

PLAN LEGEND

RIGHT OF WAY LINE	---
DITCH CENTERLINE	---
FENCE LINE	---
RETAINING WALL	---
GRAVEL LINE	---
GUARD RAIL LINE	---
RAILROAD TRACK LINE	---
ROAD CENTERLINE	---
TREE LINE	---
STREAM LINE	---
WETLAND LINE	---
EX SANITARY LINE	---
PR SANITARY LINE	---
AB SANITARY LINE	---
EX FORCEMAIN LINE	---
PR FORCEMAIN LINE	---
AB FORCEMAIN LINE	---
EX STORM LINE	---
PR STORM LINE	---
AB STORM LINE	---
EX WATER LINE	---
PR WATER LINE	---
AB WATER LINE	---
EX GAS LINE	---
PR GAS LINE	---
AB GAS LINE	---
EX STEAM LINE	---
PR STEAM LINE	---
AB STEAM LINE	---
UG CABLE TV LINE	---
AB CABLE TV LINE	---
UG ELECTRIC LINE	---
AB ELECTRIC LINE	---
UG FIBEROPTIC LINE	---
AB FIBEROPTIC LINE	---
UG TELEPHONE LINE	---
AB TELEPHONE LINE	---
OH ELECTRIC LINE	---
OH TELEPHONE LINE	---
OH CABLE TV LINE	---

SYMBOLS

EX SANITARY MANHOLE	(SAN)
EX SANITARY CLEANOUT	(X)
EX STORM MANHOLE	(STRM)
EX STORM CATCHBASIN	(Hatched)
EX WATER MANHOLE	(W)
EX WATER VALVE	(WV)
EX WATER HYDRANT	(WV with cross)
EX WATER SHUTOFF	(WV with circle)
EX WATER & GAS MH	(W&G)
EX GAS MANHOLE	(GAS)
EX GAS VALVE	(GV)
EX GAS SHUTOFF	(GV with circle)
EX STEAM MANHOLE	(STEAM)
EX TELEPHONE MANHOLE	(T)
EX ELECTRIC MANHOLE	(E)
EX POWERPOLE	(Pole)
EX LIGHT POLE	(Light)
EX ELECTRIC VAULT	(Vault)
EX ANCHOR	(Anchor)
EX ELECTRIC TRANSFORMER	(ET)
EX STREET LIGHT	(Street Light)
EX SIGNAL W/ STREET LIGHT	(Signal)
EX HANDHOLE	(H.H.)
EX TELEPHONE PEDESTAL	(Pedestal)
EX WELL	(Well)
BENCHMARK	(Benchmark)
FOUND CI MONUMENT	(Monument)
EX SIGN	(Sign)
CONTROL POINT	(Control Point)
EX DECIDUOUS TREE	(Tree)
EX CONIFEROUS TREE	(Tree)
EX PARKING METER	(Meter)
EX SOIL BORING	(SB#)

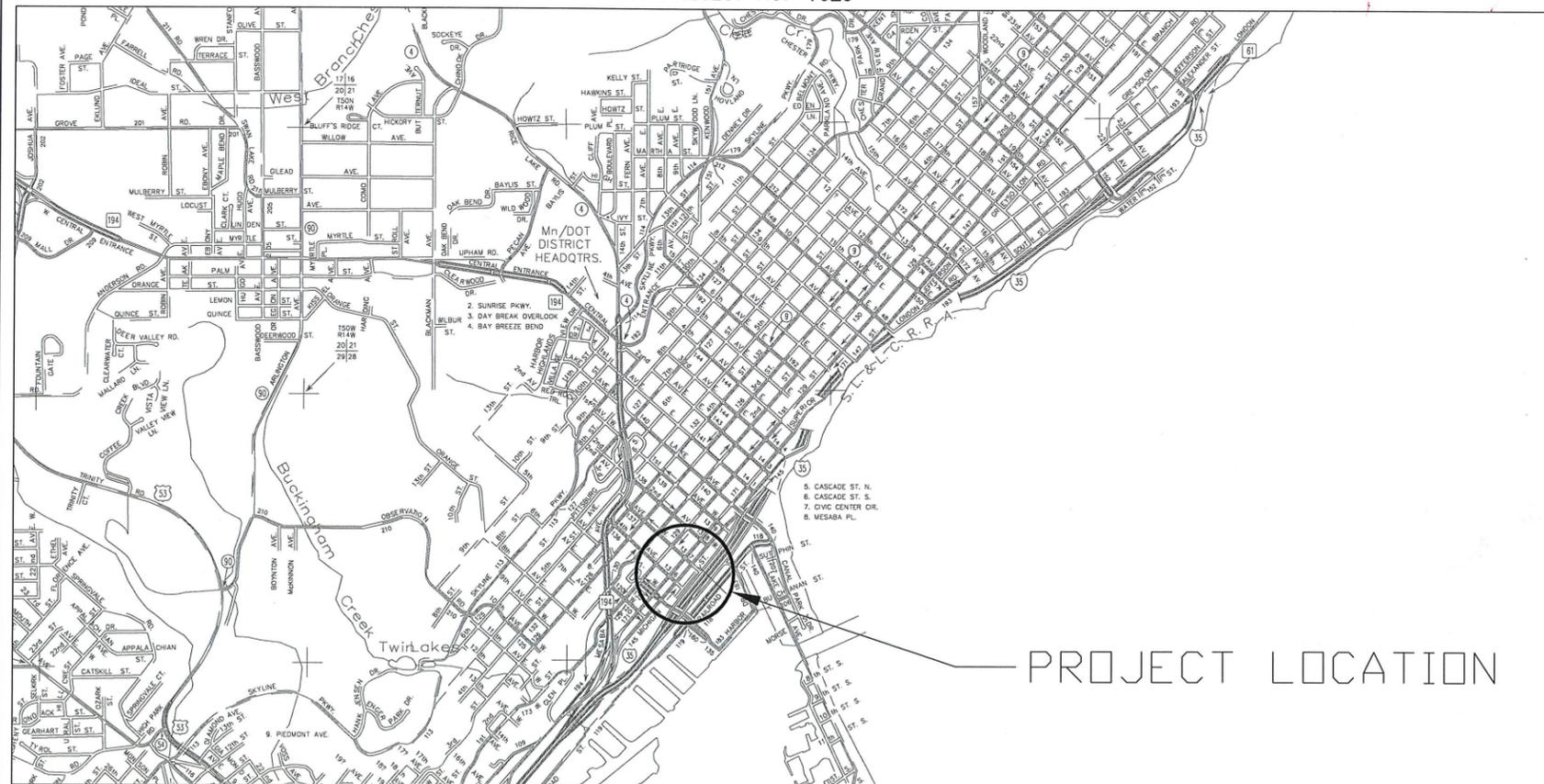
# CITY OF DULUTH

## DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

### CONSTRUCTION PLANS FOR:

### MICHIGAN STREET SANITARY SEWER CIPP LINING

CITY PROJECT NO. 1629



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:  
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2017 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT CONSTRUCTION STANDARDS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.

AVAILABLE AT: <http://www.duluthmn.gov/engineering/standard-construction-specifications/>

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INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SEQ
3-5	LINING PLAN

THIS PLAN CONTAINS 5 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

THOMAS M. PFEFFER

PROJECT ENGINEER (TYPED OR PRINTED NAME)

*Thomas M. Pfeffer* 3/30/17 22442  
PROJECT ENGINEER DATE LIC. NO.

CITY APPROVAL

*C. DeLuca* 3/30/17  
APPROVED CHIEF ENGINEER OF TRANSPORTATION DATE

*B. R. Smith* 3/30/17  
APPROVED CHIEF ENGINEER OF UTILITIES DATE

*C. DeLuca* 3/30/17  
APPROVED CITY ENGINEER DATE

**SCHEDULE OF ESTIMATED QUANTITIES**

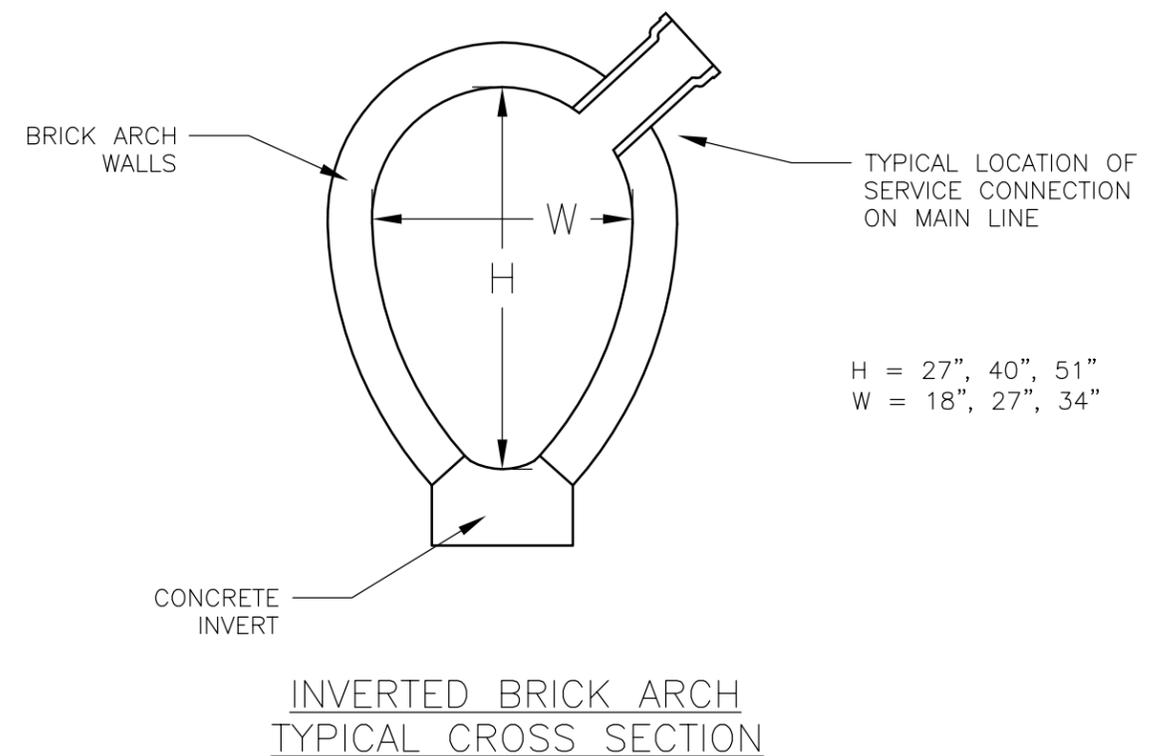
NOTES	ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	EST. QUANTITY
	1	2021.501	Mobilization	Lump Sum	1.00
	2	2503.600	Sanitary Sewer Pipe Cleaning	Hours	20
	3	2503.600	Bypass Pumping	Hours	108
5	4	2503.601	Spot Repair	Lump Sum	1
1	5	2503.602	Determine Active Services	Each	33
	6	2503.602	Individual Building Service Bypass Pumping	Each	8
	7	2503.602	Remote Cut and Reconnect Service	Each	33
2,3	8	2503.603	20" CIPP Main Lining	LF	73
2,3	9	2503.603	18" X 27" Inverted Brick Arch Main Lining	LF	475
2,3	10	2503.603	27" X 40" Inverted Brick Arch Main Lining	LF	454
2,3	11	2503.603	34" X 51" Inverted Brick Arch Main Lining	LF	464
4	12	2563.601	Traffic Control	Lump Sum	1

**S.E.Q. NOTES**

- 1) The sanitary service laterals depicted on the plan pages are based on the best location and activity records available to the engineer. All active services shall be identified, verified and reconnected by the contractor.
- 2) Work will be performed during off-peak hours. Refer to project special provisions.
- 3) A hot water cure shall be used.
- 4) The contractor shall submit a site specific traffic control plan 7 days prior to beginning work. Unless otherwise approved by the Engineer, the Contractor shall keep city streets open at all times.
- 5) This item will be tracked and paid by force account.

**GENERAL NOTES**

- 1) The plan & profiles do not depict all existing underground facilities. The underground facilities that are shown are for spacial reference only. The contractor shall call Gopher State One Call before any excavation.
- 2) The City reserves the right to delete any work from the contract.



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SIGNATURE: Thomas M. Pfeiffer

THOMAS M. PFEFFER  
TYPE NAME

DATE: 3/30/2017

LIC. NO: 22442



CITY OF DULUTH  
ENGINEERING DIVISION  
411 W. 1ST ST. STE. 211  
DULUTH, MN 55802

MICHIGAN STREET SANITARY SEWER CIPP LINING

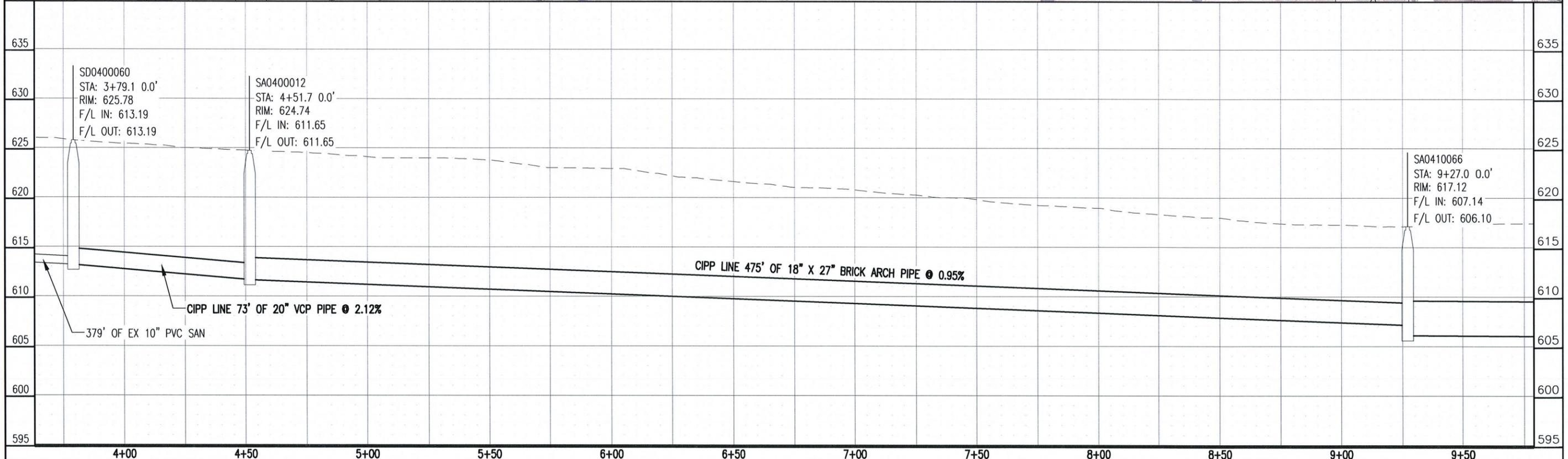
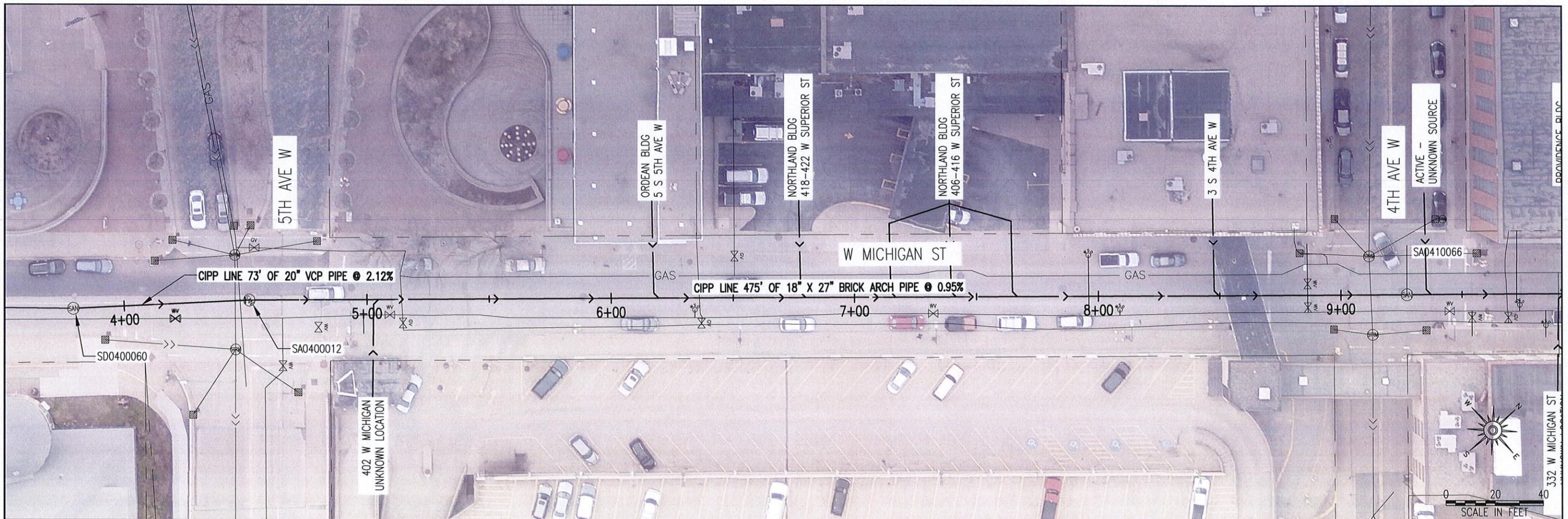
CITY PROJECT NO.: 1629

STATE AID PROJECT NO.: NA

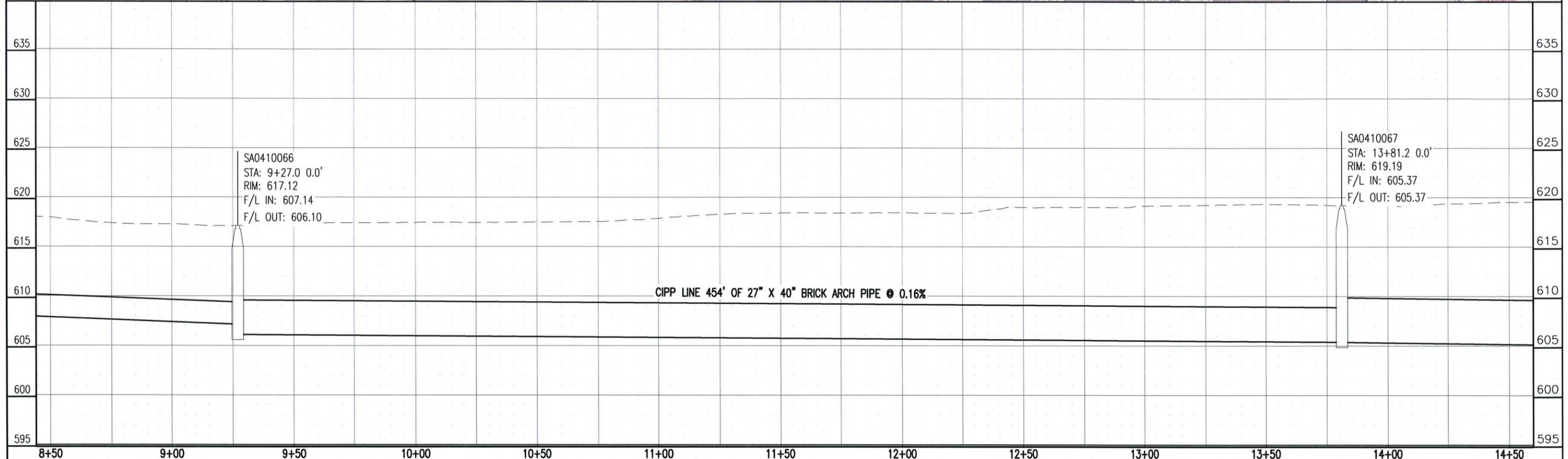
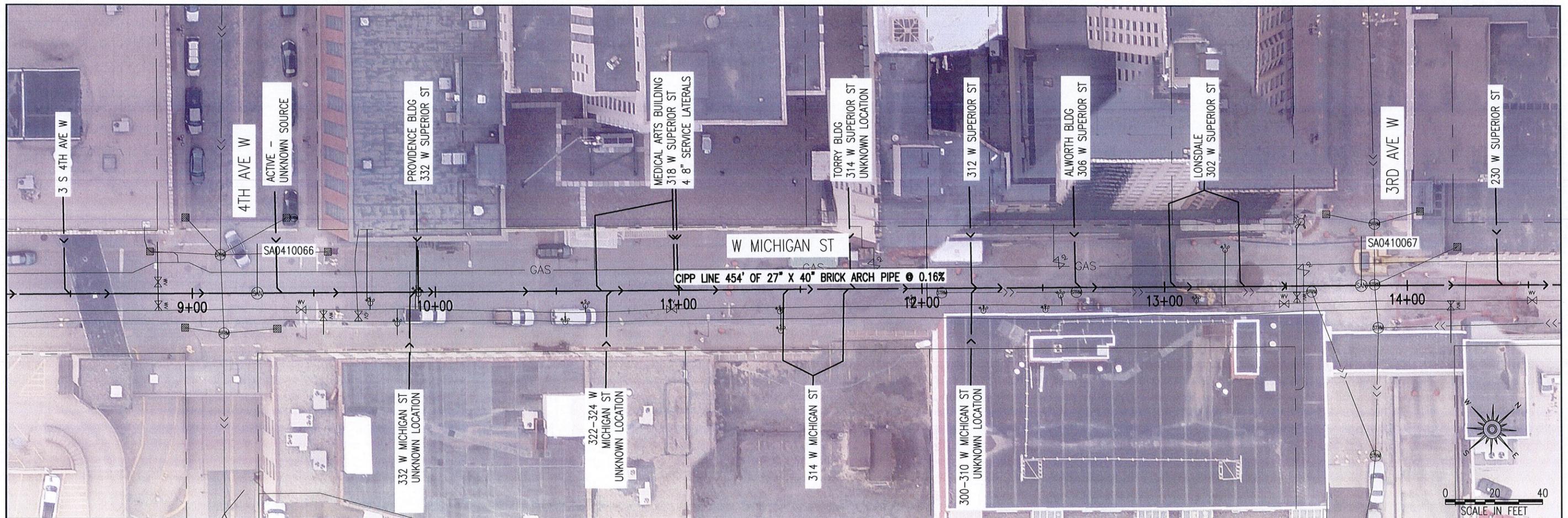
DRAWN BY: JJM

SEQ

SHEET NO. 2 OF 5



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.		DATE: 3/30/2017	CITY OF DULUTH ENGINEERING DIVISION 411 W. 1ST ST. STE. 211 DULUTH, MN 55802	MICHIGAN STREET SANITARY SEWER CIPP LINING		DRAWN BY: JJM	
SIGNATURE: <i>Thomas M. Pfeiffer</i>	THOMAS M. PFEFFER TYPE NAME	LIC. NO: 22442		CITY PROJECT NO.: 1629	STATE AID PROJECT NO.: NA	PLAN & PROFILE - 5TH TO 4TH AVE W	



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SIGNATURE: *Thomas M. Pfeffer* THOMAS M. PFEFFER  
TYPE NAME

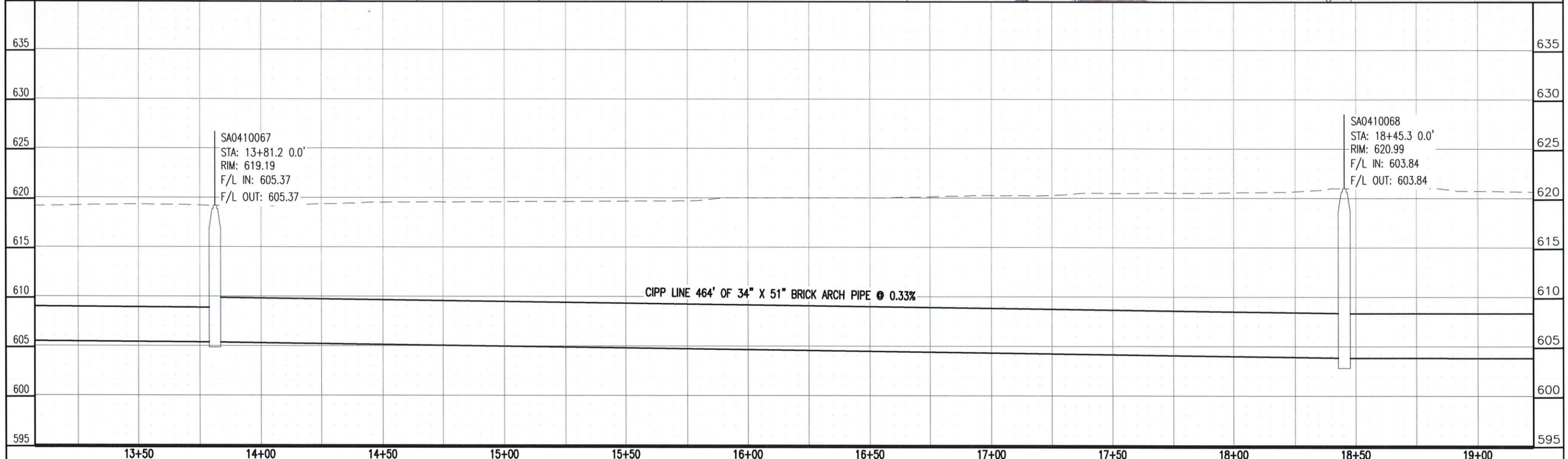
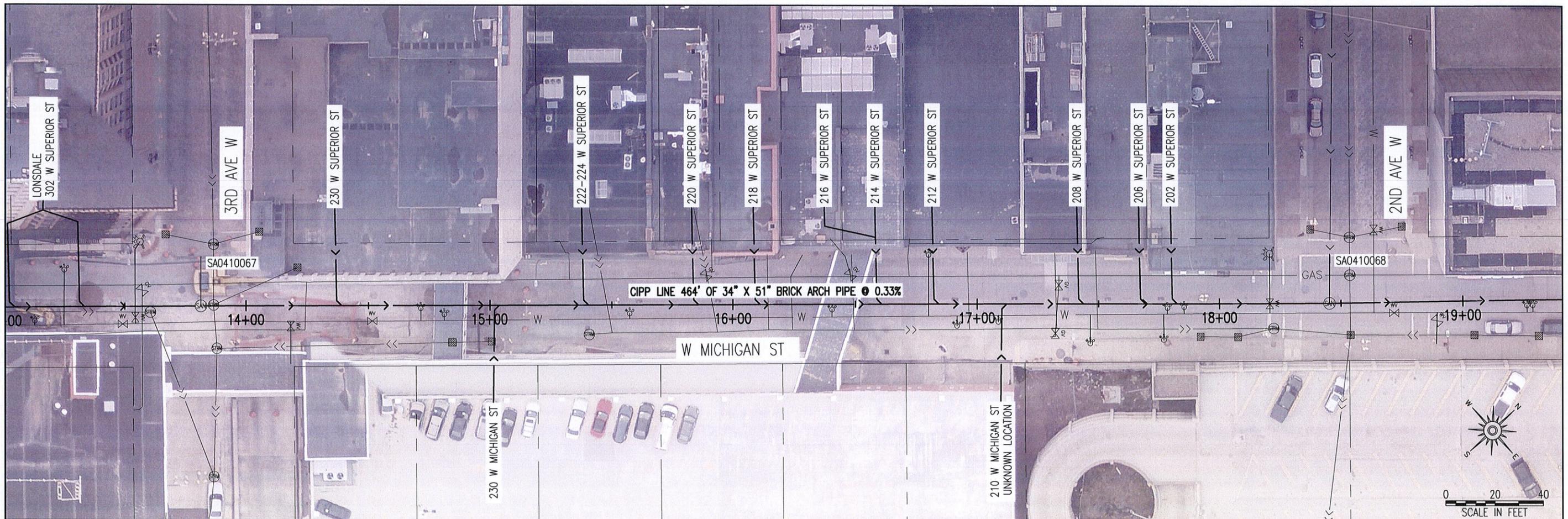
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 CITY OF DULUTH  
ENGINEERING DIVISION  
411 W. 1ST ST. STE. 211  
DULUTH, MN 55802

MICHIGAN STREET SANITARY SEWER CIPP LINING

CITY PROJECT NO.: 1629 STATE AID PROJECT NO.: NA

DRAWN BY: JJM  
PLAN & PROFILE - 4TH TO 3RD AVE W  
SHEET NO. 4 OF 5



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