

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	(STRM)	⊗
EX STORM MANHOLE	(W)	⊗
EX STORM CATCHBASIN	(W)	⊗
EX. WATER MANHOLE	(W)	⊗
EX. WATER VALVE	(W)	⊗
EX. WATER HYDRANT	(W)	⊗
EX. WATER SHUTOFF	(W)	⊗
EX. WATER & GAS MH	(W&G)	⊗
EX. GAS MANHOLE	(GAS)	⊗
EX. GAS VALVE	(GAS)	⊗
EX. GAS SHUTOFF	(GAS)	⊗
EX. STEAM MANHOLE	(STEAM)	⊗
EX. TELEPHONE MANHOLE	(T)	⊗
EX. ELECTRIC MANHOLE	(E)	⊗
EX. POWERPOLE	(E)	⊗
EX. LIGHT POLE	(E)	⊗
EX. ELECTRIC VAULT	(E)	⊗
EX. ANCHOR	(E)	⊗
EX. ELECTRIC TRANSFORMER	(ET)	⊗
EX. STREET LIGHT	(E)	⊗
EX. SIGNAL W/ STREET LIGHT	(E)	⊗
EX. HANDHOLE	(H.H.)	⊗
EX. HANDHOLE	(H.H.)	⊗
EX. TELEPHONE PEDESTAL	(H.H.)	⊗
EX. WELL	(W)	⊗
BENCHMARK	(W)	⊗
FOUND CI MONUMENT	(W)	⊗
EX. SIGN	(W)	⊗
CONTROL POINT	(W)	⊗
EX DECIDUOUS TREE	(W)	⊗
EX CONIFEROUS TREE	(W)	⊗
EX. PARKING METER	(W)	⊗
EX. SOIL BORING	(W)	⊗

# CITY OF DULUTH

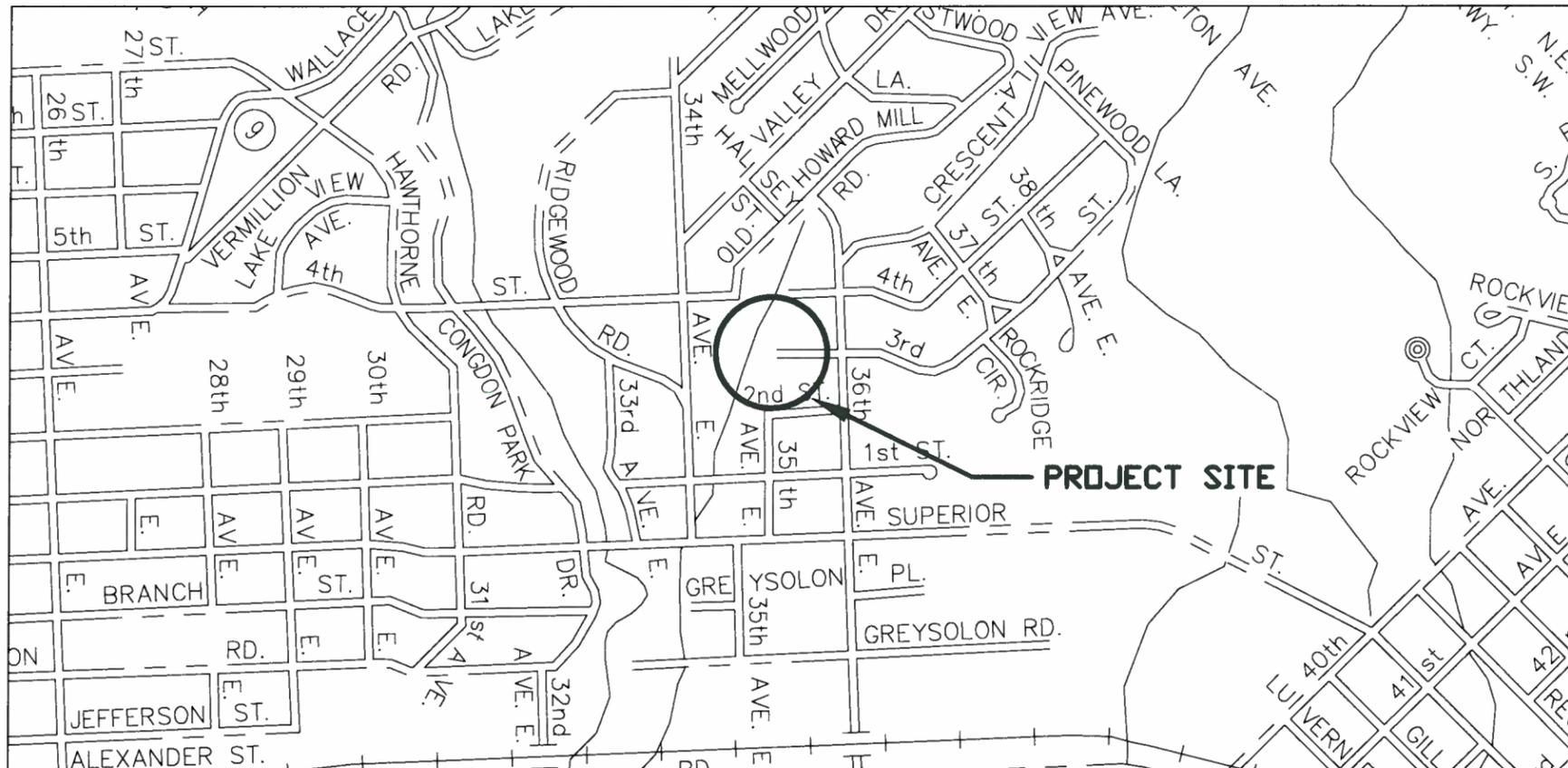
## DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

### CONSTRUCTION PLANS FOR:

E. 3RD STREET AND BENT CREEK DOWN DRAIN

FLOOD PROJECT NO. 439

CITY PROJECT NO. 1197



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 2005 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 2360 PLANT MIXED ASPHALT PAVEMENT SPECIFICATION DATED 02/01/2011 SHALL APPLY. 01/23/13  
AVAILABLE AT: <http://www.dot.state.mn.us/materials/bituminous.html>

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED FEBRUARY 2011.  
AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/publ/fieldmanual2011/>

THE 2013 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.  
AVAILABLE AT: [http://www.duluthmn.gov/engineering/spec\\_book/](http://www.duluthmn.gov/engineering/spec_book/)

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES & DETAILS
3	DETAILS
4	PLAN & PROFILE - REMOVALS
5	PLAN & PROFILE - PROPOSED
6	PLAN & PROFILE - RESTORATION

THIS PLAN CONTAINS 6 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.

TOM JOHNSON, P.E.  
PROJECT ENGINEER  
*[Signature]* 7/30/13 46744  
PROJECT ENGINEER DATE REG. NO.

CITY APPROVAL

APPROVED *[Signature]* 8/2/13  
CHIEF ENGINEER OF TRANSPORTATION DATE

APPROVED *[Signature]* 8/5/2013  
CHIEF ENGINEER OF UTILITIES DATE

APPROVED *[Signature]* 8/5/13  
CITY ENGINEER DATE

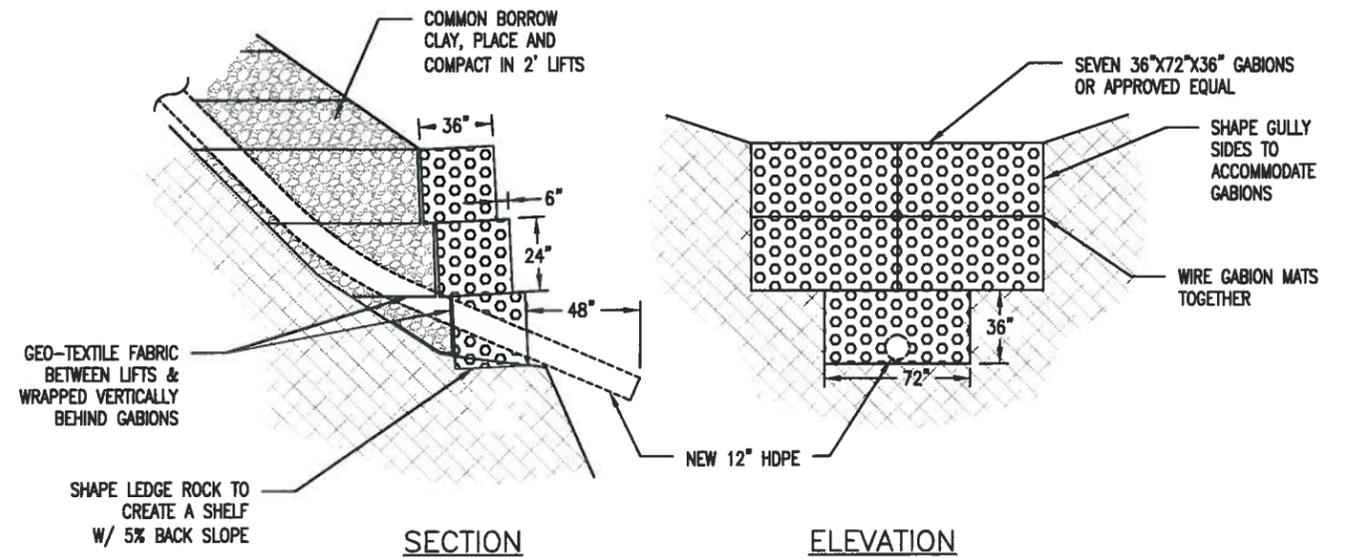
**STATEMENT OF ESTIMATED QUANTITIES - FOR REFERENCE ONLY**

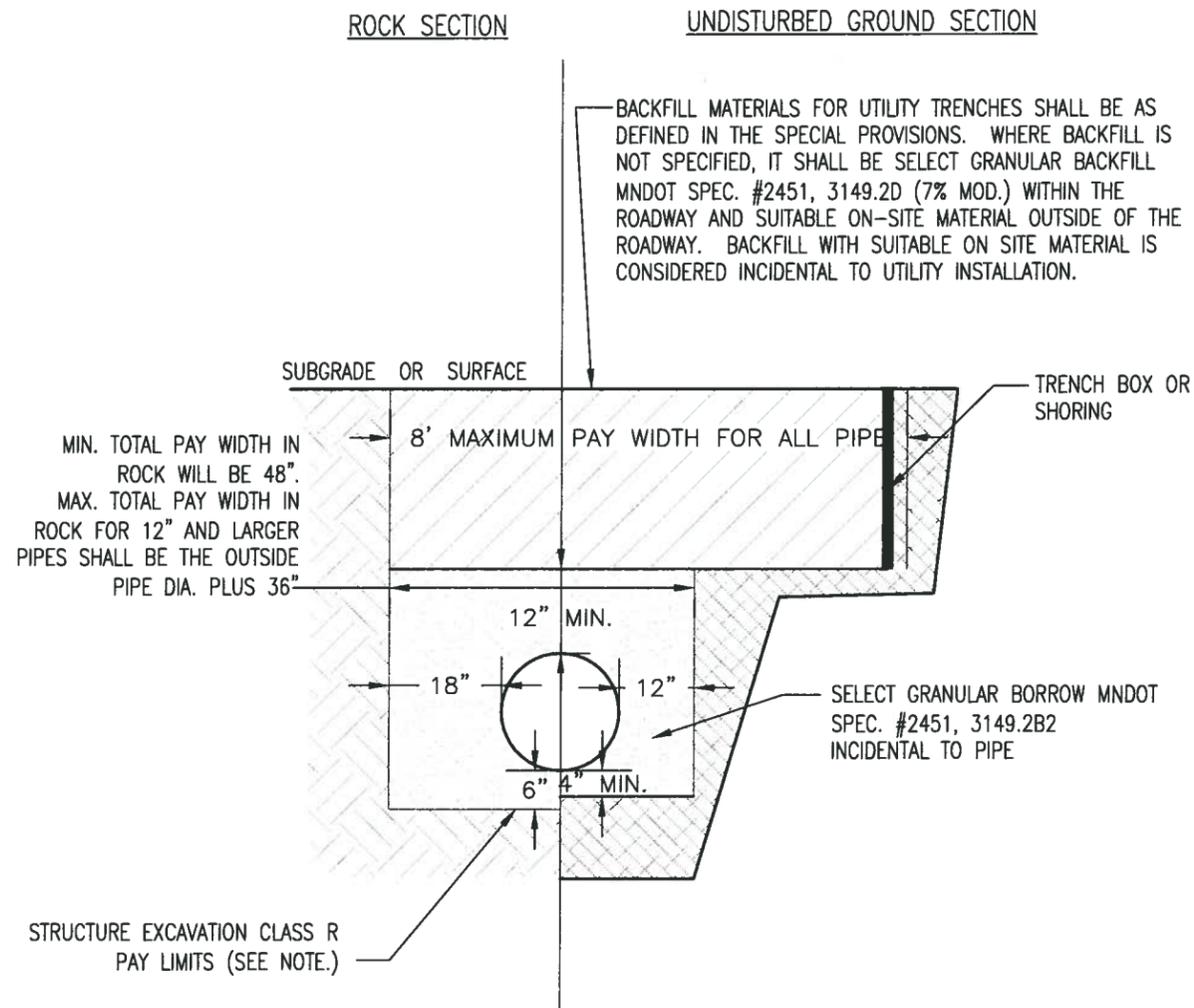
NOTES	ITEM NUM	DESCRIPTION	UNIT	EST QUANTITY	FINAL QUANTITY
	1	MOBILIZATION	LUMP SUM	1	
	2	SAW BITUMINOUS PAVEMENT (FULL DEPTH)	LN FT	56	
	3	REMOVE BITUMINOUS PAVEMENT	SQ YD	57	
1	4	REMOVE 10" STORM SEWER	LN FT	68	
2	5	CLEARNG AND GRUBBING	LUMP SUM	1	
	6	CONNECT TO EXISTING CATCH BASIN	EACH	1	
	7	PCB 1 - ANCHORED MANHOLE	EACH	1	
3	8	12" HDPE SDR 17 STORM SEWER PIPR	LN FT	86	
	9	12" MOLDED HDPE M.J. ADAPTOR	EACH	1	
	10	12" CORRUGATED HDPE STORM SEWER PIPE	EACH	50	
	11	GEOTEXTILE FABRIC TYPE V	SQ YD	290	
	12	AGGREGATE BASE (CV) CLASS 5	CU YD	23	
4	13	COMMON BORROW	CU YD	160	
5	14	GABION HEADWALL	LUMP SUM	1	
6	15	BITUMINOUS DRIVEWAY PATCH, 3"	SQ YD	57	
	16	EROSION CONTROL BLANKET, CATEGORY 4	SQ YD	162	
	17	STRAW BIOROLL	LN FT	140	
	18	REBUILD DRY FIT LANCSAPE BLOCK RETAINING WALL	LUMP SUM	1	
	19	TURF ESTABLISHMENT	LUMP SUM	1	
	20	SOD	SQ YD	70	

**NOTES:**

- 1 MATERIAL IS A COMBINATION OF VCP AND PVC
- 2 CLEARING AND GRUBBING SHALL BE MINIMAL AMOUNT NEEDED FOR CONTRACTOR TO ACHIEVE ACCESS
- 3 PAYMENT WILL BE MEASURED ALONG SLOPE, NOT HORIZONTAL DISTANCE; ESTIMATE INCLUDES MAIN LINE AND STAND PIPE
- 4 COMMON BORROW SHALL BE COMPACTABLE CLAY TYPE MATERIAL
- 5 APPROVED ALTERNATIVE HEADWALL ( CONCRETE, ANCHORED BOULDERS, ETC.) MAY BE SUBSTITUTED FOR GABION HEADWALL
- 6 PLACED IN ONE LIFT: 3" OF WEAR COURSE

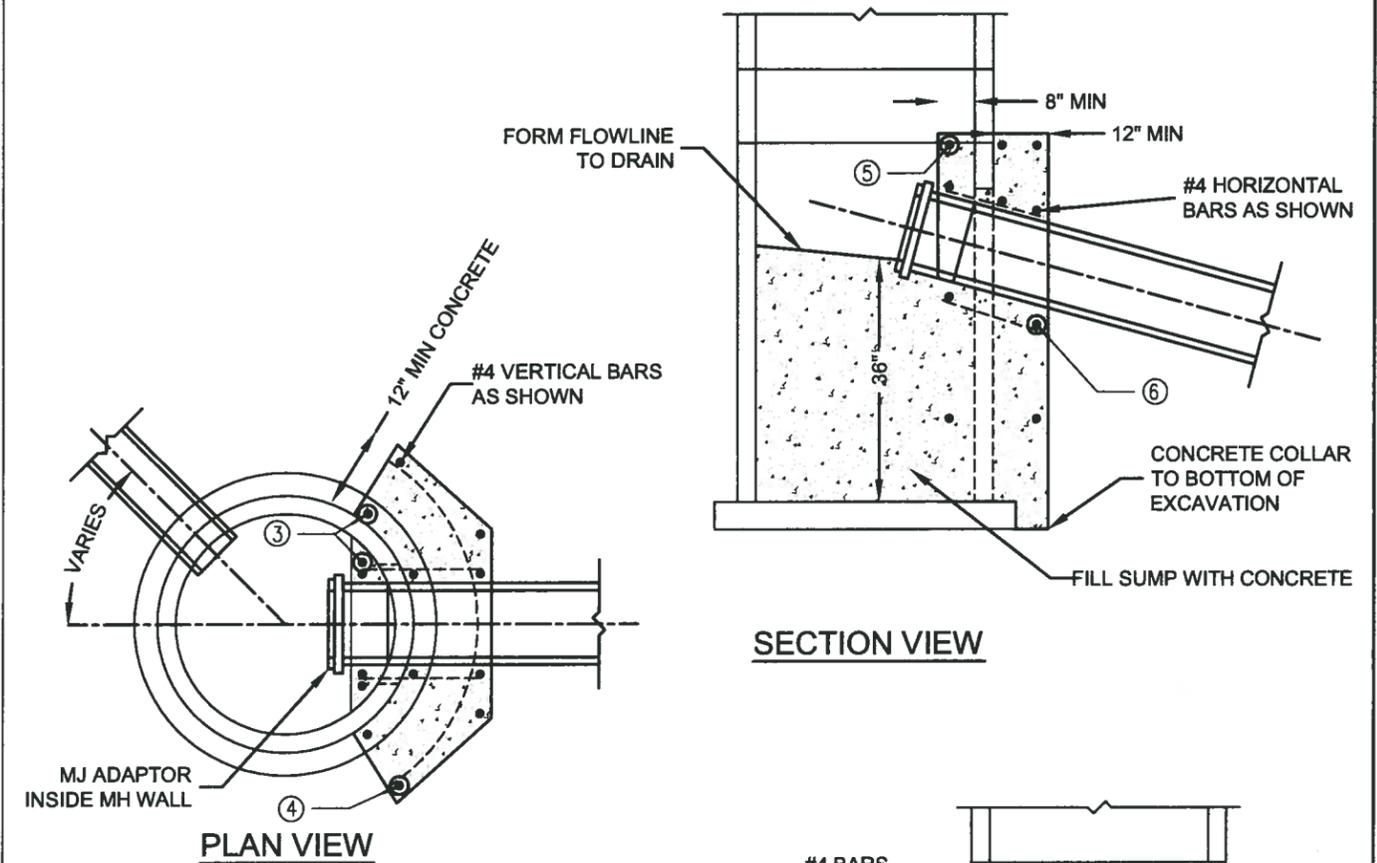
**GABION HEADWALL  
NO SCALE**





**NOTES:**

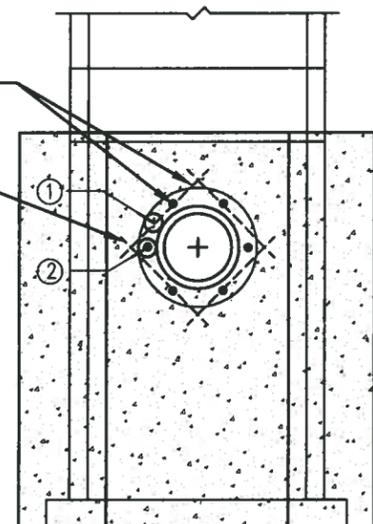
1. TRENCH STABILIZATION MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
2. A MIN. OF 1 CU. YD. OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
3. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
4. WHERE UTILITIES ARE INSTALLED IN ROCK TRENCHES OUTSIDE OF THE ROADWAY, THE CONTRACTOR SHALL PROVIDE COMMON BORROW MATERIAL TO SUPPLEMENT SUITABLE ON SITE BACKFILL MATERIALS AS NECESSARY. COMMON BORROW MATERIAL IS INCIDENTAL TO STRUCTURE EXCAVATION, CLASS R. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON COMMON BORROW MATERIALS.



**STEEL REINFORCING SCHEDULE**

INDEX	SIZE	LENGTH (IN)	QUANTITY	DESCRIPTION
①	4	27	12	DIAMOND SHAPED MAT
②	4	26	6	LONGITUDINAL THRU DOGHOUSE
③	4	72	8	VERTICAL - INTERIOR
④	4	76	6	VERTICAL - EXTERIOR
⑤	4	28	4	HORIZONTAL - INTERIOR
⑥	4	76	6	HORIZONTAL - EXTERIOR

- NOTES:**  
 #4 EPOXY COATED REBAR  
 MAINTAIN 2" CLEARANCE



DUCTILE IRON, PE WATERMAIN, PRESSURE SEWER, & FORCEMAIN BEDDING EX-1

REVISED/APPROVED 2/1/13

CITY OF DULUTH STANDARD DETAIL  
 DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

ANCHORED MANHOLE

REVISED/APPROVED 11/1/2012

CITY OF DULUTH STANDARD DETAIL  
 DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

CERTIFIED BY: TOM JOHNSON

REG. NO.: 46744

REVISION

E. 3RD STREET AND BENT CREEK DOWN DRAIN

DRAWN BY: JJM

SIGNATURE: \_\_\_\_\_

DATE: 07/26/2013

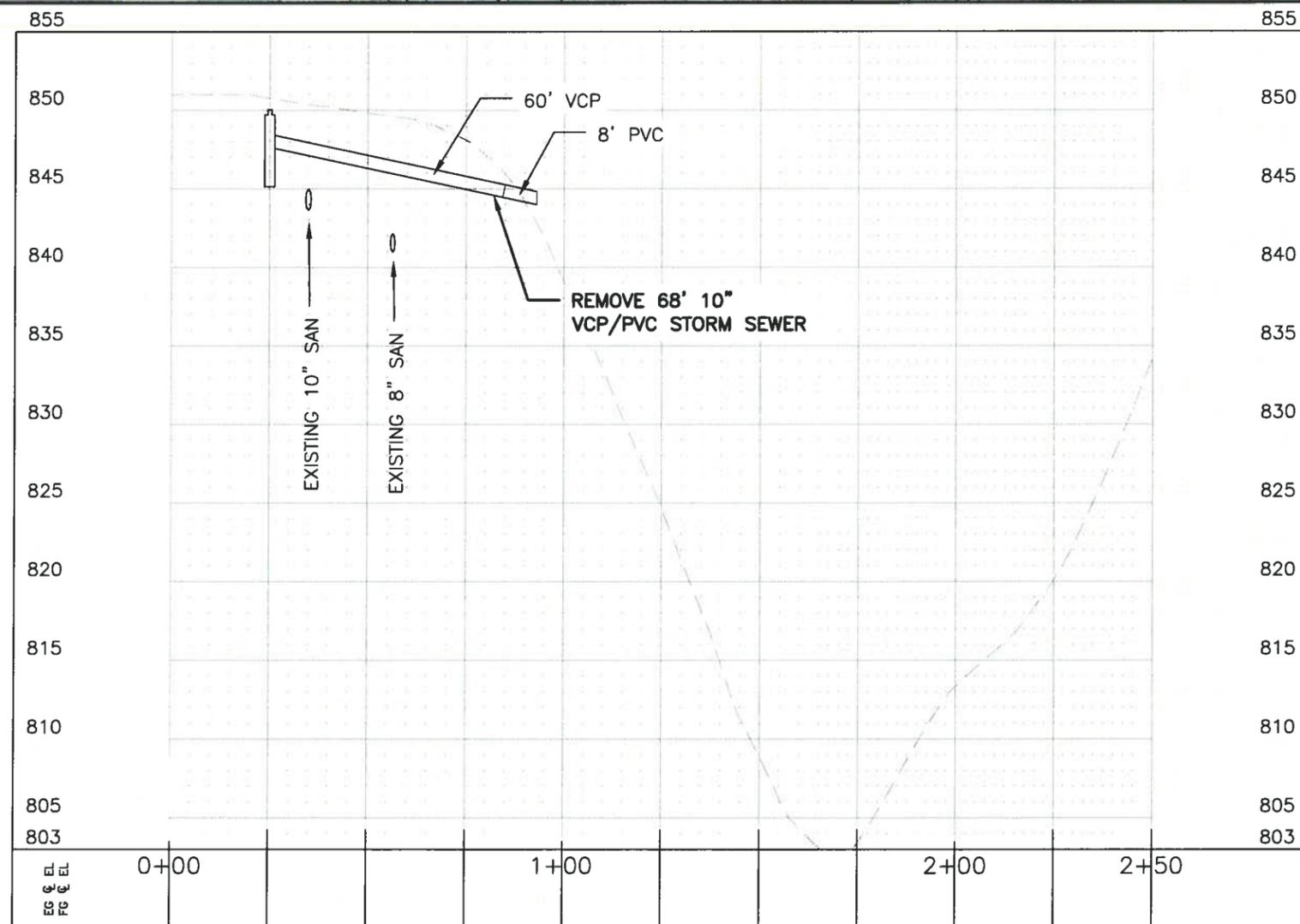
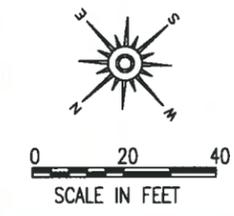
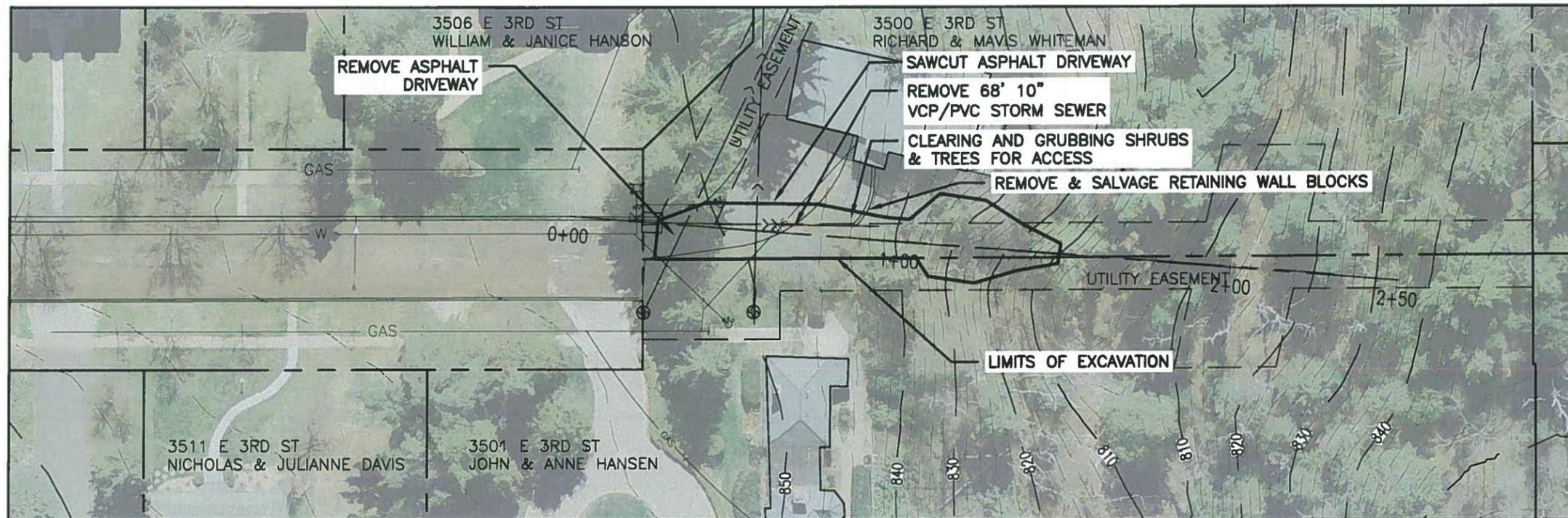
CITY OF DULUTH

DETAIL DRAWINGS

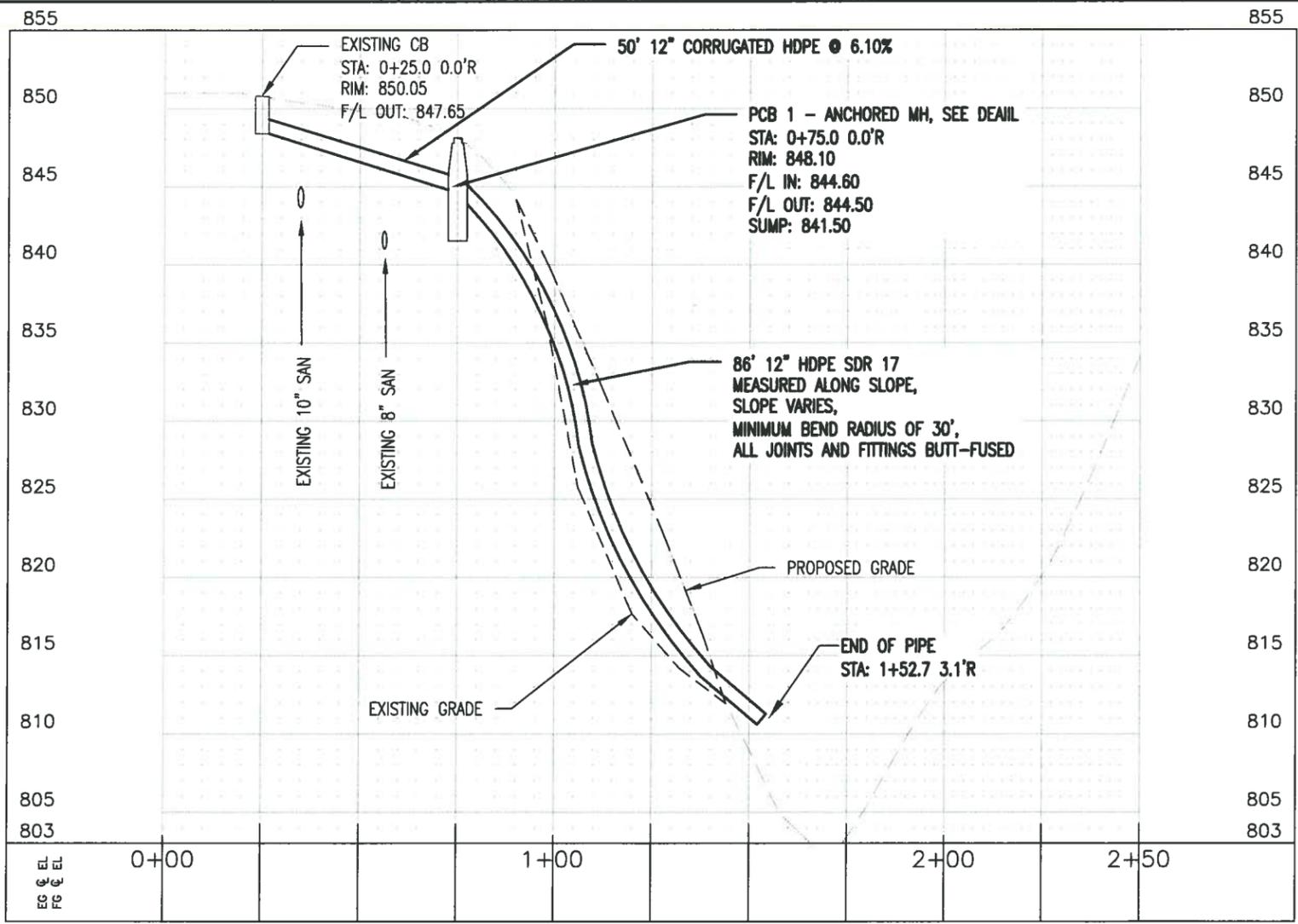
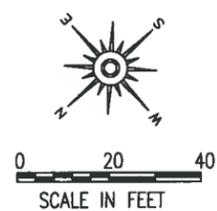
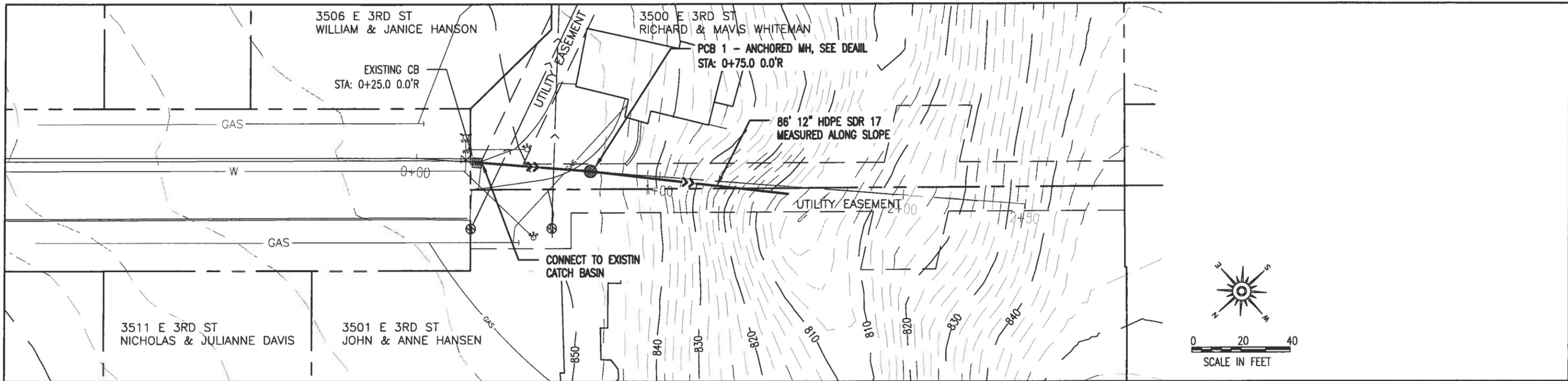
CITY PROJECT NO.: 1197

STATE AID PROJECT NO.:

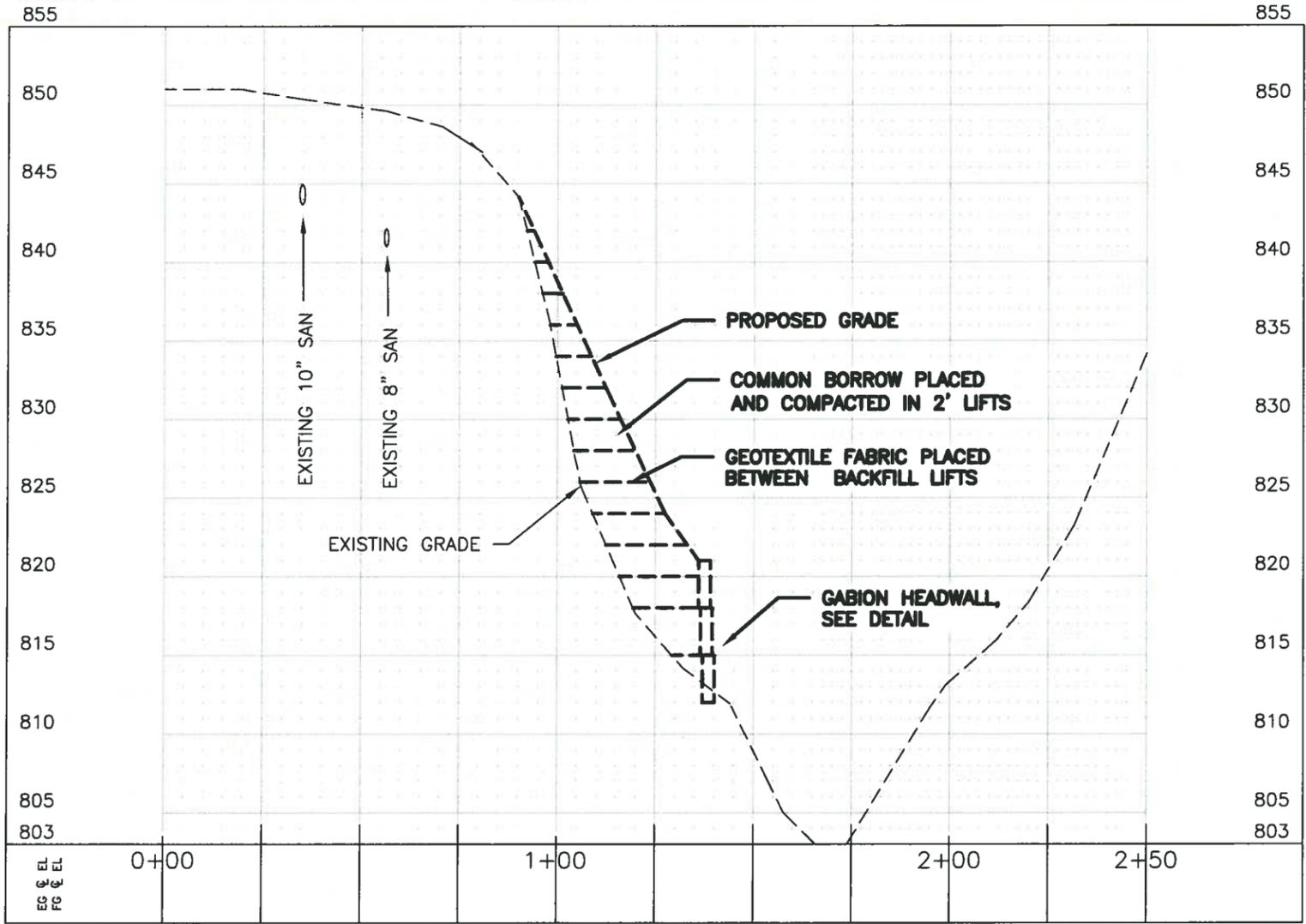
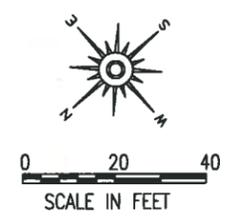
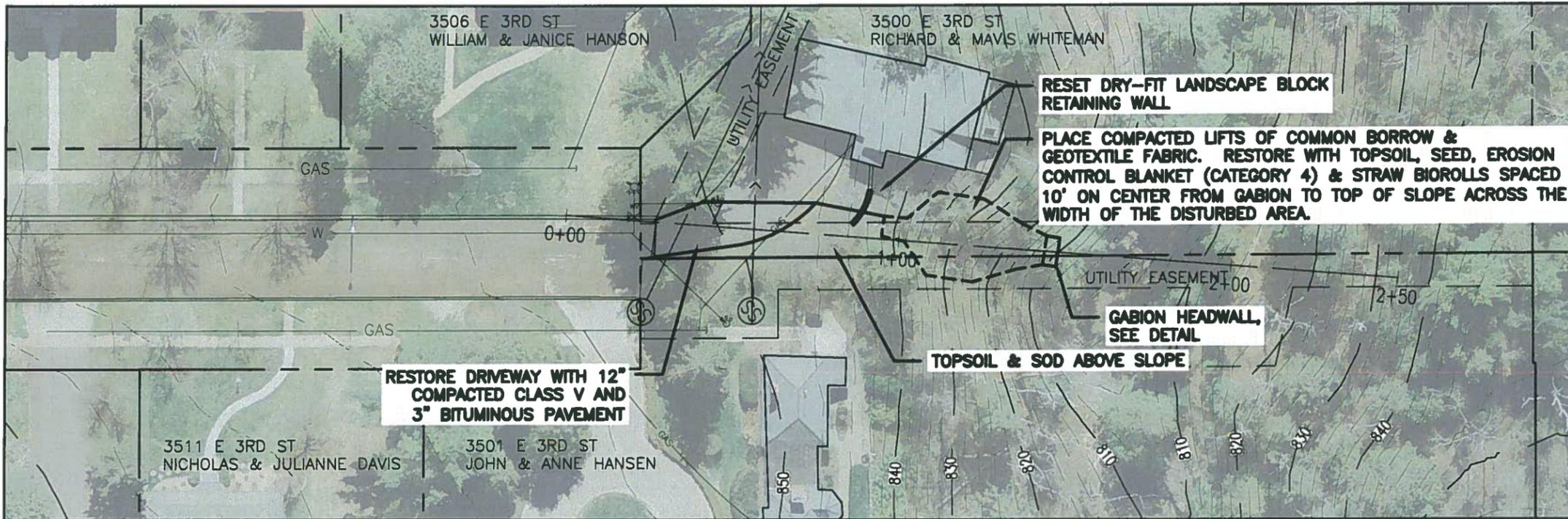
SHEET NO. 3 OF 6



CERTIFIED BY: <b>TOM JOHNSON</b>	REG. NO.: <b>46744</b>	REVISION	<b>E. 3RD STREET AND BENT CREEK DOWN DRAIN</b>	DRAWN BY: <b>JJM</b>
SIGNATURE: _____	DATE: <b>07/26/2013</b>		CITY OF DULUTH	PLAN & PROFILE - REMOVALS
			CITY PROJECT NO.: <b>1197</b>	STATE AID PROJECT NO.:
				SHEET NO. <b>4</b> OF <b>6</b>



CERTIFIED BY: <b>TOM JOHNSON</b>	REG. NO.: <b>46744</b>	REVISION	<b>E. 3RD STREET AND BENT CREEK DOWN DRAIN</b>	DRAWN BY: <b>JJM</b>
SIGNATURE: _____	DATE: <b>07/26/2013</b>		CITY OF DULUTH	PLAN & PROFILE - PROPOSED
			CITY PROJECT NO.: <b>1197</b>	STATE AID PROJECT NO.:
				SHEET NO. <b>5</b> OF <b>6</b>



CERTIFIED BY: <b>TOM JOHNSON</b>	REG. NO.: <b>46744</b>	REVISION	<b>E. 3RD STREET AND BENT CREEK DOWN DRAIN</b>	DRAWN BY: <b>JJM</b>
SIGNATURE: _____	DATE: <b>07/26/2013</b>		CITY OF DULUTH	RESTORATION - PLAN & PROFILE
			CITY PROJECT NO.: <b>1197</b>	STATE AID PROJECT NO.:
				SHEET NO. <b>6</b> OF <b>6</b>