & are Dipping 60-70° w/a few nearly Horizontal, Dk. Reddish-Gray w/Grn
End Boring @ 37.3' Elev. 618.7±

*4690 650
*2890 640
630
620
PVC 10+70.00 El. 659.00
PVI 10+90.00 El. 658.80
PVT 11+10.00 El. 657.13
L = 40'
M = 0.37'
T-805
-1.0%
-8.33%
℄ N. Track
℄ S. Track
℄ Proposed Excursion Track
℄ W. ABUT.
℄ E. ABUT.
℄ 10th PED. BR.
℄ 10th AVE. PED. BR.
30' LT. 10th AVE. PED. BR.
30' RT. 10th AVE. PED. BR.
℄ SB TH35
℄ NB TH35
ELEV. 670
ELEV. 660
ELEV. 650
ELEV. 640
ELEV. 630
TEST PILE NO. 1
T814 & T814A

Driller's Notes: bituminous, blk.
pl. FSL w/pebbles, bwn, Damp.
CL w/pebbles, red-bwn. Damp
Driller's Notes: Hard rough drilling ST refusal at 9.5'
Fat Clay w/pebbles Drillers Notes: TW refusal at 15.5', red-bwn, Moist
Fat Clay w/pebbles, red-bwn, Moist
LS & G, bwn, Damp
slpl. SiL w/some pebbles, dk. bwn, Damp
Mixed slpl. SiL & FS w/some G, bwn & gr-bwn. Damp
Top of Bedrock - ELEV. 623±
Leif Erickson Park Lava Basalt, weathered & highly broken (fractured), discolored, high angle to near vertical jointing, reddish bwn to blk w/green
Basalt, possibly andesitic or V, slightly weathered (dull reddish color) with a few calcite veins. Most core is broken, but typically 0.1-0.3 Ft. in length
Most joints range between 45° and 70°, dark reddish-bwn
Basalt, generally fresh, dissected by numerous calcite & olivine filled veins, some nearly horizontal joints/fractures in core but most are higher angle (60°-70°) as are the veins. Most core is 0.1-0.3 ft in length w/highly broken zones @ 42.7-42.9, 43.5-43.7 and 44.3-44.6
black w/grn & white
End of Boring at 45.0 ft.

NX CORE RECORD

Depth	%Rec	%RQD	ACL
342-351	± 89	0	0
351-373	82	0	0
373-383	80	0	0
383-409	65	0	0
409-429	95	0	0
429-450	100	0	0

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

B.M. ELEV. 663.14 (M.S.L. 1929 Adj.)
TOP OF 2" DRAIN PIPE PROJECTING 2" OUT OF SOUTH WALL OF WALL TO WALL STORE FOUNDATION 209' E. OF 6th AVE E. 64' N. OF LONDON RD. 16.5' W. OF S.E. BLDG. COR.

B.M. ELEV. 631.11 (M.S.L. 1929 Adj.)
CHISELED SQUARE IN N. EASTERLY COR. OF R.R. ARCH BOX CULV. OVER CHESTER CREEK.

RECEIVED FEB 1988

BRIDGE SURVEY PLAN AND PROFILE

DES:	DR:	APPROVED: 7-18-89	Bridge No.
CHK:	CHK:		69804

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℄ SUPERIOR ST.

℄ SB TEMP CONN

℄ T.H.35 NB

℄ T.H. 35 MED

℄ T.H35 S.B.

℄ NB TEMP CONN

℄ 10TH AVE CONN

℄ 10th AVE. PED. BR.

10th AVE. E.

12th AVE. E.

LONDON ROAD

D. M. & I. R. RY.

24" SAN. F.M.

PORTLAND

BAYSIDE

LEIF ERICKSON PARK

BAYS

SUBDIVISION

VACATED

POWER VAULT (ABAND)

BOAT

DRINKING FOUNTAIN

FAUCET

ABAND. POWER HANGING ON BRIDGE

SPRINKLER SYSTEM

OIL FILLER PIPE

MH(2)

MON. BOX

141°47'08"

111°08'

41°08'19"

20°05'17"

52°47'18"

51°48'45"

88°59'50"

89°47'36"

51°59'32"

52°00'10"

89°46'58"

72°17'18"

74°44'20"

74°46'34"

254.500

49.500

D

NB TEMP CONN PI 510+65.20
A=021-03-02 RT
D=010-00-00
R=572.96'
L=210.51'
T=106.45'
X=254147.608
Y=49936.744

NB TEMP CONN PC 509+58.75
NB TEMP CONN PT 511+69.26

E

10TH AVE CONN PI 402+12.74
A=059-19-34.09 LT.
D=021-00-00
R=272.84'
L=282.51'
T=155.39'
X=254237.113
Y=49751.292

10TH AVE CONN PC 400+57.35
10TH AVE CONN PT 403+39.86

C

MED PI 517+43.00
A=019-30-00.06 RT.
D=002-30-00
R=2291.83'
L=780.00'
T=393.81'
X=254846.856
Y=50222.946

MED PC 513+49.19
MED PT 521+29.19

④ T.H.35 N.B. P.O.T. 510+94.17= 10TH AVE. PED. BR. P.O.T. 10+22.00

⑤ T.H.35 S.B. P.O.T. 510+93.39= 10TH AVE. PED. BR. P.O.T. 9+78.00

⑥ 10TH AVE. CONN POC 403+06.10= 10TH AVE PED. BR. POT 10+02.72

⑦ 10TH AVE CONN P.O.T. 400+01.06= SUP. ST. P.O.T. 108+86.21

① MED POT 510+93.78= 10th AVE. PED. BR. POT 10+00.00

② 10th AVE. PED. BR. POT 10+73.04= N TR POT 1018+42.63

③ 10th AVE. PED. BR. POT 10+87.41= S TR POT 1018+42.68

A

N. TR. PI. 1023+03.34
A=022-44-48 RT
D=002-45-00
R=2083.68' (Chord Def'n.)
L=827.15'
T=419.14'
X=254737.995
Y=50056.621
N TR PC 1018+84.20
N TR PT 1027+11.35

B

S. TR. PI 1023+00.62
A=022-46-24 RT
D=002-45-00
R=2083.68' (Chord Def'n.)
L=828.12'
T=419.64'
X=254744.752
Y=50043.561
S TR PC 1018+80.98
S TR PT 1027+09.10

SCALE
100'
50' 50'

LAKE SUPERIOR

UTILITIES LAYOUT SHEET

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