

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	(W)
EX. WATER MANHOLE	(W)
EX. WATER VALVE	(V)
EX. WATER HYDRANT	(H)
EX. WATER SHUTOFF	(S)
EX. WATER & GAS MH	(W&G)
EX. GAS MANHOLE	(GAS)
EX. GAS VALVE	(V)
EX. GAS SHUTOFF	(S)
EX. STEAM MANHOLE	(STEAM)
EX. TELEPHONE MANHOLE	(T)
EX. ELECTRIC MANHOLE	(E)
EX. POWERPOLE	(P)
EX. LIGHT POLE	(L)
EX. ELECTRIC VAULT	(V)
EX. ANCHOR	(A)
EX. ELECTRIC TRANSFORMER	(ET)
EX. STREET LIGHT	(S)
EX. SIGNAL W/ STREET LIGHT	(S)
EX. HANDHOLE	(H.H.)
EX. HANDHOLE	(H.H.)
EX. TELEPHONE PEDESTAL	(P)
EX. WELL	(W)
BENCHMARK	(B)
FOUND CI MONUMENT	(M)
EX. SIGN	(S)
CONTROL POINT	(C)
EX DECIDUOUS TREE	(D)
EX CONIFEROUS TREE	(C)
EX. PARKING METER	(P)
EX. SOIL BORING	(SB#) (ELEV#)

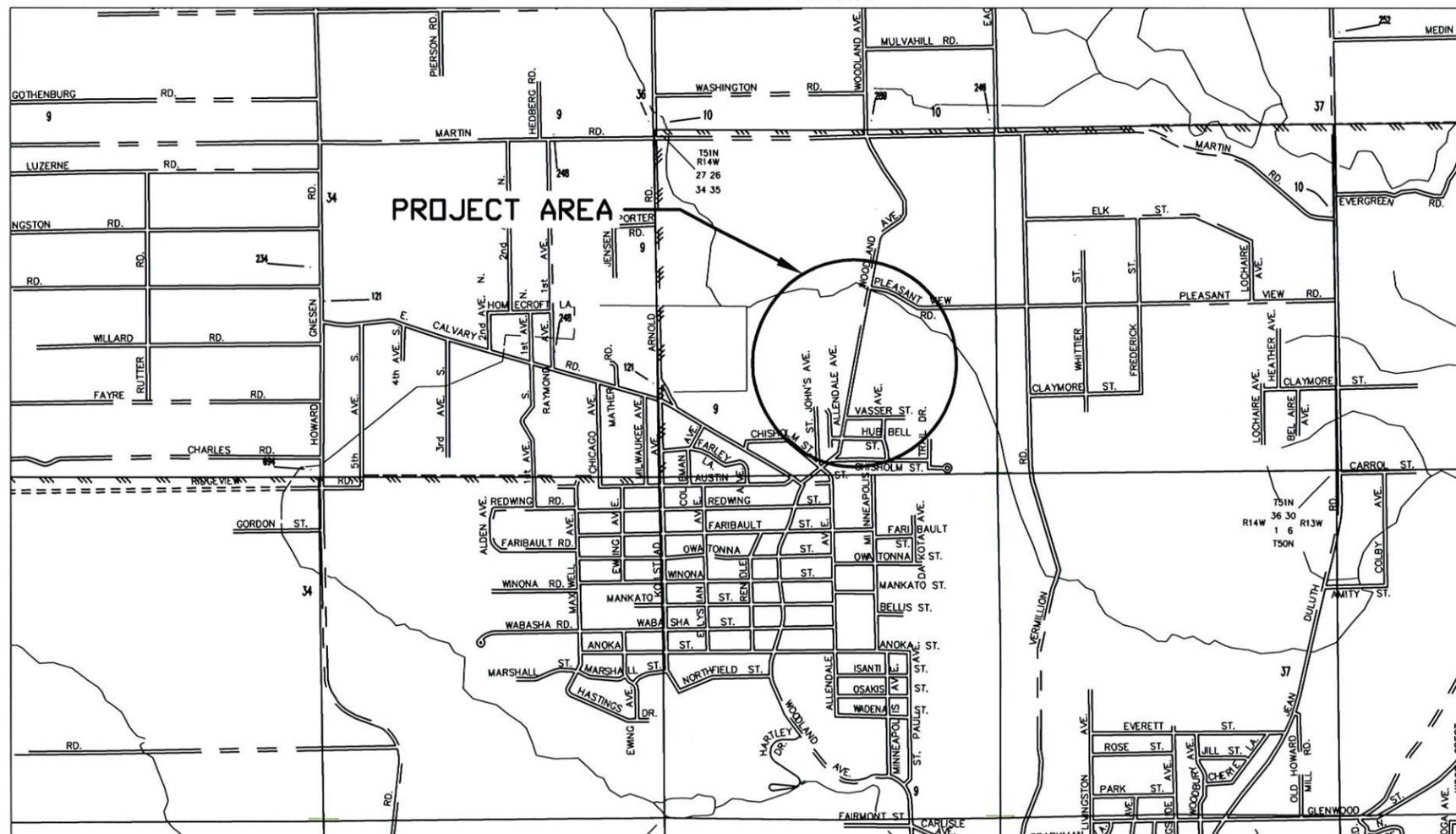
CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:

WOODLAND AVENUE STORM SEWER LINING

CITY PROJECT NO. 1477



GOVERNING SPECIFICATIONS

THE 2014 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE 2014 EDITION OF THE "MATERIALS LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT:
<http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2015 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/standard-construction-specifications/>

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

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED JANUARY 2014.
AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/publ/mutcd/>

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	S.E.Q. & TABLE OF PIPES
3	TRAFFIC CONTROL & GENERAL NOTES
4-6	STORM SEWER LINING PLAN

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.

Thomas Johnson 8/6/15 46744
THOMAS JOHNSON DATE LIC. NO.

CITY APPROVAL

John Jensen 8/6/15
APPROVED CHIEF ENGINEER OF TRANSPORTATION DATE

John Jensen 8/6/15
APPROVED CHIEF ENGINEER OF UTILITIES DATE

John Jensen 8/6/15
APPROVED CITY ENGINEER DATE

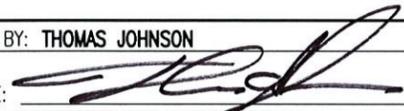
STATEMENT OF ESTIMATED QUANTITIES				
Item No.	Spec No.	Description	Unit	Est. Quantity
1	2021.501	Mobilization	Lump Sum	1.00
2	2503.603	12" CIPP Lining	LF	2586
3	2503.603	15" CIPP Lining	LF	471
4	2503.603	18" CIPP Lining	LF	1206
5	2563.601	Traffic Control	Lump Sum	1.00

TABLE OF PIPES

Asset #	Type	CIPP Liner 12"	CIPP Liner 15"	CIPP Liner 18"	Downstream Structure	Depth (FT)	Upstream Structure	Depth (FT)	Comments:
SS1000020	RCP			57	ST1000021	5.68	ST1000020	5.12	Collector from E Austin St
SS1000021	RCP	20			ST1000022	6.15	CB1000004	3.76	Lead at E Austin St
SS1000022	RCP			63	ST1000021	5.68	ST1000022	6.15	Main - E Austin St & Calvary Rd
SS1000023	RCP	35			ST1000022	6.15	CB1000040	3.33	Lead at E Austin St
SS1000024	RCP	204			ST1000023	5.68	ST1000024	5.51	Collector from St. Johns Ave
SS1000025	RCP			252	ST1000022	6.15	ST1000023	5.68	Main
SS1000026	RCP	39			ST1000025	5.57	CB1000007	2.65	Lead at Allendale Ave
SS1000027	RCP	36			ST1000025	5.57	CB1000005	2.42	Lead at Allendale Ave
SS1000028	RCP	47			ST1000025	5.57	CB1000006	2.93	Lead at Allendale Ave
SS1000029	RCP		123		ST1000023	5.68	ST1000025	5.57	Main
SS1000030	RCP	28			CB1000011	3.65	CB1000010	3.65	Lead at E Chisholm St
SS1000031	RCP	26			ST1000026	5.36	CB1000011	3.65	Lead at E Chisholm St
SS1000032	RCP	164			ST1000025	5.57	ST1000026	5.36	Main
SS1000033	RCP	85			ST1000026	5.36	CB1000008	2.74	Lead from church (west)
SS1000034	RCP	48			ST1000026	5.36	CB1000009	3.52	Lead at E Chisholm St
SS1000035	RCP	36			CB1000014	4.91	CB1000013	3.65	Lead at Hubbell St
SS1000036	RCP	38			ST1000027	5.64	CB1000014	4.91	Lead at Hubbell St
SS1000037	RCP	291			ST1000026	5.36	ST1000027	5.64	Main
SS1000038	RCP	45			CB1000015	4.95	CB1000016	5.00	Lead at Hubbell St
SS1000039	RCP	56			ST1000027	5.64	CB1000015	4.95	Lead at Hubbell St
SS1000040	RCP	47			ST1000027	5.64	CB1000012	5.00	Lead at Hubbell St
SS1000041	RCP	30			CB1000019	3.53	CB1000020	3.62	Lead at Vassar St
SS1000042	RCP	49			ST1000028	4.15	CB1000019	3.53	Lead at Vassar St
SS1000043	RCP	37			ST1000028	4.15	CB1000018	3.81	Lead at Vassar St

Asset #	Type	CIPP Liner 12"	CIPP Liner 15"	CIPP Liner 18"	Downstream Structure	Depth (FT)	Upstream Structure	Depth (FT)	Comments:
SS1000044	RCP	18			ST1000028	4.15	CB1000044	3.21	Lead at Vassar St
SS1000045	RCP	196			PRST 1*	~6.00	ST1000028	4.15	Main
SS1000046	RCP	39			PRST 1*	~6.00	CB1000021	3.50	Lead
SS1000047	RCP	44			ST1000029	4.90	CB1000022	3.62	Lead
SS1000048	RCP	14			ST1000029	4.90	CB1000023	3.43	Lead
SS1000049	RCP	262			ST1000030	5.38	PRST 2*	~6.00	Main
SS1000050	RCP	37			PRST 2*	~6.00	CB1000024	2.74	Lead
SS1000051	RCP	18			ST1000030	5.38	CB1000026	3.44	Lead
SS1000052	RCP	34			ST1000030	5.38	CB1000025	3.44	Lead
SS1000053	RCP		348		ST1000031	6.27	ST1000030	5.38	Main
SS1000054	RCP	17			ST1000031	6.27	CB1000028	3.59	Lead
SS1000055	RCP	33			ST1000031	6.27	CB1000027	3.36	Lead
SS1000056	RCP			241	PRST 3*	~6.00	ST1000031	6.27	Main
SS1000057	RCP	39			PRST 3*	~6.00	CB1000029	2.42	Lead
SS1000058	RCP	34			ST1000032	6.27	CB1000031	3.62	Lead at 4608
SS1000059	RCP	18			ST1000032	6.27	CB1000030	3.51	Lead at 4609
SS1000060	RCP	54			ST1000022	6.15	CB1000003	2.70	Lead from parking lot west side
SS1000066	RCP	158			ST1000029	4.90	PRST 1*	~6.00	Main
SS1000071	RCP	159			PRST 2*	~6.00	ST1000029	4.90	Main
SS1000072	RCP			160	ST1000032	6.27	PRST 3*	~6.00	Main
SS1000080	RCP			201	PRST 4*	~6.00	ST1000032	6.27	Main
SS1030001	RCP			173	ST1030001	6.58	PRST 4*	~6.00	Main
SS1030002	RCP	17			ST1030001	6.58	CB1030001	3.50	Lead
SS1030003	RCP	34			ST1030001	6.58	CB1030002	3.60	Lead
SS1030004	RCP			59	ST1030002	10.18	ST1030001	6.58	Main at Amity Creek Culvert
	PIPE TOTALS	2586	471	1206					

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CERTIFIED BY: **THOMAS JOHNSON** LICENSE NO.: **46744**
 SIGNATURE:  DATE: **8/6/2015**



2015 WOODLAND AVENUE STORM SEWER LINING
 CITY OF DULUTH
 CITY PROJECT NO.: **1477** STATE PROJECT NO.:

DRAWN BY: **JJM**
SEQ & TABLE OF PIPES
 SHEET NO. **2** OF **6**

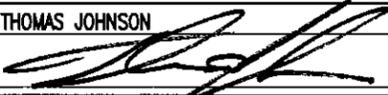
TRAFFIC CONTROL NOTES

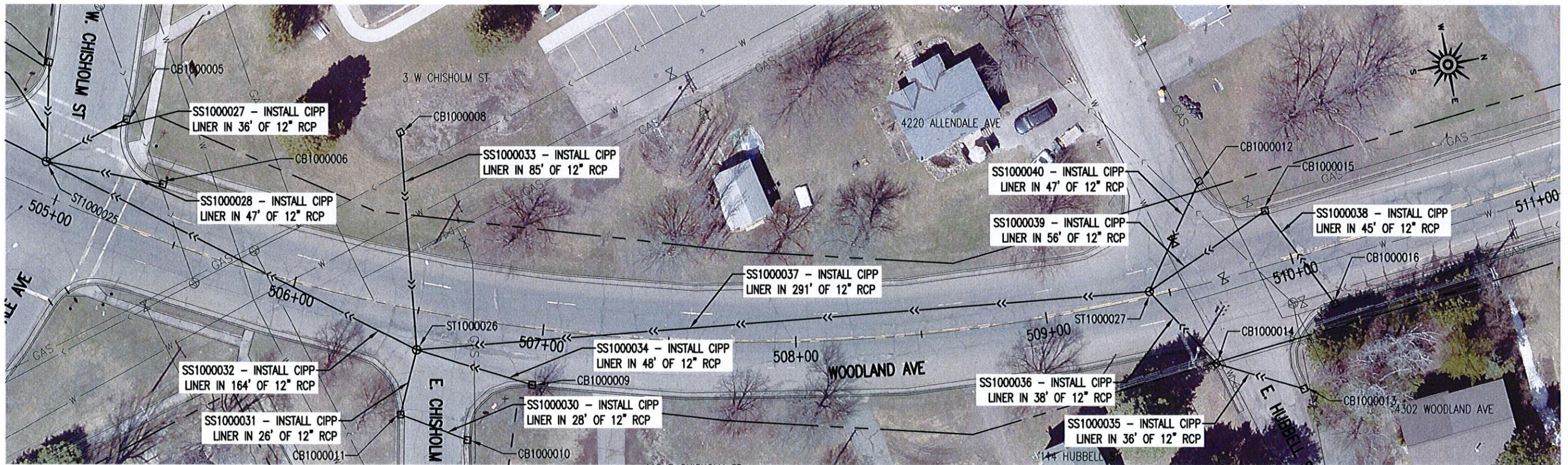
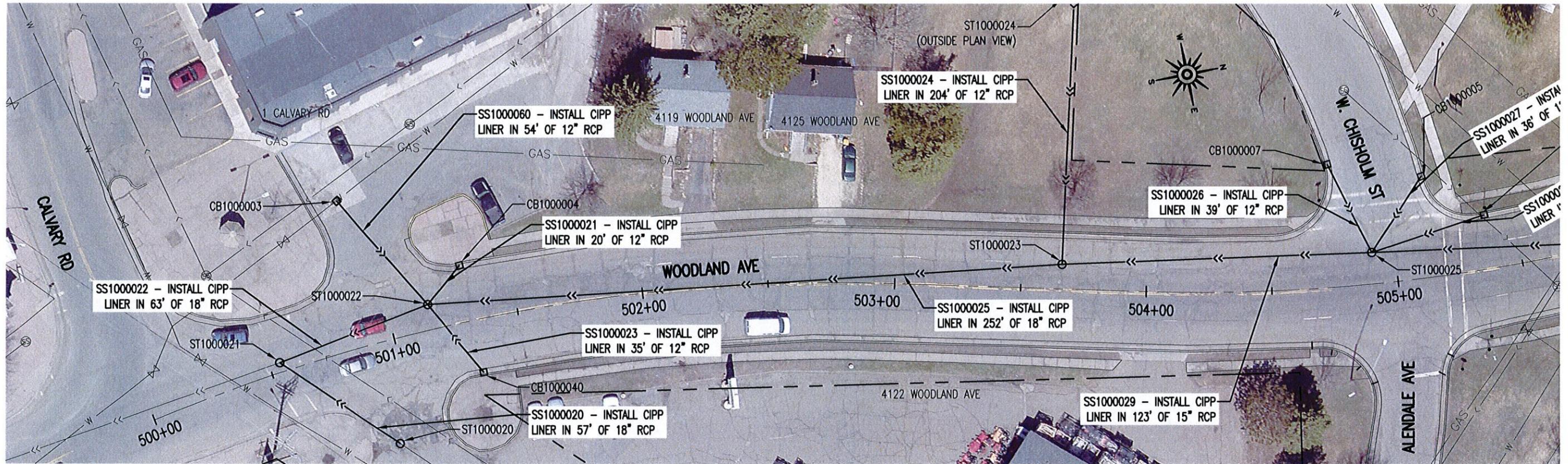
1. ALL TRAFFIC CONTROL OPERATIONS, LAYOUTS AND DEVICES SHALL CONFORM TO THE 2014 MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL 2014" (AVAILABLE AT: <http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/index.html>)
2. THE CONTRACTOR SHALL DETERMINE AND IMPLEMENT THE APPROPRIATE TRAFFIC CONTROL LAYOUT FROM SAID FIELD MANUAL. LAYOUTS EXPECTED TO BE NECESSARY INCLUDE LAYOUTS 22, 24, & 28. THE CONTRACTOR SHOULD PLAN ON HAVING THE REQUIRED TRAFFIC CONTROL DEVICES FOR THESE LAYOUTS READILY AVAILABLE PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH MMUTCD.
4. TRAFFIC CONTROL DEVICES SHALL BE IN PLACE BEFORE ANY WORK IN THE RIGHT OF WAY BEGINS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH, INSTALL AND MAINTAIN ALL TRAFFIC CONTROL DEVICES.
6. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTORS OPERATION.
7. ALL DISTANCES ARE APPROXIMATE AND SHOULD BE ADJUSTED TO ACCOMMODATE FIELD CONDITIONS.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.

GENERAL PROJECT NOTES

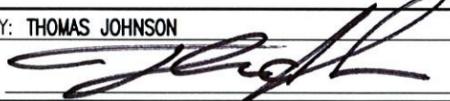
1. THE CONTRACTOR SHALL COORDINATE WITH ANY OTHER CONSTRUCTION ACTIVITIES IN THE AREA INCLUDING WOODLAND AVE MILL AND OVERLAY PROJECT (#1044).
2. STRUCTURES PRST 1, PRST 2, PRST 3, & PRST 4 ARE NOT IN PLACE AT THE TIME OF BIDDING. THESE STRUCTURES ARE TO BE BUILT BY OTHERS PRIOR TO LINING PROJECT.

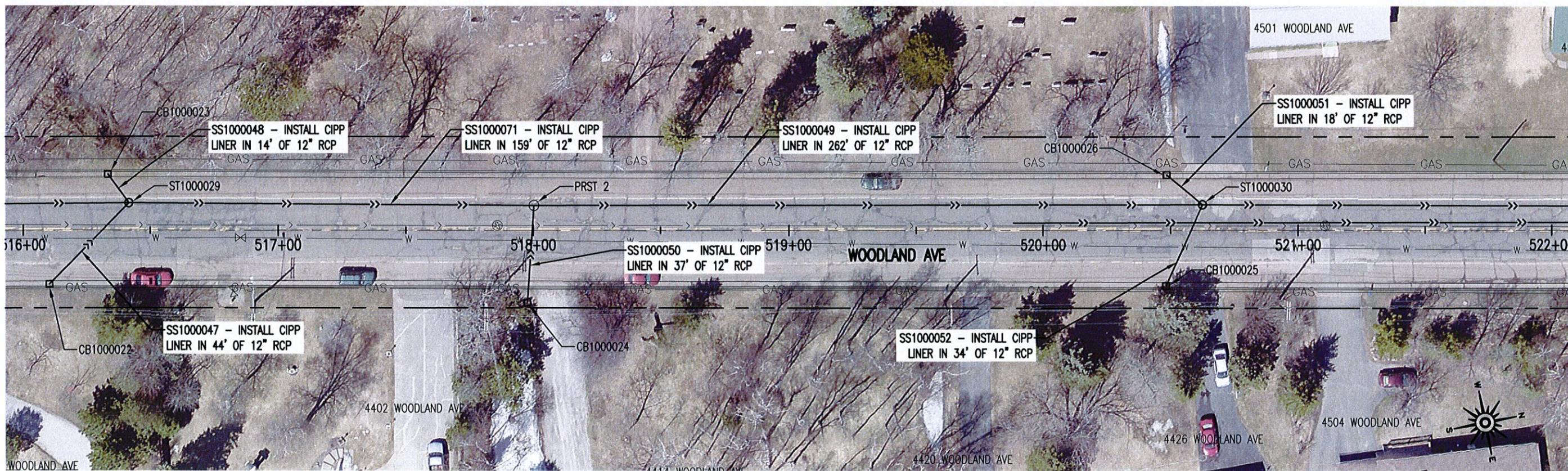
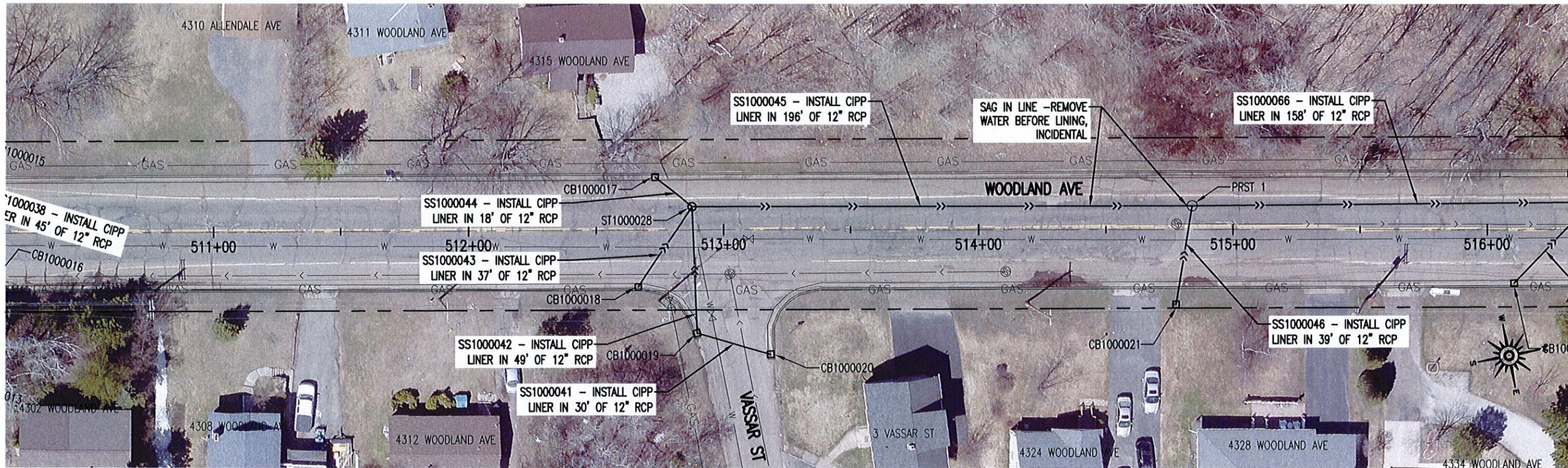
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CERTIFIED BY: THOMAS JOHNSON	LICENSE NO.: 46744	△	2015 WOODLAND AVENUE STORM SEWER LINING		DRAWN BY: JJM
SIGNATURE: 	DATE: 8/6/2015	△	CITY OF DULUTH		TRAFFIC CONTROL & GENERAL NOTES
		△	CITY PROJECT NO.: 1477	STATE PROJECT NO.:	SHEET NO. 3 OF 6

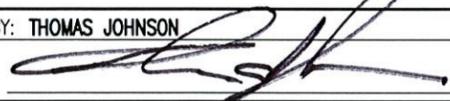


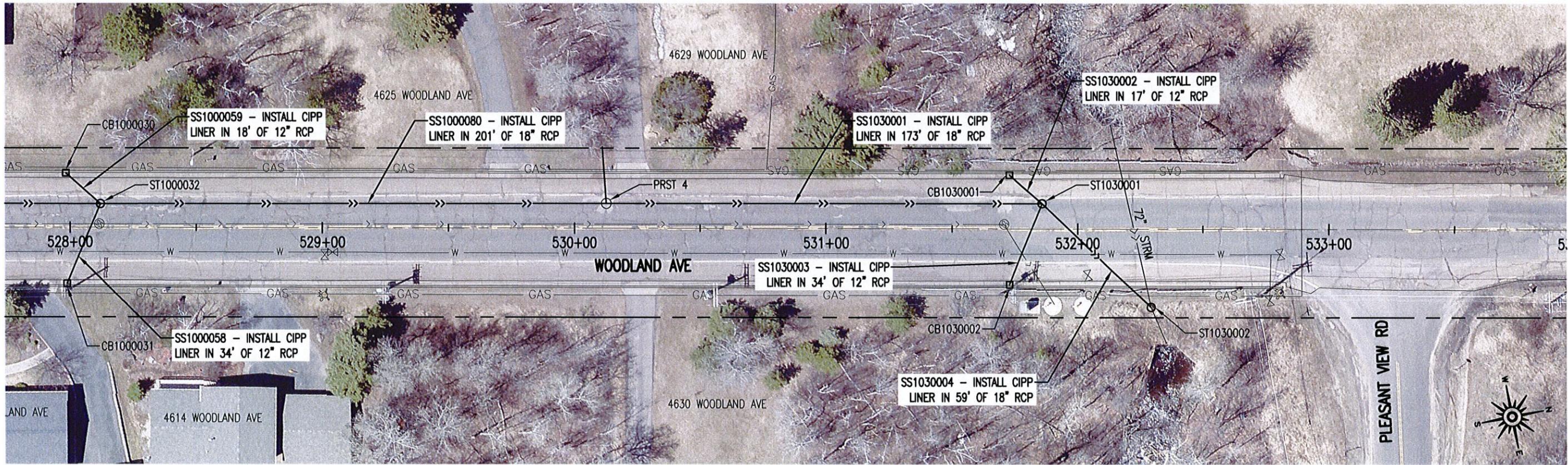
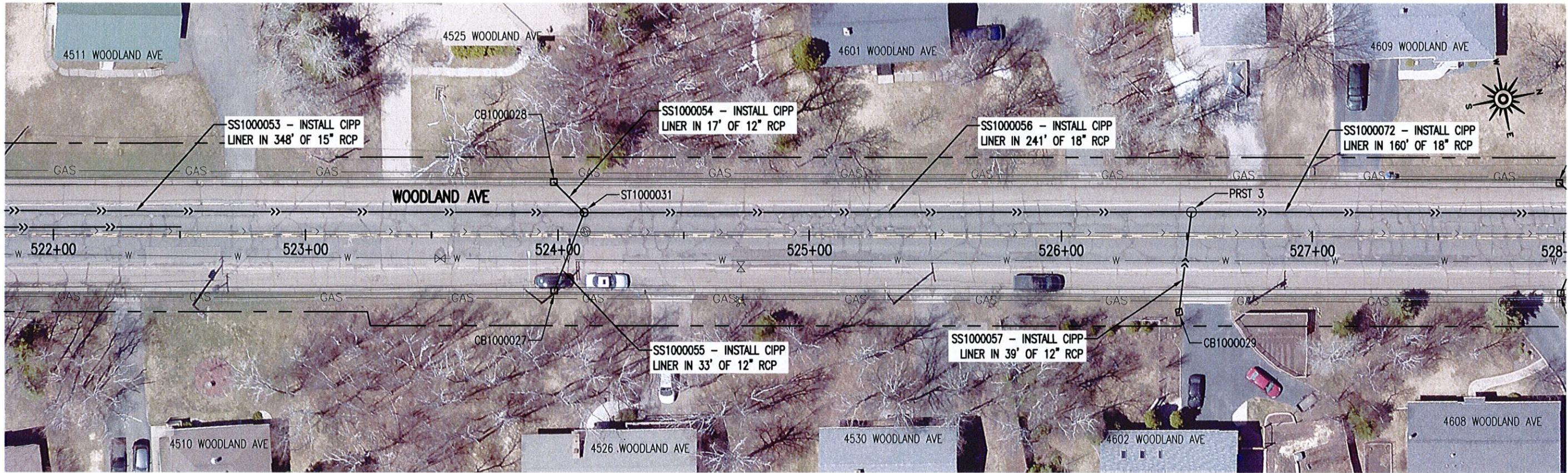
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SIGNATURE: 	DATE: 8/6/2015		CITY OF DULUTH	STORM SEWER LINING PLAN
			CITY PROJECT NO.: 1477	STATE PROJECT NO.:
				SHEET NO. 4 OF 6



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CERTIFIED BY: THOMAS JOHNSON SIGNATURE: 	LICENSE NO.: 46744 DATE: 8/6/2015	  	2015 WOODLAND AVENUE STORM SEWER LINING CITY OF DULUTH		DRAWN BY: JJM STORM SEWER LINING PLAN SHEET NO. 5 OF 6
			CITY PROJECT NO.: 1477	STATE PROJECT NO.:	



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SIGNATURE: 	DATE: 8/6/2015	CITY OF DULUTH		STORM SEWER LINING PLAN	
		CITY PROJECT NO.: 1477	STATE PROJECT NO.: 118-161-008	SHEET NO. 6 OF 6	