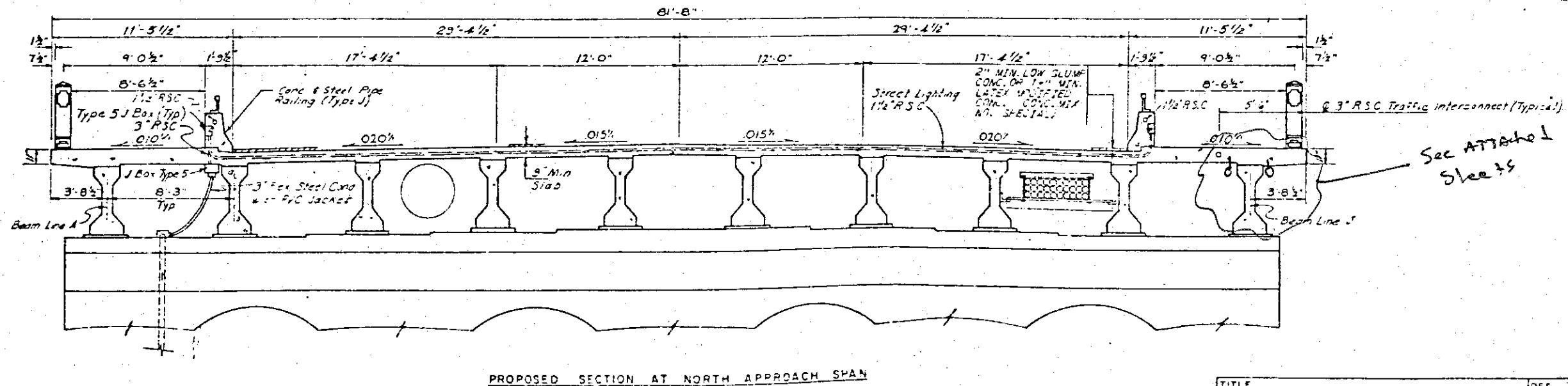


APPROVED

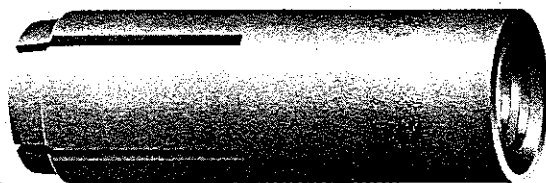
STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
TECHNICAL SERVICES DIVISION  
OFFICE OF BRIDGES AND STRUCTURES

JCS 12/8/98



TITLE		DES. 244	FOR L.D.M.	APPROVED	Bridge No.
PROPOSED DECK SECTIONS		CHK 244	CHK 244	5-7-77	2440
		Sheet No. 6 of 148 Sheets			

# Flush-Mount Internal Thread Anchor Meets Wide Range of Fastener Requirements



## Advantages:

- Installs flush with base material.
- Shallow embedment depth for high performance.
- Internal thread
- Anchor is preassembled for fast, easy installation.

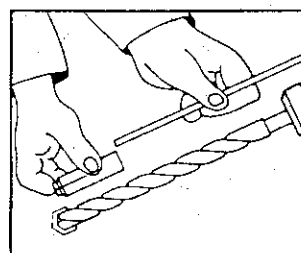
## Listings/Approvals

- Underwriter Laboratories Control No. 767G
  - Factory Mutual serial No. 22765
  - International Conference of Building Officials Report No. 2895
  - Southern Building Code Congress International Report No. 8913
  - City of Los Angeles Report No. 23709
- Meets the description in Federal Specification FF-S-325, Group VIII, Type 1

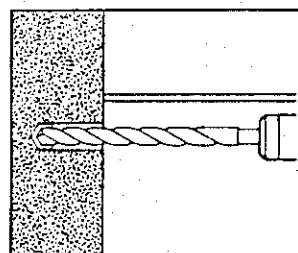
## Materials

- HDI Carbon Steel material meets the requirements of SAE 1110M or SAE 1010 for the 1/4", 3/8", 1/2", 5/8" and 3/4" HDI's.
- HDI Stainless Steel material meets the requirements of AISI 303.
- Carbon Steel HDI plated with a dull zinc finish for corrosion protection in accordance with ASTM B633, Sc. 1, Type III.

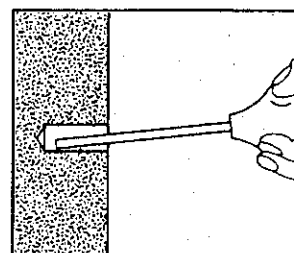
## Installation Instructions



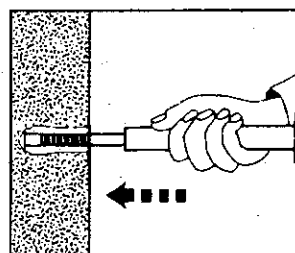
1. Adjust the depth gauge so anchor will be flush with the base material surface.



2. Hammer-drill the hole.



3. Clean hole.



4. Install anchor using proper setting tool. Setting tool to be driven into anchor until setting tool shoulder meets top of anchor.

1/2" MAX!

## Anchor Program HDI Sizes: Carbon Steel

Item Number	Description	Anchor Size	Embed. and Anchor Length	Hilti Drill Bit Diameter	Allowable Working Loads 4000 psi Concrete*		Ultimate Loads 4000 psi Concrete*		Usable Thread Length	Quantity per box
					Tension (lbs)	Shear (lbs)	Tension (lbs)	Shear (lbs)		
00045752	HDI 1/4"	1/4"	1"	3/8"	570	625	2270	2500	7/16"	100
00045753	HDI 3/8"	3/8"	1 9/16"	1/2"	1115	1259	4460	5000	5/8"	50
00045754	HDI 1/2"	1/2"	2"	5/8"	1785	2125	7140	8500	11/16"	50
00243262	HDI 5/8"	5/8"	2 9/16"	27/32"	2920	3250	11685	13000	7/8"	25
00243261	HDI 3/4"	3/4"	3 3/16"	1"	4065	5000	16260	20000	1 3/8"	25

\*See Product Technical for complete performance data.

## Anchor Program HDI Sizes: Stainless Steel

Item Number	Description	Anchor Size	Embed. and Anchor Length	Hilti Drill Bit Diameter	Allowable Working Loads 4000 psi Concrete*		Allowable Ultimate Loads 4000 psi Concrete*		Usable Thread Length	Quantity per box
					Tension (lbs)	Shear (lbs)	Tension (lbs)	Shear (lbs)		
00045787	HDI(SS303) 1/4"	1/4"	1"	3/8"	480	600	1930	2400	7/16"	100
00045788	HDI(SS303) 3/8"	3/8"	1 9/16"	1/2"	1040	1230	4170	4920	5/8"	50
00045789	HDI(SS303) 1/2"	1/2"	2"	5/8"	1840	2760	7350	11040	11/16"	50
00045790	HDI(SS303) 5/8"	5/8"	2 9/16"	27/32"	2630	4510	10540	18040	7/8"	25
00045791	HDI(SS303) 3/4"	3/4"	3 3/16"	1"	3830	5580	15340	22320	1 3/8"	25

\*See Product Technical for complete performance data.

## Hand Setting Tools for HDI Anchors



Item Number	Description	Sets Anchor Size
00032978	HST 1/4" Setting Tool	1/4" HDI
00032979	HST 3/8" Setting Tool	3/8" HDI
00032980	HST 1/2" Setting Tool	1/2" HDI
00032981	HST 5/8" Setting Tool	5/8" HDI
00032982	HST 3/4" Setting Tool	3/4" HDI

## Automatic Setting Devices for HDI Anchors

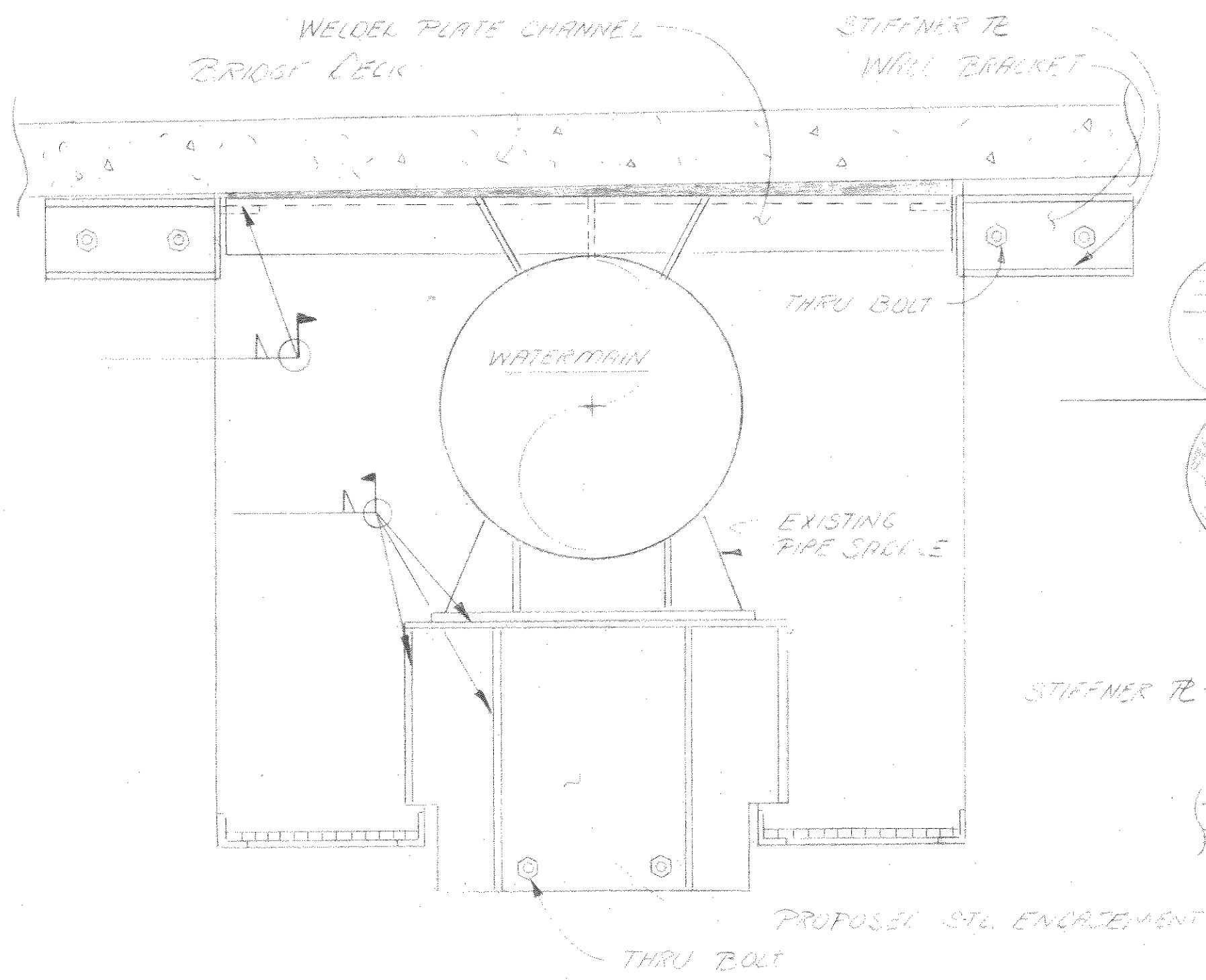


Use with TE 5, TE 5A, TE 10, TE 12S, TE 14, TE 15, TE 18, TE 22 and TE 24 Rotary Hammer Drills.

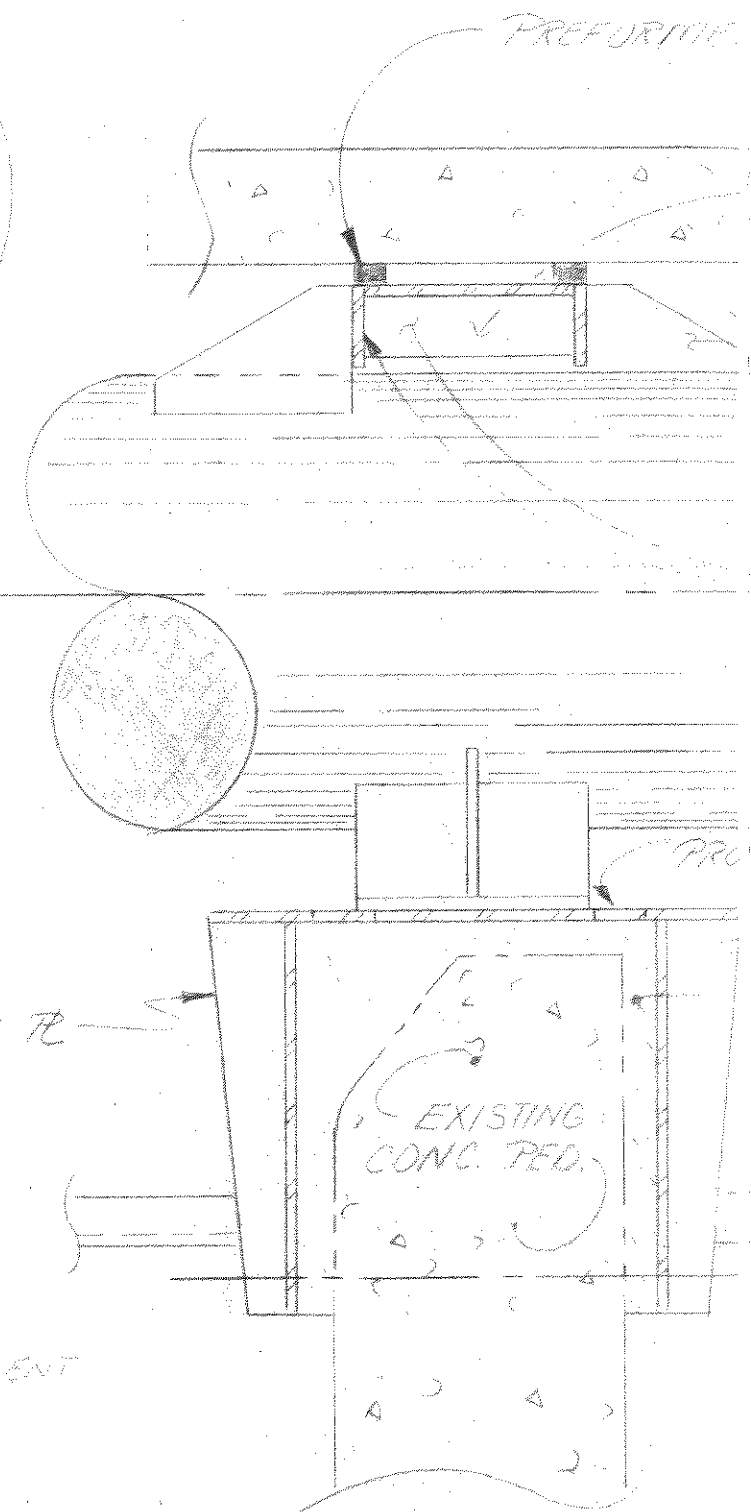
Item Number	Description	Sets Anchor Size
00030207	Setting Tool TE-C-SD 10	3/8" HDI
00030208	Setting Tool TE-C-SD 12	1/2" HDI

UPPER ANCHOR MOD  
(REQ'D @ 2 LOC.)

LOWER ANCHOR MODIFICATIONS  
(REQ'D @ 3 LOC.)



ELEVATION VIEW



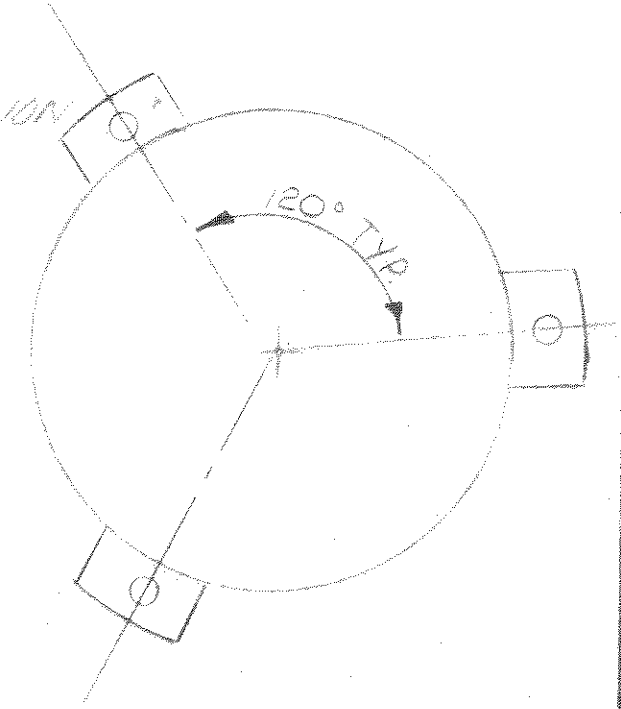
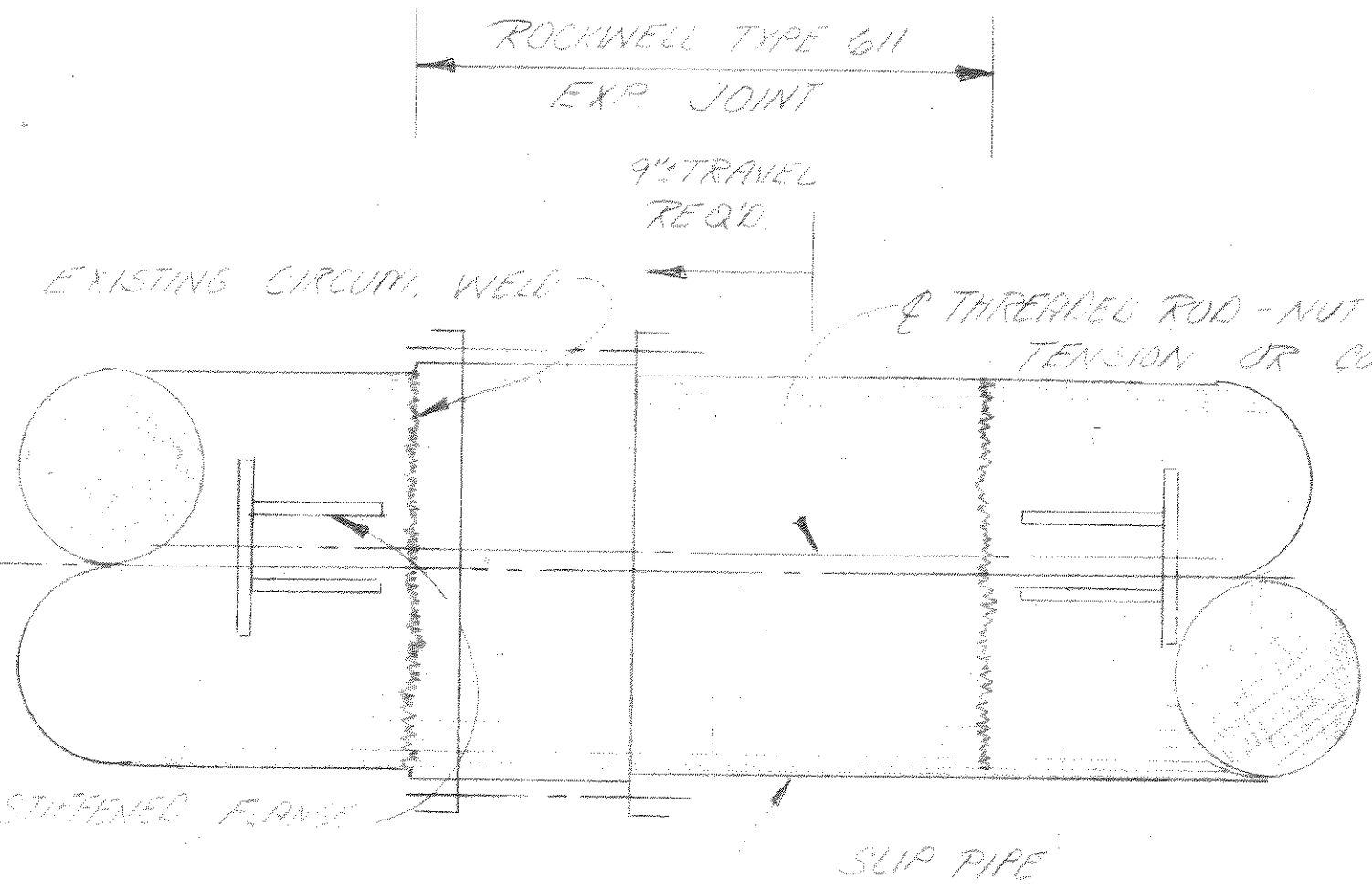
SECTION

EXPANSION JT.

WEL STIFFENER @  
RADIAL SHEAR PL (LOCA)  
RADIAL SHEAR PL (3 REQ'D)

CHANNEL TO BE COATED  
WITH CORROSION  
INHIBITOR AFTER FAB.  
AND PRIOR TO INSTALLATION.

OF HOLES FOR GROUT  
PLACEMENT  
NON-SHRINK  
GROUT

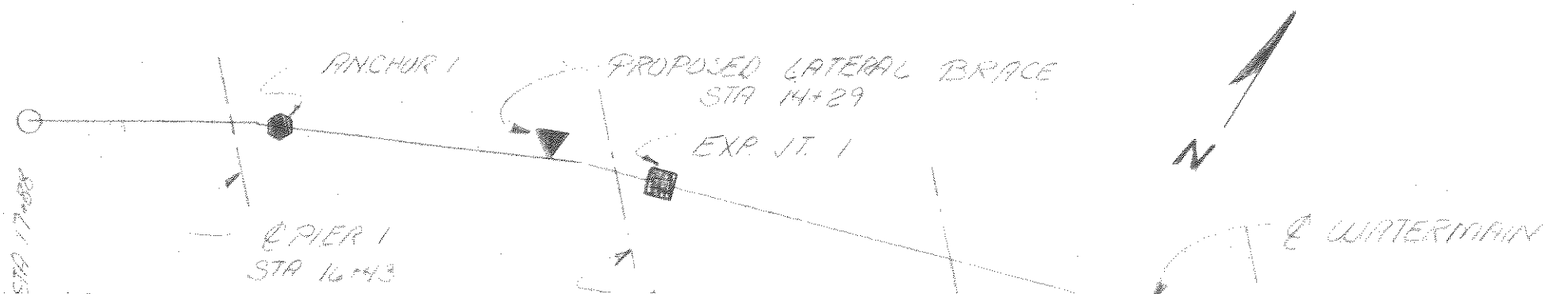


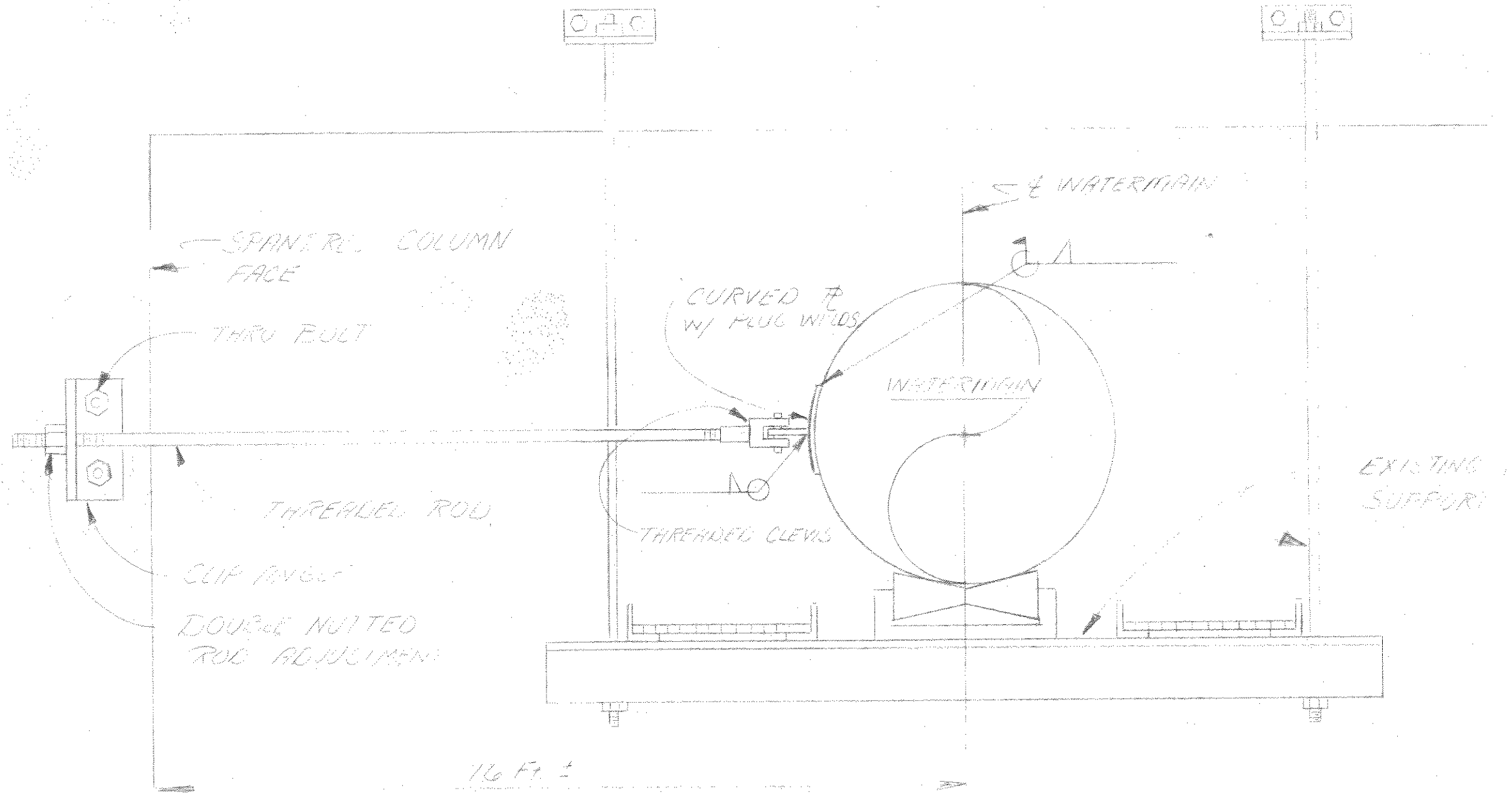
3  
2

# EXPANSION JOINT REPAIR

N.T.S.

CAUTION: WATERMAIN MAY  
BE RESTRAINED IN THE  
EXPANDED POSITION.





(CONCEPTUAL) 2 LATERAL BRACE - 2 REQ'D

1

SCALE: 3/4"=1'-0"

**HNTB**

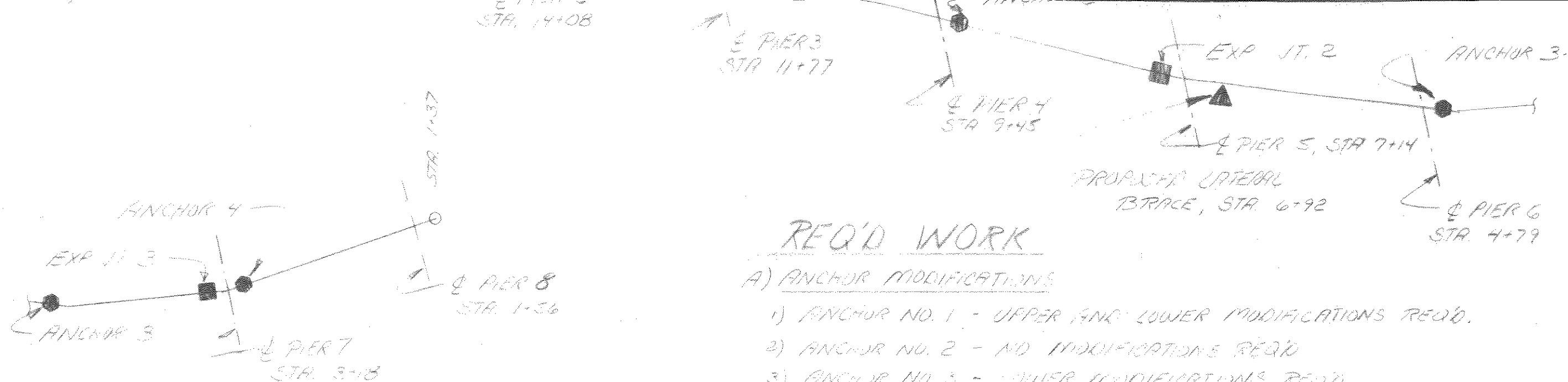
HOWARD NEEDLES TAMMEN & BERGENDOFF

REVISIONS

DATE

BY

SUPERVISED:



## REQ'D WORK

### A) ANCHOR MODIFICATIONS

- 1) ANCHOR NO. 1 - UPPER AND LOWER MODIFICATIONS REQ'D.
- 2) ANCHOR NO. 2 - NO MODIFICATIONS REQ'D
- 3) ANCHOR NO. 3 - LOWER MODIFICATIONS REQ'D.
- 4) ANCHOR NO. 4 - UPPER AND LOWER MODIFICATIONS REQ'D.

### B) EXPANSION JOINT REPAIR

- 1) PULL BACK WATERMAIN AND RE-PACK EXP. JT. 3

### C) ADDITIONAL LATERAL SUPPORT

- 1) PROVIDE 2 LATERAL BRACES AS SHOWN

## SCHEMATIC PLAN VIEW

N.T.S.

### GENERAL NOTES:

- 1) WATERMAIN INSULATION AND JACKET DISTURBED DURING MODIFICATIONS AND EXPANSION JOINT REPAIR SHALL BE REPAIRED.
- 2) PREFORMED EXPANSION JOINT AND NON-SHRINK GROUT SHALL BE APPROVED BY ENGINEER PRIOR TO PURCHASE.
- 3) ALL STRUCTURAL METAL EXPOSED TO ATMOSPHERE SHALL BE COATED WITH CORROSION INHIBITOR PER MANUFACTURE'S SPECIFICATIONS. CORROSION INHIBITOR SHALL BE APPROVED BY ENGINEER PRIOR TO PURCHASE.
- 4) CEMENT-MORTAR LINING OF WATERMAIN SHALL BE REPAIRED AFTER WELDING TO WATERMAIN.
- 5) REPACKING OF EXPANSION JOINT, WITH NEW GASKET MATERIALS, SHALL BE INCLUDED IN SCOPE OF WORK.
- 6) CONTRACTOR SHALL SUBMIT METHOD OF TEMPORARILY SUPPORTING THE WATERMAIN (DURING LOWER ANCHOR MODIFICATIONS) TO THE ENGINEER FOR APPROVAL FIVE WORKING DAYS PRIOR TO MOBILIZATION.
- 7) CONTRACTOR SHALL SUBMIT TO ENGINEER A WORK SCHEDULE INCLUDING EQUIPMENT, AND MANPOWER PROPOSED 5 WORKING DAYS PRIOR TO MOBILIZATION.

TITLE **WATERMAIN MODIFICATIONS**  
**3RD AVE BRIDGE**

DES: RMV  
CHK: DRA

DR: RMV  
CHK: DRA

APPROVED:

**Sheet No. 1 of 1 Sheets**

**Bridge No.**

**2440**

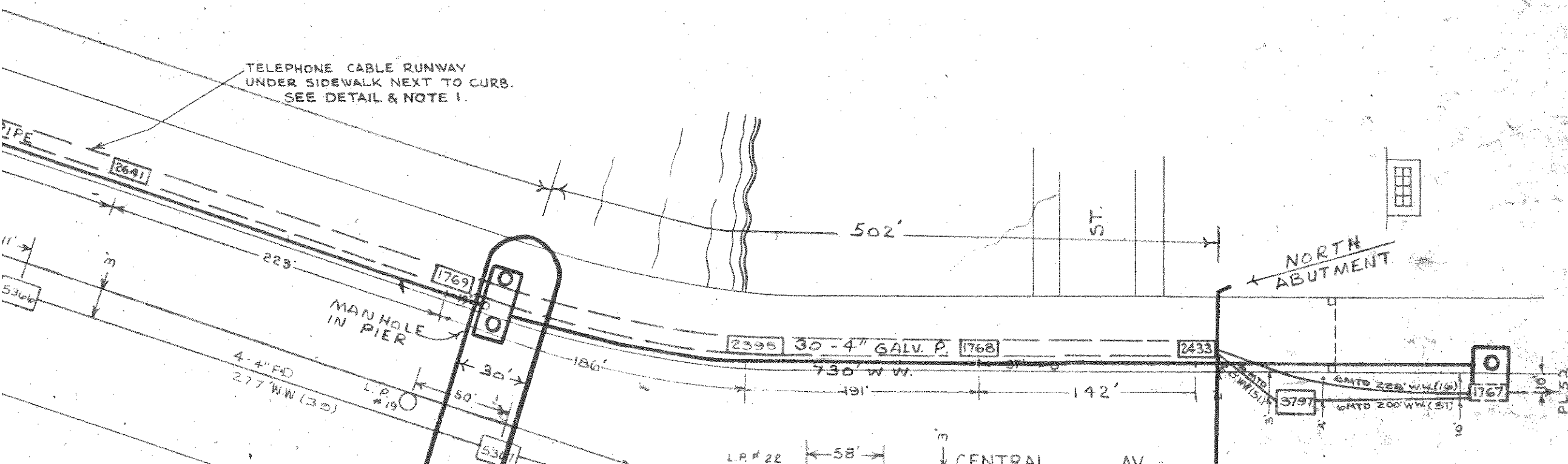


3<sup>RD</sup> . AV. S.  
(3<sup>RD</sup> AV. BRIDGE)

FROM 1ST ST. S. TO PRINCE ST. S.E.

# MINNEAPOLIS

PLATE 517





1-2"x4" CREO. PINE STRIP

1"x4" CREO. PINE STRIP

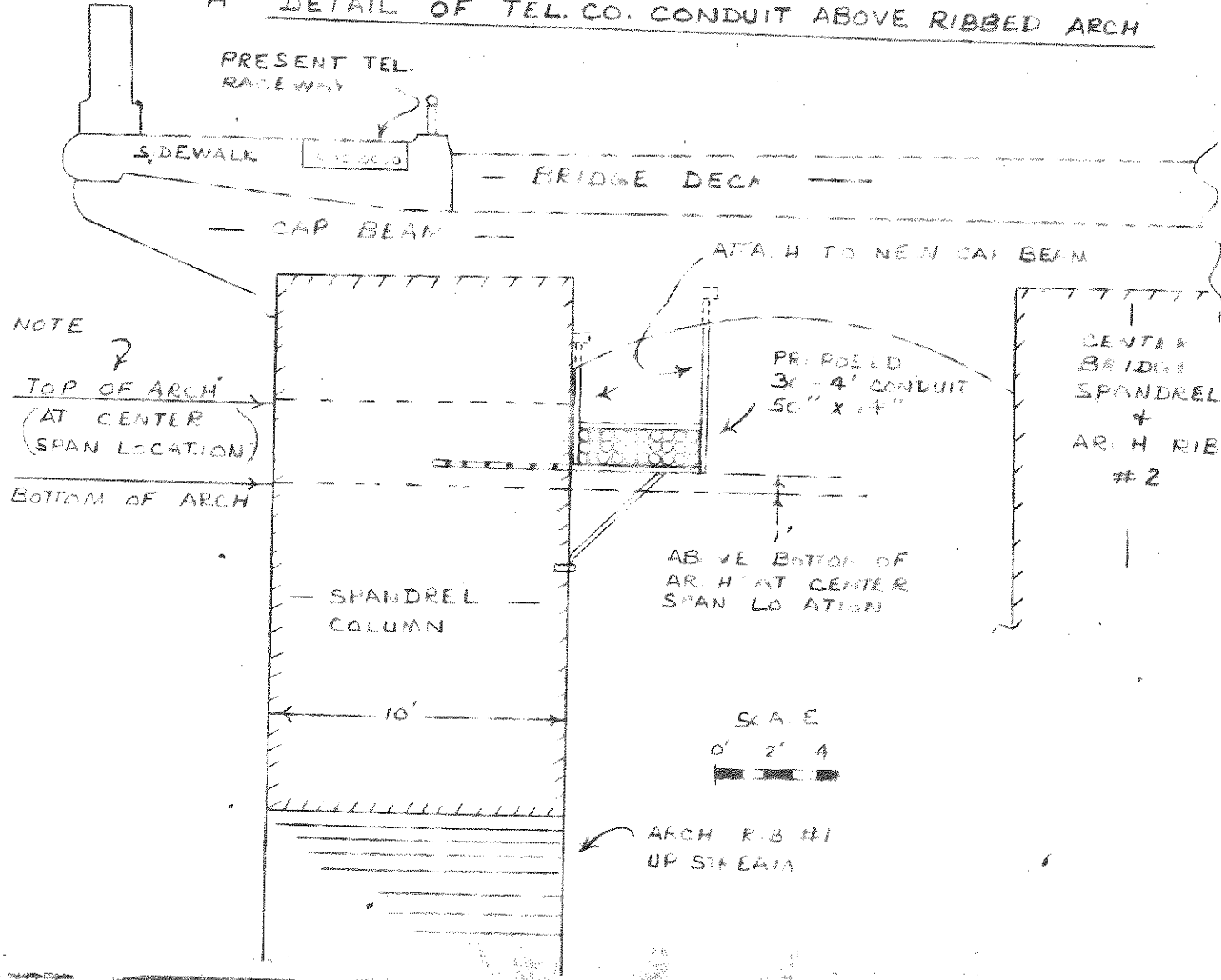
TEL. CABLE RUNWAY

CREO. PINE FLOORING

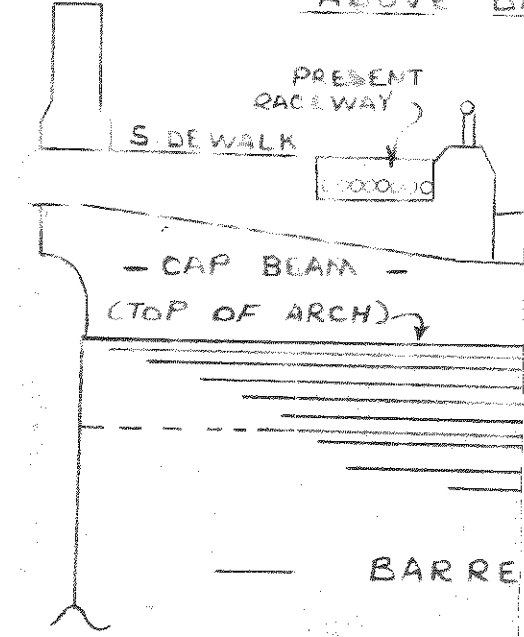
# DETAIL

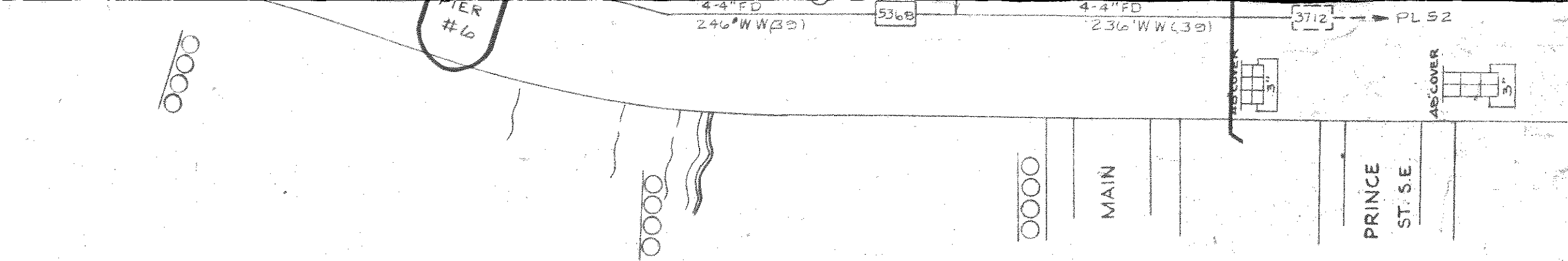
NOTE 1:  
NO UNIT COST DEVELOP  
RUNWAY UNDER SIDE  
INCLUDED IN UNIT CO  
ASSOCIATED MANHOL

## "A" DETAIL OF TEL. CO. CONDUIT ABOVE RIBBED ARCH



## "B" DETAIL OF TEL. CO. CONDUIT ABOVE RIBBED ARCH





SPANDREL COLUMN  
SPAN LOCATION

7 SUPPORTS REQUIRED  
3 LOTS IN SPANDREL COLUMNS.  
("HOLE TO BE CHIPPED THROUGH")



SKETCH NUMBER 2  
NORTHWESTERN BELL TELEPHONE CO.  
CABLE + CONDUIT FACILITIES ON THE  
3RD AVENUE BRIDGE OVER THE  
MISSISSIPPI RIVER IN MINNEAPOLIS,  
MINN.

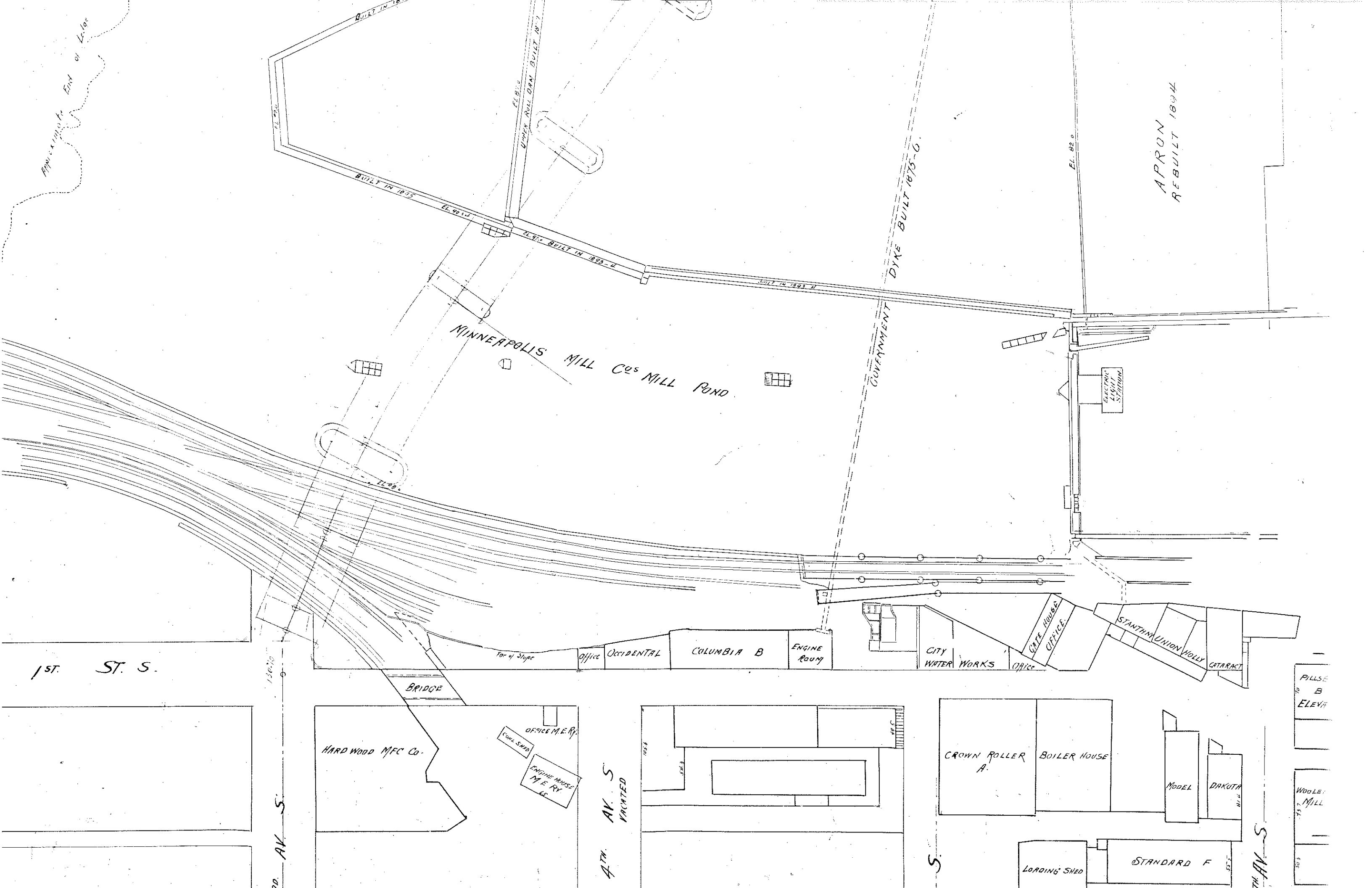
JRG - PROJ. ENGR. 4-28-72





BYC 2440

WASTEN



Approx. 100 ft. End of Lake

100' 0" AV. S.

1ST ST. S.

4TH AV. S.  
VACATED

4TH AV. S.

MINNEAPOLIS MILL CO'S MILL POND

DYKE BUILT 1875-6

APRON  
REBUILT 1894

For of Slope

BRIDGE

HARDWOOD MFC CO.

OFFICE M.E.R.V.

ENGINE HOUSE  
M.E.R.V.

COW SHED

Office

OCCIDENTAL

COLUMBIA B

ENGINE ROOM

CITY

WATER WORKS

GATE HOUSE  
OFFICE

STANTON UNION HOLLY

CATARACT

CROWN ROLLER  
A.

BOILER HOUSE

MODEL

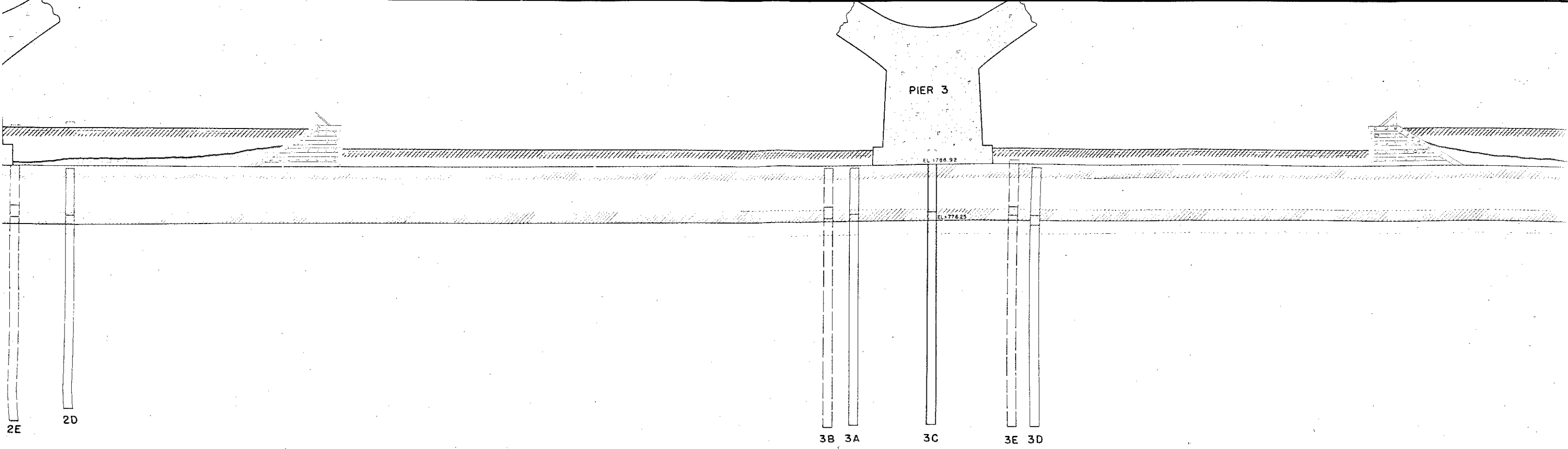
DAKOTA

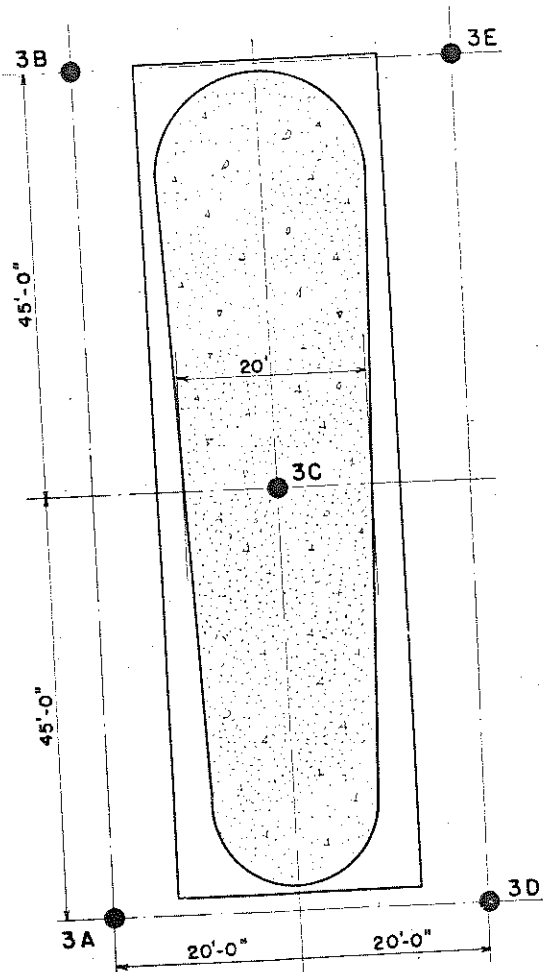
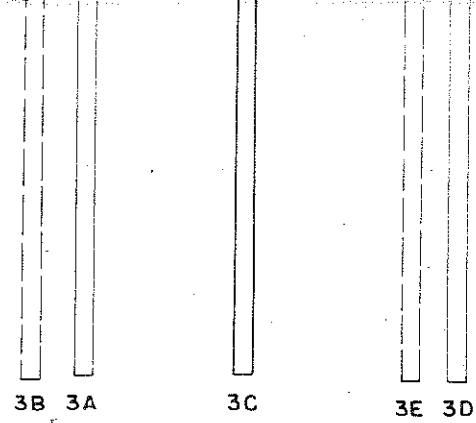
STANDARD F

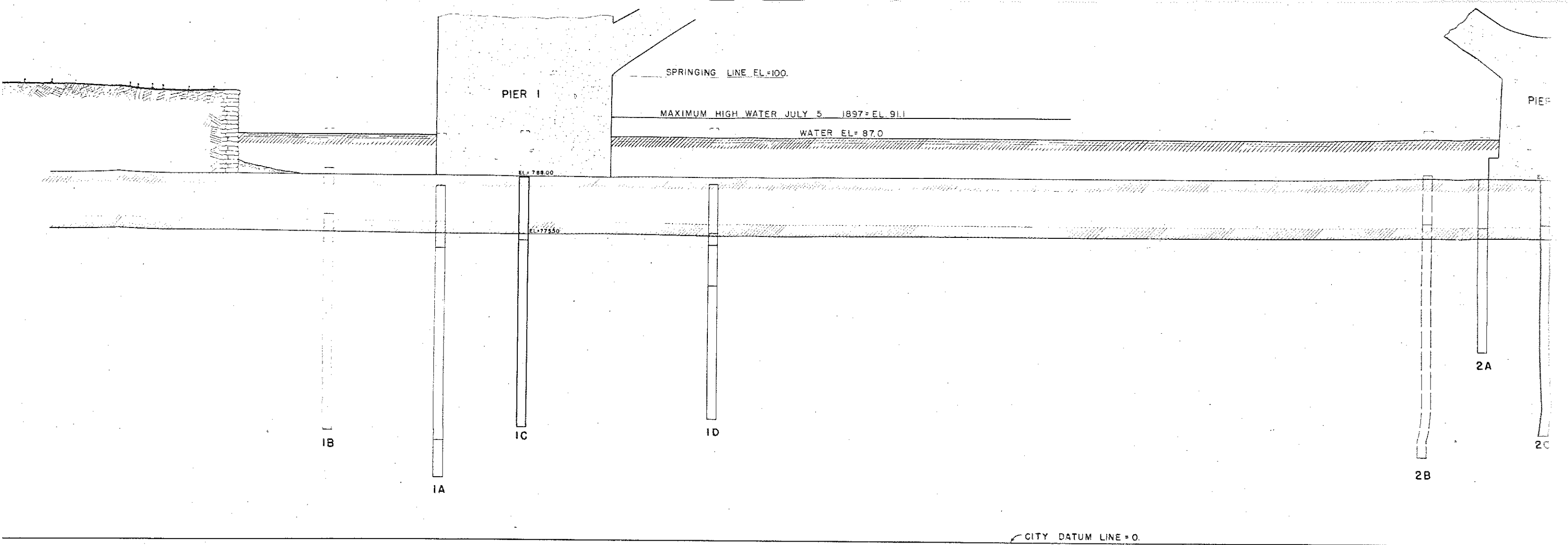
LOADING SHED

PILLSE  
B  
ELEVATOR

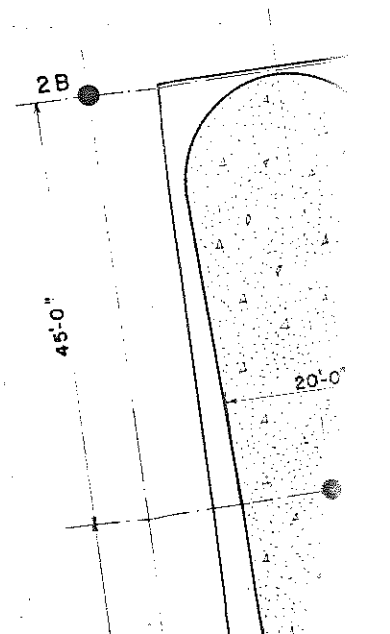
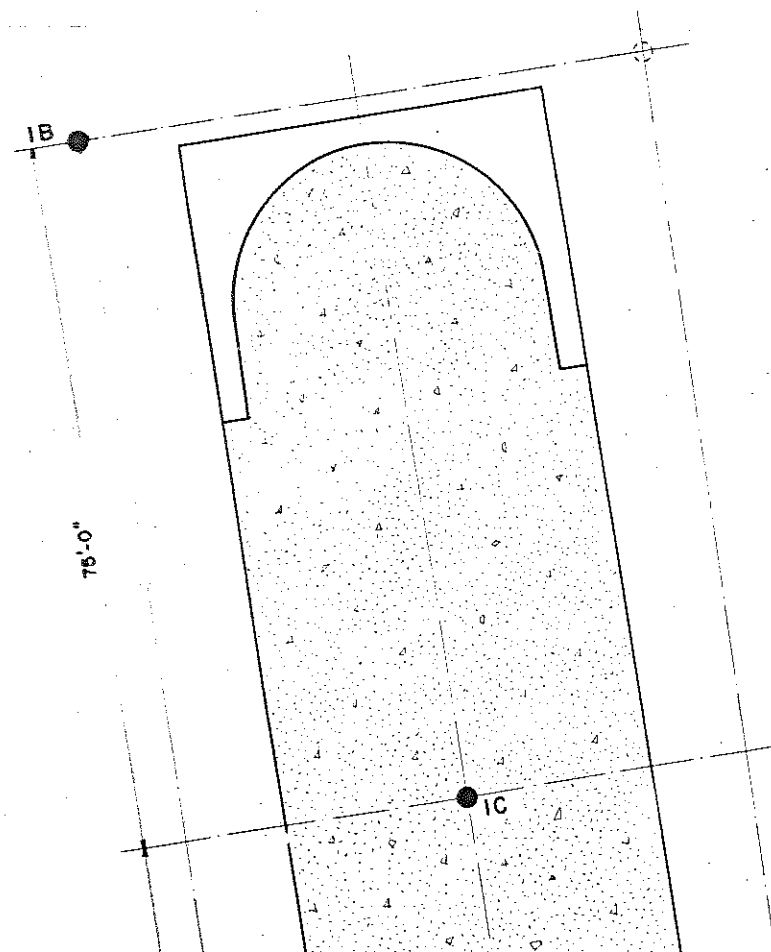
WOOLLEY  
MILL



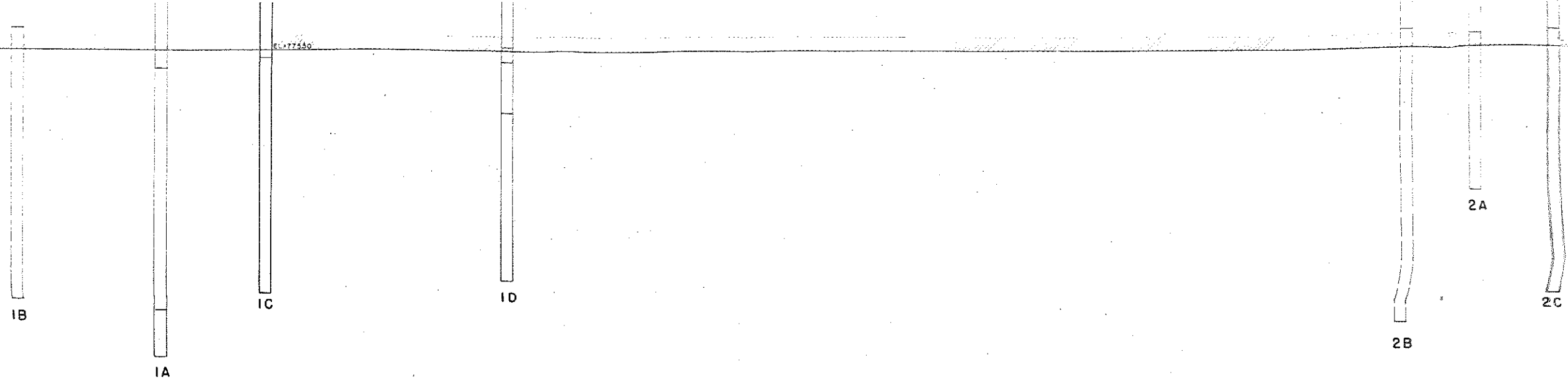




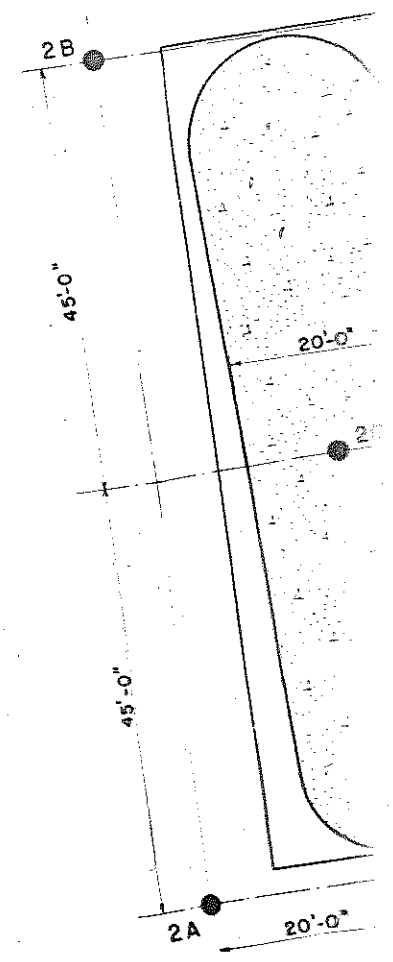
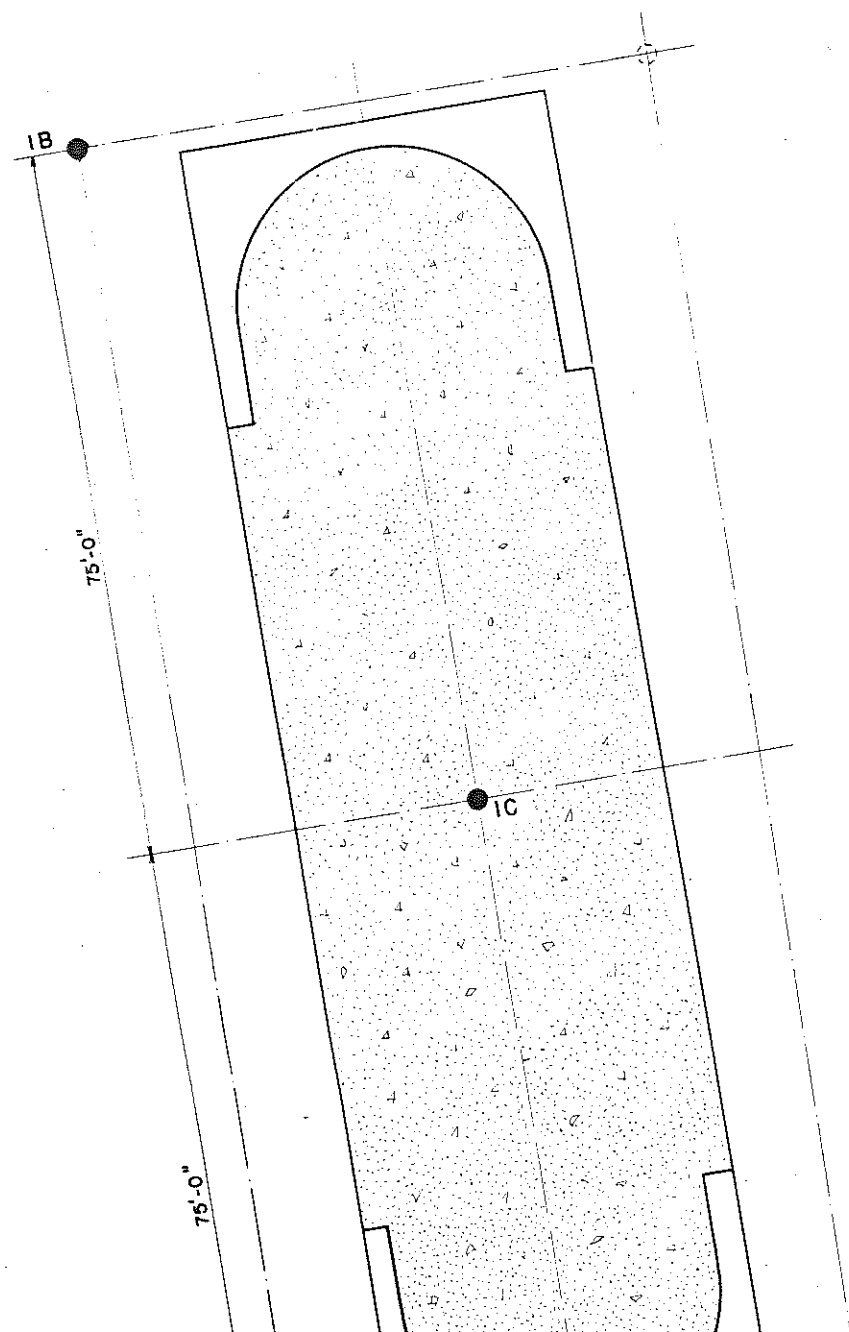
9.53



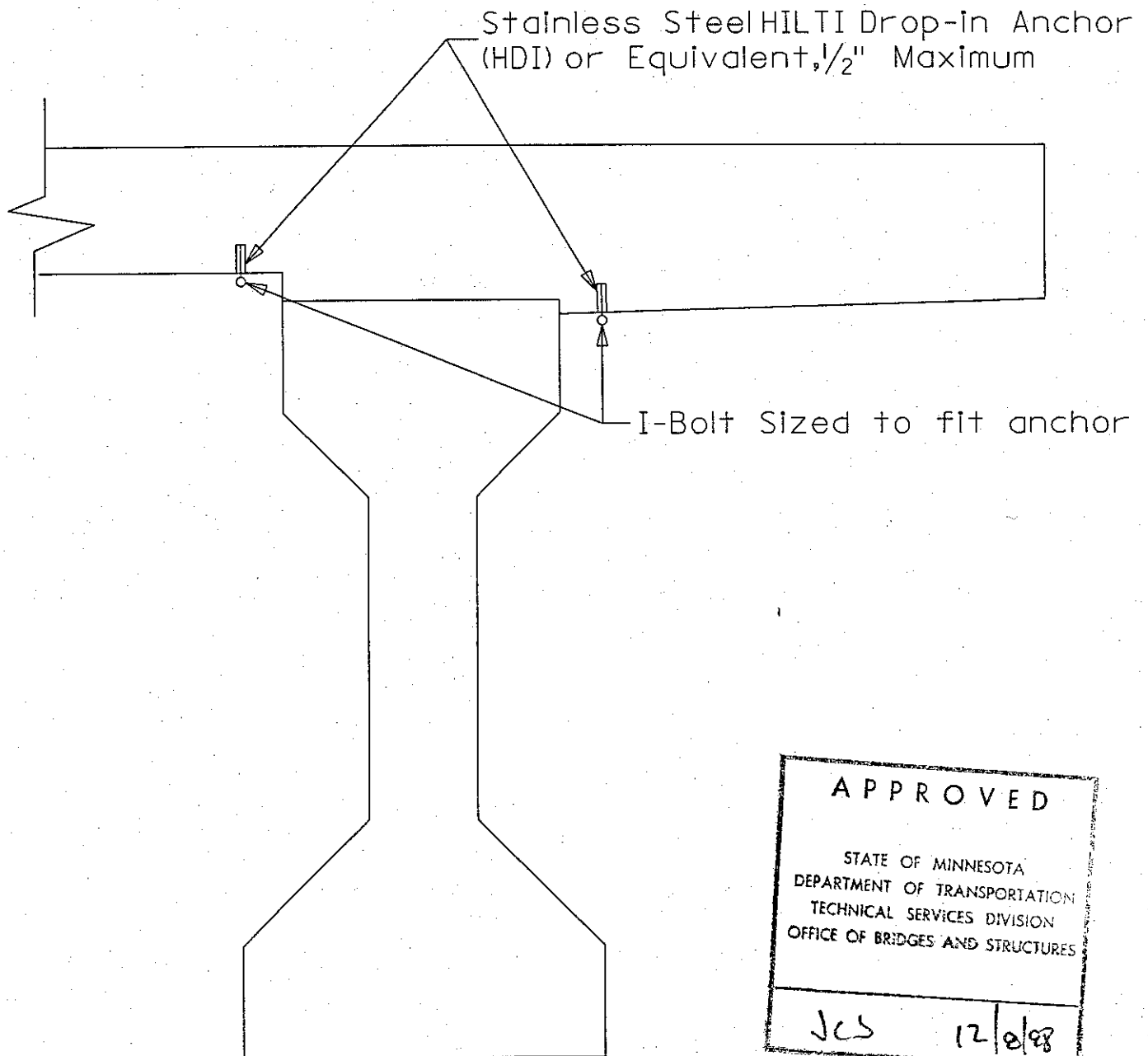




CITY DATUM LINE = 0.



Bridge No. 2440





**MISSISSIPPI MILE  
HOTLINE  
673-5123**

Promotions Committee

Ard Godfrey House  
(Minneapolis Woman's Club)  
Minneapolis Community  
Development Agency  
Minneapolis Downtown Council  
Minneapolis Park and Recreation  
Board  
Minnesota Historical Society  
Riverplace, Inc.  
St. Anthony Falls Heritage Board  
St. Anthony Main  
Sawadee Thai Restaurant

Participating Interests

American Lion & Supply  
Anthony's Wharf Restaurant  
APCOA Parking  
Aster Coffee Cafe  
Bobino Cafe & Wine Bar  
Brighton Development  
City Lights Horse-drawn Carriages  
Fireman Fine Art Gallery  
Foster Wheeler Twin Cities, Inc.  
Greater Minneapolis Convention  
and Visitors Association  
Hostelling International  
Imperial Parking  
John Drummond & Associates  
Kikugawa Restaurant  
LaRive Condominiums  
Lourdes Square Townhomes  
Minneapolis Aquatennial  
Association  
Minneapolis Telecommunications  
Network  
Minnesota Heritage Festival  
Museum of Questionable Medical  
Devices  
Nicollet Island Inn  
Northern States Power  
Nye's Polonaise Restaurant  
Old St. Anthony Association  
Old Spaghetti Factory  
Origami Restaurant  
Our Lady of Lourdes  
Paddelford Picket Co.  
Perfect Host Catering  
Phillips Beverage Co.  
Pillsbury  
Prairie On Main  
RiverCity Trolley  
Riverwest Apartments  
St. Anthony Municipal Parking  
St. Anthony Main Event Centre  
Sophia Restaurant  
Tarascino Coffee  
The Soap Factory  
The Whitney Hotel  
TUGGS River Saloon  
Ukrainian American Center  
Winslow House

November 18, 1998

Keith Van Wagner  
MN Department of Transportation  
Metro Division Waters Edge  
1500 West County Road B-2  
Roseville, MN 55113  
Te. 612.582.1443, Fax: 612.582.1454

RE: BANNER ATTACHED TO SIDE OF 3RD AVE  
BRIDGE OVER MAIN STREET SE, MPLS

Dear Keith Van Wagner,

It was very nice to talk with you a few weeks ago with regard to the St. Anthony Main/3rd Avenue Bridge area. The space beneath the bridge has been very helpful when presenting the large civic events we do along the Minneapolis Riverfront.

As we spoke about, we believe that banners placed on the side of the 3rd Avenue Bridge over Main Street would be very visible to the thousands of people who attend the events. (Please see following diagram.)

DeMars Signs is a licensed and bonded sign installation company who have reviewed the site and say that reusable toggle bolts could effectively hold the banner down on the bottom and the top of the banner could be tied to the bottom of the railing. In this way, if another banner was placed at this location for another event or for next year, no additional bolts would be added. We would reuse the same toggle bolt already installed. We are interested in a 4' X 30' banner potentially one on each side. We of course will insure the banner while it is up with MN Dot as an additional insured.

Our first dates of interest are late June through early July.

Thank you for your consideration, I look forward to talking with you about this soon.

Best Regards,

*Victoria*  
Victoria Barlow Keith  
MPLS Riverfront Arts & Events 612.980.5764



MISSISSIPPI MILE  
HOTLINE  
673-5123

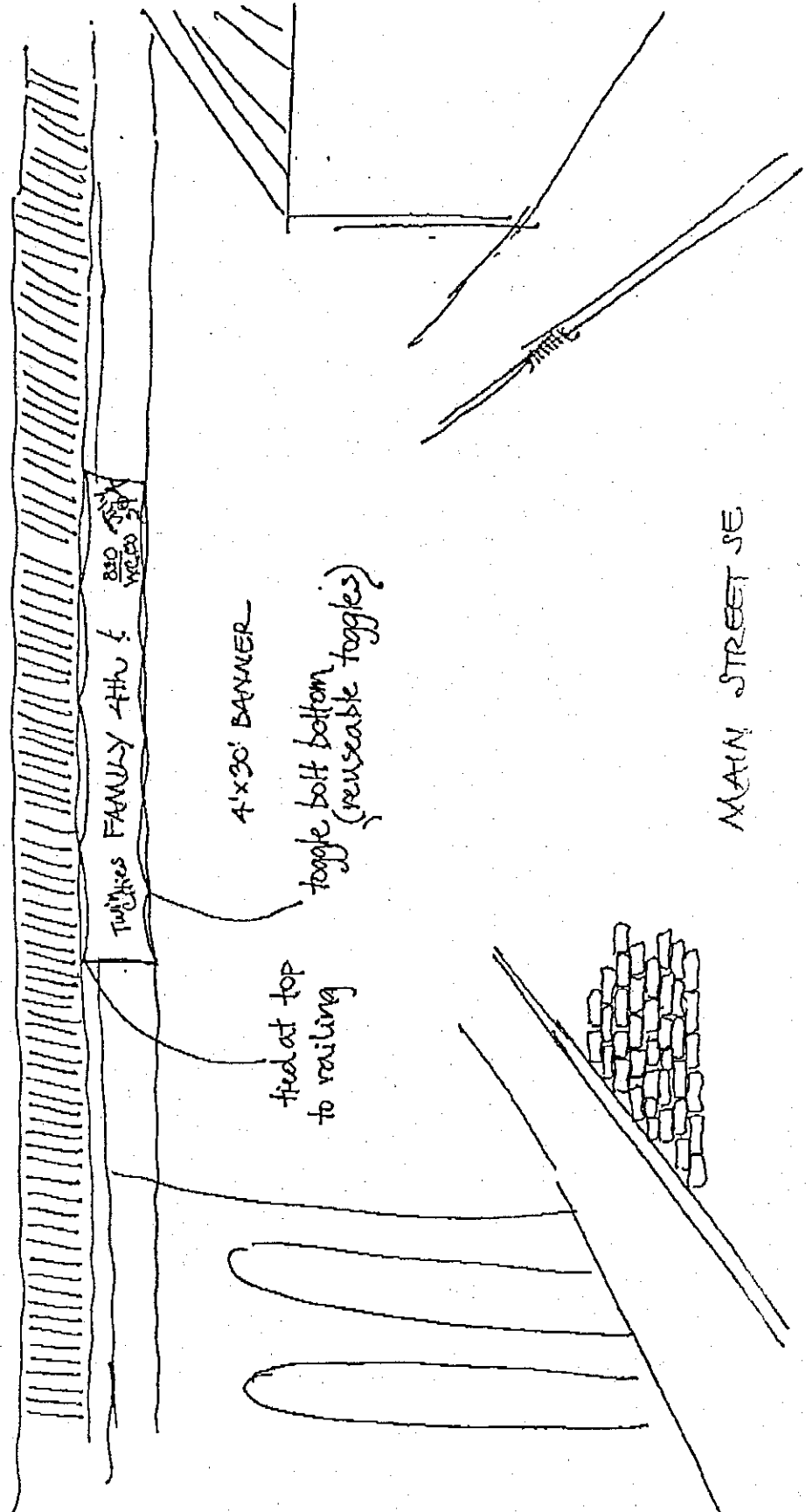
Promotions Committee

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Hostelling International  
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John Drummond & Associates  
Kikugawa Restaurant  
LaRive Condominiums  
Lourdes Square Townhomes  
Minneapolis Aquatennial  
Association  
Minneapolis Telecommunications  
Network  
Minnesota Heritage Festival  
Museum of Questionable Medical  
Devices  
Nicollet Island Inn  
Northern States Power  
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Riverwest Apartments  
St. Anthony Municipal Parking  
St. Anthony Main Event Centre  
Sophia Restaurant  
Tarascino Coffee  
The Soap Factory  
The Whitney Hotel  
TUGGS River Saloon  
Ukrainian American Center  
Winslow House

3RD AVE/CENTRAL BRIDGE  
OVER MAIN ST. SE



# Northwestern Bell Telephone Company

## CONDUIT SUPPORTING SYSTEM

on

### THIRD AVENUE BRIDGE

over

### MISSISSIPPI RIVER

Minneapolis, Minnesota

## Specifications Contract Documents

MR. J. S. OAKES - *Division Engineer*  
*Northwestern Bell Telephone Company*

## CONTRACT

Form No. 3088  
(Rev. 7-69)

For:

Estimate No.

Location:

Job Order No.

This contract, made this            day of            , 19            , between  
NORTHWESTERN BELL TELEPHONE COMPANY, a corporation, hereafter called the "Company",  
and            , hereafter called the "Contractor", witnesseth:

WHEREAS, the Company desires to have certain work performed and the Contractor is willing to perform the work according to the terms and conditions of this contract and in accordance with the drawings and specifications referred to herein,

NOW, THEREFORE, the parties warrant, covenant and agree as follows:

1. The Contractor shall complete all of the work specified in Exhibit A. The exact location of the work is shown on drawings to be furnished to the Contractor by the Company.
2. All work shall be done according to the terms and conditions of this Contract, the special conditions, if any, and the drawings and specifications listed or referred to herein, and according to such requirements or instructions as are lawfully imposed by governmental authority, or by property owners with whom it is necessary to come in contact. The Contractor shall complete all work in a good and workmanlike manner, with promptness and diligence, and to the complete satisfaction of the Company's Representative.
3. The Company shall pay to the Contractor and the Contractor agrees to accept in full and final payment for the work, subject to additions and deductions as provided in this Contract and subject to the other terms and conditions of this contract the following:

hereinafter called the "contract price".

4. If there are additions or alterations to, or deductions or deviations from the work shown in the specifications and drawings, as provided in this contract, the following unit prices or unit rates insofar as applicable, shall be used to adjust the above mentioned contract price payable to the Contractor:

5. Periodic progress payments may be made to the Contractor if provided for herein. The right to any periodic progress payments shall be as follows subject, however, to all of the other terms and conditions of this contract:

6. The work shall be commenced on or before \_\_\_\_\_, 19\_\_\_\_, and shall be completed no later than \_\_\_\_\_, 19\_\_\_\_. Time is of the essence of this contract. The Contractor shall, upon request, begin and carry out the work at such points and in such order of precedence as the Company's representative may direct.
7. The Company shall not be liable to the Contractor for damages for delay of the Contractor or the work caused by the Company or other contractors employed by the Company. The Contractor shall have an extension of time for the completion of the work for any delay caused by the Company.
8. The contract completion date shall not be extended because of any delay caused by the Contractor's poor or defective workmanship or failure to supply work or materials which conform to the drawings or specifications.
9. The Contractor shall furnish and transport all necessary tools, equipment, and labor, unless otherwise provided, and all materials necessary to perform the work except such items of material as are herein specified to be furnished by the Company. All material furnished by the Contractor shall be of the quality specified by the Company.
10. The Company shall furnish the items of material specified in Exhibit B, if any.
11. All materials furnished by the Company shall be delivered to the Contractor at storeyards or other points to be designated by the Company's Representative. The Contractor shall have charge and be responsible for all such material upon and after its delivery to the Contractor, and the Contractor shall return to the Company all such material not required for completion of the work.
12. The Company reserves the right to make such additions, subtractions or changes regarding the work as the Company deems necessary or desirable, and if necessary because of additions or changes the contract completion date will be reasonably extended by written order from the Company's Representative or by written agreement of the parties. No additions or changes shall affect the contract completion date unless so provided in writing. The Contractor shall perform all changes under the terms of the original contract unless otherwise specified in writing by the Company's Representative. No payment for changes shall be made unless the work and the price therefor have been authorized in writing by the Company's Representative.
13. If changes involve a material or substantial increase or decrease in the Contractor's cost of performance of the work, the contract price shall be adjusted as follows: Unit prices shall be used insofar as applicable. If unit prices are not applicable, such price adjustment shall be as agreed upon by the parties and a supplemental agreement shall be executed. If the parties cannot agree upon the amount of the price adjustment, the contract price shall be increased or decreased at a reasonable valuation of such increased or decreased work at rates prevailing in the locality or community where such changes are required.
14. The Company shall have the right to require the Contractor to furnish a performance bond and a labor and material payment bond covering the faithful performance of the contract and the payment of all obligations arising thereunder in such form and amount as the Company may prescribe and with such sureties as the Company may approve. If such bonds are required prior to the Contractor submitting his bid, the premiums shall be paid by the Contractor; if such bonds are required subsequent to the submission of quotations or bids, the cost of such premiums shall be reimbursed by the Company. The Contractor shall deliver the required bonds to the Company not later than the date of execution of the contract. The bonds shall provide that omissions from, or additions to, the work covered by the contract may be made without notice to the sureties.



15. All work is to be done wholly at the risk of the Contractor, and during its progress the Contractor shall take all precautions for its proper and safe performance. The Contractor shall at all times prevent damage to telephone plant and shall not use any equipment or methods which in the judgment of the Company's Representative will endanger or may interfere with telephone service. The Contractor shall at all times provide adequate protection for any subsurface of adjacent structures or utilities.
16. The Contractor assumes the sole responsibility for notifying all public utility companies and municipalities of any work operations hereunder which may damage, or otherwise interfere with, any property owned or possessed by the public utility companies and municipalities, including, but not limited to, such property as pole lines, towers, wires, strands, supports, and buried cables, conduits, gas pipes, oil pipes, water pipes, sewers, and tile lines; the Contractor shall protect and prevent injury to all such properties owned or possessed by public utility companies and municipalities. The Contractor will assume full responsibility and liability for reimbursing the said public utility owners or possessors for any damages to any of their properties which are caused by the careless or negligent acts or omissions of the Contractor, or trespasses by the Contractor.
17. Unless otherwise ordered by the Company's Representative, the Contractor shall restore all property which may be disturbed in the execution of the work to its former condition and to the satisfaction of any property owners or any governmental authority affected thereby. Should the Contractor fail to properly restore property which it has disturbed and should the owner thereof, a governmental authority or the Company incur any expense in restoring the same, the Contractor shall reimburse such owner, governmental authority or the Company for all such expense.
18. The Company's Representative will inspect all work and materials furnished by the Contractor and may condemn or reject any or all of such work or materials if in his opinion the same are not in accordance with this contract or with the specifications and changes, but the failure of the Company's Representative to inspect, condemn or reject work or materials shall not be construed as an acceptance of such work or materials by the Company, nor shall the Company be barred at any time from recovery of damages or of such sums of money as may be necessary to perform or to complete the work or to furnish the materials in accordance with this contract or the specifications and drawings.
19. Without prejudice to the Company's other remedies, if in the opinion of the Company's Representative the Contractor refuses or fails to make prompt payment to subcontractors or for material or labor, or fails to supply sufficient number of workmen, or the proper quantity or quality of materials, or the necessary tools and equipment, or refuses or fails in any respect to carry on the work with promptness and diligence in a good and workmanlike manner or to the satisfaction of the Company, or uses equipment or methods which will endanger or may interfere with telephone plant or service, or violates any of the terms or conditions of this contract, the Company may give the Contractor 24 hours written notice to remedy such defaults; and upon the failure of the Contractor to remedy such default within such time, the Company reserves the right to take over all labor, materials and appliances on the ground, to provide labor and material and to complete or have completed any part of the work. The cost of such completion by the Company shall be deducted from the unpaid balance, if any, due or which may become due to the Contractor under this contract. If there is no such unpaid balance, or if the cost of such completion by the Company is in excess of the unpaid balance, the Contractor shall reimburse the Company for such cost less the amount of such unpaid balance, if any.
20. At any time during the progress of the work, or within 12 months thereafter, notwithstanding final acceptance and payment, the Company may condemn or reject any or all the work if, in its opinion, the same are not in accordance with the contract or drawings or specifications. The Contractor shall, at the Contractor's own expense, repair or replace any work condemned or rejected within 24 hours after receiving written notice from the Company's Representative of the condemnation or rejection if notice is given during the process of the work. If the notice is given at any time following completion of the work, the Contractor shall repair or replace any work condemned or rejected within 7 days after receiving written notice; provided, however, that if the Company notifies the Contractor that any work condemned or rejected is of a critical nature, the Contractor shall repair or replace the work within

24 hours after receiving written notice from the Company's Representative. If the Contractor fails to complete promptly the repair or replacement of the work, the Company may recover from the Contractor the cost of making the same and the damage, if any, resulting therefrom; or, the Company may deduct the cost of making the same and the damage, if any, resulting therefrom from any amount due or to become due under this contract.

21. Payment or taking possession of the work by the Company shall not be conclusive evidence of completion of this contract either in whole or in part, or be construed as an acceptance or waiver of defective work or improper materials, or relieve the Contractor from making good such defects. The final acceptance or payment shall not be binding upon the Company should it subsequently develop that the Contractor has supplied improper materials or defective workmanship, or has departed from the terms of this contract or the drawings or specifications.
22. The contract price to be paid by the Company to the Contractor for the work includes any and all local state and federal taxes, charges and excises (including sales, use and excise taxes) that may be imposed in connection with the performance of the work (including the provision of material not furnished by the Company). The Contractor expressly assumes and agrees to pay such taxes, charges and excises.
23. In the event that unknown solid rock ("solid rock" does not include boulders or patches of rock less than five feet in length, unless such patches occur continuously) or other unknown obstructions such as sewer, water or gas mains are encountered, requiring deviations from standard practices, the location of which are unknown and not visible from the surface, and such unknown rock or structures are not shown or referred to on any of the specifications, drawings or other contract documents, records of other utilities, or the records of the municipality involved, the contract price shall be adjusted for such additional work as is required because of the existence of such unknown rock or obstructions. Such price adjustment shall be an amount agreed upon by the parties and a supplemental agreement shall be executed. If the parties have not agreed to and cannot agree upon the amount of such price adjustment, the contractor shall be reimbursed for the reasonable value of such additional work at rates prevailing in the locality or community where such additional work is required. In the event the Contractor encounters such unknown rock or obstructions, the Contractor shall inform the Company's Representative at once and the Company's Representative shall determine the manner in which the difficulty shall be handled prior to further work by the Contractor.
24. The right of the Contractor to receive any periodic payments shall be evidenced by a Statement of Estimate in the form approved by the Company. This form shall be filed with, and approved by, the Company's Representative before the amount claimed therein shall be due and owing.
25. Approval of any Statement of Estimate or periodic payment thereon shall not be construed as acceptance of any part of the work, nor shall final payment or acceptance of the work affect the total and final responsibility of the Contractor.
26. All periodic payments by the Company to the Contractor shall be made on or about the 20th day following receipt of the Contractor's approved Statement of Estimate. Until the full contract price specified in this contract has been reached, the periodic payment to the Contractor shall be 85 percent of the value of the (a) work done and material furnished and completely incorporated in the work during the period covered by the Statement of Estimate, and (b) materials or fabricated articles delivered to the work site, provided the Company's Representative shall have given to the Contractor written notice of the Company's election to accept billing therefor prior to incorporation into the work. The balance shall be retained by the Company as partial security for the faithful performance and completion of the work until final payment is due under the terms and conditions of this Contract. If suits have been commenced, liens have been filed, demands or claims of any kind have been made or asserted by third parties against either the Contractor or the Company in excess of the total amount being retained as partial security by the Company, the Company may withhold additional sums otherwise due the Contractor up to the total amount of all such suits, liens, demands or claims.

27. If the Contractor's rights under the contract have been assigned to a successor contractor, then the amount specified to be retained by the Company as part security pursuant to this contract shall apply anew to the successor contractor and be exclusive of, and in addition to, all amounts retained as part security against the contractor whose contract rights have been assigned to the successor contractor.
28. Final payment shall not be due and owing by the Company until 30 days have elapsed after completion of the work, after all the terms and conditions of this contract have been met, after written acceptance by the Company's Representative of all the work, and after receipt of the final bill.
29. Neither the final payment nor any portion of the retained partial security shall become payable until the Contractor delivers to the Company a complete release or waiver of all liens, or all lien rights, or at the option of the Company, receipts in full in lieu thereof, and an affidavit in the form prescribed by the Company stating that insofar as the Contractor has knowledge or information the release and receipts include all the labor and materials for which a lien could be filed. The Company may elect to pay, settle or discharge any suit, lien, demand or claim filed or asserted by any person, including but not limited to materialmen, subcontractors or laborers, out of the funds described in this contract which are retained by the Company as partial security for the faithful performance and completion of the work, in which event the funds which are so expended shall be deducted from the contract price.
30. At the written request of the Company, the Contractor shall, by bonding or otherwise, secure the prompt discharge of all liens. If any liens remain unsatisfied after all payments are made, the Contractor shall reimburse the Company for all monies that the Company may be compelled to pay in discharging all liens, including all costs and reasonable attorneys' fees.
31. The Contractor assumes full responsibility for all injuries to, or death of, any person or persons or for damages to property, including property and services of the Company, and for all claims, losses or expenses which may in any way arise out of the performance of the work, whether caused by negligence or otherwise, and the Contractor shall indemnify and save the Company harmless from all claims, losses, expenses or suits for such injuries, death or damages and from all liens, losses, expenses or claims of any sort which may arise out of the performance of the work and shall defend, on behalf of the Company, any suit brought against the Company for any such damage, injury, or death and shall reimburse the Company for attorneys' fees and for all other expenses incurred by the Company in connection with or as a result of any suit.
32. The Company reserves the right to solicit bids from, and to award contracts to, other contractors for additional work in connection with the work. The Contractor shall cooperate with all other contractors, including but not limited to, the reasonable opportunity for storage of material on the work site; the Contractor shall schedule and proceed with his work around points of delay in his work or work of others.
33. If there is more than one contractor employed on the work, each contractor shall be responsible to the other for damages to work or persons or loss caused by neglect or failure to finish work at the proper time.
34. Unless otherwise required by applicable ordinances, codes or statutes, any necessary building permits or right of way grants will be obtained and paid for by the Company. All other necessary permits, licenses and certificates, municipal or otherwise, required in connection with the work, will be obtained and paid for by the Contractor who shall deliver all such permits or certificates to the Company. The Contractor shall give all requisite notices relative to the work to the proper authorities, and have all necessary inspections made at a time as not to delay the work.

35. The Contractor shall, at Contractor's own expense, carry public liability insurance including contractor's protective liability insurance, and automobile liability insurance, each with minimum limits of \$300,000/\$300,000 for bodily injury and \$100,000 for property damage, and workmen's compensation insurance, all with respect to work performed by or for the Contractor. The Contractor shall carry the liability insurance with companies acceptable to the Company and certificates of insurance or such other evidence of insurance as the Company may require shall be filed with, and approved by the Company before any work is started at the work site. The Contractor shall require subcontractors to carry Workmen's Compensation Insurance and adequate liability insurance.
36. The Contractor shall comply, at Contractor's own expense, with all applicable provisions of the workmen's compensation, unemployment compensation, sickness and disability, and social security laws, Fair Labor Standards Act and all other local, state and federal laws or regulations relating to employment and to the licensing and operation of contractors. Upon request from the Company, the Contractor shall submit evidence of compliance with or coverage or qualification under all applicable laws or regulations.
37. The relationship of the Contractor with the Company hereunder shall be that of an independent contractor. The Contractor shall have full control and direction over the mode and manner of doing the work and of his personnel employed on or about the work.
38. The Contractor shall not assign or sublet the work or any part thereof, nor shall the Contractor assign this contract or any money payable hereunder, without the written consent of the Company. All work performed by a subcontractor shall be deemed work performed by the Contractor.
39. If the Contractor becomes insolvent or is adjudged a bankrupt, or if the Contractor, without the written consent of the Company, assigns or sublets the work or any part thereof or assigns this contract or any money payable hereunder, the Company may, at its option, terminate this contract and shall thereupon be relieved from all liability hereunder to any person or persons.
40. By the execution hereof, the Contractor admits being fully informed as to the nature and location of the work, the physical, climatic and other conditions prevailing at the work site, and all other matters which may in any way affect the work, the cost thereof, or the time for performing the work. By way of example but not limiting the foregoing, the Contractor admits: (a) having examined the specifications, drawings and all other contract documents; (b) having made a thorough visual inspection of the job site, the size and location of the work areas, the access thereto, and the availability of utilities; (c) having considered the records of other utilities, the records of the municipality involved, and all the underground structures known to exist as shown on such records or the specifications or drawings including, but not limited to, the existence of sewer, gas, water, telephone and electric lines, mains and cables and structures; and (d) having fully informed himself as to the scope and amount of work required, and as to the nature, character, quality and quantity of the surface and subsurface materials and conditions to be encountered including, but not limited to, the water and soil conditions.
41. The Contractor agrees not to unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, sex, or age. If the work specified in Exhibit A is necessary to the performance of any United States Government contract held by the Company and is not exempt from Executive Order 11246, the Contractor shall comply with all of the equal opportunity provisions in Section 202 of such Executive Order as amended by Executive Order 11375, which are hereby incorporated by reference; and if the contract price set forth herein exceeds \$50,000, the full text of such equal opportunity clause is attached hereto and made a part hereof as an exhibit.

42. The Contractor warrants and covenants that no person or agency has been retained to solicit or secure this contract for a fee, excepting bona fide employees or bona fide commercial or selling agencies maintained by the Contractor for the purpose of securing business; further, that no kickbacks, rebates or favors of any nature have been or will be made or granted to any person with reference to this contract and, further, that no collusive arrangements have been made with other contractors or persons bearing in any way upon this contract. In the event of any breach or violation of this warranty and covenant, the Company shall, without prejudice to any other cause of action it may have, have the right to terminate this contract and retain for itself any unpaid amounts which would otherwise be due or would become due to the Contractor under this contract.
43. No waiver of, or failure to exercise any option, right or privilege under the terms of this contract on any occasion or occasions shall be construed to be a waiver of the same or any other option, right, or privilege on any other occasion.
44. The Company's Representative is or other person designated in writing by him or the Company. The Company's Representative shall have authority to interpret the Company specifications and all drawings or special conditions listed or referred to herein, and shall have authority to resolve any inconsistency between any of the contract documents.
45. The Contractor hereby admits having read each and every clause, document and exhibit of the contract and hereby agrees to comply with all the terms set forth herein.
46. This contract consists of pages 1 through            inclusive and includes the following documents which are hereby made a part of this contract:
- (a) Exhibit A (Detailed description of work).
  - (b) Exhibit B, if any (Description of material, if any, to be furnished by the Company).
  - (c) Exhibit C, if any (Special conditions).
  - (d) Drawings and/or specifications:  
Dated  
Entitled  
Pages 1 through            inclusive.
  - (e) Attached full text of equal opportunity clause if required by paragraph 41.

IN WITNESS WHEREOF, the Company and the Contractor have caused this agreement to be duly authorized and executed in duplicate the day and year first above written.

(Contractor)

By  
(Signature)

(Title)

NORTHWESTERN BELL TELEPHONE COMPANY

By  
(Signature)

(Title)

## SPECIAL PROVISIONS

### DIVISION A

#### A-1 SCOPE OF WORK

The work consists of furnishing all plant, labor, materials and equipment required for installation of the conduit system on the 3rd Avenue Bridge as shown in the plans and these Special Provisions.

#### A-2 GOVERNING SPECIFICATIONS

The State of Minnesota, Department of Highways, "Standard Specifications for Highway Construction," dated January 1, 1972, on file in the office of the Consulting Engineering Firm of Howard, Needles, Tammen & Bergendoff shall apply on this Contract, except as modified or altered in the following Special Provisions.

All reference therein to the State and the Highway Department of the State of Minnesota shall be read as reference to the Northwestern Bell Telephone Company and reference to the Commissioner of Highways and Engineer shall be read as reference to District Engineer, Northwestern Bell Telephone Company.

#### A-3 (1205) EXAMINATION OF PLANS, ETC.

The provisions of M.H.D. 1205 are hereby supplemented by the following:

When the State has taken test borings on a project, they may or may not be indicated in the Plans. These borings were made by ordinary and conventional methods and with care deemed adequate for the State's design purposes. The logs of the borings which may be shown in the plans may have been edited or abridged and may not reveal all information which might be useful or of interest to the Contractor. Consequently, the State will make available at its offices the field logs and/or laboratory logs relating to the borings, and the Contractor is invited to examine the same. However, since these borings were not taken to gather information relating to the construction of the project, the data noted in the field and recorded on logs may not necessarily be the same as that which a Contractor would desire. Therefore, while the State believes that the information as to the conditions and materials reported within each test hole is accurate, it does not warrant that

the information is necessarily complete. Since subsurface conditions outside of each individual test hole are unknown to the State and soil, rock and water conditions cannot be relied upon to be consistent or uniform, no warrant is made that conditions adjacent to test borings will necessarily be the same as shown on the logs. Furthermore, the State will not be responsible for any interpretation made by the Contractor.

The absence of notations on the logs regarding water does not necessarily mean that the borings were dry or that the Contractor may not encounter subsurface water during the course of construction.

#### A-4 (1904) EXTRA AND FORCE ACCOUNT WORK

Extra work performed in accordance with the provisions of M.H.D. 1403 will be classified and paid for in accordance with the provisions of M.H.D. 1904, except as modified below:

The following shall be substituted for the existing provisions in Part (d) of the first paragraph of M.H.D. 1904:

(d) Miscellaneous Compensation - In addition to the compensation provided above, for Labor, Materials, and Equipment Rental, the Contractor will be allowed his actual costs in satisfying the requirements of M.H.D. 1708 if any force account work is ordered to be performed on the Right of Way of any Railroad. Such additional compensation will be allowed only to the extent that there is no duplication or overlapping of charges allowed in connection with subsections (a), (b), and (c) above.

For any force account work performed by a Subcontractor with the written authorization of the Engineer, the Contractor will be paid the actual and reasonable costs of its performance as computed on the foregoing basis, plus an additional allowance to cover administration, general superintendence, and other overhead expenses not otherwise recoverable. Such additional allowance shall be a percentage of the total force account invoice, equal to 10 percent of the first \$1,000, plus 2 percent of the balance in excess of \$1,000.

The compensation provided by the foregoing provisions shall be accepted by the Contractor as payment in full for Extra Work done on a force account basis. Except as otherwise allowed in the case of authorized subcontract work, no direct compensation will be allowed for general superintendence, timekeeper wages, the use of small tools, and other costs for which no specific allowance is herein provided.

#### A-5 (1906)PARTIAL PAYMENTS

Partial payments will be made in accordance with the provisions of M.H.D. 1906, except as modified below:

The third paragraph is deleted and the following substituted therefor:

"From the total of the amounts ascertained as payable, an amount equivalent to not less than 5 percent of the whole will be deducted and retained by the Department in protection of its interests until released as herein-after provided. The balance, less all previous payments, will be certified for payment."

Additional amounts may be withheld to cover any and all other charges assessable against the Contractor.

The fifth paragraph is deleted and the following substituted therefor:

"When the work under contract has been completed to the extent that less than 5 percent of the original Contract value remains to be completed, or upon completion and acceptance of a major structure or other separate division of the work, the Department may release to the Contractor such portions of the retained funds as it considers to be in excess of the amount adequate for protection of its interests. Before any reductions are made in the amounts retained, the Contractor may be required to furnish an affidavit of consent from his Sureties."

#### A-6 COMPLIANCE WITH ELECTRICAL CODES AND STANDARDS

Bidders are advised that compliance with the provisions of M.H.D. 1702, M.H.D. 2545.2A, and the first paragraph of M.H.D. 2545.3A will be particularly enforced in conjunction with the construction of any kind or type of electrical system, conduit or conduit system for the conveyance of electrical conductors, or the required portions thereof, as specified in the Contract. The Minnesota Electrical Act requires that a permit be obtained for the performance of all such work, including the installation of conduits.

#### A-7 SHOP DRAWINGS AND INSPECTION

Four (4) sets of shop detail drawings of the Conduit System shall be furnished for preliminary review. One (1) set will be returned to the fabricator showing any necessary corrections.

Eight (8) sets of corrected shop detail drawings of the Conduit System shall be prepared and furnished to the Structural Metals Engineer for final approval and distribution. The shop detail drawings shall conform to the applicable sections of M.H.D. 2471.



All galvanized material to be inspected and certified by Minnesota Highway Department inspectors.

Fabrication and inspection of structural metals used for the Conduit System shall be in accordance with the applicable sections of M.H.D. 2471.

In general, all conduit runs shall be straight and true and all offsets and bends shall be uniform and symmetrical. The Contractor shall adjust the elevations of the conduit assembly, for its full length, to approximately the gradient shown in the Plans.

On site inspection will be performed by personnel of Minnesota Highway Department and Northwestern Bell Telephone. Approval by Minnesota Highway Department inspectors will be required before removal of any portions of the bridge structure are started.

#### A-8 COAST GUARD REQUIREMENTS

All work in and over the river is subject to the regulations of the United States Coast Guard to govern work in navigable waters. The Contractors operations will be under the jurisdiction of the Coast Guard so far as these regulations are concerned.

The Contractor shall notify the Commander, Second Coast Guard District, 1520 Market Street, St. Louis, Missouri, 63103 at least 10 days prior to commencement of construction operations on this project.

#### A-9 CONSTRUCTION OPERATIONS

To expedite handling materials the Contractor will be permitted to cut access holes in the present deck. The location and size of the access holes shall be subject to approval by the Minnesota Highway Department Engineers. The Contractor shall install acceptable protective devices for traffic while the holes are open and also shall cover or repair all access openings when they are not in use by methods acceptable to the Engineer.

The Contractor shall at his own expense replace, restore, or rebuild, to the satisfaction of the Engineer, any portion of the structure, including utility lines, damaged by his operations.

All material or debris removed or dismantled from the structure shall be disposed of outside the limits of the Right of Way by the Contractor in any manner he elects.

The Contractor shall take the necessary precautions to prevent construction materials, equipment, or debris from falling into the river.

Should the Contractor, during the progress of the work, lose, dump, throw overboard, sink, or misplace any material, machinery, or appliance, which, in the opinion of the Coast Guard may be dangerous to or obstruct navigation, he shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such obstructions, to the Coast Guard, and when required, shall mark or buoy such obstructions until the same are removed. Should he refuse, neglect, or delay compliance with the above requirements, such obstructions may be removed by the Coast Guard, and the cost of such removal may be deducted from any money due or to become due the Contractor, or may be recovered under his bond.

The Contractor shall provide such protective devices over the roadway and railway as may be necessary to protect traffic from falling objects, spatter or other hazards which may exist during his construction operations. Such devices shall include flagmen in sufficient numbers to adequately warn oncoming traffic of any hazards which may exist.

The Contractor's attention is directed to the requirements of M.H.D. 1708 which shall apply except that the Contractor shall secure all necessary easements to permit hauling of material across the tracks of a railroad over a private crossing.

The special bond required shall be in the amount of \$2,000.

The Contractor's special attention is directed to the requirements of M.H.D. 1712 as they pertain to the protection and restoration of property at and adjacent to his operations.

The Contractor shall take utmost care to familiarize himself with the location of existing utilities before any excavation or removal is done. Any damage done by the Contractor shall be repaired at the Contractor's expense.

No compensation, in addition to the Contract price, will be made for any costs occasioned by compliance with the above requirements.

#### A-10 TRAFFIC

Unrestricted use of Main Street and 3rd Avenue, Central Avenue by traffic, as specified in M.H.D. 1404, shall be permitted at all times during construction operations, except as modified below:

(1) The Contractor shall maintain four 11 foot wide traffic lanes on the bridge deck (3rd Ave., Central Ave.) at all times

#### A-11 COMMENCEMENT & COMPLETION OF WORK

This project covers the construction of the supporting system and furnishing & placing conduit pipes as described in the plans. Work shall begin within ten (10) calendar days after receipt of "Notice of Award" from the Northwestern Bell Telephone Company.

All work, including furnishing & placing of the temporary supporting system and furnishing and placing of conduit pipes, shall be completed by

#### A-12 SCHEDULING OF WORK

Within 10 days after "Notice of Award" the Contractor shall furnish the Engineer with a written schedule of work. The Contractor may schedule the order of work as he deems necessary except for the required underground construction at each end which shall be scheduled in cooperation with work to be performed by Northwestern Bell Telephone Company at each end of the bridge.

The Contractor will at no time be permitted to block traffic on the Bridge except as specified in A-10, unless written approval is obtained from the Minnesota Highway Department and furnished to the Engineer in advance of such operations.

Within 15 days after the date of mailing to the Contractor of a notice that the Contract has been approved, the Contractor shall furnish evidence in writing to the Engineer that he has placed orders for all metals required.

#### A-13 LIQUIDATED DAMAGES

In case of failure on the part of the Contractor to effect substantial completion within the time specified, the Northwestern Bell Telephone Company shall have the right to deduct from the total compensation otherwise due the Contractor as liquidated damages, fixed and agreed to in advance, the sum of money, as designated in MHD Standard Specification 1807, for each 24-hour calendar day that this work remains substantially incomplete after the date specified.

In case of failure on the part of the Contractor to effect entire completion within the time specified, the Northwestern Bell Telephone Company shall have the right to deduct from the total compensation otherwise due the Contractor as liquidated damages, fixed and agreed to in advance, the sum of money, as designated in MHD Standard Specification 1807, for each 24-hour calendar day that this work remains entirely incomplete after the date specified.

In no event shall the total daily amount of liquidated damages exceed the amount specified in MHD Standard Specification 1807.

No periods of winter suspension will be allowed in this contract.

#### A-14 WORKMANSHIP AND CLEANUP

It is the intent and purpose of the Specifications and Plans to obtain good workmanship throughout, with the completed work complying with the Specifications and Plans and in full working order upon completion. The work will not be accepted until this result is obtained.

All debris or rubbish caused by the Contractor's operations shall be removed and the areas occupied during such operations left in a neat and presentable condition.

#### A-15 DIMENSIONS

Dimensions shown in the plans were generally obtained from plans of the existing bridge and may vary slightly from present conditions. The Contractor shall be required to verify all dimensions and shall be responsible for obtaining the necessary dimensions to insure that the supporting system fits both the temporary and final condition.

#### A-16 ENGINEER'S OFFICE

One Field Office Type C in conformance with M.H.D. 2031 will be required. No direct payment for the Field Office will be made and all costs for furnishing and maintaining shall be considered incidental.

#### A-17 MATERIALS

Wherever in the Specifications, Plans or these Special Provisions a material or fixture is designated by a trade name, the Contractor may use an approved equal, which shall be equivalent in all respects to the item specified. Such approval shall be obtained in writing before the material or fixture is shipped to the installation site.

All materials shall be new and such as to provide a first class installation. Samples for inspection and testing purposes shall be furnished,

without charge, to the Engineer upon request.

The Contractor shall be required to furnish certified mill certificates for all conduit pipe and structural metals.

#### A-18 STRUCTURAL CONCRETE

Portland cement concrete shall be produced and furnished in accordance with the provisions of M.H.D. 2461 and shall be used for repair or replacement of concrete as shown in the plans or as directed by the Engineer.

#### A-19 REPAIR OR REPLACEMENT OF CONCRETE

In removing concrete, the Contractor may use any method of his own selection which will not crack and damage adjacent sound concrete and will provide for removal of the cut-out concrete from the premises of the structure. The Contractor shall remove only such concrete as directed and authorized by the Engineer. Any concrete damaged or removed without authorization shall be repaired and replaced by the Contractor at his own expense.

Exposed surfaces of the concrete shall be left generally rough, but without small projections or pockets exceeding 1 inch in depth, except in cases where keyways or notches are to be provided. Cuts shall be made to avoid abrupt changes in thickness of concrete patches or encasement. Areas to be refilled shall have a minimum depth at any point of 1 inch and greater where shown on the plans and under no circumstances will any "feathered" edges be permitted.

The bonding surface shall be rough and clean. Loose particles, dust, and dirt shall be removed by vigorous brushing with wire brushes followed by a thorough washing with a high pressure water jet prior to application of new material. Oil or film of any sort that may reduce the bond of the new material to the old concrete shall be removed.

Reinforcement in the present structure that is to be retained shall be thoroughly cleaned and any reinforcing steel which has been appreciably reduced in area shall be repaired by splicing with additional reinforcement or as otherwise directed. Certain exposed or corroded reinforcing steel shall be removed as directed by cutting or burning. Where bond length laps can be secured in splicing new reinforcing to exposed bars left in place, the new reinforcing shall be wired to the existing steel or by using approved mechanical connectors.

#### A-20 BONDING NEW CONCRETE TO OLD

New concrete shall be bonded to existing concrete with polysulfide epoxy adhesive.

Adhesive for bonding new concrete to old shall consist of material conforming to U.S. Army Corps of Engineers Specification, "Grout (Adhesive), Epoxy Resin, Base, Flexible, Filled," dated May 1, 1959, or latest revision thereof.

The adhesive shall contain no solvents except as may be allowed by the Engineer in accordance with the following. In order to facilitate spraying the adhesive, up to 3% by volume of toluene may be added. If this is permitted, particular care must be taken to make sure that the solvent has evaporated before new concrete is placed against the adhesive. This can be determined by touching the adhesive, since it will become tacky when the solvent has escaped. If the adhesive has been applied in a confined space, it may be necessary to assist the evaporation of solvent by ventilating the space with compressed air.

The supplier of the adhesive shall submit to the Engineer a certified test report covering each lot of the adhesive shipped to the project. The test report shall certify that the composition and properties of the adhesive are in accordance with these specifications and it shall give the actual values of the mechanical properties of the material in the particular lot.

The surface of the old concrete to which new concrete is to be bonded shall be cleaned with hammers, wire brushes and the like so that all foreign material, loose and unsound concrete is removed and only sound concrete remains. If grease or oil are present, they shall be removed with a detergent wash such as trisodium phosphate and the entire area then washed with fresh water and brushed with a stiff brush. If a detergent is not required, washing will only be required as necessary to remove dust and small particles not removed by other cleaning methods.

When all free water has dried from the area to be bonded, epoxy adhesive shall be applied by brush or spray to a 15-20 mil thickness. The epoxy surface shall appear shiny and shall be tacky just before new concrete is placed against it. If the concrete has absorbed the adhesive, as evidenced by a dull appearance, apply another coat. The new concrete shall then be placed while epoxy remains tacky.

#### A-21 DRILL AND GROUT

Holes for bolts in the spandrel columns, walls or arch ribs shall be

drilled so that spalling of the concrete at the faces is held to a minimum.

With the 1 inch or 1 1/2 inch diameter rods held in final position, the holes shall be sealed (bulkheaded) flush with the faces of the spandrel column and pressure grouted. Grout shall be injected on the underside of the rod from one end until it flows through a relief hole above the rod on the opposite end. An approved non shrink epoxy grout shall be used.

#### A-22 GALVANIZED MATERIAL

All metal items which are to remain on the structure and items to be furnished for future placement shall be galvanized in accordance with the applicable sections of ASTM A153 and ASTM A123, and ASTM A120.

#### A-23 PERMANENT CONDUITS AND SUPPORTS

Conduits shall be 4 inch structural steel pipe conforming to the requirements of A.S.T.M. Designation A135 (welded pipe). The weight of pipe furnished shall be not less than "Standard Weight" as given in Schedule 40 of A.S.T.M. Designation A120. Threaded pipe couplings shall be used. All steel pipe, couplings, sleeves and expansion joints shall be galvanized in accordance with the requirements for Galvanized Pipe under A.S.T.M. Designation A120, after fabrication.

All threaded pipe ends shall be free of burrs and all plain pipe ends shall be reamed to provide a slight bevel to insure the removal of all burrs inside of the pipe.

All clamps, support anchors, conduit supports, bolts, etc., shall be galvanized after fabrication in accordance with A.S.T.M. Designation A153.

All steel shapes and plates shall conform to the requirements of A.S.T.M. Designation A36.

All high strength bolts and threaded rods shall conform to M.H.D. 3391.

Items to be furnished for future expansion of the conduit system and not placed under this contract shall be delivered to the designated storage yard of Northwestern Bell Telephone Company and stored as directed by the Engineer.

Items to be furnished and stored include but are not limited to the following:

All 30 steel pipe, conduit, couplings, sleeves and expansion joints required for the south and north approaches.

Future (18) steel pipe conduits, couplings, sleeves and expansion joints required for the arch spans from Arch Pier 1 to Arch Pier 8.

#### A-24 CABLE RACKING

The cable racking support members shall be furnished and installed in the arch span manholes as shown on the plans or as directed by the Engineer. Cable clips (supports) shall be furnished and placed by others.

#### A-25 EXISTING TELEPHONE AND POWER LINES

The Contractor's attention is directed to the existing Northwestern Bell Telephone Company and Northern States Power Company active lines located in each sidewalk of the existing structure. These lines must remain in service and be protected at all times.

#### A-26 TEMPORARY CONDUIT AND SUPPORTS

The temporary pile supported box and plastic conduit from the underground manhole to Arch Pier 1 and 8 shall be placed as shown in the plans.

Plastic conduit shall be 4" round, fire resistant type D plastic duct equal to AT-8546 obtainable from Western Electric Company and subject to approval by the Engineer. All plastic conduit, couples, bends and expansion joints shall be installed in accordance with the plans and manufacturers recommendations.

All steel shapes and plates for the temporary system shall conform to the requirements of A36 and shall receive one shop coat of red lead in accordance with MHD 2476.

All bolts, rods, nuts, washers and screws shall be galvanized.

All timber piles shall be treated and conform to the requirements of M.H.D. 3471 and 3491. Predrilling of piles will be permitted but backfill of holes must be compacted in accordance with standard Northwestern Bell Telephone Company procedures and to the satisfaction of the Engineer.

All timber bracing and supports shall be treated timber and conform to the applicable requirements of M.H.D. 2403 and 3426 for furnishing and placing.

The plywood cover for the temporary trough shall be exterior grade and placed according to the applicable requirements of M.H.D. 2403. Exposed plywood surfaces shall receive one coat of linseed oil.



