

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## RAMSEY COUNTY, MINNESOTA

### CITY OF ST. PAUL

MINN. PROJECT NO. STPM 6216(136)

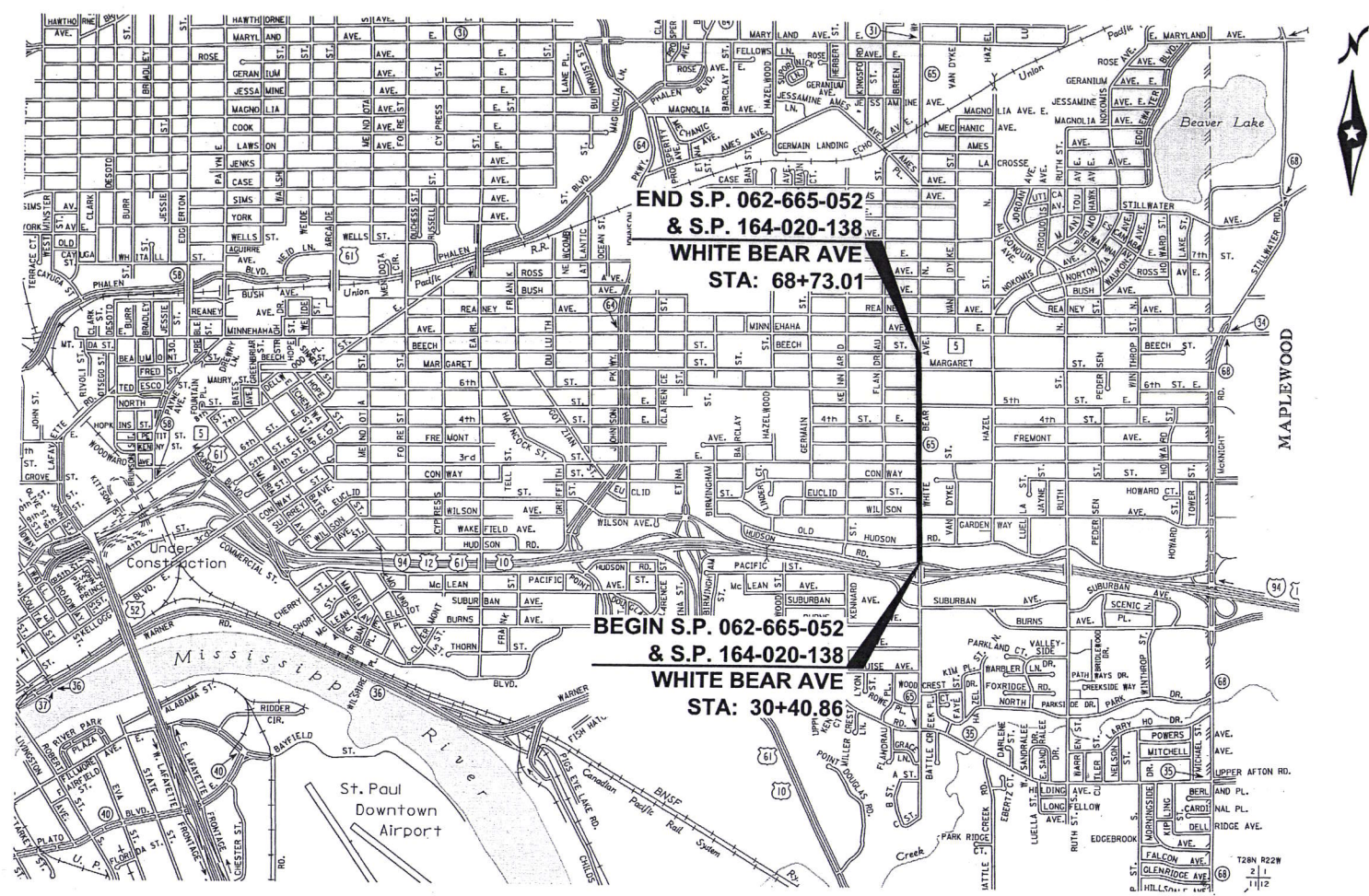
**GOVERNING SPECIFICATIONS**  
 THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.  
 ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

**PLAN SYMBOLS**

STATE LINE	----
COUNTY LINE	----
TOWNSHIP OR RANGE LINE	----
SECTION LINE	----
QUARTER LINE	----
SIXTEENTH LINE	----
RIGHT-OF-WAY LINE	----
SLOPE EASEMENT	SE
PRESENT EASEMENT	----
PRESENT RIGHT-OF-WAY	----
CONTROL OF ACCESS LINE	----
PROPERTY LINES (EXCEPT LAND LINES)	----
VACATED PLATTED PROPERTY	----
CORPORATE OR CITY LIMITS	----
TRUNK HIGHWAY CENTER LINE	----
RETAINING WALL	----
RAILROAD	----
RAILROAD RIGHT-OF-WAY	----
RIVER OR CREEK	----
DRY RUN	----
DRAINAGE DITCH	----
DRAIN TILE	----
CULVERT	----
DROP INLET	----
GUARD RAIL	----
BARBED WIRE FENCE	----
WOVEN WIRE FENCE	----
CHAIN LINK FENCE	----
RAILROAD SNOW FENCE	----
STONE WALL OR FENCE	----
HEDGE	----
RAILROAD CROSSING SIGN	----
RAILROAD CROSSING BELL	----
ELECTRIC WARNING SIGN	----
CROSSING GATE	----
MEANDER CORNER	----
SPRINGS	----
MARSH	----
TIMBER	----
ORCHARD	----
BRUSH	----
NURSERY	----
CATCH BASIN	----
FIRE HYDRANT	----
CATTLE GUARD	----
OVERPASS (HIGHWAY OVER)	----
UNDERPASS (HIGHWAY UNDER)	----
BRIDGE	----
BUILDING (ONE STORY FRAME)	----
F - FRAME	C - CONCRETE
S - STONE	T - TILE
B - BRICK	ST - STUCCO
IRON ROD OR PIPE	----
MONUMENT (STONE, CONCRETE, OR METAL)	MONU.
WOODEN HUB	----
GRAVEL PIT	----
SAND PIT	----
BORROW PIT	----
ROCK QUARRY	----

CONSTRUCTION PLAN FOR: BITUMINOUS PAVING, GRADING, ADA IMPROVEMENTS, SIGNALS  
LIGHTING, STORM SEWER, & MISCELLANEOUS CONSTRUCTION

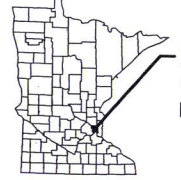
LOCATED ON: WHITE BEAR AVENUE FROM: INTERSTATE 94 TO: BEECH STREET EAST



**WHITE BEAR AVENUE RECONSTRUCT**  
 S.P. 062-665-052

GROSS LENGTH	3,832.15	FT	0.726	MILES
BRIDGES-LENGTH	0.00	FT	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FT	0.000	MILES
NET-LENGTH	3,832.15	FT	0.726	MILES

NOTE: LENGTHS AND DESCRIPTION BASED ON WHITE BEAR AVE ALIGNMENT



PROJECT LOCATION  
 COUNTY: RAMSEY  
 DISTRICT: METRO

**SCALES**

INDEX MAP	
PLAN	
PROFILE	HORIZ.
	VERT.
INTERSECTION DETAILS	HORIZ.

THIS PROJECT HAS BEEN GRANTED A VARIANCE FROM MINNESOTA RULE 8820.9936, DATED MARCH 2015, SO AS TO ALLOW A LANE WIDTH OF 10.5 FT. IN LIEU OF MINIMUM 11 FT. ON WHITE BEAR AVE (CSAH 65). THE VARIANCE WAS SIGNED BY PAUL STINE, ON BEHALF OF MITCH RASMUSSEN ON MARCH 24, 2015

**WHITE BEAR AVE NE DESIGN DESIGNATION**

R VALUE	=	29.5	DESIGN SPEED	30 MPH
ADT (CURRENT YEAR) 2016	=	23,600	BASED ON STOPPING SIGHT DISTANCE	
ADT (FUTURE YEAR) 2036	=	23,600	HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 0.5'	
DESIGN LOAD	10 TON		DESIGN SPEED NOT ACHIEVED AT:	
FUNC. CLASSIFICATION	MINOR COLLECTOR		STA. NA TO STA. NA (40 mph)	
NO. OF TRAFFIC LANES	4		SHOULDER WIDTH 2'	
ESALS	2,675,000		NO. OF PARKING LANES NONE	

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

**PLAN REVISIONS**

DATE	SHEET NO.	APPROVED BY

**SHEET INDEX**

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3-6	STATEMENT OF ESTIMATED QUANTITIES
7	CONSTRUCTION NOTES, STANDARD PLATES & CHART INDEX
8-10	ALIGNMENT PLAN
11-14	TYPICAL SECTIONS
15-21	TABULATIONS
22-24	DETAILS
25-29	PEDESTRIAN CURB RAMP DETAILS
30-35	EXISTING TOPOGRAPHY AND UTILITIES
36-41	REMOVAL PLAN
42-47	CONSTRUCTION PLAN AND PROFILE
48-53	INTERSECTION DETAILS
54-59	STORM SEWER PLAN AND PROFILE
60-61	STORM SEWER PROFILES
62-67	WATER AND SANITARY PLAN AND PROFILE
68	SWPPP NARRATIVE
69-74	TURF ESTABLISHMENT AND EROSION CONTROL
75-82	EROSION CONTROL DETAILS
83-86	LANDSCAPE PLAN
87-94	PAVEMENT MARKING AND SIGNING PLAN
95-97	SIGNING AND STRIPING DETAILS
98-103	LIGHTING PLAN
104-106	LIGHTING DETAILS
SL1-SL26	TRAFFIC CONTROL SIGNAL SYSTEM AND INTERCONNECT PLAN
X1-X13	CROSS SECTIONS

THIS PLAN CONTAINS 145 SHEETS

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.



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.

*[Signature]*  
 DATE: 02/17/2016 LIC. NO. 49048

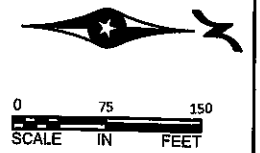
APPROVED: RAMSEY COUNTY ENGINEER 2/24 DATE 2016

APPROVED: CITY OF ST. PAUL ENGINEER 2/24 DATE 2016

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES / POLICY 2/25 DATE 2016

STATE AID ENGINEER: APPROVED FOR STATE AID AND FEDERAL FUNDING 2/25 DATE 2016

CITY OF ST PAUL

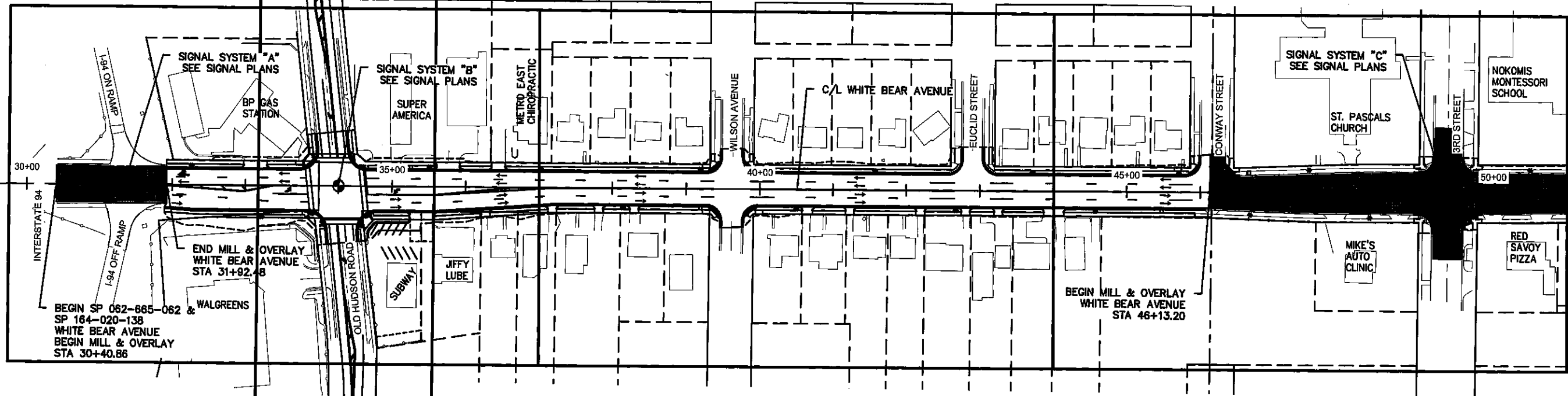


SECTION A  
30 36 42 54 69 87

SECTION G  
87

SECTION B  
31 37 43 55 70 88

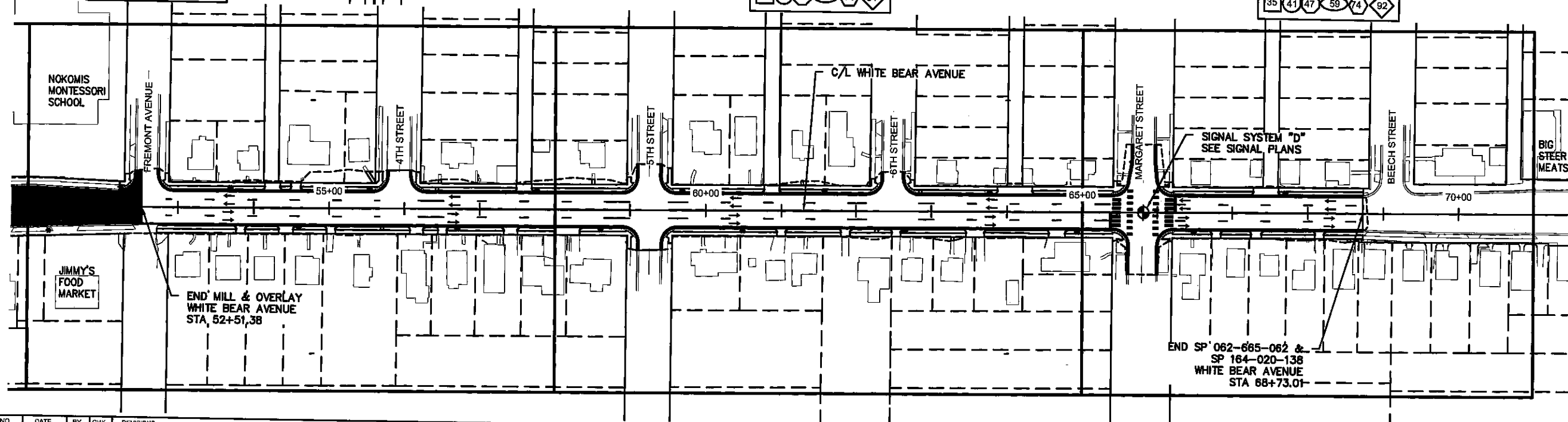
SECTION C  
32 38 44 56 71 89



SECTION D  
33 39 45 57 72 90

SECTION E  
34 40 46 58 73 91

SECTION F  
35 41 47 59 74 92



- LEGEND:**
- XX EXISTING TOPO AND UTILITY PLAN
  - XX REMOVAL PLAN
  - XX CONSTRUCTION PLAN AND PROFILE
  - XX STORM SEWER PLAN AND PROFILE
  - XX TURF ESTABLISHMENT AND EROSION CONTROL
  - XX PAVEMENT MARKING AND SIGNING
  - DIRECTION OF TRAFFIC

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/16/2018  
 WSB Filename: K:\03\95-000\Drawings\03188-000-C-GRRL-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, P.E.  
 DATE: 02/17/2016 LIC. NO.: 49048

**WSB**

701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbeng.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**GENERAL LAYOUT**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
2  
OF  
145  
SHEETS

## STATEMENT OF ESTIMATED QUANTITIES

TABLE	SHEET NO.	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL	PARTICIPATING			NON PARTICIPATING		
							WHITE BEAR AVENUE S.P. 062-665-052 COUNTY ROADWAY	WHITE BEAR AVENUE S.P. 062-665-052 COUNTY STORM SEWER	WHITE BEAR AVENUE S.P. 164-020-138 CITY OF ST PAUL	RAMSEY COUNTY	CITY OF ST PAUL	WATER IMPROVEMENTS 100% SPRWS
							ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
		2021.501	MOBILIZATION		LUMP SUM	1	0.59	0.12	0.10	0.01	0.03	0.14
		2031.501	FIELD OFFICE TYPE D - MODIFIED	(7)	EACH	1	0.59	0.12	0.10	0.01	0.03	0.14
		2041.610	TRAINEES		HOURS	600	600					
E	20	2101.502	CLEARING	(7)	TREE	82	82					
E	20	2101.507	GRUBBING	(7)	TREE	82	82					
		2102.502	PAVEMENT MARKING REMOVAL	(7)	LIN FT	1000	1000					
A	15, 16	2104.501	REMOVE SEWER PIPE (STORM)		LIN FT	3652		3652				
D	19	2104.501	REMOVE CURB AND GUTTER		LIN FT	5777	5777					
K	21	2104.501	REMOVE WATER MAIN		LIN FT	3886	103					3783
K	21	2104.501	REMOVE WATER SERVICE PIPE		LIN FT	335	260					75
Q	21	2104.501	REMOVE SANITARY SERVICE PIPE		LIN FT	715	535					180
D	19	2104.503	REMOVE CONCRETE PAVEMENT		SQ FT	4522	4522					
D	19	2104.505	REMOVE CONCRETE WALK		SQ YD	3421	3421					
D	19	2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	977	977					
D	19	2104.505	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	8	8					
D	19	2104.505	REMOVE PAVEMENT SPECIAL	(1) (7) (11)	SQ YD	18051	18051					
A	15, 16	2104.509	REMOVE MANHOLE OR CATCH BASIN		EACH	47		47				
A	15, 16	2104.509	REMOVE CASTING		EACH	63		63				
K	21	2104.509	REMOVE UTILITY VAULT		EACH	2						2
K	21	2104.509	REMOVE HYDRANT		EACH	11	7					4
O	21	2104.509	REMOVE SERVICE CABINET		EACH	2			2			
		2104.509	REMOVE SIGN TYPE C		EACH	77	77					
		2104.509	REMOVE SIGNAL SYSTEM B		EACH	1	0.5		0.5			
D	19	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	(4)	LIN FT	289	289					
D	19	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	(4) (10)	LIN FT	869	869					
O	21	2104.523	SALVAGE LIGHTING UNIT	(7)	EACH	7			7			
N	94	2104.523	SALVAGE SIGN TYPE SPECIAL		EACH	10	10					
K	21	2104.523	SALVAGE HYDRANT		EACH	1	1					
		2104.601	HAUL SALVAGED MATERIAL	(7)	LUMP SUM	1			1			
F	19	2105.501	COMMON EXCAVATION (EV)	(7) (P)	CU YD	14172	14172					
G	20	2105.522	SELECT GRANULAR BORROW (CV)	(P)	CU YD	12754	12754					
G	20	2105.523	COMMON BORROW (CV)	(P)	CU YD	199	199					
		2105.607	HAUL & DISPOSE OF CONTAMINATED MATERIAL	(7)	CU YD	170				70		100
		2105.619	MINOR GRADING	(16)	RDST	7	7					
		2123.610	TRACTOR MOUNTED BACKHOE	(7) (8)	HOUR	50	50					
		2123.610	STREET SWEEPER (WITH PICKUP BROOM)	(7) (8)	HOUR	175	175					
		2130.501	WATER	(5) (8)	MGAL	100	100					
G	20	2211.503	AGGREGATE BASE (CV) CLASS 6	(P)	CU YD	3851	3851					

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 5/13/2016  
WSB Filename: K:\03\188-000-Cad\Plan\03188-000-C-SEC-SC-HD.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	DS	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DATE: 05/13/2016  
 LIC. NO.: 49048



701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsb.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STATEMENT OF ESTIMATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
3  
OF  
145  
SHEETS

**STATEMENT OF ESTIMATED QUANTITIES**

TABLE	SHEET NO.	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL ESTIMATED QUANTITY	PARTICIPATING			NON PARTICIPATING		
							WHITE BEAR AVENUE S.P. 062-665-052 COUNTY ROADWAY	WHITE BEAR AVENUE S.P. 062-665-052 COUNTY STORM SEWER	WHITE BEAR AVENUE S.P. 164-020-138 CITY OF ST PAUL	RAMSEY COUNTY	CITY OF ST PAUL	WATER IMPROVEMENTS 100% SPRWS
							ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
		2301.602	DRILL & GROUT REINFORCEMENT BAR	(7)	EACH	300	300					
G	20	2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	2123	2123					
		2360.501	TYPE SP 9.5 BITUMINOUS MIXTURE FOR PATCHING	(8)	TON	100	100					
		2360.501	TYPE SP 9.5 WEARING COURSE MIXTURE (3,B)	(8)	TON	150	150					
G	20	2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (4,F)		TON	4820	4820					
G	20	2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (4,B)		TON	3620	3620					
D	19	2402.603	SALVAGE & INSTALL METAL RAILING	(2) (7)	LIN FT	176	176					
H	20	2411.507	CONCRETE STAIRWAY	(7) (8)	EACH	36	36					
G	20	2451.609	GRANULAR BACKFILL	(7)	TON	1899				240		1659
B	17-18A	2501.521	44" SPAN RC PIPE-ARCH CULVERT CLASS IIA		LIN FT	812		812				
		2502.541	4" PERF TP PIPE DRAIN		LIN FT	492		492				
B	17 - 18A	2503.541	15" RC PIPE SEWER DESIGN 3006 CLASS V		LIN FT	1709		1709				
B	17 - 18A	2503.541	18" RC PIPE SEWER DESIGN 3006 CLASS III		LIN FT	808		808				
B	17 - 18A	2503.541	21" RC PIPE SEWER DESIGN 3006 CLASS III		LIN FT	575		575				
B	17 - 18A	2503.541	24" RC PIPE SEWER DESIGN 3006 CLASS III		LIN FT	394		394				
B	17 - 18A	2503.541	27" RC PIPE SEWER DESIGN 3006 CLASS III		LIN FT	416		416				
		2503.601	TELEWISE PROJECT SANITARY SEWER	(7)	LUMP SUM	1			1			
B	17 - 18A	2503.602	CONNECT TO EXISTING STORM SEWER	(7)	EACH	12		12				
Q	21	2503.602	CONNECT TO EXISTING SANITARY SEWER	(7)	EACH	15				15		
Q	21	2503.602	CONNECT TO EXISTING SANITARY SEWER SERVICE	(7)	EACH	51				15		36
		2503.602	CONSTRUCT BULKHEAD	(7)	EACH	15	15					
Q	21	2503.603	6" PVC PIPE SEWER		LIN FT	717				537		180
K	21	2504.602	CONNECT TO EXISTING WATER MAIN	(7)	EACH	19						19
K	21	2504.602	CONNECT TO EXISTING WATER SERVICE	(7)	EACH	25	24					1
K	21	2504.602	HYDRANT	(7)	EACH	9	6					3
K	21	2504.602	INSTALL HYDRANT	(7)	EACH	1	1					
K	21	2504.602	4" GATE VALVE & BOX	(7)	EACH	1						1
K	21	2504.602	6" GATE VALVE & BOX	(7)	EACH	1	1					
K	21	2504.602	8" GATE VALVE & BOX	(7)	EACH	17	4					13
K	21	2504.602	12" BUTTERFLY VALVE & BOX	(7)	EACH	20	2					18
K	21	2504.602	16" BUTTERFLY VALVE & BOX	(7)	EACH	1						1
K	21	2504.602	20" BUTTERFLY VALVE & BOX	(7)	EACH	1						1
K	21	2504.602	24" BUTTERFLY VALVE & BOX	(7)	EACH	1						1
K	21	2504.602	VALVE BOX	(7)	EACH	2						2
K	21	2504.602	ADJUST VALVE BOX	(7)	EACH	2	2					
K	21	2504.602	ADJUST CURB BOX	(7)	EACH	62	62					
K	21	2504.602	0.75" CURB STOP & BOX	(7)	EACH	4						4
K	21	2504.602	1" CURB STOP & BOX	(7)	EACH	5						5
K	21	2504.603	12" WATERMAIN HDPE (PIPE BURSTING)	(7)	LIN FT	567						567
K	21	2504.603	4" WATERMAIN DUCTILE IRON CL 53	(7)	LIN FT	19						19

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

Date Plotted: 6/13/2016  
WSB Filename: K:\03\188-000\Cad\Plan\03188-000-C-SEC-SC4D.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	DS	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL S. SOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO.: 49048



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 Minneapolis, MN 55418  
 Tel: (763) 541-4000 - Fax: (763) 541-1700  
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**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STATEMENT OF ESTIMATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
4  
OF  
145  
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## STATEMENT OF ESTIMATED QUANTITIES

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							ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
K	21	2504.603	6" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	138	80					58
K	21	2504.603	8" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	453						453
K	21	2504.603	12" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	2769						2769
K	21	2504.603	16" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	250						250
K	21	2504.603	20" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	61						61
K	21	2504.603	24" WATERMAIN DUCTILE IRON CL 52	(7)	LIN FT	32						32
K	21	2504.603	3/4" TYPE K COPPER PIPE	(7)	LIN FT	260	260					
K	21	2504.603	1" TYPE K COPPER PIPE	(7)	LIN FT	100						100
K	21	2504.604	2" INSULATION	(7)	SQ YD	142	142					
K	21	2504.608	DUCTILE IRON FITTINGS	(7)	POUND	7450	810					6640
B	17 - 18A	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 7B		LIN FT	195		195				
B	17 - 18A	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	(18)	LIN FT	16		16				
B	17 - 18A	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020	(18)	LIN FT	102		102				
B	17 - 18A	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 72-4020	(18)	LIN FT	65		65				
B	17 - 18A	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1		EACH	4		4				
B	17 - 18A	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECAIL 2		EACH	4		4				
A, C	15, 16, 19	2506.516	CASTING ASSEMBLY		EACH	115		115				
A, B	15 - 18A	2506.522	ADJUST FRAME AND RING CASTING		EACH	11		11				
B	17-18A	2506.601	SEDIMENT COLLECTION DEVICE	(7)	EACH	4		4				
		2506.602	CONSTRUCT SURVEY CONTROL STRUCTURE	(7)	EACH	1	1					
A	15, 16	2506.602	RECONSTRUCT DRAINAGE STRUCTURE SPECIAL	(17)	EACH	10	10					
		2506.602	CASTING ASSEMBLY SPECIAL	(7)	EACH	6	6					
H	20	2521.501	4" CONCRETE WALK		SQ FT	25130	25130					
H	20	2521.501	6" CONCRETE WALK		SQ FT	902	902					
H	20	2531.501	CONCRETE CURB AND GUTTER DESIGN B624	(9)	LIN FT	6030	6030					
H	20	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	(9)	SQ YD	684	684					
H	20	2531.507	8" CONCRETE DRIVEWAY PAVEMENT	(9)	SQ YD	142	142					
H	20	2531.618	TRUNCATED DOMES	(7) (6)	SQ FT	422	422					
O	21	2545.511	LIGHTING UNIT TYPE SPECIAL 1 (L14)		EACH	34			34			
O	21	2545.511	LIGHTING UNIT TYPE SPECIAL 2 (2L14)		EACH	4			4			
O	21	2545.513	LUMINAIRE (LED)		EACH	42			42			
O	21	2545.515	LIGHT BASE DESIGN TYPE STANDARD		EACH	31			31			
O	21	2545.523	1.5" NON-METALLIC CONDUIT		LIN FT	5800			5800			
O	21	2545.531	UNDERGROUND WIRE 1 COND NO 4		LIN FT	19200			19200			
O	21	2545.531	UNDERGROUND WIRE 1 COND NO 8		LIN FT	5700			5700			
O	21	2545.541	SERVICE CABINET	(14)	EACH	2			2			
O	21	2545.551	JUNCTION BOX		EACH	6			6			
		2563.601	TRAFFIC CONTROL	(7)	LUMP SUM	1	0.59	0.12	0.10	0.01	0.03	0.14
		2563.601	ALTERNATE PEDESTRIAN ROUTE	(7)	LUMP SUM	1	1					
		2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	(7)	UDAY	56	56					

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

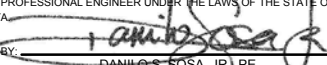
DATE: 2/13/18

Date Printed: 6/13/2016  
WSB Filename: K:\03\188-000-Cad\Plan\03188-000-C-SEC-SCHEM.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	DS	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILLO S. SOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO.: 49048



701 Xerox Avenue South, Suite 300  
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**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STATEMENT OF ESTIMATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
5  
OF  
145  
SHEETS

**STATEMENT OF ESTIMATED QUANTITIES**

TABLE	SHEET NO.	ITEM NUMBER	DESCRIPTION	NOTES	UNIT	PROJECT TOTAL ESTIMATED QUANTITY	PARTICIPATING			NON PARTICIPATING		
							WHITE BEAR AVENUE S.P. 062-665-052 COUNTY ROADWAY	WHITE BEAR AVENUE S.P. 062-665-052 COUNTY STORM SEWER	WHITE BEAR AVENUE S.P. 164-020-138 CITY OF ST PAUL	RAMSEY COUNTY	CITY OF ST PAUL	WATER IMPROVEMENTS 100% SPRWS
							ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY	ESTIMATED QUANTITY
N	94	2564.531	SIGN PANELS TYPE C		SQ FT	254	254					
N	94	2564.537	INSTALL SIGN TYPE SPECIAL	(13)	EACH	10	10					
		2565.511	TRAFFIC CONTROL SIGNAL SYSTEM B		SYSTEM	1	0.5		0.5			
		2565.511	TRAFFIC CONTROL SIGNAL SYSTEM D	(3)	SYSTEM	1			0.5	0.5		
		2565.513	EMERGENCY VEHICLE PREEMPTION SYSTEM		LUMP SUM	1	0.5		0.5			
		2565.603	FIBER OPTIC INTERCONNECT	(7)	LUMP SUM	1	0.5		0.5			
		2565.616	REVISE SIGNAL SYSTEM A	(7)	SYSTEM	1	1					
		2565.616	REVISE SIGNAL SYSTEM C	(7)	SYSTEM	1	0.5		0.5			
		2565.616	TEMPORARY SIGNAL SYSTEM B	(7)	SYSTEM	1	1					
I	20	2571.502	DECIDUOUS TREE 2.5" CAL B&B		EACH	95	95					
I	20	2573.502	SILT FENCE, TYPE MS		LIN FT	222	222					
I	20	2573.530	STORM DRAIN INLET PROTECTION		EACH	66	66					
I	20	2573.533	SEDIMENT CONTROL LOG TYPE COMPOST	(8)	LIN FT	400	400					
		2573.535	STABILIZED CONSTRUCTION EXIT		LUMP SUM	1	1					
		2573.550	EROSION CONTROL SUPERVISOR		LUMP SUM	1	0.59	0.12	0.10	0.01	0.03	0.14
I	20	2574.508	FERTILIZER TYPE 3		POUND	250	250					
I	20	2574.525	COMMON TOPSOIL BORROW (LV)		CU YD	576	576					
I	20	2575.505	SODDING TYPE LAWN		SQ YD	3457	3457					
I	20	2575.513	MULCH MATERIAL TYPE 6		CU YD	33	33					
I	20	2575.560	HYDRAULIC MULCH MATRIX	(8)	POUND	4495	4495					
M	94	2582.501	PAVEMENT MESSAGE (LT ARROW) EPOXY (GR IN)		EACH	6	6					
		2582.502	4" SOLID LINE PAINT	(8)	LIN FT	1000	1000					
		2582.502	4" DOUBLE SOLID LINE PAINT	(8)	LIN FT	2300	2300					
M	94	2582.502	4" SOLID LINE EPOXY		LIN FT	2626	2626					
M	94	2582.502	4" BROKEN LINE EPOXY		LIN FT	6744	6744					
M	94	2582.502	24" SOLID LINE EPOXY	(15)	LIN FT	245	245					
M	94	2582.502	12" SOLID LINE EPOXY		LIN FT	858	858					
M	94	2582.502	4" DOUBLE SOLID LINE EPOXY		LIN FT	8819	8819					
M	94	2582.503	CROSSWALK PREF THERMO GR IN	(12)	SQ FT	960	960					

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**NOTES**

- |   |  |
|---|--|
| (1) SHALL BE FULL DEPTH   | (12) WHITE: 450 SQ FT & GREEN: 510 SQ FT   |
| (2) ORNAMENTAL METAL RAILING. INCLUDES CONCRETE POSTS   | (13) BUS STOP SIGNS SHALL BE SALVAGED & INSTALLED IN THE SAME LOCATION.                                |
| (3) HAWK SYSTEM, FOR DETAILS SEE SHEET SL17 TO SL18   | SEE SHEET NO. 95 TO 97 FOR DETAILS   |
| (4) SAW CUTS SHALL BE FULL DEPTH UNLESS OTHERWISE NOTED   | (14) POLE MOUNTED  |
| (5) FOR DUST CONTROL AND STRUCTURAL SOILS IN TREE TRENCHES  | (15) WHITE: 48 LF & YELLOW: 197 LF   |
| (6) ALL PEDESTRIAN RAMPS SHALL HAVE PRE-CAST TRUNCATED DOME AREA  | (16) TO BE COMPLETED AFTER FULL DEPTH REMOVAL OF ASPHALT   |
| (7) SEE SPECIAL PROVISIONS  | (17) QUANTITY USED TO ACCOUNT FOR SANITARY MASONARY STRUCTURES THAT BECOME DAMAGED DURING CONSTRUCTION |
| (8) THIS PAY ITEM IS TO BE USED IN LOCATIONS AS DETERMINED BY THE ENGINEER IN THE FIELD                                     | (18) INTERMEDIATE COVERS NEED TO HAVE 48" DIAMETER OPENINGS  |
| (9) THE CONTRACTOR SHALL USE HIGH EARLY CONCRETE FOR THESE ITEMS  | (19) SUFFICIENT QUANTITY SUPPLIED FOR MULTIPLE APPLICATIONS THROUGHOUT WORK                            |
| (10) SAW CUT BITUMINOUS (FULL DEPTH) SHALL INCLUDE SAW CUTTING OF SPECIAL PAVEMENT  | (LV) DENOTES LOOSE VOLUME  |
| (11) REMOVE PAVEMENT SPECIAL SHALL CONSIST OF REMOVING ANY CONCRETE, COBBLE STONE, BRICK OR BITUMINOUS PAVEMENT ENCOUNTERED | (CV) DENOTES COMPACTED VOLUME  |
|   | (P) DENOTES PLAN QUANTITY  |

**BASIS FOR ESTIMATED QUANTITIES**

- 2360 MIXES - BITUMINOUS MIXTURES- 115 LBS PER 1" THICKNESS PER SQ YD
- 2357.502 - BITUMINOUS MATERIAL FOR TACK COAT ESTIMATED AT 0.05 GAL PER SQ YD PER APPLICATION
- 2574.508 - TYPE 3 FERTILIZER APPLICATION RATE 350 LBS / ACRE
- 2575.562 - HYDRAULIC MATRIX TYPE MULCH APPLICATION RATE 2100 LB. PER ACRE

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NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	DS	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STATEMENT OF ESTIMATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
6  
OF  
145  
SHEETS

**CONSTRUCTION NOTES**

1. WATER, GAS, ELECTRIC, TELEPHONE, SEWER, AND T.V. CABLE LINES SHOWN ON THE DRAWINGS AND CROSS-SECTIONS ARE PLOTTED FROM THE BEST INFORMATION AVAILABLE AT THE TIME OF PLAN PREPARATION, BUT MAY NOT REFLECT ACTUAL LOCATIONS OR ELEVATIONS. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCTION WHICH MAY BE AFFECTED BY A UTILITY CONFLICT. THE CONTRACTOR SHALL GIVE 48 HOURS NOTICE TO THE OWNERS OF ALL KNOWN UTILITIES BEFORE STARTING ANY OPERATIONS AFFECTING THOSE PROPERTIES, OR BEGINNING EXCAVATION IN THE VICINITY OF THOSE PROPERTIES. THE CONTRACTORS ATTENTION IS DIRECTED TO SECTION 1507 IN THE STANDARD SPECIFICATIONS. UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. THE CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.
2. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
3. PROVIDE FOR REMOVAL AND DISPOSAL (OUTSIDE THE CONSTRUCTION ZONE) OF ALL INPLACE STRUCTURES THAT WILL INTERFERE WITH CONSTRUCTION. DISPOSAL OF ITEMS REMOVED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2104.3C3 AND 2105.3D
4. SODDING QUANTITIES ALONG ROADWAY SLOPES ARE BASED ON SODDING LIMITS FROM THE BACK OF CURB TO THE CONSTRUCTION LIMITS.
5. COMPACTION IN GRADING ITEMS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SPEC. 2105 "QUALITY COMPACTION METHOD".
6. COMPACTION OF BITUMINOUS SURFACE ITEMS SHALL BE ACCOMPANIED IN ACCORDANCE WITH SPEC 2360 "MAXIMUM DENSITY METHOD".
7. WHEN EXCAVATING ADJACENT TO INPLACE PAVEMENT, NO MATERIAL SHALL BE REMOVED FROM INSIDE APPROXIMATE 2:1 SLOPED LINE DRAWN DOWNWARD AND OUTWARD FROM THE BOTTOM OF THE INPLACE PAVEMENT.
8. MILLING A 1' TO 2' WIDE STRIP OF BITUMINOUS EQUAL IN DEPTH TO THE SURFACING OPERATION SHALL BE REQUIRED WHEN CONNECTING TO A PREVIOUS PAVING PHASE OR CONNECTING TO EXISTING PAVEMENT ON THE FINAL WEAR COURSE. SEE DETAIL "MILLING AT PAVEMENT MATCH POINTS". THIS OPERATION SHALL BE CONSIDERED INCIDENTAL UNLESS THERE IS A MILLING PAY ITEM IN THE PLANS STATEMENT OF QUANTITIES.
9. WHEN CONNECTION TO EXISTING BITUMINOUS IS REQUIRED, THE EDGE OF THE EXISTING PAVEMENT SHALL BE CUT TO A NEAT LINE PRIOR TO CONSTRUCTING ASPHALT SURFACING.
10. STABILIZING AGGREGATE SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACE STABILITY AS DETERMINED BY THE ENGINEER. THE MATERIAL SHALL SATISFY THE REQUIREMENTS OF SECTION 3149.2C AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 2105.3G OF THE STANDARD SPECIFICATIONS.
11. COMPACTION OF AGGREGATE BASE SHALL BE ACCOMPLISHED BY THE "PENETRATION INDEX COMPACTION METHOD".
12. ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSIDERED TO MEAN WORK FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
13. THE CONTRACTOR WILL COOPERATE WITH THE CITY OF ST. PAUL AS IT RELATES TO PERPETUATING MONUMENTATION. ADVANCED NOTICE OF ANY DISTURBANCE TO MONUMENTS SHALL BE MADE TO THE ST. PAUL SURVEYORS OFFICE AT 651-266-6075.
14. EXCESS COMMON EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE COST OF DISPOSAL SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND NO ADDITIONAL COMPENSATION WILL BE PAID OUTSIDE THE BID PRICE FOR COMMON EXCAVATION.
15. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THE QUALITY LEVEL IS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDANCE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".
16. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MMUTCD) AND "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER (3 ft. X 2 ft. OPENING)
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 AND 716
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 806
4180J	MANHOLE OR CATCH BASIN STEP
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000J	CHANNELIZERS (3 SHEETS)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8112I	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
8118D	SERVICE EQUIPMENT & POLE TRAFFIC CONTROL SIGNALS
8120Q	POLE FOUNDATION (PA85)
8121H	TRANSFORMER BASE AND POLE BASE PLATE (PA85, PA90 AND PA100) (2 SHEETS)
8122F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126L	POLE FOUNDATION (PA90 AND PA100)
8130E	SAW CUT LOOP DETECTORS (3 SHEETS)
8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR - LAYOUT DETAILS, LAYOUT NOTES, TYPICAL INSTALLATION (3 SHEETS)

NOTE: SEE SIGNAL PLAN FOR ADDITIONAL STANDARD PLATES.

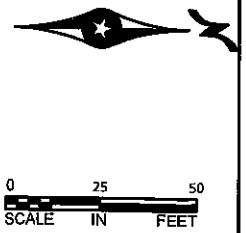
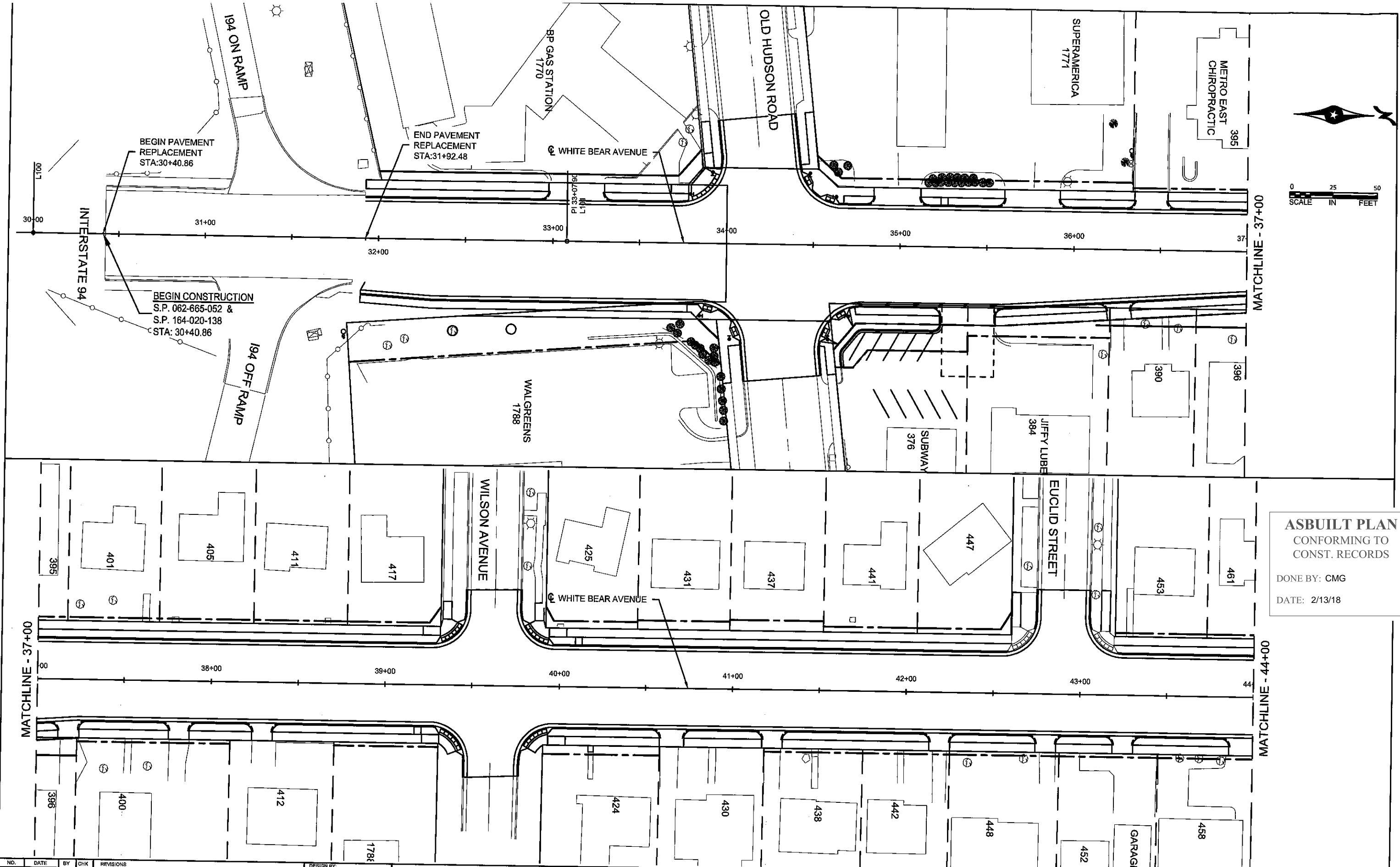
TABULATION CHART		
		SHEET
A	EXISTING STRUCTURES	15,16
B	DRAINAGE TABULATION	17,18
C	CASTING TABULATION	19
D	REMOVALS CHART	19
E	CLEARING AND GRUBBING	20
F	COMMON EXCAVATION	19
G	AGGREGATE AND BITUMINOUS	20
H	CONCRETE CHART	20
I	TURF ESTABLISHMENT AND EROSION CONTROL	20
J	RADIUS POINTS	20
K	WATERMAIN TABULATION	21
M	PAVEMENT MARKINGS	94
N	SIGN TABULATION	94
O	LIGHTING TABULATION	21
Q	SANITARY SERVICE TABULATION	21

**ASBUILT PLAN**  
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ST. PAUL STANDARD PLATES	
PLATE NO.	DESCRIPTION
1300D	CONCRETE SIDEWALK WITH INTEGRAL CURB
2016	CATCH BASIN TYPE 7B
2201E	FRAME CASTING "A"
2202D	COVER CASTINGS "B" (SOLID)
2203	COVER CASTING "D"
2211	CATCH BASIN TYPE 7A DETAILS
2306E	RECONNECTION OF HOUSE SERVICES
2311B	ANCHOR CLAMP DETAIL
2319D	SADDLE CONNECTION OF HOUSE SERVICES
2321A	MANHOLE ADJUST
2322B	MANHOLE RECONSTRUCT
3108A	D-418 CURB TRANSITION AT TYPE 7A CATCH BASIN
5004C	332 CONTROLLER CABINET FOUNDATION
5007E	STREET LIGHTING FEED CABINET
5008F	LIGHT STANDARD FOOTING DETAIL SOD/SOIL SURFACE
5009B	LIGHT STANDARD FOOTING DETAIL CONCRETE SURFACE
5010	UNDERGROUND ELECTRICAL CONDUIT PLACEMENT
5027A	METERED LIGHTING SERVICE POLE MOUNT
5054	CONTROLLER SERVICE PANEL LAYOUT
5100A	GROUNDING METHODS FOR MAST ARM FOUNDATION
5201	POLYMER CONCRETE PULLBOX DETAIL

Data Printed: 2/14/2018 WSB File Name: K:\0188-000\Drawings\Plan\0188-000-C-CHST-NOTE.dwg

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NO.	DATE	BY	CHK	REVISIONS												



**ASBUILT PLAN**  
 CONFORMING TO  
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 P.E. NO.: 49048

**WSB**  
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**RAMSEY COUNTY**

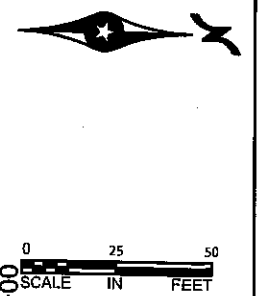
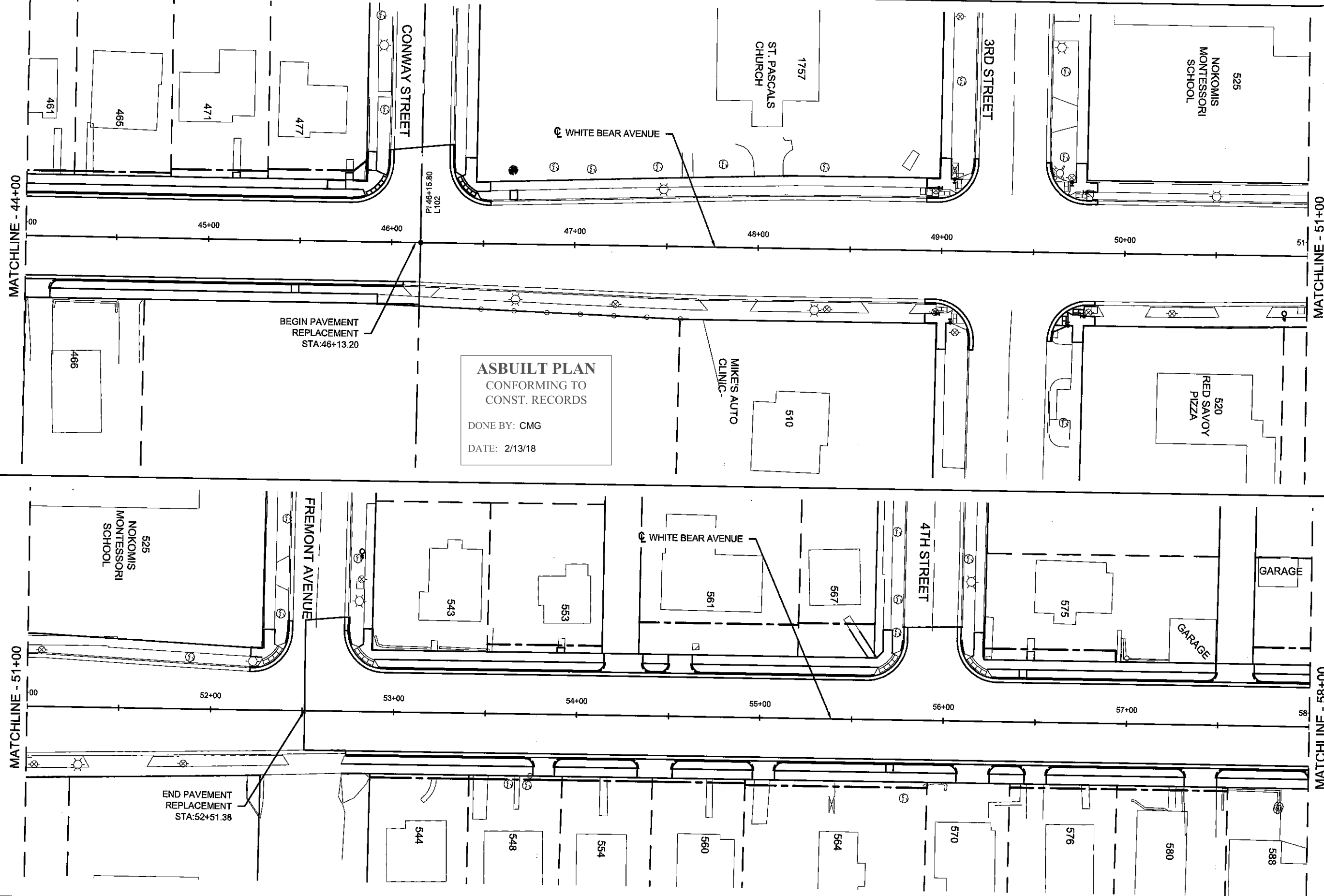
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**ALIGNMENT PLAN  
 STA. 30+00 TO 44+00  
 S.P. 062-665-052 / S.P. 164-020-138**

Date Plotted: 2/16/2018  
 WSB Filename: C:\031802\CAD\Drawings\031802-000-C-001-PLAN.dwg





**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

BEGIN PAVEMENT  
 REPLACEMENT  
 STA: 46+13.20

END PAVEMENT  
 REPLACEMENT  
 STA: 52+51.38

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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 DANILLO S. ADGA, JR. PE  
 DATE: 02/17/2018  
 LIC. NO.: 49046



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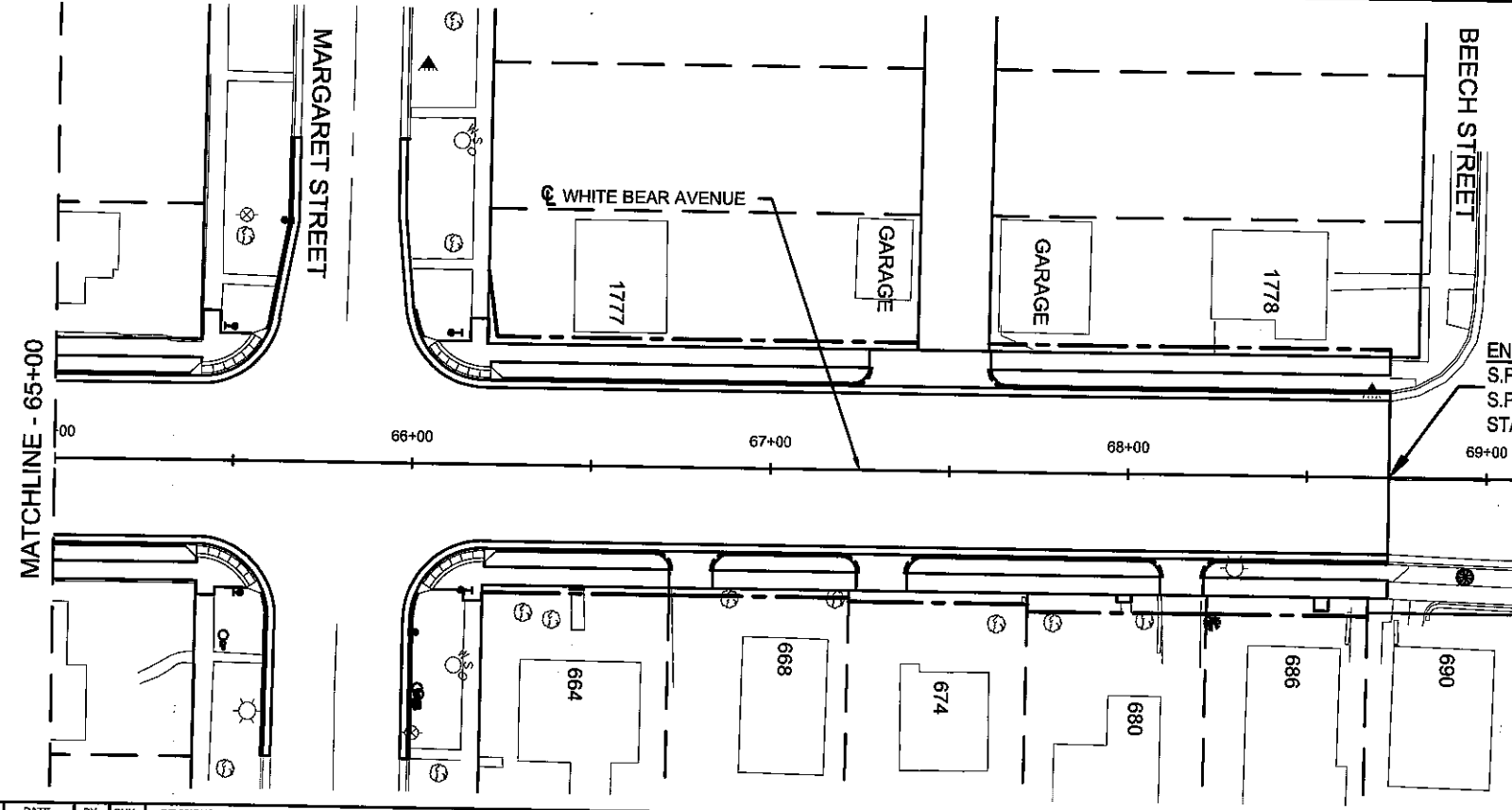
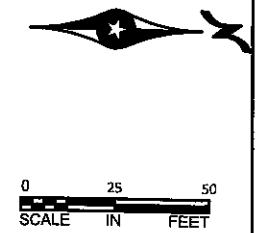
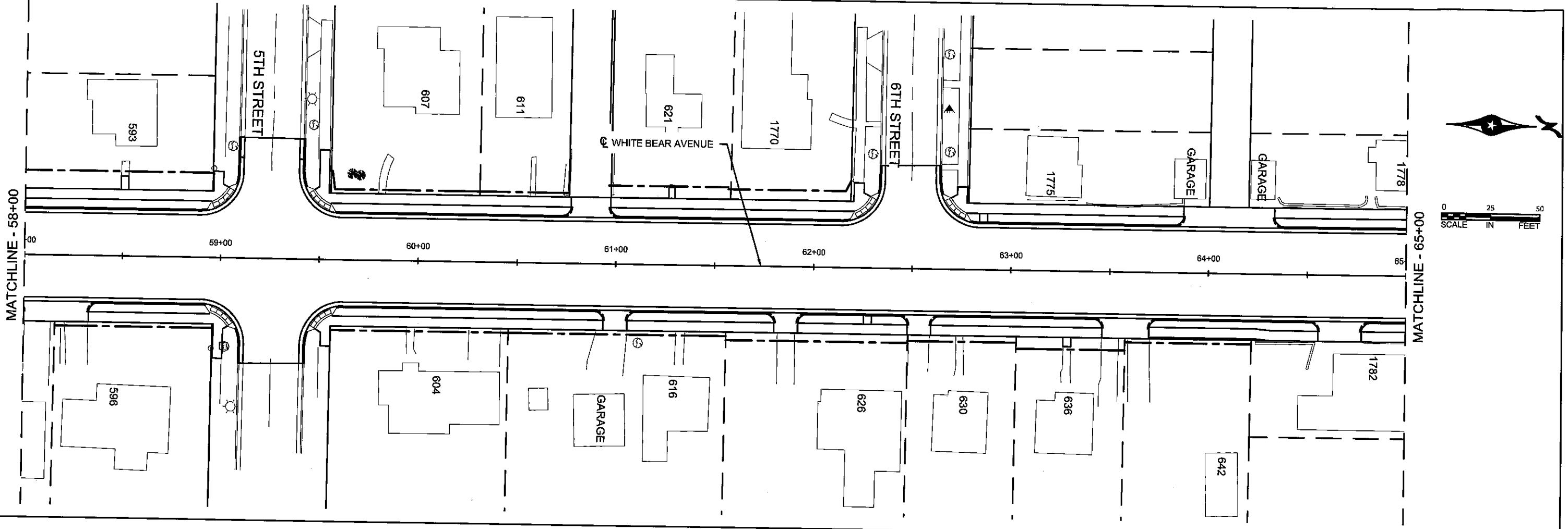
**WHITE BEAR AVENUE  
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**RAMSEY COUNTY, MINNESOTA**

**ALIGNMENT PLAN**  
**STA. 44+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 9  
 OF  
 145  
 SHEETS

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WHITE BEAR AVENUE										
NO.	LENGTH	AZIMUTH	DELTA	RADIUS	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING
L100	307.90	359°30'09.91"			30+00.00	33+07.90	158673.2063	592716.4525	158981.0975	592713.7804
L101	1307.90	359°30'09.63"			33+07.90	46+15.80	158981.0975	592713.7804	160288.9500	592702.4280
L102	2619.35	359°24'23.96"			46+15.80	72+35.15	160288.9500	592702.4280	162908.1550	592675.3030

END CONSTRUCTION  
 S.P. 062-665-052 &  
 S.P. 164-020-138  
 STA: 68+73.01  
 69+00

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**WSB**

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 Tel: (783) 541-4800 - Fax: (783) 541-1700  
 wsbwng.com

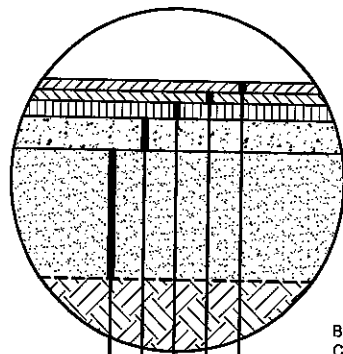


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**ALIGNMENT PLAN**  
**STA. 58+00 TO 69+00**  
 S.P. 062-665-052 / S.P. 164-020-138

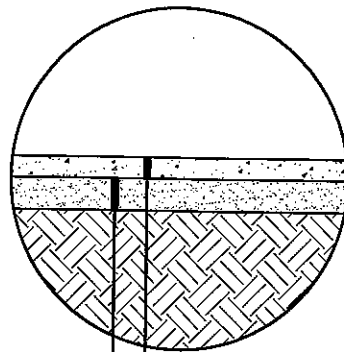
SHEET  
**10**  
 OF  
**145**  
 SHEETS

Date Plotted: 2/16/2018  
 WSB File Name: K:\03188-000\CallPlan\03188-000-C-ALIGN-PLAN.dwg



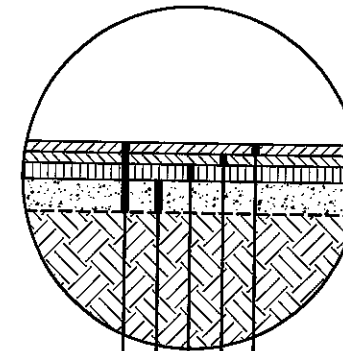
**INSET A  
PAVEMENT  
SECTION**

- BITUMINOUS TACK COAT BETWEEN COURSES MNDOT SPEC. 2357
- 2" - 2360 TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB440F)
- 2" - 2360 TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB440F)
- 3" - 2360 TYPE SP 12.5 BITUMINOUS NON WEARING COURSE MIXTURE (SPNWB430B)
- 6" - AGGREGATE BASE CLASS 6 MN/DOT SPEC. 2211 (CV)
- 24" - SELECT GRANULAR BORROW



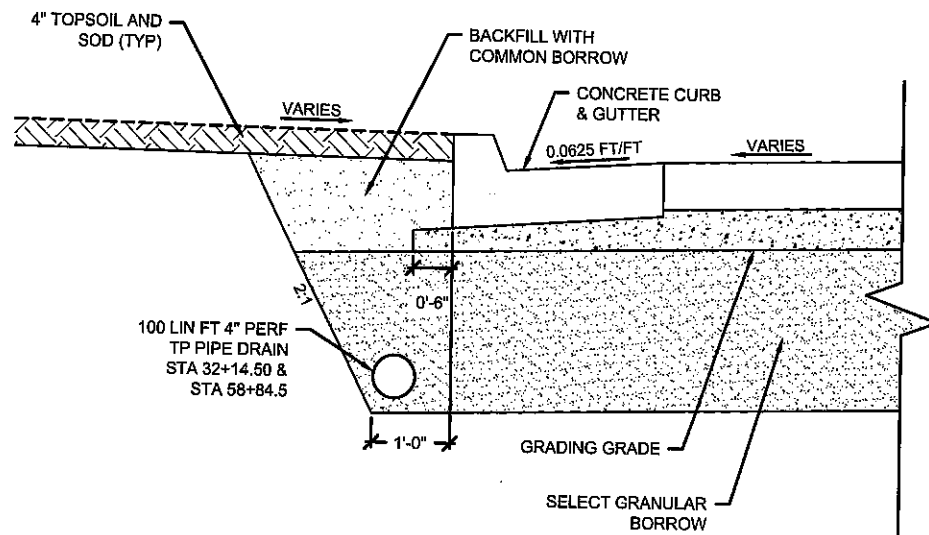
**INSET B  
CONCRETE  
WALK SECTION**

- 4" - CONCRETE WALK
- 6" - CONCRETE PED RAMP
- 6" - AGGREGATE BASE CLASS 6 MN/DOT SPEC. 2211 (CV)



**INSET C  
PAVEMENT  
REPLACEMENT  
SECTION**

- BITUMINOUS TACK COAT BETWEEN COURSES MNDOT SPEC. 2357
- 2" - 2360 TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB440F)
- 2" - 2360 TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB440F)
- 3" - 2360 TYPE SP 12.5 BITUMINOUS NON WEARING COURSE MIXTURE (SPNWB430B)
- 4.5" - 2360 TYPE SP 12.5 BITUMINOUS NON WEARING COURSE MIXTURE (SPNWB430B)
- 6" - AGGREGATE BASE CLASS 6 MN/DOT SPEC. 2211 (CV)
- 8.5" EXISTING BITUMINOUS PAEMENT
- EXISTING SUBGRADE (MINOR GRADING)



**DETAIL A  
NTS**

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

Date Plotted: 2/22/2016  
WSB Filename: K:\313\88-000\CadPlan\0188-000-C-TYP-SECT.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DANILO S. SOUSA, P.E.  
DATE: 02/17/2016  
LIC. NO. 49048



701 Xena Avenue South, Suite 300  
Minneapolis, MN 55418  
Tel: (783) 541-4800 - Fax: (783) 541-1700  
waberg.com

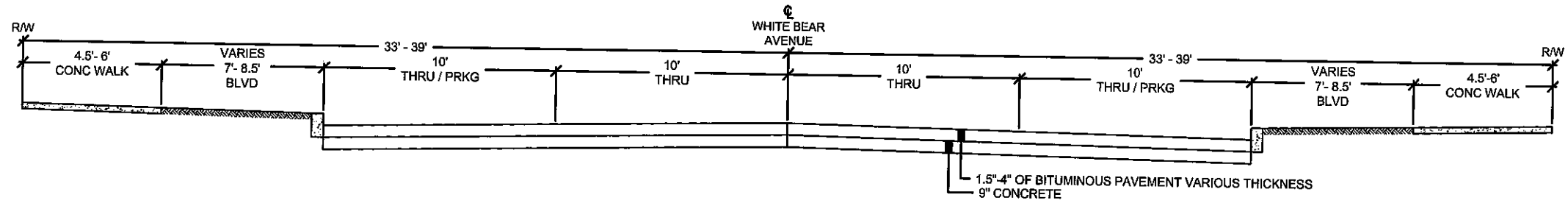


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

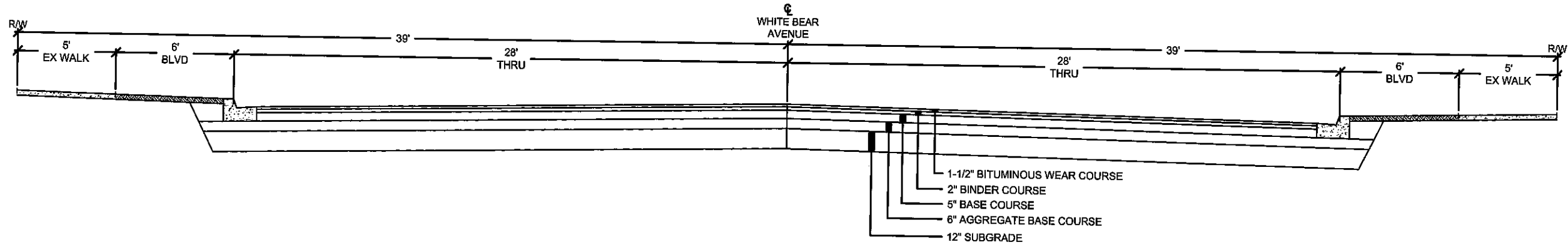
**RAMSEY COUNTY, MINNESOTA**  
**TYPICAL SECTIONS  
PAVEMENT DETAILS**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
11  
OF  
145  
SHEETS

**EXISTING WHITE BEAR AVENUE**  
 STA 30+40.86 TO STA 46+13.20  
 STA 52+51.38 TO STA 68+73.01



**EXISTING WHITE BEAR AVENUE**  
 STA 46+13.20 TO STA 52+51.38



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/22/2018  
 WBS File Name: K:\03-188-000-Civil\Plan\03-188-000-C-TYP-SECT.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL S. ROSA, JR., PE  
 DATE: 02/17/2018  
 LICENSE NO: 49048



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 Minneapolis, MN 55416  
 Tel: (783) 641-4800 • Fax: (783) 641-1700  
 wsb.org



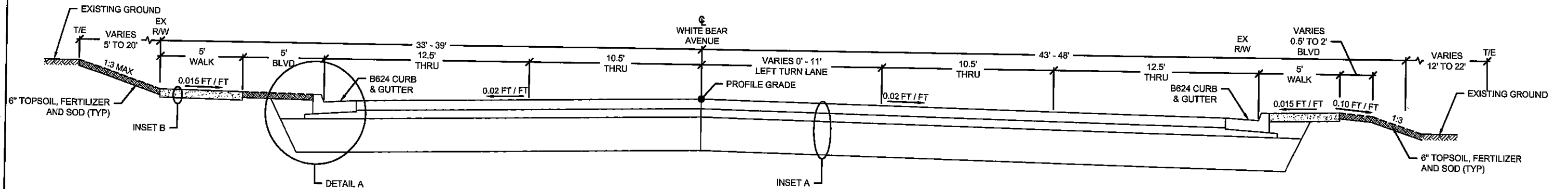
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

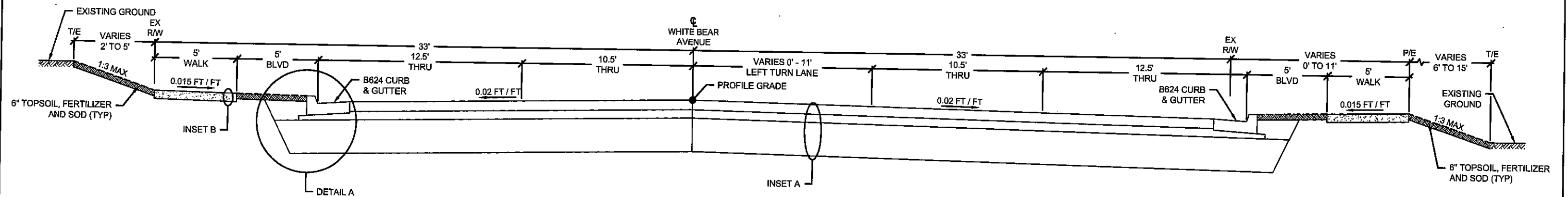
**TYPICAL SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 12  
 OF  
 145  
 SHEETS

**PROPOSED WHITE BEAR AVENUE**  
STA 31+92.48 TO STA 34+24.70



**PROPOSED WHITE BEAR AVENUE**  
STA 34+24.70 TO STA 37+92.27



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Printed: 2/22/18  
WSB Filename: K:\03\160\000\Plan\03160-000-C-171-ASBCT.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILO S. ROSA, P.E.  
 DATE: 02/17/2016  
 L.P. NO.: 49048



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 Minneapolis, MN 55416  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
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**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

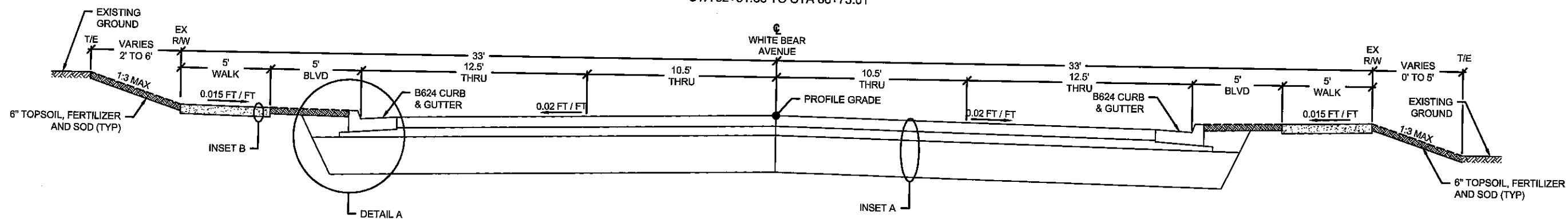
**RAMSEY COUNTY, MINNESOTA**

**TYPICAL SECTIONS**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
13  
OF  
145  
SHEETS

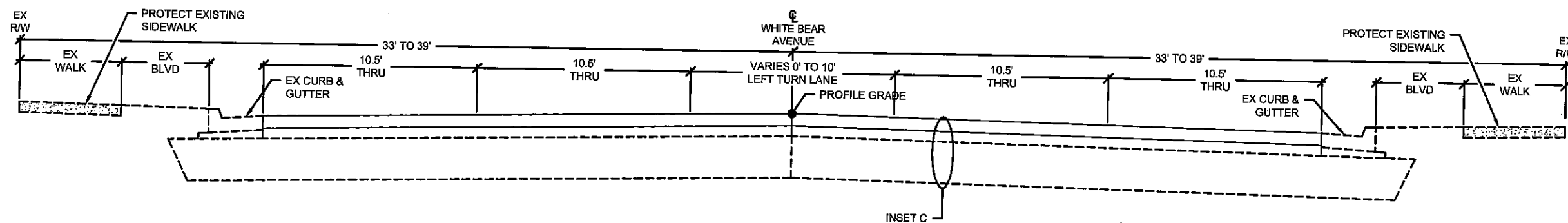
**PROPOSED WHITE BEAR AVENUE**

STA 37+92.27 TO STA 46+13.20  
STA 52+51.38 TO STA 68+73.01



**PROPOSED WHITE BEAR AVENUE**

STA 30+40.86 TO STA 31+92.48  
STA 46+13.20 TO STA 52+51.38



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/22/2018  
WSB Filename: K:\03\168\000\Cad\Plan\03168-000-C-TYP-SECT.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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CERTIFIED BY: *[Signature]*  
DANILO S. SOSA, P.E.  
DATE: 02/17/2018 License No: 43046



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**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**TYPICAL SECTIONS**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
14  
OF  
145  
SHEETS

**EXISTING STRUCTURES**

**A**

STRUCT. NO	STATION	OFFSET LT OR RT	TYPE	ELEVATION		REMOVE MANHOLE CATCHBASIN	RECONSTRUCT DRAINAGE STRUCTURE SPECIAL (1)	ADJUST FRAME & RING CASTING	CASTING ASSEMBLY	REMOVE CASTING	REMOVE SEWER PIPE (STORM)	PIPE DRAINS TO	OUTLET INVERT	REMARKS	
				PROPOSED PROFILE ELEVATION	ORIGINAL GRATE OR RING										
14	32+47.63	LT 25.96	DRAIN CB		905.52	1				1	52	OFF SITE	900.01	REMOVE	
15	32+47.66	RT 25.84	DRAIN CB		905.47	1				1	246	15	900.82	REMOVE	
205	33+13.16	LT 36.12	SURFACE DRAIN		906.72							13	903.92	TO REMAIN	
121	33+97.24	LT 56.49	DRAIN CB		908.16						46	13	904.96	TO REMAIN	
13	34+39.27	LT 20.44	MH STORM		907.46	1				1	26	48	902.76	REMOVE	
120	34+42.39	LT 46.27	DRAIN CB		908.07	1				1		13	904.57	REMOVE	
48	34+45.04	RT 6.62	MH STORM		906.92	1				1	28	OFF SITE	900.32	REMOVE	
28	34+49.48	RT 0.19	MH SAN	907.52	907.11			1	1	1		OFF SITE	896.01	ADJUST	
16	34+72.69	RT 20.22	DRAIN CB		906.04	1				1		48	902.54	REMOVE	
12	34+74.29	LT 20.49	DRAIN CB		907.77	1				1		28	902.54	REMOVE	
29	36+32.71	RT 0.15	MH SAN	911.13	910.65			1	1	1		28	899.15	ADJUST	
47	36+44.05	RT 5.78	MH STORM		910.90	1				1	199	48	904.00	REMOVE	
17	36+59.67	RT 20	DRAIN CB		910.62	1				1	21	47	907.82	REMOVE	
11	36+68.81	LT 20.16	DRAIN CB		911.56	1				1	42	17	908.65	REMOVE	
46	39+46.63	RT 5.93	MH STORM		920.73	1				1	303	47	914.23	REMOVE	
118	39+48.07	LT 37.33	DRAIN CB		920.18	1				1	43	46	915.48	REMOVE	
30	39+62.53	LT 0.04	MH SAN	921.39	921.17			1	1	1		29	909.27	ADJUST	
119	39+77.94	LT 38.07	DRAIN CB		920.80	1				1	30	118	917.40	REMOVE	
10	39+98.28	LT 21.07	DRAIN CB		921.55	1				1	40	18	918.05	REMOVE	
18	39+98.55	RT 19.93	DRAIN CB		921.58	1				1	54	46	916.48	REMOVE	
49	42+74.72	RT 6.3	MH STORM		926.98	1				1	328	46	920.88	REMOVE	
117	42+75.97	LT 40.65	DRAIN CB		926.86	1				1	47	49	922.66	REMOVE	
31	42+89.85	LT 0.03	MH SAN	927.71	927.45			1	1	1		30	915.45	ADJUST	
19	42+98.61	RT 20	DRAIN CB		926.78	1				1	28	49	922.88	REMOVE	
116	43+05.52	LT 38.83	DRAIN CB		927.26	1				1	30	117	923.86	REMOVE	
9	43+26.57	LT 20.09	DRAIN CB		927.96	1				1	49	19	923.76	REMOVE	
32	45+88.13	LT 0	MH SAN	936.61	936.60			1	1	1		31	925.20	ADJUST	
115	45+99.56	LT 44.44	DRAIN CB	937.19	937.10	1				1	50	45	934.00	ADJUST	
45	46+00.91	RT 5.72	MH STORM		937.00	1				1	326	49	930.90	REMOVE	
113	46+16.49	LT 62.15	MH SAN		938.78							OFF SITE	929.68	TO REMAIN	
20	46+33.54	RT 23.8	DRAIN CB		937.35							45	934.15	TO REMAIN	
114	46+34.03	LT 48.02	DRAIN CB		938.11							115	935.11	TO REMAIN	
8	46+55.04	LT 22.8	DRAIN CB		938.45							20	935.35	TO REMAIN	
33	48+47.70	LT 0.33	MH SAN	945.71	945.72			1	1	1		32	934.12	ADJUST	
111	49+18.24	LT 53	DRAIN CB		946.99							110	944.09	TO REMAIN	
110	49+30.22	LT 48.35	MH STORM		947.60							OFF SITE	942.60	TO REMAIN	
122	49+38.78	RT 37.68	MH SAN	946.72	946.59		1		1	1		OFF SITE	939.19	RECONSTRUCT	
109	49+39.70	LT 64.36	MH SAN		948.16		1		1	1		109	939.46	RECONSTRUCT	
112	49+59.23	LT 53.58	DRAIN CB		947.28							110	944.38	TO REMAIN	
34	50+28.56	LT 0.1	MH SAN	946.91	946.90		1		1	1		35	936.20	RECONSTRUCT	
7	52+17.19	LT 22.84	DRAIN CB		942.97							21	934.97	TO REMAIN	
21	52+23.45	RT 23.94	DRAIN CB		942.91							204	939.71	TO REMAIN	
106	52+42.76	LT 42.59	DRAIN CB	942.84	942.87	1				1	19	107	940.17	ADJUST	
204	52+52.01	RT 42.7	MH STORM		942.88						63	OFF SITE	934.70	TO REMAIN	
107	52+52.48	LT 26.84	MH STORM	943.00	942.87	1				1	336	204	934.97	ADJUST	
35	52+58.46	RT 0.07	MH SAN	943.17	942.97		1		1	1	109	36	931.37	RECONSTRUCT	
108	52+75.46	LT 45.63	DRAIN CB	942.39	942.39						30	7	939.29	ADJUST	
22	55+57.62	RT 20.16	DRAIN CB		939.83	1				1	41	6	936.83	REMOVE	
SUBTOTAL															
						25	4	6	10	35	2586				

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Printed: 2/26/2016  
WSB Filename: K:\3188-000\Cad\Plan\ent03188-000-C-TAB5.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DANILO S. SOBBA, JR., PE  
DATE: 02/17/2016  
LIC. NO.: 49048



701 Xerxes Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax: (763) 541-1700  
wsleng.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**TABULATED QUANTITIES**

S.P. 062-665-052 / S.P. 164-020-138




SHEET  
**15**  
OF  
**145**  
SHEETS

EXISTING STRUCTURES														A
STRUCT. NO	STATION	OFFSET LT OR RT	TYPE	ELEVATION		REMOVE MANHOLE CATCHBASIN	RECONSTRUCT DRAINAGE STRUCTURE SPECIAL (1)	ADJUST FRAME & RING CASTING	CASTING ASSEMBLY	REMOVE CASTING	REMOVE SEWER PIPE (STORM)	PIPE DRAINS TO	OUTLET INVERT	REMARKS
				PROPOSED PROFILE ELEVATION	ORIGINAL GRATE OR RING									
6	55+61.03	LT 20.13	DRAIN CB		940.16	1				1	19	107	936.76	REMOVE
200	55+78.64	LT 43.77	DRAIN CB		940.54	1				1	34	105	937.74	REMOVE
105	55+88.46	LT 27.32	MH STORM		940.34	1				1		107	935.64	REMOVE
36	55+92.84	LT 0.07	MH SAN	940.96	940.53		1		1	1		37	930.03	RECONSTRUCT
104	56+09.58	LT 43.88	DRAIN CB		940.67	1				1		200	938.27	REMOVE
5	58+91.39	LT 21.62	DRAIN CB		938.94	1				1	31	102	936.05	REMOVE
203	58+94.26	RT 21.97	DRAIN CB		938.77	1				1	27	125	935.77	REMOVE
101	59+09.76	LT 38.33	DRAIN CB		938.60	1				1	16	102	938.60	REMOVE
124	59+10.47	RT 39.89	DRAIN CB		938.09	1				1	20	125	935.59	REMOVE
125	59+21.10	RT 23.12	MH STORM		938.65	1				1	69	102	935.25	REMOVE
102	59+21.68	LT 27.07	MH STORM		938.77	1				1	50	100	933.17	REMOVE
37	59+29.70	LT 0.09	MH SAN	939.82	939.18		1		1	1		38	928.58	RECONSTRUCT
103	59+42.01	LT 40.59	DRAIN CB		938.71	1				1		100	936.21	REMOVE
123	59+43.08	RT 37.15	DRAIN CB		938.08	1				1	26	125	935.58	REMOVE
4	59+58.75	LT 22.13	DRAIN CB		939.28	1				1		100	935.88	REMOVE
23	59+61.61	RT 22.63	DRAIN CB		939.17	1				1	24	125	936.17	REMOVE
100	62+44.46	LT 27.66	MH STORM		941.47	1				1	323	OFF SITE	932.17	REMOVE
38	62+48.68	LT 0.45	MH SAN	942.67	942.31		1		1	1		39	927.81	RECONSTRUCT
202	62+81.54	RT 22.02	DRAIN CB		942.56	1				1	45	201	939.76	REMOVE
201	62+82.43	LT 22.86	DRAIN CB		942.45	1				1	38	100	938.95	REMOVE
129	65+60.60	RT 44.65	DRAIN CB		947.13	1				1	40	126	944.33	REMOVE
55	65+79.34	LT 36.39	MH SAN	947.02	946.98		1		1	1		OFF SITE	935.78	RECONSTRUCT
128	65+80.45	RT 25.71	MH SAN	947.82	947.61		1		1	1		55	937.51	RECONSTRUCT
39	65+97.33	LT 0.73	MH SAN	948.13	947.83		1		1	1		40	926.63	RECONSTRUCT
126	66+00.83	RT 44.56	DRAIN CB		947.39	1				1	41	24	943.39	REMOVE
24	66+30.87	RT 16.61	MH STORM		947.08	1				1	244	26	941.68	REMOVE
25	68+56.66	RT 22.39	DRAIN CB		944.73	1				1	19	26	940.03	REMOVE
2	68+73.01	LT 23	DRAIN CB		944.38	1				1		1	939.78	REMOVE
26	68+74.94	RT 17.75	MH STORM		944.80							OFF SITE	939.30	TO REMAIN
40	68+89.36	RT 1.13	MH SAN		945.01							OFF SITE	925.51	TO REMAIN
1	69+11.41	LT 23.64	MH STORM		944.42							OFF SITE	938.42	TO REMAIN
SUBTOTAL														
PROJECT TOTAL														
						22	6		6	28	1066			
						47	10	6	16	63	3652			

NOTES:  
(1) RECONSTRUCT DRAINAGE STRUCTURE SPECIAL IS PER THE CITY OF ST. PAUL DETAIL PLATE 2322B FOR RECONSTRUCT BRICK MANHOLE - 6 FT DEPTH

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
  
DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/28/2016  
WSB Filename: C:\303186-000\Cadd\Plan\03169-000-CT-TAB5.dwg

NO.	DATE	BY	CHK	REVISIONS	DESIGN BY: DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DANILO S. ROSA, JR. PE DATE: 02/17/2016 LIC. NO.: 49048	 701 Xerxes Avenue South, Suite 300 Minneapolis, MN 55416 Tel: 763-541-4800 - Fax: 763-541-1700 wsbeng.com	 <b>RAMSEY COUNTY</b>	<b>WHITE BEAR AVENUE STREET IMPROVEMENTS</b>	RAMSEY COUNTY, MINNESOTA	SHEET 16 OF 145 SHEETS
					TABULATED QUANTITIES						
					S.P. 062-665-052 / S.P. 164-020-138						



## DRAINAGE TABULATION

**B**

STRUCT. NO.	STREET	STATION	(1) OFFSET (CENTER OF CAST) FT	SIDE	STRUCTURE PAY HEIGHTS (3)(11)						STEPS	ADJUST FRAME AND RING CASTING EACH	CONNECT TO EXISTING EACH	(7) CASTING ASSEMBLY	(2) TOP CASTING ELEV FINISHED	OUTLET ELEV BOTTOM	CIRCULAR (6)						DRAINS TO			REMARKS
					SPECIAL 1 (12) EACH	SPECIAL 2 (13) EACH	7B LIN FT	48-4020 LIN FT	60-4020 LIN FT	72-4020 LIN FT							15" RCP CL V LIN FT	18" RCP CL III LIN FT	21" RCP CL III LIN FT	24" RCP CL III LIN FT	27" RCP CL III LIN FT	44" SPAN RCP-A CL IIA LIN FT	STRUCT NO	PIPE GRADE FT/FT	INVERT ELEVATION	
5000	White Bear Avenue	65+60.84	44.6	RT			3.3					2	947.38	943.98	39							5001	0.0050	943.79		
5001	White Bear Avenue	65+99.42	44.6	RT			3.6					2	947.49	943.79	28							5002	0.0100	943.51		
5002	White Bear Avenue	65+98.96	16.5	RT				4.3				1	947.73	943.51	258							5004-B	0.0090	941.19		
5004	White Bear Avenue	68+56.46	22.4	RT			3.1					2	944.70	941.46	5							5004-B	0.0050	941.43		
5004-A	White Bear Avenue	68+41.46	22.4	RT			3.5					1	944.88	941.53	15							5004	0.0050	941.46		
5004-B	White Bear Avenue	68+56.48	17.7	RT				3.8		Y	1	1	944.91	941.19	18							EXMH26	0.0150	940.91		
5005	White Bear Avenue	68+72.47	22.4	LT			4.1				1	2	944.57	940.30	40							EXMH26	0.0050	940.10		
5006	White Bear Avenue	62+85.42	22.4	RT			3.9					2	942.67	938.60	46							5030-A	0.0350	937.00		
5007	White Bear Avenue	62+91.41	22.4	LT			4.1					2	942.78	938.56	47							5030	0.0050	938.32		
5013	White Bear Avenue	57+20.01	22.4	LT			3.5					2	939.59	935.96	16							9053	0.0050	935.88		
5013-A	White Bear Avenue	57+00.00	22.4	LT			3.3					2	939.44	936.06	20							5013	0.0050	935.96		
5014	White Bear Avenue	58+64.49	22.4	LT			3.6					1	939.04	935.54	16							9054	0.0050	935.46	(8)	
5014-A	White Bear Avenue	58+54.49	22.4	LT			3.2					2	938.90	935.59	10							5014	0.0050	935.54	(8)	
5015	White Bear Avenue	59+21.10	10.0	RT					5.1	Y		1	939.46	934.50					42			5517	0.0030	934.37		
5016	White Bear Avenue	58+64.48	22.4	RT			3.4					2	938.89	935.33	12							5514	0.0050	935.27	(8)	
5016-A	White Bear Avenue	58+54.48	22.4	RT			3.1					2	938.90	935.63	10							5016	0.0050	935.58	(8)	
5017	White Bear Avenue	59+62.86	22.4	LT			4.6					2	939.42	934.69	16							9042	0.0050	934.61		
5017-A	White Bear Avenue	59+73.00	22.4	LT			3.5					2	939.49	935.87	10							5017	0.0050	935.82		
5018	White Bear Avenue	59+63.81	22.4	RT			3.8					2	939.42	935.46	12							5517	0.0050	935.40		
5018-A	White Bear Avenue	59+73.81	22.4	RT			3.9					2	939.49	935.51	10							5018	0.0050	935.46		
5024	White Bear Avenue	57+20.00	22.4	RT			3.6					2	939.59	935.86	12							5025	0.0050	935.80		
5024-A	White Bear Avenue	57+10.00	22.4	RT			3.6					2	939.65	935.91	10							5024	0.0050	935.86		
5025	White Bear Avenue	57+20.00	10.0	RT					4.5	Y		1	939.95	935.60				145				5514	0.0035	935.09		
5027	White Bear Avenue	61+50.00	10.0	RT		1				Y		1	941.15	933.25						77		9052	0.0060	932.78	(13)	
5028	White Bear Avenue	61+50.00	22.4	RT			4.8			Y		2	940.79	935.90	12							5027	0.0050	935.84		
5029	White Bear Avenue	61+50.01	22.4	LT			4.2					2	940.79	936.44	16							5030	0.0100	936.28		
5030	White Bear Avenue	62+44.46	27.7	LT					9.8	Y	1	1	941.87	932.17								EX 30-inch line	0.0099	931.27		
5030-A	White Bear Avenue	62+41.46	10.0	RT					9.7			1	942.27	932.70						17		9045	0.0060	932.60	(11)	
5514	White Bear Avenue	58+64.50	10.0	RT					4.3	Y		1	939.04	934.89					57			5015	0.0035	934.69		
5517	White Bear Avenue	59+62.86	10.0	RT					5.6	Y		1	939.87	934.37						187		5027	0.0060	933.25		
5518	White Bear Avenue	59+20.96	40.9	RT							1	1	938.72	934.86				31				5015	0.0050	934.70		
5519	White Bear Avenue	59+10.71	47.2	RT			2.9					2	938.40	935.37	12							5518	0.0050	935.31		
5520	White Bear Avenue	59+41.65	46.7	RT			3.0					2	938.69	935.59	21							5518	0.0050	935.48		
5521	White Bear Avenue	59+40.78	44.8	LT			4.2					2	939.18	934.85	31							5017	0.0050	934.69		
5522	White Bear Avenue	59+09.97	45.1	LT			4.0					2	939.17	935.00	31							5521	0.0050	934.85		
SUBTOTALS						1	91.8	8.1	29.3	13.7		4	35		775	31	145	57	323							

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

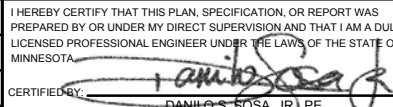
- NOTES:
1. OFFSETS ARE TO CENTER OF GRATE.
  2. TOP OF CASTING ELEVATIONS FOR TYPE B STRUCTURES ARE TO FLOW LINE MINUS 0.1', AND MANHOLES ARE TO CENTER OF GRATE MINUS 0.1'.
  3. PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT PLUS 0.7'
  - 4.) LENGTH OF PIPE ARE TO CENTER OF STRUCTURE OR END OF BARREL(DOES NOT INCLUDE APRON LENGTH).
  - 5.) DRAINAGE STRUCTURES OVER 4.5' IN HEIGHT REQUIRE STEPS.
  - 6.) ALL CONCRETE PIPE IS DESIGN 3006 GASKET JOINT.
  - 7.) CASTING ASSEMBLY TYPE 1 = MANHOLE (MH), TYPE IV. SEE CITY STD. PLATE 2201E, 2202D. CASTING ASSEMBLY TYPE 2 = CATCH BASIN, TYPE 7B. SEE CITY STD. PLATE 2016.
  - 8.) FILTRATION SYSTEM COMPONENTS.
  - 9.) OUTLET PIPE FROM DIVERSION STRUCTURE 6007.
  - 10.) STUB FOR FUTURE CONNECTION. PLUG PIPE INCIDENTAL.
  - 11.) INTERMEDIATE SLABS IN STRUCTURE WILL HAVE 48" DIAMETER OPENING PER CITY STD. PLATE 2103E. SHOP DRAWINGS OF INTERMEDIATE SLAB WILL BE PROVIDED BY CONTRACTOR PRIOR TO MANUFACTURE AND DELIVERY OF DRAINAGE STRUCTURES.
  - 12.) SEE SHEET 61B FOR DESIGN SPECIAL 1 DETAIL AND SEDIMENT COLLECTION DEVICE. CASTING IS INCLUSIVE TO STRUCTURE BEING PAID BY THE "EACH".
  - 13.) SEE SHEET 61C FOR DESIGN SPECIAL 2 AND SEDIMENT COLLECTION DETAIL. CASTING IS INCLUSIVE TO STRUCTURE BEING PAID BY THE "EACH".

Date Printed: 6/13/2016  
WSB File Name: K:\03\188-000-Cad\Plan\03\_188-000-C-TABS.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILLO S. GOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO. 49048



701 Xerox Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (763) 541-4000 - Fax: (763) 541-1700  
 wsbmg.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**TABULATED QUANTITIES**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
17  
OF  
145  
SHEETS

## DRAINAGE TABULATION

**B**

STRUCT. NO.	STREET	STATION	(1) OFFSET (CENTER OF CAST) FT	SIDE	STRUCTURE PAY HEIGHTS (3)(11)							ADJUST FRAME AND RING CASTING EACH	CONNECT TO EXISTING EACH	(7) CASTING ASSEMBLY	(2) TOP CASTING ELEV FINISHED	OUTLET ELEV BOTTOM	CIRCULAR (6)						DRAINS TO			REMARKS	
					SPECIAL 1 (12) EACH	SPECIAL 2 (13) EACH	7B LIN FT	48-4020 LIN FT	60-4020 LIN FT	72-4020 LIN FT	STEPS						15" RCP CL V LIN FT	18" RCP CL III LIN FT	21" RCP CL III LIN FT	24" RCP CL III LIN FT	27" RCP CL III LIN FT	44" SPAN RCP-A CL IIA LIN FT	STRUCT NO	PIPE GRADE FT/FT	INVERT ELEVATION		
																											ST
6000	White Bear Avenue	42+75.47	45.1	LT			3.2						2	927.37	923.99	29								6005	0.0050	923.85	
6001	White Bear Avenue	43+03.62	5.8	RT					5.6				1	927.88	922.38				305					7015	0.0200	916.28	
6002	White Bear Avenue	43+03.60	22.4	RT			3.7						2	927.44	923.57	17								6001	0.0050	923.49	
6003	White Bear Avenue	43+27.39	5.8	RT					5.8				1	928.57	922.86				24					6001	0.0200	922.38	
6004	White Bear Avenue	43+27.39	22.4	LT			4.3						2	928.13	923.69	28								6003	0.0051	923.55	
6005	White Bear Avenue	43+04.02	44.8	LT			3.5						2	927.50	923.85	32								6003	0.0050	923.69	
6006	White Bear Avenue	44+85.61	22.4	LT			4.6						2	932.84	928.14	28								6010	0.0050	928.00	
6007	White Bear Avenue	44+85.94	22.4	RT			4.6						2	932.85	928.15	17								6010	0.0050	928.07	
6008	White Bear Avenue	46+00.81	5.7	RT				6.1					2	936.83	930.90	115								6010	0.0279	927.69	
6010	White Bear Avenue	44+85.60	5.5	RT				5.9					1	933.29	927.49			158						6003	0.0281	923.04	
6011	White Bear Avenue	45+99.17	44.4	LT			3.1					1	2	937.19	934.00									6008	0.0458	931.70	
6995	White Bear Avenue	34+50.43		RT					6.9				1	903.93	897.13									6994	0.0550	896.76	
6996	White Bear Avenue	34+45.04	6.6	RT						8.1			1	907.13	899.15						58			6995	0.0200	898.00	
6997	White Bear Avenue	34+39.27	20.4	LT					6.2				1	907.60	901.50			28						6996	0.0040	901.39	
6998	White Bear Avenue	34+41.01	47.2	LT			5.1						2	908.48	903.28	27								6997	0.0149	902.88	
6999	White Bear Avenue	33+97.24	56.5	LT			5.0						1	908.60	903.50	45								6998	0.0050	903.28	
7000	White Bear Avenue	39+24.99	5.9	RT					6.6				1	920.47	914.00				261					7005	0.0250	907.48	
7001	White Bear Avenue	39+25.43	22.4	LT			4.6						2	919.94	915.20	28								7000	0.0050	915.06	
7002	White Bear Avenue	39+24.73	22.4	RT			4.6						2	919.92	915.22	16								7000	0.0050	915.14	
7003	White Bear Avenue	39+98.83	22.4	LT			4.5						2	921.45	916.82	28								7015	0.0050	916.68	
7004	White Bear Avenue	39+98.81	22.4	RT			4.6						2	921.46	916.76	17								7015	0.0050	916.68	
7005	White Bear Avenue	36+64.01	5.8	RT					7.1				1	912.11	905.18				20					7019	0.0200	904.78	
7006	White Bear Avenue	36+68.87	22.4	LT			3.8						2	911.74	907.81	29								7005	0.0049	907.67	
7007	White Bear Avenue	36+63.83	26.4	RT			3.8						2	911.66	907.77	21								7005	0.0050	907.67	
7008	White Bear Avenue	39+46.63	5.9	RT					6.1				1	920.96	915.00				22					7000	0.0190	914.59	
7009	White Bear Avenue	35+22.27	22.4	LT			3.8						2	907.80	903.88	18								7009-B	0.0131	903.17	
7009-A	White Bear Avenue	35+32.27	22.4	LT			3.9						2	907.94	903.93	10								7000	0.0050	903.88	
7009-B	White Bear Avenue	34+68.18	22.4	LT			3.8						2	907.09	903.17	29								6997	0.0100	902.88	
7010	White Bear Avenue	39+47.56	45.8	LT			4.4						2	921.05	916.56			52						7008	0.0050	916.30	
7011	White Bear Avenue	39+76.75	46.2	LT			4.4						2	921.21	916.70	29								7010	0.0050	916.56	
7012	White Bear Avenue	32+19.42	22.4	LT			3.5						2	905.48	901.88	28								7012-A	0.0050	901.74	(8)
7012-A	White Bear Avenue	32+47.65	22.4	LT			3.6						2	905.51	901.74	29								7016	0.0069	901.54	(8)
7012-B	White Bear Avenue	32+52.89	37.1	LT											901.79	16								7012-A	0.0030	901.74	(10)
7013	White Bear Avenue	32+19.39	32.6	RT			3.3						2	905.28	901.88	28								7013-A	0.0050	901.74	(8)
7013-A	White Bear Avenue	32+47.65	33.4	RT			3.4						2	905.29	901.73	27								7016	0.0050	901.60	(8)
7014	White Bear Avenue	34+79.90	33.4	RT			4.5						2	906.95	902.35	27								7014-A	0.0050	902.22	
7014-A	White Bear Avenue	34+79.91	6.5	RT					6.3				1	907.68	901.50				35					6996	0.0200	900.80	
7015	White Bear Avenue	39+98.82	5.9	RT					5.8				1	922.00	916.28				52					7008	0.0190	915.29	
7016	White Bear Avenue	32+47.65	6.6	RT									1	905.93	901.24			197						6996	0.0040	900.45	
SUBTOTALS							101.3	12.0	56.5	8.1		1	5	38			717	435	381	337	58						

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

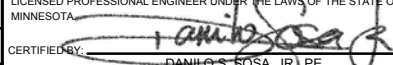
- NOTES:
- OFFSETS ARE TO CENTER OF GRATE.
  - TOP OF CASTING ELEVATIONS FOR TYPE B STRUCTURES ARE TO FLOW LINE MINUS 0.1', AND MANHOLES ARE TO CENTER OF GRATE MINUS 0.1'.
  - PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT PLUS 0.7'
  - LENGTH OF PIPE ARE TO CENTER OF STRUCTURE OR END OF BARREL(DOES NOT INCLUDE APRON LENGTH).
  - DRAINAGE STRUCTURES OVER 4.5' IN HEIGHT REQUIRE STEPS.
  - ALL CONCRETE PIPE IS DESIGN 3006 GASKET JOINT.
  - CASTING ASSEMBLY TYPE 1 = MANHOLE (MH), TYPE IV. SEE CITY STD. PLATE 2201E, 2202D. CASTING ASSEMBLY TYPE 2 = CATCH BASIN, TYPE 7B. SEE CITY STD. PLATE 2016.
  - FILTRATION SYSTEM COMPONENTS.
  - OUTLET PIPE FROM DIVERSION STRUCTURE 6007.
  - STUB FOR FUTURE CONNECTION. PLUG PIPE INCIDENTAL.
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Date Printed: 6/13/2016  
WSB File Name: K:\03\188-000-Cad\Plan\03\_188-000-C-TABS.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILLO S. GOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO.: 49048



701 Xxxx Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (760) 541-4000 - Fax: (760) 541-1700  
 wsb.com



**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

**RAMSEY COUNTY, MINNESOTA**

**TABULATED QUANTITIES**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
18  
OF  
145  
SHEETS

DRAINAGE TABULATION

STRUCT. NO.	STREET	STATION	OFFSET (CENTER OF CASTING) (1)	SIDE	STRUCTURE PAY HEIGHTS (3)(11)						ADJUST FRAME AND RING CASTING EACH	CONNECT TO EXISTING EACH	{7} CASTING ASSEMBLY	{2} TOP OF CASTING ELEV FIN SHED	OUTLET ELEV BOTTOM	CIRCULAR (6)					DRAINS TO				
					SPECIAL 1 (12) EACH	SPECIAL 2 (13) EACH	7B LIN FT	48-4020 LIN FT	60-4020 LIN FT	72-4020 LIN FT						STEPS	15' RCP CLV LIN FT	18' RCP CLV LIN FT	21' RCP CLV LIN FT	24' RCP CLV LIN FT	27' RCP CLV LIN FT	44' SPAN RCP-A CL LIN FT	STRUCT NO	PIPE GRADE FT/FT	INVERT ELEV
9009	WHITE BEAR AVENUE	52+52.48	26.8	LT							Y	1	942.87	934.98			42						9022	0.0040	934.81
9036	WHITE BEAR AVENUE	52+95.59	25.3	LT	1						Y	1	942.75	935.00			43						9009	0.0005	934.98
9033	WHITE BEAR AVENUE	53+11.55	25.3	LT		1					Y	1	942.59	935.00								16	9036	0.0000	935.00
9025	WHITE BEAR AVENUE	53+70.00	22.4	LT							Y	3	941.69	935.00								59	9033	0.0000	935.00
9032	WHITE BEAR AVENUE	54+72.00	22.4	LT							Y	3	941.11	935.00								102	9025	0.0000	935.00
9023	WHITE BEAR AVENUE	55+46.30	22.5	LT							Y	3	940.69	935.00								74	9032	0.0000	935.00
9031	WHITE BEAR AVENUE	55+56.29	22.5	LT							Y	3	940.63	935.00								10	9023	0.0000	935.00
9004	WHITE BEAR AVENUE	55+78.6	22.7	LT				3.8				1	940.51	936.74	22								9031	0.0050	936.63
9005	WHITE BEAR AVENUE	55+78.43	44.6	LT			4.1					2	941.00	936.85	22								9004	0.0050	936.74
9006	WHITE BEAR AVENUE	56+08.42	45.2	LT			4.0					2	941.00	937.00	30								9005	0.0050	936.85
9001	WHITE BEAR AVENUE	55+56.26	22.4	RT					4.2			3	940.63	936.47	45								9031	0.0033	936.32
9001	WHITE BEAR AVENUE	55+56.26	22.4	RT										936.97	14								9002	0.0046	936.91
9002	WHITE BEAR AVENUE	55+44.38	15.8	RT		1					Y	1	940.59	936.47			16						9035	0.0031	936.42
9035	WHITE BEAR AVENUE	55+28.25	15.8	RT	1						Y	1	940.68	936.42			276						9022	0.0058	934.81
<del>9021</del>	<del>WHITE BEAR AVENUE</del>	<del>52+99.19</del>	<del>25.3</del>	<del>RT</del>					7.6		<del>Y</del>	<del>1</del>	<del>942.71</del>	<del>935.09</del>			<del>48</del>						<del>9022</del>	<del>0.0058</del>	<del>934.81</del>
9022	WHITE BEAR AVENUE	52+51.87	15.5	RT					8.1		Y	1	942.95	934.81									9012	0.0046	934.70
9010	WHITE BEAR AVENUE	52+42.76	42.6	LT							1		942.84	940.17									9009	0.1134	938.07
9011	WHITE BEAR AVENUE	52+75.46	45.6	LT			3.1					2	942.39	939.29	30								9009	0.0714	937.17
5013-A	WHITE BEAR AVENUE	57+00.00	22.4	LT			3.3					2	939.54	936.06	20								9053	0.0050	935.96
9053	WHITE BEAR AVENUE	57+20.01	22.4	LT					6.8		Y	3	939.71	932.96								134	9055	0.0000	932.96
9055	WHITE BEAR AVENUE	58+54.49	22.4	LT					6.0		Y	3	939.01	932.96								10	9054	0.0000	932.96
9054	WHITE BEAR AVENUE	58+64.49	22.4	LT					6		Y	3	939.00	932.96								76	9056	0.0000	932.96
9056	WHITE BEAR AVENUE	59+40.78	22.4	LT					6.4		Y	1	939.38	932.96								22	9042	0.0000	932.96
9042	WHITE BEAR AVENUE	59+62.86	22.4	LT					6.6		Y	3	939.53	932.96								10	9057	0.0010	932.95
9042	WHITE BEAR AVENUE	59+62.86	22.4	LT										934.61	37								5516	0.0022	934.53
9057	WHITE BEAR AVENUE	59+73.00	22.4	LT					6.4		Y	3	939.33	932.95								177	9028	0.0010	932.78
9028	WHITE BEAR AVENUE	61+50.01	22.4	LT					8.1		Y	3	940.91	932.78								38	9043	0.0015	932.72
9043	WHITE BEAR AVENUE	61+88.20	25.3	LT		1						1	941.84	932.72								16	9044	0.0015	932.70
9044	WHITE BEAR AVENUE	62+04.20	25.3	LT	1							1	942.03	932.70			40						5030	0.0050	932.50
5024-A	WHITE BEAR AVENUE	57+10.00	22.4	RT			3.9					2	939.76	935.91	10								5025	0.0050	935.86
5025	WHITE BEAR AVENUE	57+20.00	22.4	RT			3.9					2	939.71	935.86	8								5025-A	0.0050	935.82
5025-A	WHITE BEAR AVENUE	57+20.00	14.5	RT				4.3				1	939.94	935.60			144						5514-A	0.0035	935.09
5514-A	WHITE BEAR AVENUE	58+64.48	14.5	RT				4.3				1	939.23	934.89				57					5015	0.0035	934.69
5514	WHITE BEAR AVENUE	58+64.48	22.4	RT			4.0					2	939.00	935.04	8								5514-A	0.0050	935.00
5015	WHITE BEAR AVENUE	59+21.10	14.5	RT				5.0				1	939.46	934.50					43				5516-A	0.0030	934.37
5513	WHITE BEAR AVENUE	58+54.48	22.4	RT			3.9					2	939.01	935.09	10								5514	0.0050	935.04
5516-A		59+63.81	14.5	RT				5.4			Y	1	939.77	934.37				186					5022-A	0.0060	933.25
5516	WHITE BEAR AVENUE	59+63.81	22.4	RT			4.1				Y	2	939.54	935.46	8								5516-A	0.0050	935.42
5517	WHITE BEAR AVENUE	59+74.7	22.5	RT			4.1					2	939.62	935.51	10								5516	0.0050	935.46
5518		59+20.96	40.9	RT					3.9			1	938.72	934.86			26						5015	0.0061	934.70
5022-A		61+50.00	14.5	RT				7.9				1	941.14	933.25					62				5027	0.0060	932.88
5022	WHITE BEAR AVENUE	61+50	22.4	RT			4.7				Y	2	940.91	936.23	8								5022-A	0.0050	936.23
5027	WHITE BEAR AVENUE	62+11.63	14.5	RT		1					Y	1	941.83	932.88					16				9052	0.0060	932.78
9052	WHITE BEAR AVENUE	62+27.66	14.5	RT	1						Y	1	942.05	932.78					16				5030-A	0.0052	932.7
5030-A	WHITE BEAR AVENUE	62+43.75	15.5	RT				9.6			Y	1	942.30	932.7					43				5030	0.0053	932.47
5006	WHITE BEAR AVENUE	62+85.42	22.4	RT			3.9					2	942.78	938.6	42								5030-A	0.0379	937.00
5521	WHITE BEAR AVENUE	59+40.78	44.8	LT			4.2					2	939.10	934.85	22								9056	0.0050	934.73

NOTES:

- OFFSETS ARE TO CENTER OF GRATE.
- TOP OF CASTING ELEVATIONS FOR TYPE BE STRUCTURES ARE TO THE FLOW LINE MINUS 0.1', AND MANHOLES ARE TO CENTER OF GRATE MINUS 0.1'.
- PAY HEIGHTS ARE FROM BOTTOM OF CASTING TO INVERT PLUS 0.7'.
- LENGTH OF PIPE ARE TO CENTER OF STRUCTURE OR END OF BARREL (DOES NOT INCLUDE APRON LENGTH).
- DRAINAGE STRUCTURES OVER 4.5' IN HEIGHT REQUIRE STEPS
- ALL CONCRETE PIPE IS DESIGN 3066 GASKET JOINT.
- CASTING ASSEMBLY TYPE 1 = MANHOLE (MH), TYPE IV. SEE CITY STD. PLATE 2201E. CASTING ASSEMBLY TYPE 2 = CATCH BASIN, TYPE B SEE CITY STD. PLATE 2016. CASTING ASSEMBLY TYPE 3 = CATCH BASIN, MNDOT B-17 (806-825-816) SEE MNDOT STD. PLATES 4125, 4134 AND 4154.

- FILTRATION SYSTEM COMPONENTS
- OUTLET PIPE FROM DIVERSION STRUCTURE 6007
- STUB FOR FUTURE CONNECTION. PLUG PIPE INCIDENTAL.
- INTERMEDIATE SLABS IN STRUCTURE WILL HAVE 48" DIAMETER OPENING PER CITY STD. PALTE 2103E. SHOP DRAWINGS OF INTERMEDIATE SLAB WILL BE PROVIDED BY CONTRACTOR PRIOR TO MANUFACTURE AND DELIVERY OF DRAINAGE STRUCTURE.
- SEE SHEET 61B FOR DESIGN SPECIAL 1 DETAIL. CASTING IS INCLUSIVE TO STRUCTURE BEING PAID BY "EACH".
- SEE SHEET 61C FOR DESIGN SPECIAL 2 DETAIL AND SEDIMENT COLLECTION DEVICE. CASTING IS INCLUSIVE TO STRUCTURE BEING PAID BY "EACH".

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**RAMSEY COUNTY**  
**APPROVED**  
**JA 7-13-16**

P:\PROJECTS\13-3345 WBA - 194 TO BEECH\WBA MINN. TO 194\BASE DWG\STORM SEWER 7-13-16\TABULATION(7-13-16).DWG July 15, 2016 1:36 PM

NO.	REV-DATE	BY:	DESCRIPTION
2	6/15/16	JA	STORM SEWER REVISION
3	7/13/16	JA	STORM SEWER REVISION

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.

SIGNED: \_\_\_\_\_  
REG NO: \_\_\_\_\_ DATE: \_\_\_\_\_

**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

S.P. 062-665-052  
S.P. 164-020-138  
COUNTY PROJ. P-3345



**TABULATED QUANTITIES**  
**SHEET 18A OF 145 SHEETS**

## REMOVALS CHART

S.P. 062-665-052 WHITE BEAR AVE	REMOVE CURB AND GUTTER	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	SAWING CONCRETE PAVEMENT (FULL DEPTH)	REMOVE CONCRETE WALK	REMOVE CONCRETE DRIVEWAY PAVEMENT	REMOVE CONCRETE PAVEMENT	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	REMOVE PAVEMENT SPECIAL	REMOVE SIGN BASE	SALVAGE AND INSTALL METAL RAILING (1)
	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	SQ FT	SQ YD	SQ YD	EACH	LIN FT
30+40.86 to 37+00	1057	431	54	571	181		8	3423	2	176
37+00 to 44+00	1358	79	40	815	141	1526		2978		
44+00 to 51+00	398	107	19	211	58			3921		
51+00 to 58+00	994	57	59	652	202	386		3154		
58+00 to 65+00	1283	82	77	790	297	1367		2971		
65+00 to 86+73.0	687	113	40	382	98	1243		1604		
<b>TOTAL S.P. 062-665-052</b>	<b>5777</b>	<b>869</b>	<b>289</b>	<b>3421</b>	<b>977</b>	<b>4522</b>	<b>8</b>	<b>18051</b>	<b>2</b>	<b>176</b>
<b>PROJECT TOTAL</b>	<b>5777</b>	<b>869</b>	<b>289</b>	<b>3421</b>	<b>977</b>	<b>4522</b>	<b>8</b>	<b>18051</b>	<b>2</b>	<b>176</b>

NOTES:  
(1) ORNAMENTAL METAL RAILING. INCLUDES CONCRETE POSTS

COMMON EXCAVATION					F
WHITE BEAR AVE	AREA	AVERAGE AREA	DISTANCE	VOLUMES	CUMULATIVE VOLUMES
STATION	SQ FT	SQFT	FT	CU YD	CU YD
32+00	196				
32+50	194	195	50	361	361
33+00	197	196	50	362	723
33+13	196	196	13	97	820
33+50	189	192	37	261	1,082
34+00	297	243	50	450	1,532
34+25	359	328	25	300	1,832
34+50	270	315	25	294	2,126
35+00	180	225	50	417	2,543
35+39	197	189	39	273	2,816
35+50	199	198	11	80	2,896
35+76	189	194	26	186	3,082
36+00	180	185	24	165	3,247
36+25	171	176	25	164	3,411
36+44	161	166	19	119	3,529
37+00	144	152	56	313	3,843
37+18	151	147	18	99	3,942
37+50	152	152	32	179	4,121
37+82	163	157	32	186	4,307
38+00	160	161	18	108	4,415
38+30	162	161	30	176	4,591
38+50	155	158	20	120	4,711
39+00	163	159	50	295	5,006
39+50	254	209	50	387	5,393
39+62	259	257	12	112	5,505
40+00	166	212	38	300	5,805

COMMON EXCAVATION					F
WHITE BEAR AVE	AREA	AVERAGE AREA	DISTANCE	VOLUMES	CUMULATIVE VOLUMES
STATION	SQ FT	SQFT	FT	CU YD	CU YD
40+50	167	166	50	308	6,112
40+64	171	169	14	89	6,202
41+00	166	168	36	223	6,424
41+23	171	169	23	145	6,569
41+50	166	169	27	168	6,737
42+00	168	167	50	309	7,047
42+20	171	169	20	123	7,169
42+50	162	166	30	187	7,357
42+81	209	185	31	210	7,566
42+90	206	207	9	71	7,637
43+00	198	202	10	77	7,714
43+25	143	171	25	158	7,872
43+50	143	143	25	133	8,005
44+00	156	149	50	276	8,281
44+50	165	160	50	296	8,577
45+00	175	170	50	314	8,891
45+50	179	177	50	327	9,218
46+00	227	203	50	376	9,594
46+13	228	228	13	111	9,705
52+51	214	-	-	0	9,705
52+58	211	212	7	56	9,761
53+00	164	188	42	289	10,050
53+50	161	163	50	301	10,351
53+83	164	162	33	197	10,548
54+00	158	161	17	103	10,651
62+00	149	158	42	246	10,897

COMMON EXCAVATION					F
WHITE BEAR AVE	AREA	AVERAGE AREA	DISTANCE	VOLUMES	CUMULATIVE VOLUMES
STATION	SQ FT	SQFT	FT	CU YD	CU YD
54+42	159				
54+56	154	156	14	81	10,977
55+00	160	157	44	257	11,234
55+50	152	156	50	289	11,524
55+93	199	176	43	282	11,806
56+00	199	199	7	49	11,854
56+16	170	184	16	112	11,966
56+50	153	161	34	201	12,167
57+00	150	152	50	281	12,448
57+41	152	151	41	229	12,677
57+50	154	153	9	51	12,728
57+59	154	154	9	52	12,780
58+00	153	153	41	233	13,012
58+16	157	155	16	94	13,107
58+50	154	155	34	193	13,300
59+00	151	153	50	283	13,582
59+26	233	192	26	184	13,766
59+50	156	144	24	174	13,940
60+00	133	144	50	267	14,208
60+34	144	139	34	174	14,382
60+50	142	143	16	85	14,467
60+87	154	148	37	203	14,670
61+00	156	155	13	73	14,743
61+50	153	154	50	286	15,029
61+86	153	153	36	205	15,234
62+00	149	151	14	77	15,311

COMMON EXCAVATION					F
WHITE BEAR AVE	AREA	AVERAGE AREA	DISTANCE	VOLUMES	CUMULATIVE VOLUMES
STATION	SQ FT	SQFT	FT	CU YD	CU YD
62+49	198	174	49	315	15,626
62+54	199	199	5	37	15,663
63+00	152	176	46	300	15,963
63+50	160	156	50	289	16,252
63+58	161	160	8	48	16,300
64+00	158	159	42	247	16,547
64+10	158	158	10	60	16,607
64+50	146	152	40	224	16,831
64+67	143	145	17	89	16,920
65+00	139	141	33	175	17,095
65+50	163	151	50	280	17,374
65+80	225	194	30	218	17,592
66+00	230	227	20	165	17,757
66+50	144	187	50	346	18,103
66+78	149	146	28	154	18,258
67+00	146	148	22	118	18,376
67+31	153	150	31	174	18,550
67+44	150	152	13	72	18,622
67+50	151	150	6	32	18,654

THE TOP 11" OF WHITE BEAR AVE. AS PER TYPICAL SECTION WILL BE PAID UNDER REMOVE PAVEMENT SPECIAL INSTEAD OF COMMON EXCAVATION

WHITE BEAR AVE EXCAVATION = 18,654 CU YD  
132,000 SQ FT BIT. X 0.9167' EX PAVE = 4,482 CU YD

COMMON EXCAVATION TOTAL = 14,172 CU YD\*

CASTING TABULATION			C
ASSEMBLY	STANDARD PLATE NUMBER	USE	TOTAL
1	ST. PAUL 2201E & 2202D	MANHOLE	48
2	ST. PAUL 2016	CATCH BASIN 7B	47
3	MNDOT 4125, 4134 & 4154	CATCH BASIN 4020	11
<b>TOTAL</b>			<b>106</b>

CASTING TABULATION						C
ASSEMBLY	RING OR FRAME	COVER OR GRATE	CURB BOX	STANDARD PLATE NUMBER	USE	TOTAL
1	CASTING ASSEMBLY TYPE 1 MANHOLE (MH), TYPE IV, SEE CITY STD. PLATE 2201E, 2202D.			2201E 2202D	MANHOLE	42
2	CASTING ASSEMBLY TYPE 2 = CATCH BASIN, TYPE 7B. SEE CITY STD. PLATE 2016.			2016	CATCH BASIN	57

RAMSEY COUNTY  
APPROVED  
JA 7-13-16

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: CMG  
DATE: 2/13/18

NOTE: SPECIAL 1 AND SPECIAL 2 STRUCTURE CASTING THE CASTING TOTAL IS FOR INFORMATIONAL PURPOSES SEE THE STATEMENT OF ESTIMATED QUANTITIES FOR BEING PAID FOR BY "EACH".

Date Printed: 6/13/2016  
WSB File Name: K:\03188-000-CadPlan\03188-000-C-TABS.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1
2	6/15/16	JA		STORM SEWER REVISION
3	7/13/16	JA		STORM SEWER REVISION



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**TABULATED QUANTITIES**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**19**  
OF  
**145**  
SHEETS

AGGREGATE AND BITUMINOUS							G		
STATION	AGGREGATE BASE CL6		SELECT GRANULAR	BITUMINOUS MIXTURE		TACK COAT	COMMON BORROW	CITY OF ST. PAUL GRANULAR BACKFILL (1)	SPRWS GRANULAR BACKFILL (1)
	ROADWAY	SIDEWALK		TYPE SPWEB440F	TYPE SPNWB430B				
S.P. 062-665-052	CU YD	CU YD	CU YD	TON	TON	GAL	CU YD	TON	TON
WHITE BEAR AVE									
30+40.86 TO 37+00	684	92	2556	960	720	423	144	53	225
37+00 TO 44+00	713	125	2759	810	610	357	14	59	401
44+00 TO 51+00	209	40	811	920	690	406	1	16	78
51+00 TO 58+00	546	96	2114	800	600	353	11	16	344
58+00 TO 65+00	716	119	2768	810	610	358	22	48	401
65+00 TO 68+73.01	452	59	1746	520	390	226	7	48	210
TOTAL S.P. 062-665-052	3320	531	12754	4820	3620	2123	199	240	1659
PROJECT TOTAL	3320	531	12754	4820	3620	2123	199	240	1659

NOTES:  
 (1) GRANULAR BACKFILL FOR WATER MAIN AND SANITARY SEWER SERVICES TRENCHES. SEE SANITARY SERVICE TAB Q AND WATER MAIN TAB K FOR MORE INFORMATION.

CONCRETE CHART							H
STATION TO STATION	CONC C&G DESIGN B624	6" CONCRETE DRIVEWAY PAVEMENT	8" CONCRETE DRIVEWAY PAVEMENT	4" CONCRETE WALK	6" CONCRETE WALK	TRUNCATED DOMES	CONCRETE STAIRWAY
	LIN FT	SQ YD	SQ YD	SQ FT	SQ FT	SQ FT	EACH
S.P. 062-665-052							
WHITE BEAR AVE							
30+40.86 to 37+00	1072	38	142	3954	143	94	
37+00 to 44+00	1378	137		5967	235	60	2
44+00 to 51+00	423	16		2161	104	100	4
51+00 to 58+00	1077	174		4251	154	40	15
58+00 to 65+00	1375	233		5655	115	88	11
65+00 to 68+73.01	705	86		3142	151	40	4
TOTAL S.P. 062-665-052	6030	684	142	25130	902	422	36
PROJECT TOTAL	6030	684	142	25130	902	422	36

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

RADIUS POINTS				J
RADIUS PT	STATION	OFFSET	SIZE	REMARKS
RP 1	33+84.06	59.0' RT	25	SE-OLD HUDSON RD
RP 2	33+72.33	48.0' LT	25	SW-OLD HUDSON RD
RP 3	34+66.68	48.0' LT	25	NW-OLD HUDSON RD
RP 4	34+78.41	59.0' RT	25	NE-OLD HUDSON RD
RP 5	39+26.24	43.0' RT	20	SW-WILSON AVE
RP 6	39+26.93	43.0' LT	20	SE-WILSON AVE
RP 7	39+97.32	43.0' LT	20	NW-WILSON AVE
RP 8	39+96.67	43.0' RT	20	NE-WILSON AVE
RP 9	42+54.88	43.0' LT	20	SW-EUCLID ST
RP 10	43+24.60	43.0' LT	20	NW-EUCLID ST
RP 11	45+78.53	43.0' LT	20	SW-CONWAY ST
RP 12	46+53.16	42.6' LT	20	NW-CONWAY ST
RP 13	48+95.81	48.1' RT	20	SE-3RD ST
RP 14	48+97.60	48.2' LT	20	SW-3RD ST
RP 15	49+79.88	47.9' RT	20	NE-3RD ST
RP 16	49+78.42	48.1' LT	20	NW-3RD ST
RP 17	52+22.18	42.6' LT	20	SW-FREMONT AVE
RP 18	52+94.62	43.0' LT	20	NW-FREMONT AVE
RP 19	55+57.79	43.0' LT	20	SW-4TH ST
RP 20	56+28.99	43.0' LT	20	NW-4TH ST
RP 21	58+90.16	43.0' RT	20	SE-5TH ST
RP 22	58+89.32	43.0' LT	20	SW-5TH ST
RP 23	59+62.31	43.0' RT	20	NE-5TH ST
RP 24	59+61.35	43.0' LT	20	NW-5TH ST
RP 25	62+13.80	43.0' LT	20	SW-6TH ST
RP 26	62+83.92	43.0' LT	20	NW-6TH ST
RP 27	65+40.27	43.0' RT	20	SE-MARGARET ST
RP 28	65+40.85	43.0' LT	20	SW-MARGARET ST
RP 29	66+20.03	43.0' RT	20	NE-MARGARET ST
RP 30	66+20.15	43.0' LT	20	NW-MARGARET ST

TURF ESTABLISHMENT AND EROSION CONTROL									I
STATION	SODDING TYPE LAWN	FERTILIZER TYPE 3	STORM DRAIN INLET PROTECTION	SILT FENCE, TYPE MS	HYDRAULIC MULCH MATRIX	DECIDUOUS TREE 2.5" CAL B&B	SEDIMENT CONTROL LOG TYPE COMPOST	MULCH MATERIAL TYPE 6	TOPSOIL BORROW
	SQ YD	POUND	EACH	LIN FT	POUND	EACH	LF	CY	CU YD
WHITE BEAR AVE									
30+00 TO 37+00	728	53	12	222	948	6	200	3	121
37+00 TO 44+00	698	50	10		907	22	40	9	116
44+00 TO 51+00	302	22	8		394	18	40	6	50
51+00 TO 58+00	644	47	15		837	18	40	6	107
58+00 TO 65+00	730	53	16		950	20	40	6	122
65+00 TO 69+50	355	26	5		459	11	40	3	59
TOTAL S.P. 062-665-052	3457	250	66	222	4495	95	400	33	576
PROJECT TOTALS	3457	250	66	222	4495	95	400	33	576

CLEARING AND GRUBBING		E
	CLEARING	GRUBBING
	EACH	EACH
WHITE BEAR AVE		
30+40.86 to 37+00	18	18
37+00 to 44+00	12	12
44+00 to 51+00	5	5
51+00 to 58+00	17	17
58+00 to 65+00	19	19
65+00 to 86+73.01	11	11
TOTAL S.P. 062-665-052	82	82
PROJECT TOTAL	82	82

Date Plotted: 5/13/2016  
 WSB File Name: K:\03\188-000-Cad\Plan\03188-000-C-TABS.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TV	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS  
 DATE: 05/13/2016

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: *[Signature]*  
 DANIL S. ROSA, JR. PE  
 LIC. NO. 49048



701 Xerox Avenue South, Suite 300  
 Minneapolis, MN 55418  
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 wsbmg.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TABULATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 20  
 OF  
 145  
 SHEETS

**WATER MAIN TABULATION**

	REMOVE WATER MAIN	REMOVE WATER SERVICE PIPE	REMOVE UTILITY VAULT	REMOVE HYDRANT	SALVAGE HYDRANT (1)	CONNECT TO EXISTING WATER MAIN	WATER SERVICE TAPPING (2)	CONNECT TO EXISTING WATER SERVICE	HYDRANT	ADJUST VALVE BOX	4" GATE VALVE & BOX	6" GATE VALVE & BOX	8" GATE VALVE & BOX	12" BUTTERFLY VALVE & BOX	16" BUTTERFLY VALVE & BOX	20" BUTTERFLY VALVE & BOX	24" BUTTERFLY VALVE & BOX	ADJUST CURB STOP & BOX	3/4" CURB STOP & BOX	1" CURB STOP & BOX	3/4" TYPE K COPPER PIPE	1" TYPE K COPPER PIPE	4" WATERMAIN DUCTILE IRON CL 52	6" WATERMAIN DUCTILE IRON CL 52	8" WATERMAIN DUCTILE IRON CL 52	12" WATERMAIN DUCTILE IRON CL 52	16" WATERMAIN DUCTILE IRON CL 52	20" WATERMAIN DUCTILE IRON CL 52	24" WATERMAIN DUCTILE IRON CL 52	12" WATERMAIN HDPE (PIPE BURSTING)	2" INSULATION	DUCTILE IRON FITTINGS	
	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ YD	POUNDS	
<b>ST. PAUL REGIONAL WATER SERVICES (SPRWS)</b>																																	
30+41 to 37+00	495	75				3	3	1						3	1								19			243	250						1050
37+00 to 44+00	839			1		3	22		1				4	2										14	138	710							1000
44+00 to 51+00	395			1		3	5		1				3	3									12	103	53					430		1045	
51+00 to 58+00	645					2	14						2	3									15	78	583					137		1225	
58+00 to 65+00	832					3	12						1	4								100			40	807						1240	
65+00 to 86+73	577		2	1		5	6						3	3										17	94	373		61	32			1080	
<b>TOTAL SPRWS</b>	<b>3783</b>	<b>75</b>	<b>2</b>	<b>3</b>		<b>19</b>	<b>62</b>	<b>1</b>	<b>3</b>		<b>1</b>		<b>13</b>	<b>18</b>	<b>1</b>	<b>1</b>	<b>1</b>			<b>4</b>	<b>5</b>		<b>100</b>	<b>19</b>	<b>58</b>	<b>453</b>	<b>2769</b>	<b>250</b>	<b>61</b>	<b>32</b>	<b>567</b>	<b>6640</b>	
<b>S.P. 062-665-052</b>																																	
30+41 to 37+00	22	30		1	1			6	1	2		1						3						25								11	345
37+00 to 44+00	12	30		1				6	1									22						9								36	125
44+00 to 51+00	11	30		1				6	1					1				5						14								11	75
51+00 to 58+00	20	84		2				3	2				2					14						6								37	75
58+00 to 65+00	25	86		2				3	2				1	1				12						26								33	190
65+00 to 86+73	13			1														6														14	
<b>TOTAL S.P. 062-665-052</b>	<b>103</b>	<b>260</b>		<b>8</b>	<b>1</b>				<b>24</b>	<b>7</b>	<b>2</b>		<b>1</b>	<b>4</b>	<b>2</b>		<b>1</b>	<b>62</b>			<b>260</b>			<b>80</b>							<b>142</b>	<b>810</b>	
<b>PROJECT TOTAL</b>	<b>3886</b>	<b>335</b>	<b>2</b>	<b>11</b>	<b>1</b>	<b>19</b>	<b>62</b>	<b>25</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>17</b>	<b>20</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>260</b>	<b>100</b>	<b>19</b>	<b>138</b>	<b>453</b>	<b>2769</b>	<b>250</b>	<b>61</b>	<b>32</b>	<b>567</b>	<b>142</b>	<b>7450</b>		

- NOTES:  
 (1) INCLUDES REINSTALLTION TO NEW LOCATION AS SHOWN ON PLANS.  
 (2) WATER SERVICE TAPPING AND CONNECTIONS INCIDENTAL TO WATERMAIN REPLACEMENT.  
 (3) GRANULAR BACKFILL REQUIRED FOR WATER MAIN AND SANITARY SEWER SERVICES TRENCHES. SEE AGGREGATE AND BITUMINOUS TABULATION G FOR QUANTITIES.

**SANITARY SERVICE TABULATION**

**Q**

	STREET ADDRESS	STATION	LT OR RT	REMOVE SANITARY SERVICE PIPE	CONNECT TO EXISTING SANITARY SEWER (1)	CONNECT TO EXISTING SANITARY SEWER SERVICE (1)	6" PVC PIPE SEWER	REMARKS
				LIN FT	EACH	EACH	LIN FT	
<b>S.P. 062-665-051</b>								
<b>CITY OF ST. PAUL</b>								
30+40.86 to 37+00								
	1771 OLD HUDSON RD	35+68	LT	38	1	1	38	
	384 WHITE BEAR AVE N	35+87	RT	47	1	1	47	
	396 WHITE BEAR AVE N	36+89	RT	38	1	1	38	
37+00 to 44+00								
	430 WHITE BEAR AVE N	41+03	RT	33	1	1	33	
	438 WHITE BEAR AVE N	41+32	RT	33	1	1	33	
	447 WHITE BEAR AVE N	42+10	LT	35	1	1	35	
	448 WHITE BEAR AVE N	42+52	RT	33	1	1	33	
44+00 to 51+00								
	465 WHITE BEAR AVE N	44+53	LT	35	1	1	35	
51+00 to 58+00								
	570 WHITE BEAR AVE N	56+23	RT	33	1	1	33	
58+00 to 65+00								
	1775 6TH ST E	63+36	LT	33	1	1	33	
	636 WHITE BEAR AVE N	63+38	RT	38	1	1	38	
	642 WHITE BEAR AVE N	64+01	RT	35	1	1	35	
65+00 to 69+00								
	674 WHITE BEAR AVE N	67+55	RT	33	1	1	33	
	680 WHITE BEAR AVE N	67+95	RT	35	1	1	35	
	686 WHITE BEAR AVE N	68+52	RT	36	1	1	38	
<b>TOTAL CITY OF ST. PAUL</b>				<b>535</b>	<b>15</b>	<b>15</b>	<b>537</b>	
<b>ST. PAUL REGIONAL WATER SERVICES</b>								
37+00 to 44+00								
	401 WHITE BEAR AVE N	37+42	LT	10		2	10	
	405 WHITE BEAR AVE N	38+27	LT	10		2	10	
	411 WHITE BEAR AVE N	38+63	LT	10		2	10	
	431 WHITE BEAR AVE N	40+71	LT	10		2	10	
	437 WHITE BEAR AVE N	41+22	LT	10		2	10	
	441 WHITE BEAR AVE N	41+78	LT	10		2	10	
	461 WHITE BEAR AVE N	43+85	LT	10		2	10	
44+00 to 51+00								
	471 WHITE BEAR AVE N	44+87	LT	10		2	10	
51+00 to 58+00								
	543 WHITE BEAR AVE N	53+50	LT	10		2	10	
	553 WHITE BEAR AVE N	54+11	LT	10		2	10	
	561 WHITE BEAR AVE N	54+93	LT	10		2	10	
	575 WHITE BEAR AVE N	54+93	LT	10		2	10	
58+00 to 65+00								

**SANITARY SERVICE TABULATION**

**Q**

	STREET ADDRESS	STATION	LT OR RT	REMOVE SANITARY SERVICE PIPE	CONNECT TO EXISTING SANITARY SEWER (1)	CONNECT TO EXISTING SANITARY SEWER SERVICE (1)	6" PVC PIPE SEWER	REMARKS
				LIN FT	EACH	EACH	LIN FT	
	593 WHITE BEAR AVE N	58+68	LT	10		2	10	
	611 WHITE BEAR AVE N	60+48	LT	10		2	10	
	621 WHITE BEAR AVE N	61+28	LT	10		2	10	
	1770 6TH ST E	61+67	LT	10		2	10	
65+00 to 69+00								
	1777 MARGARET ST	66+61	LT	10		2	10	VERIFY
	1778 BEECH ST	68+45	LT	10		2	10	VERIFY
<b>TOTAL SPRWS</b>				<b>180</b>		<b>36</b>	<b>180</b>	
<b>PROJECT TOTAL</b>				<b>715</b>	<b>15</b>	<b>51</b>	<b>717</b>	

- NOTES:  
 (1) PIPE BENDS, FITTINGS AND CONNECTORS SHALL BE INCLUDED IN THE CONNECT TO EXISTING SANITARY SEWER AND SERVICE BID ITEMS  
 (2) GRANULAR BACKFILL REQUIRED FOR WATER MAIN AND SANITARY SEWER SERVICES TRENCHES. SEE AGGREGATE AND BITUMINOUS TABULATION G FOR QUANTITIES.

**LIGHTING TABULATION**

**O**

ITEM	UNIT	QUANTITY	REMARKS
SALVAGE LIGHTING UNIT	EACH	7	2
REMOVE SERVICE CABINET	EACH	2	
LIGHT STANDARD TYPE L-14	EACH	34	
LIGHT STANDARD TYPE 2L-14	EACH	4	
LUMINAIRE TYPE LED 100	EACH	42	1
LIGHT BASE FOUNDATION TYPE STANDARD	EACH	31	
1-1/2" NMC	LF	5800	
1C #4 AWG	LF	19200	
1C #8 AWG INSULATED	LF	5700	
JUNCTION BOX	EACH	6	
SERVICE CABINET - POLE MOUNTED	EACH	2	

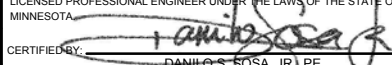
- NOTES:  
 1) 150W HPS LED EQ.  
 2) SEE SPECIAL PROVISIONS

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TV	ADDENDUM 1

DESIGN BY: DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: <b>DANILO S. GOSA, JR. PE</b> DATE: 05/13/2016 LIC. NO.: 49048
PLAN BY: ERW	
CHECKED BY: JLB	
APPROVED BY: DSS	



701 Xerox Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (763) 541-4000 - Fax: (763) 541-1700  
 wsbeng.com



**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

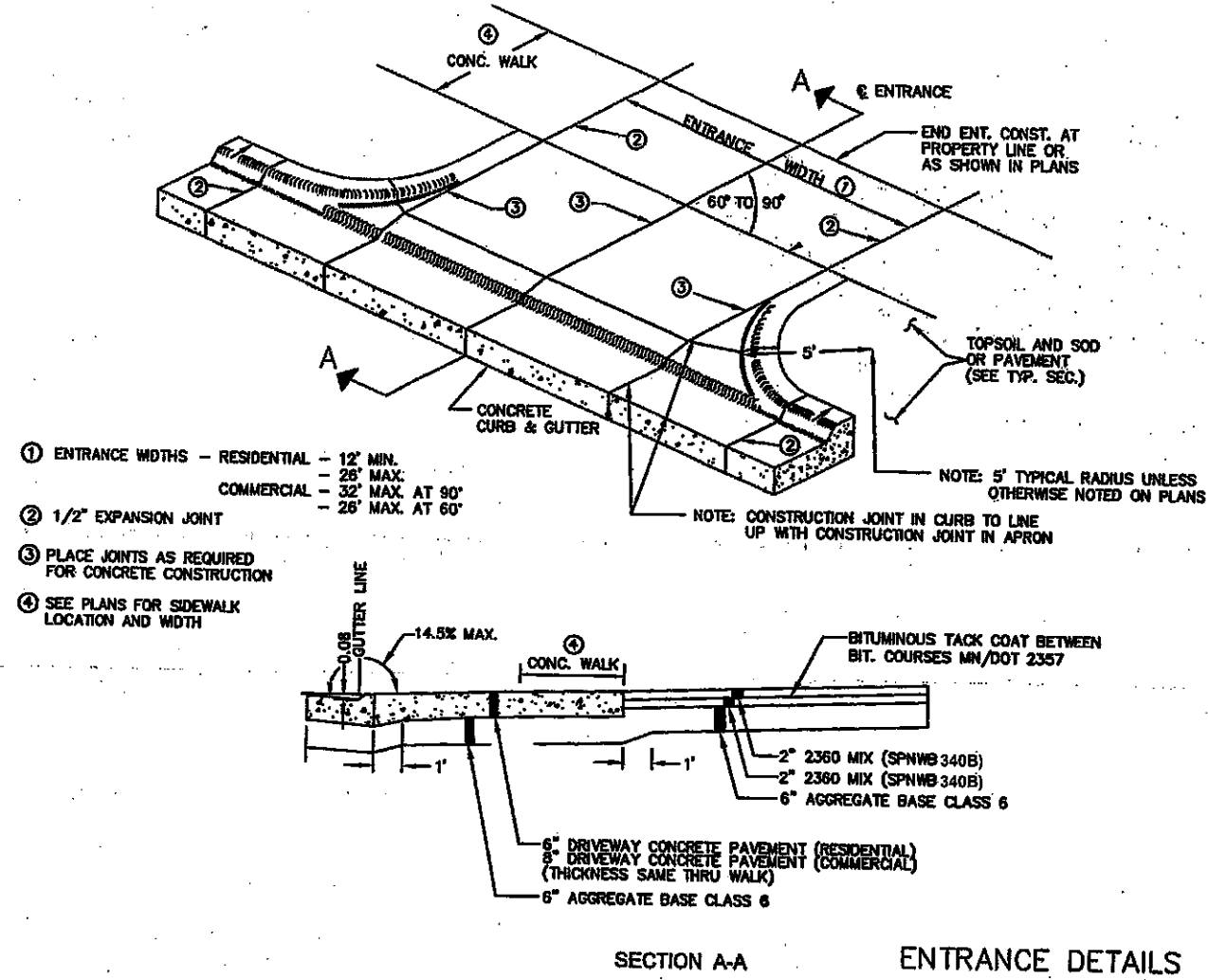
**RAMSEY COUNTY, MINNESOTA**  
**TABULATED QUANTITIES**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**21**  
 OF  
**145**  
 SHEETS

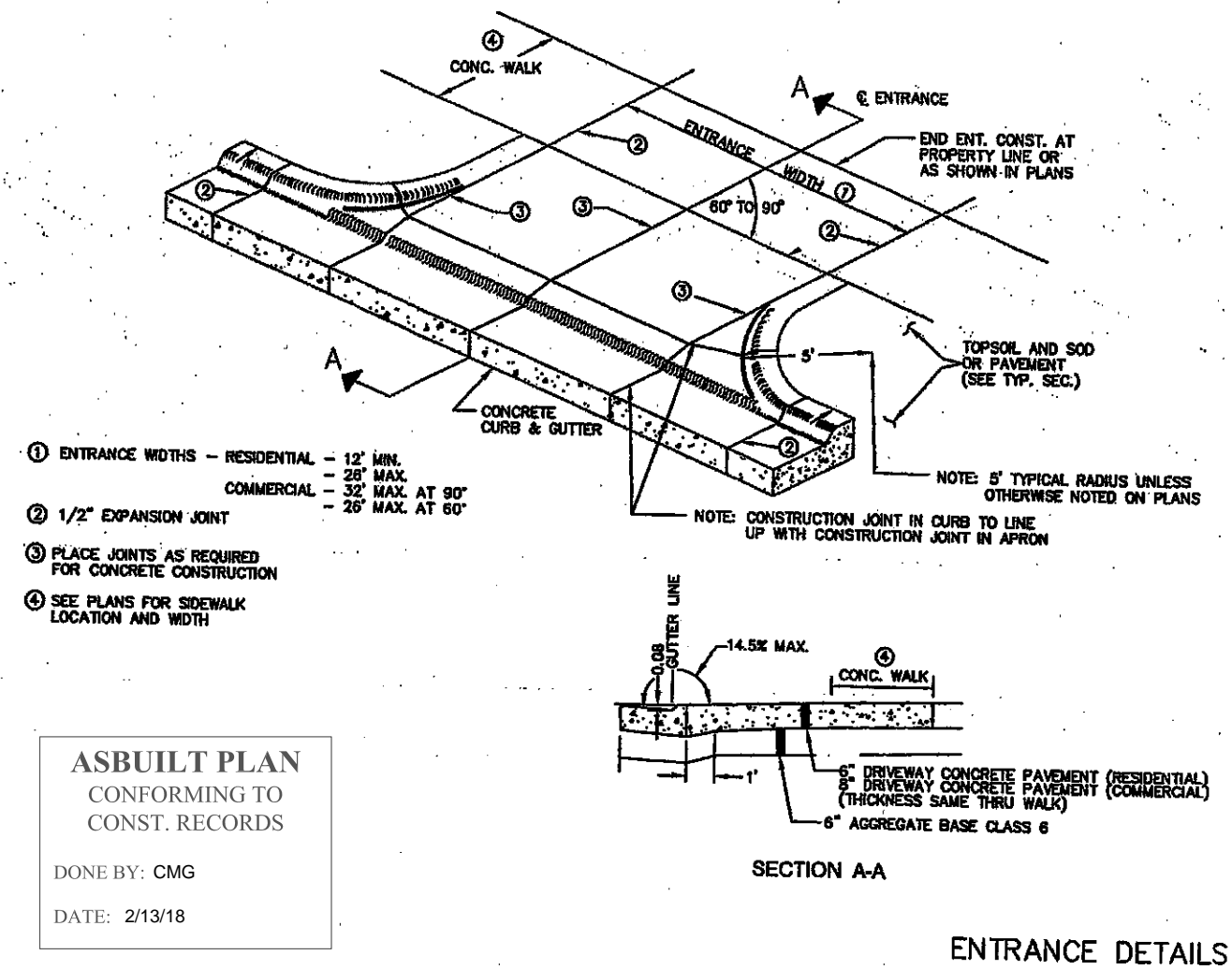
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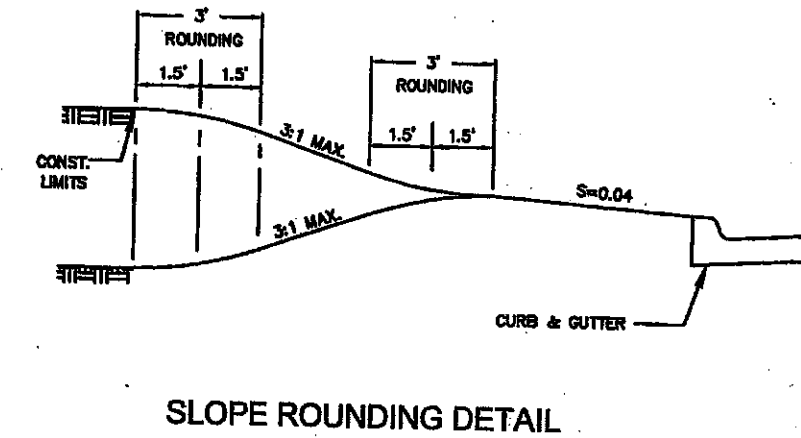
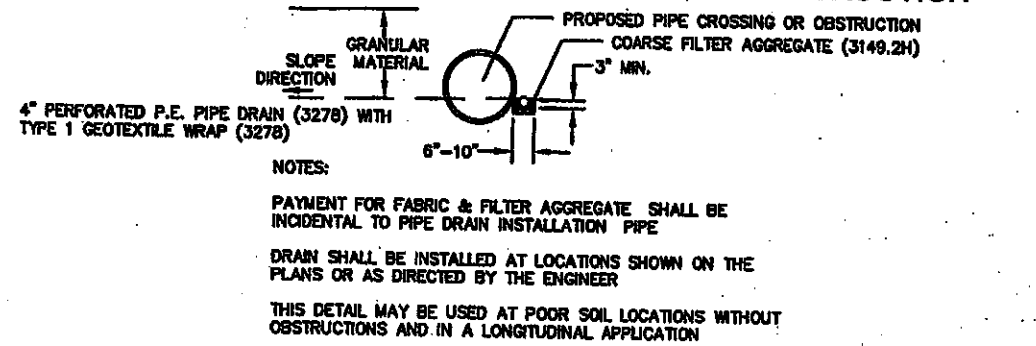
**BITUMINOUS ENTRANCE DETAIL**



**CONCRETE ENTRANCE DETAIL**



**4" TP OR P.E. PIPE DETAIL  
SUBCUT DRAINAGE AT PIPE CROSSING OR OBSTRUCTION**



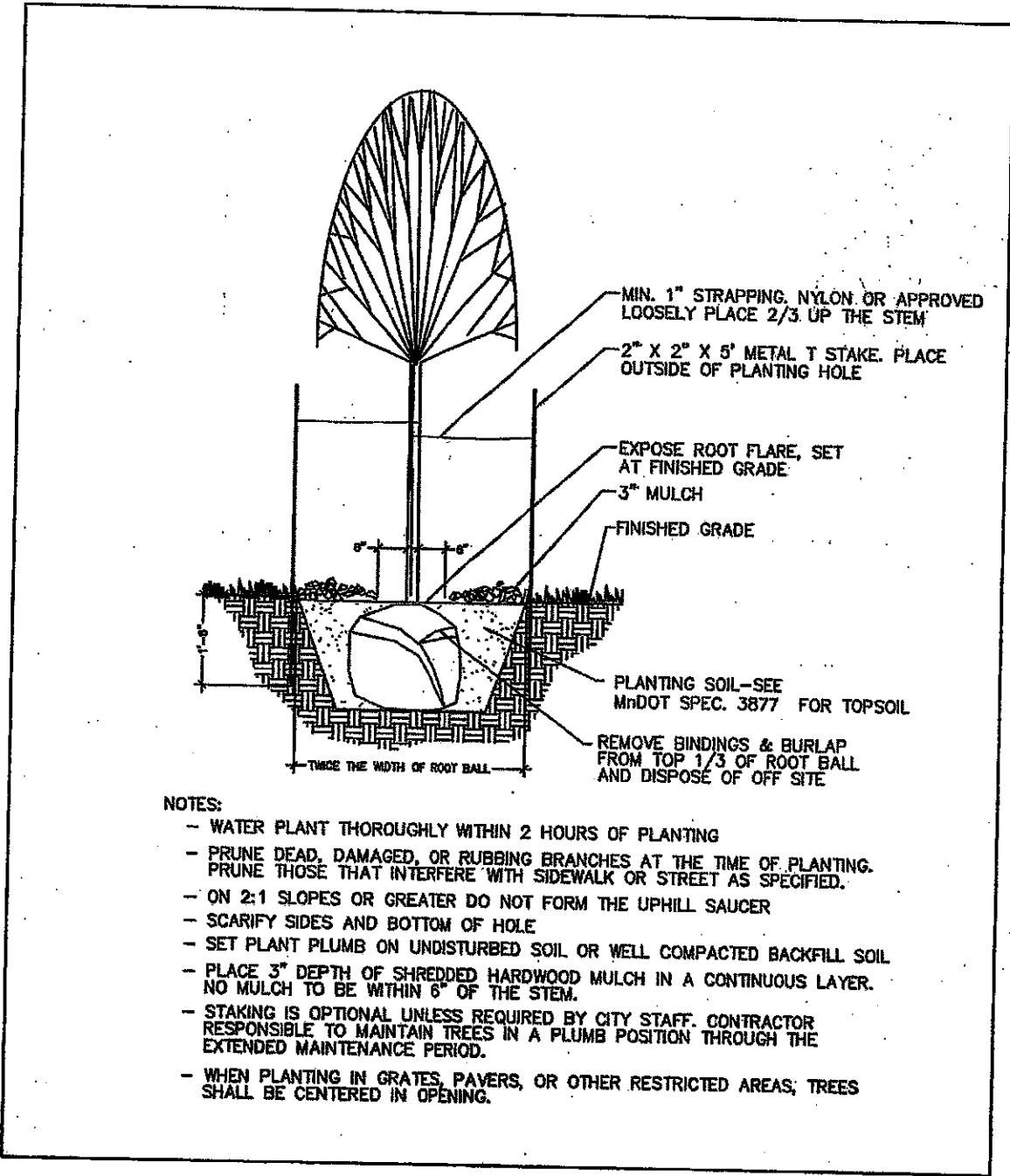
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NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. CERTIFIED BY: <i>[Signature]</i> DANILLO S. SOBBA, P.E. DATE: 02/17/2016 Lic. No. 49048
PLAN BY: ERW	
CHECKED BY: JLB	
APPROVED BY: DSS	

701 Xena Avenue South, Suite 300 Minneapolis, MN 55418 Tel: (763) 641-4800 - Fax: (763) 641-1700 wsbeng.com			RAMSEY COUNTY, MINNESOTA  WHITE BEAR AVENUE STREET IMPROVEMENTS  DETAILS S.P. 062-665-052 / S.P. 164-020-138	SHEET 23 OF 145 SHEETS
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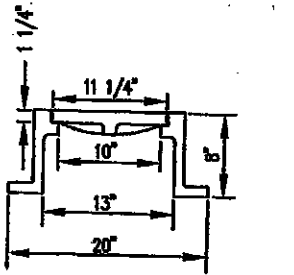
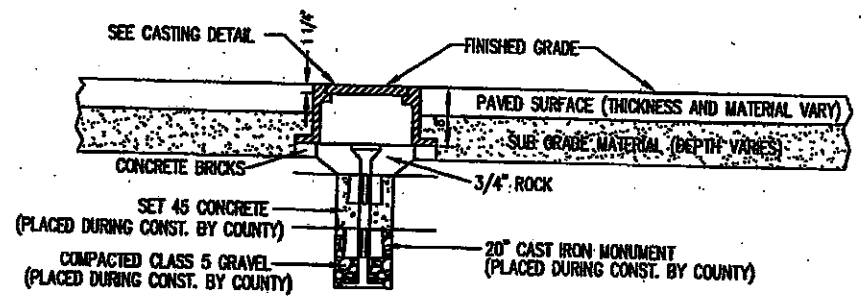




- NOTES:**
- WATER PLANT THOROUGHLY WITHIN 2 HOURS OF PLANTING
  - PRUNE DEAD, DAMAGED, OR RUBBING BRANCHES AT THE TIME OF PLANTING. PRUNE THOSE THAT INTERFERE WITH SIDEWALK OR STREET AS SPECIFIED.
  - ON 2:1 SLOPES OR GREATER DO NOT FORM THE UPHILL SAUCER
  - SCARIFY SIDES AND BOTTOM OF HOLE
  - SET PLANT PLUMB ON UNDISTURBED SOIL OR WELL COMPACTED BACKFILL SOIL
  - PLACE 3" DEPTH OF SHREDDED HARDWOOD MULCH IN A CONTINUOUS LAYER. NO MULCH TO BE WITHIN 6" OF THE STEM.
  - STAKING IS OPTIONAL UNLESS REQUIRED BY CITY STAFF. CONTRACTOR RESPONSIBLE TO MAINTAIN TREES IN A PLUMB POSITION THROUGH THE EXTENDED MAINTENANCE PERIOD.
  - WHEN PLANTING IN GRATES, PAVERS, OR OTHER RESTRICTED AREAS, TREES SHALL BE CENTERED IN OPENING.

TREE PLANTING DETAIL

**CONTROL STRUCTURE  
SURVEY MONUMENT MANHOLE**



WEIGHT = 95 lbs

CASTING DETAIL

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILO S. SOUSA, P.E.  
 DATE: 02/17/2018  
 LIC. NO.: 49048



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 Minneapolis, MN 55418  
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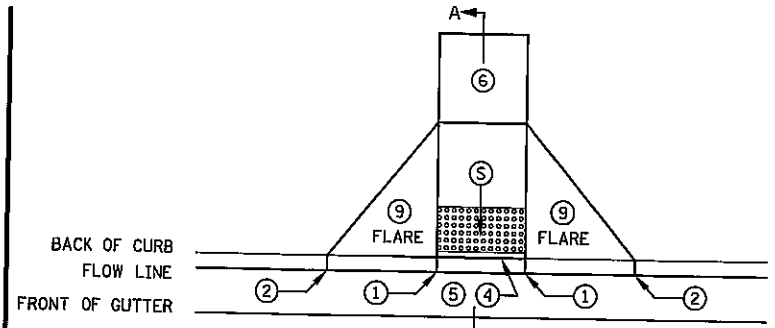
**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

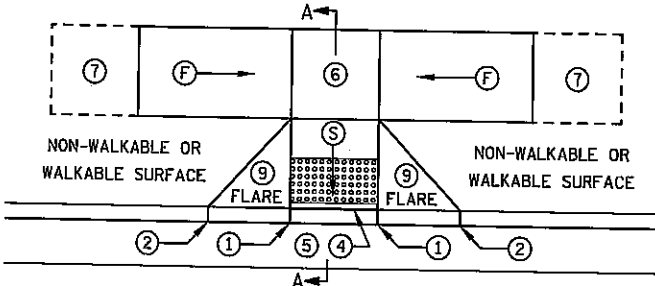
**DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 24  
 OF  
 145  
 SHEETS

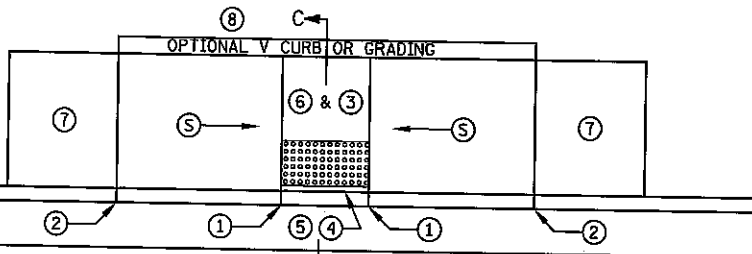
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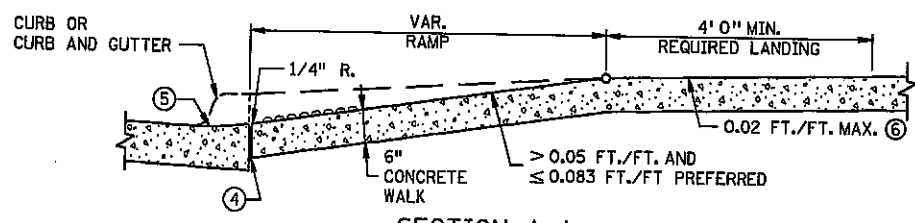
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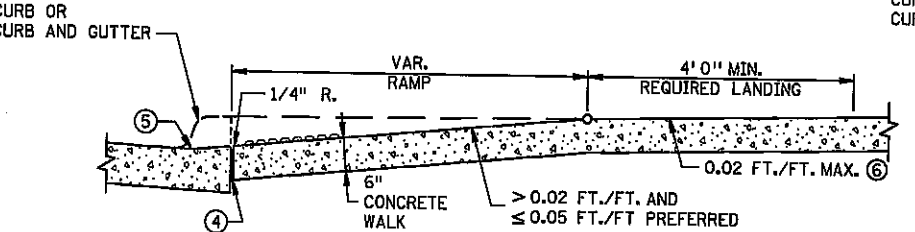
TIERED PERPENDICULAR



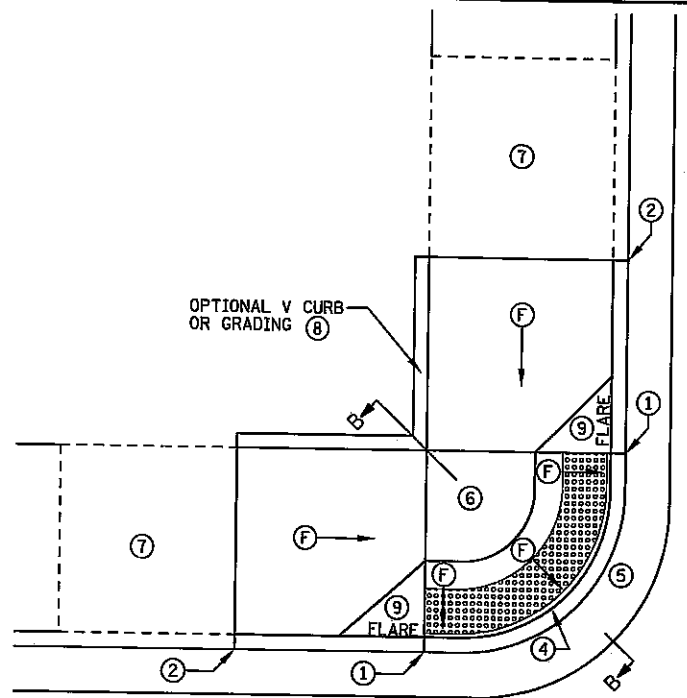
PARALLEL



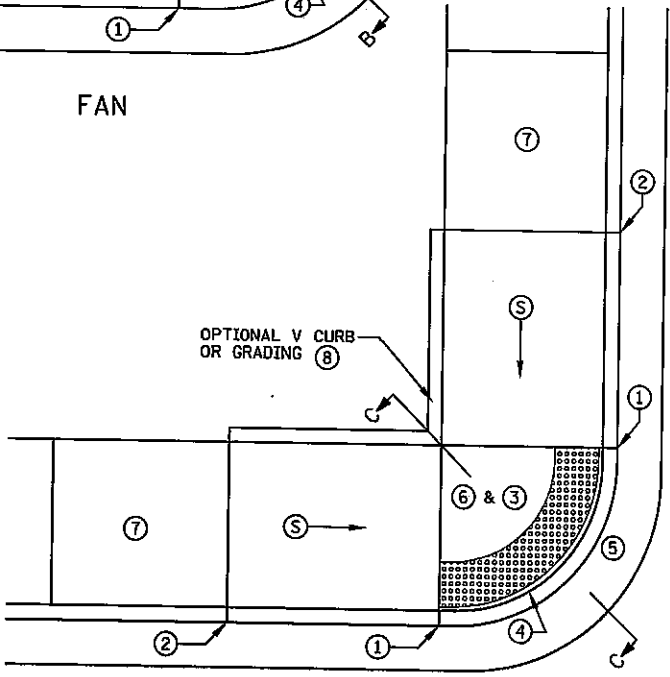
SECTION A-A  
PERPENDICULAR/TIERED/DIAGONAL



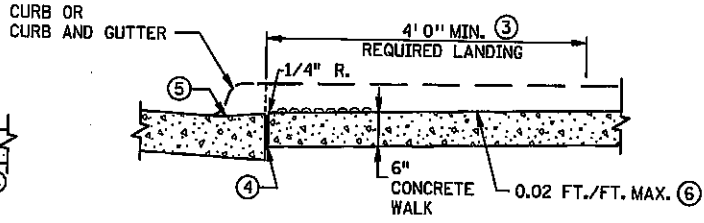
SECTION B-B  
FAN



FAN

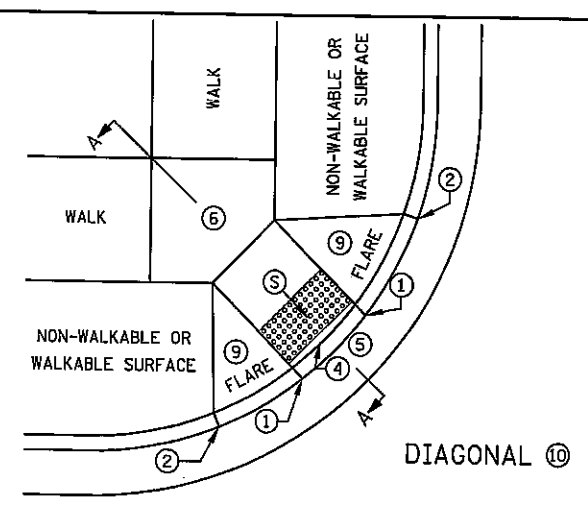


DEPRESSED CORNER



SECTION C-C  
PARALLEL/DEPRESSED CORNER

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: CMG  
DATE: 2/13/18



DIAGONAL ⑩

- NOTES:**
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
  - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
  - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
  - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.
  - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.
  - TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.
  - ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.
  - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
  - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
  - SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
  - 0" CURB HEIGHT.
  - FULL CURB HEIGHT.
  - DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
  - 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
  - SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
  - 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
  - IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
  - V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
  - SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
  - DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISIONS:  
APPROVED: 8-6-2014  
OPERATIONS ENGINEER

REVISOR:  
APPROVED: 8-6-2014  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLAN 5-297.250 1 OF 5

Drawn: 2/14/2018  
WSB File: 160400-CurbRamp1318-00-C-STD-DETL.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS



701 Xerox Avenue South, Suite 300  
Minneapolis, MN 55418  
Tel: (763) 641-4800 - Fax: (763) 641-1700  
wsb.com



WHITE BEAR AVENUE  
STREET IMPROVEMENTS

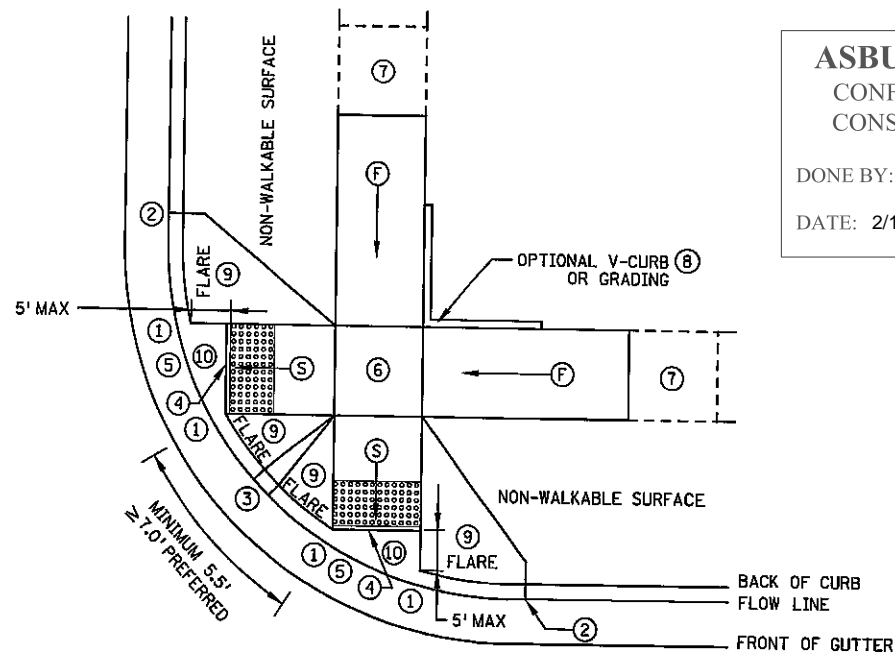
RAMSEY COUNTY, MINNESOTA  
PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLANS  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
25  
OF  
145  
SHEETS

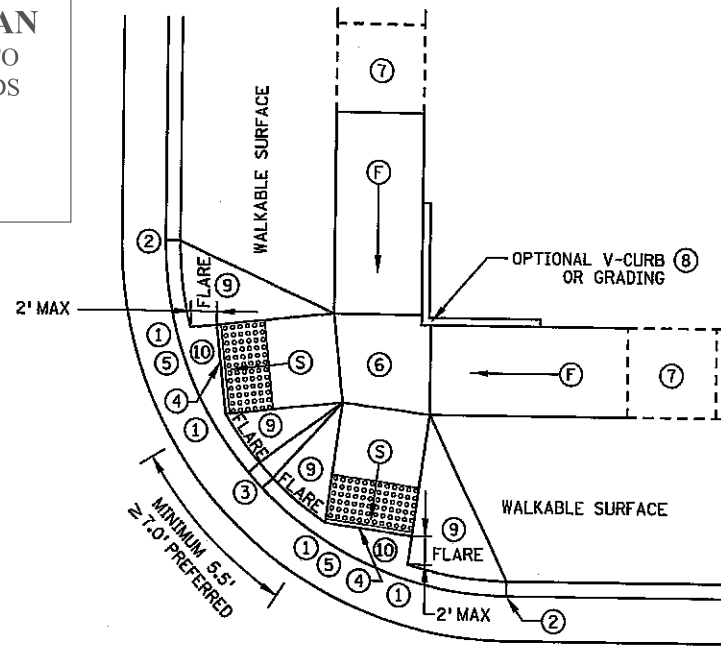
**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

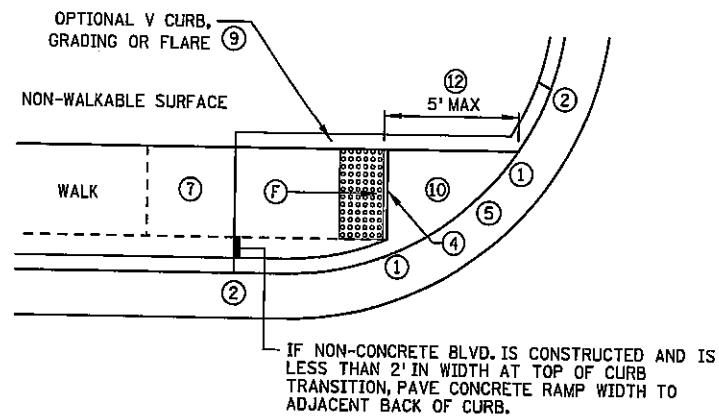


ADJACENT TO NON-WALKABLE SURFACE



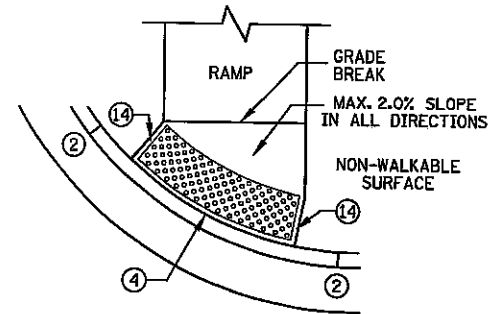
ADJACENT TO WALKABLE SURFACE

**COMBINED DIRECTIONAL ⑮**

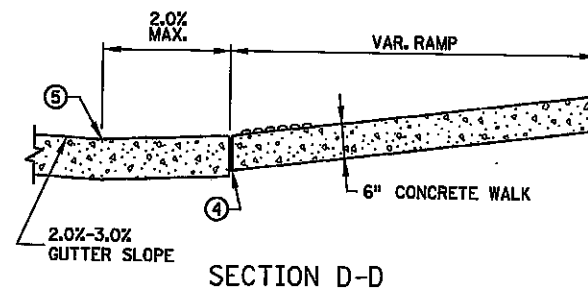
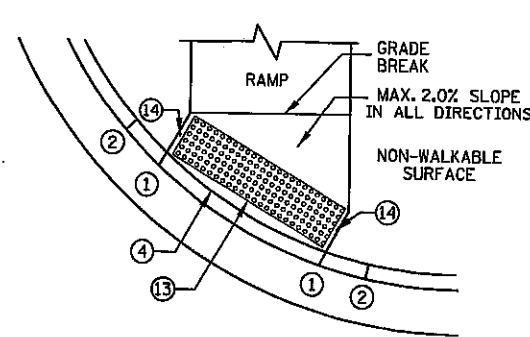


ONE-WAY DIRECTIONAL

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



SECTION D-D

**NOTES:**

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.
- TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.
- ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
- SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 3" MINIMUM CURB HEIGHT, 4" PREFERRED.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- ⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- ⑨ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑩ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑪ TO BE USED FOR ALL DIRECTIONAL RAMPS.
- ⑫ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑬ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑭ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑮ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

**LEGEND**

- THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
  - ⑥ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

REVISION:  
APPROVED: 8-6-2014  
*Michael J. Blum*  
OPERATIONS ENGINEER

**CURB FOR DIRECTIONAL RAMPS ⑮**



REVISOR:  
*Christina Ry*  
STATE DESIGN ENGINEER

REVISOR:

APPROVED: 8-6-2014

**PEDESTRIAN CURB RAMP DETAILS**

STANDARD PLAN 5-297.250 | 2 OF 5

**RAMSEY COUNTY, MINNESOTA**

**PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLANS**

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
26  
OF  
145  
SHEETS

Date Plotted: 2/14/2016 10:58 AM Plotter: PLOT018-000-CadPlotter018-000-CST-DJETL.dwg

NO.	DATE	BY	CHK	REVISIONS

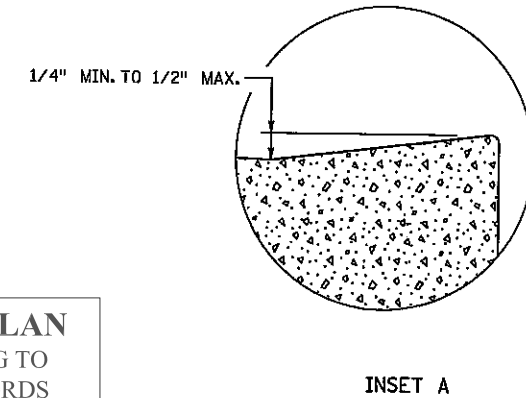
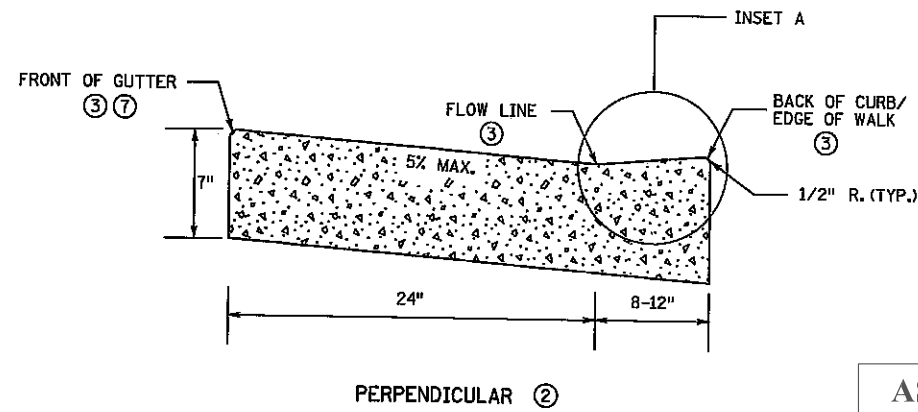
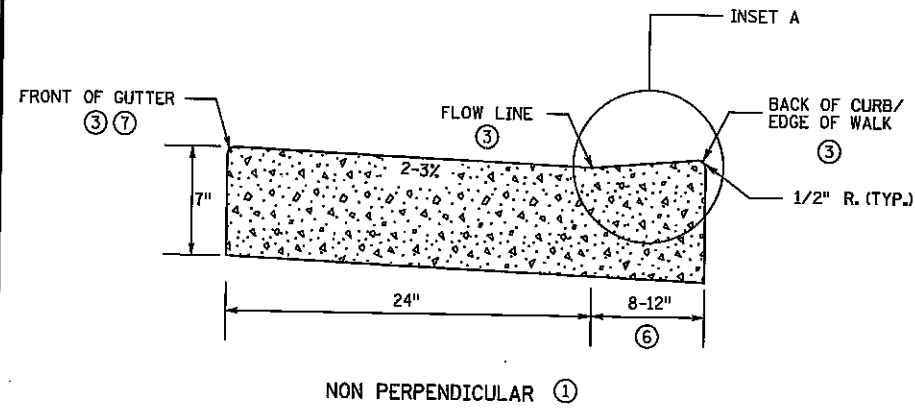
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PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS



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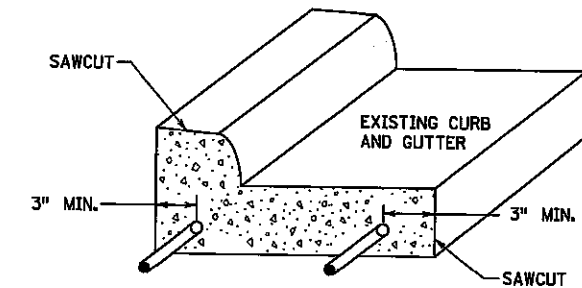
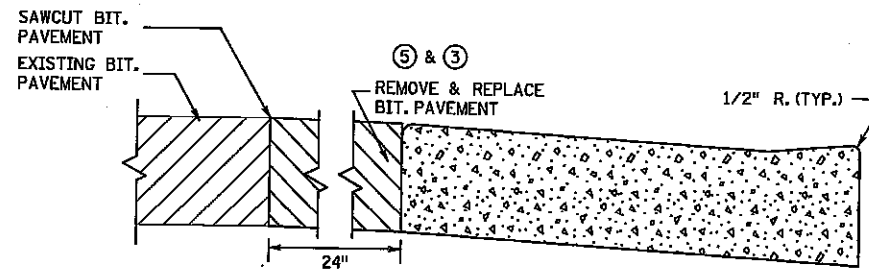
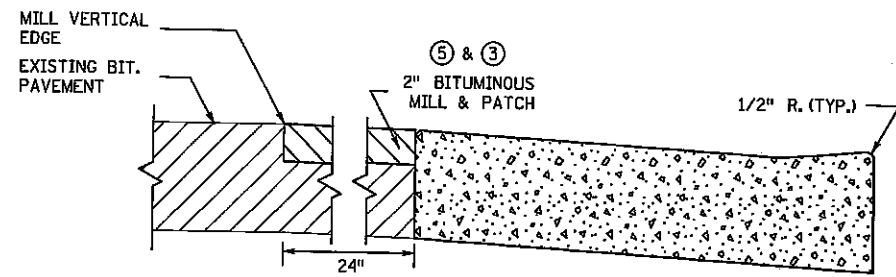
**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**



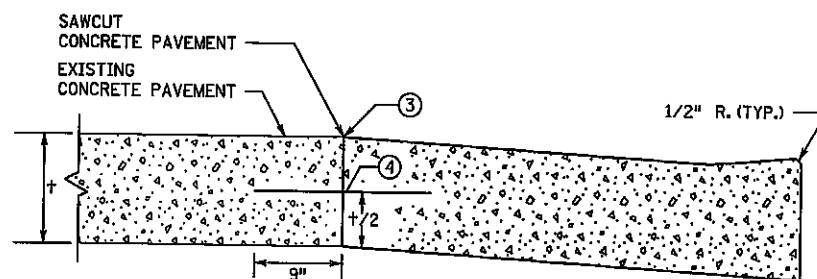
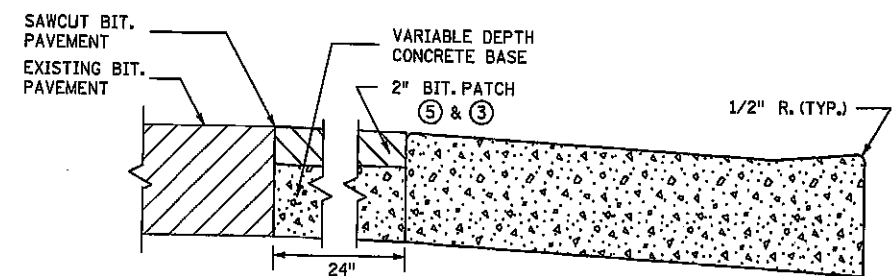
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



CURB AND GUTTER REINFORCEMENT  
FOR USE ON CURB RAMP RETROFITS



PAVEMENT TREATMENT OPTIONS  
IN FRONT OF CURB & GUTTER  
FOR USE ON CURB RAMP RETROFITS

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.  
NO PONDING SHALL BE PRESENT IN THE PAR.  
ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

- ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.
- ② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
- ③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".
- ④ DRILL AND GROUT NO. 4 EPOXY-COATED 18\" LONG TIE BARS AT 30\" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.
- ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
- ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.
- ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.
- ⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12\" LONG REINFORCEMENT BARS (EPOXY COATED).

REVISIONS			
NO.	DATE	BY	CHK

APPROVED: 8-6-2014  
*[Signature]*  
OPERATIONS ENGINEER

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

MINNESOTA DEPARTMENT OF TRANSPORTATION  
STATE DESIGN ENGINEER  
*[Signature]*  
APPROVED: 8-6-2014

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 3 OF 5



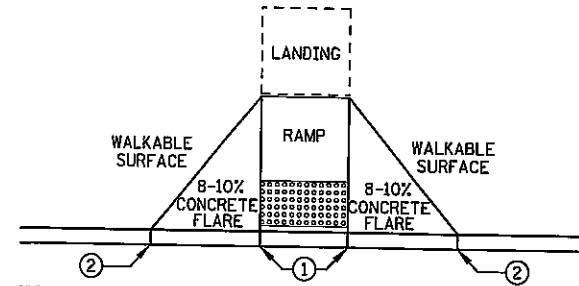
701 Xena Avenue South, Suite 300  
Minneapolis, MN 55418  
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wsb.org.com



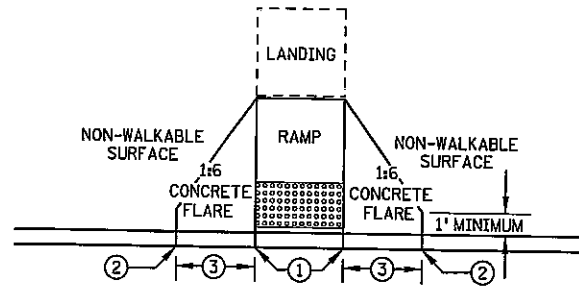
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLANS  
S.P. 062-665-052 / S.P. 164-020-138

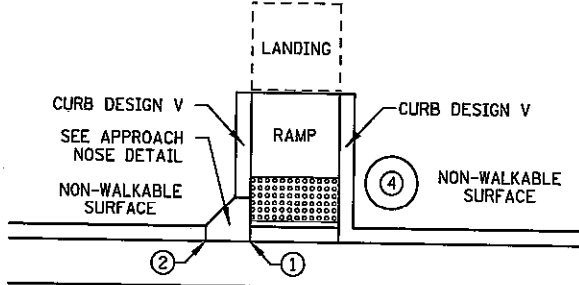
SHEET  
27  
OF  
145  
SHEETS



PAVED FLARES ADJACENT TO WALKABLE SURFACE

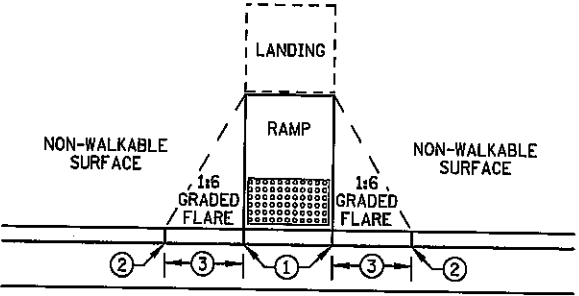


PAVED FLARES ADJACENT TO NON-WALKABLE SURFACE



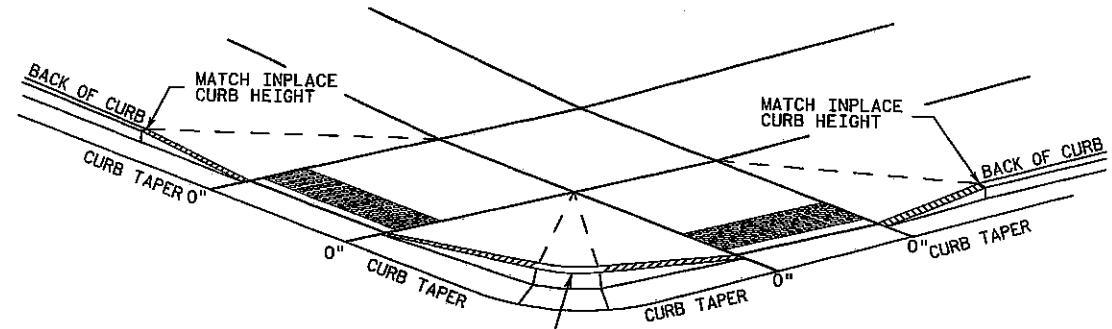
DIRECTION OF TRAFFIC

RETURNED CURB



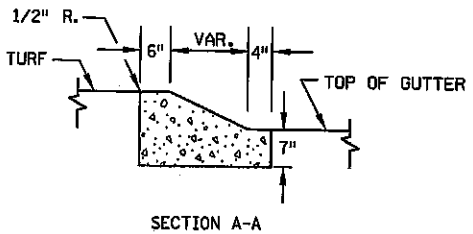
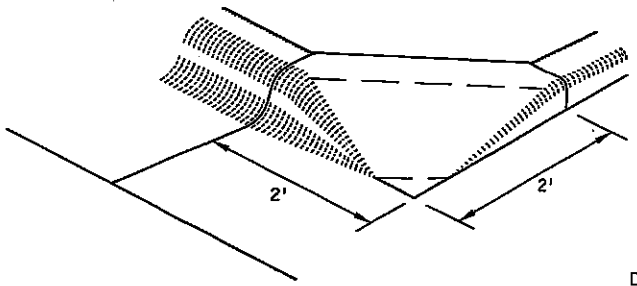
GRADED FLARES

TYPICAL SIDE TREATMENT OPTIONS ⑤

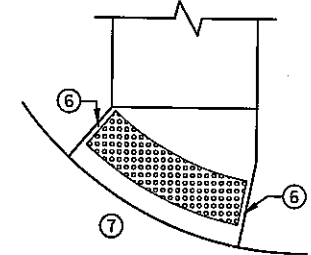


3" MINIMUM CURB HEIGHT, 4" PREFERRED (MEASURED AT FRONT FACE OF CURB) FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

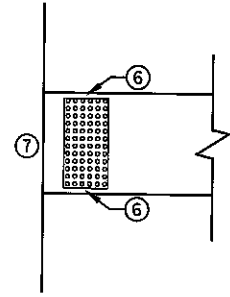
DETECTABLE EDGE WITH CURB AND GUTTER ⑧



APPROACH NOSE DETAIL FOR DOWNSTREAM SIDE OF TRAFFIC



RADIAL DETECTABLE WARNING



RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER. CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' - 3' FLARE.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY, MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

REVISIONS:

APPROVED: 8-6-2014

*[Signature]*

OPERATIONS ENGINEER

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS

PLAN BY: ERW

CHECKED BY: JLB

APPROVED BY: DSS

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISOR:

Christine Ry

APPROVED: 8-6-2014

STATE DESIGN ENGINEER



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wbsang.com



WHITE BEAR AVENUE  
STREET IMPROVEMENTS

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 4 OF 5

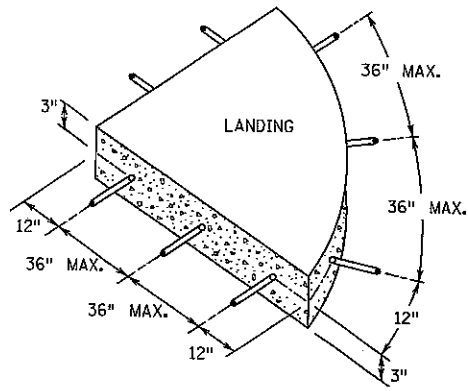
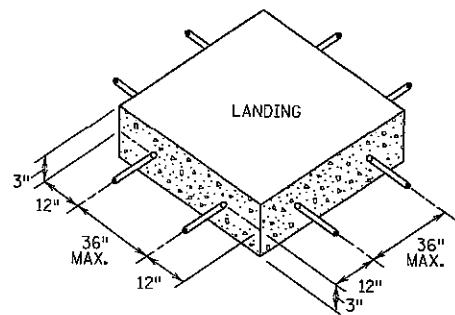
RAMSEY COUNTY, MINNESOTA

PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLANS

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
28  
OF  
145  
SHEETS

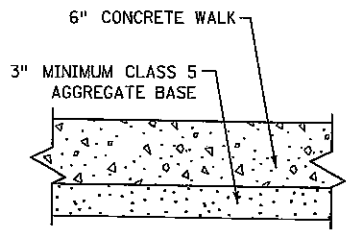
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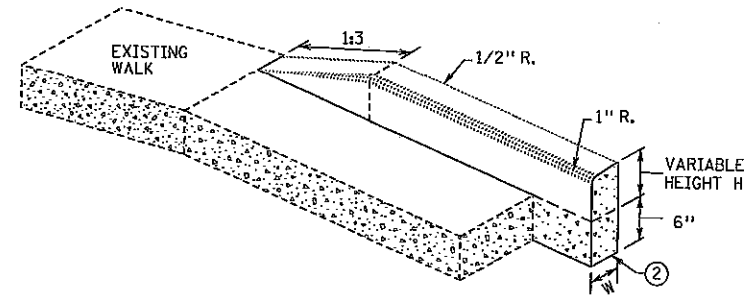
SIDEWALK REINFORCEMENT ⑥ ⑦

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

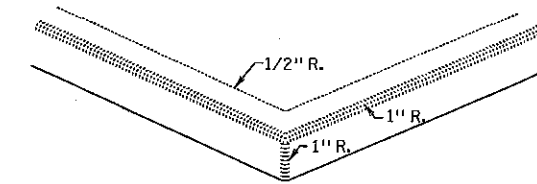
DONE BY: CMG  
DATE: 2/13/18



TYPICAL SIDEWALK SECTION  
WITHIN INTERSECTION CORNER

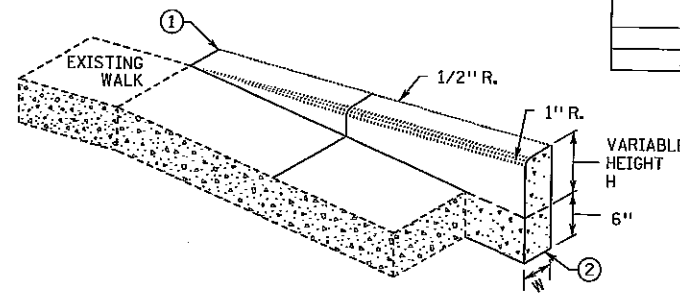


V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS

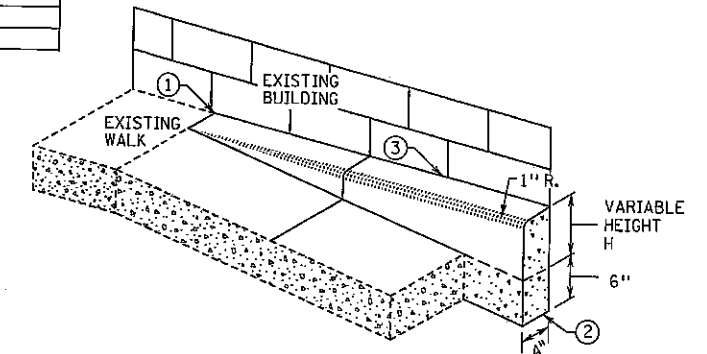


V CURB INTERSECTION

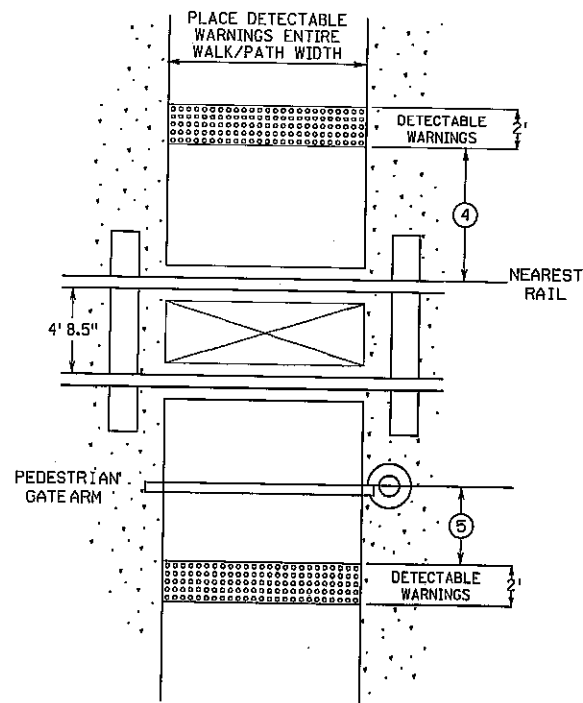
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



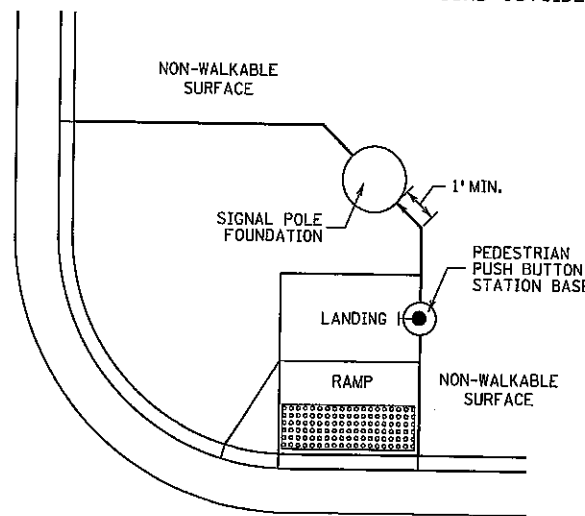
V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING  
OR BARRIER



RAILROAD CROSSING  
PLAN VIEW



CONCRETE WALK EDGES ADJACENT  
TO CONCRETE STRUCTURES

NOTES:

- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑤ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM.
- ⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).
- ⑦ TO ENSURE RAMP AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

REVISION:  
APPROVED: 2-9-2015  
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION  
APPROVED: 2-9-2015  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLAN 5-297.250 5 OF 5

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS



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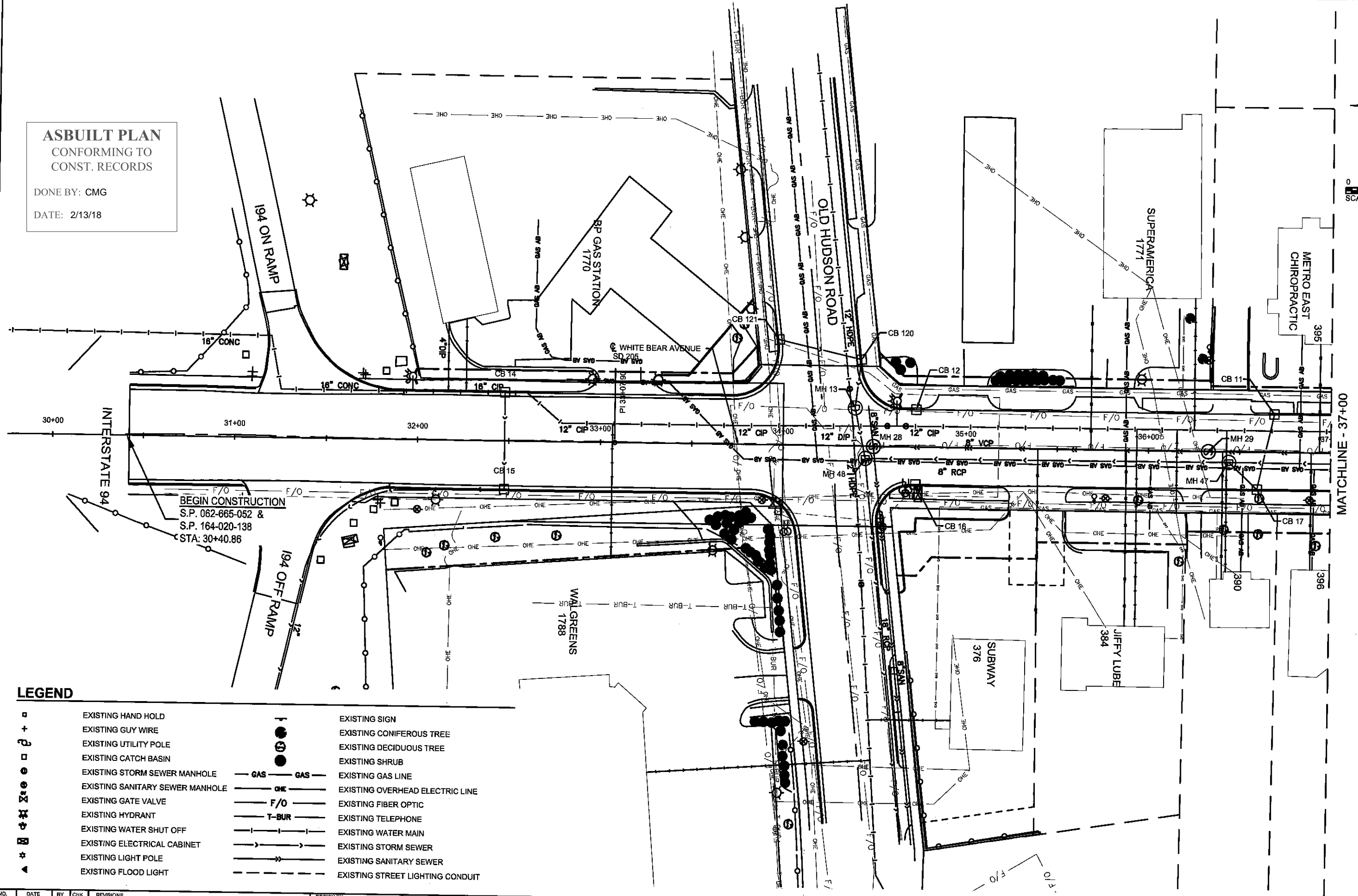
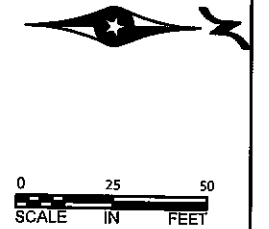
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
PEDESTRIAN CURB RAMP DETAILS  
STANDARD PLANS  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
29  
OF  
145  
SHEETS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



**LEGEND**

- |   |                                 |           |                                  |
|---|---------------------------------|-----------|----------------------------------|
| □ | EXISTING HAND HOLD              | ●         | EXISTING SIGN                    |
| + | EXISTING GUY WIRE               | ●         | EXISTING CONIFEROUS TREE         |
| ⊕ | EXISTING UTILITY POLE           | ○         | EXISTING DECIDUOUS TREE          |
| □ | EXISTING CATCH BASIN            | ○         | EXISTING SHRUB                   |
| ○ | EXISTING STORM SEWER MANHOLE    | — GAS —   | EXISTING GAS LINE                |
| ○ | EXISTING SANITARY SEWER MANHOLE | — OHE —   | EXISTING OVERHEAD ELECTRIC LINE  |
| ○ | EXISTING GATE VALVE             | — F/O —   | EXISTING FIBER OPTIC             |
| ○ | EXISTING HYDRANT                | — T-BUR — | EXISTING TELEPHONE               |
| ○ | EXISTING WATER SHUT OFF         | — BUR —   | EXISTING WATER MAIN              |
| ○ | EXISTING ELECTRICAL CABINET     | —         | EXISTING STORM SEWER             |
| ○ | EXISTING LIGHT POLE             | —         | EXISTING SANITARY SEWER          |
| ○ | EXISTING FLOOD LIGHT            | —         | EXISTING STREET LIGHTING CONDUIT |

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, JR., P.E.  
 DATE: 02/17/2016  
 LIC. NO.: 49048



701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 641-1700  
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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

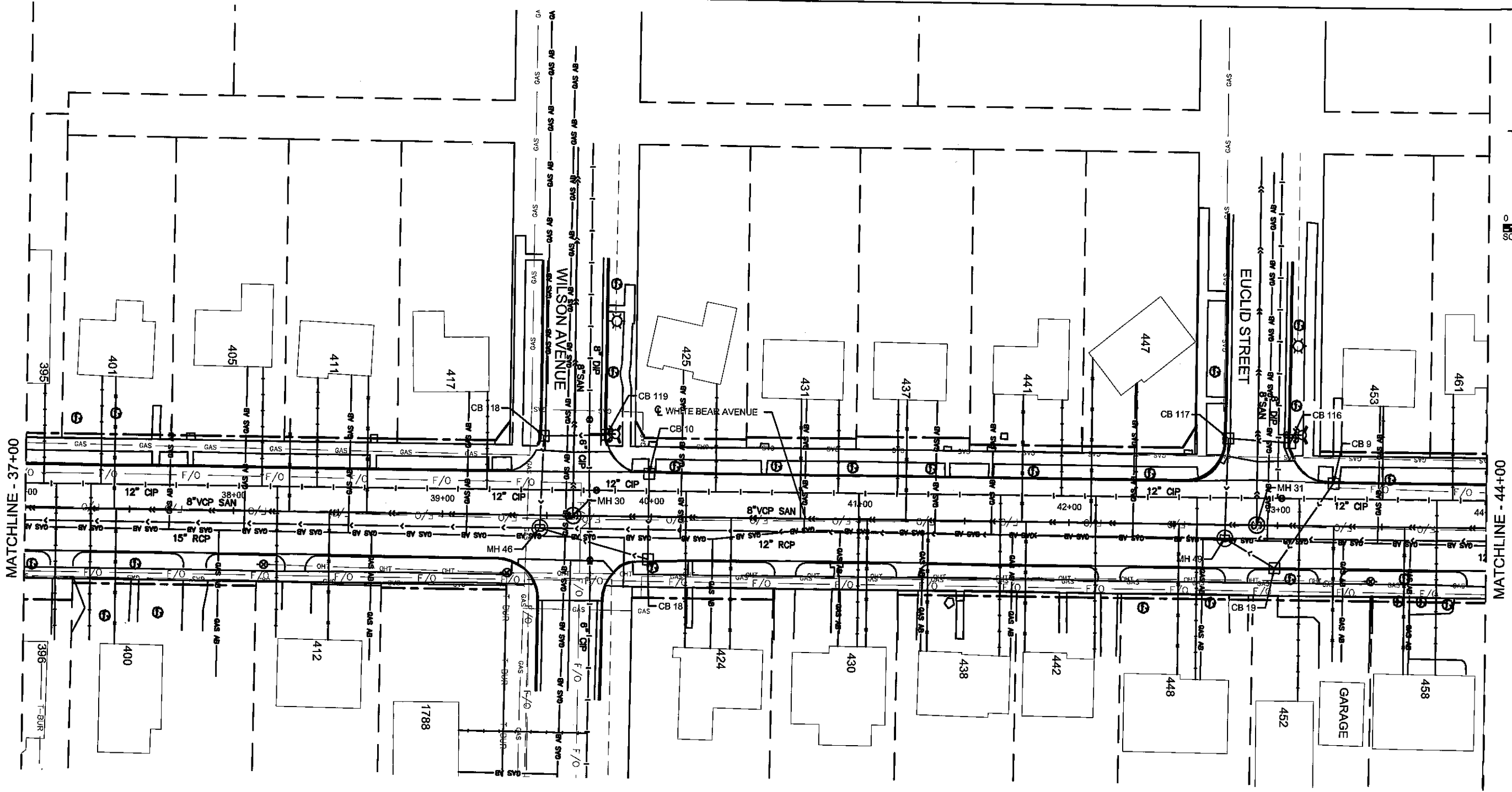
**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 30+00 TO 37+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**30**  
 OF  
**145**  
 SHEETS

Date Plotted: 1/26/2018  
 WSB File Name: K:\031684\020\CA\Plan\031684-000-C-IMP-CP-PLAN.dwg



0 25 50  
SCALE IN FEET



**LEGEND**

- ◻ EXISTING HAND HOLD
- + EXISTING GUY WIRE
- ⊕ EXISTING UTILITY POLE
- ◻ EXISTING CATCH BASIN
- ⊙ EXISTING STORM SEWER MANHOLE
- ⊙ EXISTING SANITARY SEWER MANHOLE
- ⊙ EXISTING GATE VALVE
- ⊙ EXISTING HYDRANT
- ⊙ EXISTING WATER SHUT OFF
- ⊙ EXISTING ELECTRICAL CABINET
- ⊙ EXISTING LIGHT POLE
- ⊙ EXISTING FLOOD LIGHT
- EXISTING SIGN
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING SHRUB
- GAS — EXISTING GAS LINE
- OHE — EXISTING OVERHEAD ELECTRIC LINE
- F/O — EXISTING FIBER OPTIC
- T-BUR — EXISTING TELEPHONE
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING STREET LIGHTING CONDUIT

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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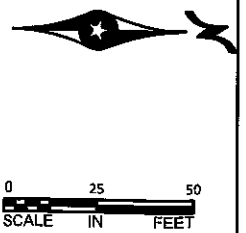
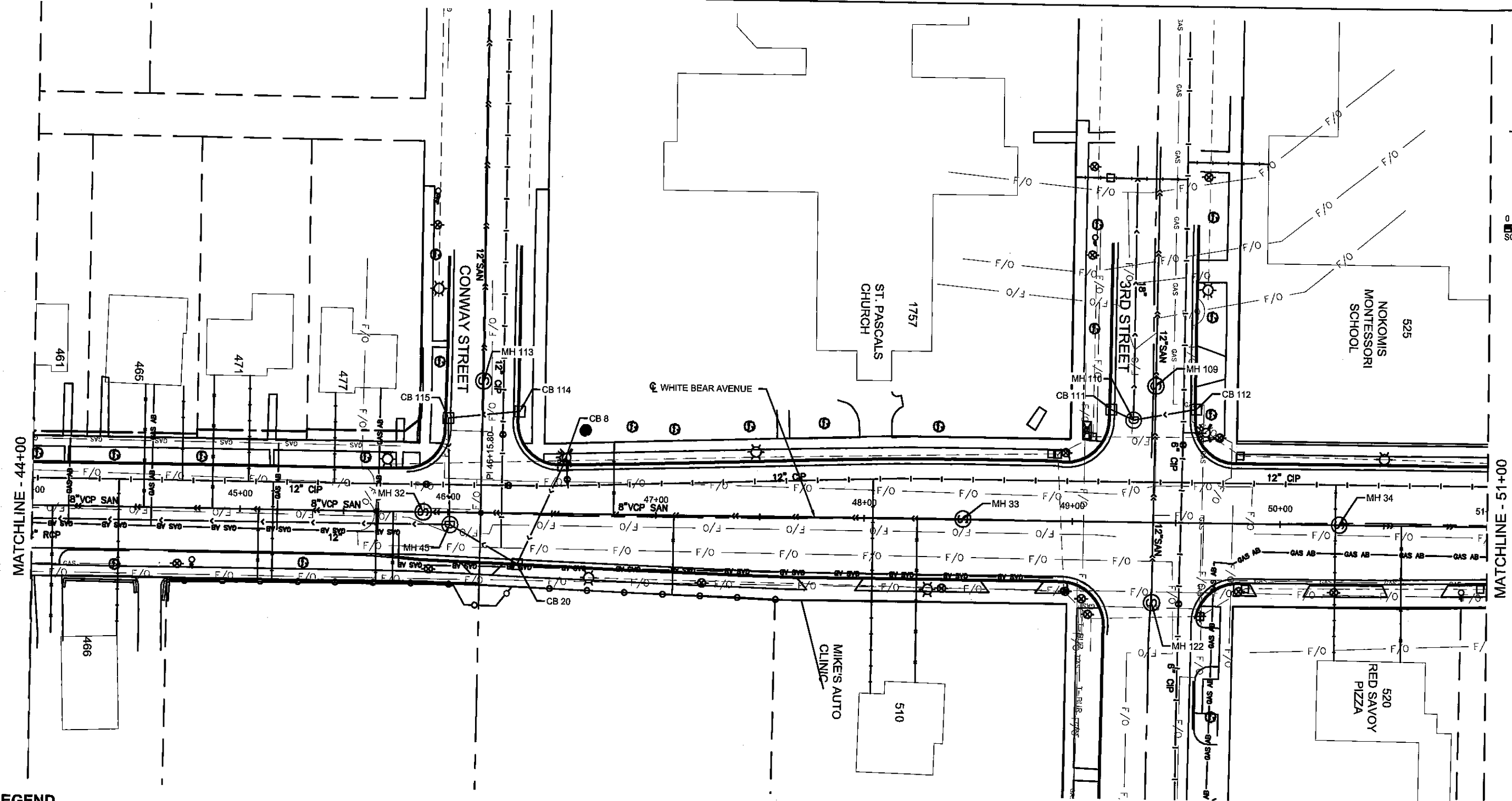
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 37+00 TO 44+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 31  
 OF  
 145  
 SHEETS

Date Plotted: 1/22/2018  
 WSB Filename: K:\31318\000\CityPlan\05185-000-C-1181-PLAN.dwg





**LEGEND**

- |   |                                 |           |                                  |
|---|---------------------------------|-----------|----------------------------------|
| □ | EXISTING HAND HOLD              | ⊕         | EXISTING SIGN                    |
| + | EXISTING GUY WIRE               | ●         | EXISTING CONIFEROUS TREE         |
| ⊕ | EXISTING UTILITY POLE           | ⊙         | EXISTING DECIDUOUS TREE          |
| ⊕ | EXISTING CATCH BASIN            | ●         | EXISTING SHRUB                   |
| ⊕ | EXISTING STORM SEWER MANHOLE    | — GAS —   | EXISTING GAS LINE                |
| ⊕ | EXISTING SANITARY SEWER MANHOLE | — ONE —   | EXISTING OVERHEAD ELECTRIC LINE  |
| ⊕ | EXISTING GATE VALVE             | — F/O —   | EXISTING FIBER OPTIC             |
| ⊕ | EXISTING HYDRANT                | — T-BUR — | EXISTING TELEPHONE               |
| ⊕ | EXISTING WATER SHUT OFF         | —         | EXISTING WATER MAIN              |
| ⊕ | EXISTING ELECTRICAL CABINET     | —         | EXISTING STORM SEWER             |
| ⊕ | EXISTING LIGHT POLE             | —         | EXISTING SANITARY SEWER          |
| ⊕ | EXISTING FLOOD LIGHT            | —         | EXISTING STREET LIGHTING CONDUIT |

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 1/22/2018  
 WBS File Name: K:\313\B0-000\Cad\Plan\0118-020-C-INTL\_Plan.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, P.E.  
 DATE: 02/17/2018 LIC. NO.: 49048



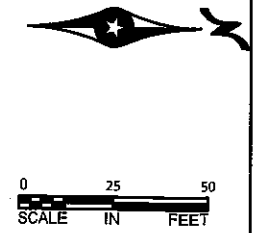
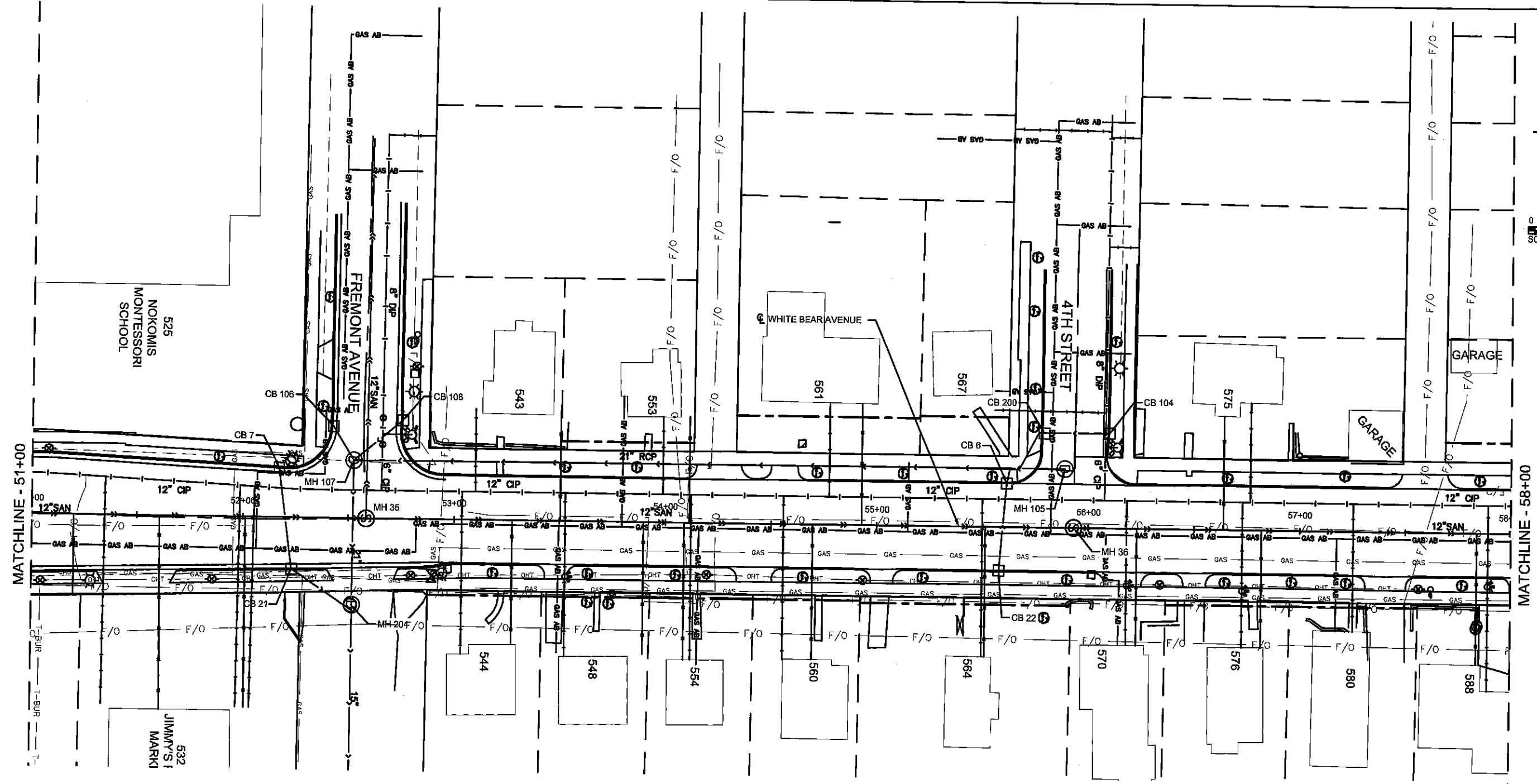
701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbong.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 44+00 TO 51+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 32  
 OF  
 145  
 SHEETS



**LEGEND**

- |   |                                 |           |                                  |
|---|---------------------------------|-----------|----------------------------------|
| □ | EXISTING HAND HOLD              | ●         | EXISTING SIGN                    |
| + | EXISTING GUY WIRE               | ●         | EXISTING CONIFEROUS TREE         |
| ⊕ | EXISTING UTILITY POLE           | ○         | EXISTING DECIDUOUS TREE          |
| □ | EXISTING CATCH BASIN            | ●         | EXISTING SHRUB                   |
| ○ | EXISTING STORM SEWER MANHOLE    | — GAS —   | EXISTING GAS LINE                |
| ○ | EXISTING SANITARY SEWER MANHOLE | — GAS —   | EXISTING OVERHEAD ELECTRIC LINE  |
| ○ | EXISTING GATE VALVE             | — ONE —   | EXISTING FIBER OPTIC             |
| ○ | EXISTING HYDRANT                | — F/O —   | EXISTING TELEPHONE               |
| ○ | EXISTING WATER SHUT OFF         | — T-BUR — | EXISTING WATER MAIN              |
| ○ | EXISTING ELECTRICAL CABINET     | — T-BUR — | EXISTING STORM SEWER             |
| ○ | EXISTING LIGHT POLE             | — T-BUR — | EXISTING SANITARY SEWER          |
| ○ | EXISTING FLOOD LIGHT            | — T-BUR — | EXISTING STREET LIGHTING CONDUIT |

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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 DANILLO S. SOSKO, JR., PE  
 DATE: 02/17/2018 LIC. NO. 49048



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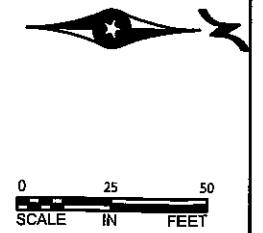
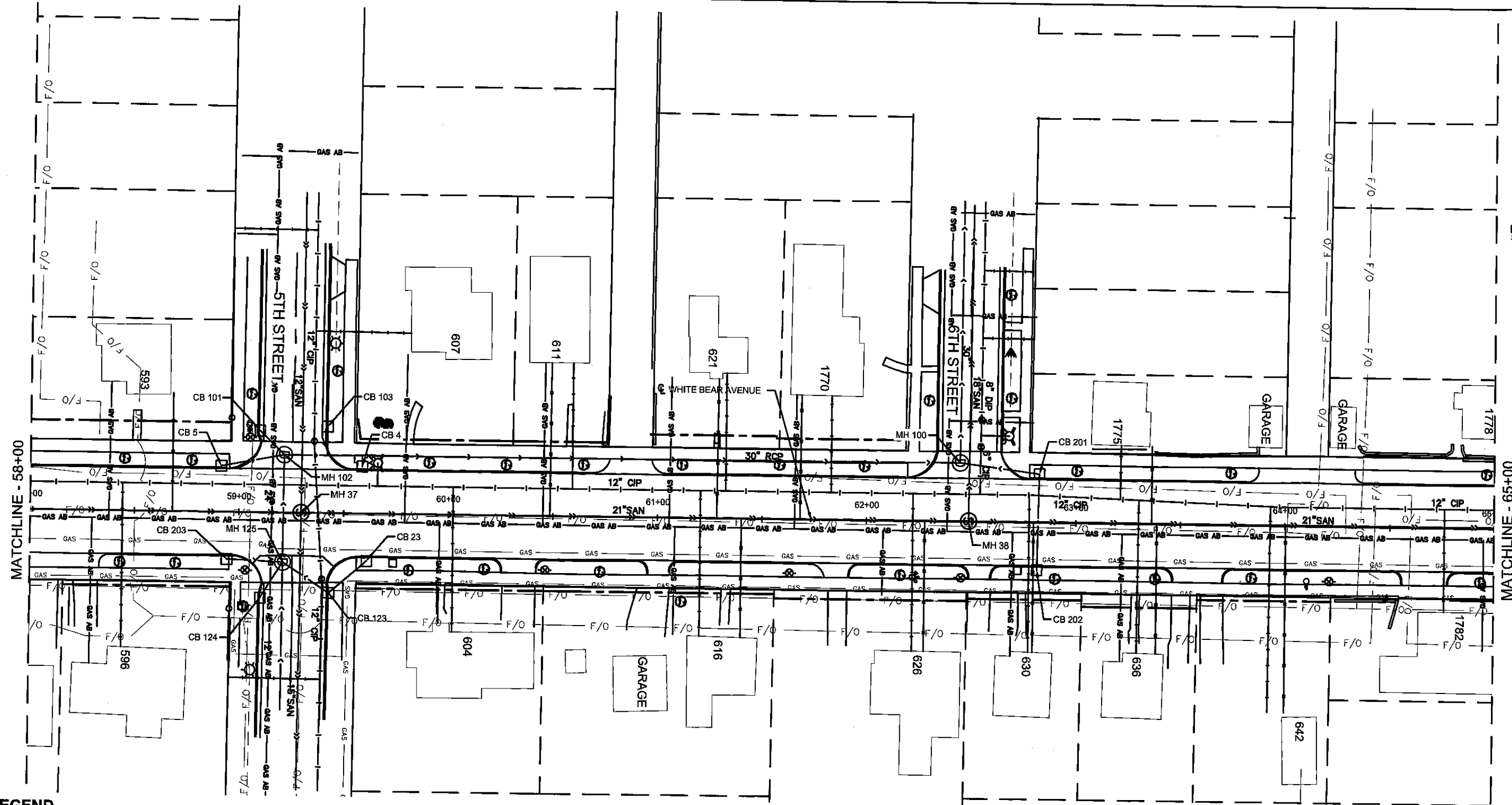


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 51+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**33**  
 OF  
**145**  
 SHEETS

Date Plotted: 1/26/2018  
 WSB File Name: R3103189\_000\_Cad/Plan/03189\_200\_C-INTL\_Plan.dwg



**LEGEND**

□	EXISTING HAND HOLD	⊕	EXISTING SIGN
+	EXISTING GUY WIRE	●	EXISTING CONIFEROUS TREE
⊕	EXISTING UTILITY POLE	○	EXISTING DECIDUOUS TREE
□	EXISTING CATCH BASIN	●	EXISTING SHRUB
○	EXISTING STORM SEWER MANHOLE	— GAS —	EXISTING GAS LINE
○	EXISTING SANITARY SEWER MANHOLE	— OH —	EXISTING OVERHEAD ELECTRIC LINE
⊕	EXISTING GATE VALVE	— F/O —	EXISTING FIBER OPTIC
⊕	EXISTING HYDRANT	— T-BUR —	EXISTING TELEPHONE
⊕	EXISTING WATER SHUT OFF	—	EXISTING WATER MAIN
⊕	EXISTING ELECTRICAL CABINET	—	EXISTING STORM SEWER
⊕	EXISTING LIGHT POLE	—	EXISTING SANITARY SEWER
⊕	EXISTING FLOOD LIGHT	—	EXISTING STREET LIGHTING CONDUIT

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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CERTIFIED BY: DANILLO S. SORSA, JR. PE  
 DATE: 02/17/2016 LIC. NO. 49048



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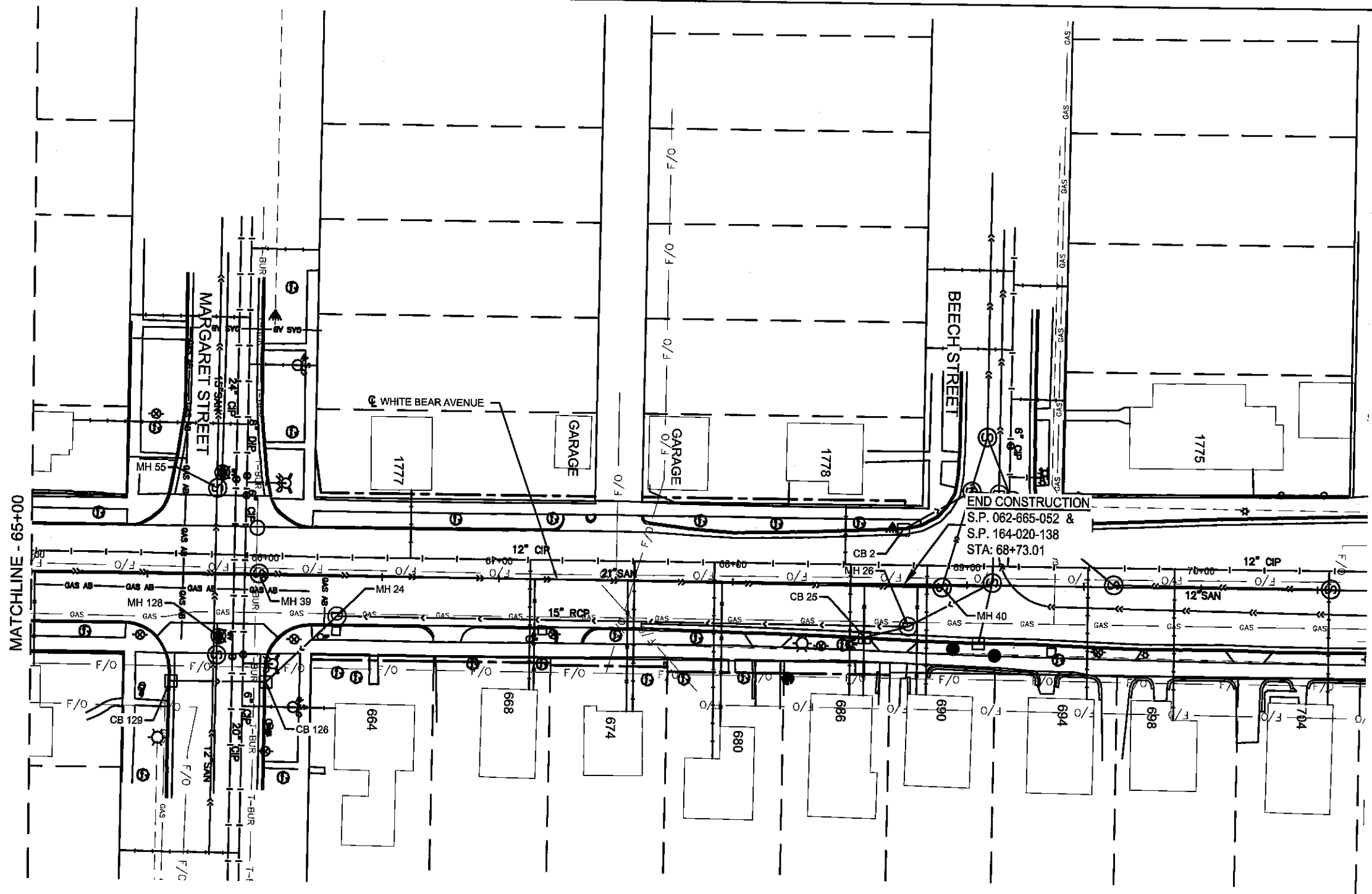
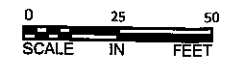


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 58+00 TO 65+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**34**  
 OF  
**145**  
 SHEETS

Date Plotted: 1/16/2018  
 WSB Filename: K:\03\180500\Cad\Plan\018189-000-C-Inst-PLN.dwg



**LEGEND**

- EXISTING HAND HOLD
- + EXISTING GUY WIRE
- ⊕ EXISTING UTILITY POLE
- EXISTING CATCH BASIN
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- ⊕ EXISTING GATE VALVE
- ⊕ EXISTING HYDRANT
- ⊕ EXISTING WATER SHUT OFF
- ⊕ EXISTING ELECTRICAL CABINET
- ⊕ EXISTING LIGHT POLE
- ▲ EXISTING FLOOD LIGHT
- EXISTING SIGN
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING SHRUB
- GAS — EXISTING GAS LINE
- ONE — EXISTING OVERHEAD ELECTRIC LINE
- F/O — EXISTING FIBER OPTIC
- T-BUR — EXISTING TELEPHONE
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING STREET LIGHTING CONDUIT

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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 DANILO S. BOSSA, JR., P.E.  
 DATE: 02/17/2018 U.C. NO.: 49048



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 wsbeng.com

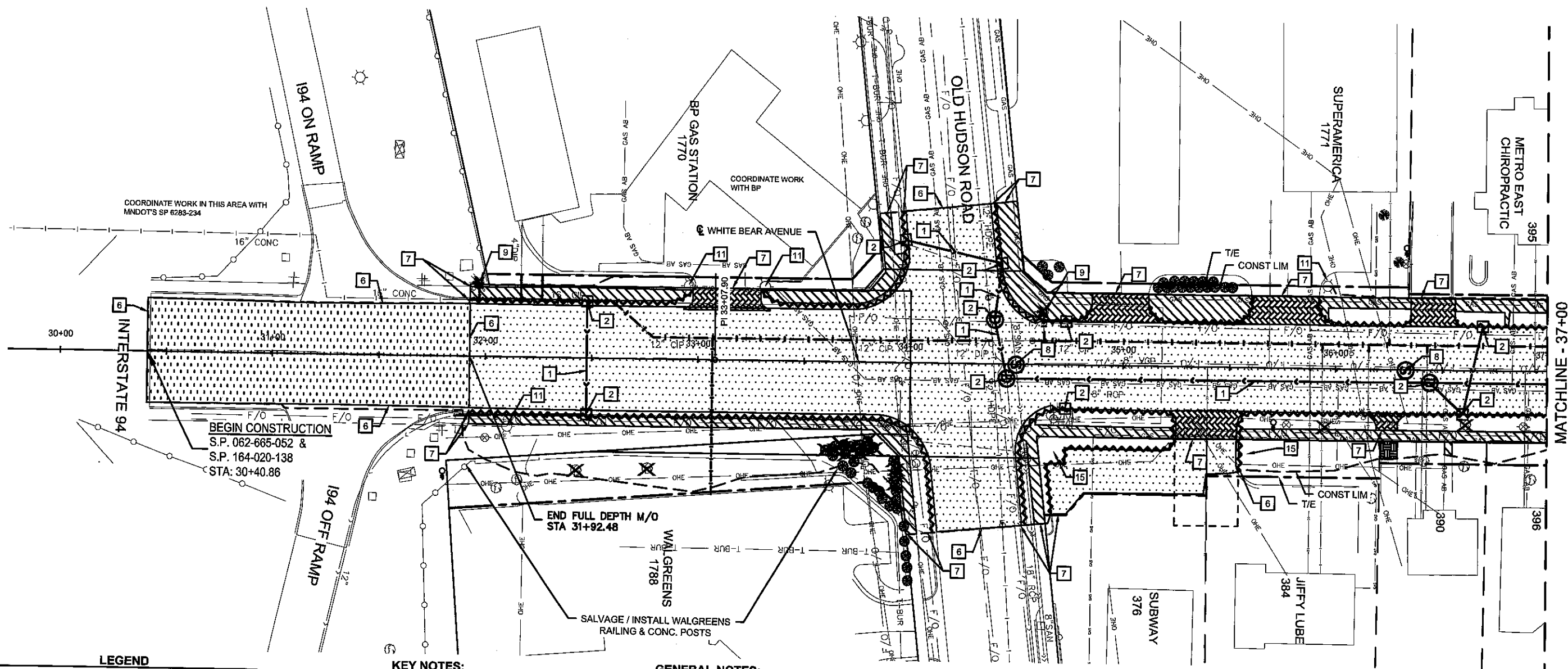


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EXISTING TOPO AND UTILITIES**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**35**  
 OF  
**145**  
 SHEETS

Date Plotted: 1/25/18  
 User: P:\ramsey\162516\162516.dwg  
 Plot File: P:\ramsey\162516\162516.dwg



**LEGEND**

- REMOVE CURB AND GUTTER (CONCRETE)
- REMOVE STORM SEWER
- REMOVE WATER MAIN
- CONSTRUCTION LIMITS
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- CLEARING & GRUBBING (TREE)
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE SPECIAL PAVEMENT
- REMOVE CONCRETE PAVEMENT
- PAVEMENT REPLACEMENT

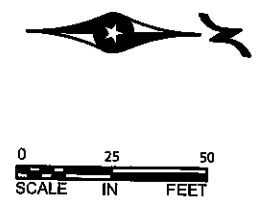
**KEY NOTES:**

- 1 REMOVE STORM SEWER PIPE
- 2 REMOVE MANHOLE OR CATCH BASIN
- 3 RECONSTRUCT MANHOLE / CATCH BASIN
- 4 REMOVE CASTING, NEW CASTING ASSEMBLY
- 5 REMOVE OR RELOCATE EXISTING POWER POLE
- 6 SAWCUT BITUMINOUS FULL DEPTH
- 7 SAWCUT CONCRETE FULL DEPTH
- 8 ADJUST CASTING
- 9 REMOVE HYDRANT
- 10 REMOVE UTILITY VAULT (WATER)
- 11 REMOVE LIGHTING UNITS
- 12 REMOVE LIGHTING UNITS (BY OTHERS)
- 13 RETROFIT LIGHTING UNIT (BY OTHERS)
- 14 PIPE BURST WATER MAIN
- 15 REMOVE SIGN BASE

**GENERAL NOTES:**

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. EXACT LIMITS OF CLEARING & GRUBBING WILL BE STAKED IN THE FIELD.
3. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE.
4. SEE WATER MAIN AND SANITARY SEWER PLANS FOR MANHOLE ADJUSTMENTS.
5. WATER SERVICE REMOVALS INCLUDE REMOVAL OF THE CURB STOP BOX (INCIDENTAL)
6. SAWCUTS AT CURB/ SIDEWALKS ARE INCIDENTAL TO THE REMOVALS

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS  
 DATE: 02/17/2016  
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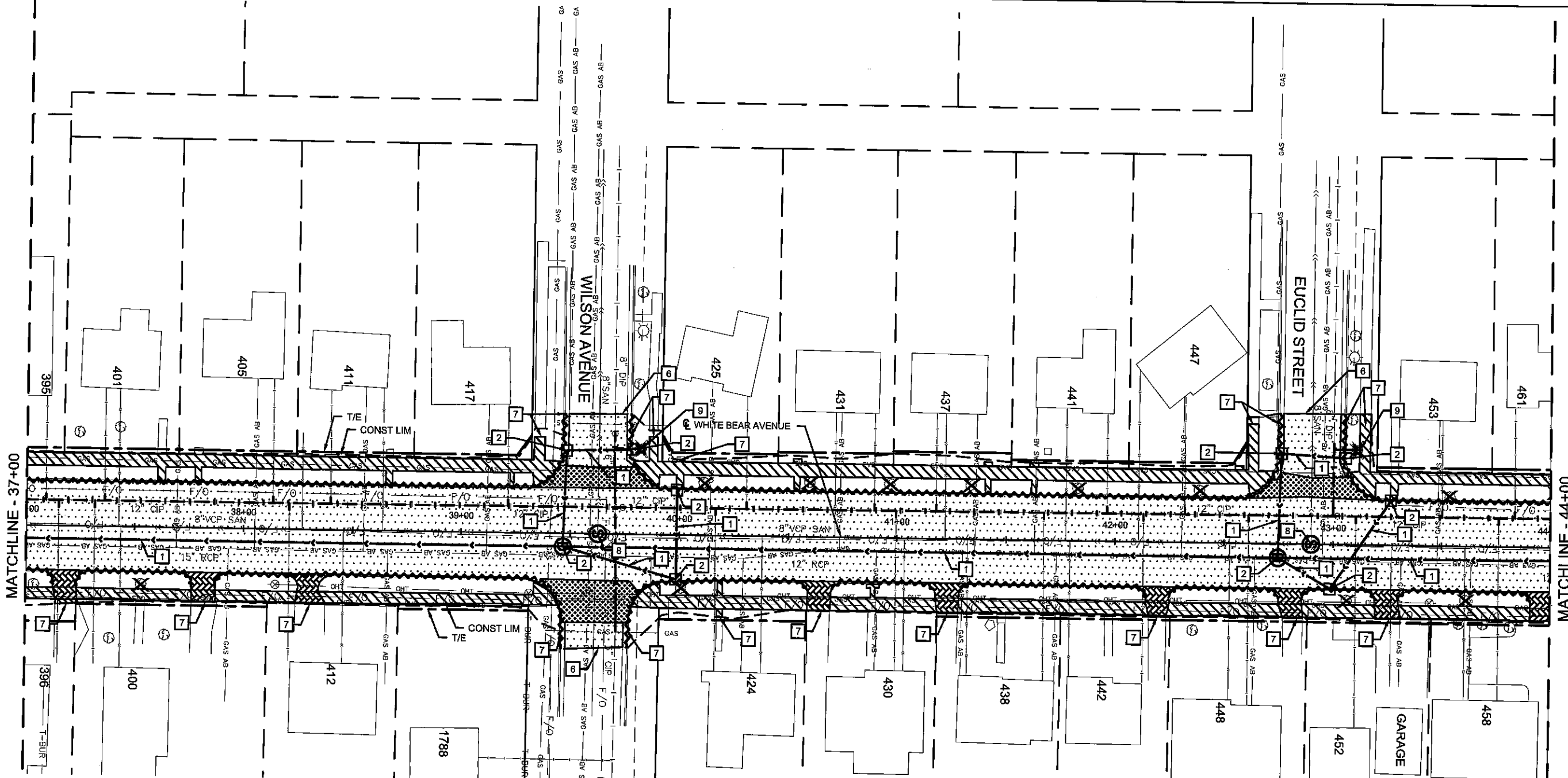
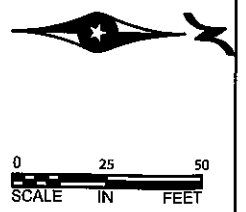


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**REMOVAL PLAN**  
**STA. 30+00 TO 37+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 36  
 OF  
 145  
 SHEETS

Date Printed: 2/16/2018  
 WSB File Name: K:\313186-000\Cad\Plan\018-020-C-REMO-PLAN.dwg



- LEGEND**
- REMOVE CURB AND GUTTER (CONCRETE)
  - REMOVE STORM SEWER
  - REMOVE WATER MAIN
  - CONSTRUCTION LIMITS
  - TEMPORARY EASEMENT
  - PERMANENT EASEMENT
  - CLEARING & GRUBBING (TREE)
  - REMOVE CONCRETE WALK
  - REMOVE BITUMINOUS DRIVEWAY PAVEMENT
  - REMOVE CONCRETE DRIVEWAY PAVEMENT
  - REMOVE SPECIAL PAVEMENT
  - REMOVE CONCRETE PAVEMENT
  - PAVEMENT REPLACEMENT

- KEY NOTES:**
- 1 REMOVE STORM SEWER PIPE
  - 2 REMOVE MANHOLE OR CATCH BASIN
  - 3 RECONSTRUCT MANHOLE / CATCH BASIN
  - 4 REMOVE CASTING, NEW CASTING ASSEMBLY
  - 5 REMOVE OR RELOCATE EXISTING POWER POLE
  - 6 SAWCUT BITUMINOUS FULL DEPTH
  - 7 SAWCUT CONCRETE FULL DEPTH
  - 8 ADJUST CASTING
  - 9 REMOVE HYDRANT
  - 10 REMOVE UTILITY VAULT (WATER)
  - 11 REMOVE LIGHTING UNITS
  - 12 REMOVE LIGHTING UNITS (BY OTHERS)
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  4. SEE WATER MAIN AND SANITARY SEWER PLANS FOR MANHOLE ADJUSTMENTS.
  5. WATER SERVICE REMOVALS INCLUDE REMOVAL OF THE CURB STOP BOX (INCIDENTAL)
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**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
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CERTIFIED BY:   
DANILO S. GOSA, JR. PE  
DATE: 02/17/2018 LIC. NO. 49049



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Minneapolis, MN 55418  
Tel: (783) 541-4800 - Fax: (783) 541-1700  
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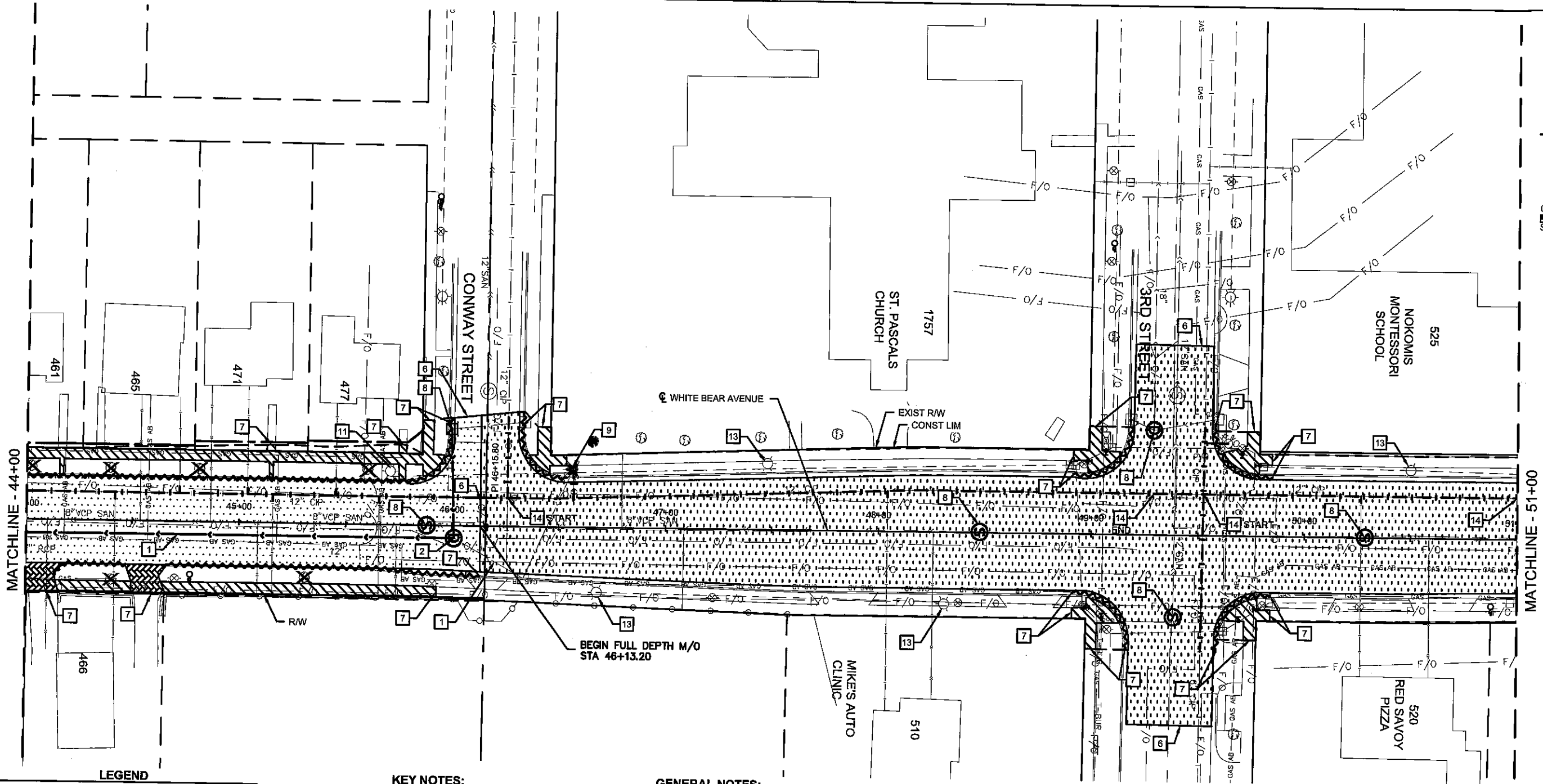
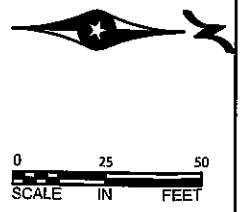


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**REMOVAL PLAN**  
**STA. 37+00 TO 44+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
37  
OF  
145  
SHEETS

Data File: 2/18/2018  
WSB File: 164-020-138-000-C-REMO-PLAN.dwg



**LEGEND**

- REMOVE CURB AND GUTTER (CONCRETE)
- REMOVE STORM SEWER
- REMOVE WATER MAIN
- CONSTRUCTION LIMITS
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- CLEARING & GRUBBING (TREE)
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CONCRETE DRIVEWAY PAVEMENT
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- PAVEMENT REPLACEMENT

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- 9 REMOVE HYDRANT
- 10 REMOVE UTILITY VAULT (WATER)
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**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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DANILO S. SOSA, P.E.  
DATE: 02/17/2018 LIC. NO.: 49048



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Minneapolis, MN 55416  
Tel: (783) 641-4800 - Fax: (783) 641-1700  
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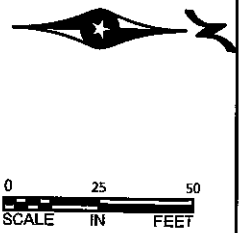
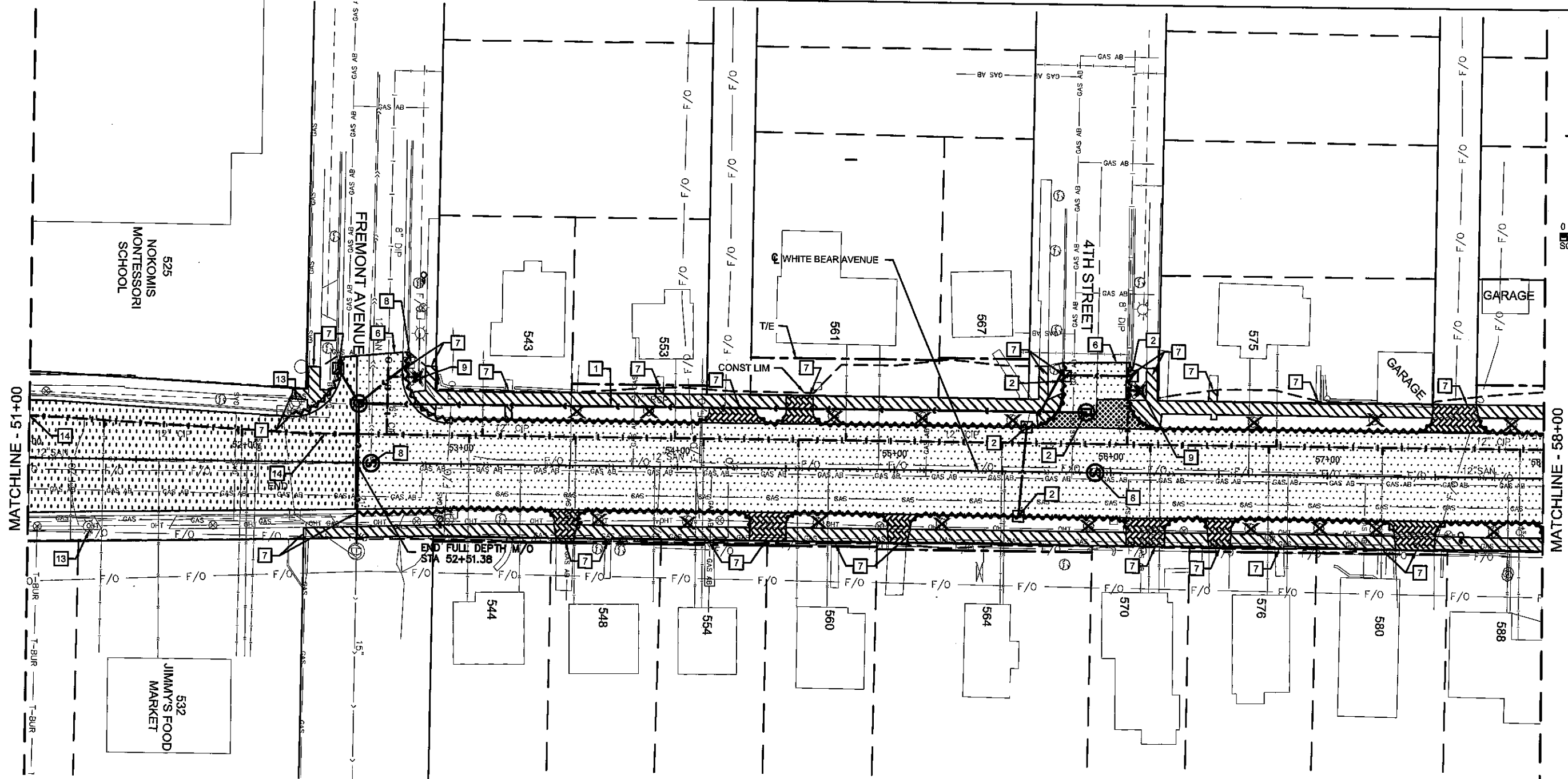


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**REMOVAL PLAN**  
**STA. 44+00 TO 51+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
38  
OF  
145  
SHEETS

Date Plotted: 2/16/2018  
WSB File Name: K:\313186\_000\Cadd\Plan\018-000-C-REMO-PLAN.dwg



- LEGEND**
- REMOVE CURB AND GUTTER (CONCRETE)
  - REMOVE STORM SEWER
  - REMOVE WATER MAIN
  - CONSTRUCTION LIMITS
  - TEMPORARY EASEMENT
  - PERMANENT EASEMENT
  - CLEARING & GRUBBING (TREE)
  - REMOVE CONCRETE WALK
  - REMOVE BITUMINOUS DRIVEWAY PAVEMENT
  - REMOVE CONCRETE DRIVEWAY PAVEMENT
  - REMOVE SPECIAL PAVEMENT
  - REMOVE CONCRETE PAVEMENT
  - PAVEMENT REPLACEMENT

- KEY NOTES:**
- 1 REMOVE STORM SEWER PIPE
  - 2 REMOVE MANHOLE OR CATCH BASIN
  - 3 RECONSTRUCT MANHOLE / CATCH BASIN
  - 4 REMOVE CASTING, NEW CASTING ASSEMBLY
  - 5 REMOVE OR RELOCATE EXISTING POWER POLE
  - 6 SAWCUT BITUMINOUS FULL DEPTH
  - 7 SAWCUT CONCRETE FULL DEPTH
  - 8 ADJUST CASTING
  - 9 REMOVE HYDRANT
  - 10 REMOVE UTILITY VAULT (WATER)
  - 11 REMOVE LIGHTING UNITS
  - 12 REMOVE LIGHTING UNITS (BY OTHERS)
  - 13 RETROFIT LIGHTING UNIT (BY OTHERS)
  - 14 PIPE BURST WATER MAIN
  - 15 REMOVE SIGN BASE

- GENERAL NOTES:**
1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
  2. EXACT LIMITS OF CLEARING & GRUBBING WILL BE STAKED IN THE FIELD.
  3. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE.
  4. SEE WATER MAIN AND SANITARY SEWER PLANS FOR MANHOLE ADJUSTMENTS.
  5. WATER SERVICE REMOVALS INCLUDE REMOVAL OF THE CURB STOP BOX (INCIDENTAL)
  6. SAWCUTS AT CURB/ SIDEWALKS ARE INCIDENTAL TO THE REMOVALS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date: 02/13/2018  
WSB File: 160118-001-CasPlan103-99-000-C-REMOPLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY:   
DANILO S. SOSKA, P.E.  
DATE: 02/17/2018 LIC. NO.: 49048

701 Xmas Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4900 - Fax: (763) 641-1700  
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**RAMSEY COUNTY**

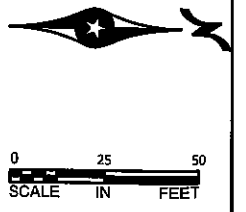
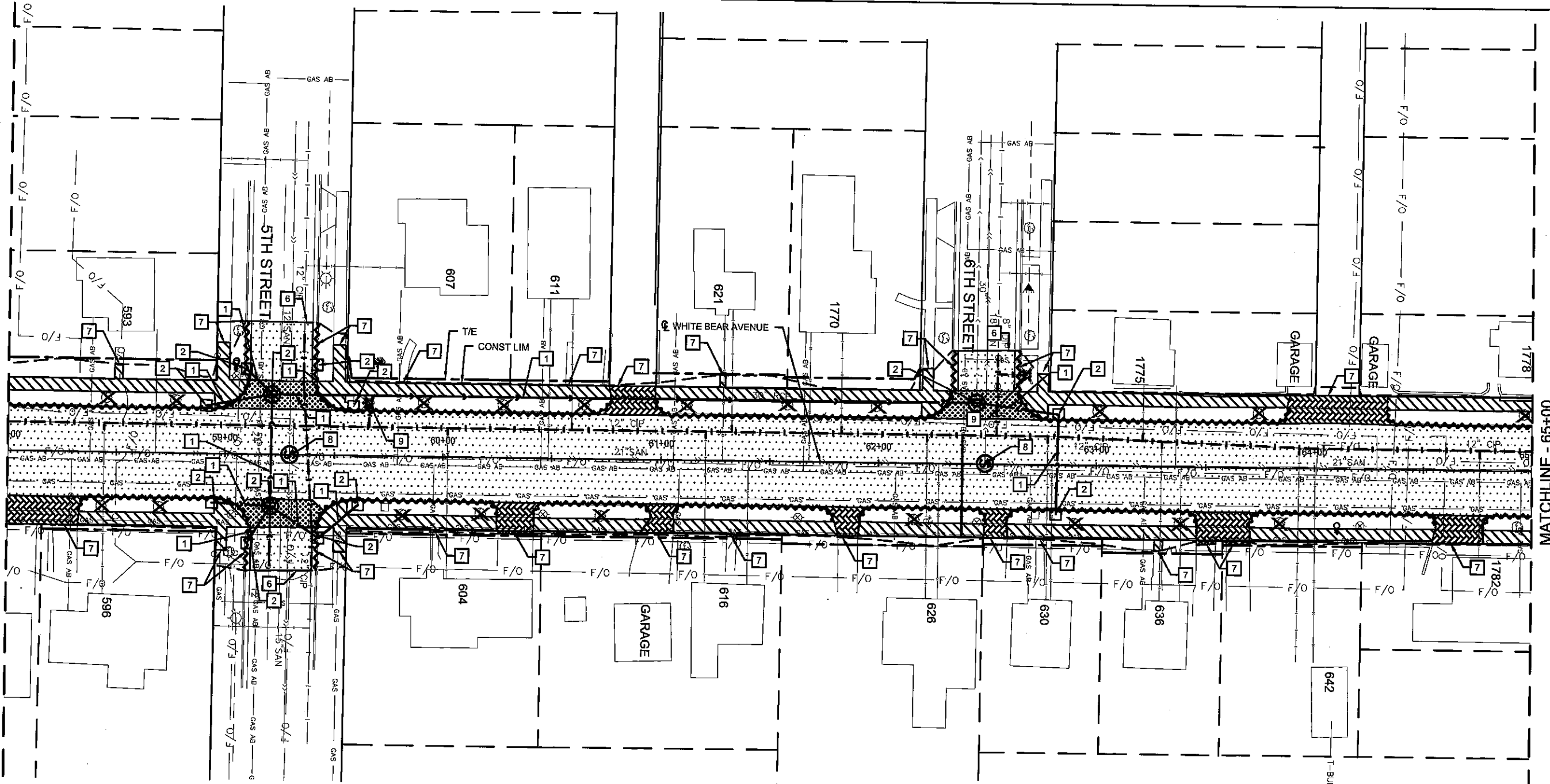
**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**REMOVAL PLAN**  
**STA. 51+00 TO 58+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**39**  
OF  
**145**  
SHEETS





MATCHLINE - 65+00

**LEGEND**

- REMOVE CURB AND GUTTER (CONCRETE)
- REMOVE STORM SEWER
- REMOVE WATER MAIN
- CONSTRUCTION LIMITS
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- CLEARING & GRUBBING (TREE)
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
- REMOVE CONCRETE DRIVEWAY PAVEMENT
- REMOVE SPECIAL PAVEMENT
- REMOVE CONCRETE PAVEMENT
- PAVEMENT REPLACEMENT

**KEY NOTES:**

- 1 REMOVE STORM SEWER PIPE
- 2 REMOVE MANHOLE OR CATCH BASIN
- 3 RECONSTRUCT MANHOLE / CATCH BASIN
- 4 REMOVE CASTING, NEW CASTING ASSEMBLY
- 5 REMOVE OR RELOCATE EXISTING POWER POLE
- 6 SAWCUT BITUMINOUS FULL DEPTH
- 7 SAWCUT CONCRETE FULL DEPTH
- 8 ADJUST CASTING
- 9 REMOVE HYDRANT
- 10 REMOVE UTILITY VAULT (WATER)
- 11 REMOVE LIGHTING UNITS
- 12 REMOVE LIGHTING UNITS (BY OTHERS)
- 13 RETROFIT LIGHTING UNIT (BY OTHERS)
- 14 PIPE BURST WATER MAIN
- 15 REMOVE SIGN BASE

**GENERAL NOTES:**

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. EXACT LIMITS OF CLEARING & GRUBBING WILL BE STAKED IN THE FIELD.
3. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE.
4. SEE WATER MAIN AND SANITARY SEWER PLANS FOR MANHOLE ADJUSTMENTS.
5. WATER SERVICE REMOVALS INCLUDE REMOVAL OF THE CURB STOP BOX (INCIDENTAL)
6. SAWCUTS AT CURB/ SIDEWALKS ARE INCIDENTAL TO THE REMOVALS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: DANILLO S. SORA, JR. PE DATE: 02/17/2018 LIC. NO.: 49046
PLAN BY:	ERW	
CHECKED BY:	JLB	
APPROVED BY:	DSS	



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Minneapolis, MN 55416  
Tel: (763) 641-4800 • Fax (763) 641-1700  
wsb.org

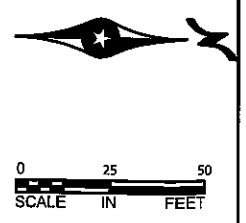
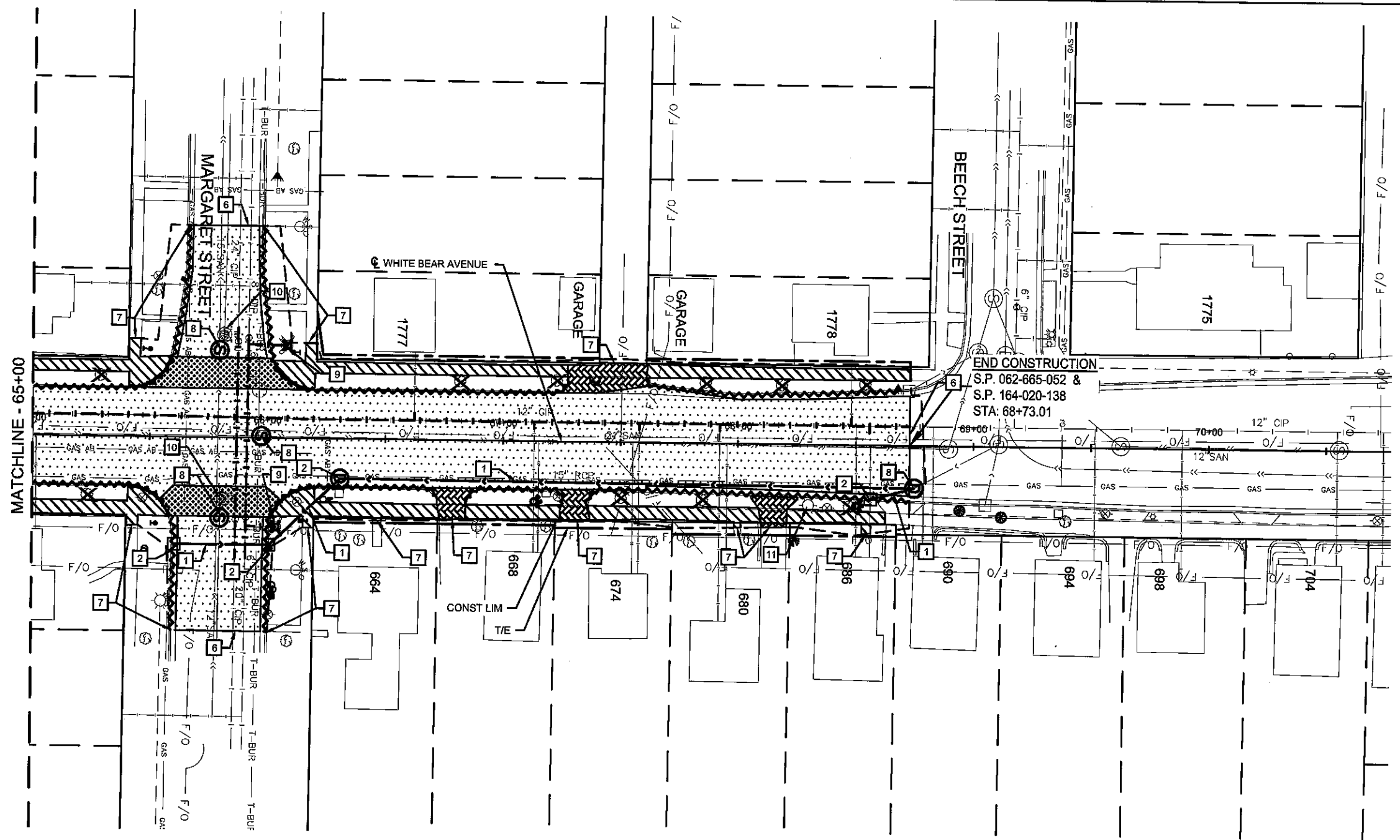


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

<b>RAMSEY COUNTY, MINNESOTA</b>
<b>REMOVAL PLAN</b>
<b>STA. 58+00 TO 65+00</b>
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
40  
OF  
145  
SHEETS

Date Plotted: 2/16/2018  
WSB Filename: K:\318-000\Cad\Plan\03180-000-C-REMO-PLAN.dwg



**LEGEND**

- REMOVE CURB AND GUTTER (CONCRETE)
- REMOVE STORM SEWER
- REMOVE WATER MAIN
- CONSTRUCTION LIMITS
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- CLEARING & GRUBBING (TREE)
- REMOVE CONCRETE WALK
- REMOVE BITUMINOUS DRIVEWAY PAVEMENT
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- REMOVE CONCRETE PAVEMENT
- PAVEMENT REPLACEMENT

**KEY NOTES:**

- 1 REMOVE STORM SEWER PIPE
- 2 REMOVE MANHOLE OR CATCH BASIN
- 3 RECONSTRUCT MANHOLE / CATCH BASIN
- 4 REMOVE CASTING, NEW CASTING ASSEMBLY
- 5 REMOVE OR RELOCATE EXISTING POWER POLE
- 6 SAWCUT BITUMINOUS FULL DEPTH
- 7 SAWCUT CONCRETE FULL DEPTH
- 8 ADJUST CASTING
- 9 REMOVE HYDRANT
- 10 REMOVE UTILITY VAULT (WATER)
- 11 REMOVE LIGHTING UNITS
- 12 REMOVE LIGHTING UNITS (BY OTHERS)
- 13 RETROFIT LIGHTING UNIT (BY OTHERS)
- 14 PIPE BURST WATER MAIN
- 15 REMOVE SIGN BASE

**GENERAL NOTES:**

1. REMOVAL OF ALL AGGREGATE SURFACING REGARDLESS OF THICKNESS SHALL BE INCLUDED IN COMMON EXCAVATION.
2. EXACT LIMITS OF CLEARING & GRUBBING WILL BE STAKED IN THE FIELD.
3. ALL REMOVAL ITEMS SHALL BE DISPOSED OF OFF THE PROJECT SITE.
4. SEE WATER MAIN AND SANITARY SEWER PLANS FOR MANHOLE ADJUSTMENTS.
5. WATER SERVICE REMOVALS INCLUDE REMOVAL OF THE CURB STOP BOX (INCIDENTAL).
6. SAWCUTS AT CURB/ SIDEWALKS ARE INCIDENTAL TO THE REMOVALS

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DANILLO S. SOUSA, JR. PE DATE: 02/17/2016 UC. No.: 49048
PLAN BY:	ERW	
CHECKED BY:	JLB	
APPROVED BY:	DSS	

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 Minneapolis, MN 55416

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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

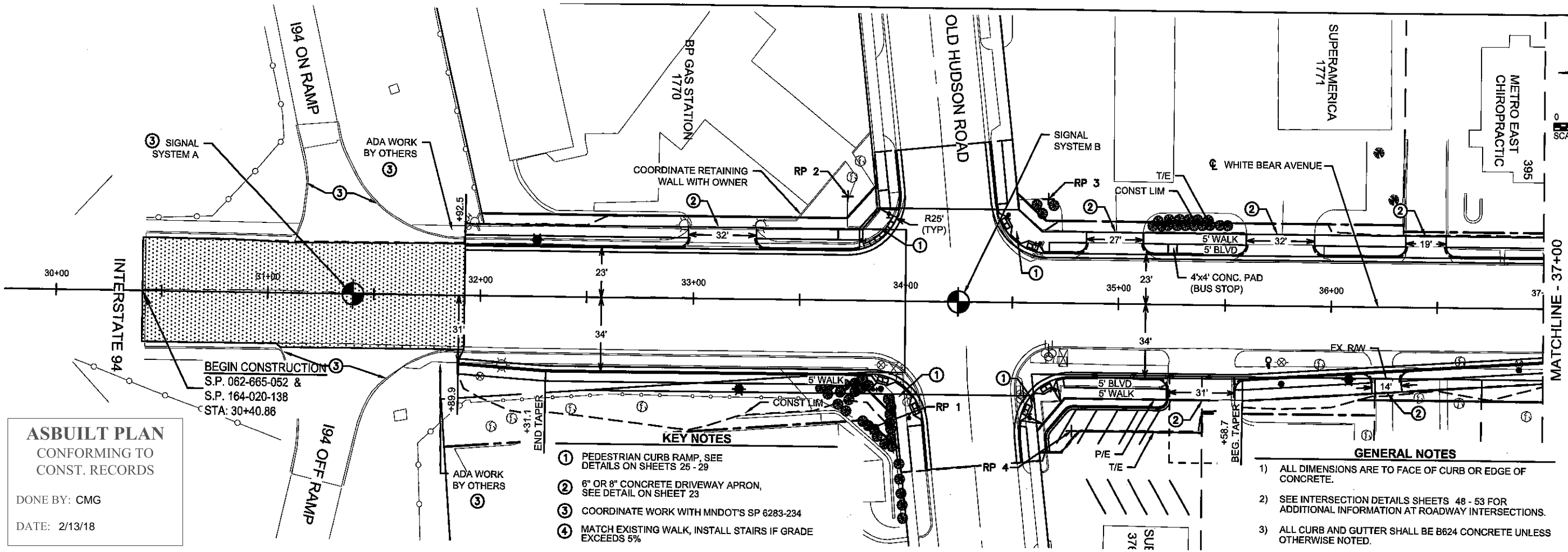
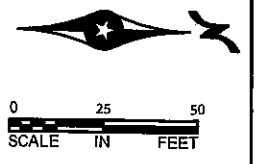
**REMOVAL PLAN**

**STA. 65+00 TO 70+00**

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 41  
 OF  
 145  
 SHEETS

Date Printed: 2/16/2018  
 WSB Filename: K:\03189-020-ClearPlan\03189-020-C-REMO-PLAN.dwg



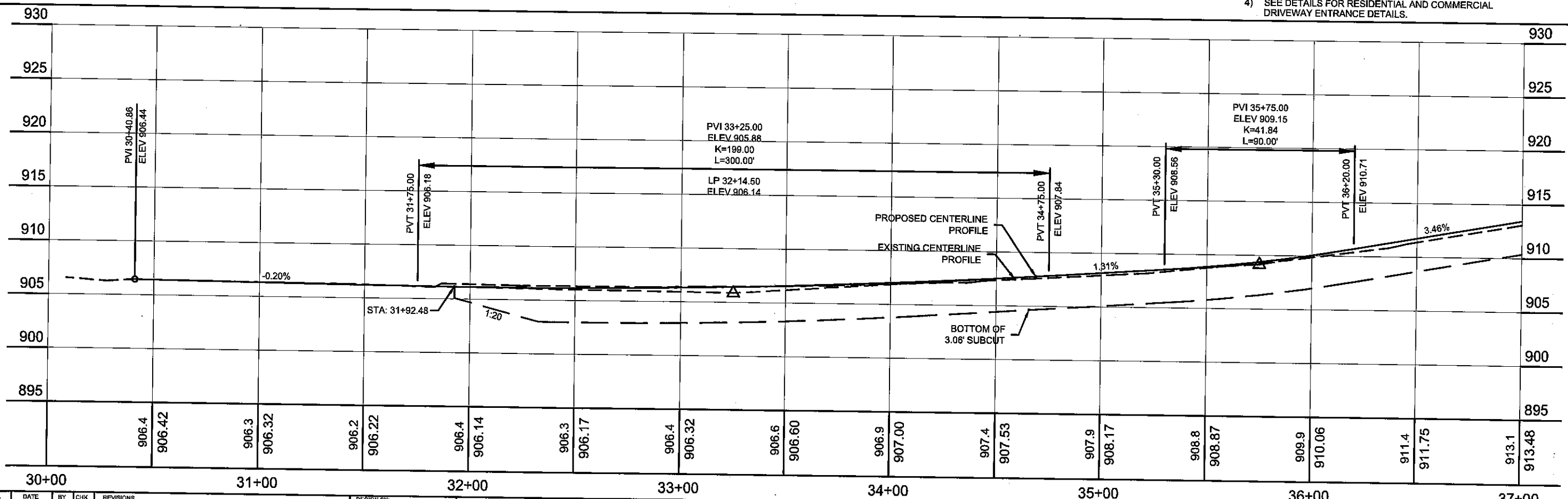
**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

BEGIN CONSTRUCTION  
S.P. 062-665-052 &  
S.P. 164-020-138  
STA: 30+40.86

- KEY NOTES**
- ① PEDESTRIAN CURB RAMP, SEE DETAILS ON SHEETS 25 - 29
  - ② 6" OR 8" CONCRETE DRIVEWAY APRON, SEE DETAIL ON SHEET 23
  - ③ COORDINATE WORK WITH MNDOT'S SP 6283-234
  - ④ MATCH EXISTING WALK, INSTALL STAIRS IF GRADE EXCEEDS 5%

- GENERAL NOTES**
- 1) ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF CONCRETE.
  - 2) SEE INTERSECTION DETAILS SHEETS 48 - 53 FOR ADDITIONAL INFORMATION AT ROADWAY INTERSECTIONS.
  - 3) ALL CURB AND GUTTER SHALL BE B624 CONCRETE UNLESS OTHERWISE NOTED.
  - 4) SEE DETAILS FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY ENTRANCE DETAILS.



Date Plotted: 2/17/2016  
WSB Filename: K:\31189-000-Civil\Plan\03189-000-C-CONST-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

DATE: 02/17/2016  
LIC. NO.: 49048

**WSB**  
701 Xerxes Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (783) 641-4800 - Fax: (783) 641-1700  
wsbang.com

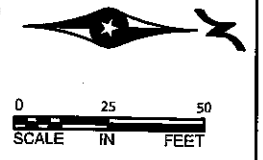
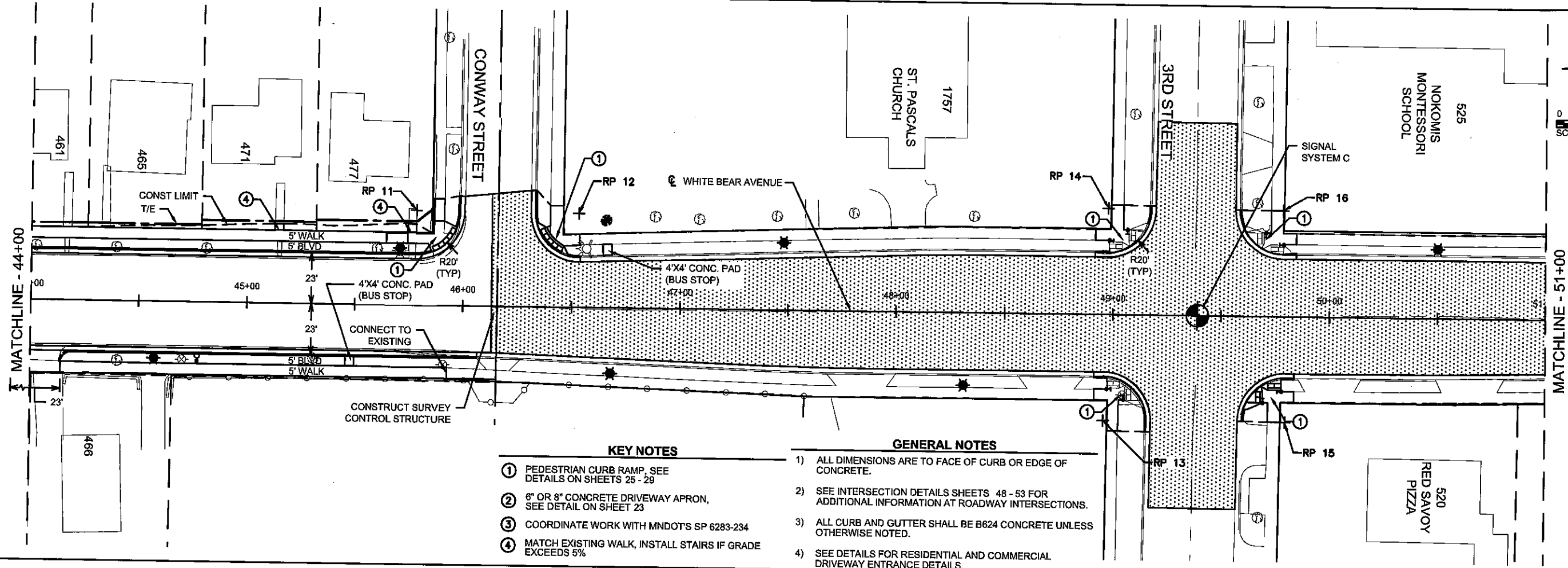
**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

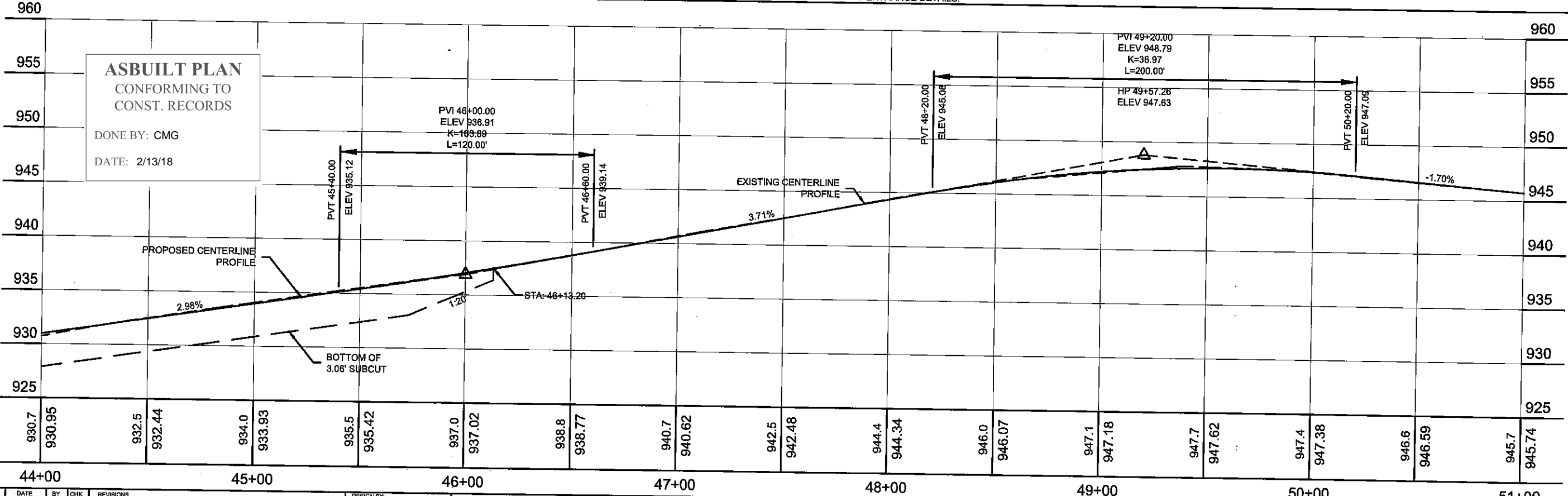
**RAMSEY COUNTY, MINNESOTA**  
**CONSTRUCTION PLAN AND PROFILE**  
**STA. 30+00 TO 37+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
42  
OF  
145  
SHEETS





- KEY NOTES**
- ① PEDESTRIAN CURB RAMP. SEE DETAILS ON SHEETS 25 - 29
  - ② 6" OR 8" CONCRETE DRIVEWAY APRON, SEE DETAIL ON SHEET 23
  - ③ COORDINATE WORK WITH MNDOT'S SP 6283-234
  - ④ MATCH EXISTING WALK, INSTALL STAIRS IF GRADE EXCEEDS 5%
- GENERAL NOTES**
- 1) ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF CONCRETE.
  - 2) SEE INTERSECTION DETAILS SHEETS 48 - 53 FOR ADDITIONAL INFORMATION AT ROADWAY INTERSECTIONS.
  - 3) ALL CURB AND GUTTER SHALL BE B624 CONCRETE UNLESS OTHERWISE NOTED.
  - 4) SEE DETAILS FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY ENTRANCE DETAILS.



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/17/2016  
 WSB Filename: K303169-000-CadPlan03169-020-C-CONST-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIL S. SOSA, JR., PE  
 DATE: 02/17/2016 LIC. NO.: 49048

**WSB**

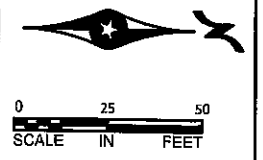
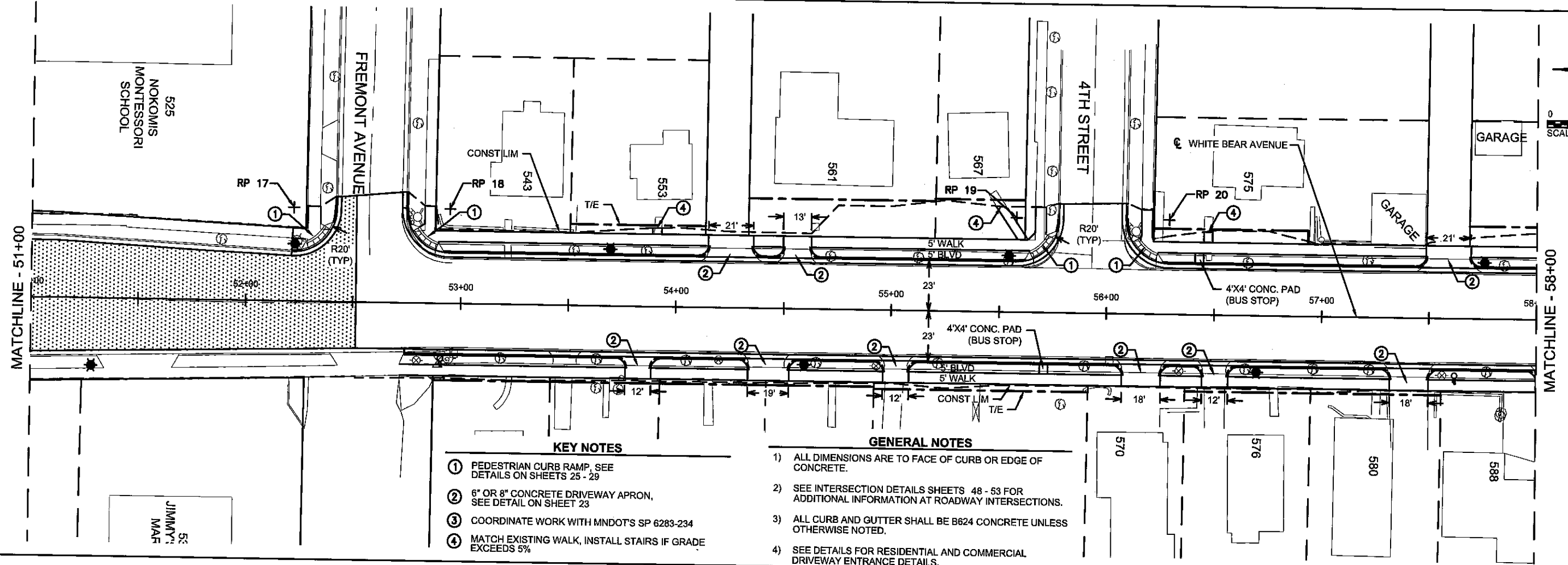
701 Xerox Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
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**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

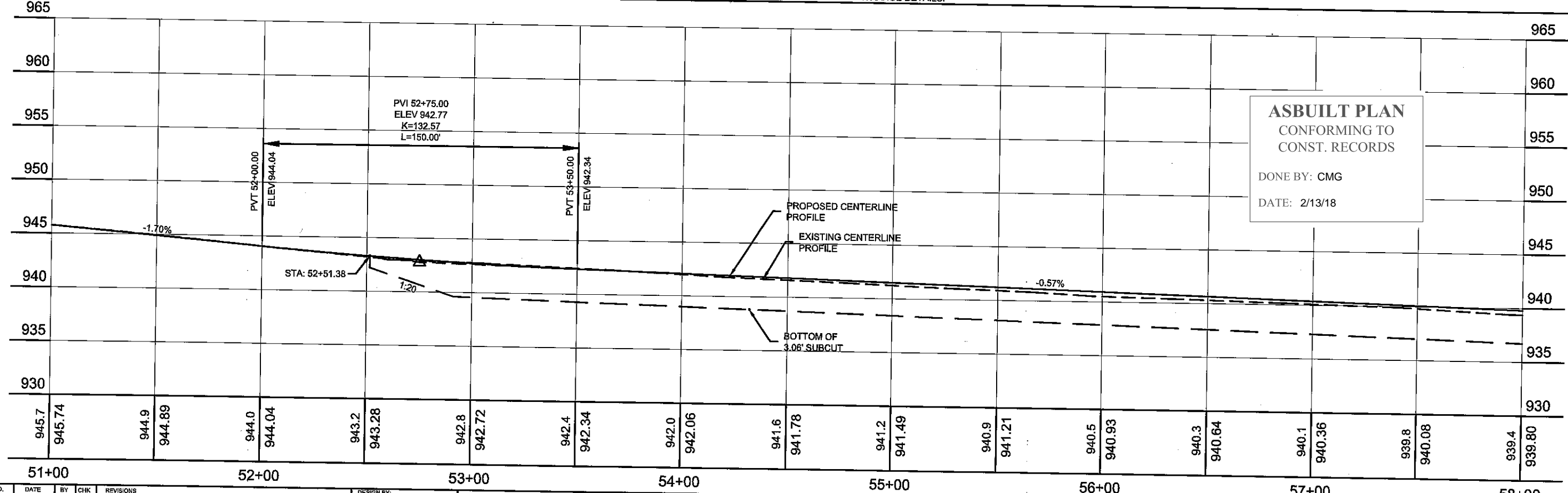
**RAMSEY COUNTY, MINNESOTA**  
**CONSTRUCTION PLAN AND PROFILE**  
**STA. 44+00 TO 51+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 44  
 OF  
 145  
 SHEETS



- KEY NOTES**
- ① PEDESTRIAN CURB RAMP, SEE DETAILS ON SHEETS 25 - 29
  - ② 6" OR 8" CONCRETE DRIVEWAY APRON, SEE DETAIL ON SHEET 23
  - ③ COORDINATE WORK WITH MNDOT'S SP 6283-234
  - ④ MATCH EXISTING WALK, INSTALL STAIRS IF GRADE EXCEEDS 5%

- GENERAL NOTES**
- 1) ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF CONCRETE.
  - 2) SEE INTERSECTION DETAILS SHEETS 48 - 53 FOR ADDITIONAL INFORMATION AT ROADWAY INTERSECTIONS.
  - 3) ALL CURB AND GUTTER SHALL BE B624 CONCRETE UNLESS OTHERWISE NOTED.
  - 4) SEE DETAILS FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY ENTRANCE DETAILS.



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
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CERTIFIED BY: *[Signature]*  
 DANILO S. BOGA, P.E.  
 DATE: 02/17/2018  
 LIC. NO.: 49048

**WSB**

701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4890 - Fax: (763) 541-1700  
 wsbny.com

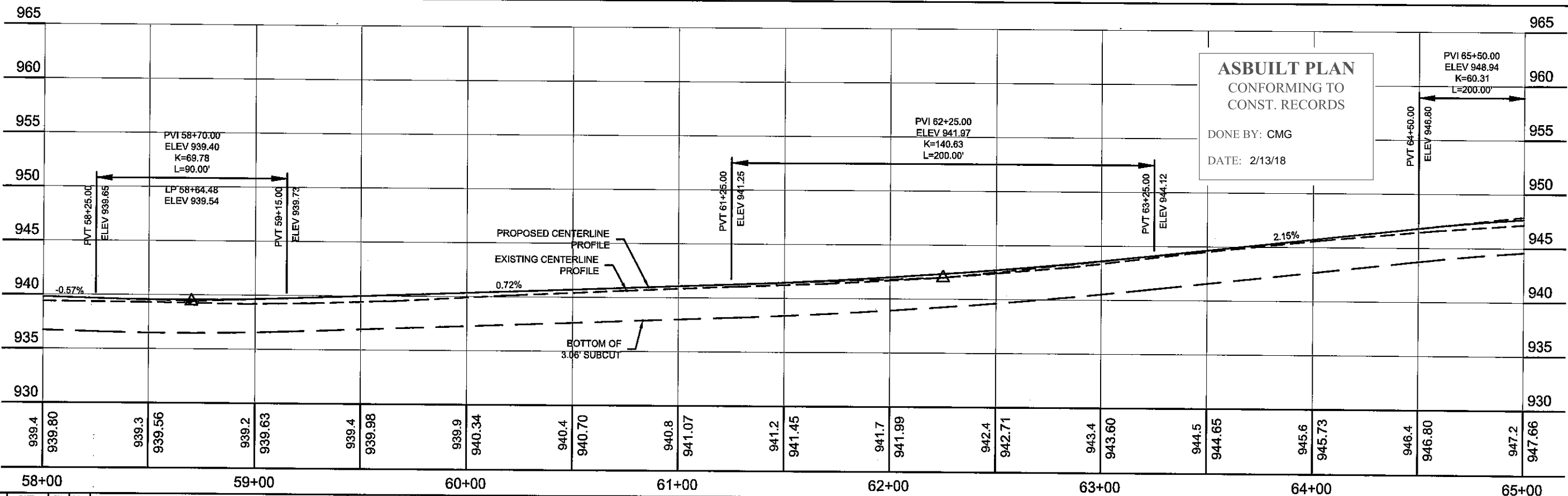
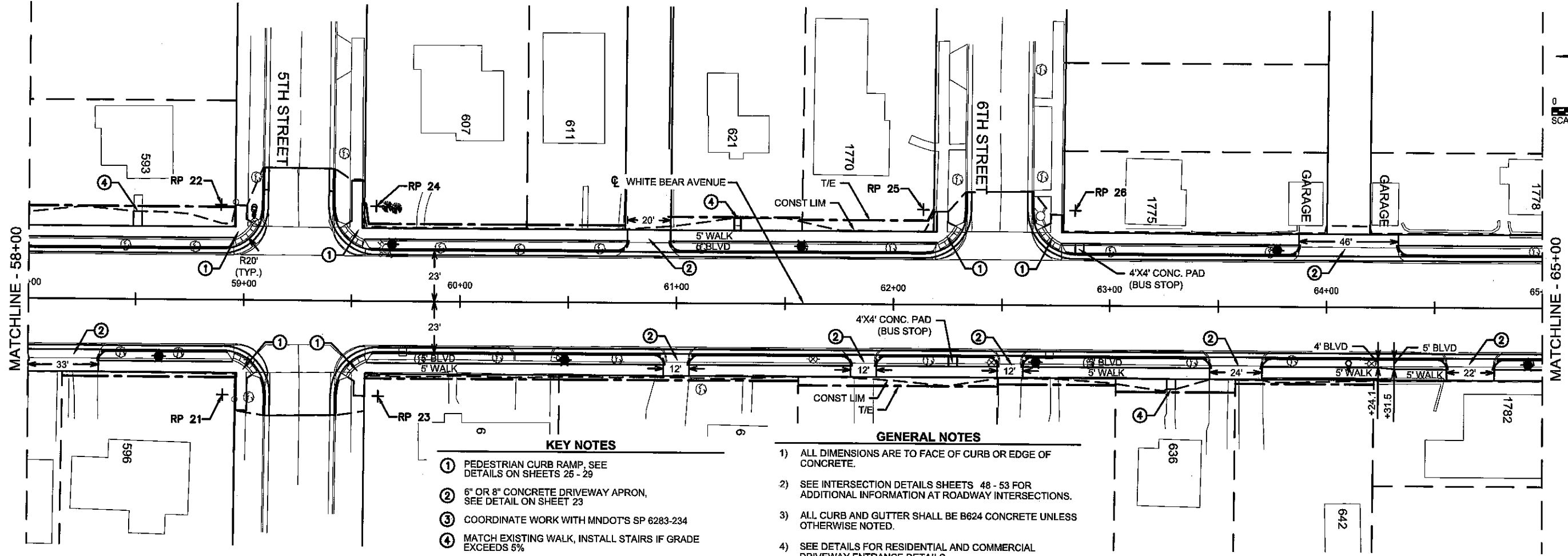
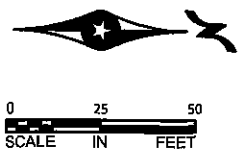
**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**CONSTRUCTION PLAN AND PROFILE**  
**STA. 51+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 45  
 OF  
 145  
 SHEETS

Date Plotted: 2/17/2018  
 WSB Filename: K10318-000-C-CONSTR-PLAN.dwg



Date Plotted: 2/17/2018  
WSB Filename: K:\03189-000\Cad\Plan\03189-000-C-CONST-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL S. SOSA, JR. PE  
 DATE: 02/17/2018 LIC. NO. 49048

**WSB**

701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4800 - Fax: (783) 641-1700  
 wsbeng.com

**RAMSEY COUNTY**

**WHITE BEAR AVENUE STREET IMPROVEMENTS**

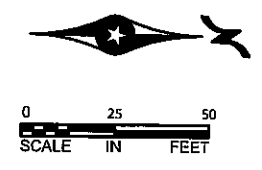
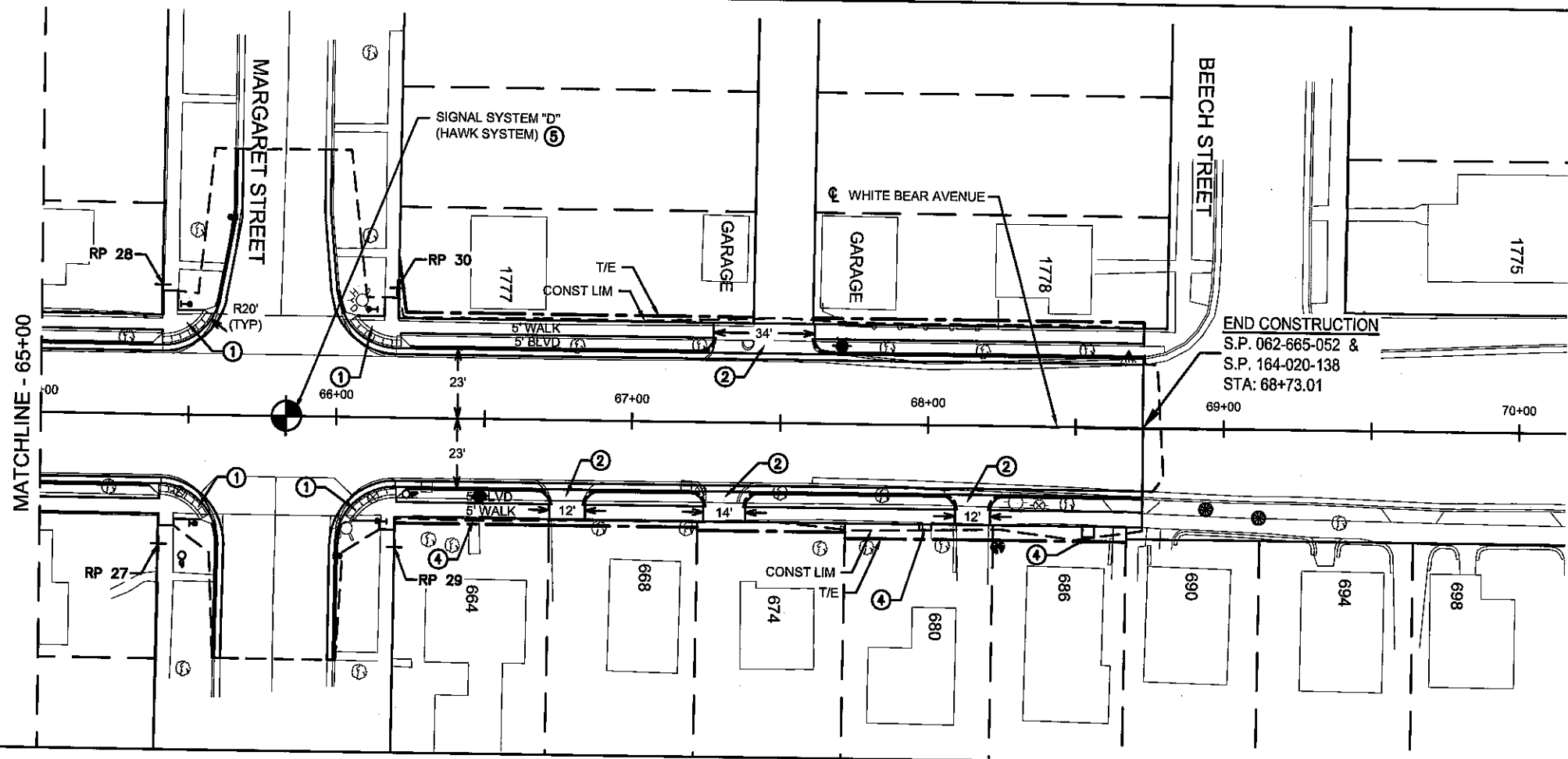
**RAMSEY COUNTY, MINNESOTA**

**CONSTRUCTION PLAN AND PROFILE**

**STA. 58+00 TO 65+00**

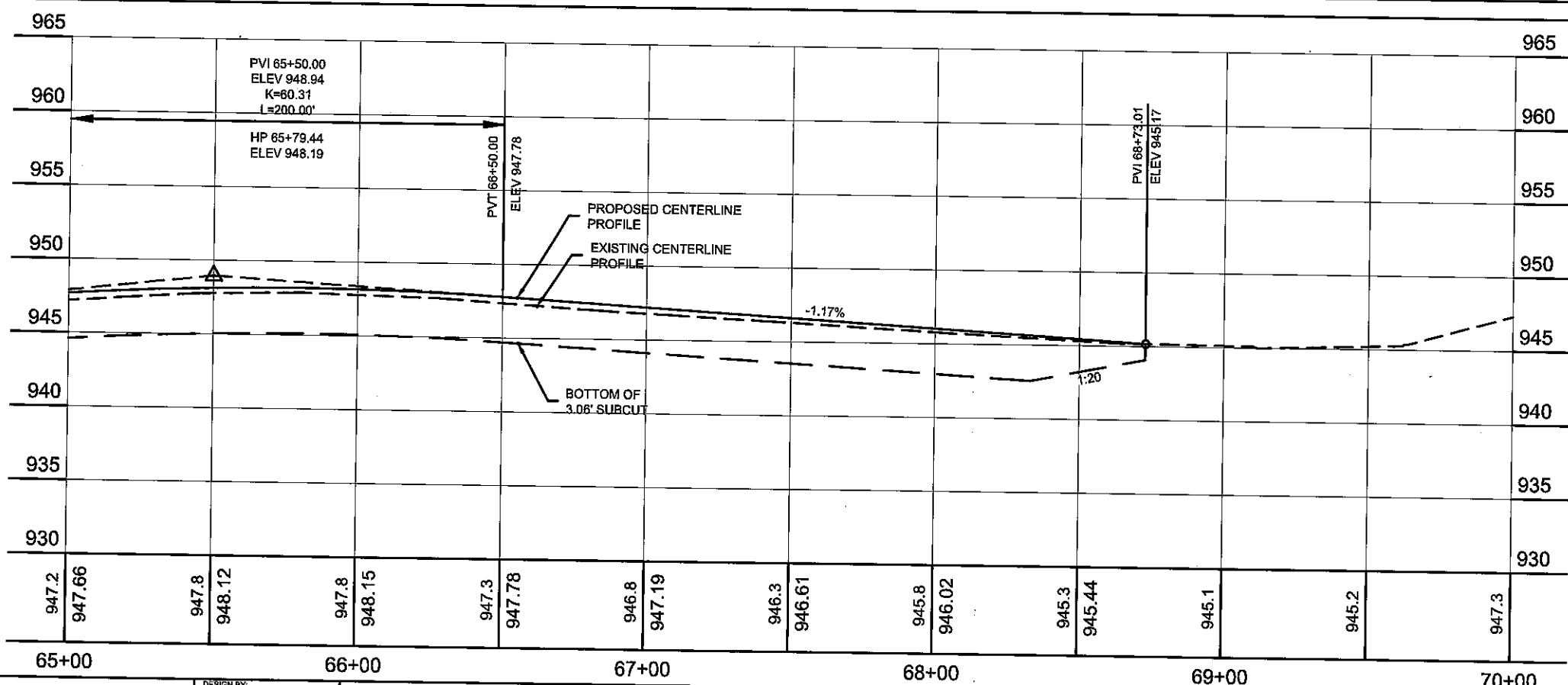
S.P. 062-665-052 / S.P. 164-020-138

SHEET 46 OF 145 SHEETS



- KEY NOTES**
- ① PEDESTRIAN CURB RAMP, SEE DETAILS ON SHEETS 25 - 29
  - ② 6" OR 8" CONCRETE DRIVEWAY APRON, SEE DETAIL ON SHEET 23
  - ③ COORDINATE WORK WITH MNDOT'S SP 6283-234
  - ④ MATCH EXISTING WALK, INSTALL STAIRS IF GRADE EXCEEDS 5%
  - ⑤ HAWK SYSTEM, SEE SIGNAL PLANS FOR DETAILS

- GENERAL NOTES**
- 1) ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF CONCRETE.
  - 2) SEE INTERSECTION DETAILS SHEETS 48 - 53 FOR ADDITIONAL INFORMATION AT ROADWAY INTERSECTIONS.
  - 3) ALL CURB AND GUTTER SHALL BE B624 CONCRETE UNLESS OTHERWISE NOTED.
  - 4) SEE DETAILS FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY ENTRANCE DETAILS.



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL S. SOGA, P.E.  
 DATE: 02/17/2018 LIC. NO. 49048

**WSB**

701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
 wsbeng.com

**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

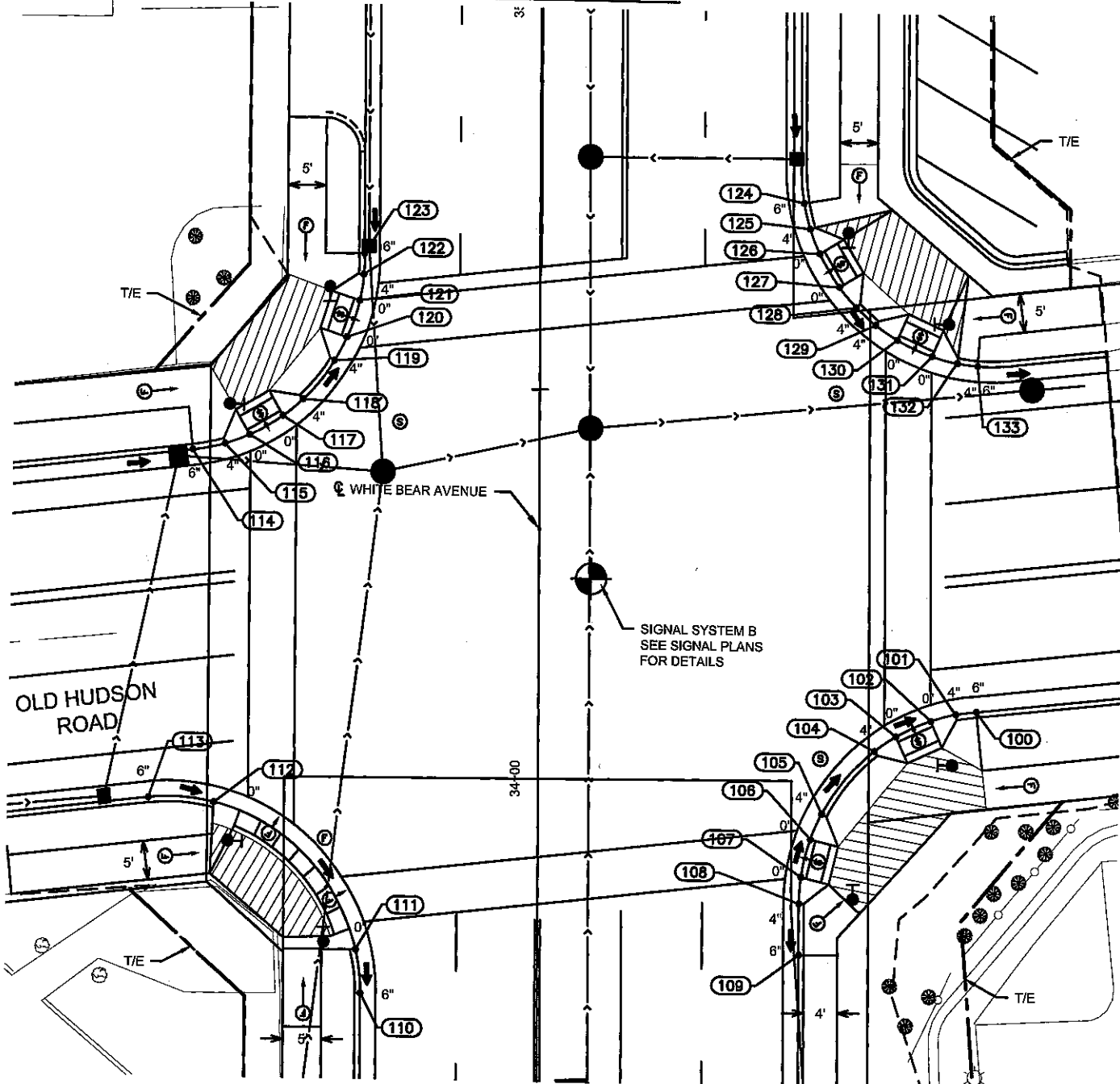
**RAMSEY COUNTY, MINNESOTA**  
**CONSTRUCTION PLAN AND PROFILE**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 47  
 OF  
 145  
 SHEETS

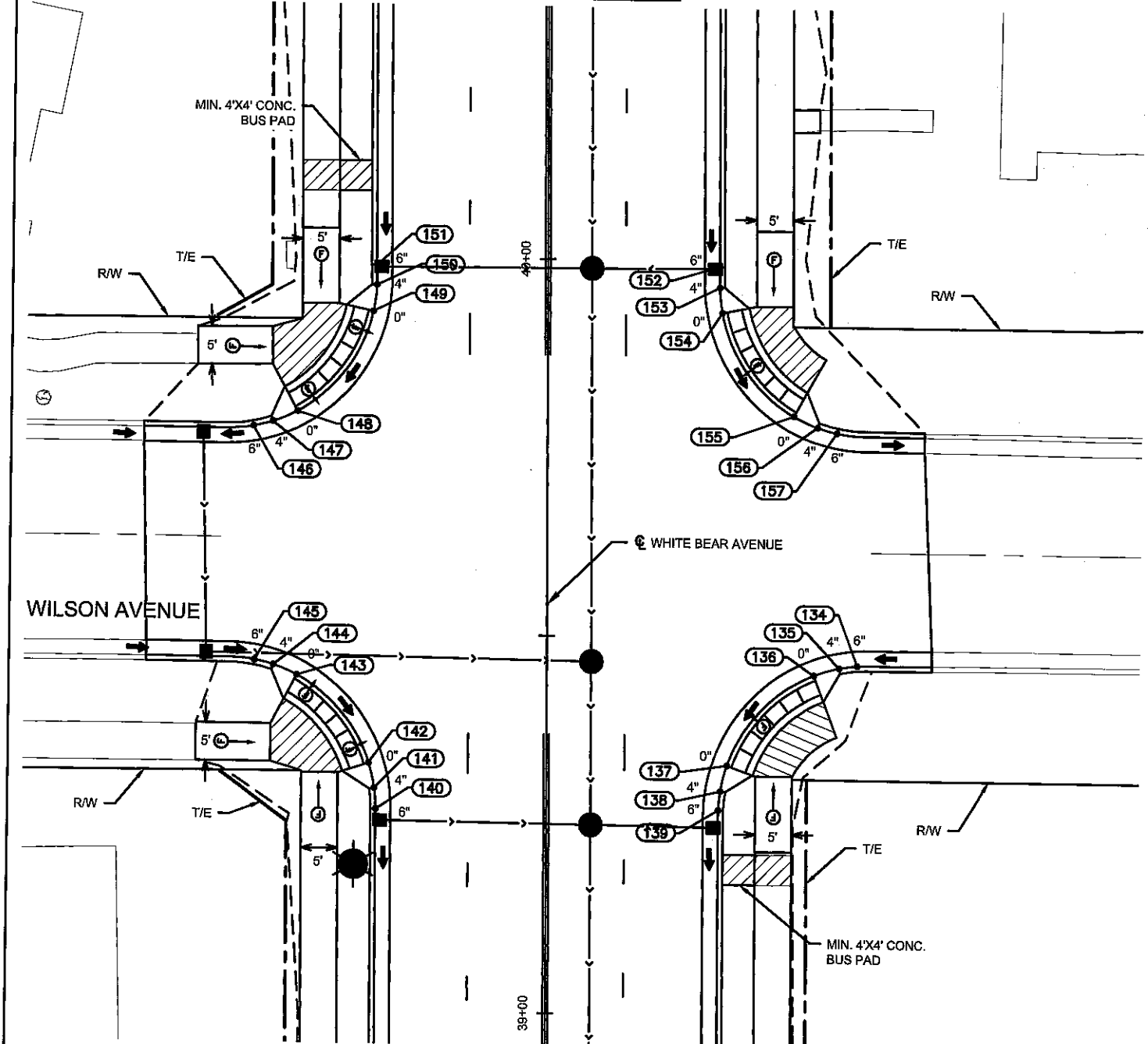
Date Plotted: 2/17/2018  
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**OLD HUDSON ROAD**

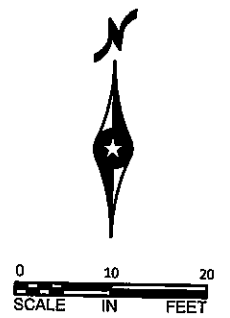


**WILSON AVENUE**



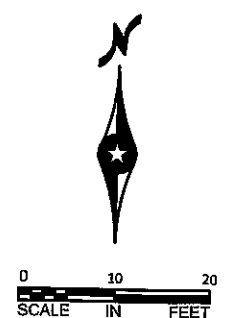
**LEGEND**

- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
- LANDING AREA - 4'X4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATED PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- LIGHT POLE FOUNDATION



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



Date Printed: 2/19/2018  
 WBS File Name: A:\1618-001\Cad\Plan\03186-000-C-CONS1-ENL.G.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILO S. SOSA, JR. PE  
 DATE: 02/17/2018 LIC. NO. 48048



701 Kenos Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 • Fax: (763) 541-1700  
 wsbeng.com



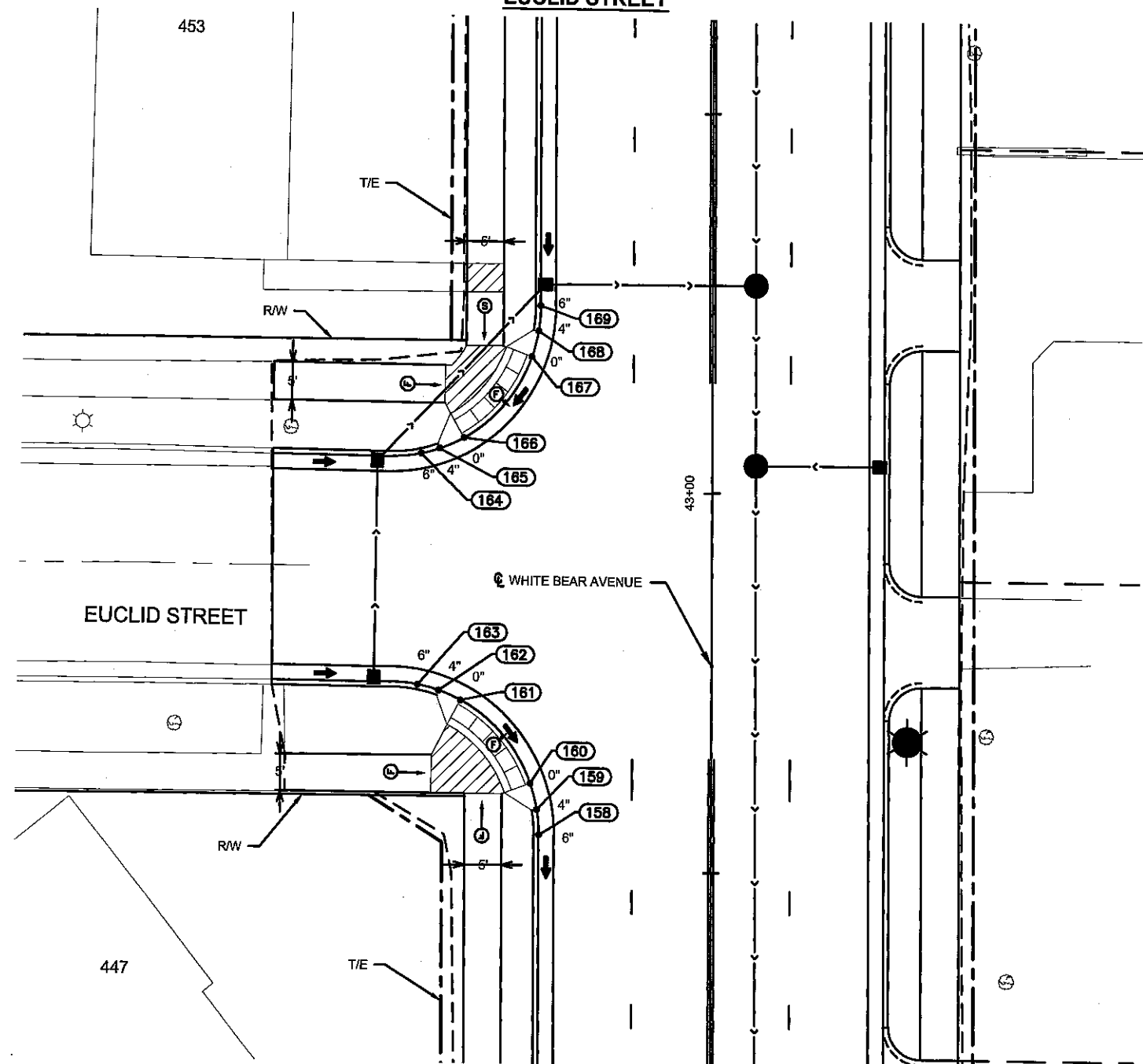
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

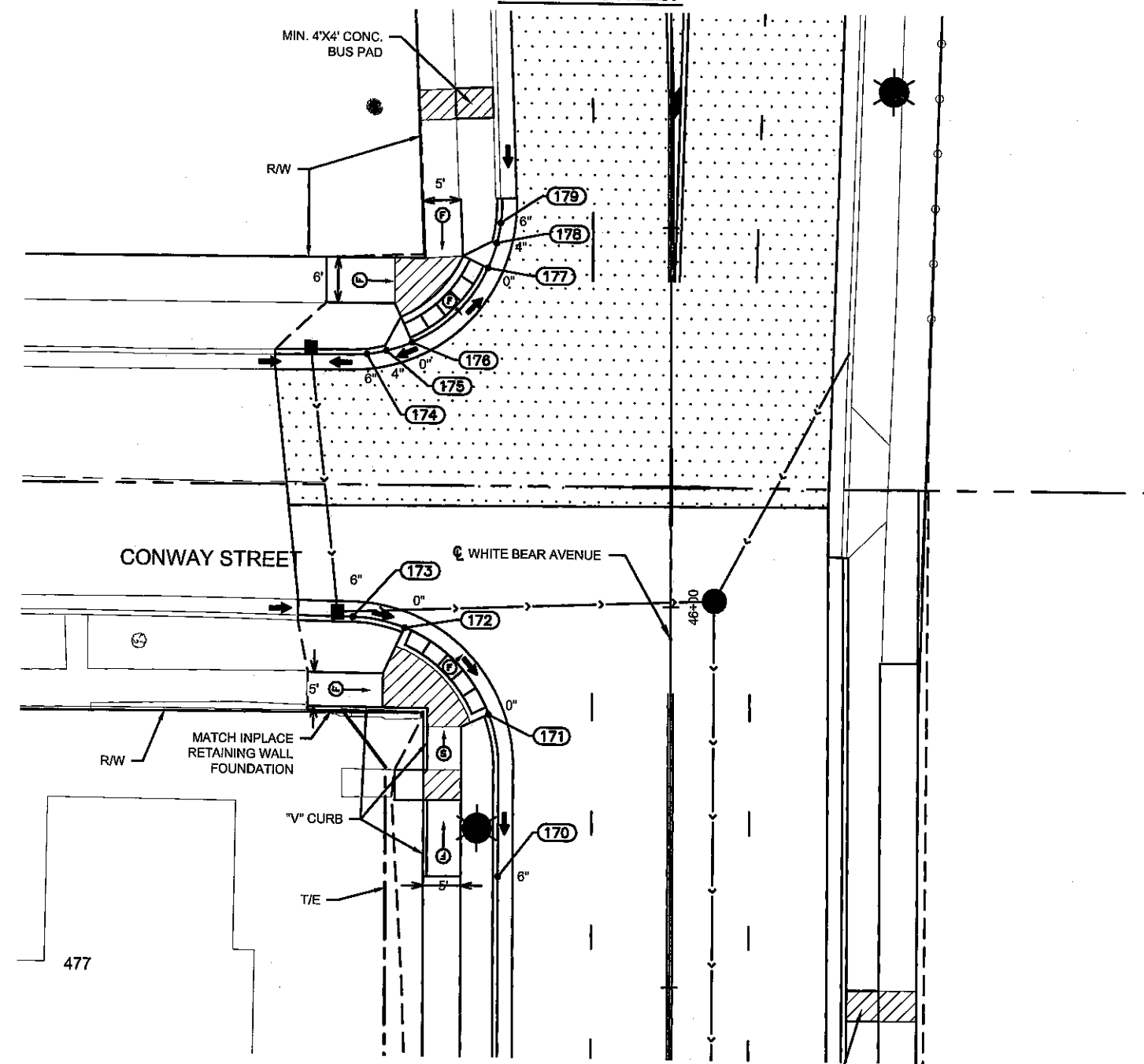
**INTERSECTION DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 48  
 OF  
 145  
 SHEETS

**EUCLID STREET**



**CONWAY STREET**



**LEGEND**

- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 703B)
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
- LANDING AREA - 4'X4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATED PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- LIGHT POLE FOUNDATION



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

DATE: 02/17/2016

IC. NO. 49048

721 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbeng.com

**WSB**

**RAMSEY COUNTY**

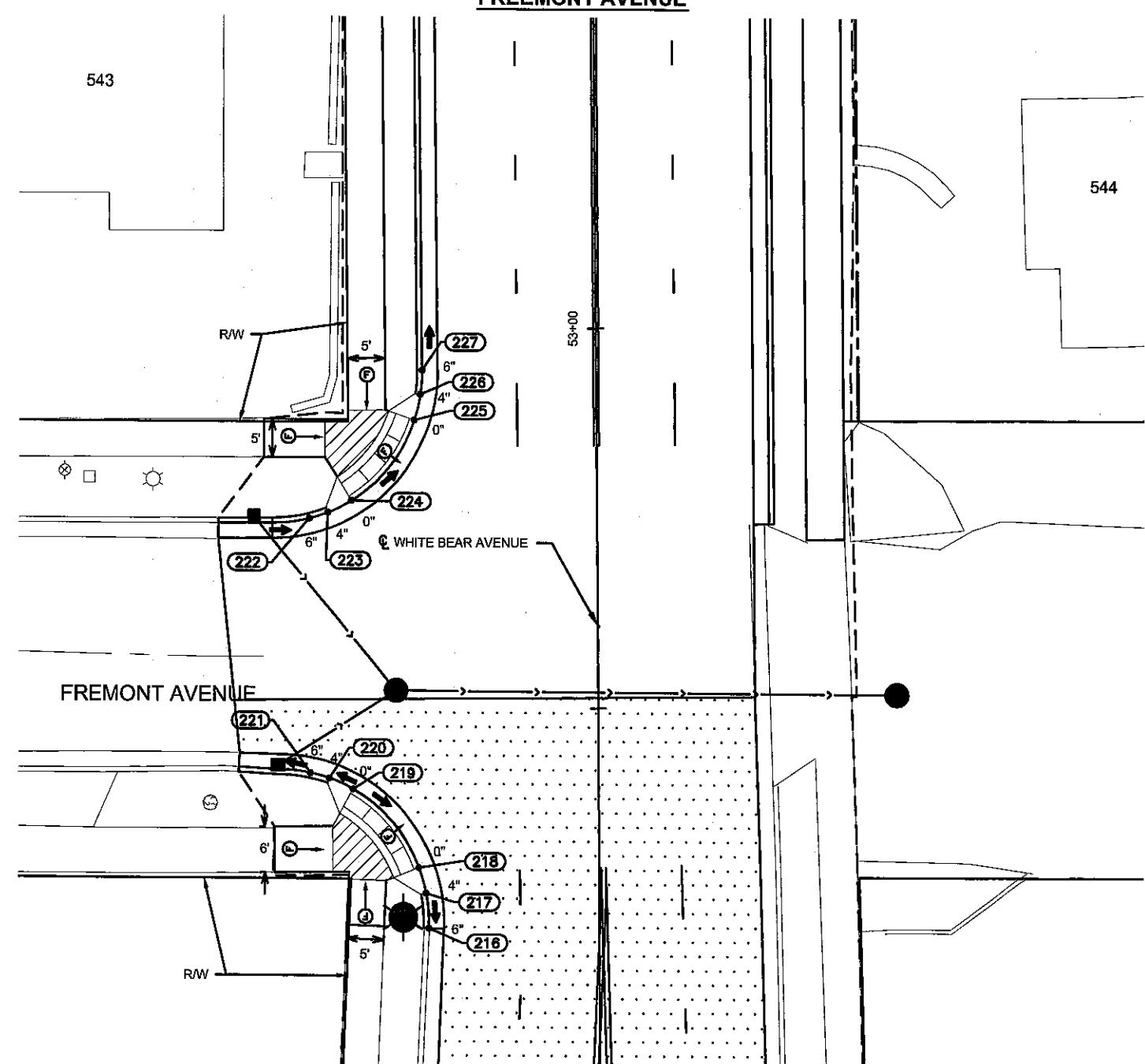
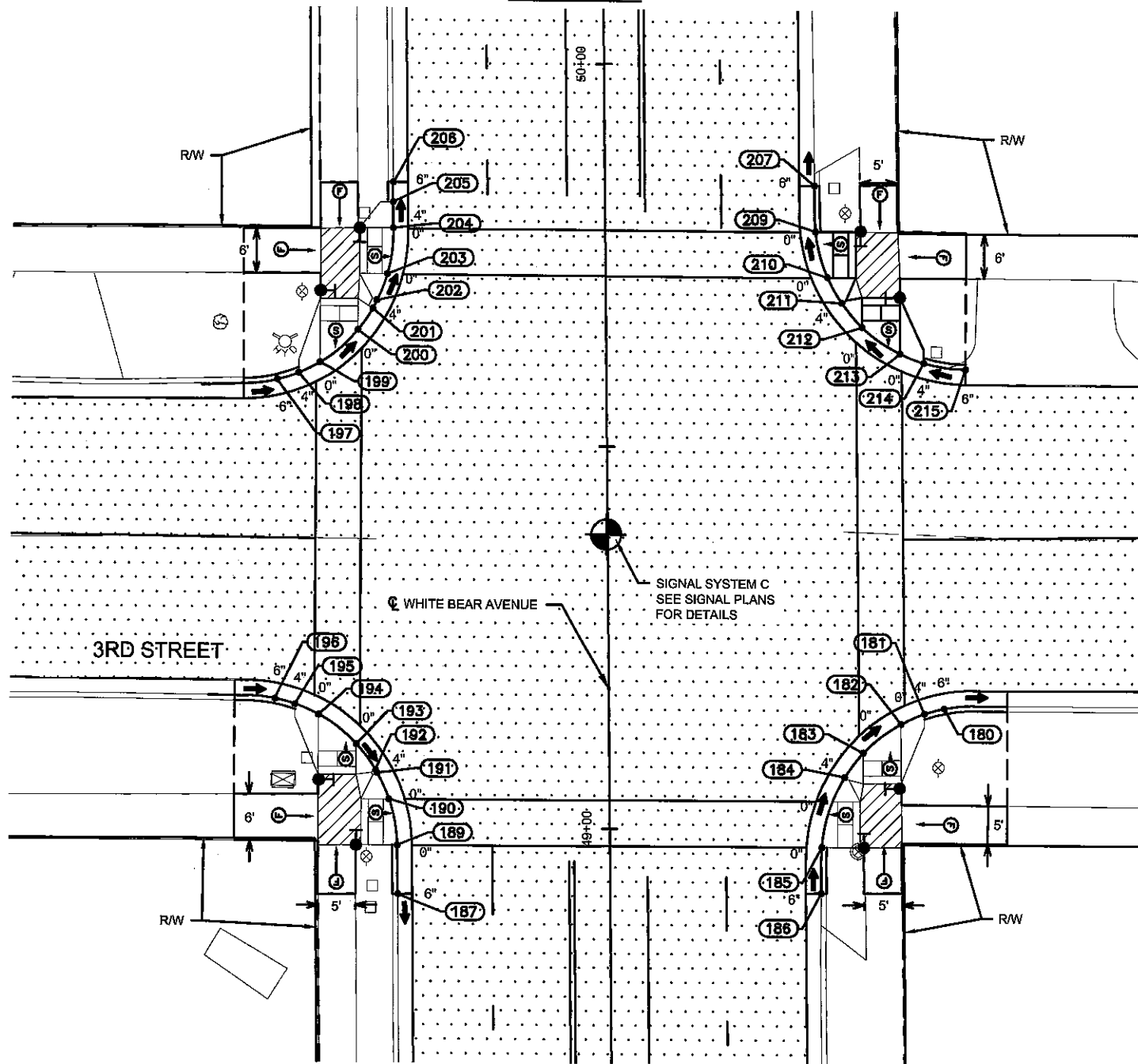
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**INTERSECTION DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**49**  
 OF  
**145**  
 SHEETS

Date Plotted: 2/19/2018  
 WBS Filename: K:\2018\02\18\021818-000-C-CONST-ENLG.dwg



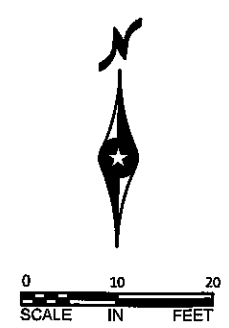
LEGEND

- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
- LANDING AREA - 4'X4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATED PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- LIGHT POLE FOUNDATION



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILO S. ROSA, P.E.  
 DATE: 02/17/2018 LIC. NO. 49048

701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsb.org.com

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

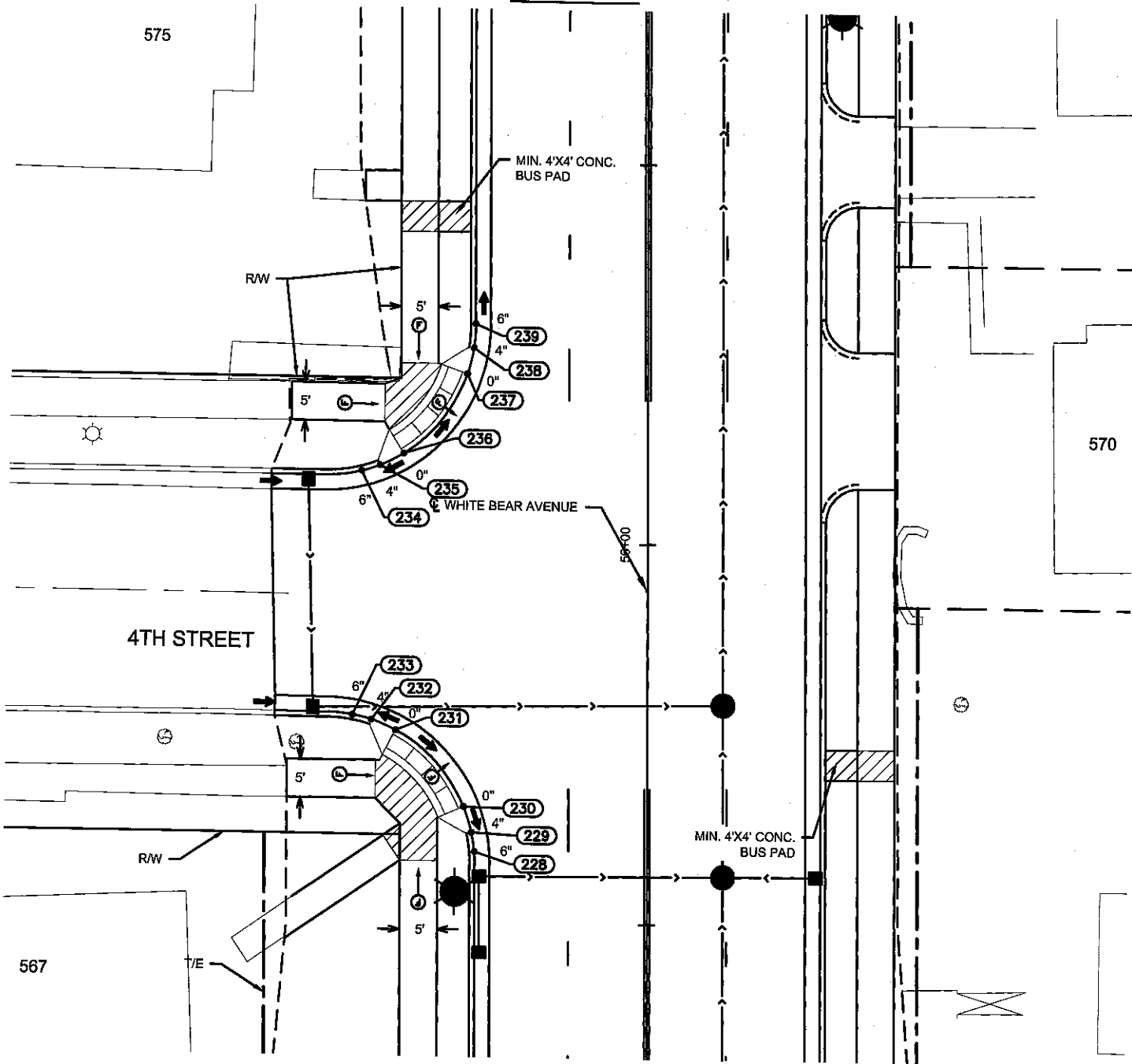
**RAMSEY COUNTY, MINNESOTA**

**INTERSECTION DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

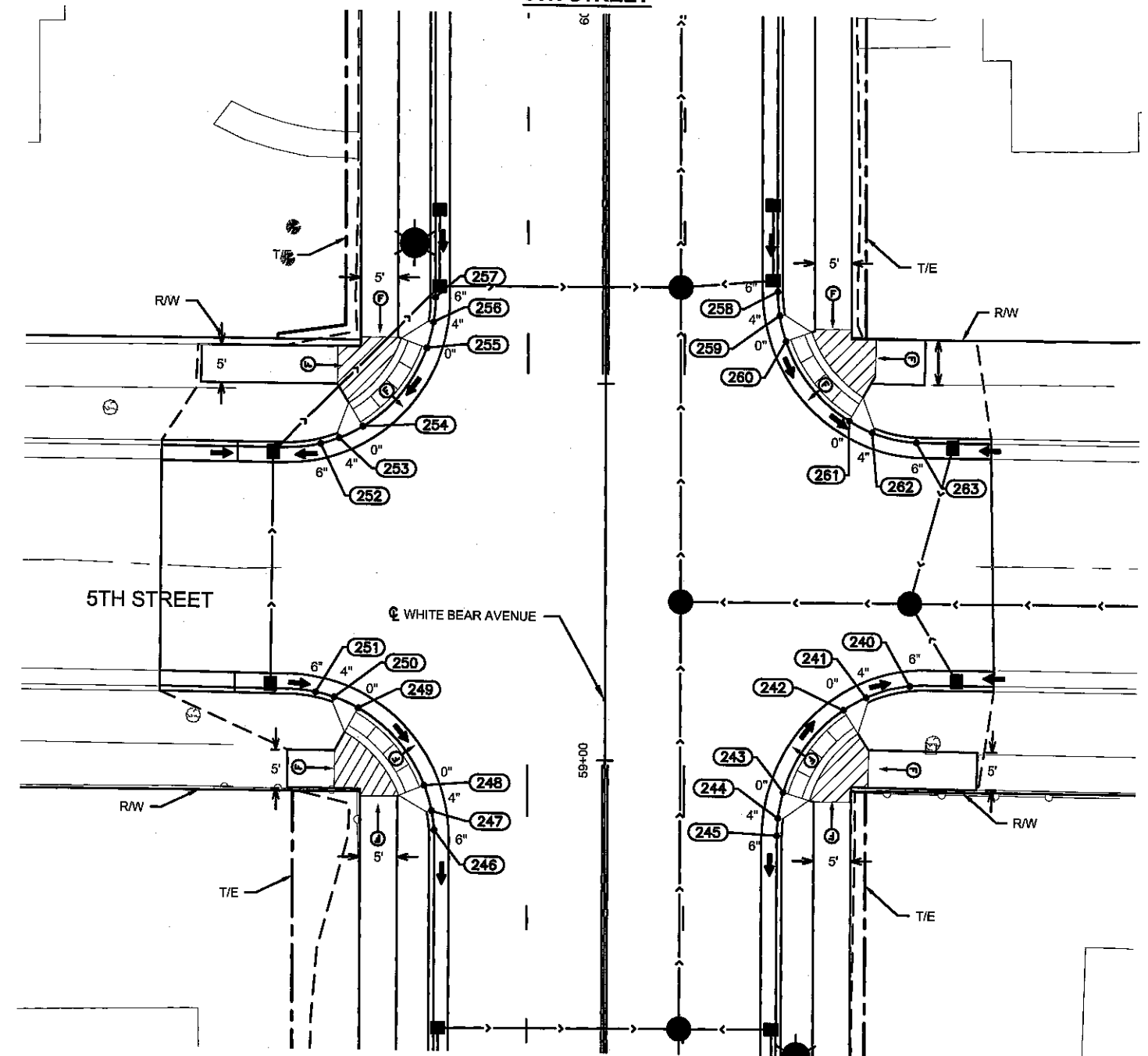
SHEET  
 50  
 OF  
 145  
 SHEETS

Date Plotted: 2/13/18  
 WSB File Name: \\WSB\GIS\Projects\1618-00-C-CONST\ENL05.dwg

4TH STREET

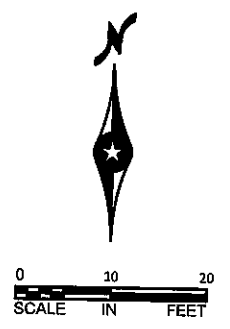


5TH STREET



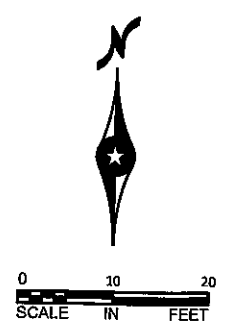
LEGEND

- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
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- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATED PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- LIGHT POLE FOUNDATION



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL D. SUSA, JR., P.E.  
 DATE: 02/17/2018 LIC. NO. 48048

781 Xerne Avenue South, Suite 303  
 Minneapolis, MN 55416  
 Tel: 773-541-4800 - Fax: 773-541-1700  
 wsbeng.com

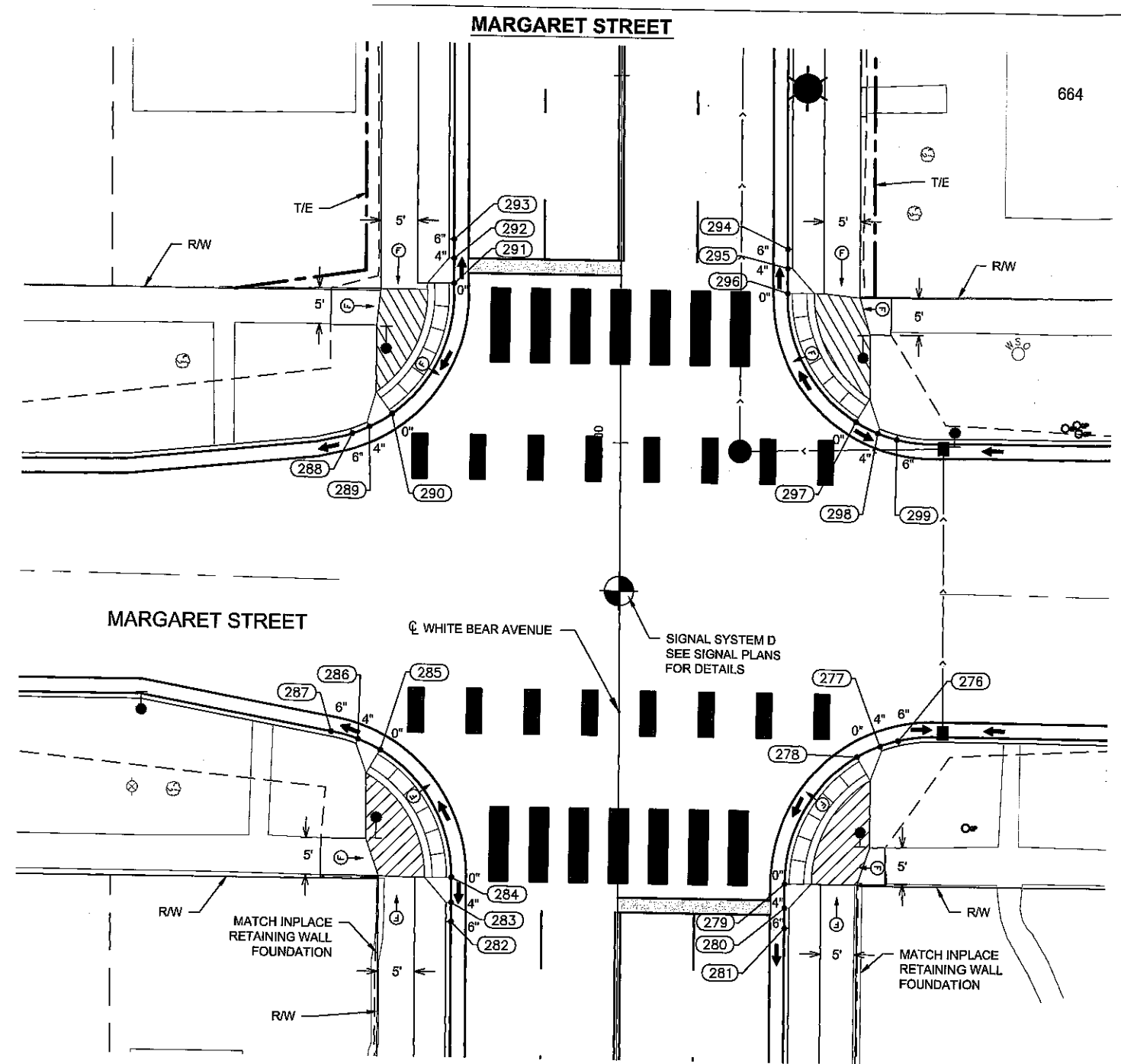
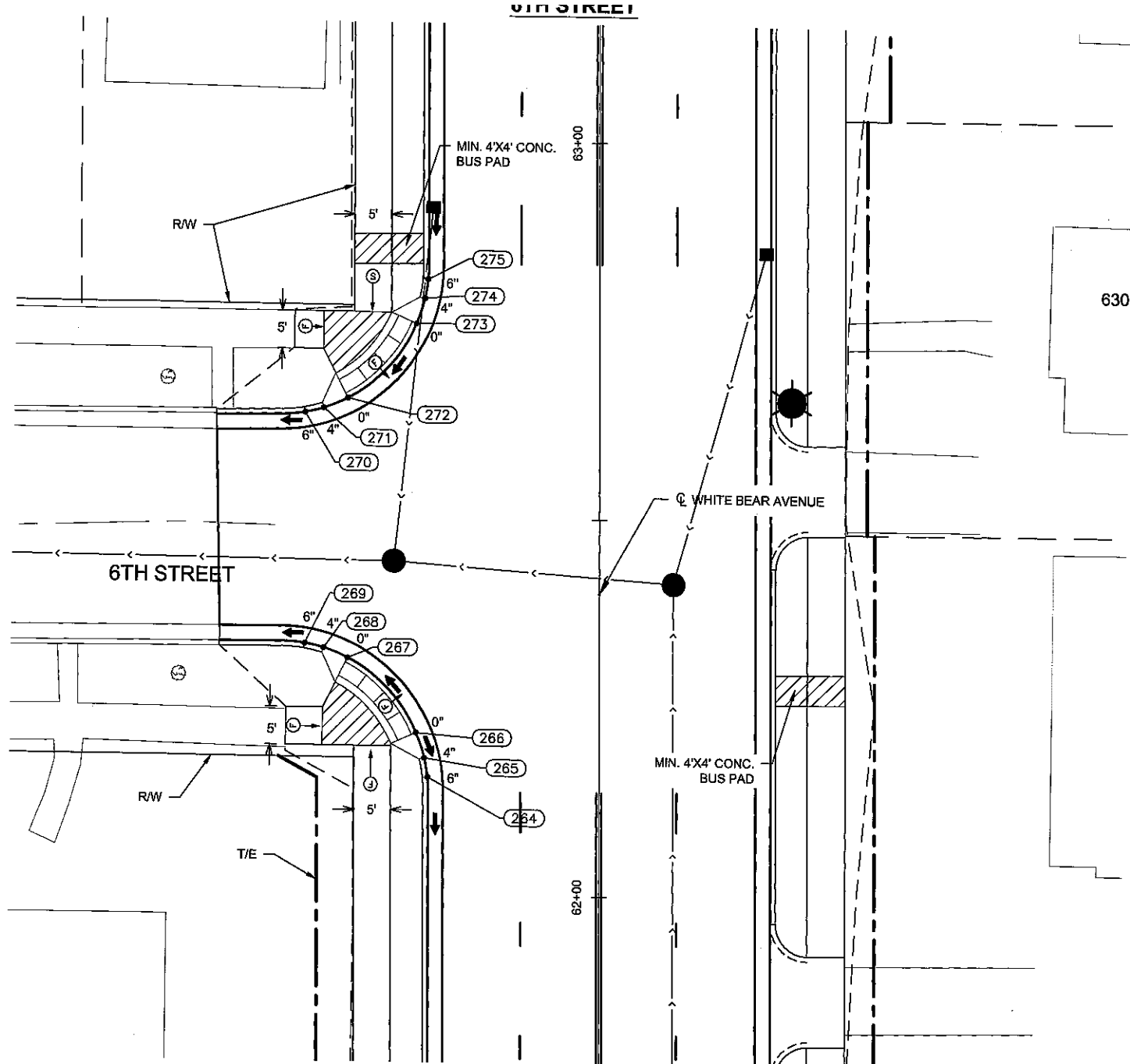
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**INTERSECTION DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

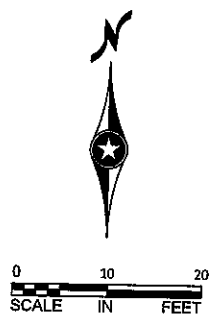
SHEET  
 51  
 OF  
 145  
 SHEETS

Date Plotted: 2/19/2018  
 WSB Filename: K:\31785-000\Cad\Plan\03188-000-C-CONST-LEM.dwg



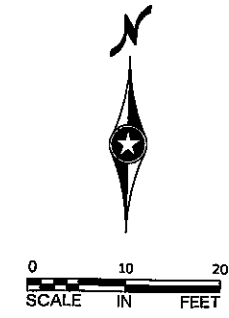
**LEGEND**

- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- CURB HEIGHT
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- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATED PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- LIGHT POLE FOUNDATION



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



Date Plotted: 2/24/2016  
 WSB Filename: K:\03183-000\CadPlan\03183-000-C-NIST-ENLGS.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILLO S. SDSA, JR., P.E.  
 DATE: 02/17/2016

701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: 612-338-5411-4800 - Fax: 612-338-5411-1700  
 wsb.org.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

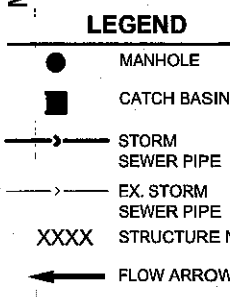
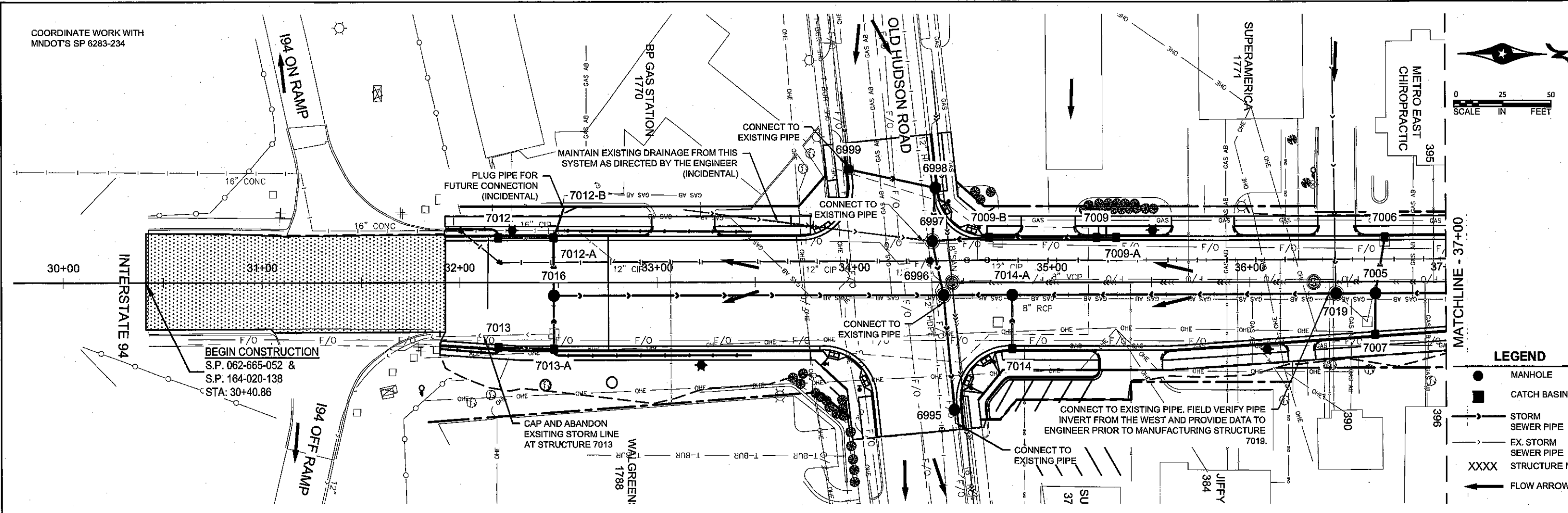
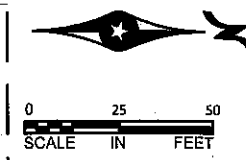
**RAMSEY COUNTY, MINNESOTA**

**INTERSECTION DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**52**  
 OF  
**145**  
 SHEETS



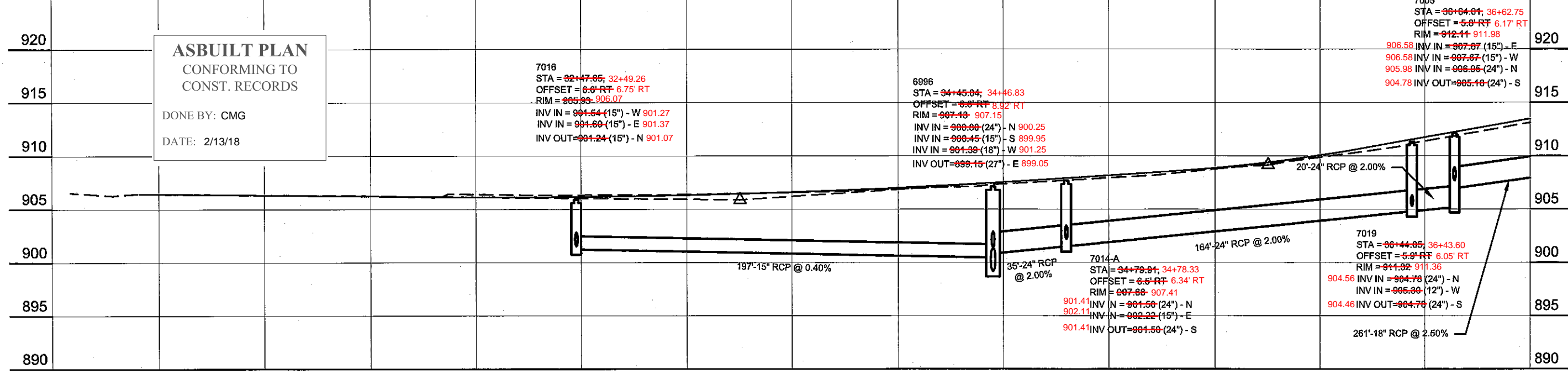
COORDINATE WORK WITH  
MNDOT'S SP 6283-234



NOTE: SEE SHEET 61-62 FOR PIPE PROFILES  
SEE SHEET 17-18 FOR DRAINAGE TABULATION

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



30+00	31+00	32+00	33+00	34+00	35+00	36+00	37+00
906.4	906.42	906.3	906.32	906.2	906.22	906.4	906.14
906.3	906.17	906.4	906.32	906.6	906.60	906.9	907.00
907.4	907.53	907.9	908.17	908.8	908.87	909.9	910.06
911.4	911.75	913.1	913.48				

Date Printed: 2/16/2018  
VBS Filename: K:\031818\031818-000-C-STRM-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DANILO S. SOSA, JR. PE  
DATE: 02/17/2018 LIC. NO.: 49048



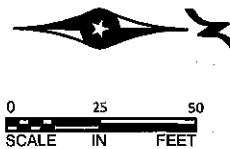
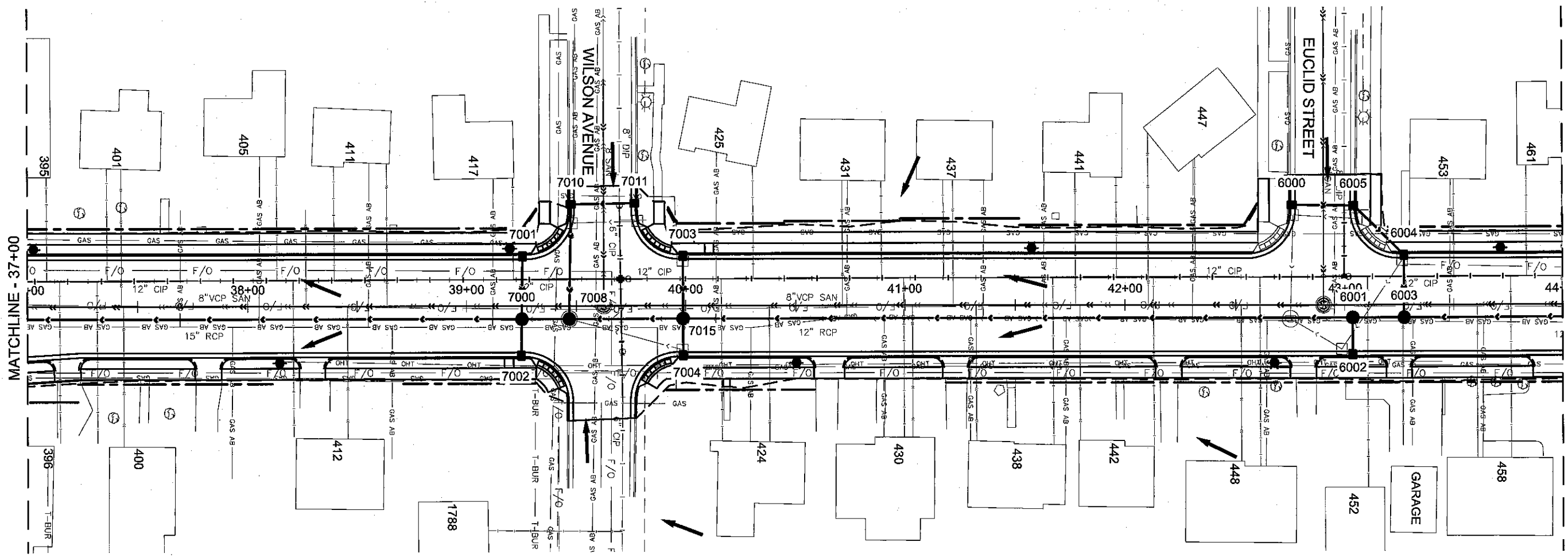
701 Xena Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: 763-541-4800 - Fax: 763-541-1700  
wsbeng.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STORM SEWER PLAN AND PROFILE**  
**STA. 30+00 TO 37+00**  
S.P. 062-665-052 / S.P. 164-020-138

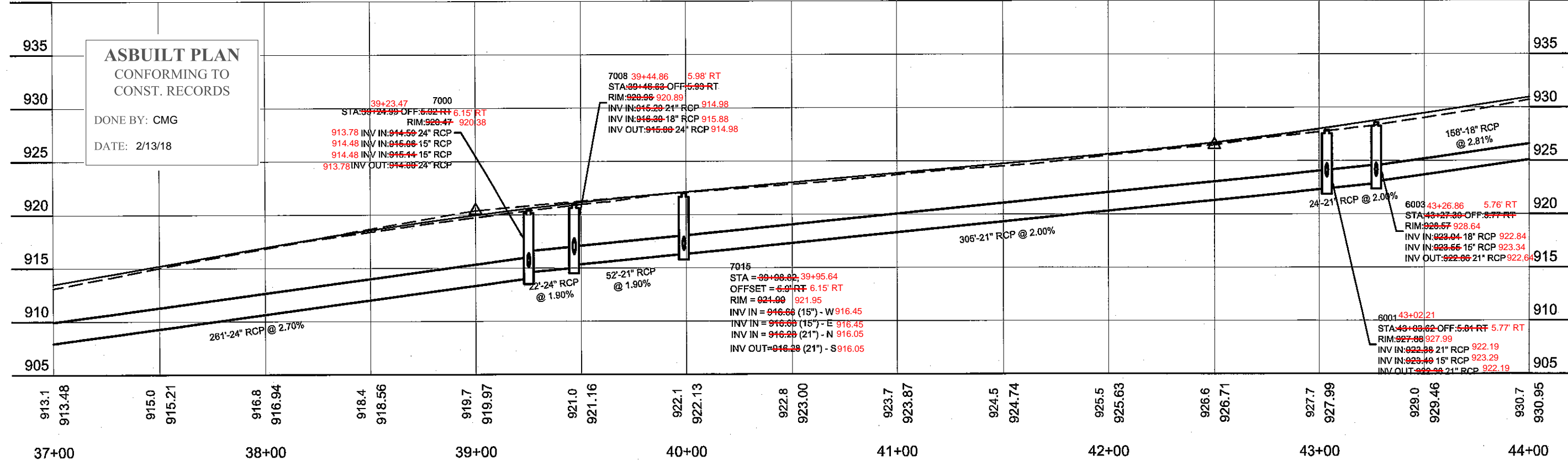
SHEET  
**54**  
OF  
**145**  
SHEETS



**LEGEND**

- MANHOLE
- CATCH BASIN
- STORM SEWER PIPE
- EX. STORM SEWER PIPE
- XXXX STRUCTURE NO.
- ← FLOW ARROWS

NOTE: SEE SHEET 61-62 FOR PIPE PROFILES  
SEE SHEET 17-18 FOR DRAINAGE TABULATION



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/16/2018  
WSB Filename: K:\03\189\000\03\189-000-C-STRMPLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DANILO S. SOSA, JR., P.E.  
DATE: 02/17/2018 LIC. NO. 49048



701 Xerxes Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: 773-511-4800 - Fax: 773-511-1700  
wsbeng.com

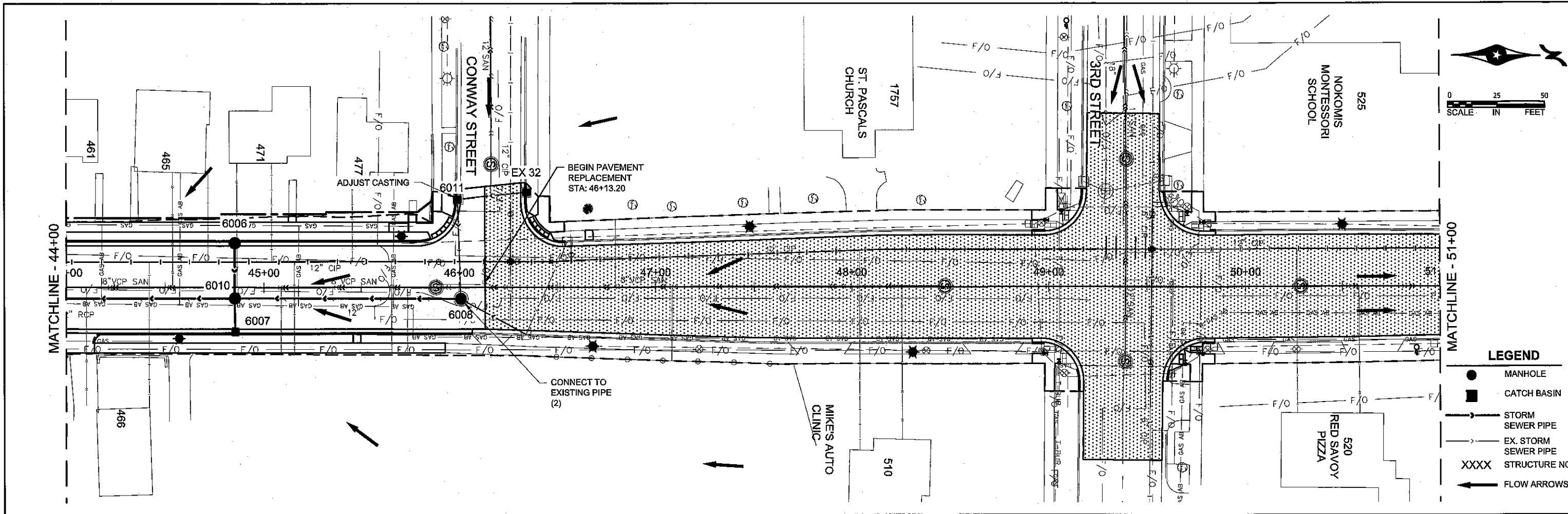


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STORM SEWER PLAN AND PROFILE**  
**STA. 37+00 TO 44+00**  
S.P. 062-665-052 / S.P. 164-020-138

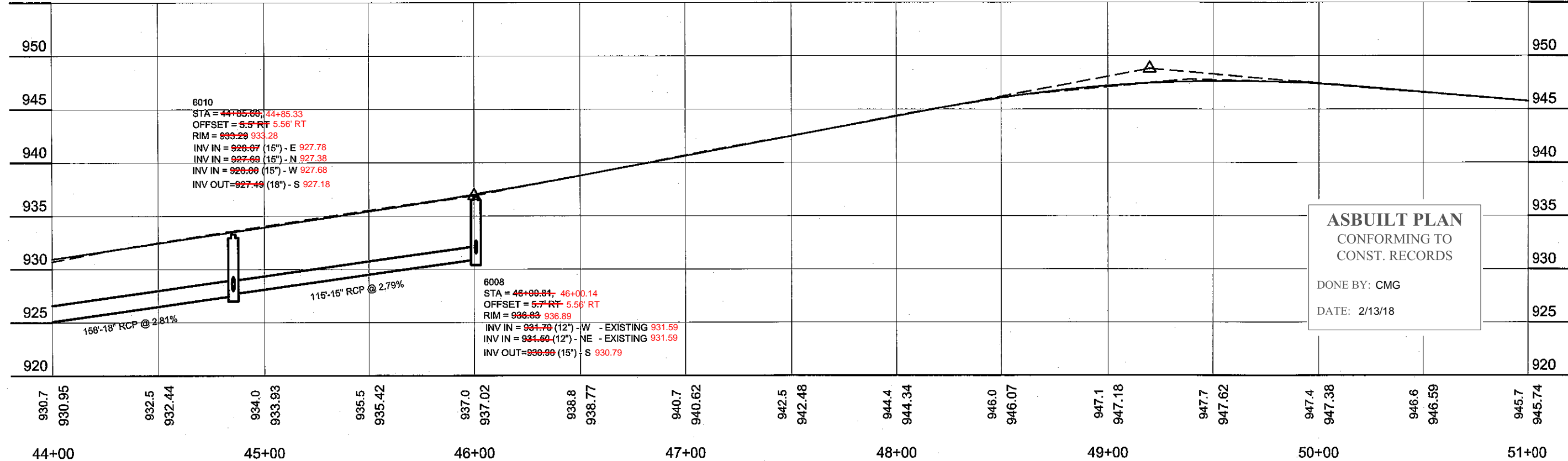
SHEET  
**55**  
OF  
**145**  
SHEETS





- LEGEND**
- MANHOLE
  - CATCH BASIN
  - STORM SEWER PIPE
  - - - EX. STORM SEWER PIPE
  - XXXX STRUCTURE NO.
  - FLOW ARROWS

NOTE: SEE SHEET 61-62 FOR PIPE PROFILES  
SEE SHEET 17-18 FOR DRAINAGE TABULATION



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

6010  
STA = ~~44+85.00~~ 44+85.33  
OFFSET = ~~5.5' RT~~ 5.56' RT  
RIM = ~~933.29~~ 933.28  
INV IN = ~~928.07~~ (15") - E 927.78  
INV IN = ~~927.69~~ (15") - N 927.38  
INV IN = ~~928.00~~ (15") - W 927.68  
INV OUT = ~~927.49~~ (18") - S 927.18

6008  
STA = ~~46+00.01~~ 46+00.14  
OFFSET = ~~5.7' RT~~ 5.56' RT  
RIM = ~~936.03~~ 936.89  
INV IN = ~~934.70~~ (12") - W - EXISTING 931.59  
INV IN = ~~934.60~~ (12") - NE - EXISTING 931.59  
INV OUT = ~~930.90~~ (15") - S 930.79

Date Plotted: 2/16/2018  
WSB Filename: K:\318-000\Cad\Plan\0318-000-C-STRM-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

DATE: 02/17/2018

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

CERTIFIED BY: *[Signature]*  
 DANIL S. SOSA, JR., PE  
 LIC. NO.: 49048

**WSB**

701 Xerxes Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbeng.com

**RAMSEY COUNTY**

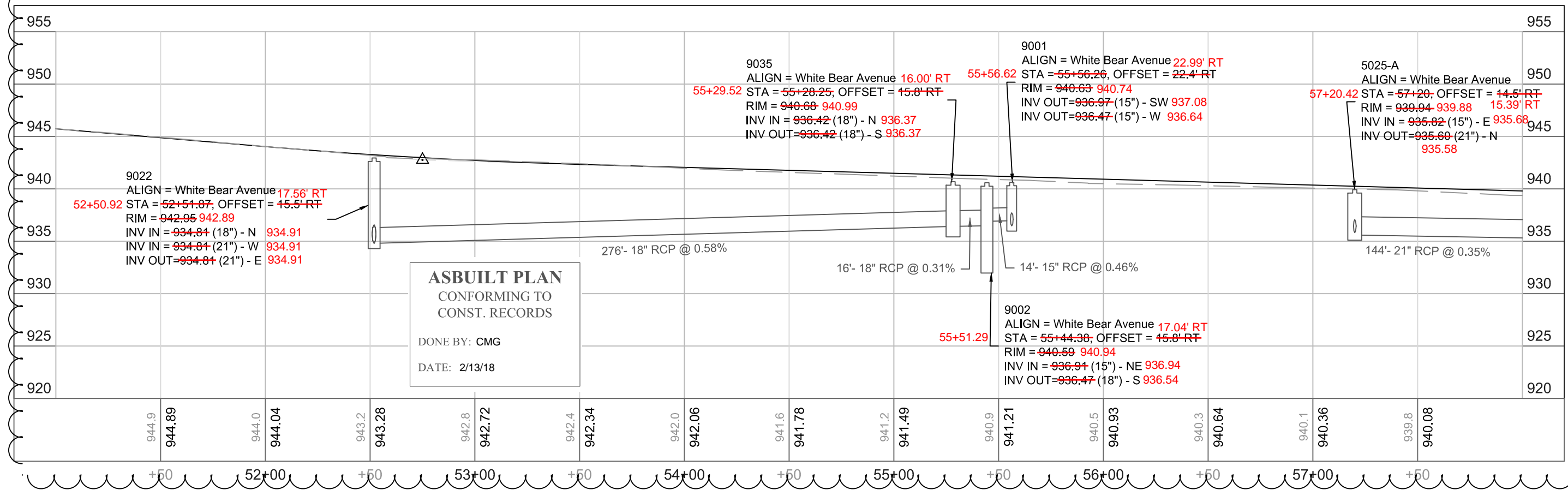
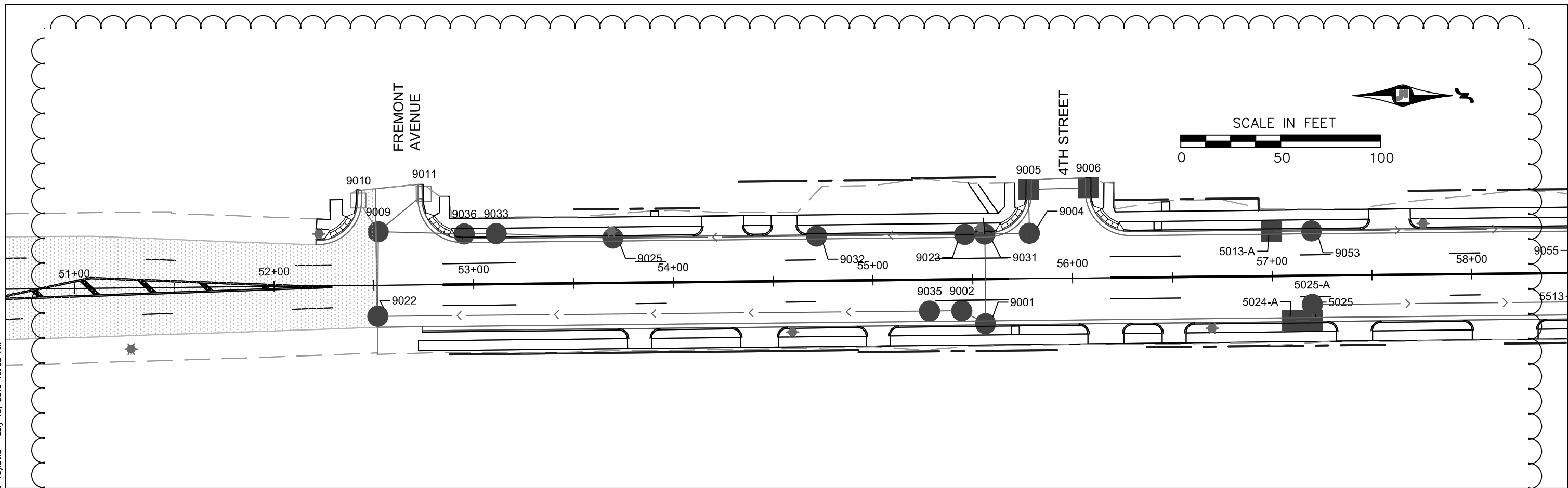
**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

**RAMSEY COUNTY, MINNESOTA**

**STORM SEWER PLAN AND PROFILE**  
 STA. 44+00 TO 51+00  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
56  
OF  
145  
SHEETS

P:\PROJECTS\194 TO BEECH\194 TO BEECH\WBA MINN. TO 194\BASE.DWG\STORM SEWER 7-13-16\REVISED STORM SEWER (JERRY)(7-13-16).DWG July 15, 2016 10:08 AM



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

NO.	REV-DATE	BY:	DESCRIPTION
2	6-15-16	JA	STORM SEWER REVISION
3	7-13-16	JA	STORM SEWER REVISION

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.  
 SIGNED: \_\_\_\_\_  
 REG NO: \_\_\_\_\_ DATE: \_\_\_\_\_

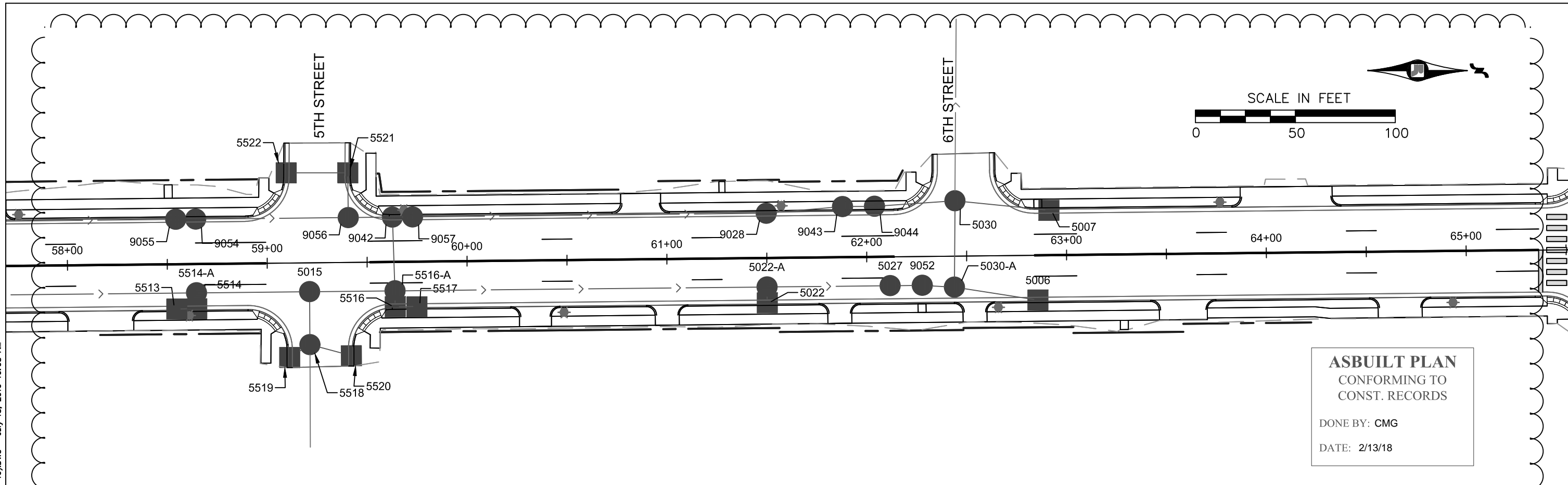
**WHITE BEAR AVENUE**  
 STREET IMPROVEMENTS

S.P. 062-665-052  
 S.P. 164-020-138  
 COUNTY PROJ. P-3345

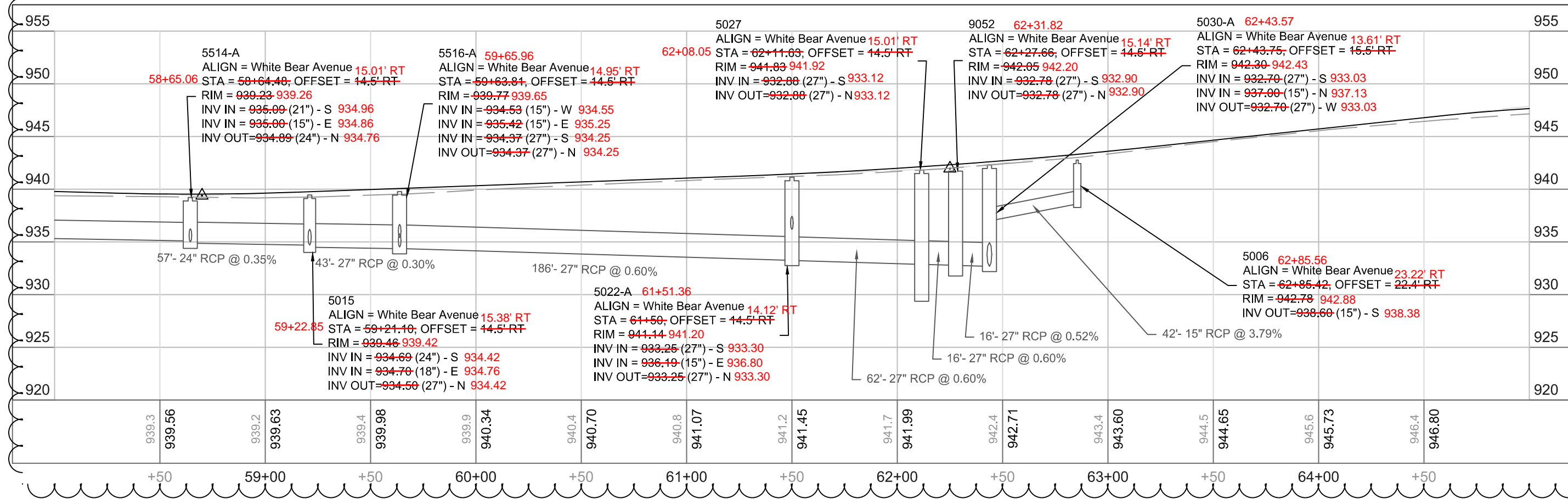


**STORM SEWER PLAN AND PROFILE**  
**SHEET 57 OF 145 SHEETS**

P:\PROJECTS\194 TO BEECH\194 TO BEECH\WBA MINN. TO 194\BASE.DWG\STORM SEWER (JERRY)(7-13-16).DWG July 15, 2016 10:08 AM



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

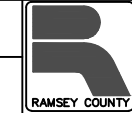


NO.	REV-DATE	BY:	DESCRIPTION
2	6-15-16	JA	STORM SEWER REVISION
3	7-13-16	JA	STORM SEWER REVISION

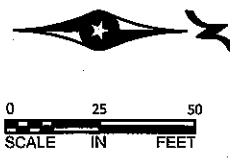
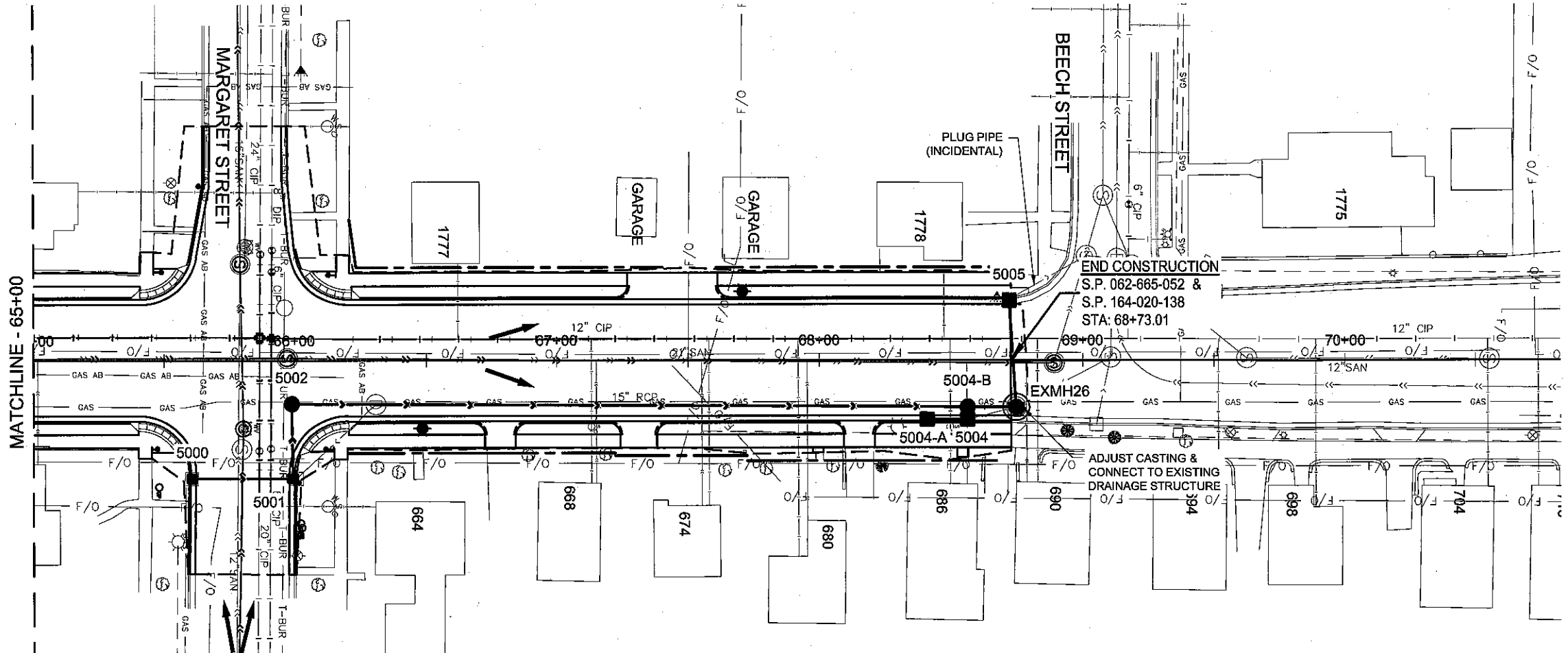
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SIGNED: \_\_\_\_\_  
 REG NO: \_\_\_\_\_ DATE: \_\_\_\_\_

**WHITE BEAR AVENUE**  
 STREET IMPROVEMENTS

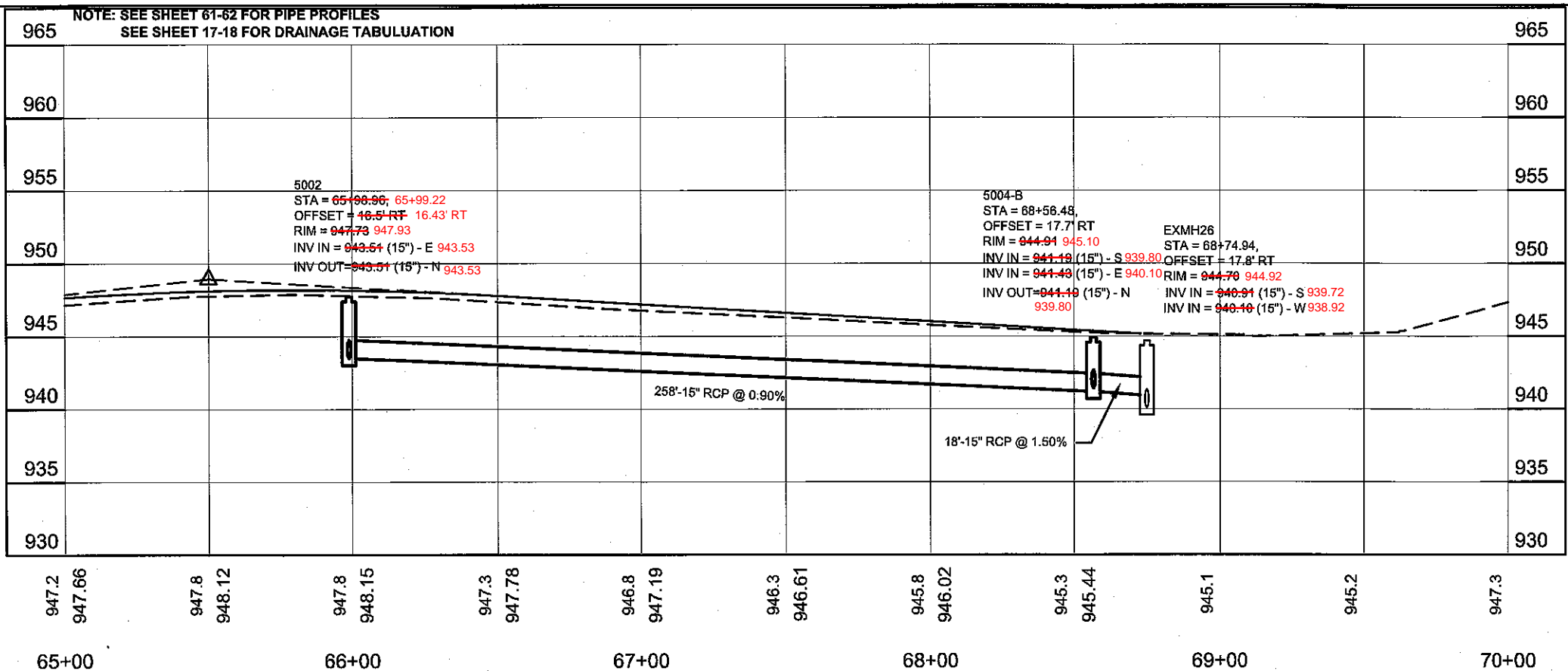
S.P. 062-665-052  
 S.P. 164-020-138  
 COUNTY PROJ. P-3345



**STORM SEWER PLAN AND PROFILE**  
**SHEET 58 OF 145 SHEETS**



- LEGEND**
- MANHOLE
  - CATCH BASIN
  - STORM SEWER PIPE
  - - - EX. STORM SEWER PIPE
  - XXXX STRUCTURE NO.
  - ← FLOW ARROWS



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DANILO S. SOSAL JR., PE  
DATE: 02/17/2018 LIC. NO. 49048



701 Kenos Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 Fax: (763) 541-1700  
wsbeng.com

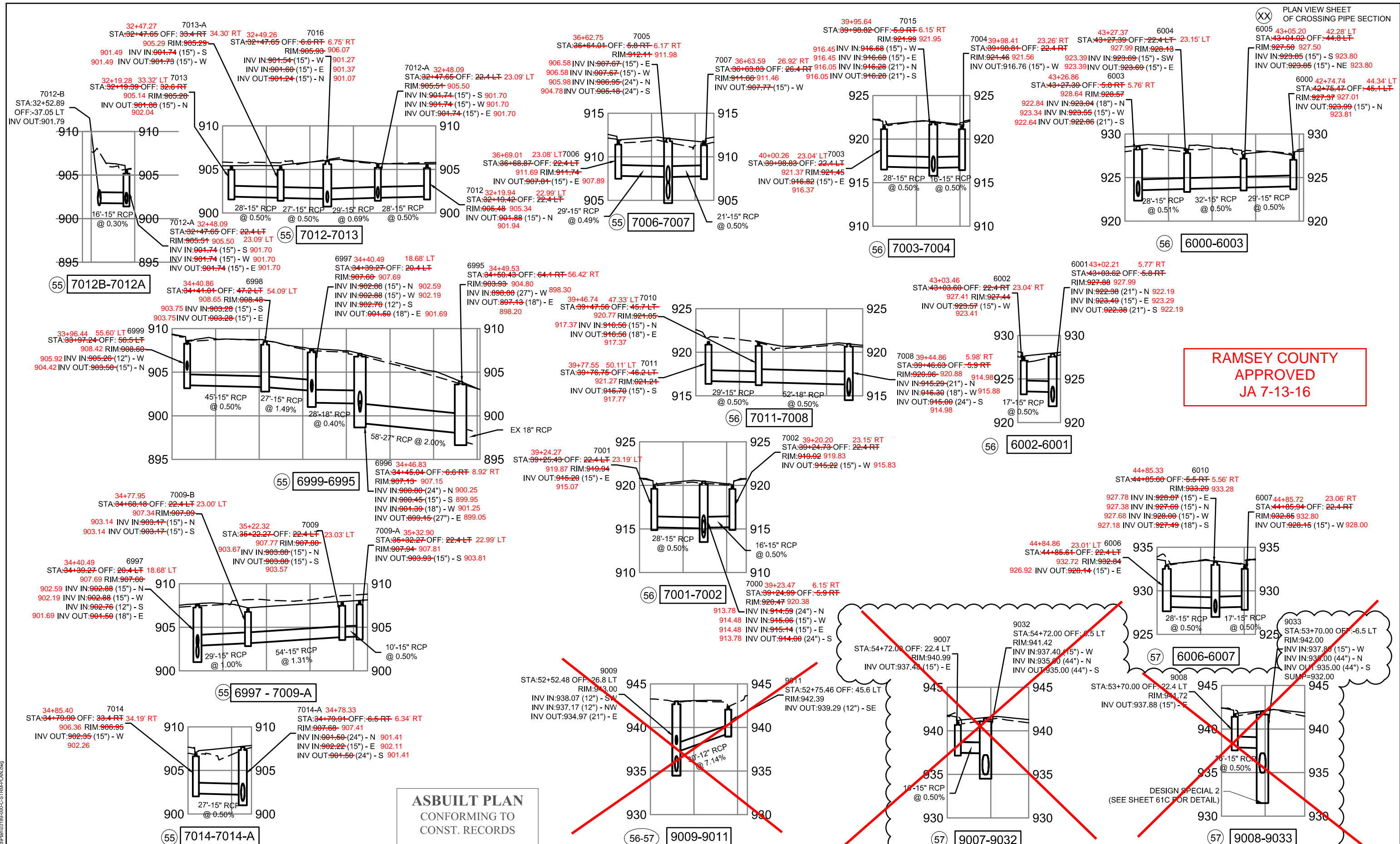


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**STORM SEWER PLAN AND PROFILE**  
**STA. 65+00 TO 70+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
59  
OF  
145  
SHEETS

Date Plotted: 2/16/2018  
WSB Filename: c:\031810-000\CadPlan\1810-000-C-STRM-PLAN.dwg



**RAMSEY COUNTY  
APPROVED  
JA 7-13-16**

**ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS**

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1
2	6/15/16	JA		STORM SEWER REVISION
3	7/13/16	JA		STORM SEWER REVISION



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**STORM SEWER PROFILES**

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**60**  
OF  
**145**  
SHEETS

Date Printed: 6/13/2016  
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**RAMSEY COUNTY  
APPROVED  
JA 7-13-16**

10-104-BASE DWS STORM SEWER 7-13-16 REVISED STORM SEWER (JERRY) 7-13-16 DWS JULY 18, 2016 9:46 AM

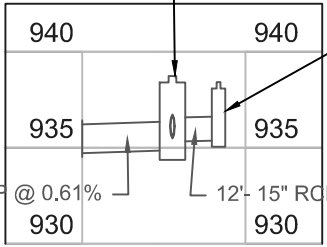
5518 **59+20.66**  
ALIGN = White Bear Avenue  
STA = ~~59+20.96~~, OFFSET = ~~40.9' RT~~  
RIM = ~~938.72~~ 938.79 **40.91' RT**  
INV IN = ~~935.34~~ (15") - SE **935.09**  
INV IN = ~~935.48~~ (15") - N **935.19**  
INV IN = ~~935.62~~ (12") - E **935.69**  
INV OUT = ~~934.86~~ (18") - W **934.89**

5030 **62+43.67**  
ALIGN = White Bear Avenue **29.45' LT**  
STA = ~~62+44.46~~, OFFSET = ~~27.7' LT~~  
RIM = ~~941.07~~ 941.92  
INV IN = ~~932.47~~ (27") - E **932.52**  
INV IN = ~~938.32~~ (15") - N **938.42**  
INV IN = ~~932.50~~ (18") - S **932.52**  
INV OUT = ~~932.17~~ (30") - W **932.42**

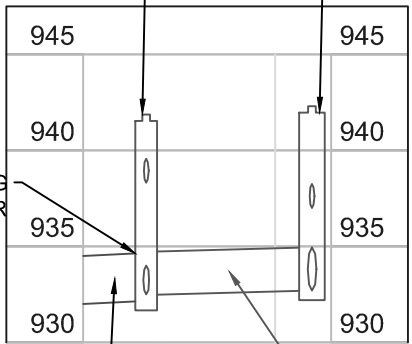
5030-A  
ALIGN = White Bear Avenue **13.61' RT**  
STA = ~~62+43.75~~, OFFSET = ~~15.5' RT~~  
RIM = ~~942.30~~ 942.43  
INV IN = ~~932.70~~ (27") - S **933.03**  
INV IN = ~~937.00~~ (15") - N **937.13**  
INV OUT = ~~932.70~~ (27") - W **933.03**

5516-A **59+65.96**  
ALIGN = White Bear Avenue **14.95' RT**  
STA = ~~59+63.84~~, OFFSET = ~~44.5' RT~~  
RIM = ~~939.77~~ 939.65  
INV IN = ~~934.53~~ (15") - W **934.55**  
INV IN = ~~935.42~~ (15") - E **935.25**  
INV IN = ~~934.37~~ (27") - S **934.25**  
INV OUT = ~~934.37~~ (27") - N **934.25**

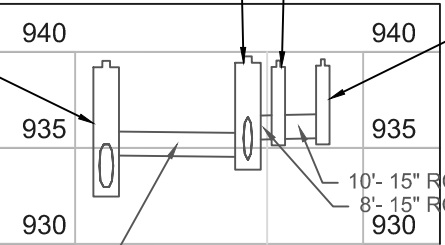
5516 **59+63.93**  
ALIGN = White Bear Avenue **23.59' RT**  
STA = ~~59+63.84~~, OFFSET = ~~22.4' RT~~  
RIM = ~~939.54~~ 939.25  
INV IN = ~~935.46~~ (15") - N **936.10**  
INV OUT = ~~935.46~~ (15") - W **936.00**



5519 **59+09.64**  
ALIGN = White Bear Avenue  
STA = ~~59+10.74~~, OFFSET = ~~47.2' RT~~  
RIM = ~~938.40~~ 938.36 **41.17' RT**  
INV OUT = ~~935.37~~ (15") - NW **935.06**



9042 **59+65.56**  
ALIGN = White Bear Avenue **22.93' LT**  
STA = ~~59+62.86~~, OFFSET = ~~22.4' LT~~  
RIM = ~~939.53~~ 939.37  
INV IN = ~~932.96~~ (44") - S **932.82**  
INV OUT = ~~934.64~~ (15") - E **934.45**  
INV OUT = ~~932.96~~ (44") - N **932.82**



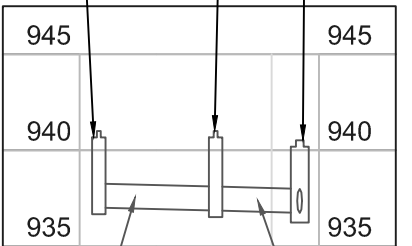
5517 **59+74.17**  
ALIGN = White Bear Avenue **23.34' RT**  
STA = ~~59+74.70~~, OFFSET = ~~22.5' RT~~  
RIM = ~~939.62~~ 939.34  
INV OUT = ~~935.54~~ (15") - S **936.29**

9005 **55+77.67**  
ALIGN = White Bear Avenue  
STA = ~~55+78.43~~, OFFSET = ~~44.6' LT~~  
RIM = ~~944.00~~ 940.93 **44.51' LT**  
INV IN = ~~936.85~~ (15") - N **937.58**  
INV OUT = ~~936.85~~ (15") - E **937.58**

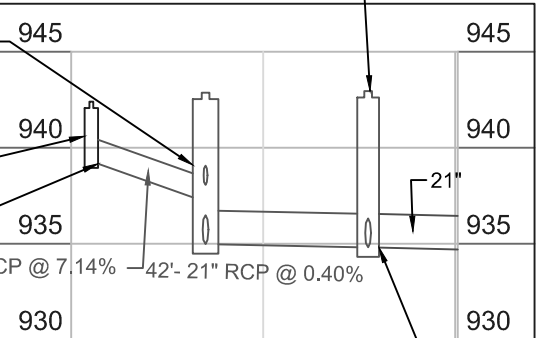
9004 **55+78.37**  
ALIGN = White Bear Avenue **23.09' LT**  
STA = ~~55+78.60~~, OFFSET = ~~22.7' LT~~  
RIM = ~~940.54~~ 940.85  
INV IN = ~~936.74~~ (15") - W **936.65**  
INV OUT = ~~936.74~~ (15") - S **936.65**

9022 **52+50.92**  
ALIGN = White Bear Avenue **17.56' RT**  
STA = ~~52+51.87~~, OFFSET = ~~15.5' RT~~  
RIM = ~~942.96~~ 942.89  
INV IN = ~~934.84~~ (18") - N **934.91**  
INV IN = ~~934.84~~ (21") - W **934.91**  
INV OUT = ~~934.84~~ (21") - E **934.91**

9056 **59+13.23**  
ALIGN = White Bear Avenue **22.03' LT**  
STA = ~~59+14.70~~, OFFSET = ~~22.4' LT~~  
RIM = ~~939.38~~ 939.36  
INV IN = ~~932.96~~ (44") - S **932.96**  
INV IN = ~~934.73~~ (15") - W **934.71**  
INV OUT = ~~932.96~~ (44") - N **932.96**

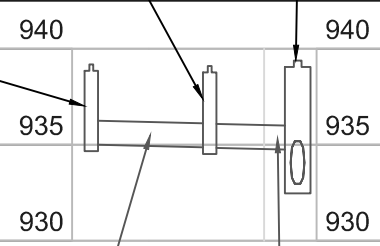


9009 **52+51.51**  
ALIGN = White Bear Avenue  
STA = ~~52+52.40~~, OFFSET = ~~26.8' LT~~  
RIM = ~~942.87~~ 943.16 **24.68' LT**  
INV IN = ~~938.07~~ (12") - SW **938.27**  
INV IN = ~~937.17~~ (15") - NW **937.46**  
INV IN = ~~934.98~~ (18") - N **935.27**  
INV OUT = ~~934.98~~ (21") - E **935.21**



5521 **59+41.73**  
ALIGN = White Bear Avenue **45.76' LT**  
STA = ~~59+40.70~~, OFFSET = ~~44.8' LT~~  
RIM = ~~939.10~~ 938.97  
INV IN = ~~934.85~~ (15") - S **935.87**  
INV OUT = ~~934.85~~ (15") - E **935.87**

5522 **59+09.26**  
ALIGN = White Bear Avenue **45.09' LT**  
STA = ~~59+09.97~~, OFFSET = ~~45.4' LT~~  
RIM = ~~939.17~~ 939.01  
INV OUT = ~~935.00~~ (15") - N **935.61**  
INV OUT = ~~935.61~~ (15") - E



9001 **55+56.62**  
ALIGN = White Bear Avenue **22.99' RT**  
STA = ~~55+56.26~~, OFFSET = ~~22.4' RT~~  
RIM = ~~940.63~~ 940.74  
INV OUT = ~~936.97~~ (15") - SW  
INV OUT = ~~936.47~~ (15") - W

5025-A **57+20.42**  
ALIGN = White Bear Avenue  
STA = ~~57+20~~, OFFSET = ~~14.5' RT~~  
RIM = ~~939.94~~ 939.88 **15.39' RT**  
INV IN = ~~935.82~~ (15") - E **935.68**  
INV OUT = ~~935.60~~ (21") - N **935.58**

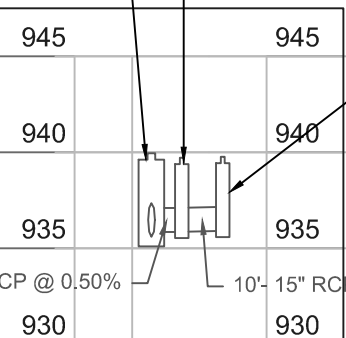
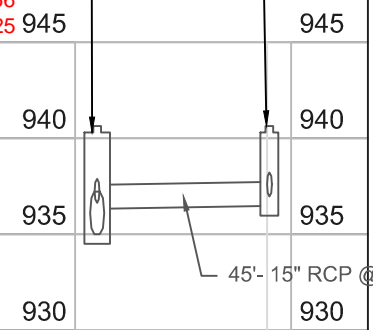
5025 **57+20.06**  
ALIGN = White Bear Avenue  
STA = ~~57+20~~, OFFSET = ~~22.4' RT~~  
RIM = ~~939.74~~ 939.57 **23.21' RT**  
INV IN = ~~935.86~~ (15") - S **936.17**  
INV OUT = ~~935.86~~ (15") - W **936.02**

5514 **58+64.23**  
ALIGN = White Bear Avenue **23.13' RT**  
STA = ~~58+64.48~~, OFFSET = ~~22.4' RT~~  
RIM = ~~939.00~~ 938.73  
INV IN = ~~935.04~~ (15") - S **935.53**  
INV OUT = ~~935.04~~ (15") - W **935.38**

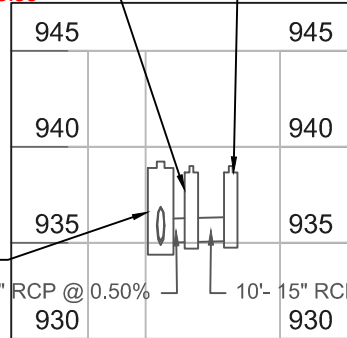
5513 **58+54.31**  
ALIGN = White Bear Avenue **23.12' RT**  
STA = ~~58+54.48~~, OFFSET = ~~22.4' RT~~  
RIM = ~~939.04~~ 938.85  
INV OUT = ~~935.09~~ (15") - N **935.85**

5022 **61+49.74**  
ALIGN = White Bear Avenue  
STA = ~~61+50~~, OFFSET = ~~22.4' RT~~  
RIM = ~~940.04~~ 940.91 **23.05' RT**  
INV OUT = ~~936.23~~ (15") - W **937.91**

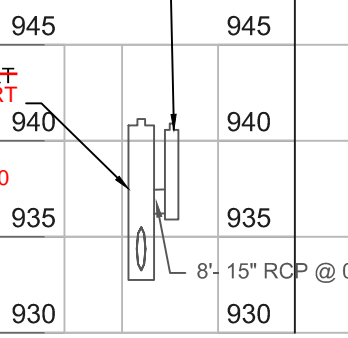
9031 **55+53.80**  
ALIGN = White Bear Avenue  
STA = ~~55+56.29~~, OFFSET = ~~22.5' LT~~  
RIM = ~~940.63~~ 940.56 **22.92' LT**  
INV IN = ~~936.63~~ (15") - N **936.56**  
INV IN = ~~936.32~~ (15") - E **936.25**  
INV OUT = ~~935.80~~ (44") - S **934.93**



5024-A **57+10.63**  
ALIGN = White Bear Avenue **23.14' RT**  
STA = ~~57+10~~, OFFSET = ~~22.4' RT~~  
RIM = ~~939.76~~ 939.60  
INV OUT = ~~935.94~~ (15") - N **936.30**



5022-A **61+51.36**  
ALIGN = White Bear Avenue  
STA = ~~61+50~~, OFFSET = ~~14.5' RT~~  
RIM = ~~941.14~~ 941.20 **14.12' RT**  
INV IN = ~~933.25~~ (27") - S **933.30**  
INV IN = ~~936.19~~ (15") - E **936.80**  
INV OUT = ~~933.25~~ (27") - N **933.30**



**ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS**

DONE BY: CMG  
DATE: 2/13/18

9031-9001

5025-A - 5024-A

5514-A - 5513

5022-A - 5022

**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

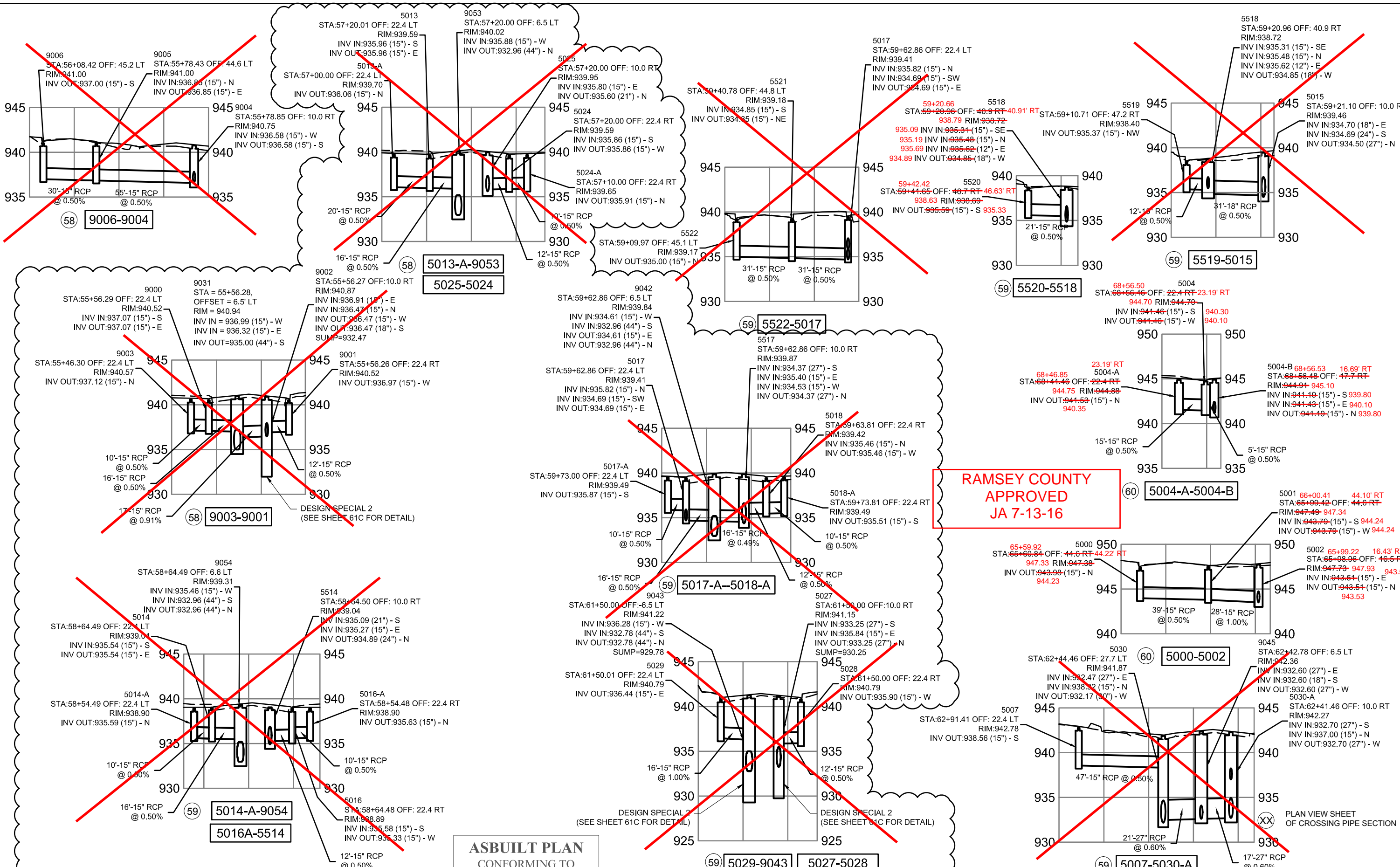
S.P. 062-665-052  
S.P. 164-020-138  
COUNTY PROJ. P-3345



**STORM SEWER PLAN AND PROFILE  
SHEET 60A OF 145 SHEETS**

NO.	REV. DATE	BY:	DESCRIPTION
2	6-15-16	JA	STORM SEWER REVISION
3	7-13-16	JA	STORM SEWER REVISION

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.  
SIGNED: \_\_\_\_\_  
REG NO: \_\_\_\_\_ DATE: \_\_\_\_\_



**RAMSEY COUNTY  
APPROVED  
JA 7-13-16**

**ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS**  
  
 DONE BY: CMG  
  
 DATE: 2/13/18



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA  
STORM SEWER PROFILES**

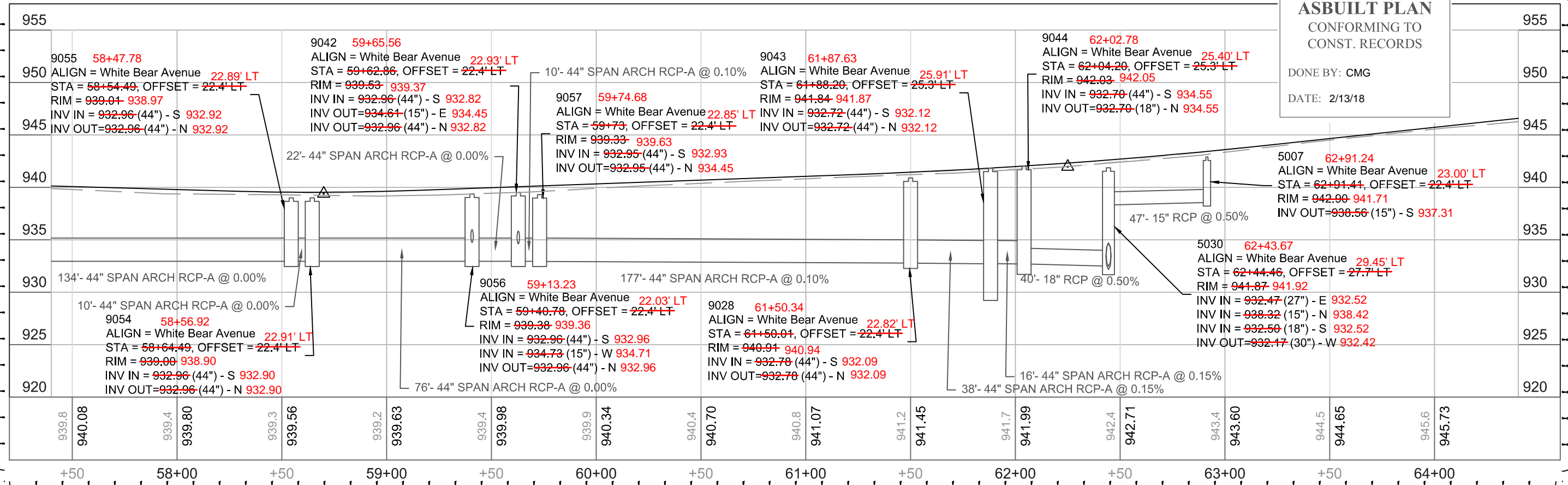
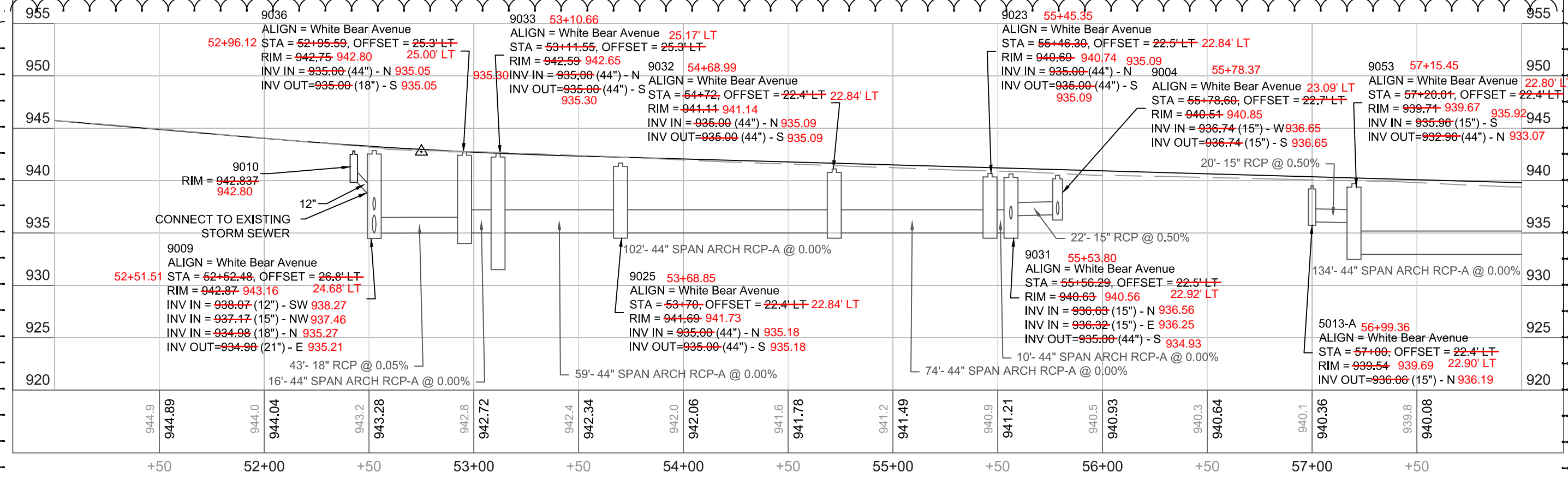
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**61**  
 OF  
**145**  
 SHEETS

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1
2	6/15/16	JA		STORM SEWER REVISION
3	7/13/16	JA		STORM SEWER REVISION

Date Plotted: 6/12/2016  
 WSB File Name: K:\03188-000-Cad\Plan\03188-000-C-STRMPLAN.dwg

P:\PROJECTS\194 TO BEECH\WBA - 194 TO BEECH\WBA MINN. TO 194\BASE.DWG\STORM SEWER (JERRY)(7-13-16).DWG July 15, 2016 10:08 AM



NO.	REV-DATE	BY:	DESCRIPTION
2	6-15-16	JA	STORM SEWER REVISION
3	7-13-16	JA	STORM SEWER REVISION

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.

SIGNED: \_\_\_\_\_

REG NO: \_\_\_\_\_ DATE: \_\_\_\_\_

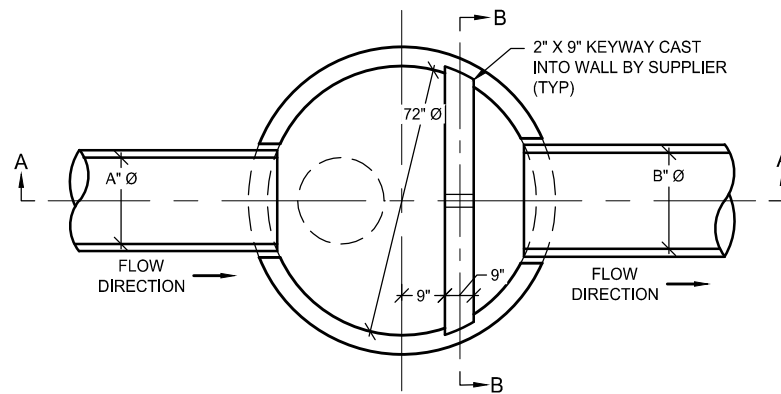
**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

S.P. 062-665-052  
S.P. 164-020-138  
  
COUNTY PROJ. P-3345

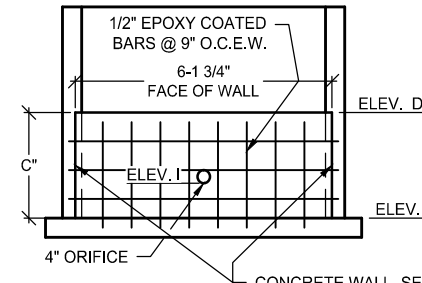


**STORM SEWER PLAN AND PROFILE**  
**SHEET 61A OF 145 SHEETS**

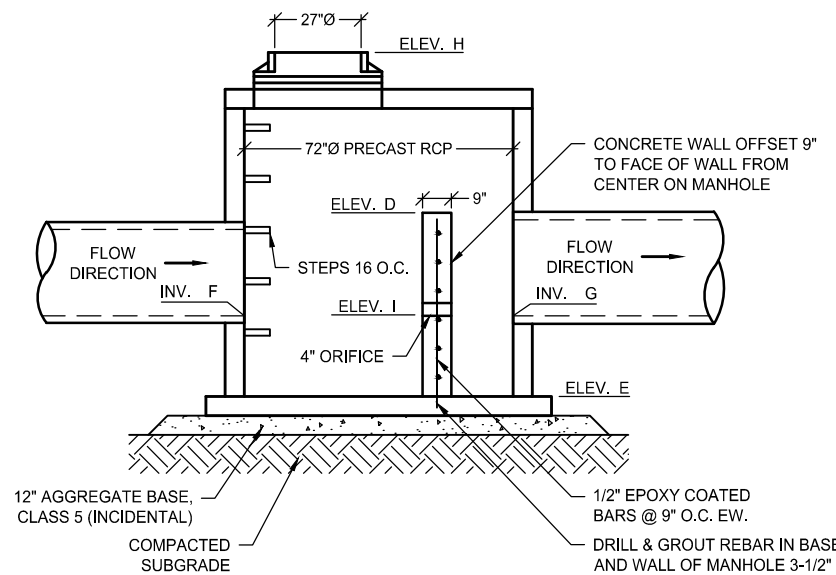




PLAN



SECTION B-B



SECTION A-A

RAMSEY COUNTY  
APPROVED  
JA 7-13-16

GEOMETRY TABLE										
STRUCTURE NO.	A (IN.)	B (IN.)	C (IN.)	D (ELEV)	E (ELEV)	F (ELEV)	G (ELEV)	H (ELEV)	I (ELEV)	H (ELEV)
9035	18	18	16 3/4	937.32	935.92	936.42	936.42	<del>940.99</del>	936.42	940.68
9036	44 A	18	33 7/8	937.32	934.50	935.00	935.00	<del>942.84</del>	935.00	942.75
9044	44 A	18	35 7/8	935.19	932.20	932.70	932.70	<del>942.15</del>	932.70	942.03
9052	27	27	34 7/8	935.19	932.28	932.78	932.78	<del>942.06</del>	932.78	942.05

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

DESIGN SPECIAL 1 - WEIR STRUCTURE

NOT TO SCALE

Date Printed: 6/13/2016  
WSB File Name: K:\03188-000-Cad\Plan\03188-000-C-STRMDET1.dwg

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TW	ADDENDUM 1
2	6/15/16	JA		STORM SEWER REVISION
3	7/13/16	JA		STORM SEWER REVISION



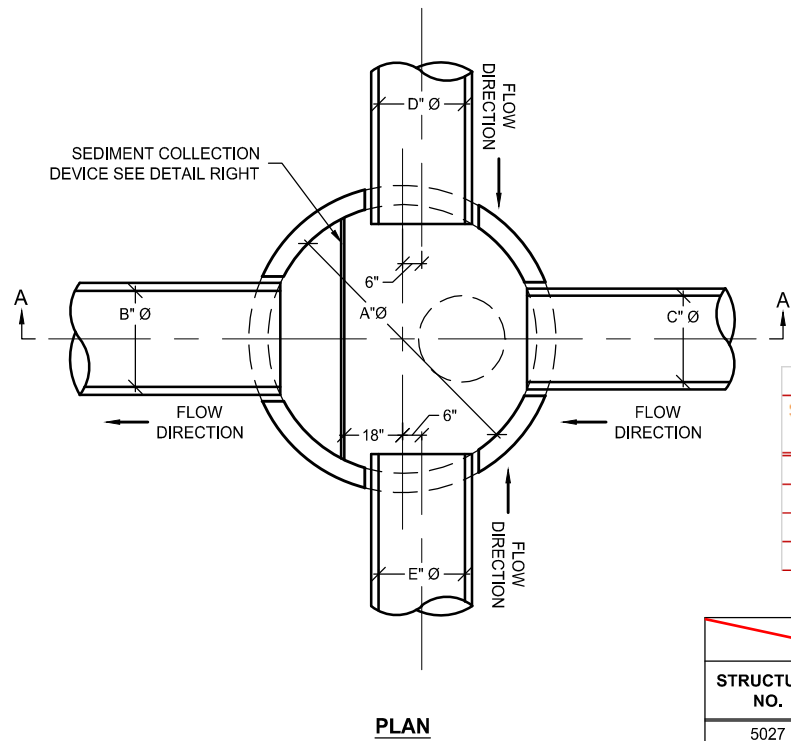
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA

STORM SEWER DETAILS  
DESIGN SPECIAL 1

S.P. 062-665-052 / S.P. 164-020-138

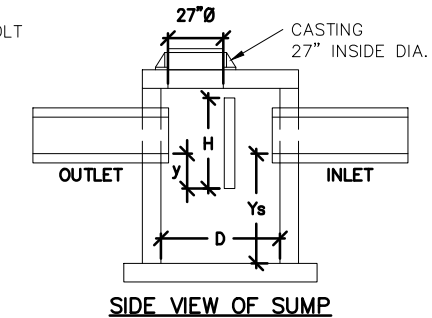
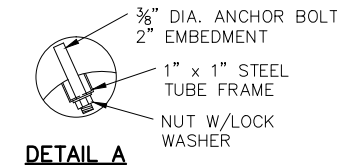
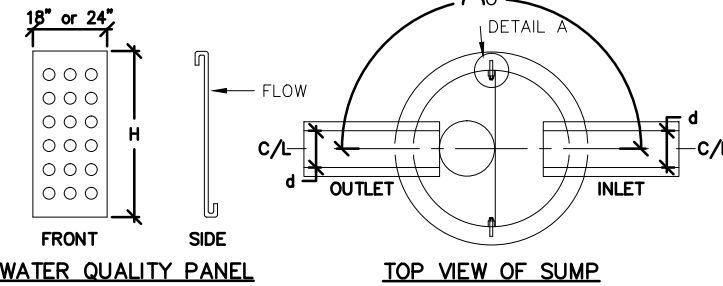
SHEET  
61B  
OF  
145  
SHEETS



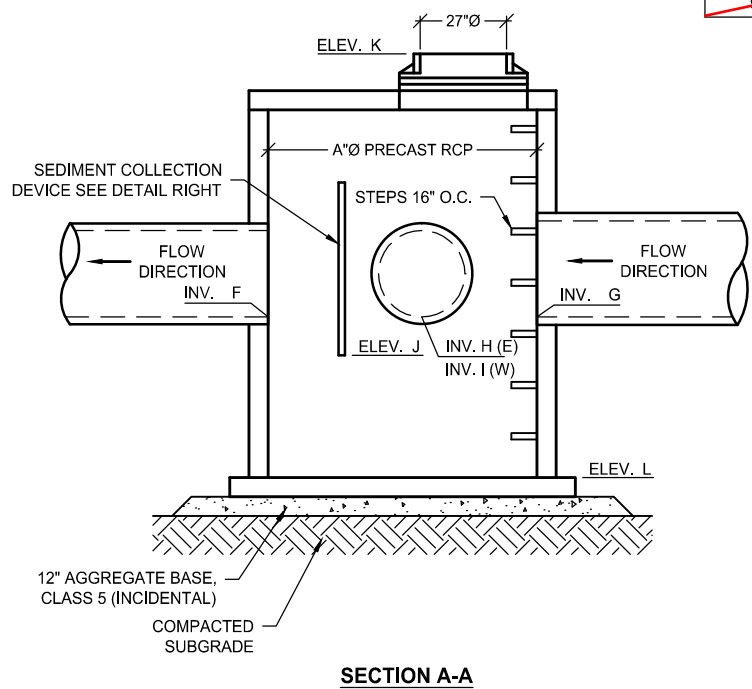
GEOMETRY TABLE													
STRUCTURE NO.	A (IN.)	B (IN.)	C (IN.)	D (IN.)	E (IN.)	F (ELEV)	G (ELEV)	H (ELEV)	I (ELEV)	J (ELEV)	K (ELEV)	L (ELEV)	
5027	72	27	27			932.88	932.88			931.88	941.83	929.88	
9002	72	18	15			936.47	936.91			935.47	940.59	932.47	
9033	72	44 A	44 A			935.00	935.00			934.00	942.59	932.00	
9043	72	44 A	44 A			932.72	932.72			931.72	941.84	929.72	

GEOMETRY TABLE													
STRUCTURE NO.	A (IN.)	B (IN.)	C (IN.)	D (IN.)	E (IN.)	F (ELEV)	G (ELEV)	H (ELEV)	I (ELEV)	J (ELEV)	K (ELEV)	L (ELEV)	
5027	72	27	27	15	-	933.25	933.25	935.84	-	932.25	941.15	930.25	
9002	72	18	15	15	15	936.47	936.47	936.91	936.47	935.47	940.87	932.47	
9033	72	44 A	44 A	15	-	935.00	935.00	937.80	-	934.00	842.00	932.00	
9043	72	44 A	44 A	-	15	932.78	932.78	936.28	-	931.78	941.22	929.78	

d (IN.)	H (IN.)	θ (DEG.)		y (IN.)	Ys	D
		MIN.	MAX.			
12	34	130	230	12	MIN. 4 FT.	VARIES
15	34	130	230	12		
18	34	130	230	12		
21	44	140	220	12		
24	44	140	220	12		
27	44	140	220	12		
30	54	150	210	12		
36	54	150	210	12		



SEDIMENT COLLECTION DEVICE  
NO SCALE



DESIGN SPECIAL 2 - WATER QUALITY STRUCTURE  
NOT TO SCALE

RAMSEY COUNTY  
APPROVED  
JA 7-13-16

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS  
DONE BY: CMG  
DATE: 2/13/18

Date Printed: 6/13/2016  
WSB File Name: K:\03\189-000-Cad\Plan\03189-000-C-STRMDET.dwg

NO.	DATE	BY	CHK	REVISIONS	DESIGN BY:
1	5/13/16	EW	TW	ADDENDUM 1	DSS
2	6/15/16	JA		STORM SEWER REVISION	ERW
3	7/13/16	JA		STORM SEWER REVISION	JLB
					DSS

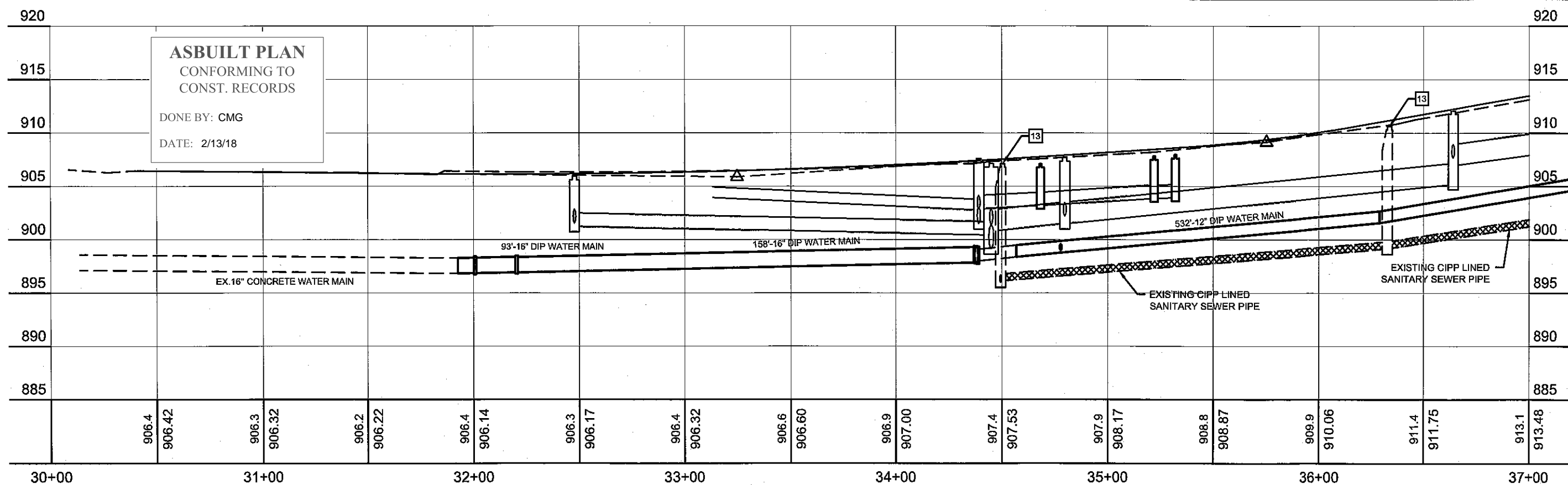
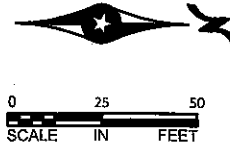
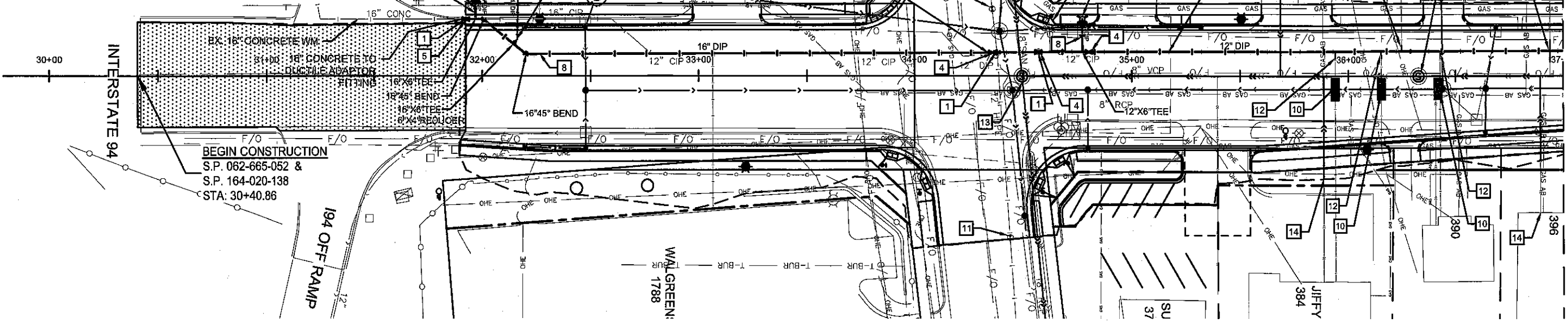
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
STORM SEWER DETAILS  
DESIGN SPECIAL 2  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
61C  
OF  
145  
SHEETS

**LEGEND**

- 1 CONNECT TO EXISTING WATER MAIN
- 2 6" GATE VALVE & BOX
- 3 8" GATE VALVE & BOX
- 4 12" BUTTERFLY VALVE & BOX
- 5 16" BUTTERFLY VALVE & BOX
- 6 20" OR 24" BUTTERFLY VALVE & BOX (AS NOTED)
- 7 12" WATERMAIN HDPE (PIPE BURSTING)
- 8 WATERMAIN DUCTILE IRON PIPE CL 52 (WATER MAIN REPLACEMENT)
- 9 HYDRANT
- 10 REM. 10' WTR SRVC, 10'-1" COPPER PIPE, CONN. TO EX. WTR SRVC (2)
- 11 ADJUST VALVE BOX (EXISTING TO REMAIN, SEE SPEC. DIV. S 2504)
- 12 WATER SERVICE TAPPING (INCIDENTAL TO WATER MAIN REPLACEMENT)
- 13 ADJUST FRAME AND RING CASTING (SANITARY SEWER MANHOLE)
- 14 REPLACE SANITARY SERVICE AND CONNECTION (SEE SEWER TAB Q)
- 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
- 16 2" INSULATION (4'X8') (FOR WATER LINE)



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Date Printed: 2/28/2018  
 WBS File Name: K:\01188-000\Cad\Plan\01188-000-C-SSWR-PL-A.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, JR., PE  
 DATE: 02/17/2018  
 LIC. NO. 49048



701 Xenia Avenue, Suite 300  
 Minneapolis, MN 55418  
 Tel: (763) 541-4000 - Fax: (763) 541-1700  
 wsb.org



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WATER AND SANITARY PLAN AND PROFILE**  
**STA. 30+00 TO 37+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**62**  
 OF  
**145**  
 SHEETS

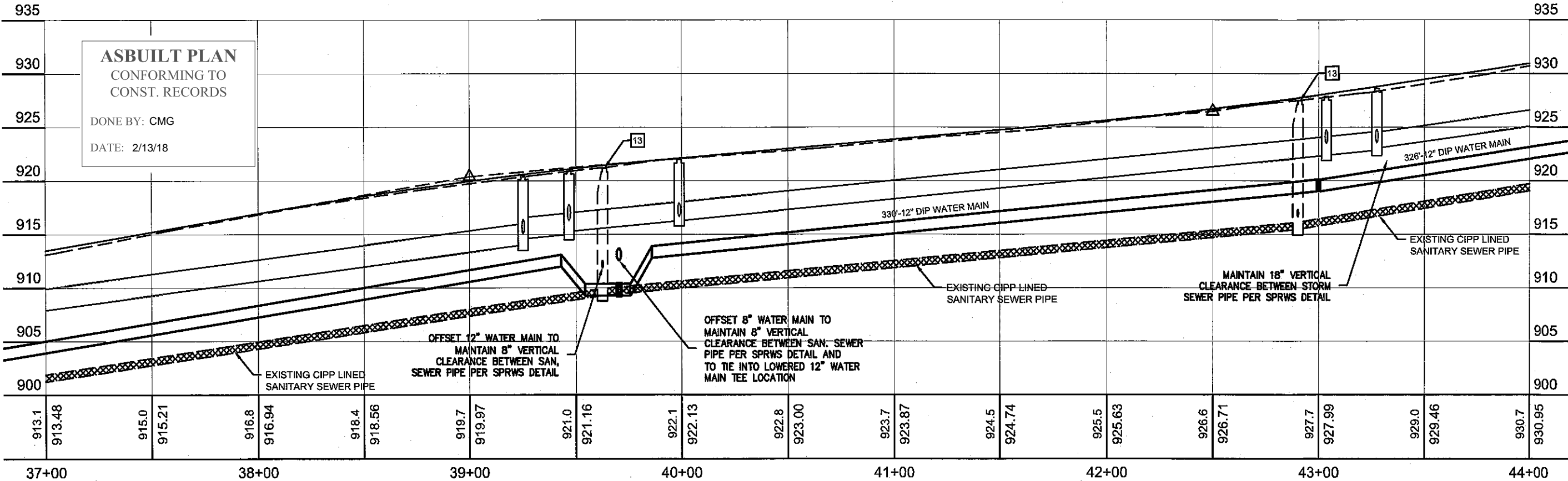
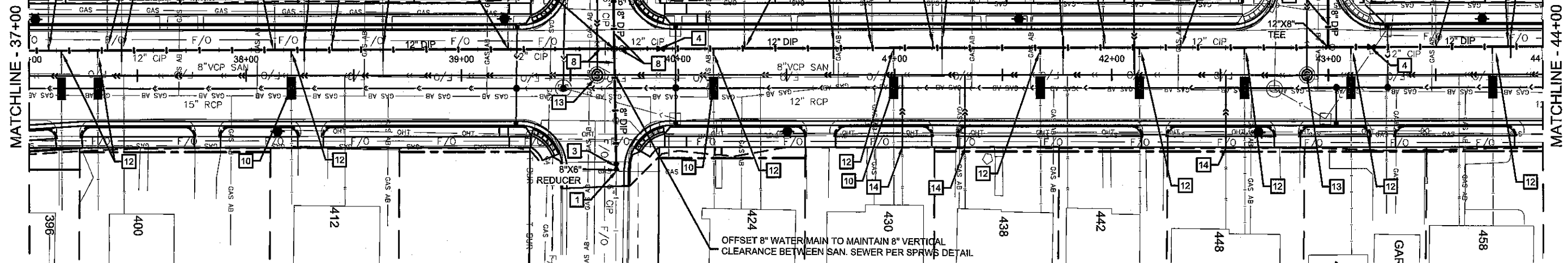
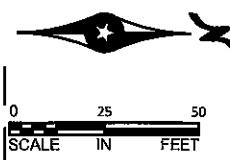
**LEGEND**

- 1 CONNECT TO EXISTING WATER MAIN
- 2 6" GATE VALVE & BOX
- 3 8" GATE VALVE & BOX
- 4 12" BUTTERFLY VALVE & BOX
- 5 16" BUTTERFLY VALVE & BOX
- 6 20" OR 24" BUTTERFLY VALVE & BOX (AS NOTED)
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- 8 WATERMAIN DUCTILE IRON PIPE CL 52 (WATER MAIN REPLACEMENT)
- 9 HYDRANT
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- 13 ADJUST FRAME AND RING CASTING (SANITARY SEWER MANHOLE)
- 14 REPLACE SANITARY SERVICE AND CONNECTION (SEE SEWER TAB Q)
- 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
- 16 2" INSULATION (4'X8') (FOR WATER MAIN)

MAINTAIN 18" VERTICAL CLEARANCE BETWEEN STORM SEWER PIPE PER SPRWS DETAIL

OFFSET 8" WATER MAIN TO MAINTAIN 18" VERTICAL CLEARANCE BETWEEN SEWER PIPE PER SPRWS DETAIL

OFFSET 8" WATER MAIN TO MAINTAIN 8" VERTICAL CLEARANCE BETWEEN SAN. SEWER PER SPRWS DETAIL



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
  
DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS  
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, JR., PE  
 DATE: 02/17/2016  
 NO. 48048



781 Xerxes Avenue South, Suite 202  
 Minneapolis, MN 55416  
 Tel: 612-833-5411-4800 - Fax: 612-833-5411-1700  
 wsbeng.com



**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

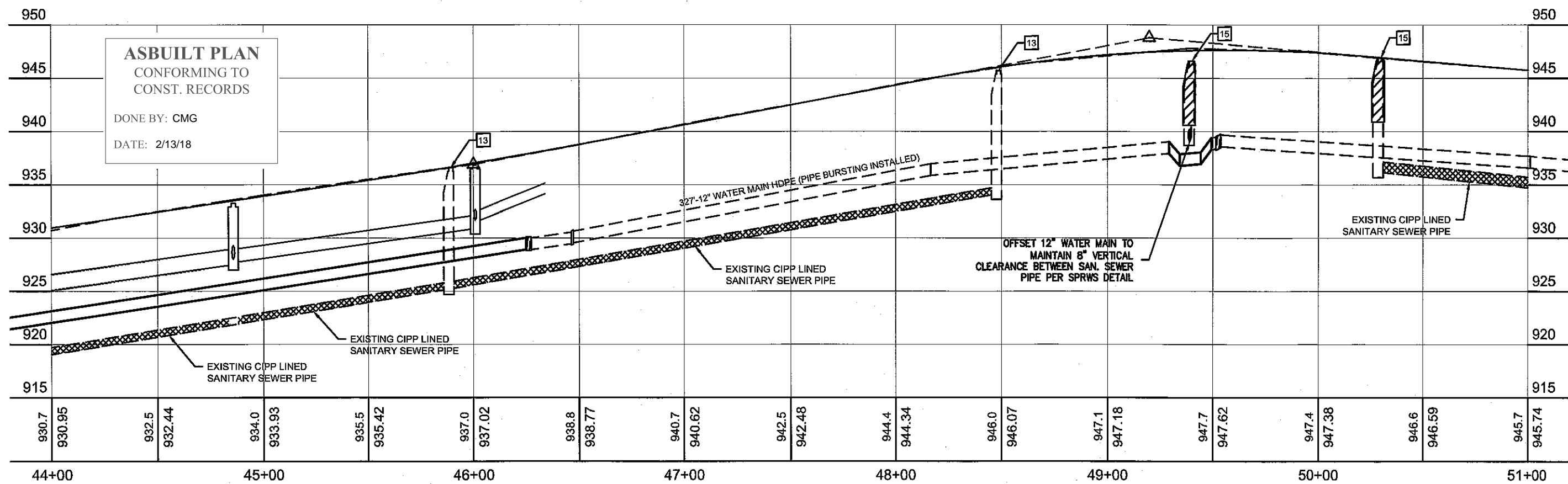
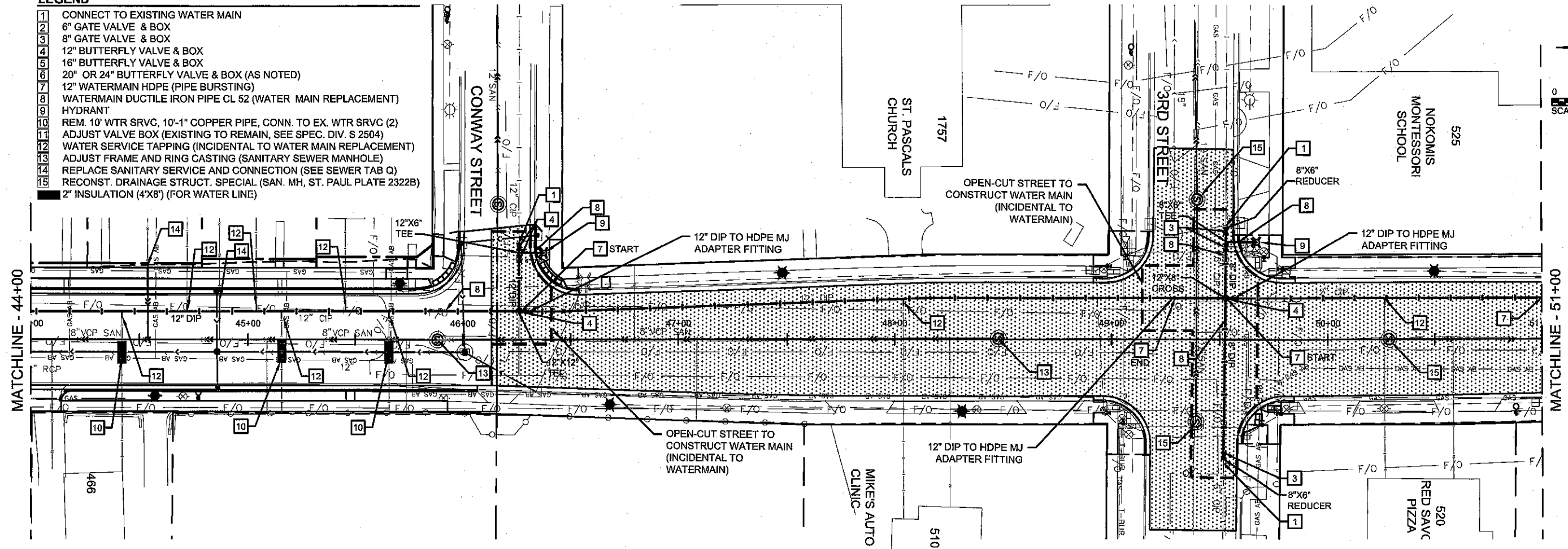
**RAMSEY COUNTY, MINNESOTA**  
**WATER AND SANITARY PLAN AND PROFILE**  
 STA. 37+00 TO 44+00  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**63**  
 OF  
**145**  
 SHEETS

Date Plotted: 2/28/2016  
 WSB Filename: N:\019189\001\CadPlan\03189-000-C-SSWR-PL\_A.dwg

**LEGEND**

- 1 CONNECT TO EXISTING WATER MAIN
- 2 6" GATE VALVE & BOX
- 3 8" GATE VALVE & BOX
- 4 12" BUTTERFLY VALVE & BOX
- 5 16" BUTTERFLY VALVE & BOX
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- 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
- 16 2" INSULATION (4'X8') (FOR WATER LINE)



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Data Printed: 2/26/2016 WBS File Name: KCD03160-000-CIPPlan10188-00-C-SSWR-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, JR., PE  
 DATE: 02/17/2016 LIC. NO.: 48048



701 Xerxes Avenue South, Suite 302  
 Minneapolis, MN 55416  
 Tel: (763) 841-4800 - Fax: (763) 841-1700  
 wsbeng.com



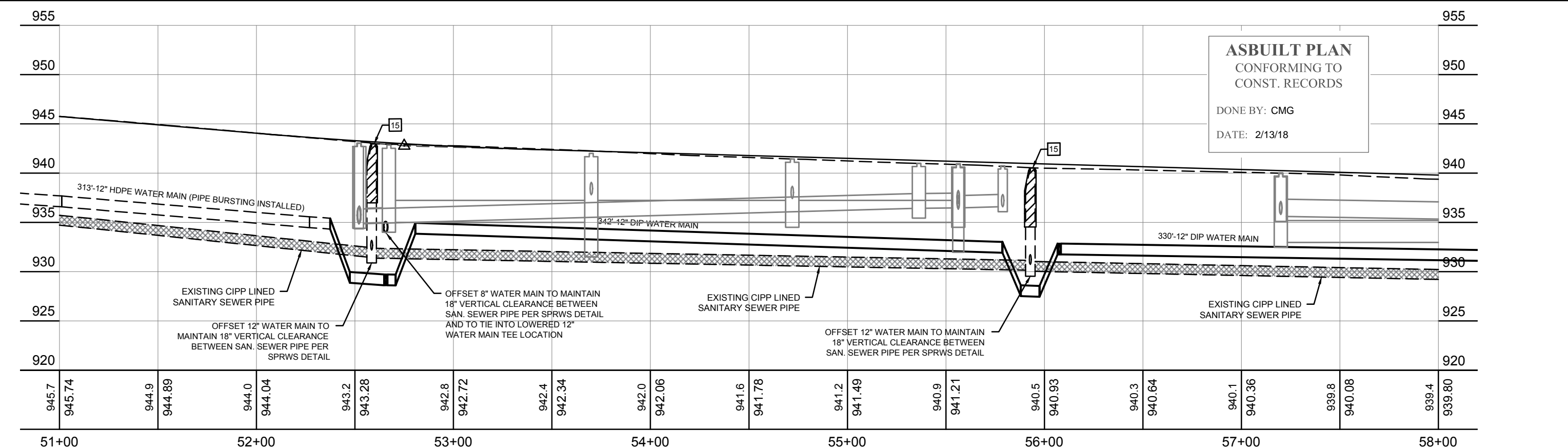
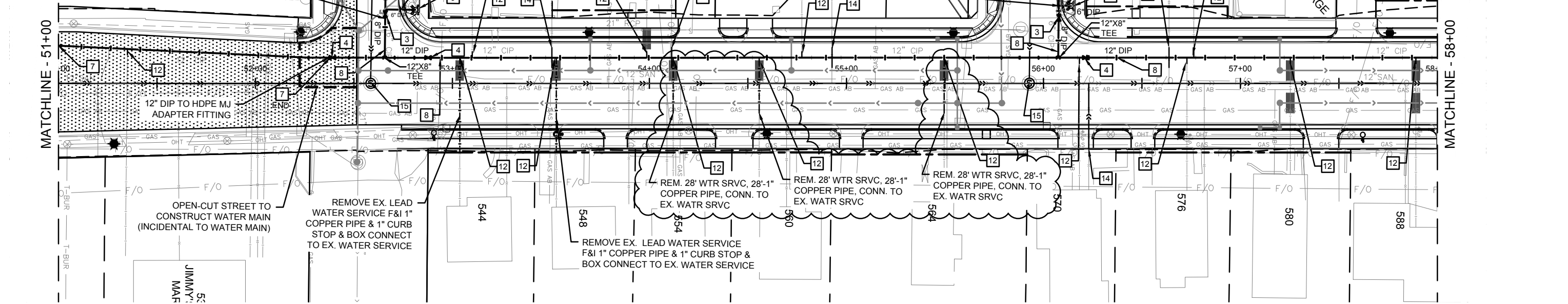
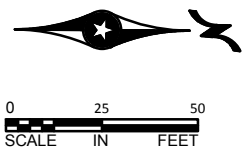
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WATER AND SANITARY PLAN AND PROFILE**  
**STA. 44+00 TO 51+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**64**  
 OF  
**145**  
 SHEETS

**LEGEND**

- 1 CONNECT TO EXISTING WATER MAIN
- 2 6" GATE VALVE & BOX
- 3 8" GATE VALVE & BOX
- 4 12" BUTTERFLY VALVE & BOX
- 5 16" BUTTERFLY VALVE & BOX
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- 14 REPLACE SANITARY SERVICE AND CONNECTION (SEE SEWER TAB Q)
- 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
- 16 2" INSULATION (4'X8') (FOR WATER LINE)



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TV	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIEL S. SOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO.: 49048

701 Xerve Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (760) 541-4000 Fax: (760) 541-1700  
 wsb.org

**RAMSEY COUNTY**

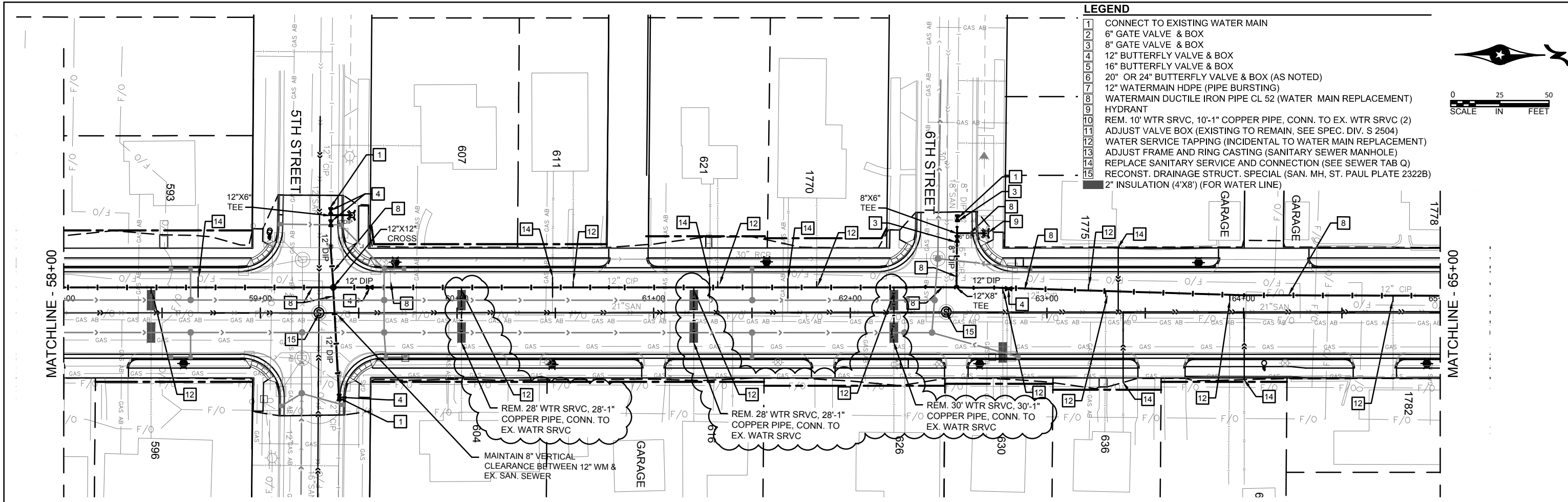
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

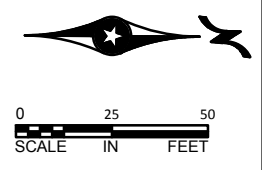
**WATER AND SANITARY PLAN AND PROFILE**  
**STA. 51+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
65  
OF  
145  
SHEETS

Date Printed: 5/13/2016  
 WSB File Name: K:\03188-000-Cad\Plan\03188-000-C-SSWR-pl-1.dwg

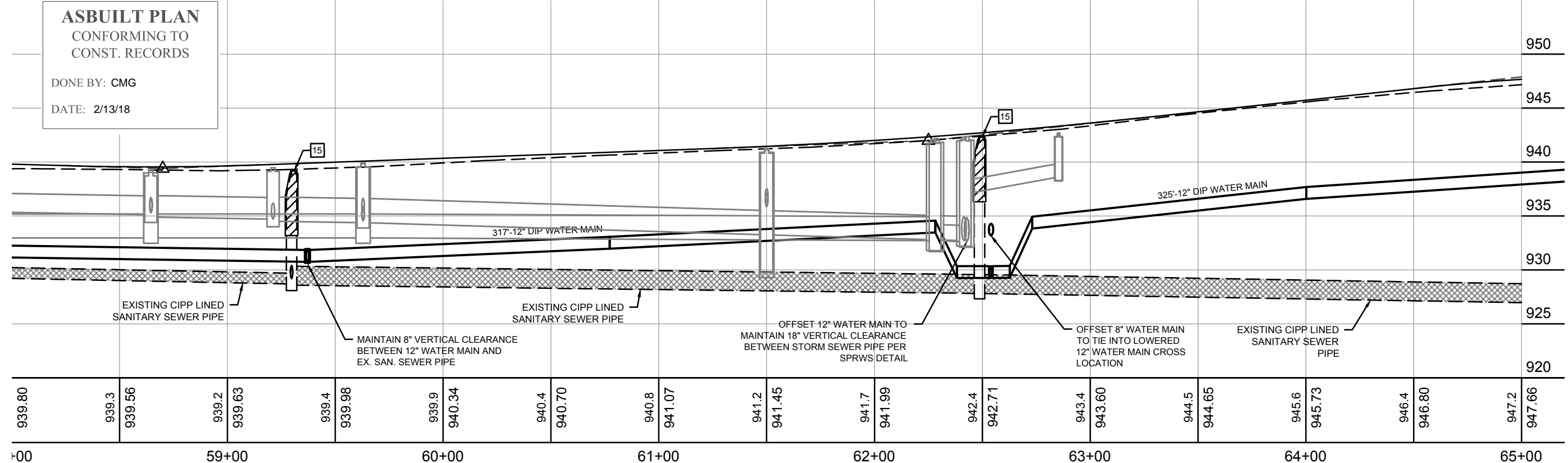


- LEGEND**
- 1 CONNECT TO EXISTING WATER MAIN
  - 2 6" GATE VALVE & BOX
  - 3 8" GATE VALVE & BOX
  - 4 12" BUTTERFLY VALVE & BOX
  - 5 16" BUTTERFLY VALVE & BOX
  - 6 20" OR 24" BUTTERFLY VALVE & BOX (AS NOTED)
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  - 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
  - 2" INSULATION (4'X8') (FOR WATER LINE)



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	TV	ADDENDUM 1

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANIL S. SOSA, JR. PE  
 DATE: 05/13/2016 LIC. NO. 49048



701 Xerve Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (760) 541-4000 - Fax: (760) 541-1700  
 wsb.org



**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

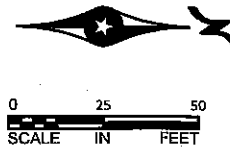
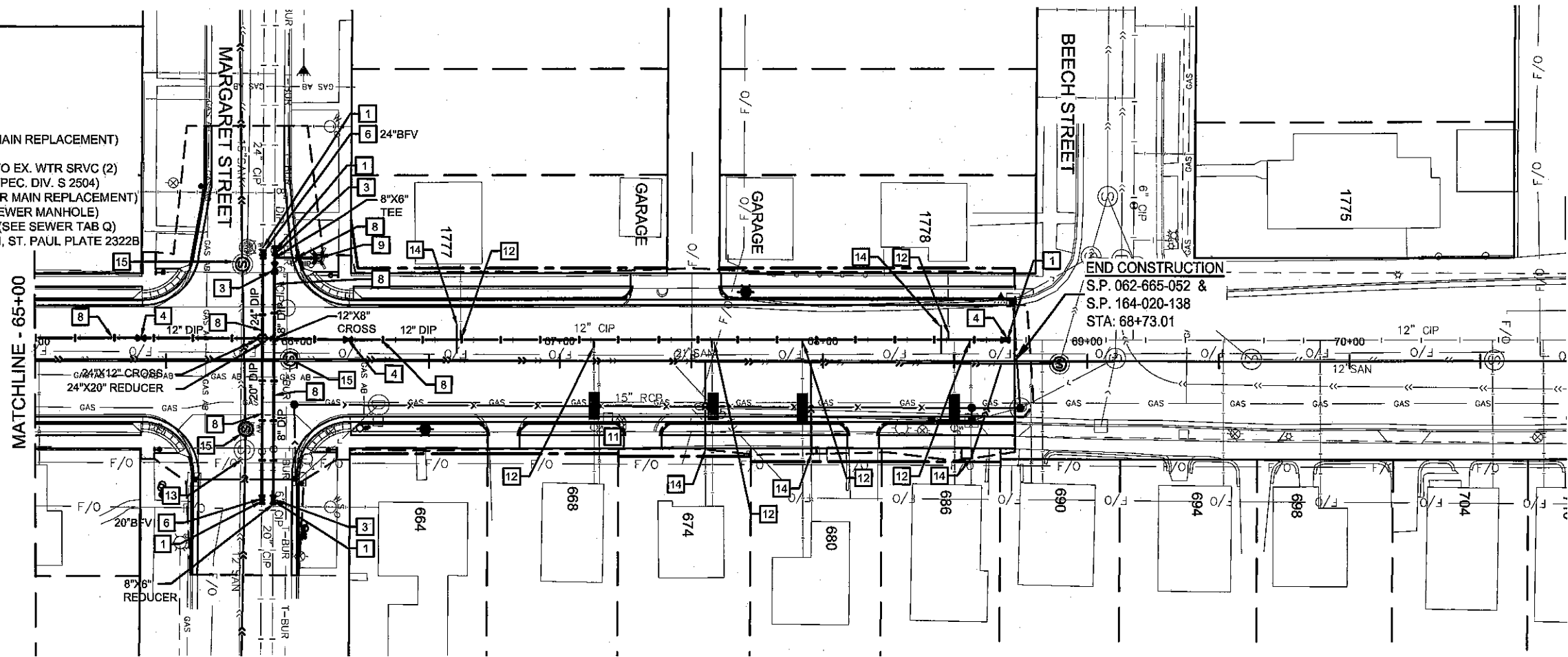
**RAMSEY COUNTY, MINNESOTA**  
**WATER AND SANITARY PLAN AND PROFILE**  
**STA. 58+00 TO 65+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**66**  
 OF  
**145**  
 SHEETS

Date Printed: 5/13/2016  
 WSB File Name: K:\03188-000-Cad\Plan\03188-000-C-SSWR-PLAN.dwg

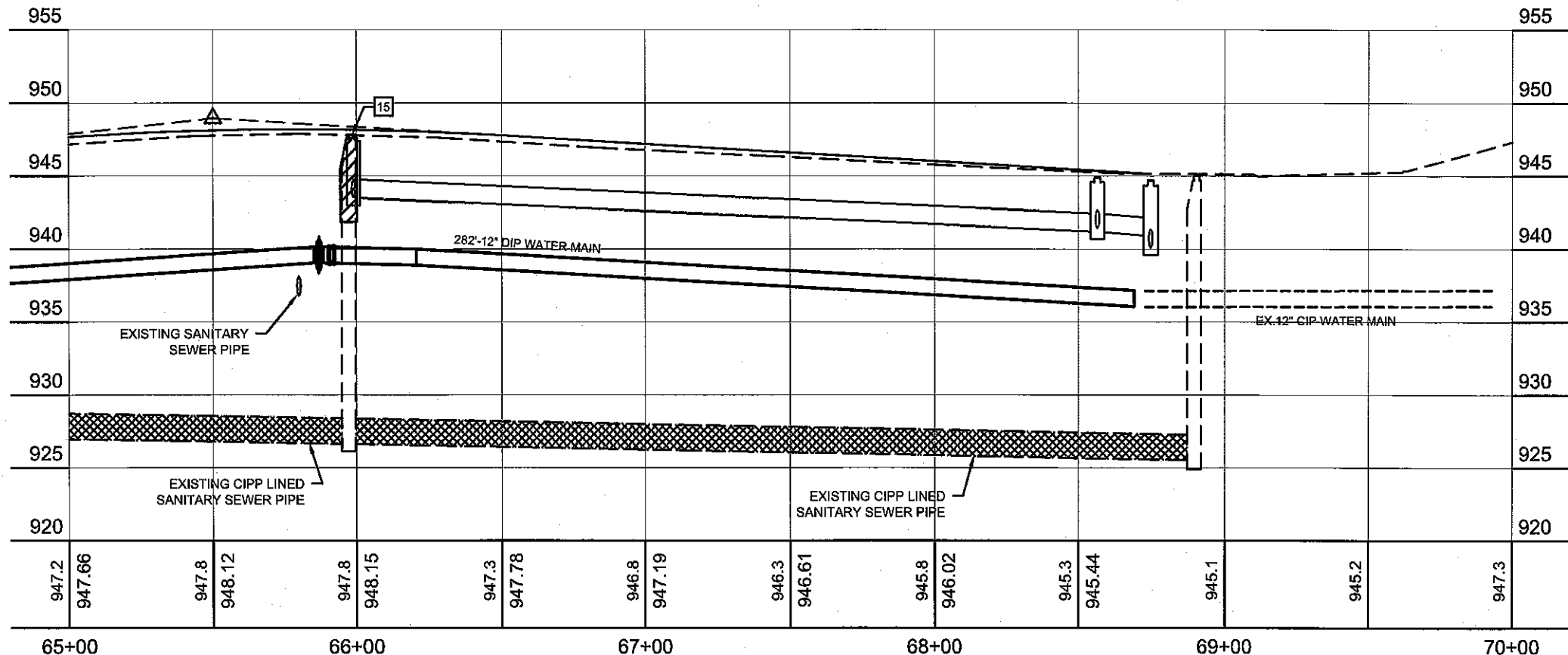
**LEGEND**

- 1 CONNECT TO EXISTING WATER MAIN
- 2 6" GATE VALVE & BOX
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- 15 RECONST. DRAINAGE STRUCT. SPECIAL (SAN. MH, ST. PAUL PLATE 2322B)
- 2" INSULATION (4'X8') (FOR WATER LINE)



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



Date Plotted: 2/26/2016  
 WBS File Name: C:\3199-000\Cadd\Plan\3199-000-C-SWR-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILLO S. SOSA, JR., PE  
 DATE: 02/17/2016  
 LIC. NO.: 49048



701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbeng.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WATER AND SANITARY PLAN AND PROFILE**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 67  
 OF  
 145  
 SHEETS



**CHAIN OF COMMAND**

RAMSEY COUNTY PUBLIC WORKS (OWNER) WILL SUBMIT A NOTICE OF TERMINATION (N.O.T.) AFTER FINAL ESTABLISHMENT OF ALL PERVIOUS SURFACES ACCORDING TO THE MPCA GENERAL PERMIT REQUIREMENTS.

**EROSION PREVENTION PRACTICES**

APPROPRIATE CONSTRUCTION PRACTICES WILL BE USED TO MINIMIZE EROSION. AREAS OF NON-DISTURBANCE WILL BE DELINEATED (E.G. WITH FLAGS, STAKES, SIGNS, OR SILT FENCE) ON THE DEVELOPMENT SITE BEFORE WORK BEGINS.

ALL EXPOSED SOIL AREAS (INCLUDING STORM WATER POND SIDE SLOPES OR EXPOSED SOILS WITH A POSITIVE SLOPE TO A STORM WATER CONVEYANCE WITH A CONTINUOUS POSITIVE SLOPE WITHIN 200 LINEAL FEET OF A SURFACE WATER, WILL HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER FOR THE EXPOSED SOIL AREAS YEAR ROUND, ACCORDING TO THE FOLLOWING TABLE OF SLOPES AND TIME FRAMES:

TYPE OF SLOPE	TIME (MAXIMUM TIME AN AREA CAN REMAIN OPEN WHEN THE AREA IS NOT ACTIVELY BEING WORKED.)
STEEPER THAN 3:1	7 DAYS
10:1 TO 3:1	7 DAYS
FLATTER THAN 10:1	7 DAYS

THE NORMAL WETTED PERIMETER OF TEMPORARY OR PERMANENT DRAINAGE DITCHES WILL BE STABILIZED WITHIN 200 FEET OF THE PROPERTY EDGE, OR POINT OF DISCHARGE STABILIZATION WILL BE COMPLETED WITHIN 24 HOURS OF CONNECTION.

PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER.

**SEDIMENT CONTROL PRACTICES**

SEDIMENT CONTROL PRACTICES WILL BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETER BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN.

3:1 OR STEEPER SLOPES WITH A LENGTH OF GREATER THEN 75 FEET FOR SLOPES REQUIRE SLOPE BREAKS.

ALL STORM DRAIN INLETS WILL BE PROTECTED BY APPROPRIATE BMPS DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED .INLET PROTECTION MUST HAVE OVERFLOW CAPACITY.

TEMPORARY SOIL STOCKPILES WILL HAVE SEDIMENT CONTROLS, AND WILL NOT BE PLACED IN STORM WATER CONVEYANCES OR SURFACE WATERS.

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE WILL BE MINIMIZED USING THE APPROPRIATE BMPS. STREET SWEEPING WILL BE USED IF SUCH BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.

**EROSION AND SEDIMENT CONTROL SEQUENCING**

GRADING AND UTILITY- SILT FENCE, CONSTRUCTION ENTRANCE, AND/OR OTHER PERIMETER EROSION CONTROL MEASURE WILL BE INSTALLED PRIOR TO THE START OF ANY GRADING OR LAND DISTURBING ACTIVITY. TOPSOIL STOCKPILES WILL BE STORED AND PROTECTED ON SITE. TEMPORARY STABILIZATION WILL BE ESTABLISHED BY SEED AND MULCH, AND EROSION CONTROL BLANKET A SPECIFIED IN PLAN SHEETS PRIOR TO SUBMITTAL OF THE MPCA PERMIT N.O.T. PERIMETER CONTROL TO INCLUDE ALL POSSIBLE BMP'S.

CONCRETE AND CONCRETE TRUCKS, CONCRETE WASTE, CONCRETE TOOLS, AND TRUCKS MUST ALL WASH OUT IN A DESIGNATED AREA. THE DESIGNATED AREA MUST BE CLEARLY IDENTIFIED ON THE SITE AND COMMUNICATED TO ALL PERSONNEL INVOLVED WITH CAST-IN-PLACE CONCRETE AS THE WASHOUT AREA THE DESIGNATED AREA MUST MEET MPCA REGULATIONS OF A DEFINED CONCRETE WASHOUT AREA. THE FOLLOWING THREE OPTIONS ARE CONSIDERED AN APPROVED METHOD:

- 1) KEEP ALL CONCRETE WASHOUT SELF-CONTAINED AND RETURNED TO AN INDUSTRIAL SITE TO BE DISPOSED OF IN A MPCA APPROVED MANNER.
- 2) PROVIDING A PREFABRICATED CONCRETE WASHOUT CONTAINER THAT ALL CONCRETE WASHOUT CAN BE COLLECTED IN. THESE CONTAINERS SHOULD BE MAINTAINED ON A REGULAR BASIS.
- 3) CREATING A SELF INSTALLED WASHOUT FACILITY WITH AN IMPERMEABLE LINER AN ENGINEERED CLAY LINER WILL BE CONSIDERED AN IMPERMEABLE LINER.

FOR ADDITIONAL INFORMATION ON CONCRETE WASHOUT REGULATIONS, PLEASE SEE THE MPCA'S MEMORANDUM "CONCRETE WASHOUT GUIDANCE".

**DEWATERING AND BASIN DRAINING**

DEWATERING OR BASIN DRAINING ACTIVITIES OF TURBID OR SEDIMENT LADEN WATER WILL BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN OR TREATED WITH THE APPROPRIATE BMP PRIOR TO ENTERING THE SURFACE WATER. ENERGY DISSIPATION WILL BE PROVIDED AT ALL DISCHARGE POINTS. DEWATERING OR BASIN DRAINING ACTIVITIES WILL NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING CHANNELS OR ON DOWN SLOPE PROPERTIES, OR ADVERSELY IMPACT WETLANDS.

**POLLUTION PREVENTION MANAGEMENT MEASURES**

SOLID WASTE: COLLECTED SEDIMENT, ASPHALT, CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA REGULATIONS.

HAZARDOUS WASTE: OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

EXTERNAL WASHING OF TRUCKS: MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING ALLOWED ON SITE.

**INSPECTIONS AND MAINTENANCE**

INSPECTIONS WILL BE CONDUCTED ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS.

INSPECTIONS AND MAINTENANCE RECORDS WILL BE RETAINED ON SITE WITH THE SWPPP.

ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITIES IS REACHING THE INFILTRATION AREA AND THESE AREAS ARE PROTECTED FROM COMPACTING DUE TO CONSTRUCTION EQUIPMENT DRIVING ACROSS THE INFILTRATION AREA.

STABILIZED AREAS WILL BE INSPECTED ONCE PER MONTH. WHERE WORK HAS BEEN SUSPENDED DUE TO FROZEN GROUND CONDITIONS, INSPECTIONS AND MAINTENANCE WILL TAKE PLACE AS SOON AS RUNOFF OCCURS AT THE SITE PRIOR TO RESUMING CONSTRUCTION, WHICHEVER COMES FIRST.

ALL SILT FENCE MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/3 THE HEIGHT OF THE FENCE. THESE REPAIRS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

CONSTRUCTION SITE VEHICLE EXIT LOCATIONS MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL OFF-SITE PAVED SURFACES, WITHIN 24 HOURS OF DISCOVERY.

**REQUIREMENTS**

1. CONTACT NICOLE SODERHOLM, RAMSEY-WASHINGTON METRO WATERSHED DISTRICT, AT 651-792-7976 PRIOR TO BEGINNING ANY AND ALL CONSTRUCTION ACTIVITY.
2. SPECIFIED EROSION/SEDIMENT MEASURES ARE THE MINIMUM. ADDITIONAL PRACTICES MAY BE REQUIRED DURING THE COURSE OF CONSTRUCTION.
3. THE EROSION CONTROL COORDINATOR RESPONSIBLE FOR THE SWPPP IS MOLLY CHURCHICH WITH RAMSEY COUNTY, 651-266-7159.

SWPPP TABULATION		
ITEMS	UNITS	QUANTITY
STREET SWEEPER (WITH PICKUP BROOM)	HOUR	175
WATER	MGAL	100
DECIDUOUS TREE 2.5" CAL B&B	EACH	95
STORM DRAIN INLET PROTECTION	EACH	66
SILT FENCE, TYPE MS	LF	222
SEDIMENT CONTROL LOG TYPE COMPOST	LF	400
FERTIZILER TYPE 3	LB	250
COMMON TOPSOIL BORROW (LV)	CY	576
SODDING TYPE LAWN	SY	3457
MULCH MATERIAL TYPE 6	CY	33
HYDRAULIC MULCH MATRIX	LB	4495

EXISTING IMPERVIOUS SURFACE	ACRES	4.69
PROPOSED IMPERVIOUS SURFACE	ACRES	5.58
NET ADDITIONAL IMPERVIOUS SURFACE	ACRES	0.89

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

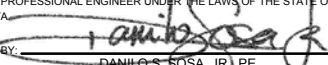
DONE BY: CMG

DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS
1	5/13/16	EW	DS	ADDENDUM 1

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

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

CERTIFIED BY:   
DANILO S. GOSA, JR. PE  
DATE: 05/13/2016 LIC. NO.: 49048



701 Xerox Avenue South, Suite 300  
Wynona, MN 56418  
Tel: (763) 541-4000 Fax: (763) 541-1700  
wsbmg.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

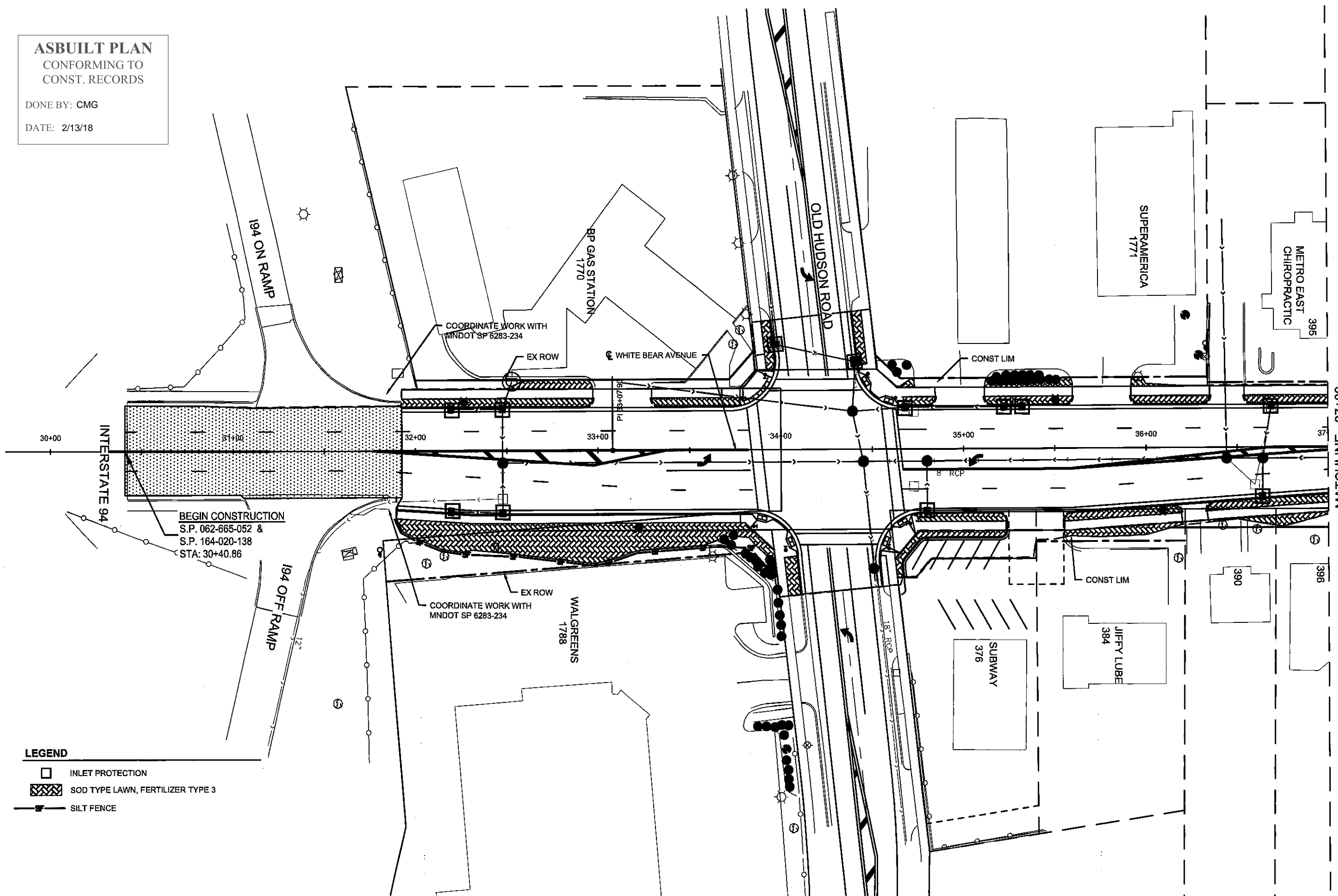
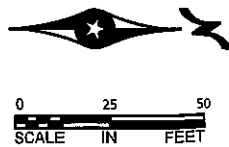
**SWPPP NARRATIVE**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**68**  
OF  
**145**  
SHEETS

Date Printed: 4/5/2016  
WSB Filename: K:\03\189-000-Cad\Plan\03189-000-C-SWPPP-NOTE.dwg

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



BEGIN CONSTRUCTION  
S.P. 062-665-052 &  
S.P. 164-020-138  
STA: 30+40.86

**LEGEND**

- INLET PROTECTION
- SOD TYPE LAWN, FERTILIZER TYPE 3
- SILT FENCE

Date Plotted: 1/22/2018  
WSB Filename: K03188-C010001P0001001000-00-C-EROS-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY:   
DANILO S. SOSULSKI  
DATE: 02/17/2016 LIC. NO.: 48048



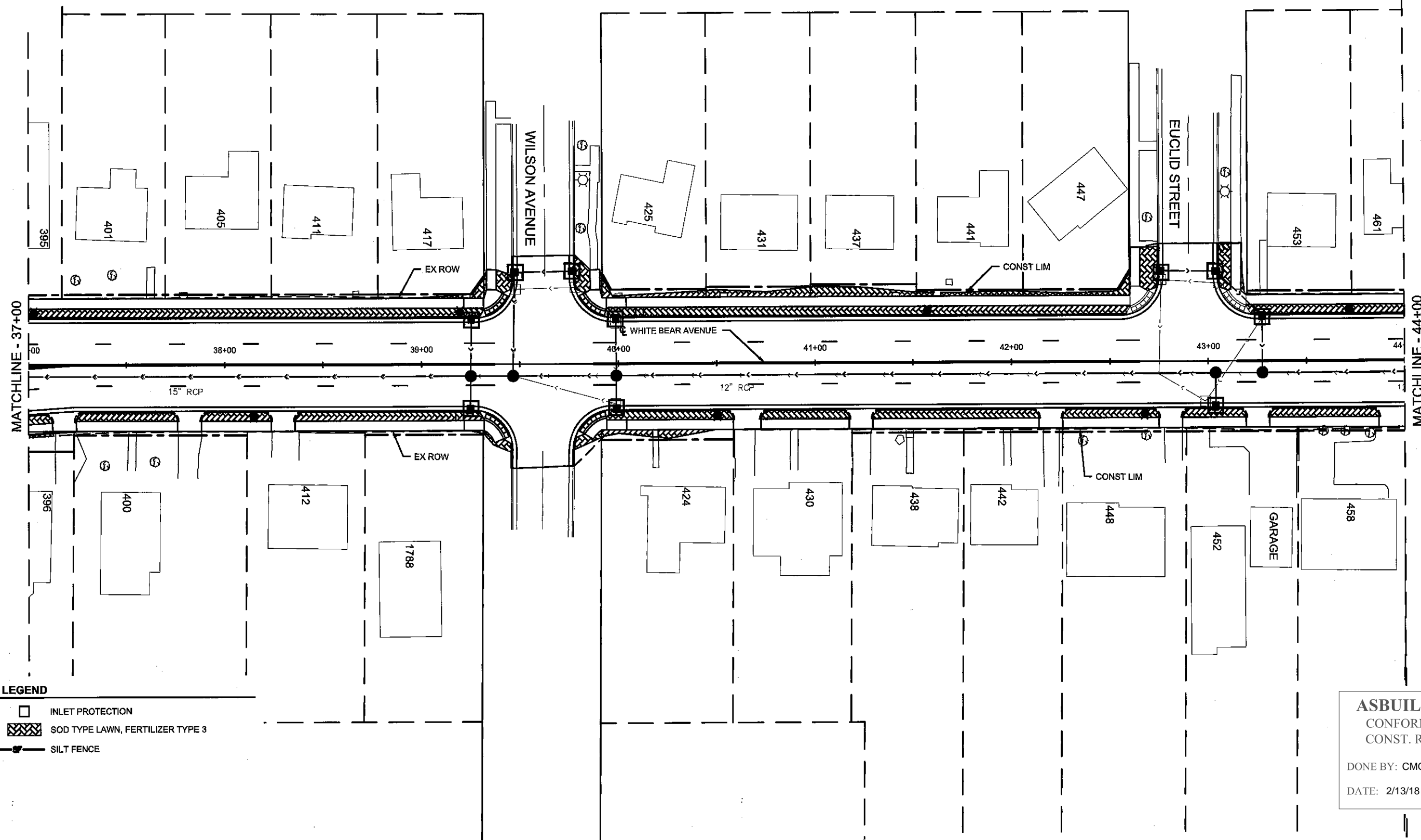
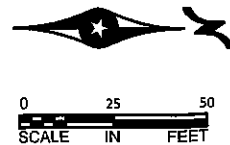
701 Xerxes Avenue South, Suite 300  
Maplewood, MN 55416  
Tel: (783) 541-4800 - Fax: (783) 541-1700  
wsbeng.com



**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 30+00 TO 37+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
69  
OF  
145  
SHEETS



- LEGEND**
- INLET PROTECTION
  - SOD TYPE LAWN, FERTILIZER TYPE 3
  - SILT FENCE

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 1/22/2018  
 WSB Filename: K:\3185-000\Cad\Plan\03185A000-C-EROS-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILO S. SOSA, JR. P.E.  
 DATE: 02/17/2018 LIC. NO. 49048



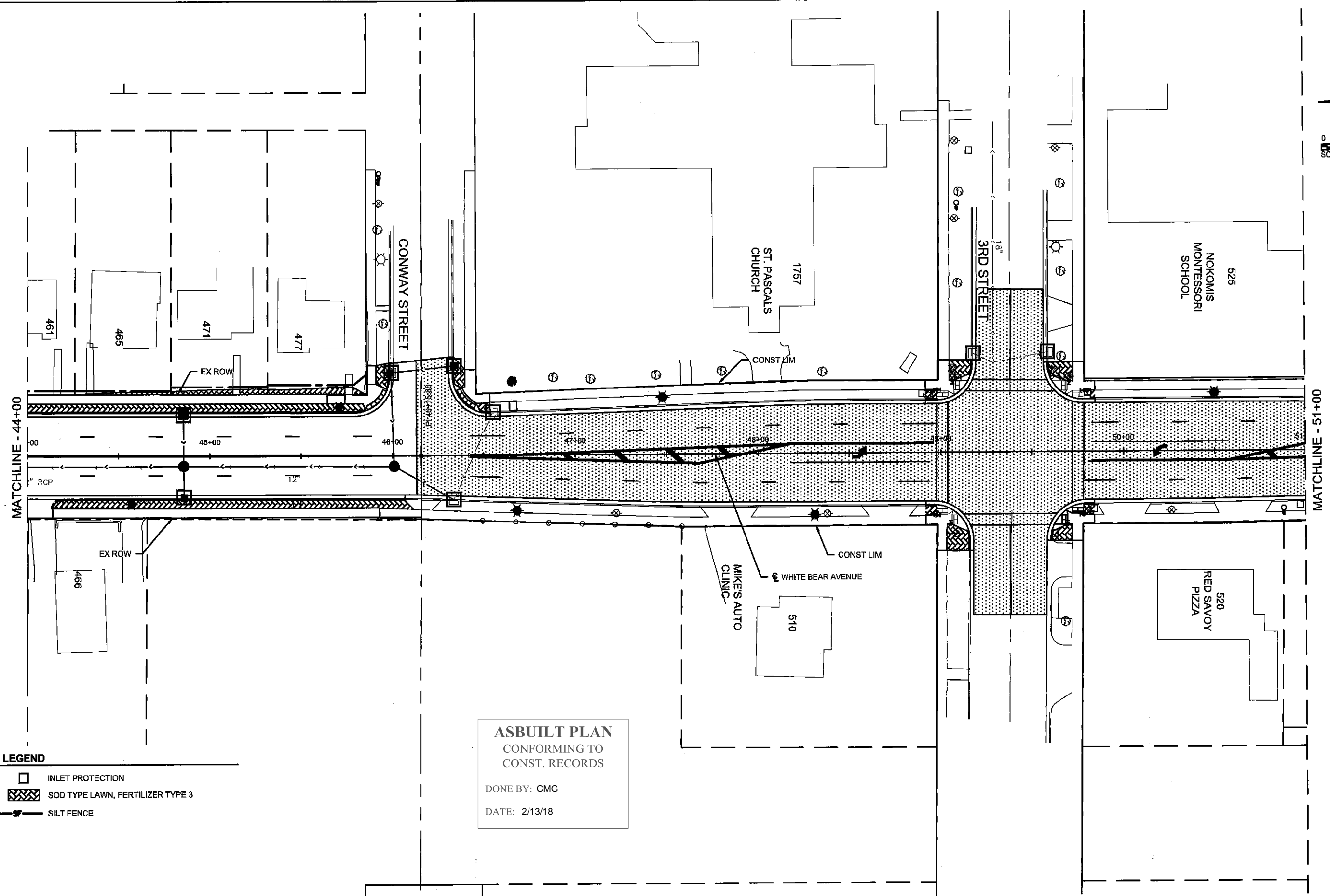
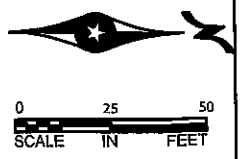
701 Xerox Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsb.org.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 37+00 TO 44+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**70**  
 OF  
**145**  
 SHEETS



**LEGEND**

- INLET PROTECTION
- SOD TYPE LAWN, FERTILIZER TYPE 3
- SILT FENCE

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Printed: 1/22/2018  
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NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILLO S. SOSA, P.E.  
 LIC. NO. 49048  
 DATE: 02/17/2018



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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 44+00 TO 51+00**  
 S.P. 062-665-052 / S.P. 164-020-138

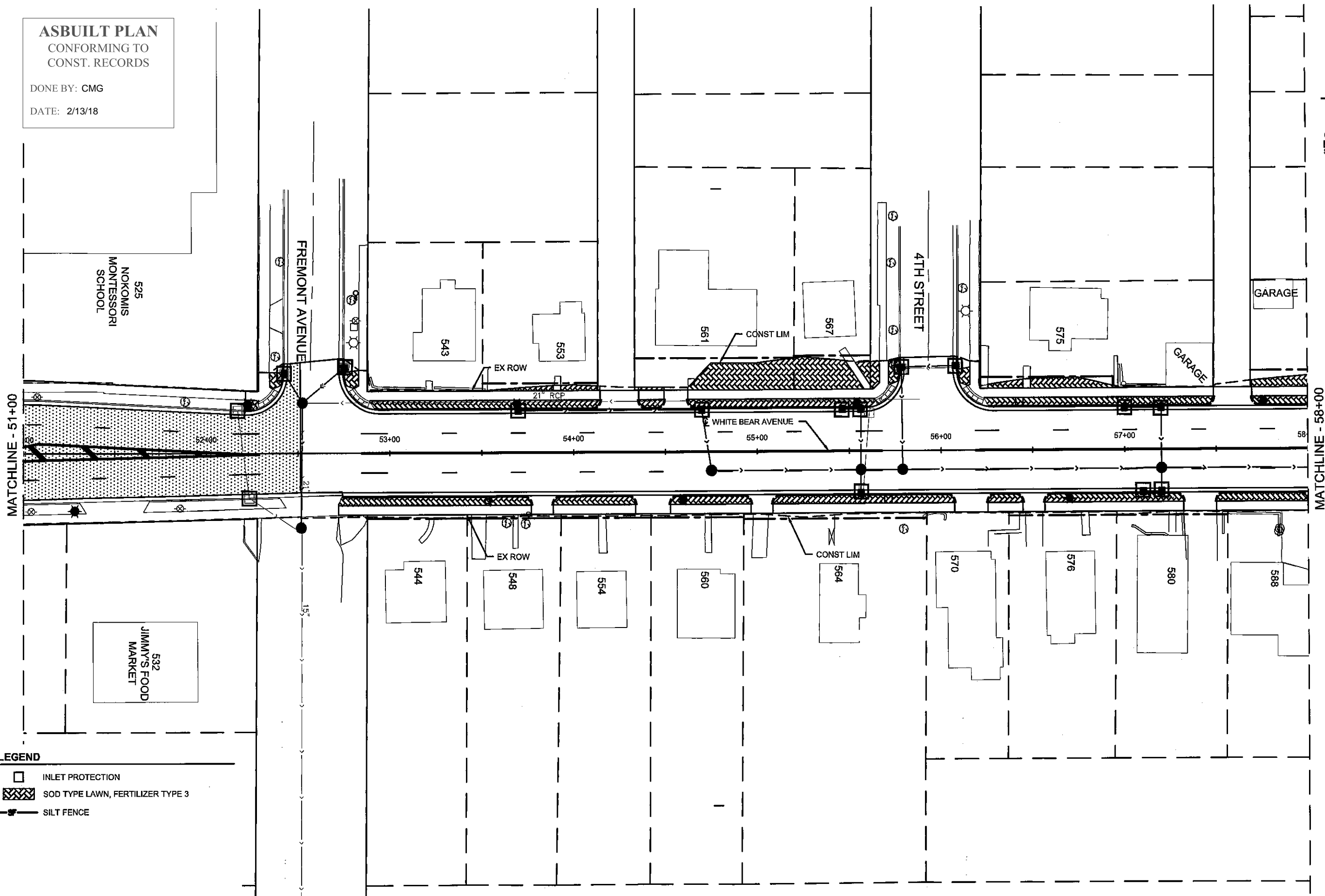
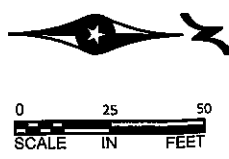
SHEET  
 71  
 OF  
 145  
 SHEETS

**ASBUILT PLAN**




CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



**LEGEND**

-  INLET PROTECTION
-  SOD TYPE LAWN, FERTILIZER TYPE 3
-  SILT FENCE

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

*Dani O. S. A. Jr.*  
 DANIL O. S. A. JR. PE  
 DATE: 02/17/2018 LIC. NO.: 49048



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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 51+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

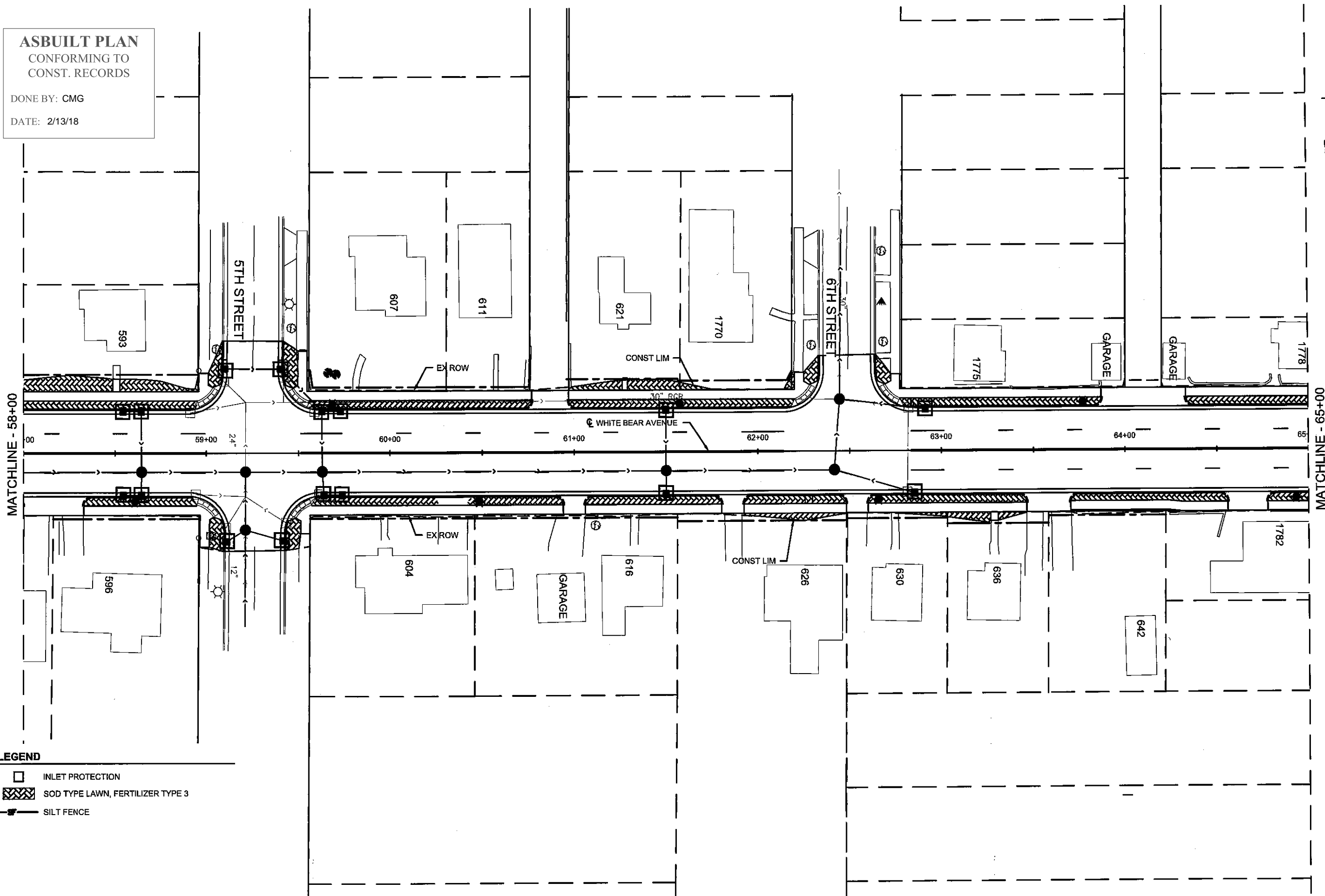
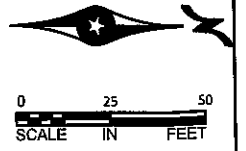
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Date Printed: 1/22/2016 WSB Filename: K033186-000001Plan001189-000-C-EROS-PLAN.dwg

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



**LEGEND**

- INLET PROTECTION
- SOD TYPE LAWN, FERTILIZER TYPE 3
- SILT FENCE

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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CERTIFIED BY: *[Signature]*  
 DANIEL O. ROSA, JR., PE  
 DATE: 02/17/2018 LIC NO: 49048



701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4800 - Fax: (783) 641-1700  
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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 58+00 TO 65+00**  
 S.P. 062-665-052 / S.P. 164-020-138

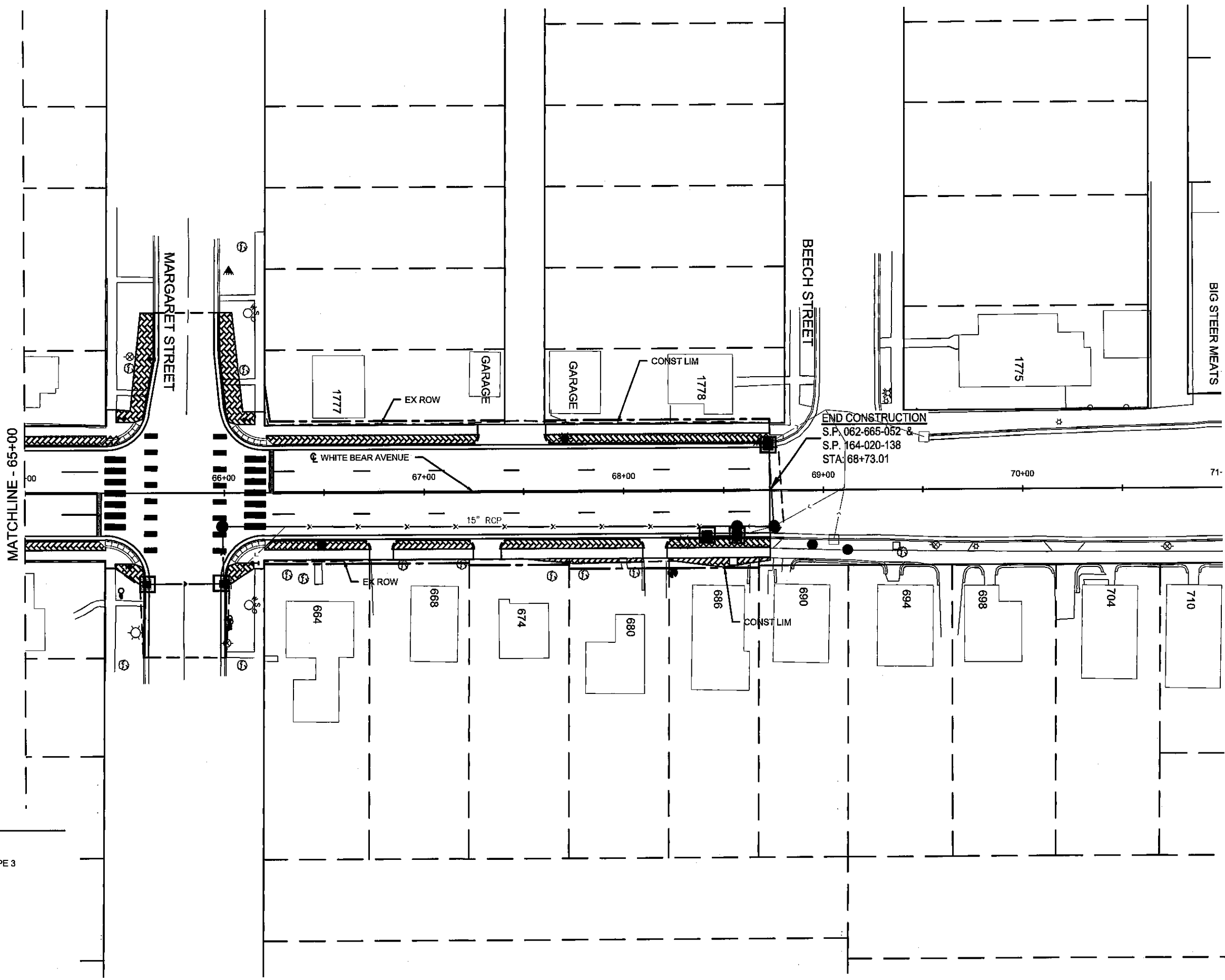
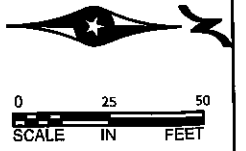
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Date Printed: 1/22/2016  
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**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



**LEGEND**

- INLET PROTECTION
- SOD TYPE LAWN, FERTILIZER TYPE 3
- SILT FENCE

Date Plotted: 1/22/2018  
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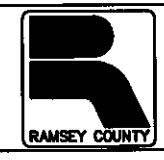
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 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CANCELLED BY:   
 DANILO S. BORJA, JR. PE  
 DATE: 02/17/2016 LIC. NO.: 49048



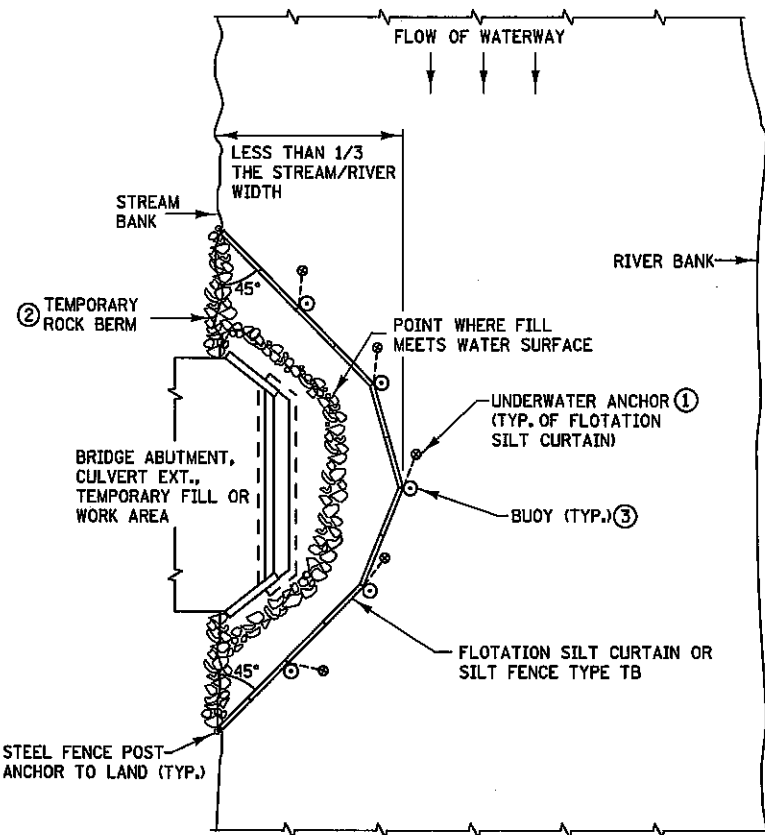
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 Minneapolis, MN 55416  
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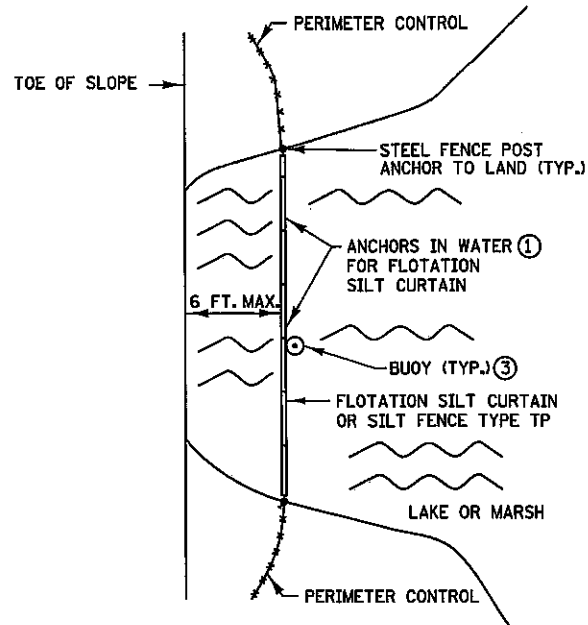
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**TURF ESTABLISHMENT AND EROSION CONTROL**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

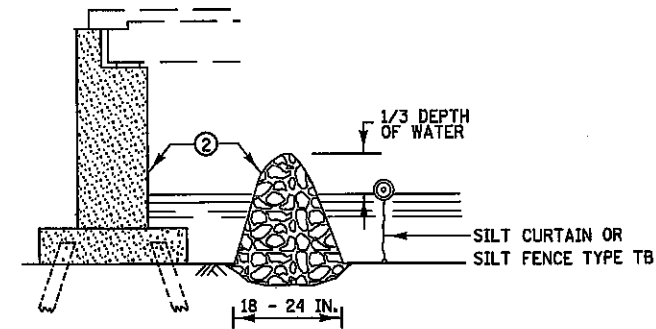
SHEET  
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 OF  
**145**  
 SHEETS



PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤

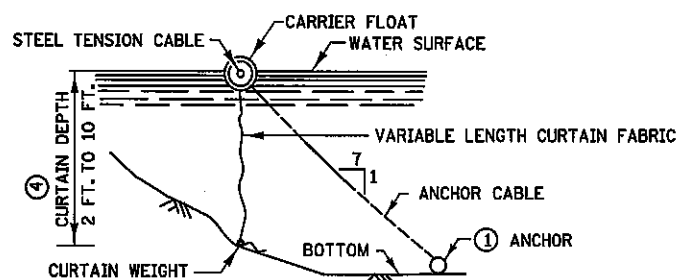


TEMPORARY ROCK BERM FOR SEDIMENT CONTROL

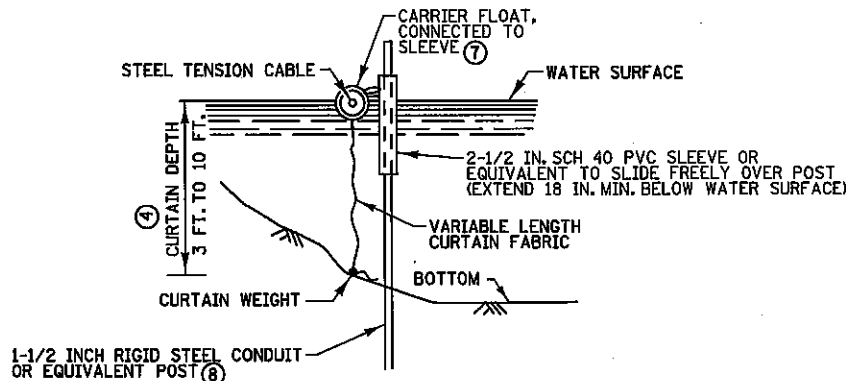
INSTALLATION GUIDELINES  
SILT FENCE TYPE TB  
MINIMUM WATER DEPTH: 1 FT.  
MAXIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④  
FLOTATION SILT CURTAIN TYPE: STILL WATER  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 2 FT./SEC.  
MAXIMUM WAVE HEIGHT: 1 FT

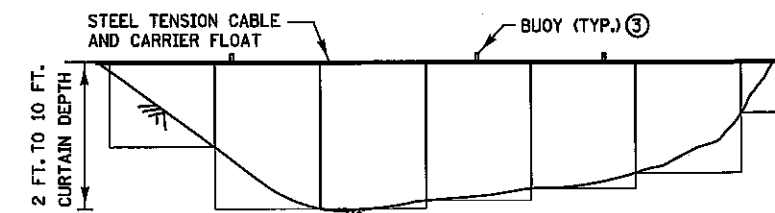
INSTALLATION GUIDELINES ④  
FLOTATION SILT CURTAIN TYPE: MOVING WATER  
MINIMUM WATER DEPTH: 3 FT.  
MAXIMUM WATER DEPTH: 10 FT.  
MAXIMUM WATER VELOCITY: 5 FT./SEC.  
MAXIMUM WAVE HEIGHT: 2 FT.



FLOTATION SILT CURTAIN



ALTERNATE FLOTATION SILT CURTAIN



FRONT VIEW FOR FLOTATION SILT CURTAIN

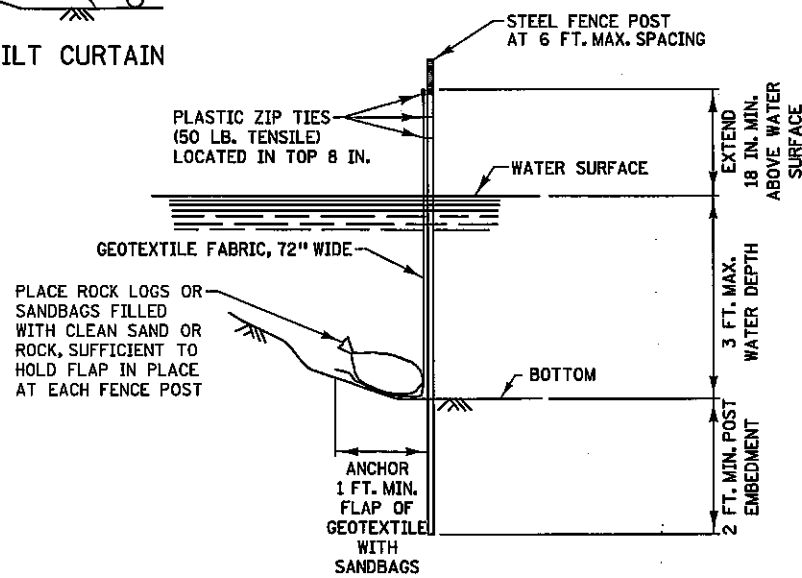
NOTES:

- SEE SPECS. 2573, 3886, 3887 & 3893.
- ① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.
- ② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.
- ③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.
- ④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.
- ⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.
- ⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.
- ⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.
- ⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



SILT FENCE TYPE TB ⑥

REVISION:

APPROVED: 8-6-2014

*[Signature]*  
CHIEF ENVIRONMENTAL OFFICER

REVISION:  
*[Signature]* APPROVED:  
8-6-2014  
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL  
SILT CURTAIN OR SILT FENCE TYPE TB

STANDARD PLAN 5-297.405 1 OF 7

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS



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Minneapolis, MN 55418  
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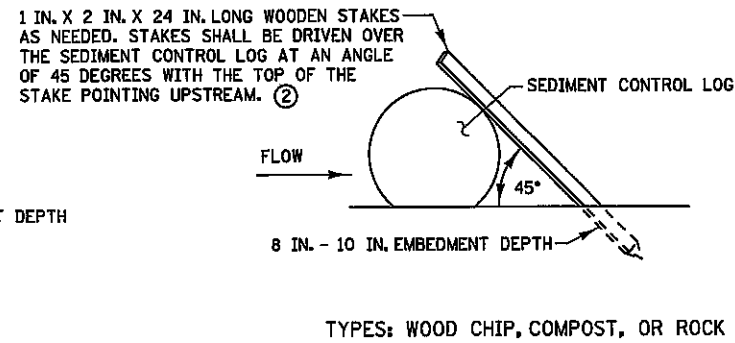
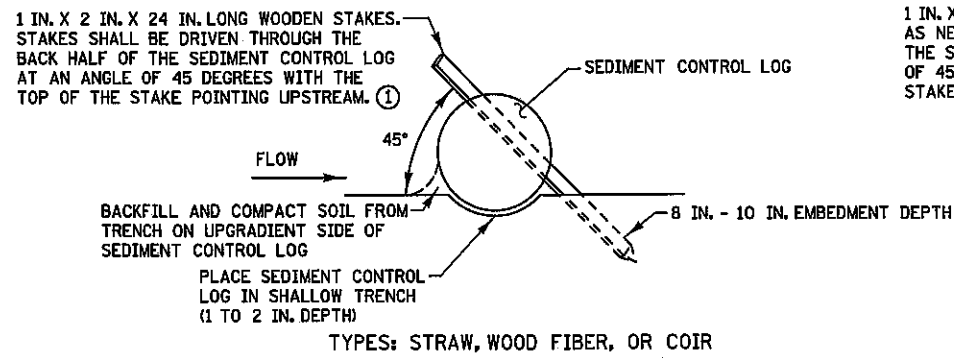
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
EROSION CONTROL  
DETAILS  
S.P. 062-665-052 / S.P. 164-020-138

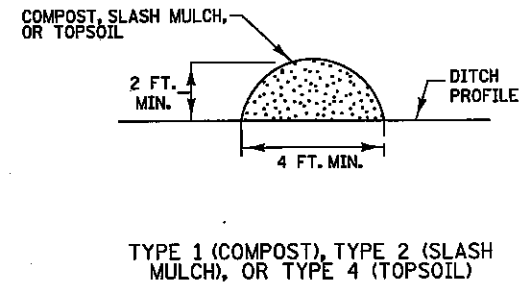
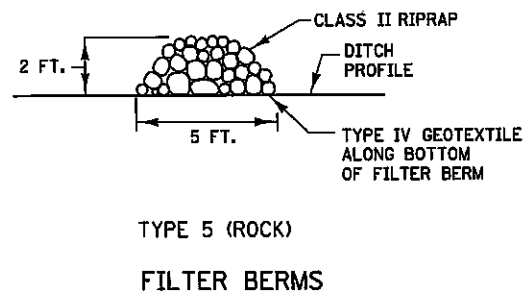
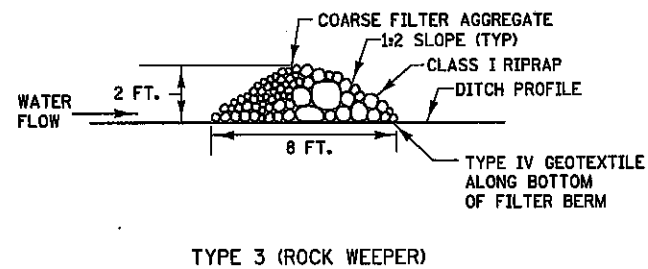
SHEET  
75  
OF  
145  
SHEETS

Date Plotted: 1/22/2016  
File Name: K:\03189-000-C-EROS-DET.Lwp





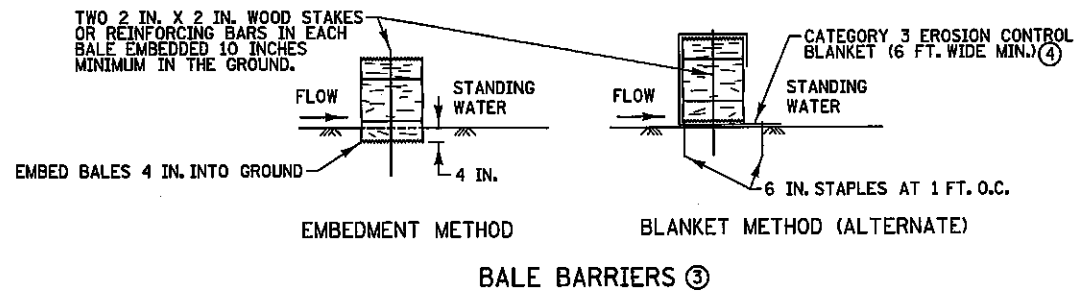
SEDIMENT CONTROL LOGS



ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



NOTES:

SEE SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- ④ INSTEAD OF TRENCHING, PLACE BALE ON THE BLANKET AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISIONS:

APPROVED: 8-6-2014

*[Signature]*  
CHIEF ENVIRONMENTAL OFFICER

REVISOR:

*[Signature]* APPROVED: 8-6-2014

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL  
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STANDARD PLAN 5-297.405 2 OF 7

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS

PLAN BY: ERW

CHECKED BY: JLB

APPROVED BY: DSS



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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

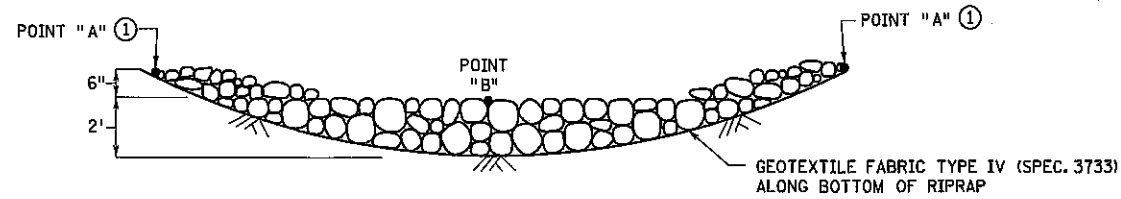
RAMSEY COUNTY, MINNESOTA

EROSION CONTROL  
DETAILS

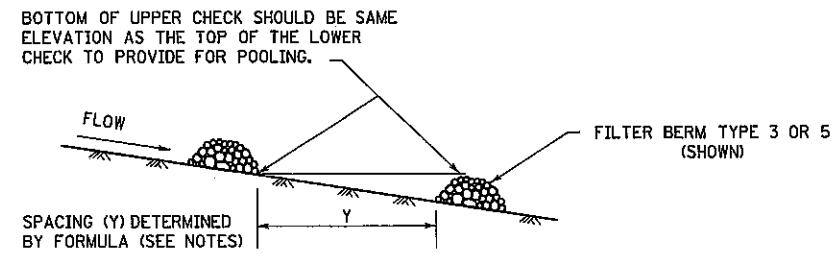
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
76  
OF  
145  
SHEETS

Date Plotted: 1/22/2015  
WSB File Name: K:\GIS\188-000-000-Plan\03188-000-C-EROS-DET.dwg



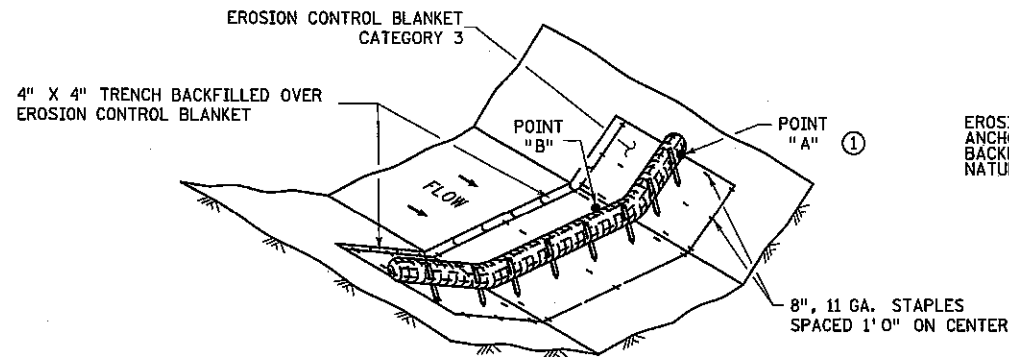
**ROCK DITCH CHECKS**  
**FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③**  
 (FOR USE ON ROUGH GRADED AREAS)



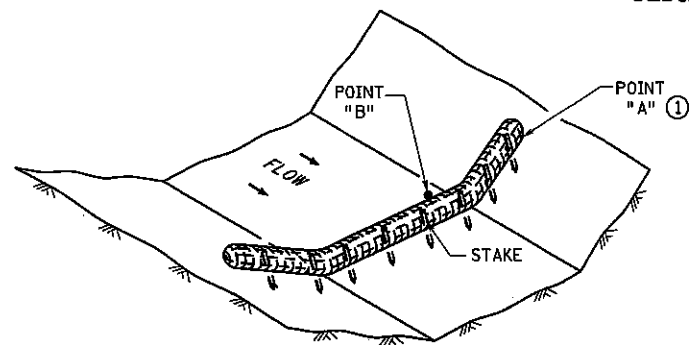
**DITCH CHECK SPACING**  
 (FOR ALL FILTER BERM TYPES)

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



**SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④**



**SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤**  
 (FOR USE ON ROUGH GRADED AREAS)

**NOTES:**

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\% \text{ CHANNEL SLOPE}} \times 100$$

- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC..
- ④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC..
- ⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

REVISION:  
 APPROVED: 8-6-2014  
*[Signature]*  
 CHIEF ENVIRONMENTAL OFFICER

REVISOR:  
 APPROVED: 8-6-2014  
*[Signature]*  
 STATE DESIGN ENGINEER

**TEMPORARY SEDIMENT CONTROL**  
 DITCH CHECK

**STANDARD PLAN 5-297.405** 3 OF 7

Date Printed: 1/22/2018  
 WSB Filename: K:\03188\_0100\Cad\Plan\03188-010-C-EROS-DET1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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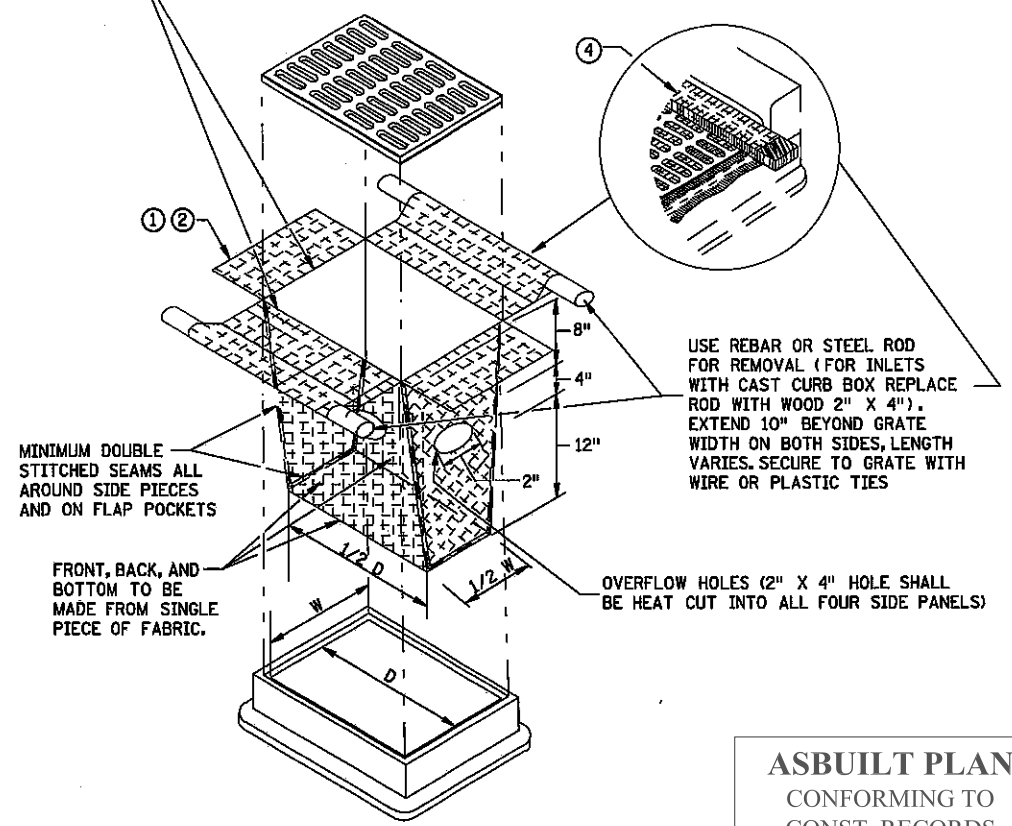


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**EROSION CONTROL**  
**DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 77  
 OF  
 145  
 SHEETS

INLET SPECIFICATIONS AS PER THE PLAN  
DIMENSION LENGTH AND WIDTH TO MATCH  
FLAP POCKET

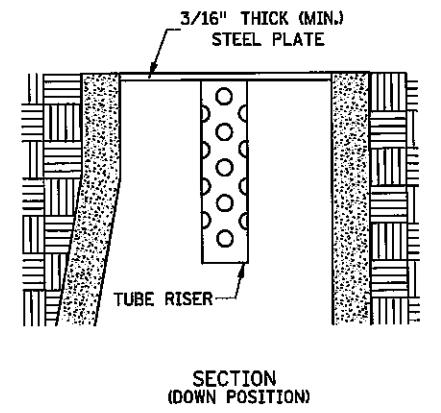
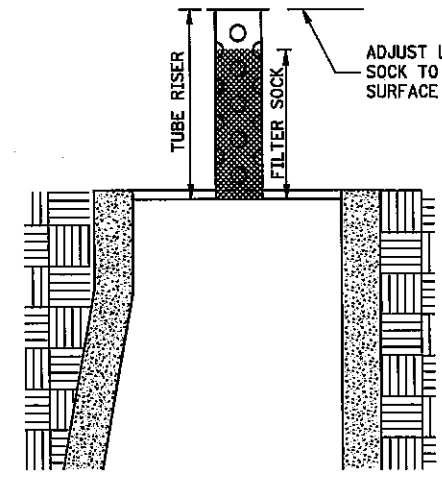
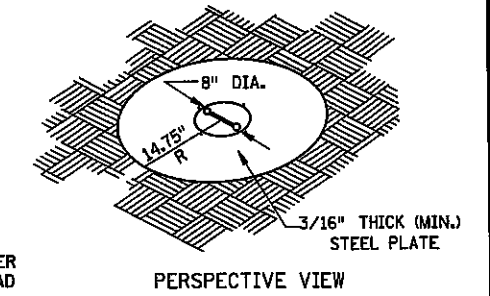
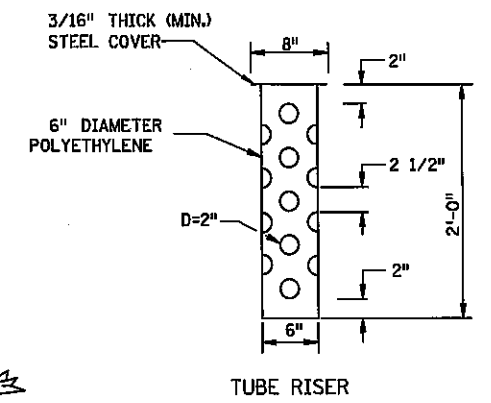


**FILTER BAG INSERT ③**

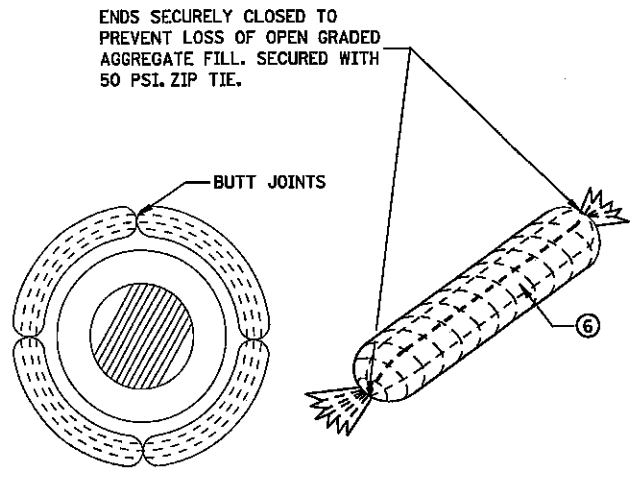
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

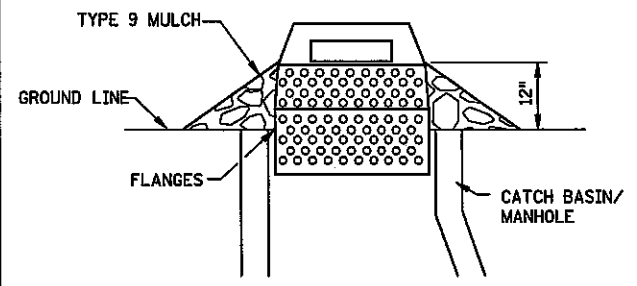
DONE BY: CMG  
DATE: 2/13/18



**POP-UP HEAD**

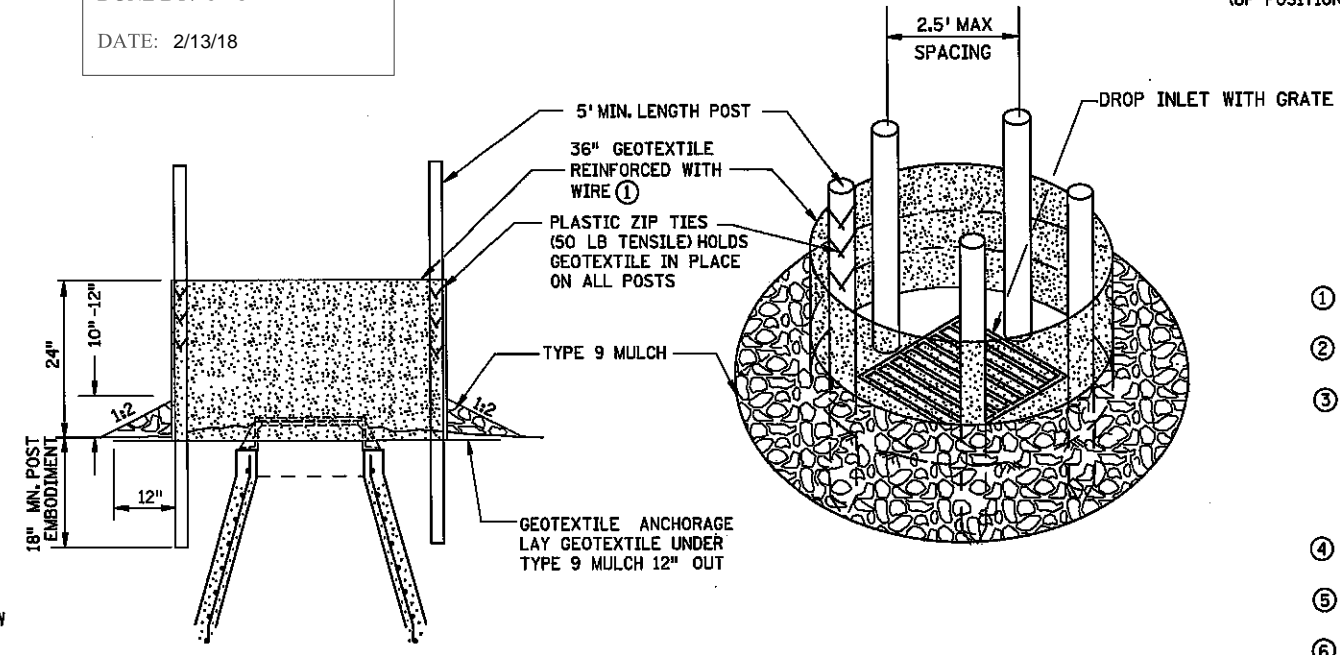


**ROCK LOG/COMPOST LOG**



**SEDIMENT CONTROL INLET HAT**

NOTE:  
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



**SILT FENCE RING AND ROCK FILTER BERM**  
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 OR LESS

**NOTES:**

- SEE SPECS. 2573, 3137, & 3886.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.
- ① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
- ② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ③ INSTALLATION NOTES:  
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SHALL BE 4-10 FEET LONG AND 4-6 INCH DIAMETER, SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:  
APPROVED: 8-6-2014  
*Chief Environmental Officer*

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS



REVISOR:  
*Christina Ky*  
STATE DESIGN ENGINEER  
APPROVED: 8-6-2014

TEMPORARY SEDIMENT CONTROL  
STORM DRAIN INLET PROTECTION  
STANDARD PLAN 5-297.405 4 OF 7



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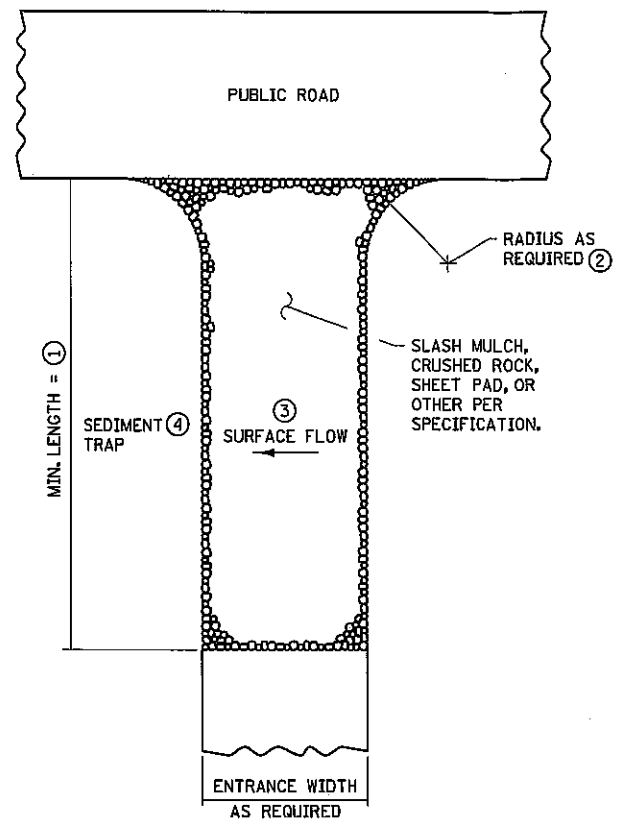


WHITE BEAR AVENUE  
STREET IMPROVEMENTS

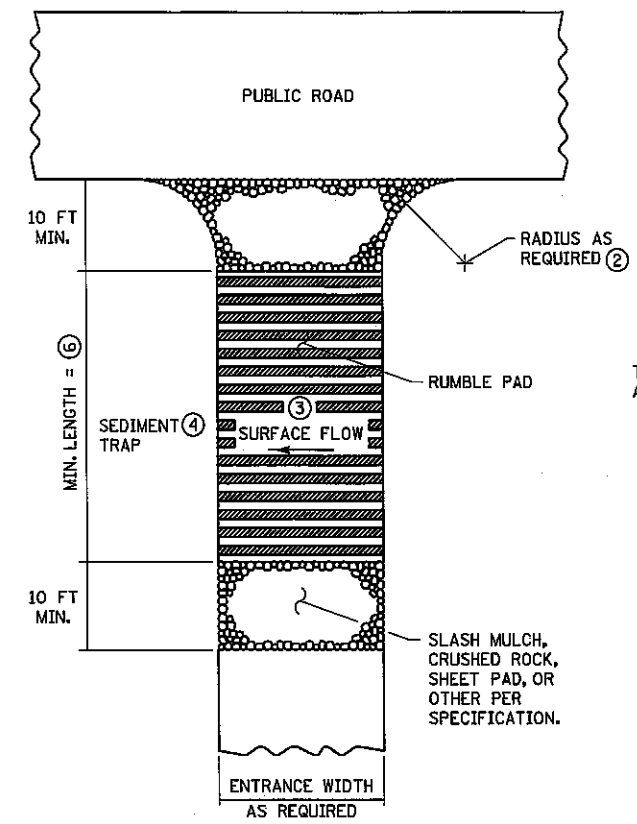
RAMSEY COUNTY, MINNESOTA  
EROSION CONTROL  
DETAILS  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
78  
OF  
145  
SHEETS

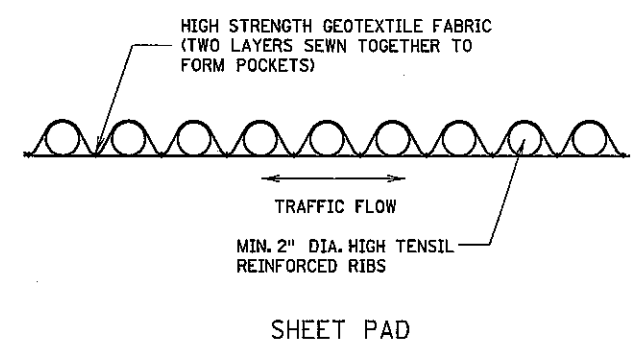
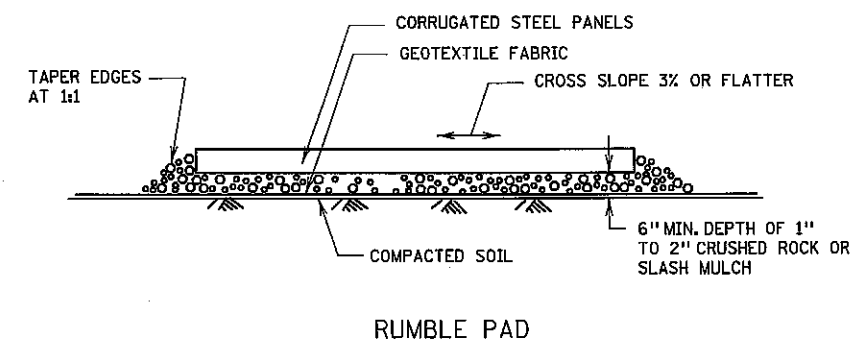
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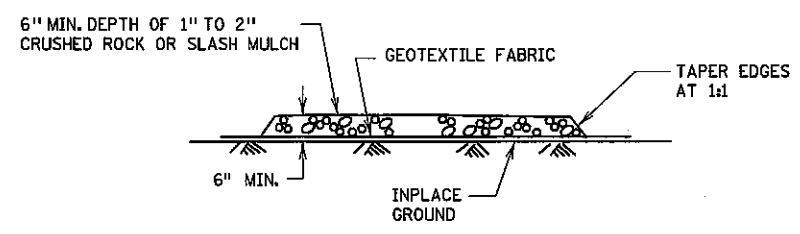
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**NOTES:**

- SEE SPECS. 2573 & 3882.
- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
- ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
- ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
- ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
- ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
- ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
- ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISIONS:	
APPROVED: 8-6-2014	<i>[Signature]</i> CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISOR: [Signature] APPROVED: 8-6-2014

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL  
CONSTRUCTION EXITS

STANDARD PLAN 5-297.405 5 OF 7

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS



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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

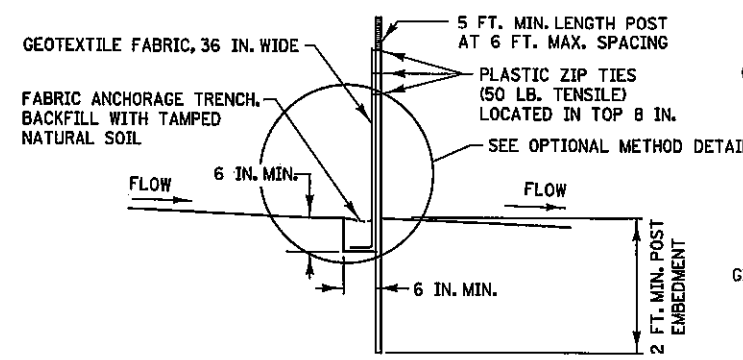
RAMSEY COUNTY, MINNESOTA

EROSION CONTROL  
DETAILS

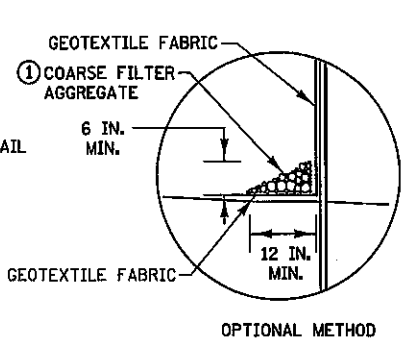
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
79  
OF  
145  
SHEETS

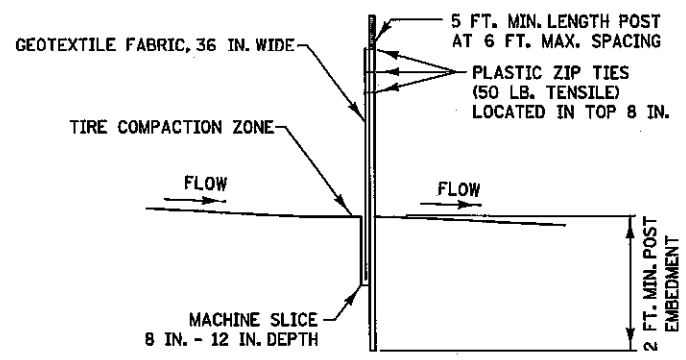
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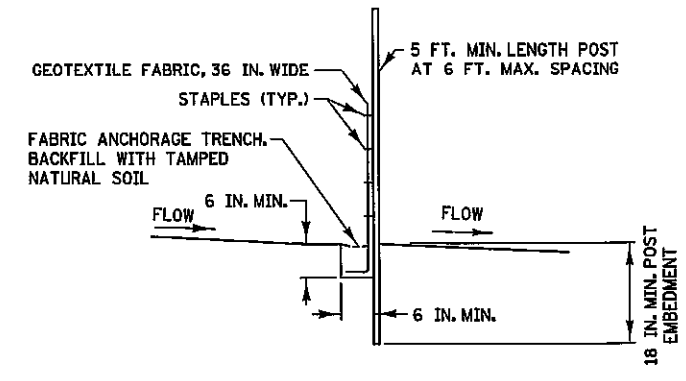
SILT FENCE TYPE HI ②  
(HAND INSTALLED)



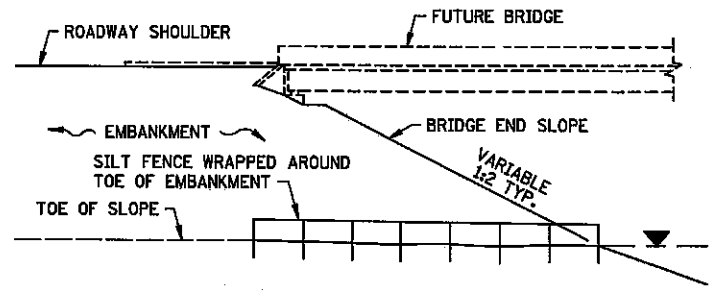
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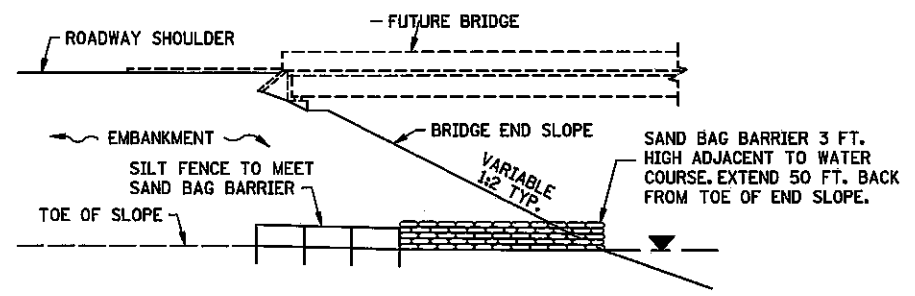
SILT FENCE TYPE MS ②  
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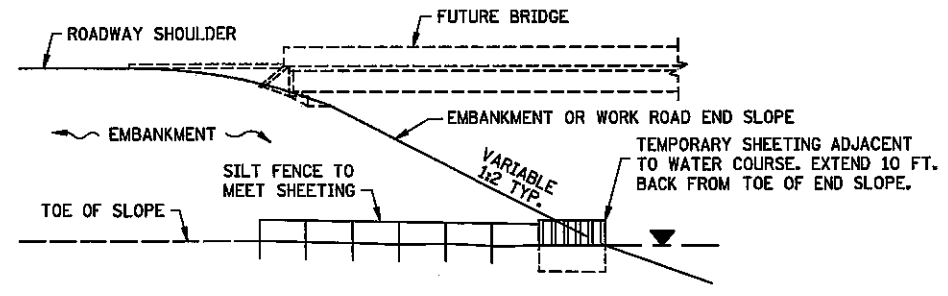
SILT FENCE TYPE PA ③  
(PREASSEMBLED)



SILT FENCE ONLY ④

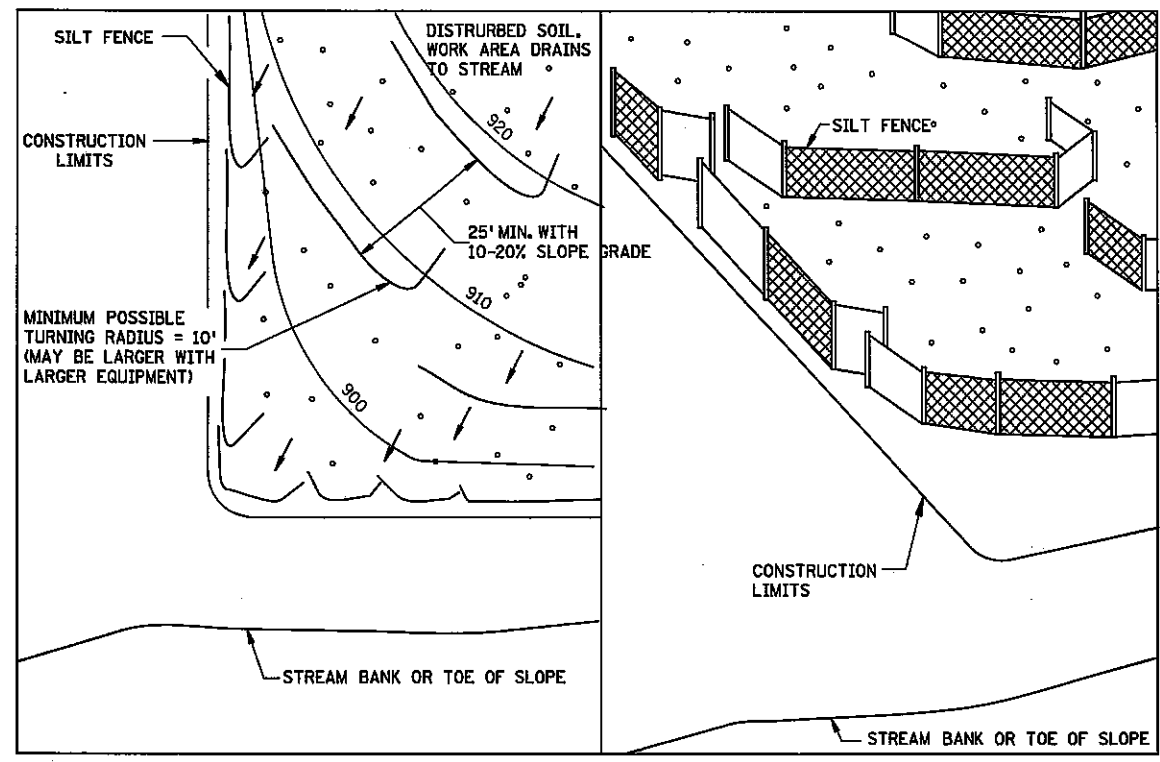


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER

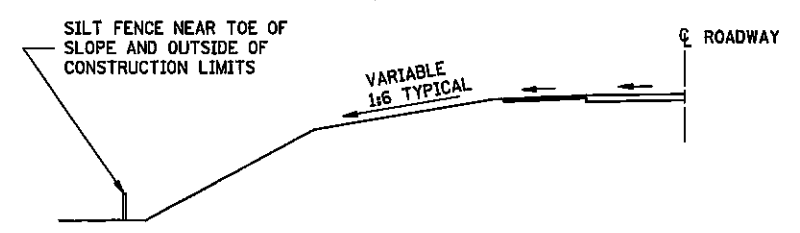


PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: CMG  
DATE: 2/13/18



LOCATION AT TOE OF ROADWAY EMBANKMENT

- NOTES:**  
SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
  - ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
  - ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
  - ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1/2 ACRE.
  - ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
  - ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISIONS:  
APPROVED: 8-6-2014  
*[Signature]*  
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION  
APPROVED: *[Signature]* 8-6-2014  
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL  
SILT FENCE  
STANDARD PLAN 5-297.405 6 OF 7

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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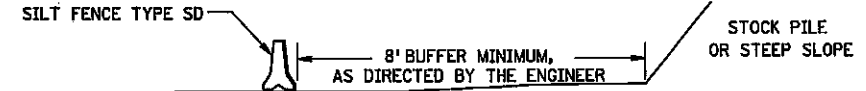
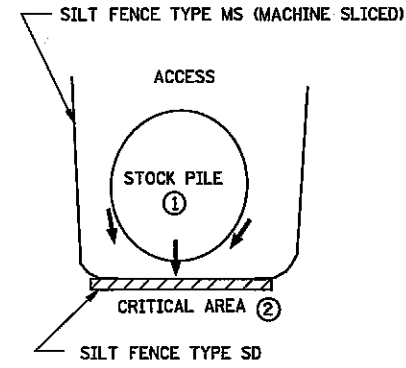
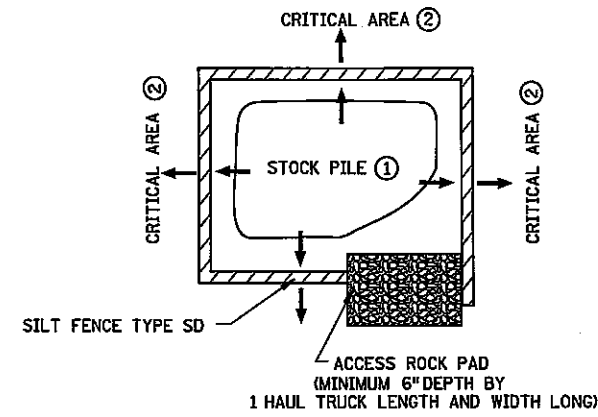
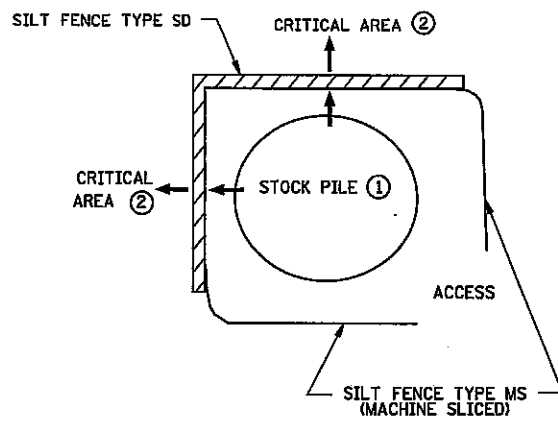
**RAMSEY COUNTY**

WHITE BEAR AVENUE  
STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
EROSION CONTROL  
DETAILS  
S.P. 062-665-052 / S.P. 164-020-138

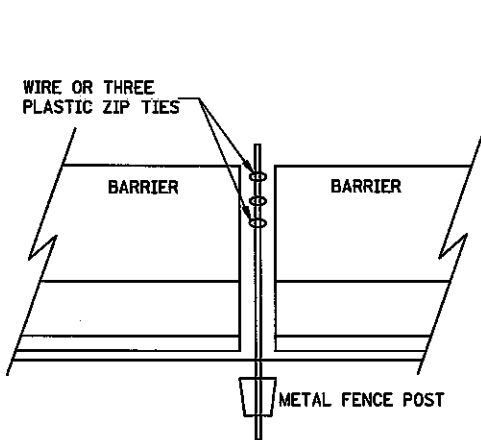
SHEET  
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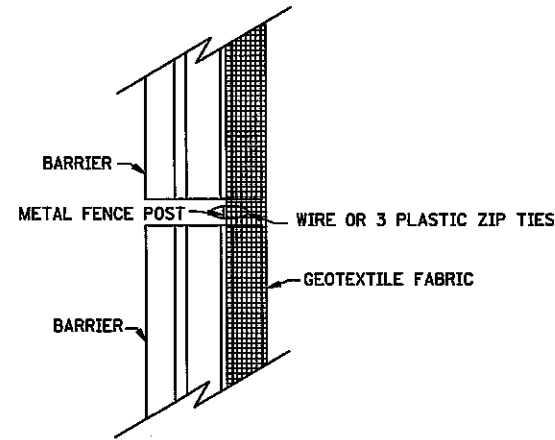


STOCKPILE SEDIMENT CONTROL

STOCK PILE CONTAINMENT

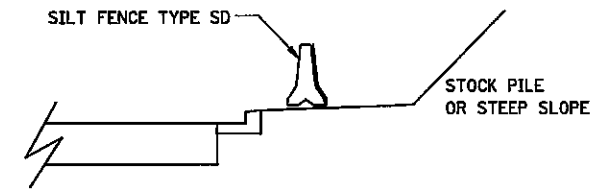


PROFILE VIEW



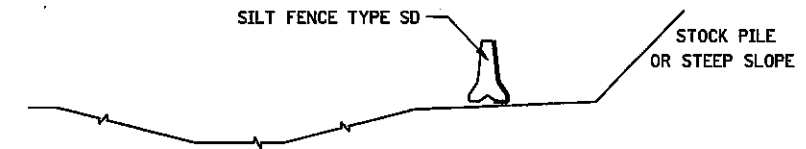
TOP VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS

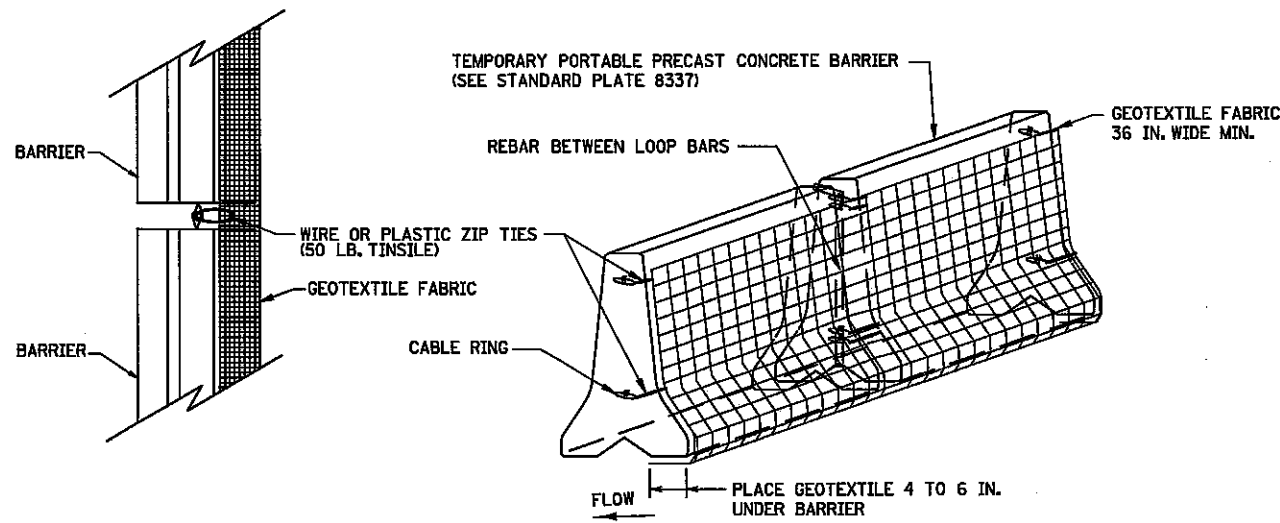


CURB AND GUTTER PROTECTION SYSTEM

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18



DITCH PROTECTION SYSTEM



TOP VIEW

PERSPECTIVE VIEW

SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITH LOOP BARS

**NOTES:**

- SEE SPECS. 2533, 2573 & 3886.
- SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.
- SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.
- ① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.
- ② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

REVISIONS:  
 APPROVED: 8-6-2014  
*[Signature]*  
 CHIEF ENVIRONMENTAL OFFICER

REVISOR:  
 APPROVED: 8-6-2014  
*[Signature]*  
 STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL  
 SUPER DUTY SILT FENCE  
 STANDARD PLAN 5-297.405 7 OF 7

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

**WSB**  
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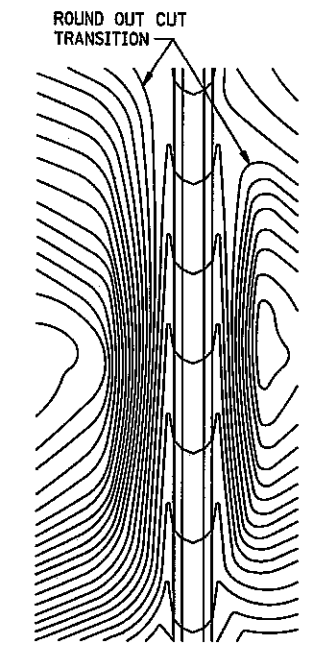
**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

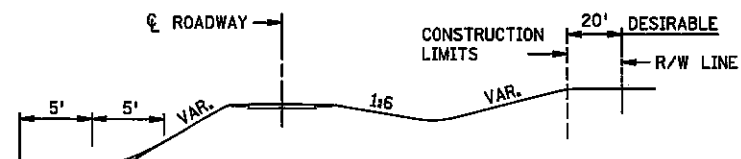
**RAMSEY COUNTY, MINNESOTA**  
**EROSION CONTROL  
 DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**81**  
 OF  
**145**  
 SHEETS

Date Printed: 1/22/2016 WSB Filename: K:\103-188-100-Civil\Plan\103-188-100-C-SP05-DIST.dwg

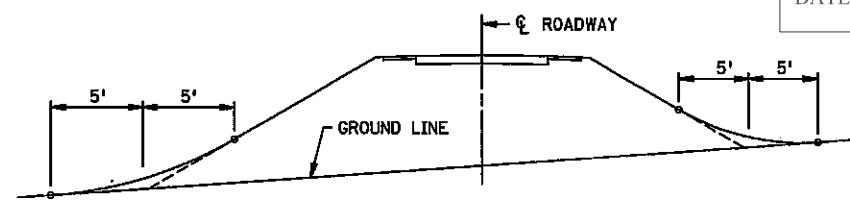


CONTOURING ROAD CUTS

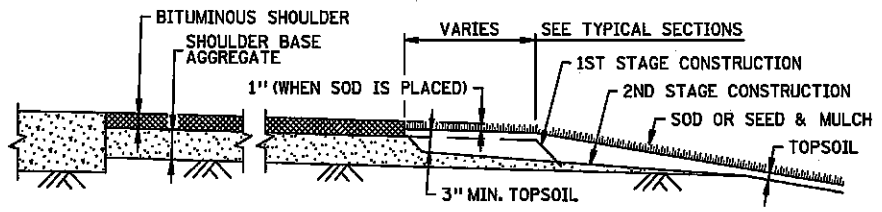


ROUNDING SHOULDERS AND BACKSLOPES

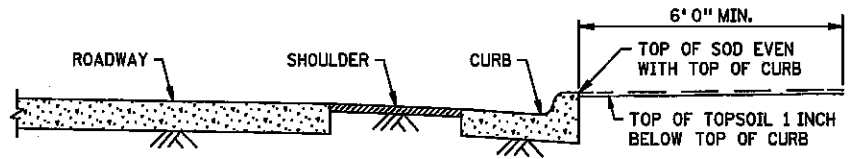
**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS  
DONE BY: CMG  
DATE: 2/13/18



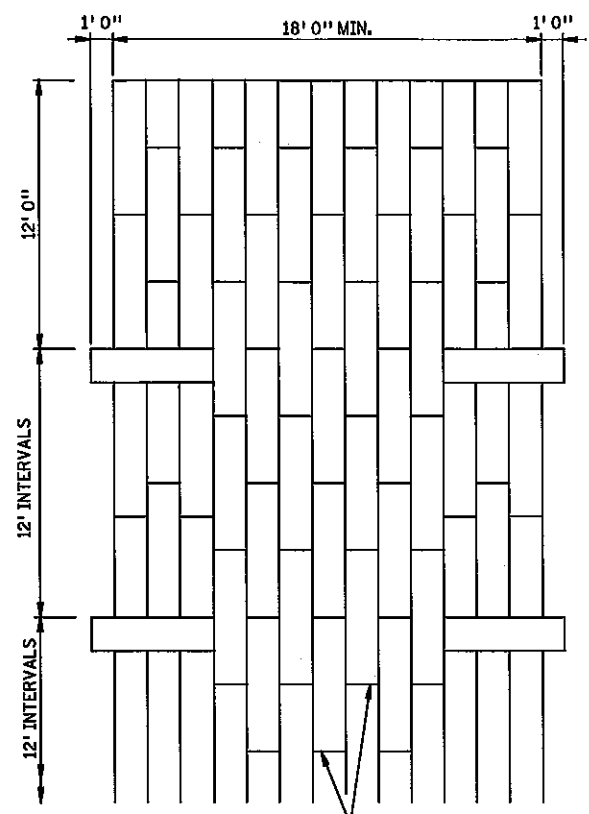
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



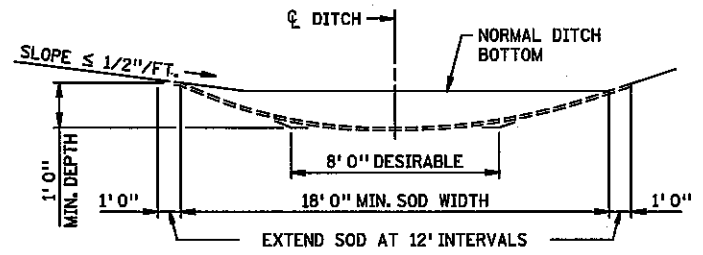
SHAPING AND TOPSOILING INSLOPES



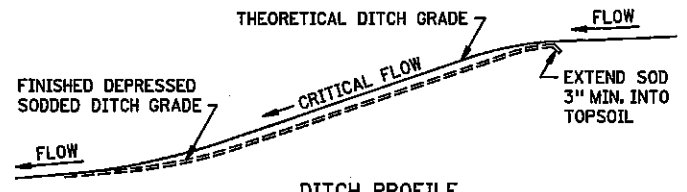
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



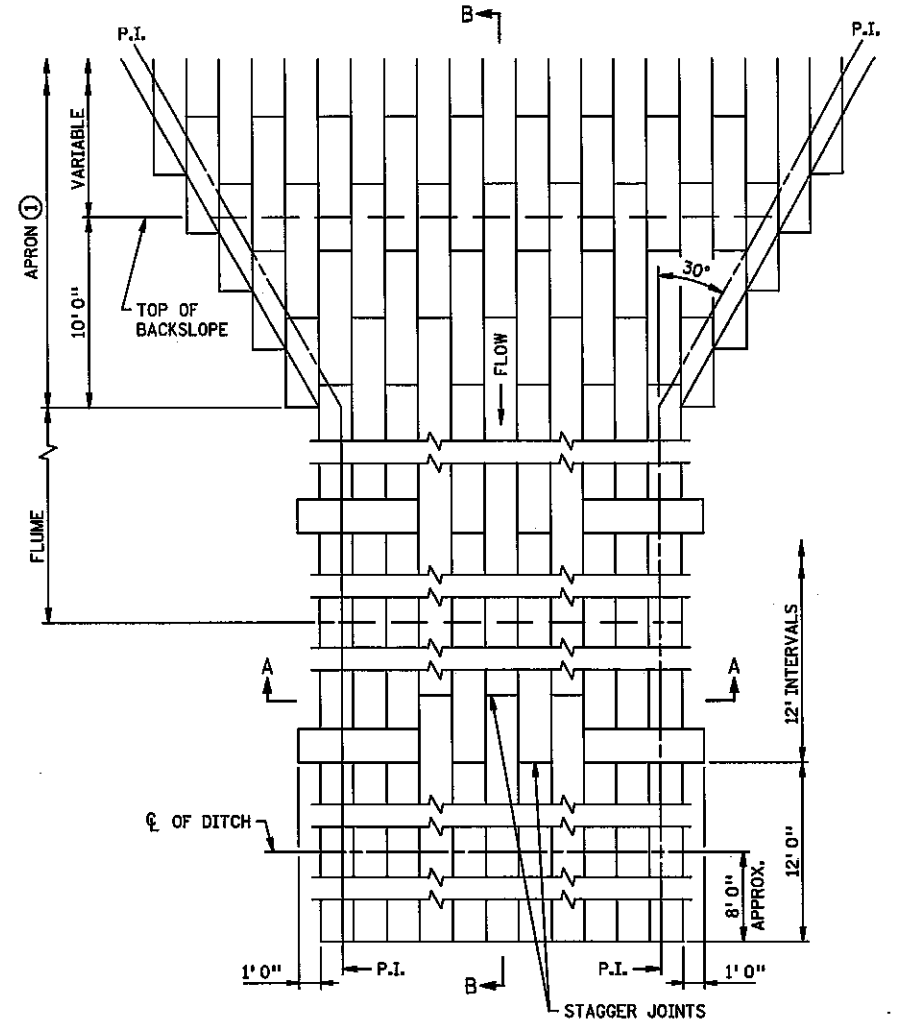
STAGGER JOINTS  
PLAN VIEW



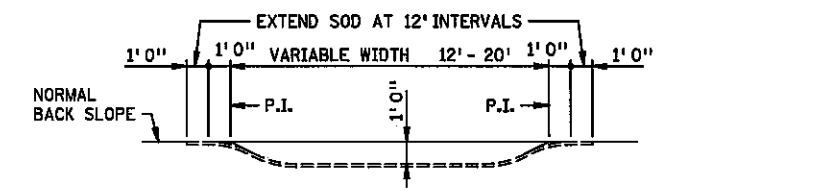
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),  
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



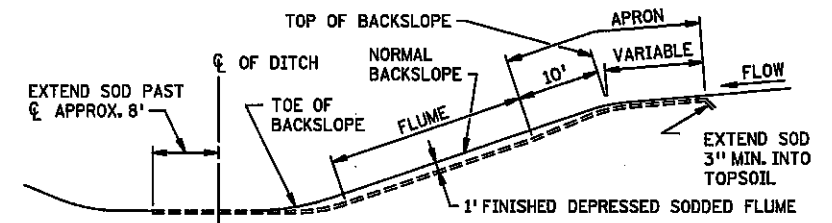
DITCH PROFILE  
SODDED DITCH DETAILS



STAGGER JOINTS  
PLAN VIEW



SECTION A-A



SECTION B-B  
SODDED FLUME DETAILS

NOTES:  
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.  
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:  
APPROVED: 8-6-2014  
*[Signature]*  
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION  
APPROVED: 8-6-2014  
*[Signature]*  
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL  
ALONG ROADWAYS, DITCHES AND FLUMES  
STANDARD PLAN 5-297.404 1 OF 1

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS



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Minneapolis, MN 55416  
Tel: (783) 641-4800 - Fax: (783) 641-1700  
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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

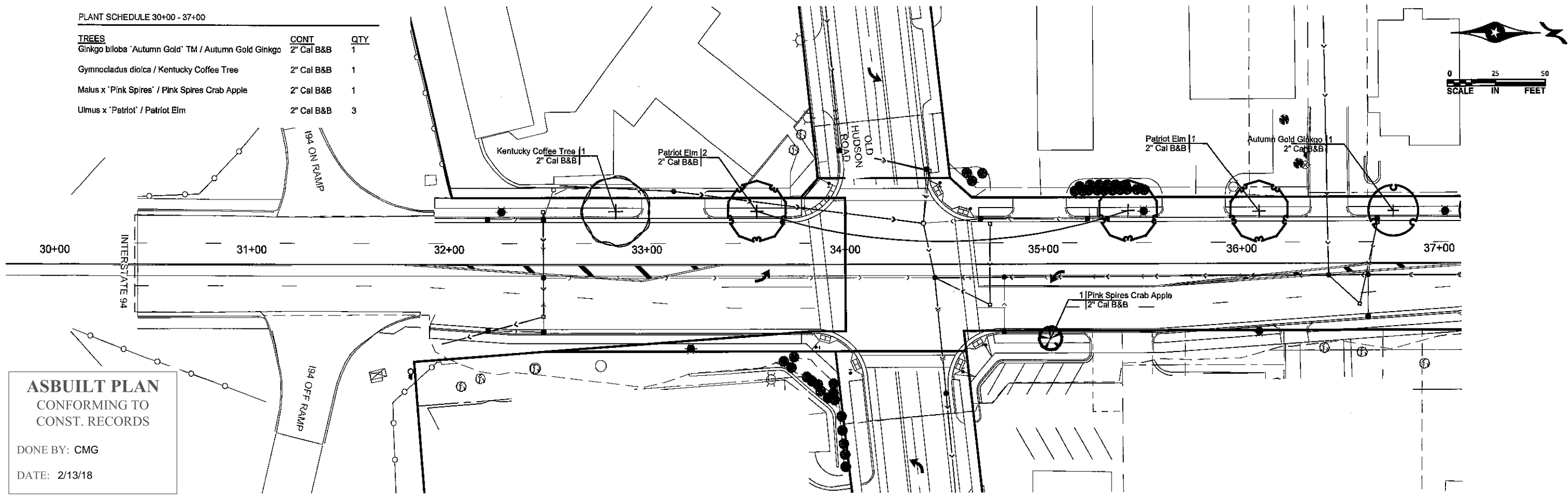
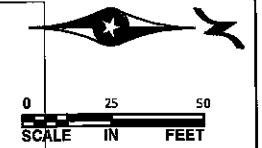
RAMSEY COUNTY, MINNESOTA  
EROSION CONTROL  
DETAILS  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
82  
OF  
145  
SHEETS

Date Printed: 12/29/16  
WSB Filename: C:\01818-000\CAD\CAD\p1818-000-C-EROS-DET.dwg

PLANT SCHEDULE 30+00 - 37+00

TREES	CONT	QTY
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	1
Gymnocladus dioica / Kentucky Coffee Tree	2" Cal B&B	1
Malus x 'Pink Spires' / Pink Spires Crab Apple	2" Cal B&B	1
Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	3

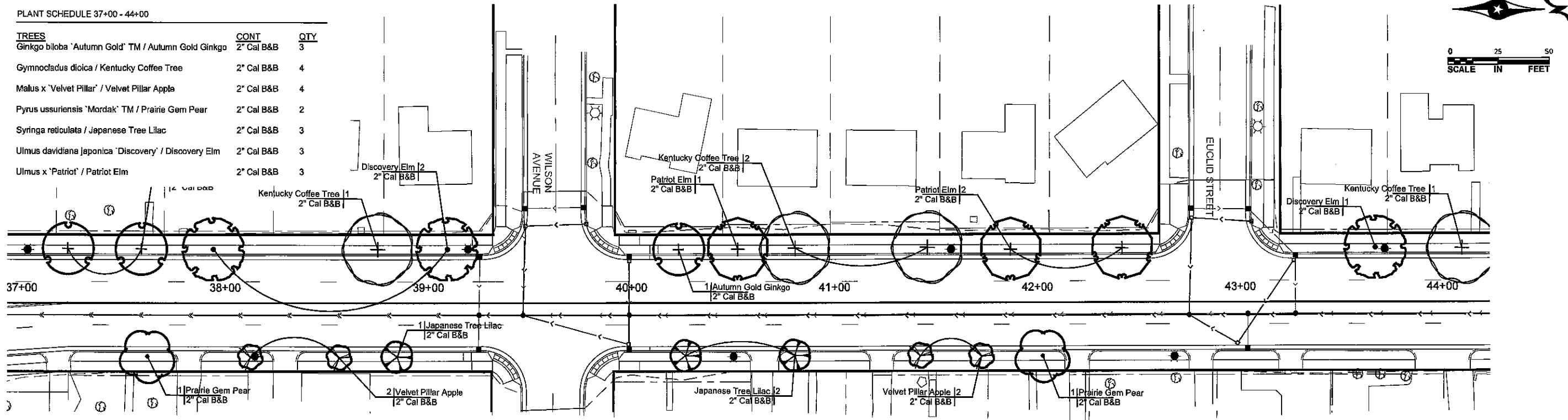
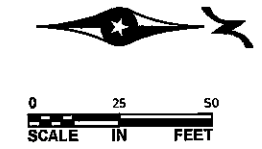


**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

PLANT SCHEDULE 37+00 - 44+00

TREES	CONT	QTY
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	3
Gymnocladus dioica / Kentucky Coffee Tree	2" Cal B&B	4
Malus x 'Velvet Pillar' / Velvet Pillar Apple	2" Cal B&B	4
Pyrus ussuriensis 'Mordak' TM / Prairie Gem Pear	2" Cal B&B	2
Syringa reticulata / Japanese Tree Lilac	2" Cal B&B	3
Ulmus davidiana Japonica 'Discovery' / Discovery Elm	2" Cal B&B	3
Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	3



Date Plotted: 2/22/2018  
 WBS File Name: K:\03\19\003\Case\Plan\0319R-020-LLAND.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: CA  
 PLAN BY: SM  
 CHECKED BY: CA  
 APPROVED BY: CA

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

CERTIFIED BY: *[Signature]*  
 CANDACE AMBERG, RLA  
 DATE: 02/17/2018 LIC. NO.: 40646

701 Kana Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (781) 641-4800 - Fax: (781) 641-1700  
 wsbeng.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

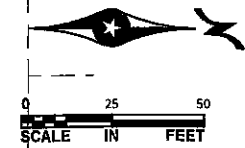
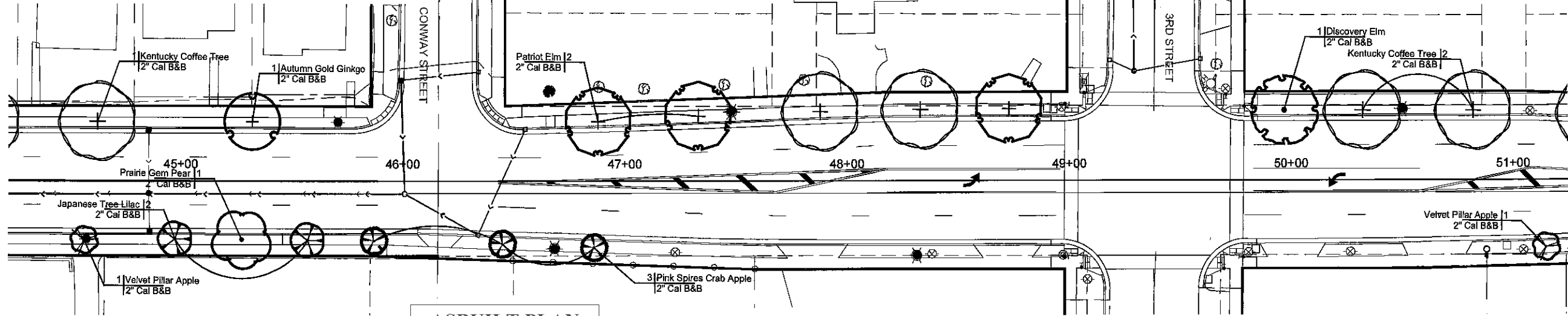
**LANDSCAPE PLAN**  
 S.P. 062-665-052

SHEET  
**83**  
 OF  
**145**  
 SHEETS



PLANT SCHEDULE 44+00 - 51+00

TREES	CONT	QTY
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	1
Gymnocladus dioica / Kentucky Coffee Tree	2" Cal B&B	5
Malus x 'Pink Spires' / Pink Spires Crab Apple	2" Cal B&B	3
Malus x 'Velvet Pillar' / Velvet Pillar Apple	2" Cal B&B	2
Pyrus ussuriensis 'Mordak' TM / Prairie Gem Pear	2" Cal B&B	1
Syringa reticulata / Japanese Tree Lilac	2" Cal B&B	2
Ulmus davidiana japonica 'Discovery' / Discovery Elm	2" Cal B&B	1
Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	3

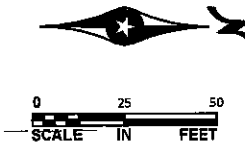
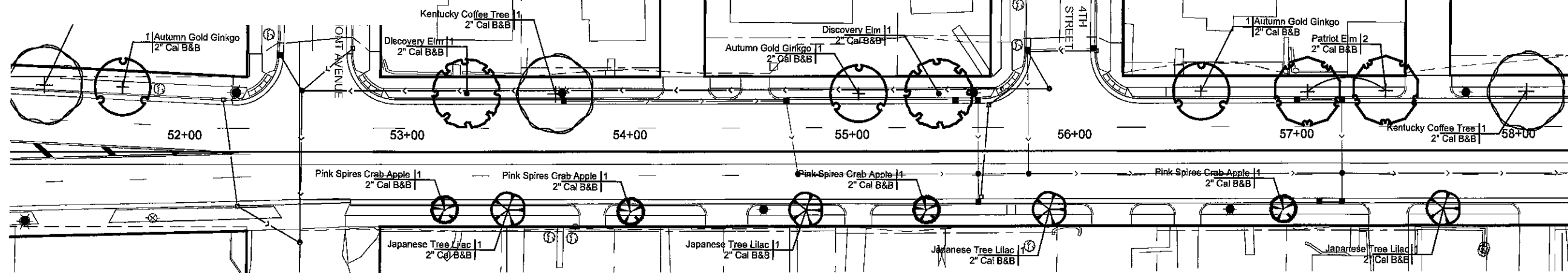


**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

PLANT SCHEDULE 51+00 - 58+00

TREES	CONT	QTY
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	3
Gymnocladus dioica / Kentucky Coffee Tree	2" Cal B&B	3
Malus x 'Pink Spires' / Pink Spires Crab Apple	2" Cal B&B	4
Syringa reticulata / Japanese Tree Lilac	2" Cal B&B	4
Ulmus davidiana japonica 'Discovery' / Discovery Elm	2" Cal B&B	2
Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	2




Date Plotted: 2/22/2018  
 WSP Filename: C:\GIS\Projects\10149-000-LAND.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	CA
PLAN BY:	SM
CHECKED BY:	CA
APPROVED BY:	CA

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

CERTIFIED BY:   
 CANDACE AMBERG, RLA  
 DATE: 02/17/2018 LIC. NO.: 40646



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 Minneapolis, MN 55416  
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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

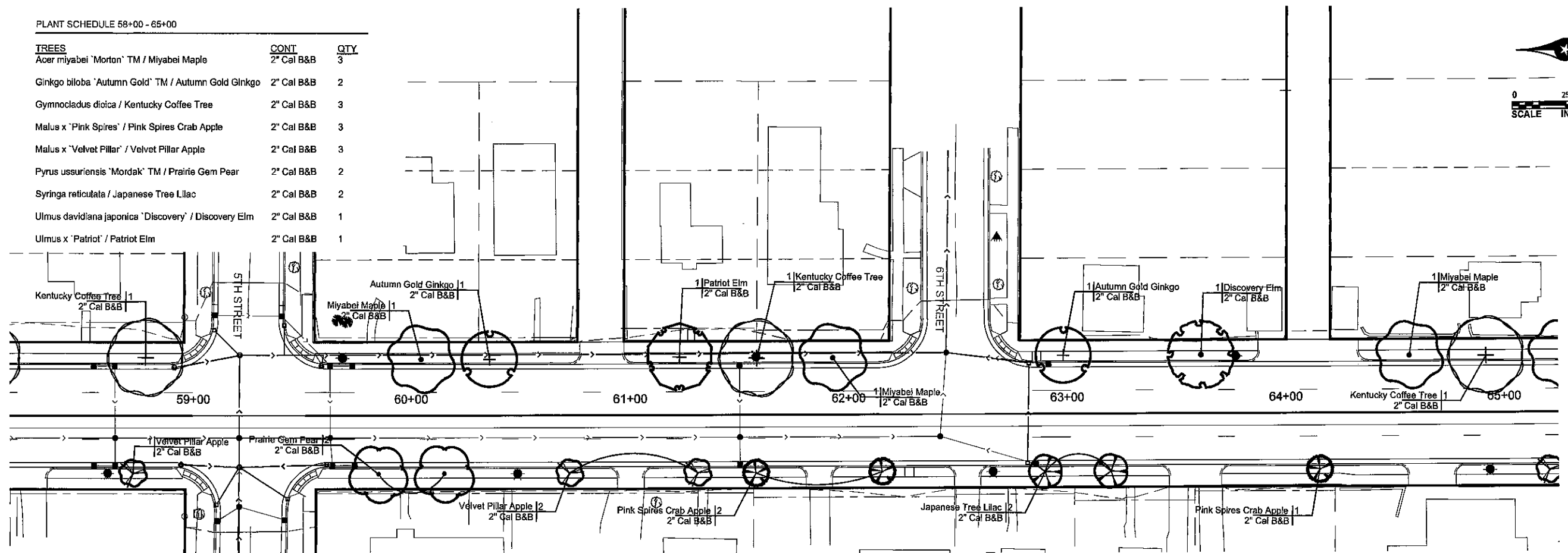
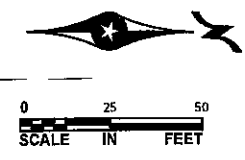
**RAMSEY COUNTY, MINNESOTA**

**LANDSCAPE PLAN**  
 S.P. 062-665-052

SHEET  
 84  
 OF  
 145  
 SHEETS

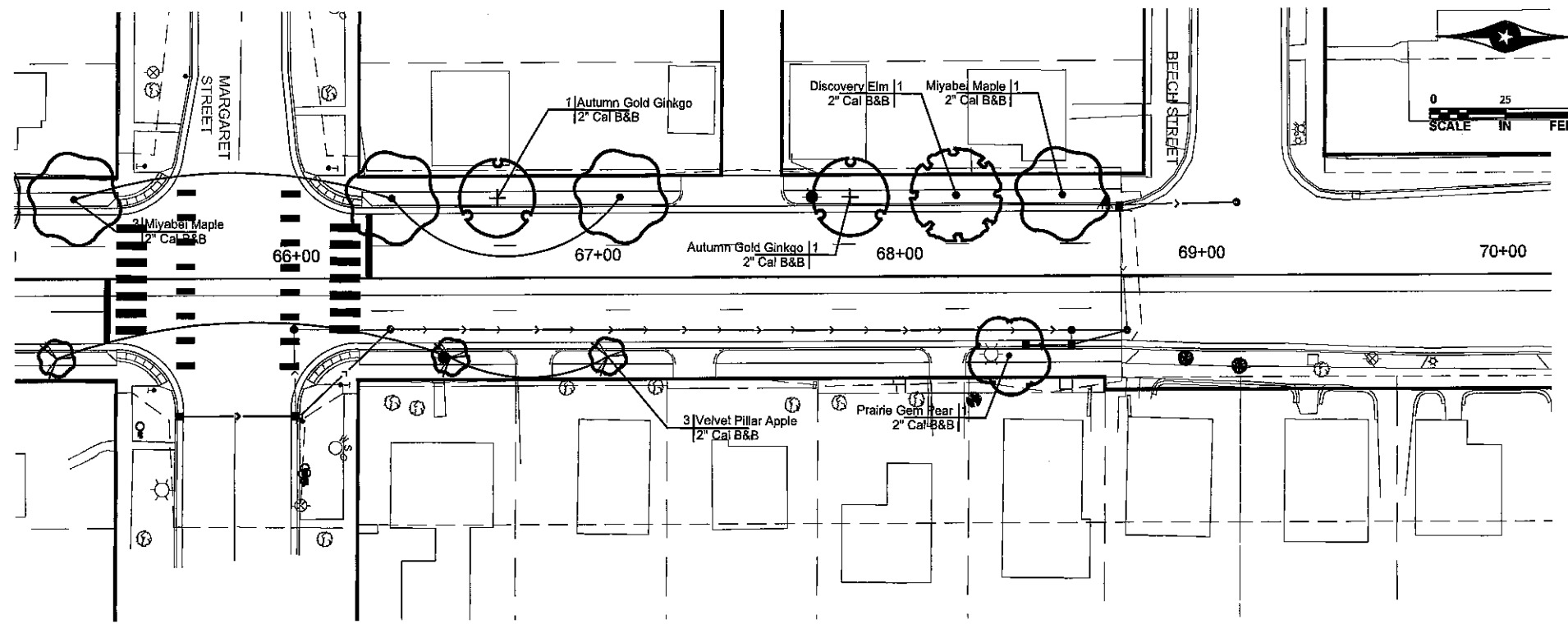
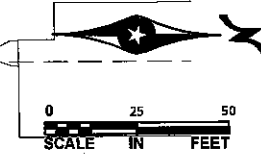
PLANT SCHEDULE 58+00 - 65+00

TREES	CONT	QTY
Acer miyabei 'Morton' TM / Miyabei Maple	2" Cal B&B	3
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	2
Gymnocladus dioica / Kentucky Coffee Tree	2" Cal B&B	3
Malus x 'Pink Spires' / Pink Spires Crab Apple	2" Cal B&B	3
Malus x 'Velvet Pillar' / Velvet Pillar Apple	2" Cal B&B	3
Pyrus ussuriensis 'Mordak' TM / Prairie Gem Pear	2" Cal B&B	2
Syringa reticulata / Japanese Tree Lilac	2" Cal B&B	2
Ulmus davidiana japonica 'Discovery' / Discovery Elm	2" Cal B&B	1
Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	1



PLANT SCHEDULE 65+00 - 70+00

TREES	CONT	QTY
Acer miyabei 'Morton' TM / Miyabei Maple	2" Cal B&B	4
Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	2
Malus x 'Velvet Pillar' / Velvet Pillar Apple	2" Cal B&B	3
Pyrus ussuriensis 'Mordak' TM / Prairie Gem Pear	2" Cal B&B	1
Ulmus davidiana japonica 'Discovery' / Discovery Elm	2" Cal B&B	1




**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/22/2018  
 WSB Filename: K:\171818-000\171818-000-LAND.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	CA
PLAN BY:	SM
CHECKED BY:	CA
APPROVED BY:	CA

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

CERTIFIED BY:   
 CANDACE AMBERG, RLA  
 DATE: 02/17/2016 LIC. NO.: 40646



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 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 waberg.com

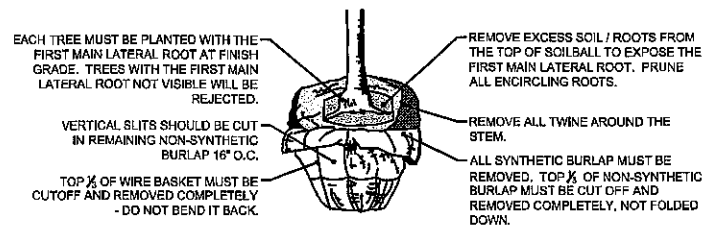


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

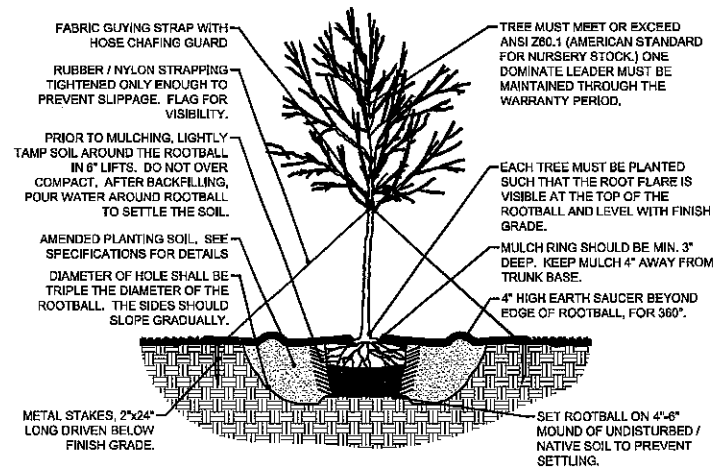
**RAMSEY COUNTY, MINNESOTA**

**LANDSCAPE PLAN  
 S.P. 062-665-052**

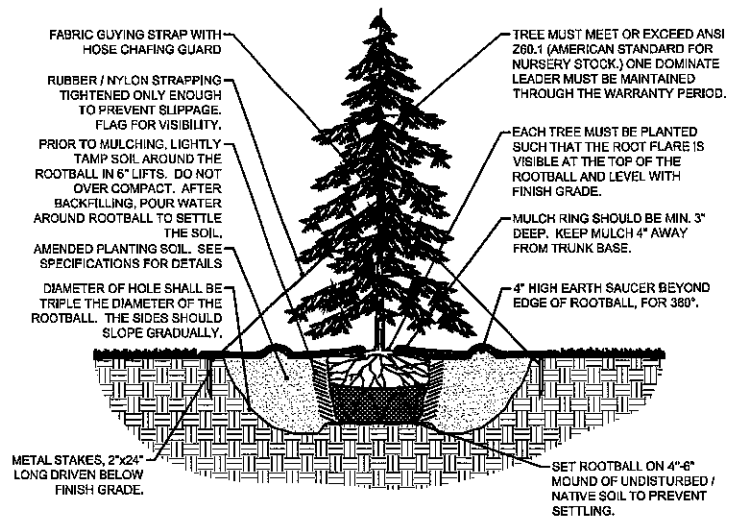
SHEET  
**85**  
 OF  
**145**  
 SHEETS



**B&B PLANTING INSTRUCTION DETAIL**  
NOT TO SCALE



**DECIDUOUS TREE DETAIL**  
NOT TO SCALE



**CONIFER TREE DETAIL**  
NOT TO SCALE

**BALLED AND BURLAPPED STOCK:**

ROOTS OF ALL BALLED AND BURLAPPED STOCK SHALL FILL THE SOIL BALL, BE FREE OF KINKS, CIRCLING AND GIRDLING, AND THE UPPERMOST ROOTS SHALL NOT BE MORE THAN FOUR INCHES BELOW THE TOP OF THE SOIL BALL. TRANSPORT ROOTS SHALL BE SYMMETRICAL AROUND THE TRUNK / STEM OF THE PLANTS. SOIL BALLS MUST BE CENTERED OR NO MORE THAN 10% OFF CENTER.

DIG THE PLANTING PIT TWO TO THREE TIMES WIDER THAN THE SIZE OF THE ROOTBALL AND AT THE SAME DEPTH AT WHICH THEY GREW IN THE NURSERY. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING PIT.

PLACE PLANT IN PLANTING PIT AND SET PLANTS VERTICAL. WHEN MOVING PLANTS, LIFT FROM BENEATH THE ROOT BALL, DO NOT LIFT BY THE TRUNK AND DO NOT BREAK OR LOOSEN THE ROOTBALL.

SET PLANTS ON SOLID, UNDISTURBED SOIL, OR THOROUGHLY COMPACTED BACKFILL SOIL SO THE TOP OF THE ROOTBALL IS SLIGHTLY ABOVE FINISHED GRADE TO EXPOSE ROOTFLAIRS ON ALL B&B TREES TO PREVENT "STEM GIRDLING".

CUT AND REMOVE ALL TWINE AROUND THE TRUNK. PULL BURLAP AWAY FROM TRUNK SO THAT NO BURLAP REMAINS IN THE TOP THREE INCHES OF THE SOIL SURFACE. REMAINING BURLAP SHALL BE SLIT AT SIX INCH INTERVALS AROUND THE CIRCUMFERENCE OF THE ROOTBALL.

BACKFILL PLANTING PIT WITH ORIGINAL SOIL HALFWAY TO THE TOP OF THE ROOTBALL. BREAK UP CLODS OF SOIL. IF SOILS ARE POOR (I.E. HEAVY CLAYS, SAND, OR COMPACTED), BACKFILL CAN BE A MIXTURE OF 1/3 SOIL AMENDMENT MIXED WITH 2/3 ORIGINAL SOIL. DO NOT USE PEAT AS PART OF BACKFILL IN CLAY SOILS. REMOVE ALL ROCKS AND DEBRIS FROM BACKFILL AND THEN WATER PLANT AND BACKFILLED AREA TO SETTLE PLANTS AND FILL VOIDS.

REMOVE ALL WIRE BASKETS FROM THE TOP 1/2 OF THE ROOTBALL AND CONTINUE BACKFILLING REMAINING PLANTING PIT WITH ORIGINAL SOIL.

WATER THOROUGHLY A SECOND TIME TO SETTLE PLANTS AND FILL VOIDS WITHIN TWO HOURS OF PLANTING. PLACE SPECIFIED MULCH WITHIN 48 HOURS OF THE SECOND WATERING. PROVIDE SUPPORT IF NECESSARY.

**CONTAINER STOCK:**

DIG THE PLANTING HOLE TWO TO THREE TIMES WIDER THAN THE SIZE OF THE CONTAINER, OR TO THE EDGE OF THE PLANTING BED AS INDICATED ON THE PLANS, AND AT THE SAME DEPTH AT WHICH THEY GREW IN THE NURSERY. FOR ADDITIONAL PLANTING BED PREPARATION, SEE PLANTING NOTES.

REMOVE CONTAINER (BY CUTTING IF NECESSARY).

IF ROOTS ARE GROWING IN A SPIRAL AROUND THE SOIL MASS, USE A SHARP KNIFE TO SCORE THE OUTSIDE OF SOIL MASS VERTICALLY, JUST DEEP ENOUGH TO CUT THE NET OF THE ROOTS, AND MAKE A CRISS-CROSS CUT ACROSS THE BOTTOM OF THE SOIL MASS.

SET PLANT ON SOLID UNDISTURBED SOIL OR THOROUGHLY COMPACTED BACKFILL SOIL SO THE TOP OF THE SOIL IS AT FINISHED GRADE OR SLIGHTLY ABOVE, NOT TO EXCEED TWO INCHES.

BACKFILL PLANTING BED WITH ORIGINAL SOIL. BREAK UP CLODS OF SOIL. IF SOILS ARE POOR (I.E. HEAVY CLAYS, SAND, OR COMPACTED), BACKFILL CAN BE A MIXTURE OF 1/3 SOIL AMENDMENT WITH 2/3 ORIGINAL SOIL. DO NOT USE PEAT AS PART OF BACKFILL IN CLAY SOILS. REMOVE ALL ROCKS AND DEBRIS FROM BACKFILL.

THOROUGHLY WATER TO SETTLE THE PLANTS AND FILL VOIDS WITHIN TWO HOURS OF PLANTING. INSTALL MULCH WITHIN 48 HOURS OF WATERING.

**SPRING TO MID-SUMMER PLANTING:**

FERTILIZE AT THE TIME OF PLANTING WITH A SLOW-RELEASE, BALANCED FERTILIZER. USE ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MIX FERTILIZER IN WITH BACKFILL OR BROADCAST IN A DIAMETER AROUND THE PLANT.

**LATE SUMMER TO FALL PLANTINGS:**

USE A FERTILIZER WITHOUT NITROGEN FOR DECIDUOUS TREES. DO NOT APPLY ANY FERTILIZER TO EVERGREEN TREES AND SHRUBS PLANTED IN LATE SUMMER OR EARLY FALL.

**SHREDDED WOOD MULCH (TYPE 6):**

SHREDDED WOOD MULCH SHALL BE INSTALLED AT THE DESIGNATED DEPTH PLACED TO THE EDGE OF THE PLANTING BED. PLANTS NOT IN A PLANTING BED SHALL HAVE A 4" DIA. MULCHED AREA. MULCH SHALL BE PULLED AWAY FROM DIRECT CONTACT WITH THE TREE TRUNK OR PLANT STEM. MULCHED AREA SHALL FORM A WELL AROUND PLANTS OR PLANTING BEDS.

**1. ALL PLANTING BEDS SHALL BE PREPARED IN THE FOLLOWING MANNER:**

- REMOVE EXISTING VEGETATION, ESPECIALLY GROUND COVER
- ROTOTILL TO A DEPTH OF 6 INCHES AND INCORPORATE FERTILIZER
- TRENCH THE EDGE OF THE PLANTING BEDS
- INSTALL EDGING WHERE APPLICABLE
- REMOVE ALL ROCKS AND DEBRIS
- INSTALL PLANTS AS PER PLANTING DETAIL AND SPECIFICATIONS
- INSTALL SPECIFIED MULCH TO SPECIFIED DEPTH
- WOOD MULCH SHALL BE PULLED AWAY FROM STEMS/TRUNKS OF ALL PLANTS.
- WATER AS PER DETAIL AND SPECIFICATIONS

**2. CONTRACTOR SHALL NOT PLANT TREES OR SHRUBS IN PLANTING PITS WHERE HIGH WATER OR OTHER UNFORESEEN CIRCUMSTANCES ARE ENCOUNTERED. CONTRACTOR SHALL NOTIFY OWNER/LANDSCAPE ARCHITECT IMMEDIATELY IN SUCH INSTANCES.**

**3. ALL PLANT MATERIALS SHALL BE TRUE TO THEIR SCIENTIFIC NAME AND SIZE AS INDICATED IN THE PLANT SCHEDULE.**

**4. OWNER RESERVES THE RIGHT TO REVISE QUANTITIES TO SUIT BUDGET LIMITATIONS. CONTRACTOR'S UNIT BID PRICES SHALL PREVAIL FOR ANY CHANGES IN QUANTITIES.**

**5. CONTRACTOR SHALL FIELD STAKE PLANTING ACCORDING TO PLAN. OWNER / LANDSCAPE ARCHITECT SHALL APPROVE ALL PLANT LOCATIONS PRIOR TO INSTALLATION. OWNER RESERVES THE RIGHT TO REVISE PLANTING LAYOUT AT TIME OF INSTALLATION.**

**PLANT SCHEDULE OVERALL LANDSCAPE**

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Acer miyabei 'Morton' TM / Miyabei Maple	2" Cal B&B	7
	Ginkgo biloba 'Autumn Gold' TM / Autumn Gold Ginkgo	2" Cal B&B	12
	Gymnocladia dioica / Kentucky Coffee Tree	2" Cal B&B	16
	Malus x 'Pink Spires' / Pink Spires Crab Apple	2" Cal B&B	11
	Malus x 'Velvet Pillar' / Velvet Pillar Apple	2" Cal B&B	12
	Pyrus ussuriensis 'Mordak' TM / Prairie Gem Pear	2" Cal B&B	6
	Syringa reticulata / Japanese Tree Lilac	2" Cal B&B	11
	Ulmus davidiana japonica 'Discovery' / Discovery Elm	2" Cal B&B	8
	Ulmus x 'Patriot' / Patriot Elm	2" Cal B&B	12

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

Date Plotted: 2/22/2018  
User: E:\ramsey\k\31818-000\Cad\Plan\0318-000-LAND.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	CA
PLAN BY:	SM
CHECKED BY:	CA
APPROVED BY:	CA

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

CERTIFIED BY:   
CANDACE AMBERG, RLA  
DATE: 02/17/2018 LIC. NO.: 40646



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Minneapolis, MN 55416  
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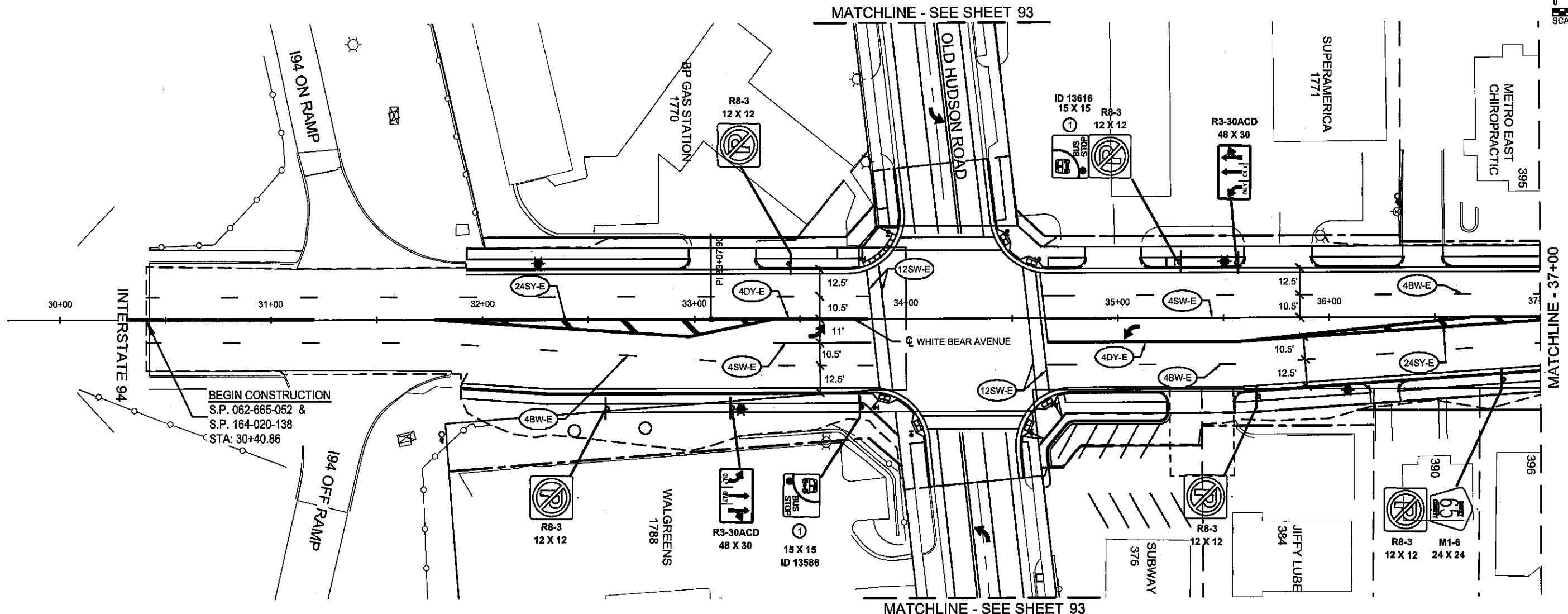
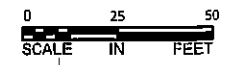
**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**LANDSCAPE NOTES AND TABULATION**

S.P. 062-665-052

SHEET  
86  
OF  
145  
SHEETS



**PAVEMENT MARKINGS LEGEND**

4SW-E	4" SOLID LINE WHITE - EPOXY
4DY-E	4" SOLID DOUBLE LINE YELLOW - EPOXY
12SW-E	12" SOLID LINE WHITE - EPOXY
24SW-E	24" SOLID LINE WHITE - EPOXY
4BW-E	4" BROKEN LINE WHITE - EPOXY
24SY-E	24" SOLID YELLOW - EPOXY

PAVEMENT MESSAGE (RIGHT ARROW) EPOXY  
 PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**LEGEND**

①	INSTALL SALVAGED SIGN
②	F&I STREET NAME BLADES
X-01	

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/16/2018  
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NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANIEL O. PUMA, JR. PE  
 DATE: 02/17/2018 C.D. NO.: 49048



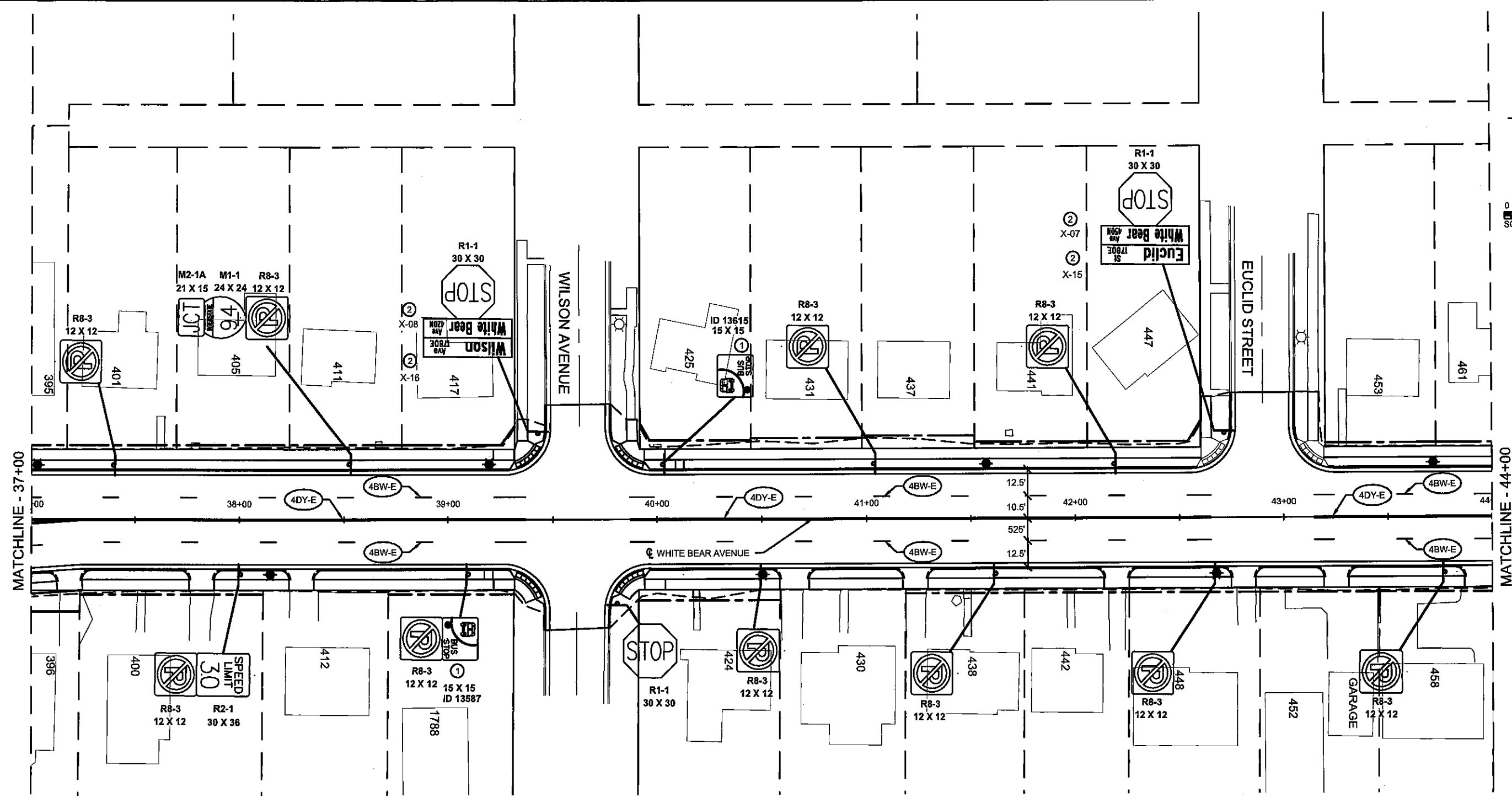
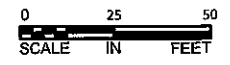
701 Kama Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 641-1700  
 wsbeng.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**STA. 30+00 TO 37+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 87  
 OF  
 145  
 SHEETS



**PAVEMENT MARKINGS LEGEND**

4SW-E	4" SOLID LINE WHITE - EPOXY
4DY-E	4" SOLID DOUBLE LINE YELLOW - EPOXY
12SW-E	12" SOLID LINE WHITE - EPOXY
24SW-E	24" SOLID LINE WHITE - EPOXY
4BW-E	4" BROKEN LINE WHITE - EPOXY
24SY-E	24" SOLID YELLOW - EPOXY
→	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY
←	PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**LEGEND**

①	INSTALL SALVAGED SIGN
②	F&I STREET NAME BLADES
X-01	

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/16/2018  
 WBS Filename: K:\3189-000\Civil\Plan\3189-000-5-STIP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

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

CHECKED BY: *[Signature]*  
 DANILO S. SASSA, P.E.  
 DATE: 02/17/2018 LIC. NO.: 49048



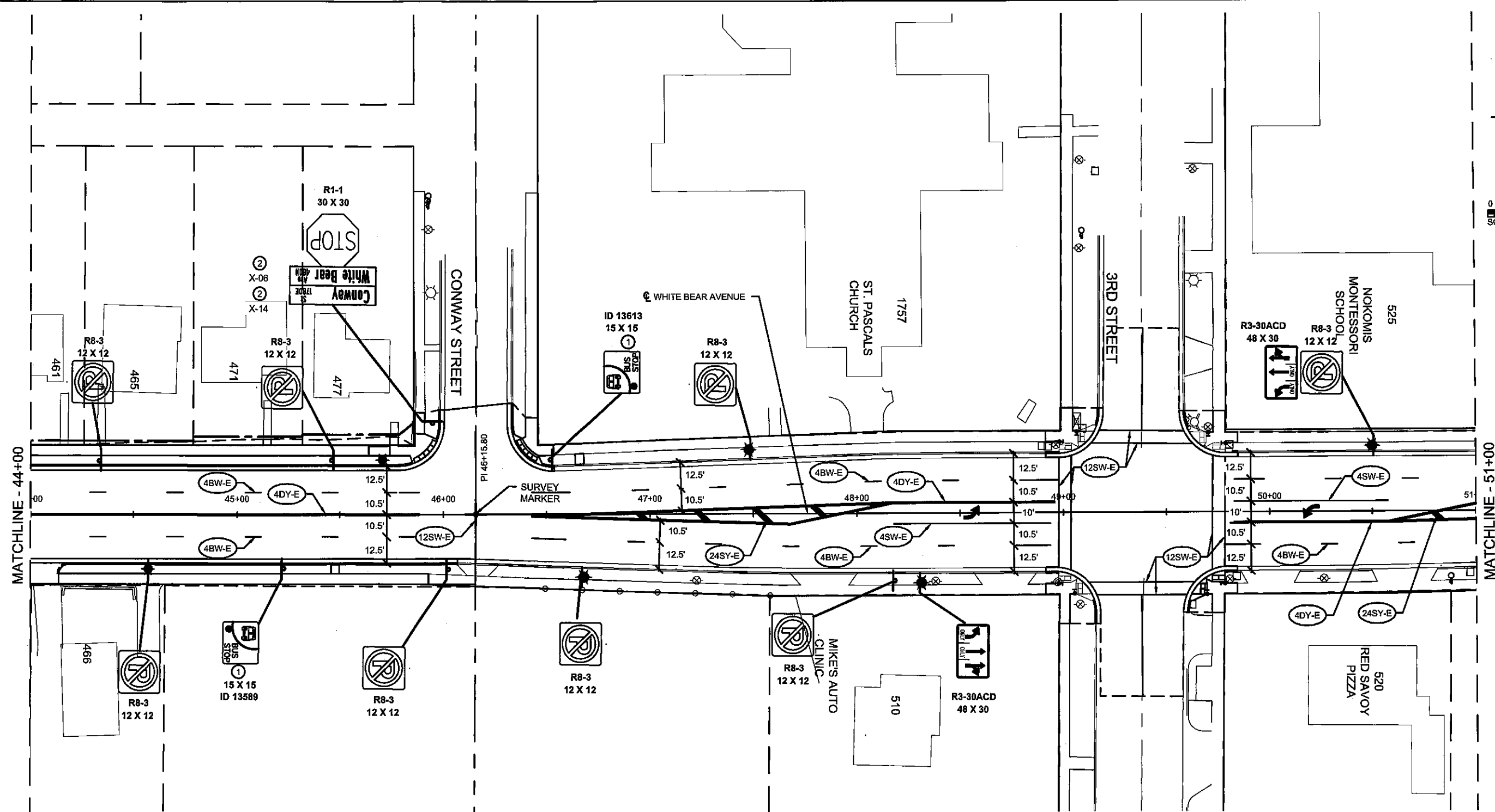
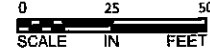
701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 841-4800 - Fax: (783) 841-1700  
 wsb.org



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**STA. 37+00 TO 44+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 88  
 OF  
 145  
 SHEETS



MATCHLINE - 44+00

MATCHLINE - 51+00

**PAVEMENT MARKINGS LEGEND**

- 4SW-E 4" SOLID LINE WHITE - EPOXY
- 4DY-E 4" SOLID DOUBLE LINE YELLOW - EPOXY
- 12SW-E 12" SOLID LINE WHITE - EPOXY
- 24SW-E 24" SOLID LINE WHITE - EPOXY
- 4BW-E 4" BROKEN LINE WHITE - EPOXY
- 24SY-E 24" SOLID YELLOW - EPOXY

**LEGEND**

- 1 INSTALL SALVAGED SIGN
- 2 F&I STREET NAME BLADES X-01

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

PAVEMENT MESSAGE (RIGHT ARROW) EPOXY  
 PAVEMENT MESSAGE (LEFT ARROW) EPOXY

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILO S. SOCCA, JR. PE  
 DATE: 02/17/2018 LIC. NO.: 49048



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 Minneapolis, MN 55416  
 Tel: (783) 641-6800 - Fax: (783) 641-1700  
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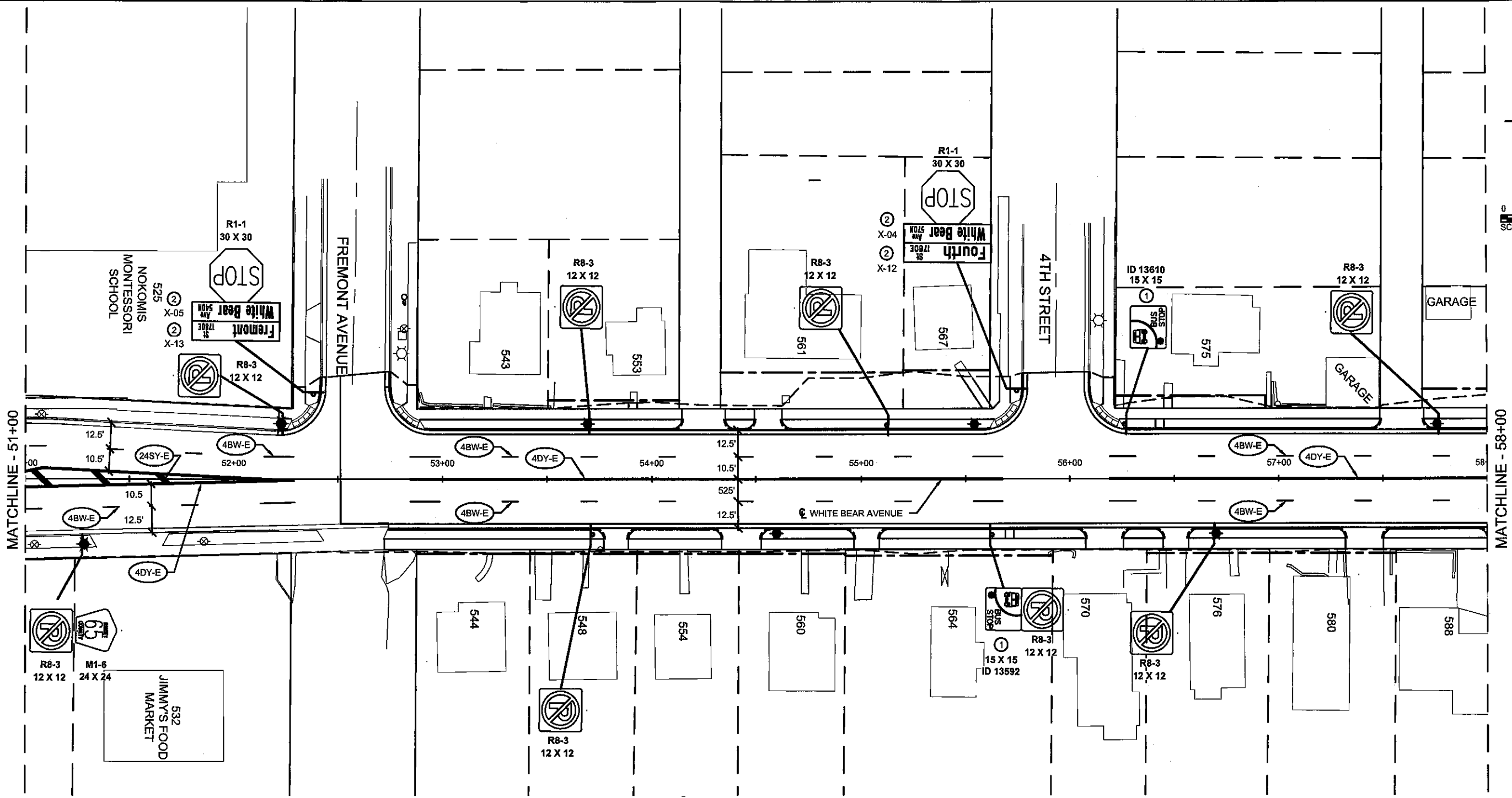
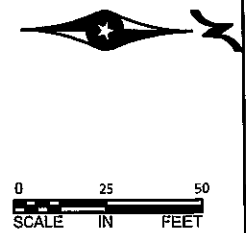


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**STA. 44+00 TO 51+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 89  
 OF  
 145  
 SHEETS

Date Printed: 2/16/2018 WSB Filename: K:\31189-0000\Drawings\31189-000-0-STRIP-PLAN.dwg



**PAVEMENT MARKINGS LEGEND**

- 4" SOLID LINE WHITE - EPOXY
- 4" SOLID DOUBLE LINE YELLOW - EPOXY
- 12" SOLID LINE WHITE - EPOXY
- 24" SOLID LINE WHITE - EPOXY
- 4" BROKEN LINE WHITE - EPOXY
- 24" SOLID YELLOW - EPOXY
- PAVEMENT MESSAGE (RIGHT ARROW) EPOXY
- PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**LEGEND**

- INSTALL SALVAGED SIGN
- F&I STREET NAME BLADES
- X-01

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Printed: 2/16/2018  
 WSB Filename: K:\03186-000\CadPlan\03186-000-C-STIRP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DANILLO S. SCOLA, JR. PE DATE: 02/17/2018 LIC. NO.: 49048
PLAN BY:	ERW	
CHECKED BY:	JLB	
APPROVED BY:	DSS	

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 Minneapolis, MN 55416  
 Tel: (783) 541-4800 · Fax: (783) 541-1700  
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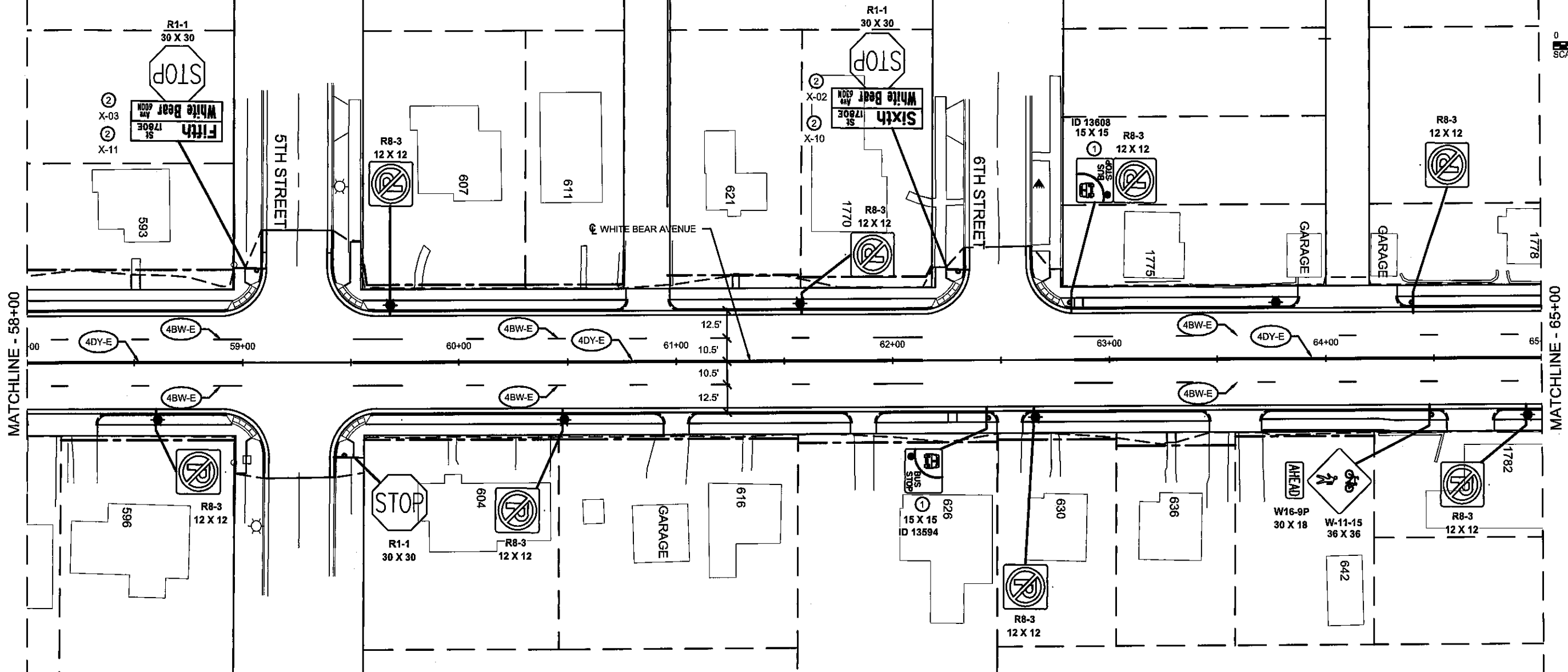
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
 STA. 51+00 TO 58+00  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 90  
 OF  
 145  
 SHEETS



0 25 50  
SCALE IN FEET



MATCHLINE - 58+00

MATCHLINE - 65+00

**PAVEMENT MARKINGS LEGEND**

- 4" SOLID LINE WHITE - EPOXY
- 4" SOLID DOUBLE LINE YELLOW - EPOXY
- 12" SOLID LINE WHITE - EPOXY
- 24" SOLID LINE WHITE - EPOXY
- 4" BROKEN LINE WHITE - EPOXY
- 24" SOLID YELLOW - EPOXY
- PAVEMENT MESSAGE (RIGHT ARROW) EPOXY
- PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**LEGEND**

- INSTALL SALVAGED SIGN
- F&I STREET NAME BLADES

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/16/2018  
WSB Filename: K:\09185-000-Civil\Plan\0188-000-C-STRP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY:   
DANILO S. SOSA, JR. P.E.  
DATE: 02/17/2018 LIC. NO. 49048



701 Knox Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (783) 641-4800 - Fax: (783) 641-1700  
wsbeng.com

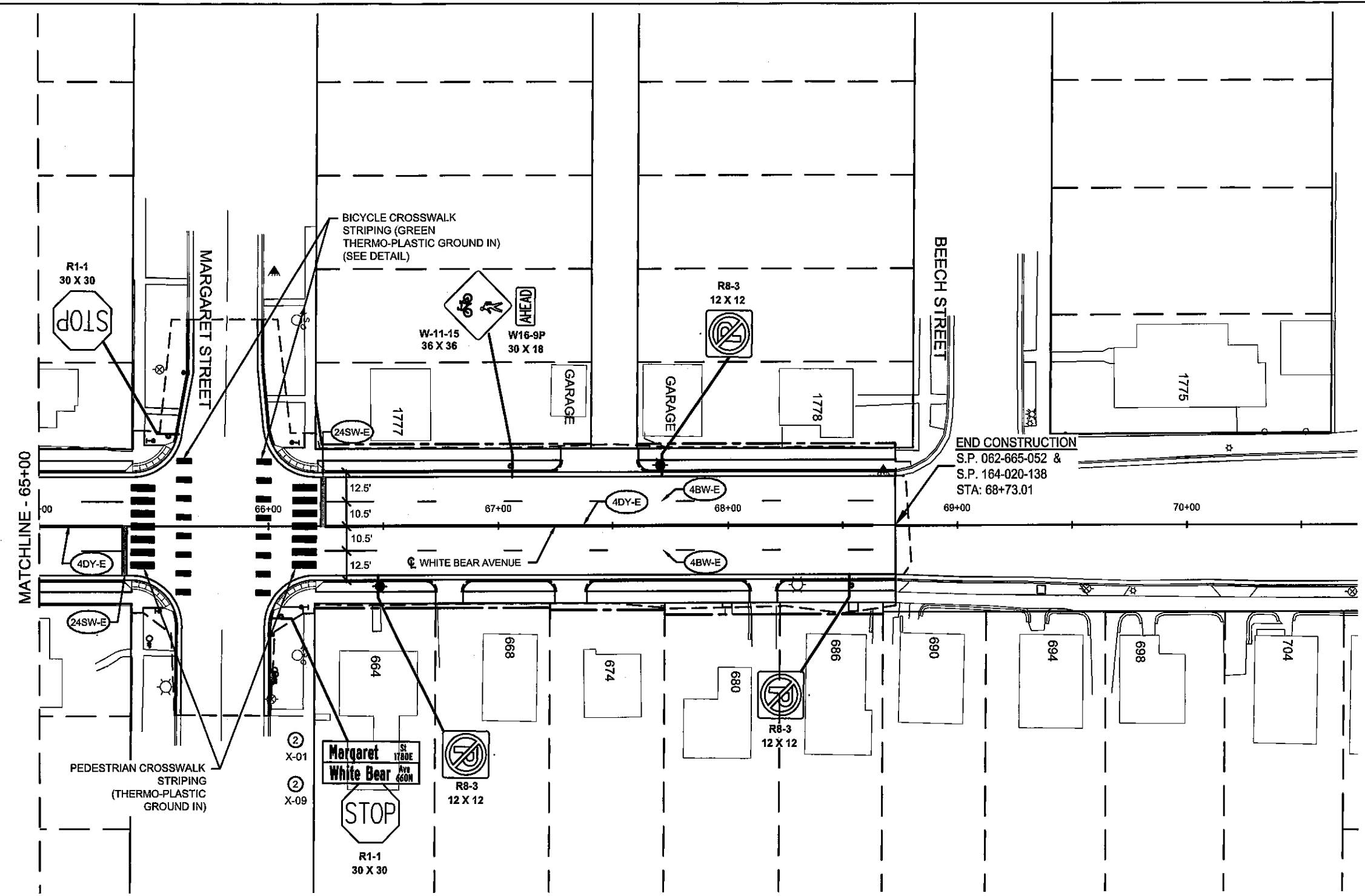
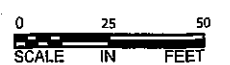


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**STA. 58+00 TO 65+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
91  
OF  
145  
SHEETS





END CONSTRUCTION  
 S.P. 062-665-052 &  
 S.P. 164-020-138  
 STA: 68+73.01

**PAVEMENT MARKINGS LEGEND**

- 4SW-E 4" SOLID LINE WHITE - EPOXY
- 4DY-E 4" SOLID DOUBLE LINE YELLOW - EPOXY
- 12SW-E 12" SOLID LINE WHITE - EPOXY
- 24SW-E 24" SOLID LINE WHITE - EPOXY
- 4BW-E 4" BROKEN LINE WHITE - EPOXY
- 24SY-E 24" SOLID YELLOW - EPOXY

**LEGEND**

- ① INSTALL SALVAGED SIGN
- ② F&I STREET NAME BLADES X-01

- ➔ PAVEMENT MESSAGE (RIGHT ARROW) EPOXY
- ➜ PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/16/2018  
 WBS File Name: K:\03186-000-CAD\Plan\03186-000-C-STRP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

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

CERTIFIED BY: *[Signature]*  
 DANILO S. GANSA, J.E. PE  
 DATE: 02/17/2016 Lic. No. 48048



701 Xarva Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
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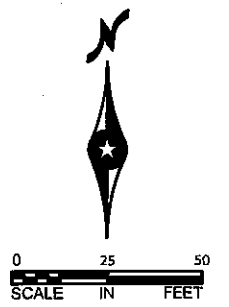
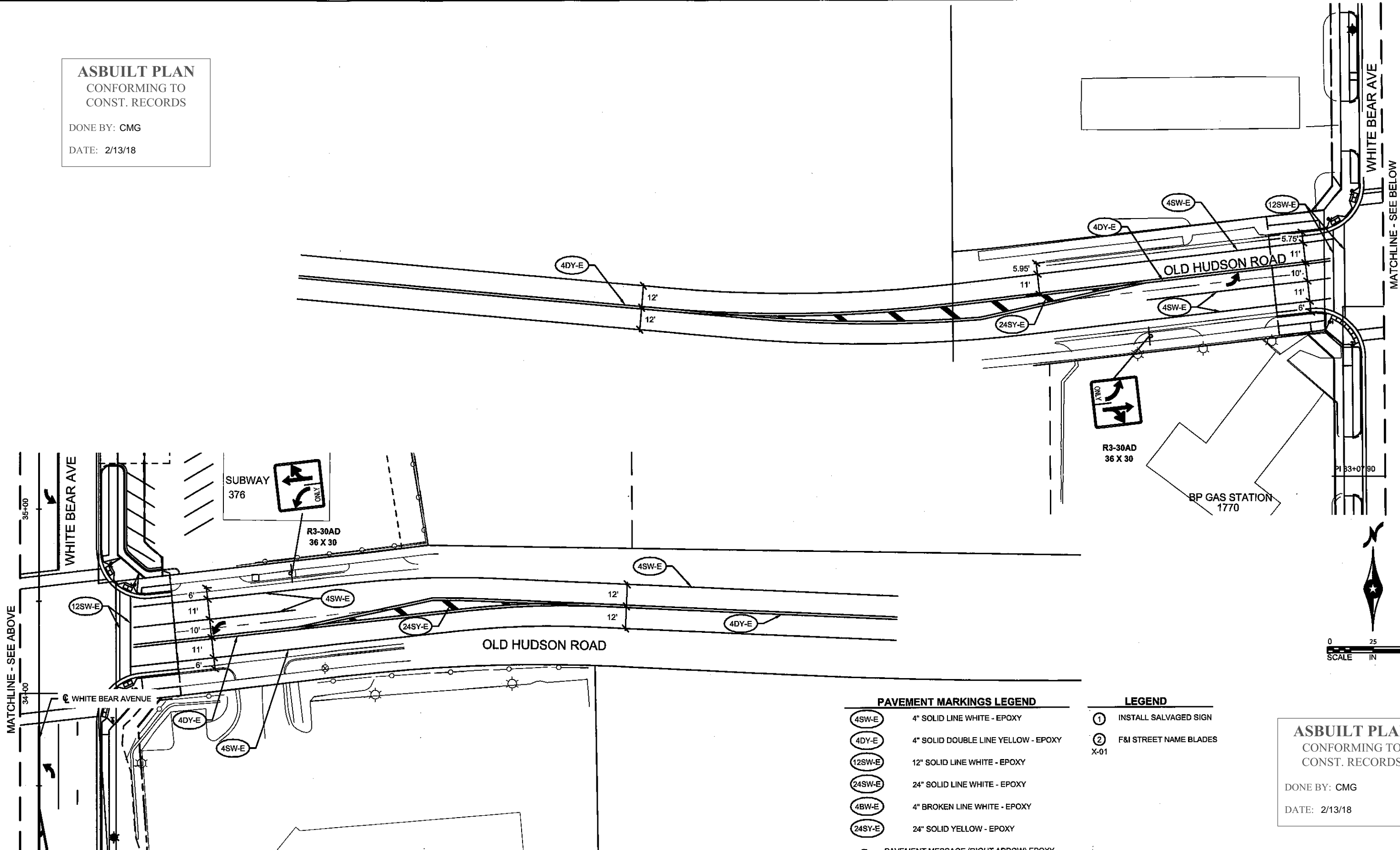
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 92  
 OF  
 145  
 SHEETS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



**PAVEMENT MARKINGS LEGEND**

4SW-E	4" SOLID LINE WHITE - EPOXY
4DY-E	4" SOLID DOUBLE LINE YELLOW - EPOXY
12SW-E	12" SOLID LINE WHITE - EPOXY
24SW-E	24" SOLID LINE WHITE - EPOXY
4BW-E	4" BROKEN LINE WHITE - EPOXY
24SY-E	24" SOLID YELLOW - EPOXY
	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY
	PAVEMENT MESSAGE (LEFT ARROW) EPOXY

**LEGEND**

①	INSTALL SALVAGED SIGN
②	F&I STREET NAME BLADES X-01

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/16/2018  
WSB Filename: k:\0169-000-000-CadPlan\0318-000-C-STRP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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CERTIFIED BY: *[Signature]*  
DANILO S. SOGA, JR., PE  
DATE: 02/17/2018 LIC. NO. 49048



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Minneapolis, MN 55416  
Tel: (763) 641-4800 • Fax: (763) 641-1700  
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**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**PAVEMENT MARKING AND SIGNING PLAN**  
**OLD HUDSON ROAD**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
93  
OF  
145  
SHEETS

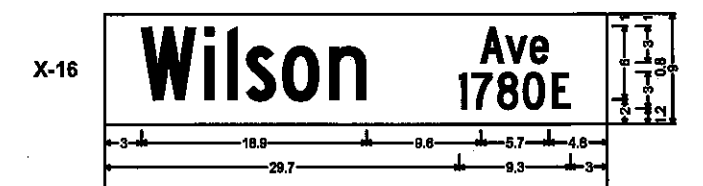
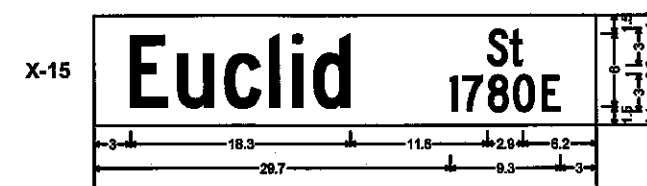
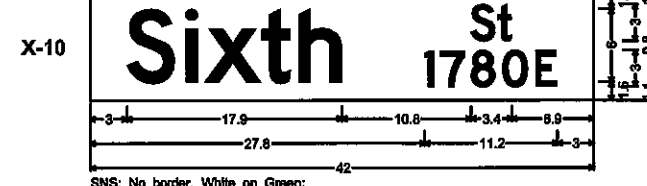
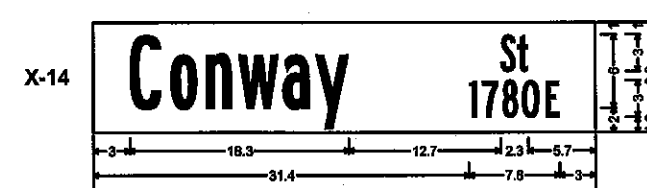
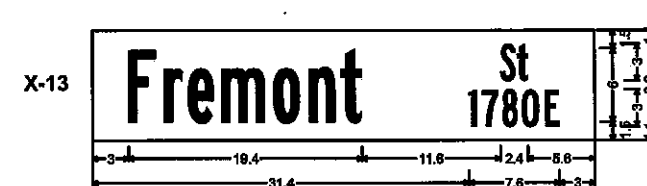
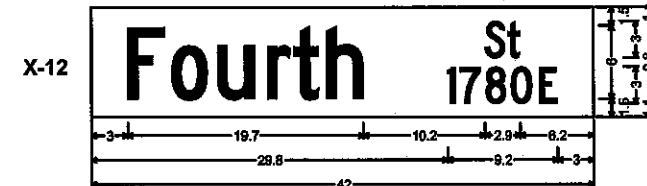
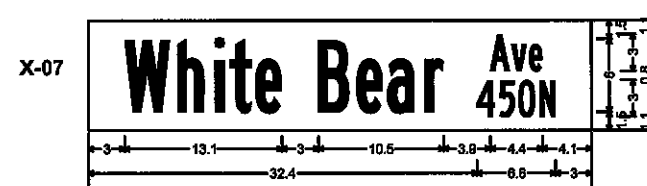
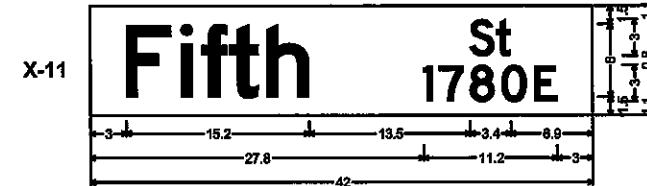
**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

PAVEMENT MARKINGS								M	
STATION	4" SOLID WHITE-EPOXY	12" SOLID WHITE-EPOXY	4" BROKEN WHITE-EPOXY	4" SOLID DOUBLE YELLOW-EPOXY	24" SOLID WHITE-EPOXY	24" SOLID YELLOW-EPOXY	PAVT MSG LT ARROW (GR IN)	WHITE ZEBRA CROSSWALK	GREEN ZEBRA CROSSWALK
S.P. 062-665-052	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	SQ FT	SQ FT
WHITE BEAR AVE									
30+40.86 to 37+00	166	244	1210	1031		67	2		
37+00 to 44+00			1260	1314					
44+00 to 51+00	158	419	1177	1637		65	2		
51+00 to 58+00			1246	1511					
58+00 to 65+00			1214	1214					
65+00 to 86+73.01			637	637	48			450	510
OLD HUDSON RD	2302	195		1475		65	2		
<b>TOTAL</b>	<b>2626</b>	<b>858</b>	<b>6744</b>	<b>8819</b>	<b>48</b>	<b>197</b>	<b>6</b>	<b>450</b>	<b>510</b>

SIGN TABULATION					N
ITEM	QTY	MUTCD CODE	SIZE (INCHES)	TOTAL SF	LEGEND
F&I SIGN	41	R8-3	12 X 12	41.00	
F&I SIGN	2	M1-6	24 X 24	8.00	
F&I SIGN	1	R2-1	30 X 36	7.50	
F&I SIGN	1	M2-1A	21 X 15	2.50	
F&I SIGN	1	M1-1	24 X 24	4.00	
F&I SIGN	11	R1-1	30 X 30	68.75	
INSTALL SALVAGED SIGN	10	NA	15 X 15	NA	
F&I SIGN	16	NA	42 X 9	42.00	
F&I SIGN	4	R3-30ACD	48 X 30	40.00	
F&I SIGN	2	R3-30AD	36 X 30	15.00	
F&I SIGN	2	W11-15	36 X 36	18.00	
F&I SIGN	2	W16-9P	30 X 18	7.50	



Date Plotted: 2/16/2018  
Web Filename: K:\0186-000\03186-000-C-STRIP-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANILO S. SOKOLOVIC, JR. P.E.  
 DATE: 02/17/2018 LIC. NO.: 49048

**WSB**

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 Minneapolis, MN 55416  
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**RAMSEY COUNTY**

**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**PAVEMENT MARKING AND SIGNING PLAN  
 TABULATIONS**

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**94**  
 OF  
**145**  
 SHEETS

**GENERAL SIGNING INFORMATION:**

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MNDOT "TRAFFIC ENGINEERING MANUAL" AND THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD) INCLUDING PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" WITH THE FOLLOWING EXCEPTIONS AND AS DIRECTED BY THE ENGINEER. THESE GUIDELINES ARE TYPICAL. MODIFICATION MAY BE REQUIRED FOR UNUSUAL CONDITIONS OR TO CONFORM TO THE REQUIREMENTS OF OTHER AGENCIES. ALL SIGNING, STRIPING AND PAVEMENT MARKINGS MAINTAINED BY RAMSEY COUNTY SHALL CONFORM TO THE REQUIREMENTS OF RAMSEY COUNTY.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

**GENERAL STRIPING INFORMATION:**

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALK.

A TOLERANCE OF 1/4" UNDER OR 1/4" OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 6" FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1" MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

**EPOXY**

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

AN EPOXY RESIN LINE 4 INCHES WIDE AND 20 MILL THICKNESS (WET), REQUIRES AN APPLICATION RATE OF ONE (1) GALLON OF COMPONENTS FOR 320 FEET OF LINE. GLASS BEADS SHALL BE APPLIED AT A POUND PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50° F OR GREATER.

DO NOT APPLY OVER INPLACE PAINT, INPLACE EPOXY OR INPLACE THERMOPLASTIC UNLESS VERY WELL WORN (AT LEAST 75% - 80% WORN AWAY) AND WELL ADHERED TO THE PAVEMENT. GRIND OR SANDBLAST OLD MARKINGS AND SWEEP OR BLOW AREA CLEAN.

**PREFORM THERMOPLASTIC APPLICATION**

THE INSTALLERS OF THIS MATERIAL MUST CARRY A CARD CERTIFYING THAT THEY HAVE ATTENDED A TRAINING SESSION THAT ADDRESSES SURFACE PREPARATIONS AND ALL APPLICATION REQUIREMENTS AND TECHNIQUES NECESSARY FOR SUCCESSFUL APPLICATION. ALL MARKINGS SHALL BE OF THE "INLAY" METHOD UNLESS THE "GROUND IN" (GROOVED) OR "OVERLAY" PROCEDURE IS SPECIFIED.

**HEAT FUSED THERMO PLASTIC**

THE INSTALLERS OF THIS MATERIAL MUST CARRY A CARD CERTIFYING THAT THEY HAVE ATTENDED A TRAINING SESSION THAT ADDRESSES SURFACE PREPARATIONS AND ALL APPLICATION REQUIREMENTS AND TECHNIQUES NECESSARY FOR SUCCESSFUL APPLICATION. ALL MARKINGS SHALL BE OF THE "INLAY" METHOD UNLESS THE "GROUND IN" (GROOVED) OR "OVERLAY" PROCEDURE IS SPECIFIED.

**GROOVE SPECIFICATIONS**

THE PAVEMENT SURFACE SHALL BE GROUND (GROOVED) TO DIMENSIONS THAT ARE EQUAL OR GREATER THAN 1" LARGER (ALL DIRECTIONS) THAN THE DIMENSIONS OF THE MARKING TO BE INSTALLED (NOT TO EXCEED 2" GREATER THAN THE MARKING DIMENSIONS). THE DEPTH OF THE GROOVE SHALL BE 100 MILLS (+/- 10 MILLS). NOTE: 1000 MILLS = 1 INCH.

THE RECOMMENDED POSITION OF THE GROOVE EDGE IS A MINIMUM OF 2 INCHES FROM THE EDGE OF CONCRETE JOINTS OR ASPHALT SEAMS ALONG EDGE OR CENTERLINES.

INTERSECTION MARKINGS, LEGENDS, AND SYMBOLS MAY REQUIRE USE OF WIDER CUTTING HEADS TO REDUCE THE NUMBER OF RIDGES FORMED BY MULTIPLE PASSES WITH THE CUTTING HEAD. THE HEIGHT OF THE RIDGES SHOULD BE LESS THAN 20% OF THE GROOVE DEPTH. SMALLER EQUIPMENT MAY BE REQUIRED TO ACHIEVE A GROOVE AT THE RECOMMENDED DEPTH WHEN WORKING NEAR OBSTACLES SUCH AS CURBS OR MEDIANS.

NEW BITUMINOUS PAVEMENT SHOULD NOT BE GROOVED UNTIL AFTER 10 DAYS OF THE PLACEMENT OF THE FINAL COURSE OF PAVEMENT. INTERIM DEVICES (TEMP. TAPE, RAISED TABS, OR OTHER DELINEATION OR CHANNELIZATION DEVICES) SHALL DELINEATE THE PROPOSED MARKING AREAS IF THE ROADWAY IS OPEN TO TRAFFIC.

**APPLICATION OF MARKING IN GROUND IN (GROOVED) PAVEMENT**

THE GROOVE SHALL BE ALLOWED TO DRY A MINIMUM OF 24 HOURS AFTER GROOVE CLEANING, REMOVAL OF WATER, AND PRIOR TO PAVEMENT MARKING APPLICATION IF WATER IS USED IN THE GROOVING PROCESS. THE GROOVE MUST BE CLEAN AND DRY FOR PROPER APPLICATION OF THE PAVEMENT MARKING. CLEAN THE GROOVE COMPLETELY PRIOR TO PAVEMENT APPLICATION USING AN AIR COMPRESSOR WITH AT LEAST 185 CFM AIR FLOW AND 90 PSI AIR PRESSURE. ONE DRY PASS WITH A PICKUP SWEEPER WILL BE REQUIRED PRIOR TO AIRBLASTING THE GROOVE IF TRAFFIC IS PRESENT.

AIR TEMPERATURE SHALL BE A MINIMUM OF 40°F  
SURFACE TEMPERATURE SHALL BE A MINIMUM OF 40°F

A SURFACE PREPARATION ADHESIVE IS REQUIRED WHEN PAVEMENT MARKING APPLICATION OCCURS OUTSIDE OF THE SEASON BETWEEN JUNE 1 AND SEPTEMBER 1. SURFACE PREPARATION ADHESIVE SHALL BE APPLIED ACCORDING TO PRODUCT RECOMMENDATIONS.

PAVEMENT MARKING SHALL BE INSTALLED AND TAMPED AS PER MANUFACTURERS RECOMMENDATIONS. USE TAMPER CARTS WITH A 200-POUND LOAD. PAVEMENT MARKING APPLICATION IN A GROOVE WILL REQUIRE TAMPING WITH A TAMPER CART ROLLER CUT TO FIT IN THE GROOVE. USE A MODIFIED TAMPER CART ROLLER IF NECESSARY. A TYPICAL MODIFIED ROLLER WILL HAVE A 4" WIDTH AND A 1/4" DEPTH. USE OF A VEHICLE TIRE TO TAMP TAPE IN A GROOVE IS ACCEPTABLE FOR WAFFLE PATTERN TYPES.

Date Plotted: 2/16/2016  
WSB Filename: K:\01818-000\Cad\Plan\161181-000-C-STRIP-USE1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
PLAN BY: ERW  
CHECKED BY: JLB  
APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
DAMILO S. SOSA, JR., P.E.  
DATE: 02/17/2016 LIC. NO. 49048



701 Xana Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (783) 641-4800 - Fax: (783) 641-1700  
wsb.org

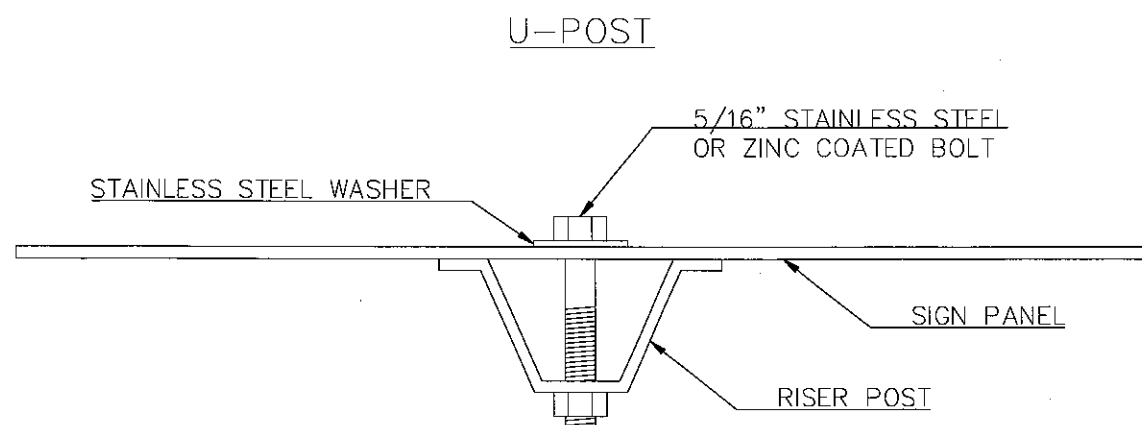


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

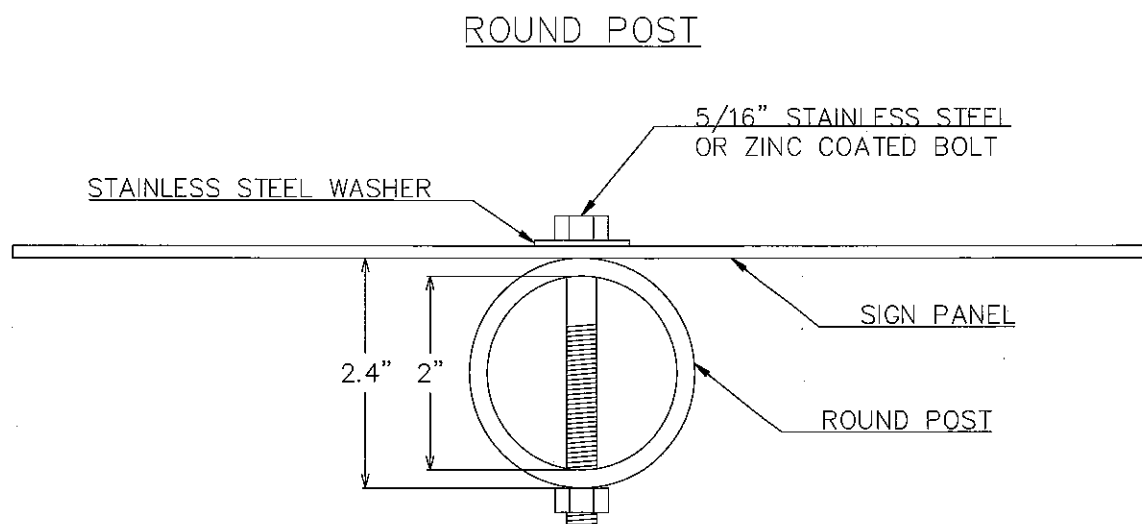
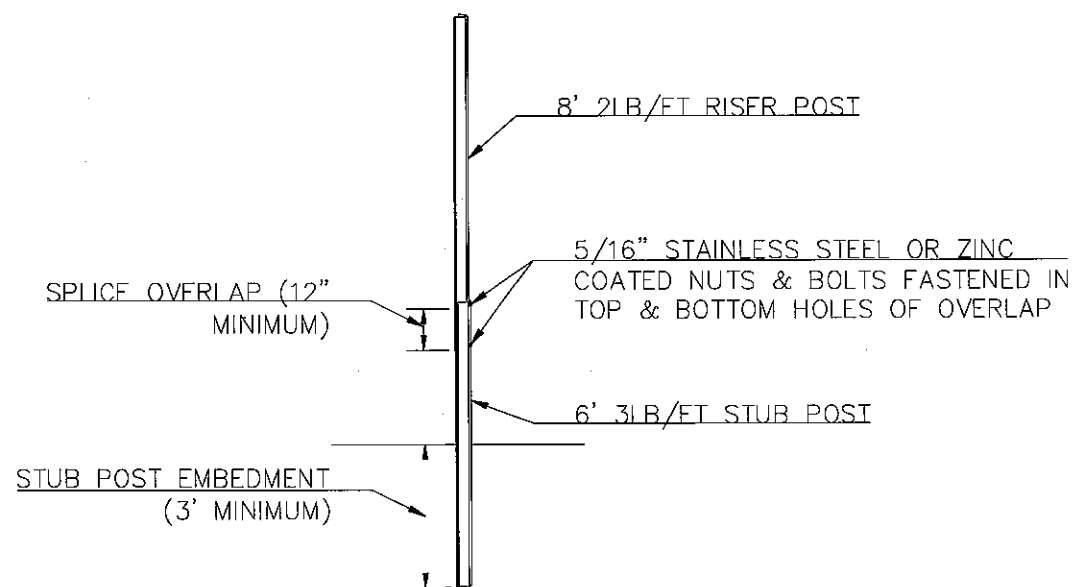
**RAMSEY COUNTY, MINNESOTA**  
**SIGNING AND STRIPING  
DETAILS**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**95**  
OF  
**145**  
SHEETS

# SIGN PANEL MOUNTING DETAILS



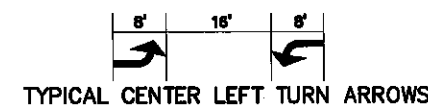
TYPICAL SIGN POST DETAIL



NOTE: SIGN MOUNTING HEIGHT AND PLACEMENT PER MNMUTCD

## STRIPING DETAILS

- \*4" SKIP CYCLE (10' LINE with 40' SPACE - 50' OVERALL)
- \*8" SKIP CYCLE (3' LINE with 12' SPACE - 15' OVERALL)

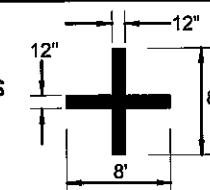


\*CROSSWALK BLOCKS ARE CENTERED ON AND BETWEEN LANE LINES (DISTANCE BETWEEN IS VARIABLE)



\*CROSSWALK BLOCKS ARE  
2.5' WIDE  
6' LONG AT CONTROLLED INTERSECTIONS  
8' LONG AT MIDBLOCK LOCATIONS  
8' LONG AT UN-CONTROLLED INTERSECTIONS

SURVEY MARKERS ARE 12" SOLID WHITE LINES



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 2/13/2018 WSB Filename: I:\031818-000\Cad\Plan\181818-000-C-STRIP-DET1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

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

CERTIFIED BY: *[Signature]*  
DANIEL O. S. SOMMER, PE  
DATE: 02/17/2018 LIC. NO. 49048



701 Xena Avenue South, Suite 200  
Minneapolis, MN 55416  
Tel: (783) 541-4830 - Fax: (783) 541-1700  
wsbeng.com



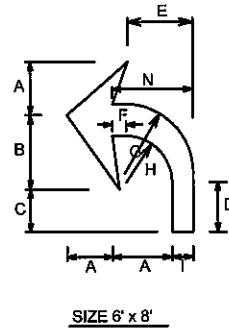
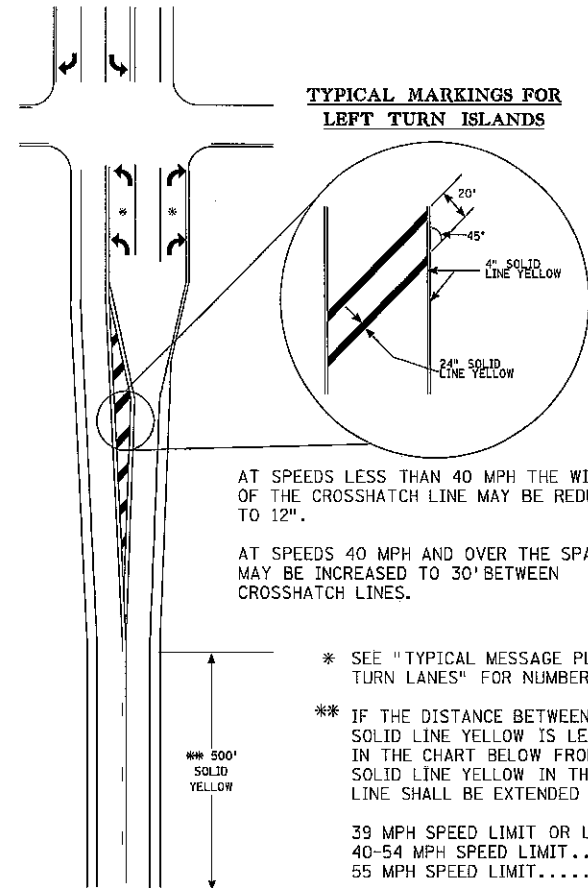
**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**SIGNING AND STRIPING  
DETAILS**

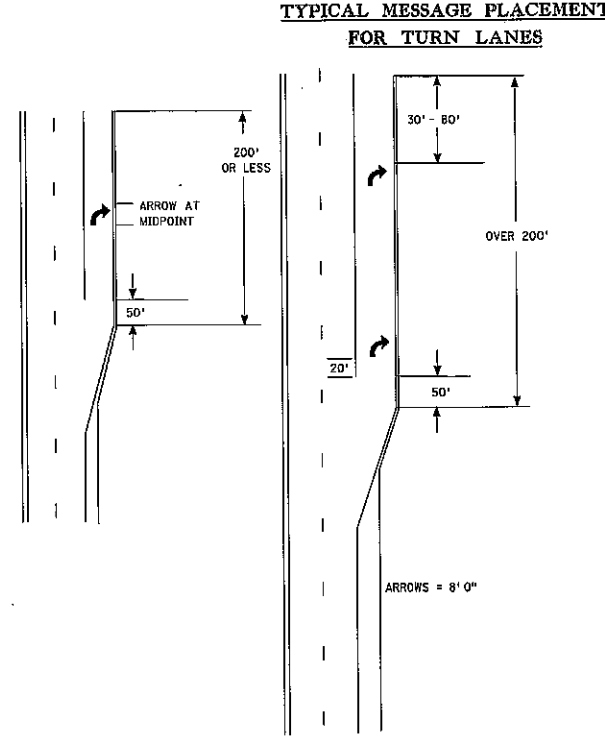
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
96  
OF  
145  
SHEETS



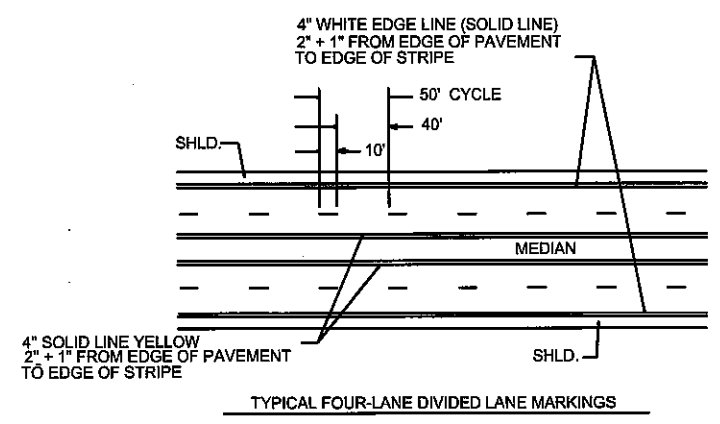
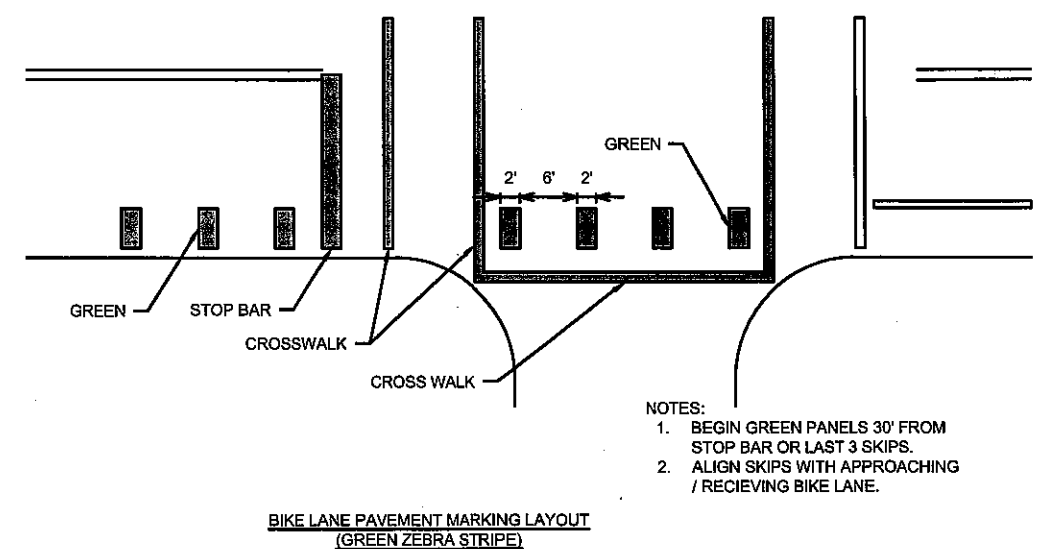
DIMENSION TABLE

A	2'-6"
B	3'-6"
C	2'-0"
D	2'-6"
E	3'-1"
F	0'-8"
G	3'-3"
H	2'-2"
I	1'-0"
J	1'-0"
K	1'-3"
L	5'-0"
M	7'-8"
N	3'-10"
P	4'-6"



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



Data Printed: 2/16/2016  
 WSB Filename: K:\03186-000\Drawings\03186-000-C-STRIP-DTEL.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

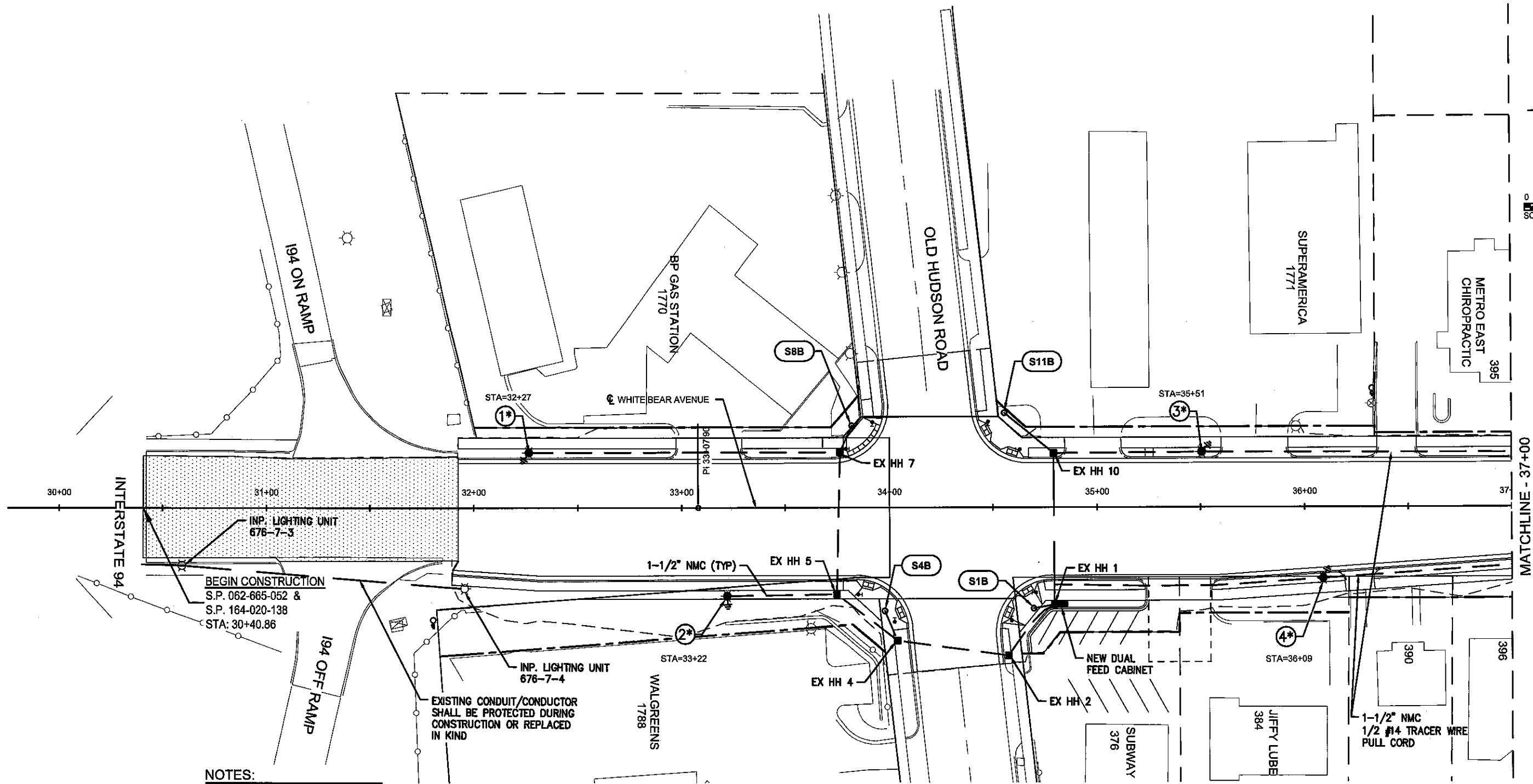
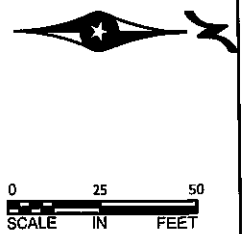
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *(Signature)*  
 DANILO S. SOGA, JR., PE  
 DATE: 02/17/2016 LIC. NO. 49048

701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4800 - Fax: (783) 641-1700  
 wsbeng.com

RAMSEY COUNTY  
 WHITE BEAR AVENUE STREET IMPROVEMENTS

RAMSEY COUNTY, MINNESOTA  
 SIGNING AND STRIPING DETAILS  
 S.P. 062-665-052 / S.P. 164-020-138



**NOTES:**

1. ALL WIRE ON THIS PLAN SHEET SHALL BE
2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
4. ALL NEW UNITS ON THIS PLAN SHEET SHALL BE L-14 HAVING 150 WATT LED EQUIVALENT LUMINAIRES UNLESS OTHERWISE NOTED.
5. ALL UNITS SHALL BE SET BACK 4 FT FROM THE FACE OF CURB OR AS DIRECTED BY THE ENGINEER.
6. COORDINATE INSTALLATION OF FOUNDATIONS, CONDUIT AND HANDHOLES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.
7. HANDHOLES 1, 2, 3, 4, 5, & 6 TO BE INSTALLED AS PART OF SIGNAL SYSTEM "B".
8. LIGHTING CONDUIT AND CONDUCTORS TO BE CONNECTED TO SIGNAL LUMINAIRES AT SIGNAL SYSTEM "B" HANDHOLE 1, 3, 5, & 6.

LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS

**LEGEND**

- L-14
- 2L-14
- POLE WITH GROUND ROD
- PROPOSED CONDUIT
- EXISTING CONDUIT

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

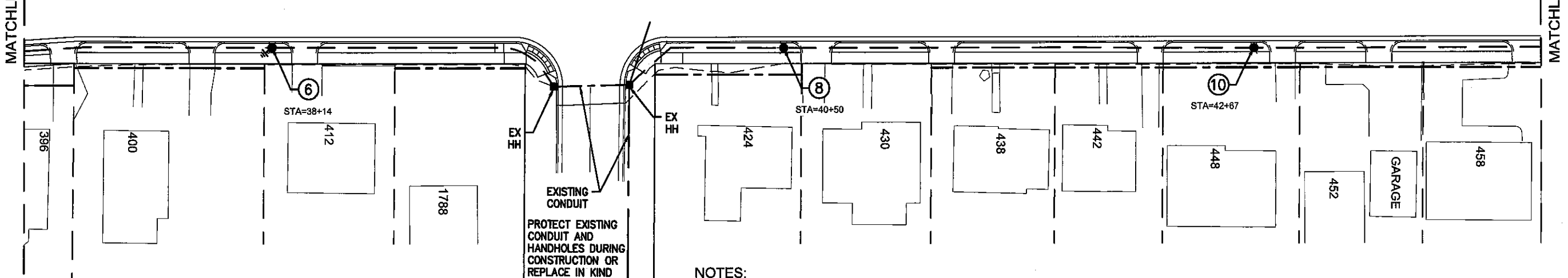
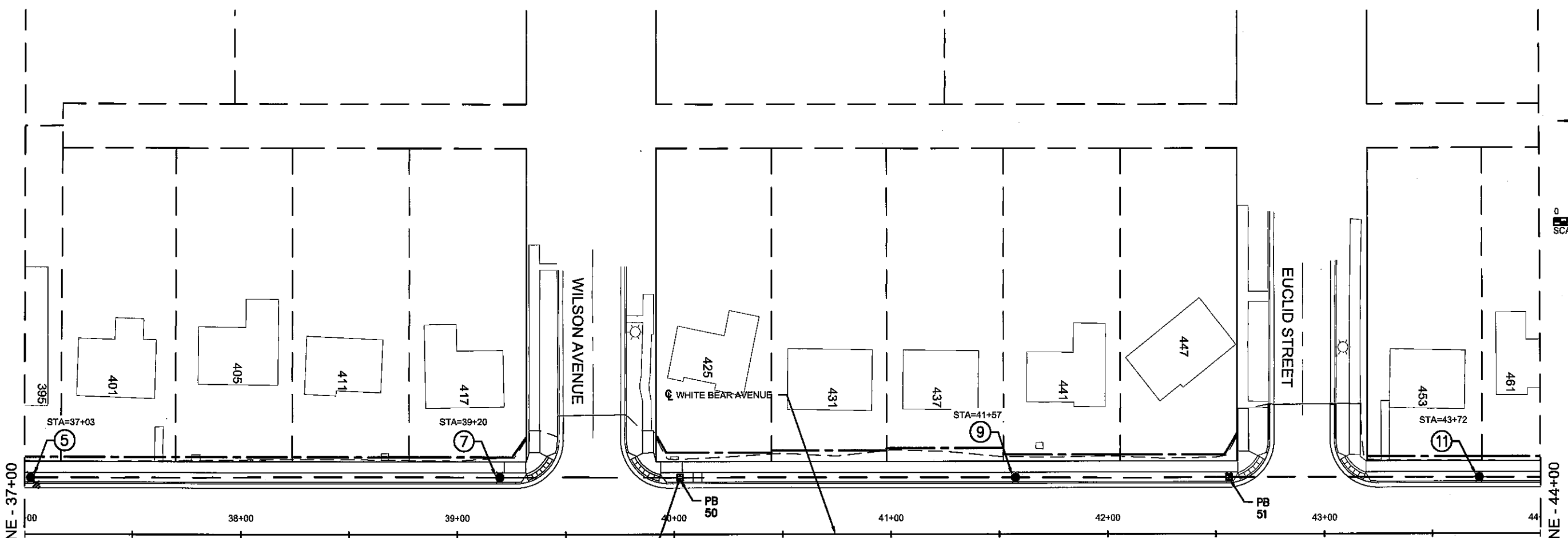
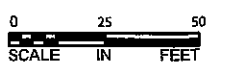
NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DANILLO S. GOOD, JR. PE DATE: 02/17/2016 LIC. NO.: 48048
PLAN BY:	ERW	
CHECKED BY:	JLB	
APPROVED BY:	DSS	

701 Xerox Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (783) 541-4800 - Fax: (783) 541-1700  
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**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

<b>RAMSEY COUNTY, MINNESOTA</b>  <b>LIGHTING PLAN</b> <b>STA. 30+00 TO 37+00</b> S.P. 062-665-052 / S.P. 164-020-138	SHEET <b>98</b> OF <b>145</b> SHEETS
--	--



**NOTES:**

1. ALL WIRE ON THIS PLAN SHEET SHALL BE
  2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
  3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
  4. ALL NEW UNITS ON THIS PLAN SHEET SHALL BE L-14 HAVING 150 WATT LED EQUIVALENT LUMINAIRES UNLESS OTHERWISE NOTED.
  5. ALL UNITS SHALL BE SET BACK 4 FT FROM THE FACE OF CURB OR AS DIRECTED BY THE ENGINEER.
- LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS
6. COORDINATE INSTALLATION OF FOUNDATIONS, CONDUIT AND HANDHOLES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

**LEGEND**

	L-14
	2L-14
	POLE WITH GROUND ROD
	PROPOSED CONDUIT
	EXISTING CONDUIT

NO.	DATE	BY	CHK	REVISIONS


DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANIEL S. ROSA, P.E.  
 DATE: 02/17/2016 LIC. NO.: 49048



701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

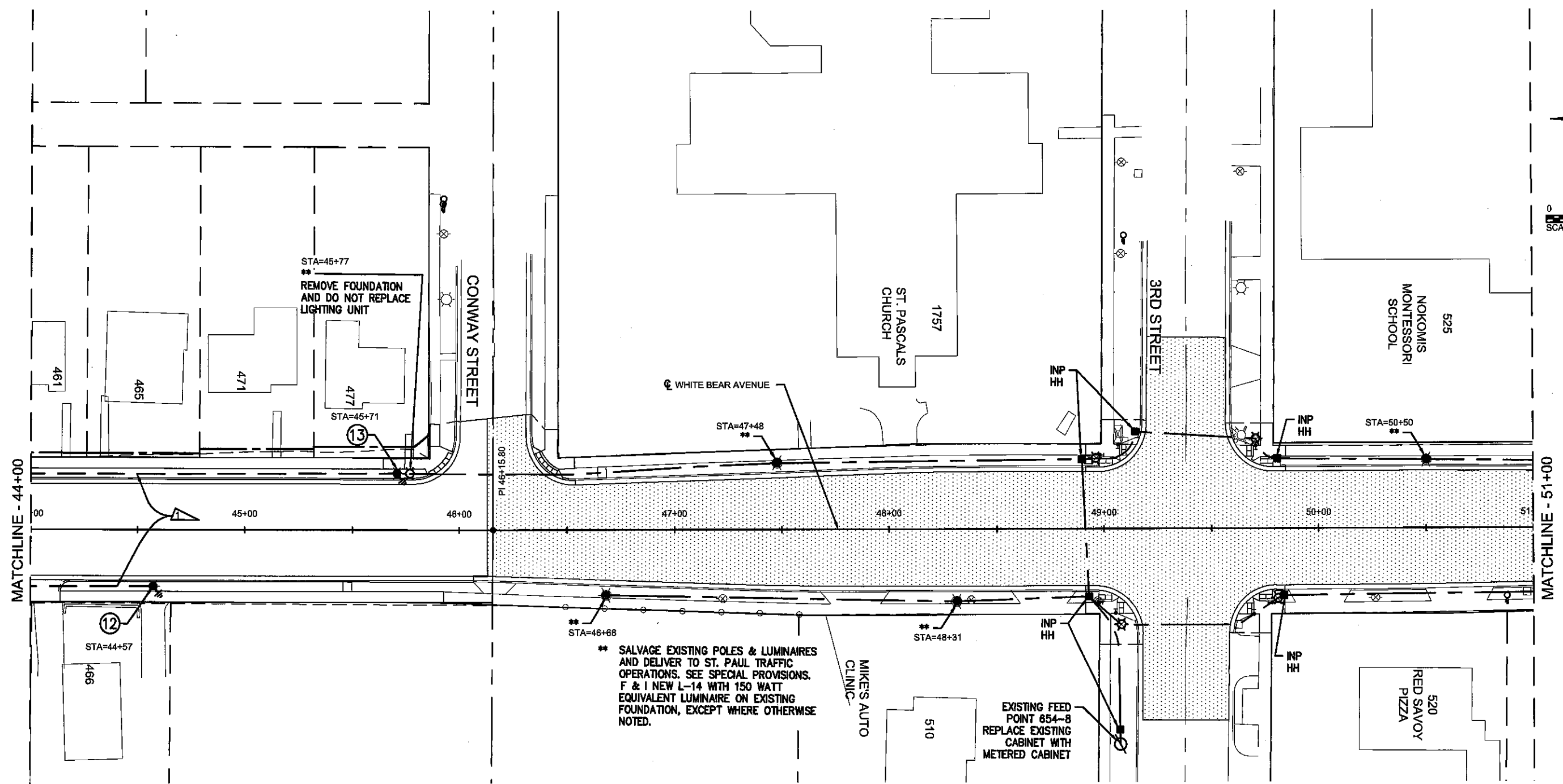
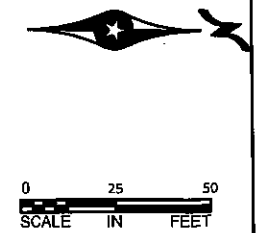
**RAMSEY COUNTY, MINNESOTA**

**LIGHTING PLAN**  
 STA. 37+00 TO 44+00  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 99  
 OF  
 145  
 SHEETS

Date Printed: 2/6/2016  
 WSB Filename: K:\2015\164-020-138\164-020-138-010-CL-01-L-PLAN.dwg





**NOTES:**

1. ALL WIRE ON THIS PLAN SHEET SHALL BE
2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
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LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS

\*\* SALVAGE EXISTING POLES & LUMINAIRES AND DELIVER TO ST. PAUL TRAFFIC OPERATIONS. SEE SPECIAL PROVISIONS. F & I NEW L-14 WITH 150 WATT EQUIVALENT LUMINAIRE ON EXISTING FOUNDATION, EXCEPT WHERE OTHERWISE NOTED.

EXISTING FEED POINT 654-8 REPLACE EXISTING CABINET WITH METERED CABINET

**LEGEND**

	L-14
	2L-14
	POLE WITH GROUND ROD
	PROPOSED CONDUIT
	EXISTING CONDUIT

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY:   
 DANIL O. S. SOUSA, JR., P.E.  
 DATE: 02/17/2016 LIC. NO.: 49048



701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (763) 641-4800 - Fax: (763) 641-1700  
 wsbang.com



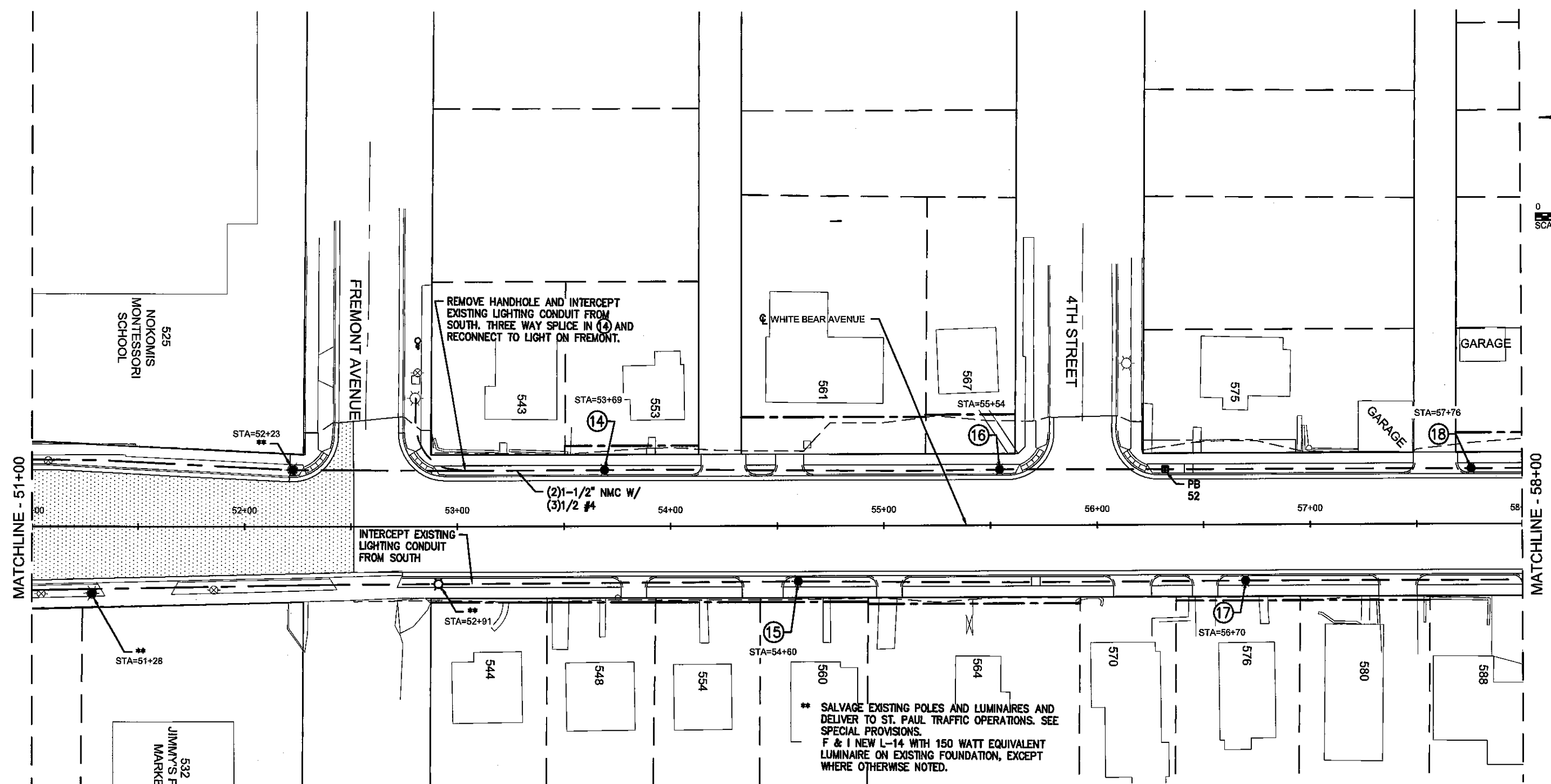
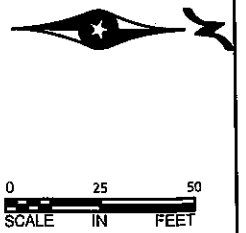
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**LIGHTING PLAN  
 STA. 44+00 TO 51+00  
 S.P. 062-665-052 / S.P. 164-020-138**

SHEET  
**100**  
 OF  
**145**  
 SHEETS

Date Plotted: 2/28/2018  
 WSB - Filename: C:\3016\062-665-052-000-CL-GRF-PLAN.dwg



**NOTES:**

1. ALL WIRE ON THIS PLAN SHEET SHALL BE UNLESS OTHERWISE NOTED.
2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
4. ALL NEW UNITS ON THIS PLAN SHEET SHALL BE L-14 HAVING 150 WATT LED EQUIVALENT LUMINAIRES UNLESS OTHERWISE NOTED.
5. ALL UNITS SHALL BE SET BACK 4 FT FROM THE FACE OF CURB OR AS DIRECTED BY THE ENGINEER.

LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS

6. COORDINATE INSTALLATION OF FOUNDATIONS, CONDUIT AND HANDHOLES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.

\*\* SALVAGE EXISTING POLES AND LUMINAIRES AND DELIVER TO ST. PAUL TRAFFIC OPERATIONS. SEE SPECIAL PROVISIONS.  
 F & I NEW L-14 WITH 150 WATT EQUIVALENT LUMINAIRE ON EXISTING FOUNDATION, EXCEPT WHERE OTHERWISE NOTED.

**LEGEND**

- L-14
- 2L-14
- POLE WITH GROUND ROD
- PROPOSED CONDUIT
- EXISTING CONDUIT

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/8/2018  
 WSB Filename: C:\0318\000\000\000\Plan\021818-000-CL-011-PLAN.dwg

NO.	DATE	BY	CHK	REVISIONS

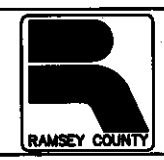
DESIGN BY:	DSS
PLAN BY:	ERW
CHECKED BY:	JLB
APPROVED BY:	DSS

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

CERTIFIED BY:   
 DANILO S. SARGA, JR., PE  
 DATE: 02/17/2018      LIC. NO.: 49048



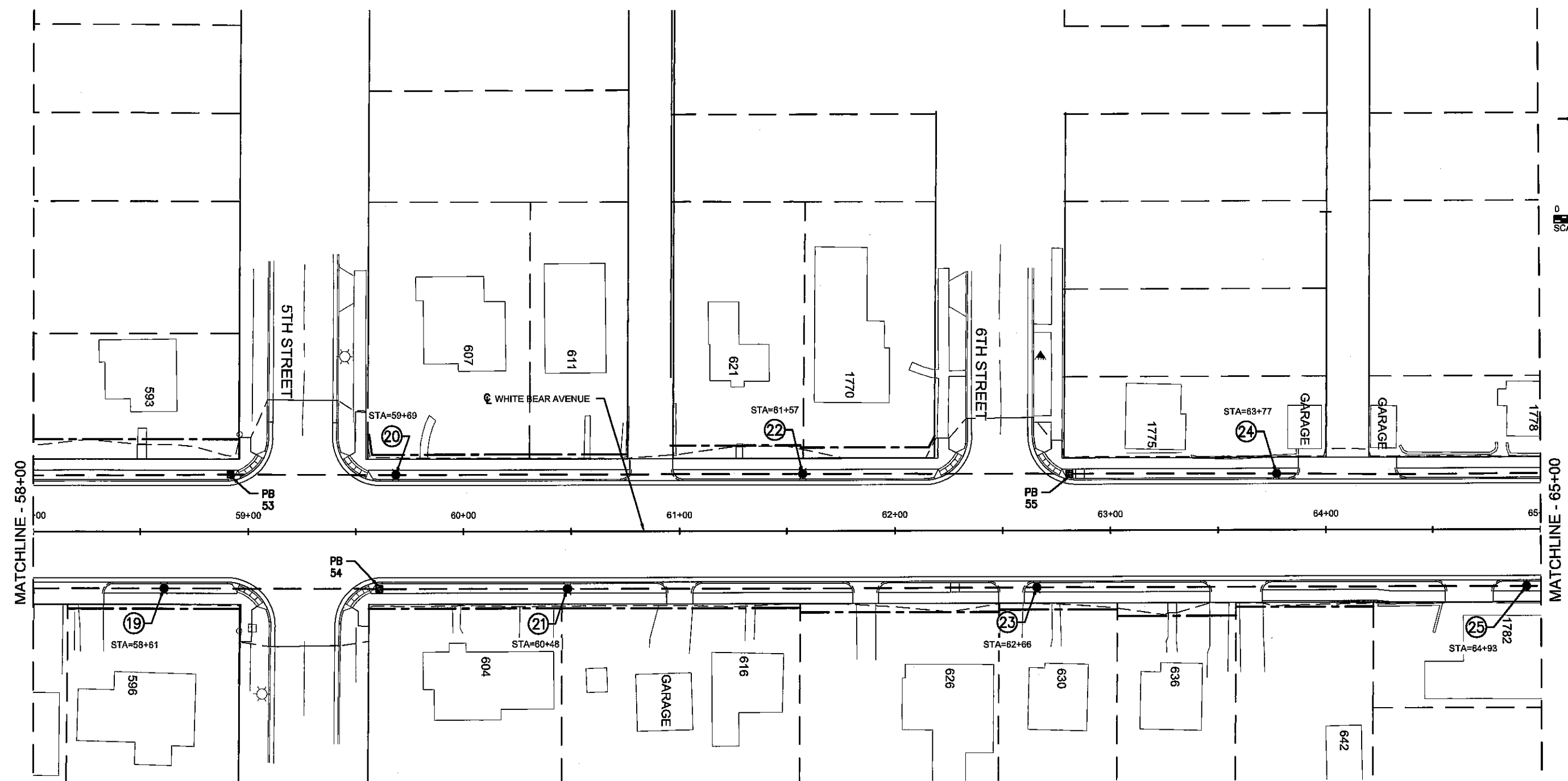
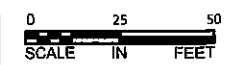
701 Xena Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4800 - Fax (783) 641-1700  
 wsbeng.com



**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**LIGHTING PLAN**  
**STA. 51+00 TO 58+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**101**  
 OF  
**145**  
 SHEETS



**NOTES:**

- 1. ALL WIRE ON THIS PLAN SHEET SHALL BE LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS
- 2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
- 3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
- 4. ALL NEW UNITS ON THIS PLAN SHEET SHALL BE L-14 HAVING 150 WATT LED EQUIVALENT LUMINAIRES UNLESS OTHERWISE NOTED.
- 5. ALL UNITS SHALL BE SET BACK 4 FT FROM THE FACE OF CURB OR AS DIRECTED BY THE ENGINEER.
- 6. COORDINATE INSTALLATION OF FOUNDATIONS, CONDUIT AND HANDHOLES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**LEGEND**

	L-14
	2L-14
	POLE WITH GROUND ROD
	PROPOSED CONDUIT
	EXISTING CONDUIT

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	DSS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  DANILLO S. ARPA, JR., PE DATE: 02/17/2018      LIC. NO.: 48048
PLAN BY:	ERW	
CHECKED BY:	JLB	
APPROVED BY:	DSS	



701 Xena Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (783) 641-4800 · Fax: (783) 641-1700  
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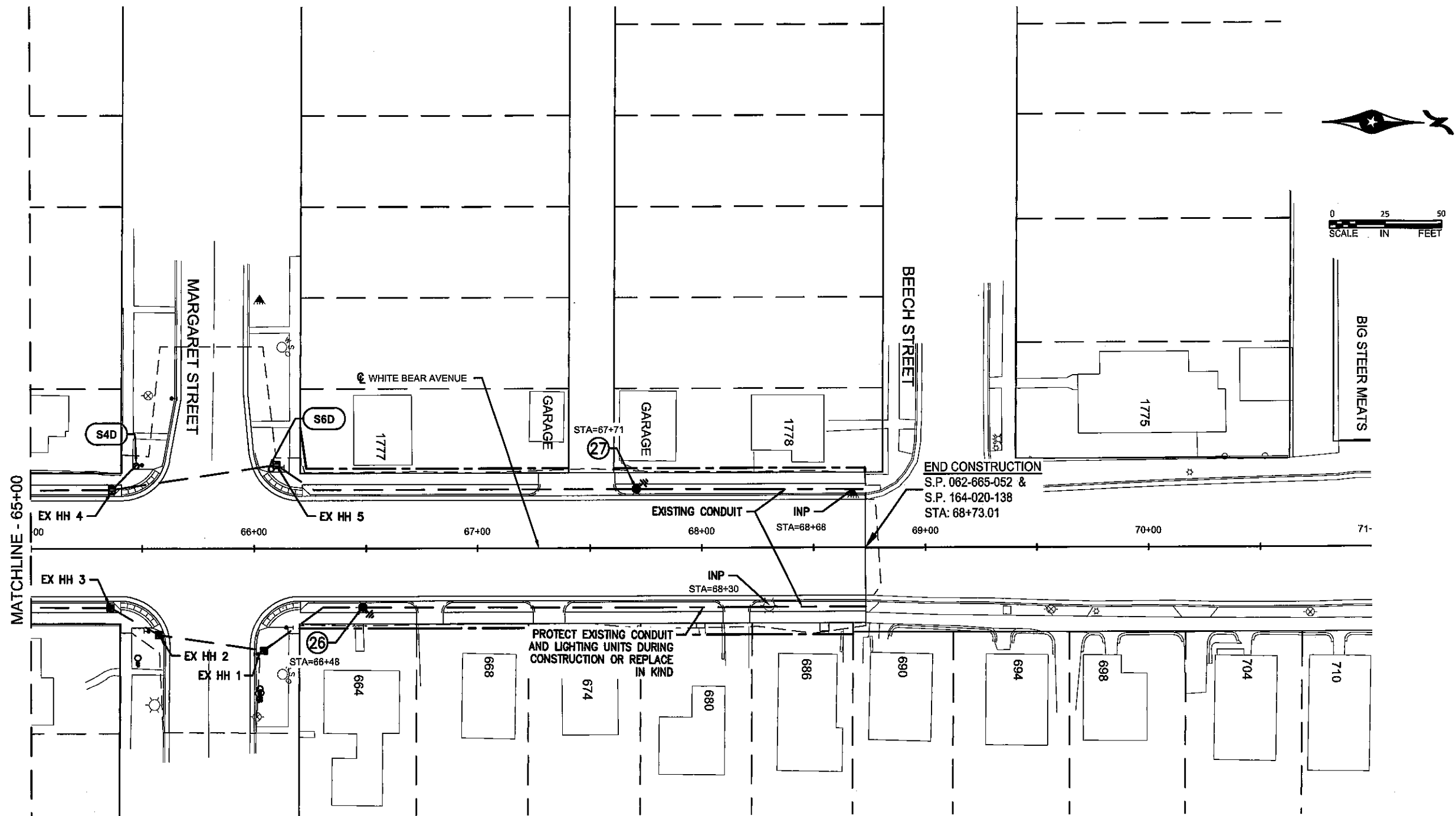


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**LIGHTING PLAN**  
**STA. 58+00 TO 65+00**  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**102**  
OF  
**145**  
SHEETS

Date Printed: 2/6/2018  
File Name: K:\3189-C01\Drawings\180900-C-1811-PLAN.dwg



END CONSTRUCTION  
 S.P. 062-665-052 &  
 S.P. 164-020-138  
 STA: 68+73.01

PROTECT EXISTING CONDUIT  
 AND LIGHTING UNITS DURING  
 CONSTRUCTION OR REPLACE  
 IN KIND

**NOTES:**

1. ALL WIRE ON THIS PLAN SHEET SHALL BE 1. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
2. ALL CONDUIT ON THIS PLAN SHEET SHALL BE 1-1/2" NMC UNLESS OTHERWISE NOTED.
3. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
4. ALL NEW UNITS ON THIS PLAN SHEET SHALL BE L-14 HAVING 150 WATT LED EQUIVALENT LUMINAIRES UNLESS OTHERWISE NOTED.
5. ALL UNITS SHALL BE SET BACK 4 FT FROM THE FACE OF CURB OR AS DIRECTED BY THE ENGINEER.
6. COORDINATE INSTALLATION OF FOUNDATIONS, CONDUIT AND HANDHOLES WITH OTHER CONSTRUCTION ACTIVITIES IN THE AREA.
7. HANDHOLES 1, 2, 3, 4, & 5 TO BE INSTALLED AS PART OF SIGNAL SYSTEM "D".
8. LIGHTING CONDUIT AND CONDUCTORS TO BE CONNECTED TO SIGNAL LUMINAIRES AT SIGNAL SYSTEM "D" HANDHOLE 4, & 5.

LIGHTING UNITS SHALL BE AT LEAST 5' FROM RESIDENTIAL DRIVEWAY APRONS & 10' FROM COMMERCIAL DRIVEWAYS

**LEGEND**

	L-14
	2L-14
	POLE WITH GROUND ROD
	PROPOSED CONDUIT
	EXISTING CONDUIT

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: DANIEL O. S. ROSS, P.E.  
 DATE: 02/17/2018 LIC. NO.: 49048

**WSB**

701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4800 · Fax: (783) 641-1700  
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**RAMSEY COUNTY**

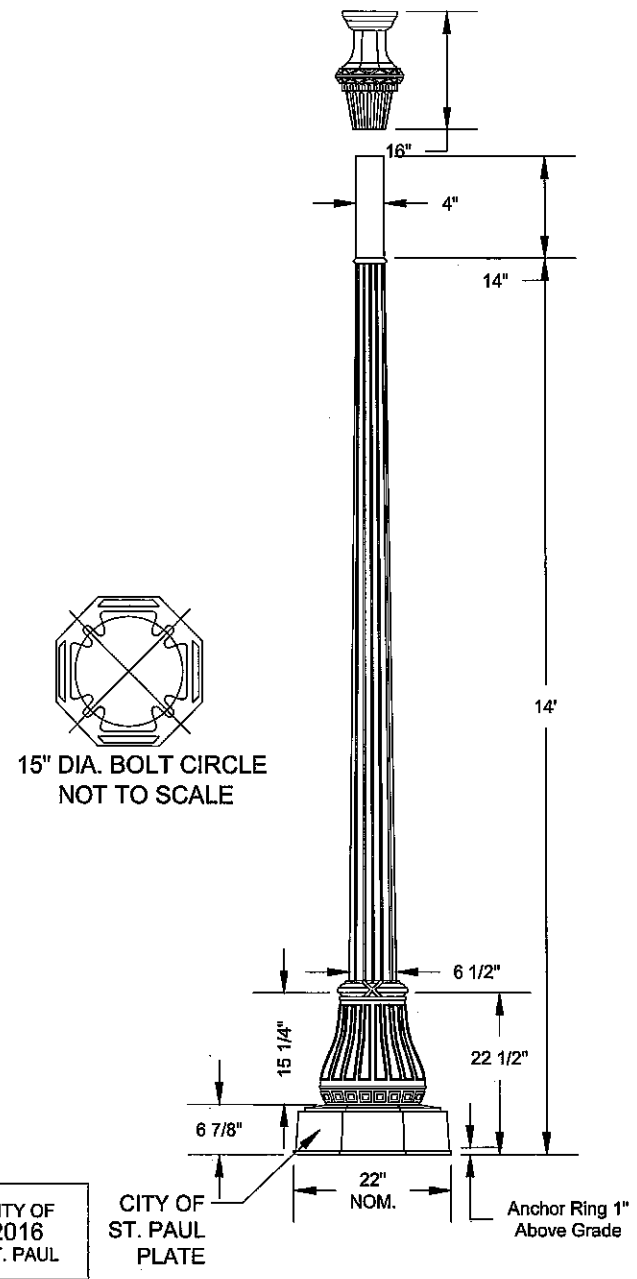
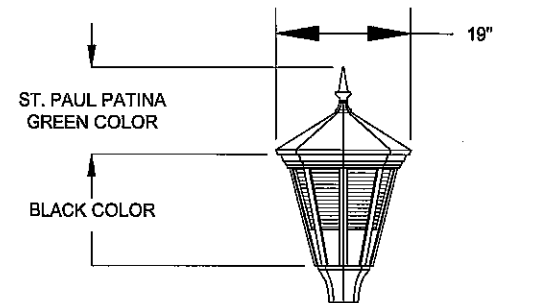
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

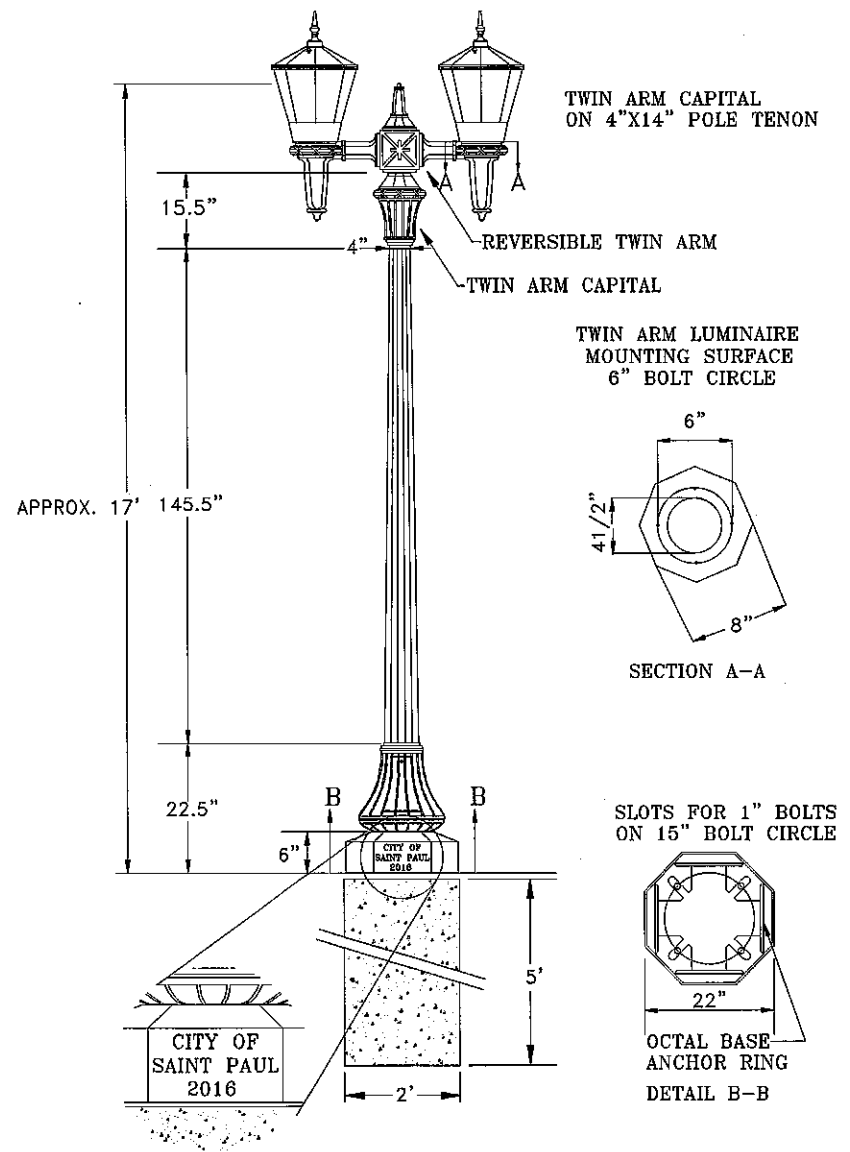
**LIGHTING PLAN**  
**STA. 65+00 TO 70+00**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**103**  
 OF  
**145**  
 SHEETS

Date Printed: 2/8/2018  
 WSB Filename: K:\03\169-000-Civil\Plan\169-000-C1-LRT-PLAN.dwg



**LIGHT STANDARD TYPE L-14**



**NOTE: TWIN ARM SHALL BE ORIENTED PARALLEL TO ROADWAY.**

**LIGHT STANDARD TYPE 2L-14**

**LIGHTING LEGEND**

	PULLBOX TO BE INSTALLED
	EXISTING PULLBOX
	EXISTING SIGNAL HANDHOLE
	UTILITY/POWER POLE
	FEEDPOINT TO BE INSTALLED
	PHOTOELECTRIC CONTROL TO BE INSTALLED
	PROVIDE CONDUIT STUB
	EXISTING LIGHT STANDARD
	LIGHT STANDARD TO BE INSTALLED, X INDICATES THE UNIT NUMBER
	CITY-OWNED WOOD POLE MOUNTED LIGHT, BY OTHERS
	LIGHT STANDARD TO BE REMOVED
	LIGHT STANDARD MOUNTED WITHIN SIGNAL SYSTEM, SEE SIGNAL PLANS
	NEW CONDUIT
	EXISTING CONDUIT
	CONDUIT END CAPPED
	3-1/c #4 A.W.G., 1-1/c #8 INSULATED GROUND
	1-1/c #8 BARE OR INSULATED GROUND
	FIRE HYDRANT
	TREE
	GROUND ROD TO BE INSTALLED
	EXISTING SIGNAL PEDESTAL FOUNDATIONS
	CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE

**UTILITY INFORMATION STANDARD NOTES:**  
 1. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (PH: 651-454-0002) REQUIRED BY MINNESOTA STATUTE 216D.  
 2. FOR PLAN AND UTILITY SYMBOLS SEE LEGEND.  
 3. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Date Plotted: 2/9/2018 WSB Filename: \\sbs\183-0000\Drawings\183-000-CL-LIGHT-DET-1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS  
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: DANIEL S. ROSA, JR., P.E.  
 DATE: 02/17/2016 LIC. NO.: 49048

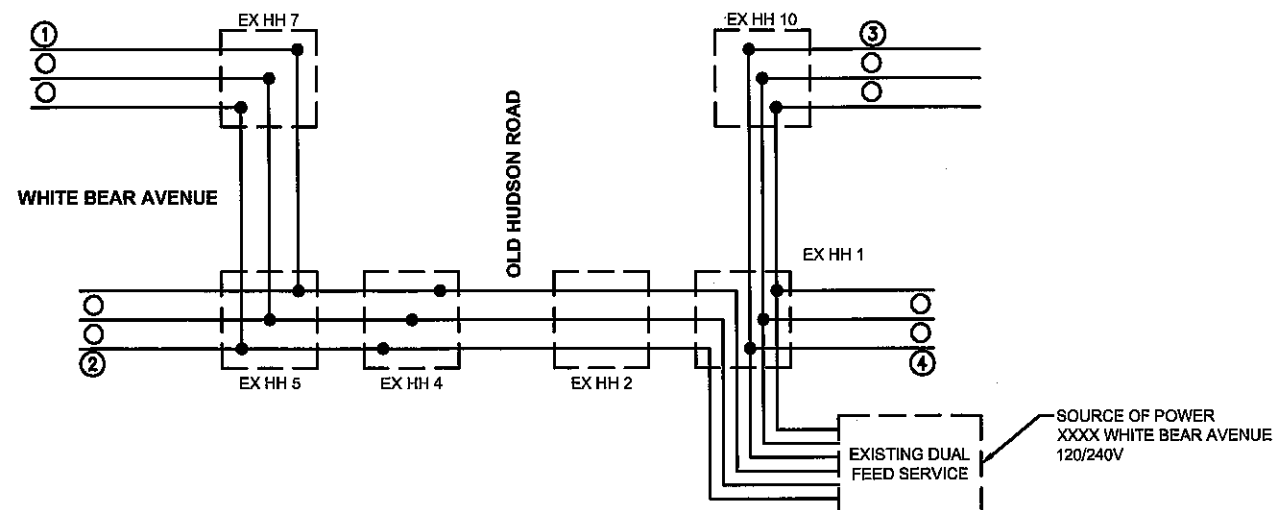
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**WHITE BEAR AVENUE STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**LIGHTING DETAILS**  
 S.P. 062-665-052 / S.P. 164-020-138

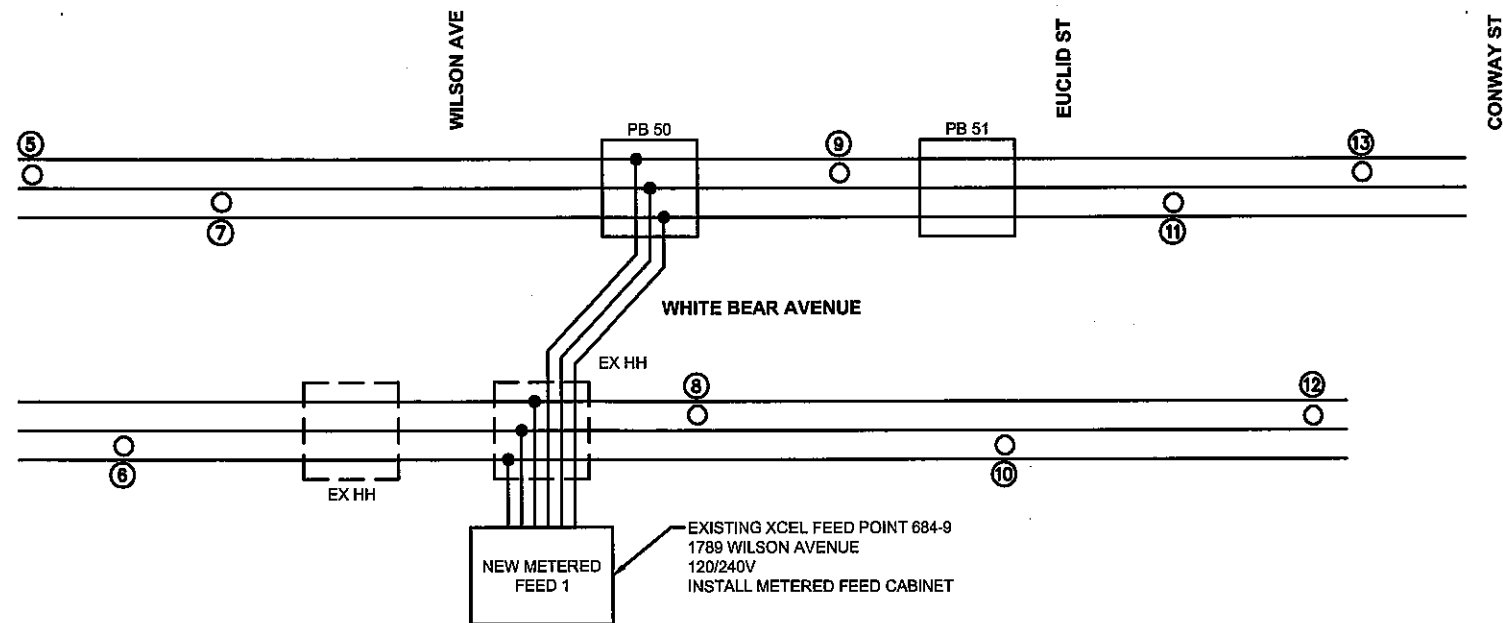
SHEET  
**104**  
 OF  
**145**  
 SHEETS

ROADWAY WIRING DIAGRAM



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



- LEGEND**
- EXISTING HANDHOLE
  - NEW HANDHOLE
  - EXISTING WIRE
  - NEW #4 WIRE
  - EXISTING LUMINAIRE
  - PROPOSED LUMINAIRE
  - SPLICE IN HANDHOLE OR 3-WAY IN BASE

Date Plotted: 2/28/2018  
 WSB Filename: K:\0186-000-CadPlan\03186-000-C-LEFT-DET1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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

CERTIFIED BY: *[Signature]*  
 DANILLO S. SORIANO, P.E.  
 DATE: 02/17/2018 LIC. NO.: 49048

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 Minneapolis, MN 55416  
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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

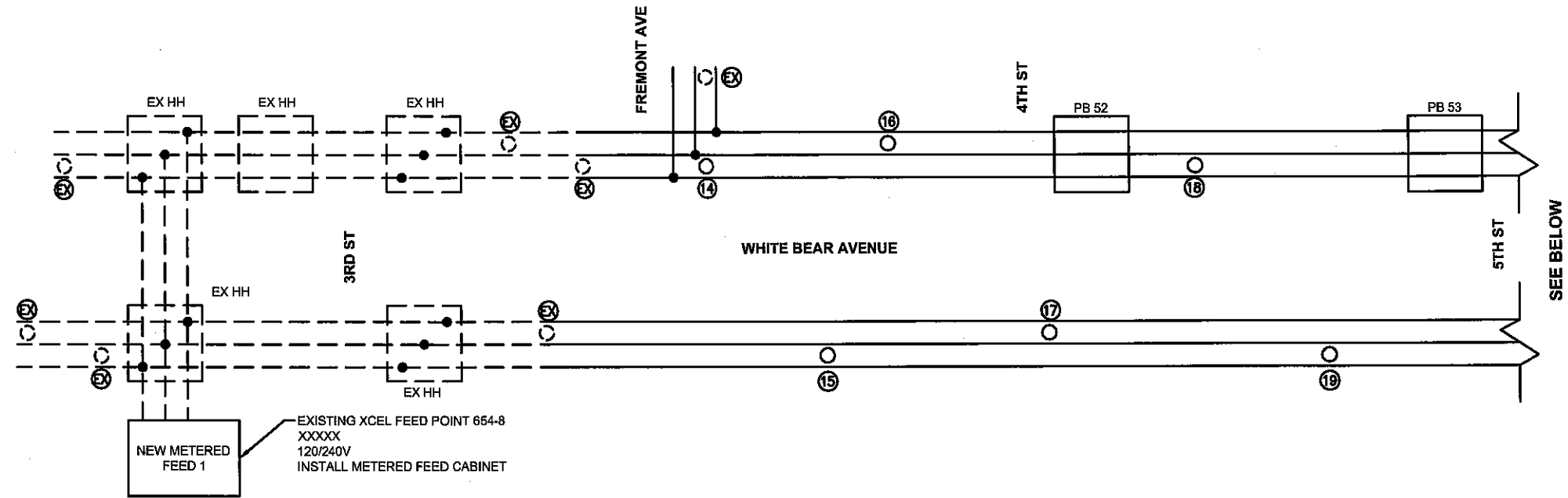
**RAMSEY COUNTY, MINNESOTA**

**LIGHTING  
 DETAILS**

S.P. 062-665-052 / S.P. 164-020-138

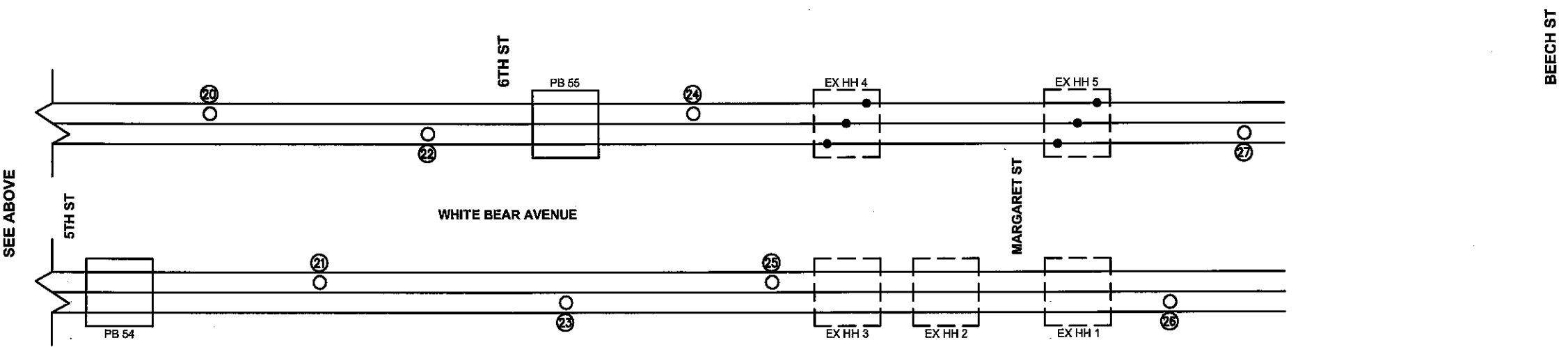
SHEET  
**105**  
 OF  
**145**  
 SHEETS

ROADWAY WIRING DIAGRAM



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



**LEGEND**

- EXISTING HANDHOLE
- NEW HANDHOLE
- EXISTING WIRE
- NEW #4 WIRE
- EXISTING LUMINAIRE
- PROPOSED LUMINAIRE
- SPLICE IN HANDHOLE OR 3-WAY IN BASE

Date Plotted: 2/6/2016  
 WBS File Name: K:\09186-000\Cad\Plan\03186-000-C-LIGHT-DET1.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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CERTIFIED BY: *[Signature]*  
 DANILO S. SPARK, JR., PE  
 DATE: 02/17/2016 NC NO: 49048

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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**LIGHTING  
 DETAILS**

S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**106**  
 OF  
**145**  
 SHEETS

**LEGEND:**

- SIGNAL POLE NUMBER
- SIGNAL INDICATION NUMBER
- LUMINAIRE NUMBER
- CONTROLLER CABINET ASSEMBLY - IN PLACE
- CONTROLLER CABINET ASSEMBLY - INSTALL
- CONDUIT - IN PLACE
- CONDUIT - INSTALL
- LIGHTING CONDUIT
- HANDHOLE - IN PLACE
- HANDHOLE - INSTALL
- LIGHTING PULLBOX - INSTALL
- LIGHTING PULLBOX - INPLACE
- SIGNAL/LIGHT POLE FOUNDATION - IN PLACE
- SIGNAL/LIGHT POLE FOUNDATION - INSTALL
- MAST ARM ASSEMBLY - IN PLACE
- MAST ARM ASSEMBLY - INSTALL
- PEDESTAL POLE - IN PLACE
- PEDESTAL POLE - INSTALL
- SIGNAL HEAD - IN PLACE
- SIGNAL HEAD - INSTALL
- SIGNAL HEAD W/SHIELD - IN PLACE
- SIGNAL HEAD W/SHIELD - INSTALL
- PEDESTRIAN INDICATION - IN PLACE
- PEDESTRIAN INDICATION - INSTALL
- PEDESTRIAN PUSH BUTTON - INPLACE
- PEDESTRIAN PUSH BUTTON - INSTALL
- LUMINAIRE - IN PLACE
- LUMINAIRE - INSTALL
- VIDEO DETECTOR - INPLACE
- VIDEO DETECTOR - INSTALL
- WOOD POLE - IN PLACE
- WOOD POLE - INSTALL
- EVP DETECTOR, DUAL - IN PLACE
- EVP DETECTOR, DUAL - INSTALL
- EVP DETECTOR, SINGLE - IN PLACE
- EVP DETECTOR, SINGLE - INSTALL

THE FOLLOWING STANDARD PLATES, AS APPROVED BY THE FHWA, SHALL APPLY ON THIS PROJECT		
STANDARD DETAIL PLATES		
ST. PAUL DRG. NO.	Mn/DOT PLATE NO.	STANDARD DETAIL
	8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
	8112I	PEDESTAL FOUNDATION
	8120Q	POLE FOUNDATION (P85)
	8121H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
	8122F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT)
	8123G	POLE AND MAST ARM (DETAILS, 3 SHEETS)
	8126L	POLE FOUNDATION (PA90 & PA100)
	8132B	PREFORMED RIGID PVC CONDUIT LOOP DETECTOR LAYOUT DETAILS (2 SHEETS)
5009B		LIGHT STANDARD FOOTING DETAIL CONCRETE SURFACE
5010		UNDERGROUND ELECTRICAL CONDUIT PLACEMENT
5054		CONTROLLER SERVICE PANEL LAYOUT
5100A		GROUNDING METHODS FOR MAST ARM FOUNDATION
5201		POLYMER CONCRETE PULL BOX DETAIL

ABBREVIATIONS	
APS	ACCESSIBLE PEDESTRIAN SIGNAL
AWF	ADVANCE WARNING FLASHER
C.D.	COUNT DOWN
D2-1 (e.g.)	DETECTOR (PHASE 2, NO. 1)
DEC	DEGREES
DWK	DON'T WALK
EQ.G	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE-EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
FYA	FLASHING YELLOW ARROW
GLA	GREEN LEFT ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
GRA	GREEN RIGHT ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
IND	INDICATION
IMC	INTERMEDIATE METAL CONDUIT
INP	INPLACE
INS. GR.	INSULATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LHT	LIGHT
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P1-1 (e.g.)	PEDESTRIAN INDICATION (PHASE 1, NO. 1)
PB	PUSH BUTTON
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
PV	PULL VAULT
RED	RED INDICATION
R&S	REMOVE AND SALVAGE
RLA	RED LEFT ARROW
RSC	RIGID STEEL CONDUIT
S&I	SALVAGE AND INSTALL
SOP	SOURCE OF POWER
SPR	SPARE
ST LHT	STREET LIGHT
STA	STATION
TDW	TELEPHONE DROP WIRE
WLK	WALK
YEL	YELLOW INDICATION
YLA	YELLOW LEFT ARROW
YRA	YELLOW RIGHT ARROW

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

SIGNAL TABULATION OF QUANTITIES			
NOTES	ITEM DESCRIPTION	UNIT	TOTAL
	REVISED TRAFFIC CONTROL SIGNAL SYSTEM "A"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIG SYS	1
	EVP SYSTEM "B"	LS	1
	REVISED TRAFFIC CONTROL SIGNAL SYSTEM "C"	SIG SYS	1
	TRAFFIC CONTROL PEDESTRIAN HAWK SYSTEM "D"	SIG SYS	1
	FIBER OPTIC INTERCONNECT	LS	1

Data Printed: 1/17/2015  
WSB File Name: 152018-2000confplaninc03188-005-d-bar.dgn

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

DATE: 02/17/18

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

CERTIFIED BY:   
LICENSED PROFESSIONAL ENGINEER - SEAN DELORE, PE  
LIC. NO.: 40945



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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

**RAMSEY COUNTY, MINNESOTA**  
**DETAILS**  
**TRAFFIC CONTROL SIGNAL SYSTEM**  
S.P. 062-665-052

SHEET  
**SL1**  
OF  
**145**  
SHEETS

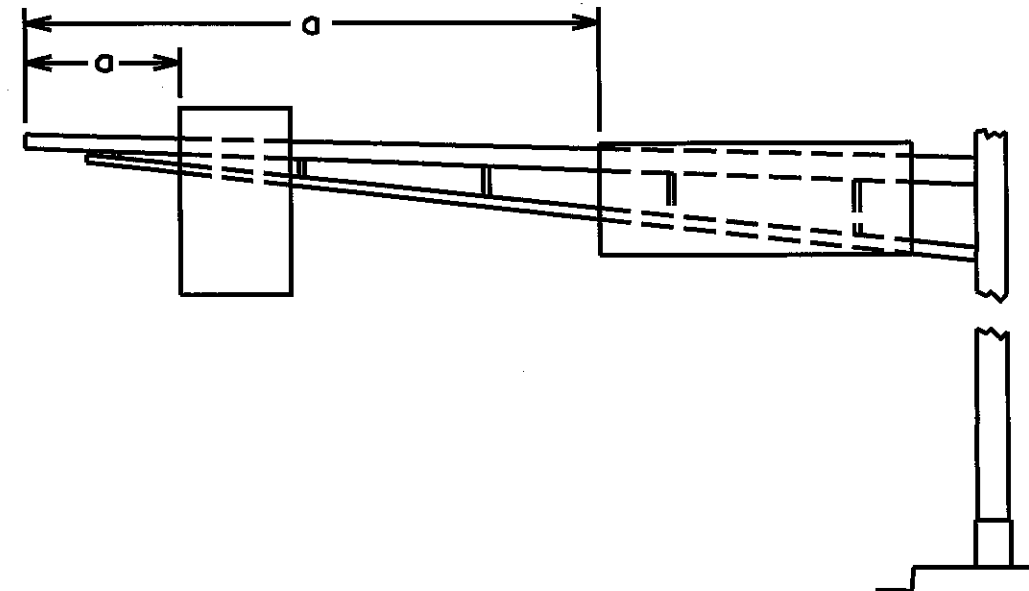


**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

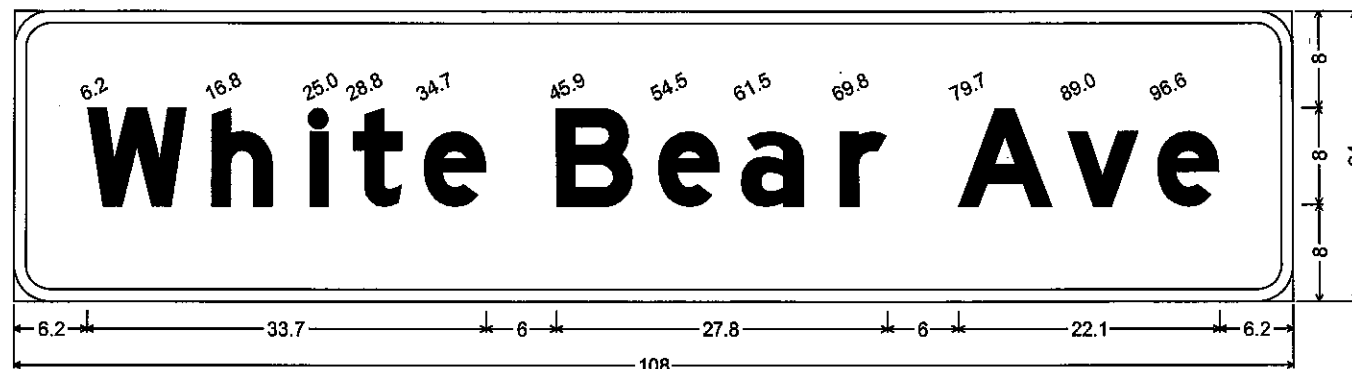
DONE BY: CMG

DATE: 2/13/18

**MAST ARM SIGN LOCATION**

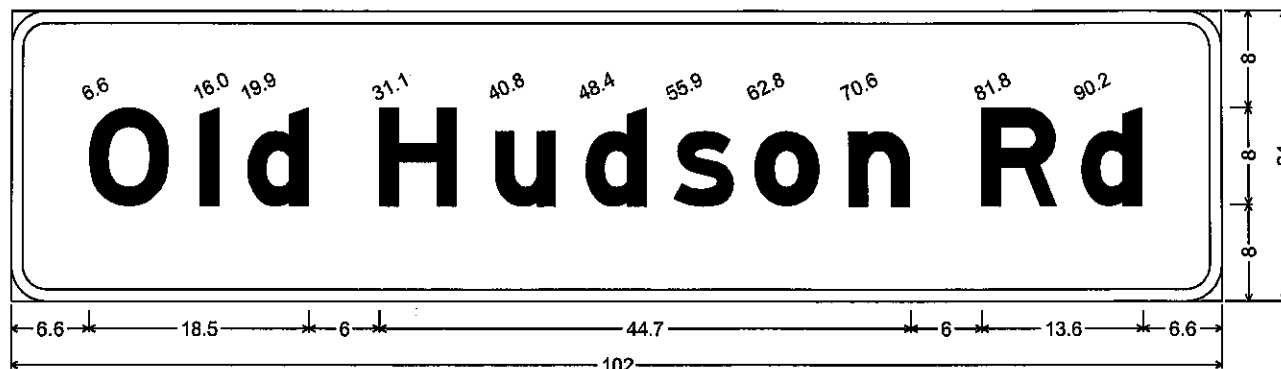


D-1



3.0" Radius, 1.0" Border, White on Green;  
[White Bear Ave] E Mod;

D-2



3.0" Radius, 1.0" Border, White on Green;

**MAST ARM MOUNTED SIGNS**

SIGN PANEL OR SIGN NO.	SIGNAL SYSTEM	POLE NO.	a (FEET)	SIZE (INCHES)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.
					NUMBER	SPACING (1)		
D-1	B	1	21.00	108 X 24	2	36	18.00	1
D-1	B	8	16.00	108 X 24	2	36	18.00	1
D-2	B	4	24.25	102 X 24	2	33	17.00	1
D-2	B	11	28.50	102 X 24	2	33	17.00	1
R10-X12	B	1	2.00	36 X 48	2	24	12.00	1
R10-X12	B	2	2.00	36 X 48	2	24	12.00	1
R10-X12	B	3	2.00	36 X 48	2	24	12.00	1
R10-X12	B	4	2.00	36 X 48	2	24	12.00	1

**SPECIFIC NOTES:**

- (1) SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE STANDARD SIGNS MANUAL, PAGE 105A FOR BRACKET SPACING REQUIREMENTS.

**GENERAL NOTES:**

- CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
- TYPE D SIGN PANELS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS SEE STANDARD SIGNS MANUAL, PAGE 105A.
- FOR TYPE D STRINGER AND PANEL JOINT DETAILS SEE STANDARD SIGNS MANUAL, PAGE 105.
- THE MAST ARM MOUNTED SIGNS ARE INCIDENTAL.
- AT INTERSECTIONS WITH MEDIAN WIDTHS LESS THAN 30', ONE WAY (R6-1) SIGNS SHALL NOT BE PLACED AS PART OF THE SIGNALS PLAN.

Date Plotted: 1/13/2015  
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NO.	[Old Hudson Rd] E Mod
DESIGN BY:	MAS
PLAN BY:	MAS
CHECKED BY:	SD
APPROVED BY:	SD

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

CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SEAN DEL BONO, PE  
DATE: 02/17/16 LIC. NO.: 40945



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Minneapolis, MN 55418  
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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

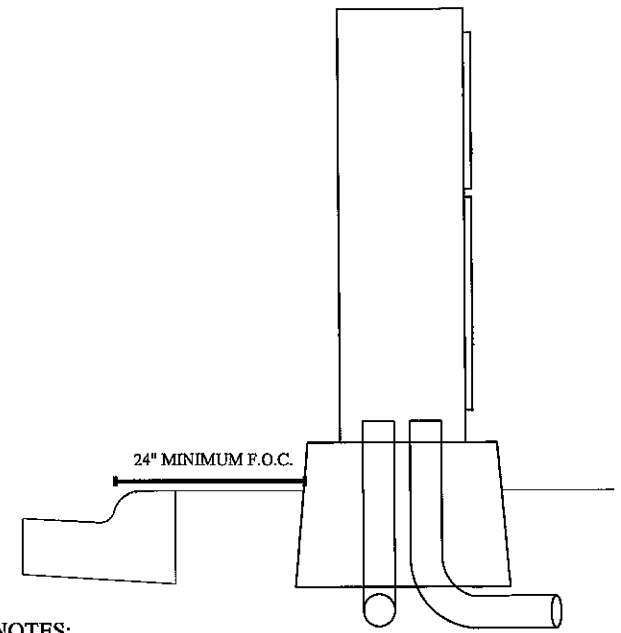
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL2  
OF  
145  
SHEETS

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

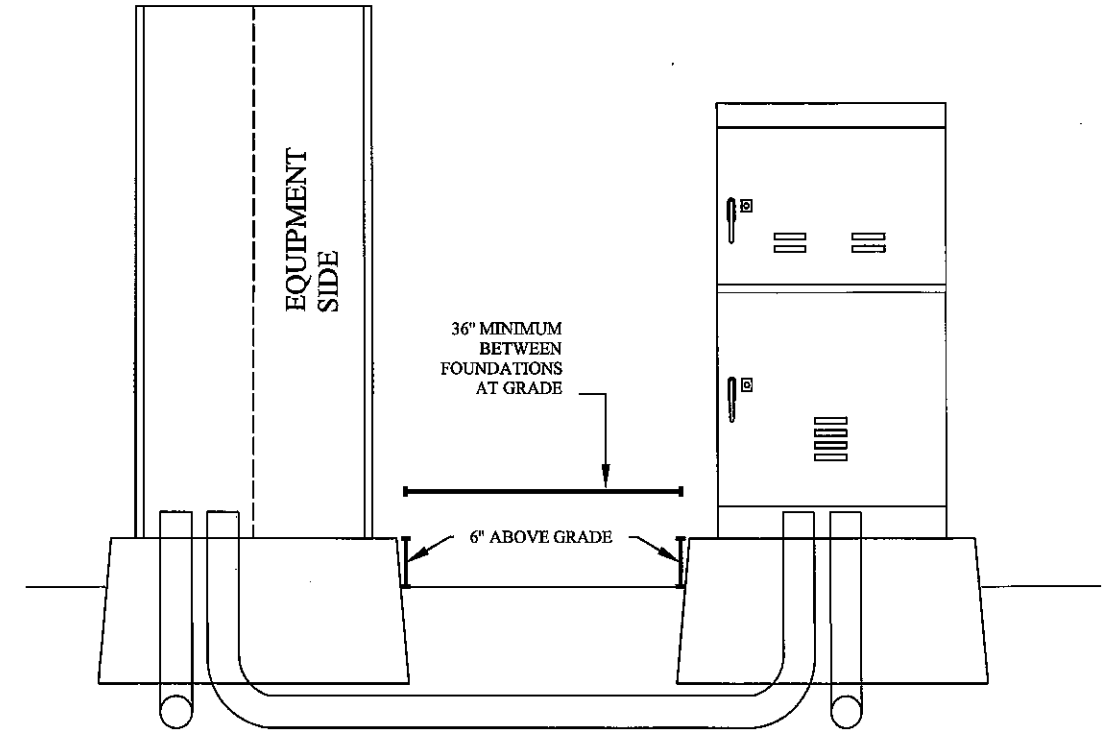
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 DATE: 2/13/18

**POVOLNY SERVICE CABINET PROFILE**

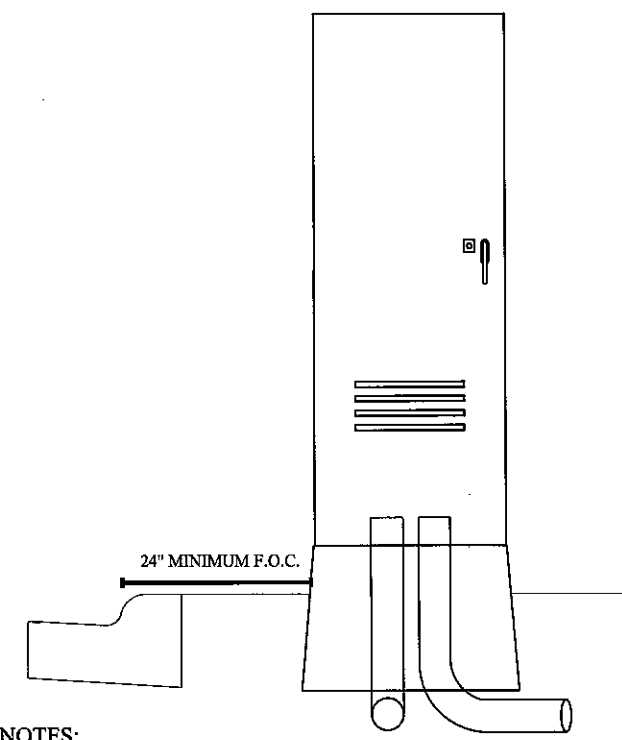


- NOTES:**
1. USE QUAZITE 24 X 36 X 18 BOX PAD MODEL NUMBER PB24361117500 (WITH BOTH 500 AND B18 INSERTS) OR APPROVED EQUAL.
  2. USE MODEL POVOLNY SERVICE CABINET OR APPROVED EQUAL.
  3. INSTALL CONDUIT ON EMPTY SIDE OF CABINET.
  4. THE EXACT LOCATIONS OF THE CONTROLLER CABINET AND OR SERVICE CABINET SHALL BE DETERMINED IN THE FIELD BY CITY OF SAINT PAUL TRAFFIC ENGINEERING.

**332 AND SERVICE CABINET TYPICAL STREET LAYOUT VIEWED FROM SIDEWALK**

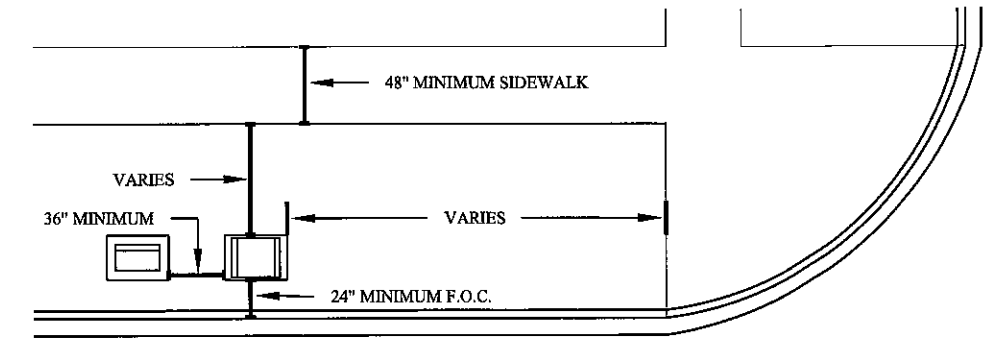


**332 CABINET PROFILE**



- NOTES:**
1. USE QUAZITE TRAFFIC SIGNAL BASE MODEL NUMBER PB24361117500 (WITH BOTH 500 AND B18 INSERTS) OR APPROVED EQUAL.
  2. USE MODEL 332 CONTROLLER CABINET OR APPROVED EQUAL.
  3. INSTALL CONDUIT ON EMPTY SIDE OF CABINET.
  4. THE EXACT LOCATIONS OF THE CONTROLLER CABINET AND OR SERVICE CABINET SHALL BE DETERMINED IN THE FIELD BY CITY OF SAINT PAUL TRAFFIC ENGINEERING.

**332 AND SERVICE CABINET TYPICAL STREET LAYOUT**



Date Printed: 11/13/2015  
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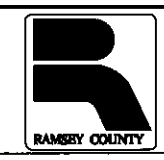
DESIGN BY: MAS  
 PLAN BY: MAS  
 CHECKED BY: SD  
 APPROVED BY: SD

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CERTIFIED BY: *Sean DelCore*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DEL CORE, PE  
 DATE: 02/17/16 LIC. NO.: 40945



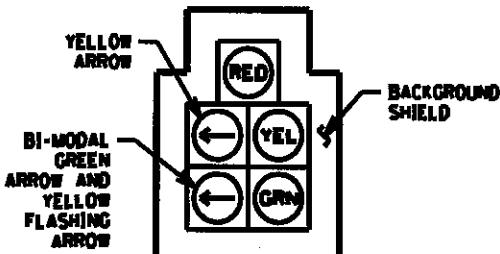
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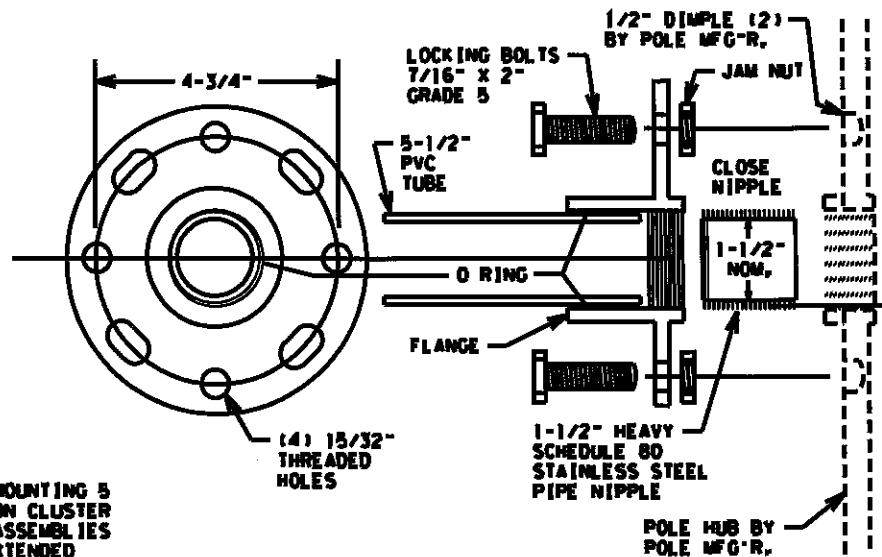
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**CABINET DETAIL  
 TRAFFIC CONTROL SIGNAL SYSTEM**

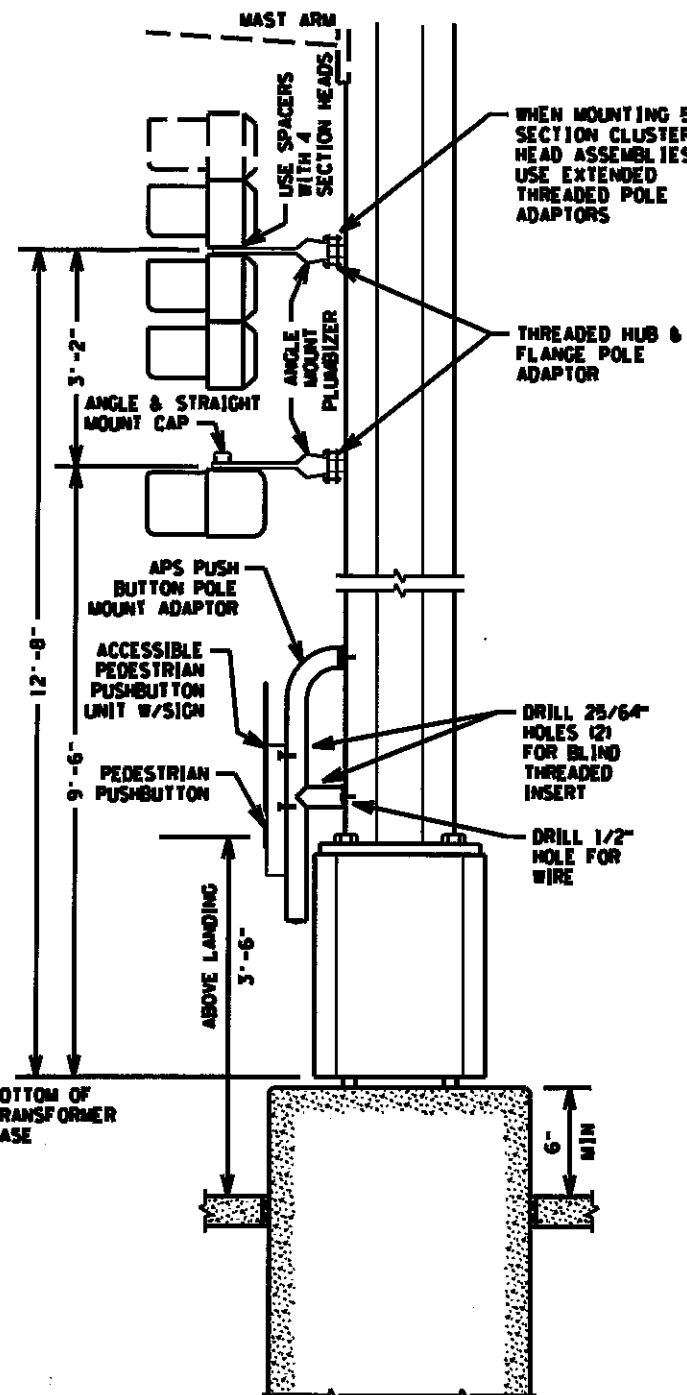
SHEET  
**SL3**  
 OF  
**145**  
 SHEETS



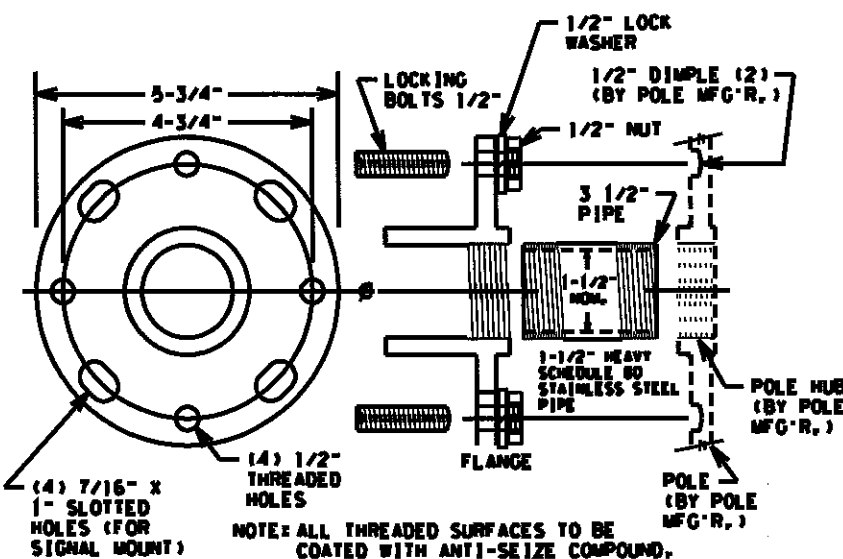
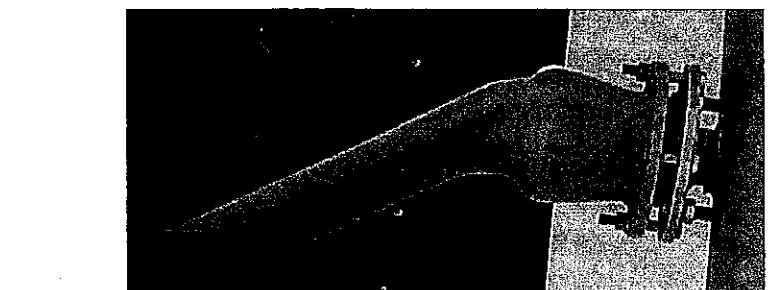
**5 SECTION FYA CLUSTER HEAD DETAIL**



**THREADED HUB AND FLANGE POLE ADAPTOR**

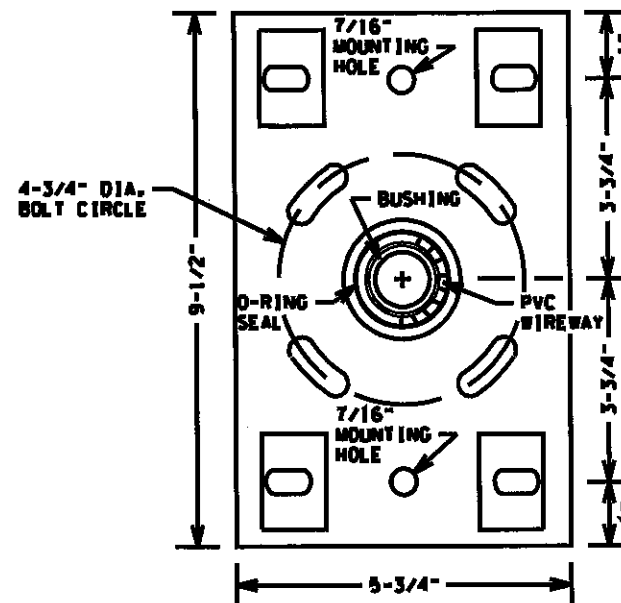


**TYPICAL SIGNAL POLE MOUNTING**  
NOT TO SCALE

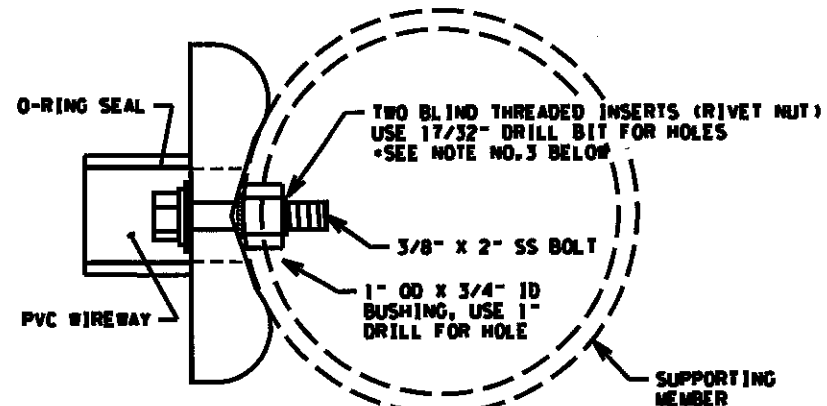


**EXTENDED THREADED POLE ADAPTOR**

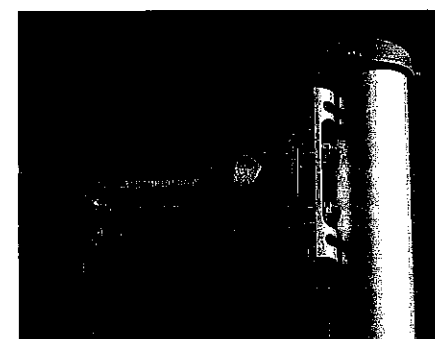
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
  3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
  4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



**BOLT ON HUB & FLANGE**



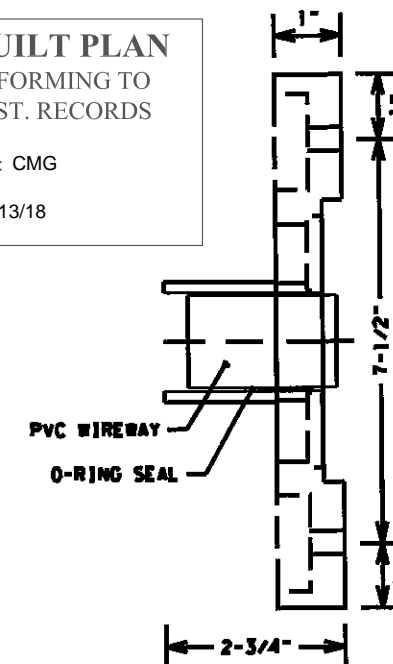
**TOP VIEW**



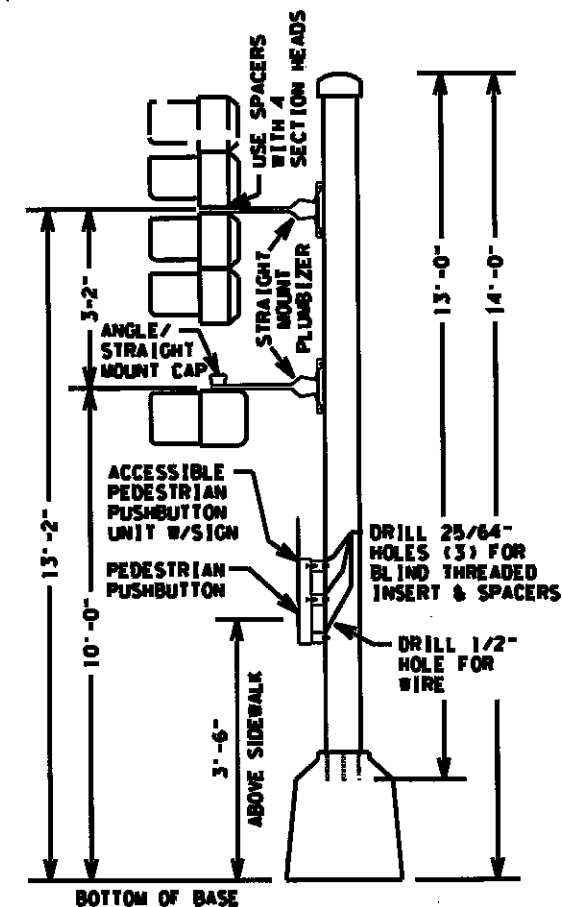
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
  3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
  4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



**SIDE VIEW**



**TYPICAL PEDESTAL MOUNTING**  
NOT TO SCALE

Date Printed: 1/13/2015  
WSB Filename: K:\031818\031818.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	MAS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  LICENSED PROFESSIONAL ENGINEER - SEAN DELCORE, PE DATE: 02/17/18 LIC. NO.: 40945
PLAN BY:	MAS	
CHECKED BY:	SD	
APPROVED BY:	SD	



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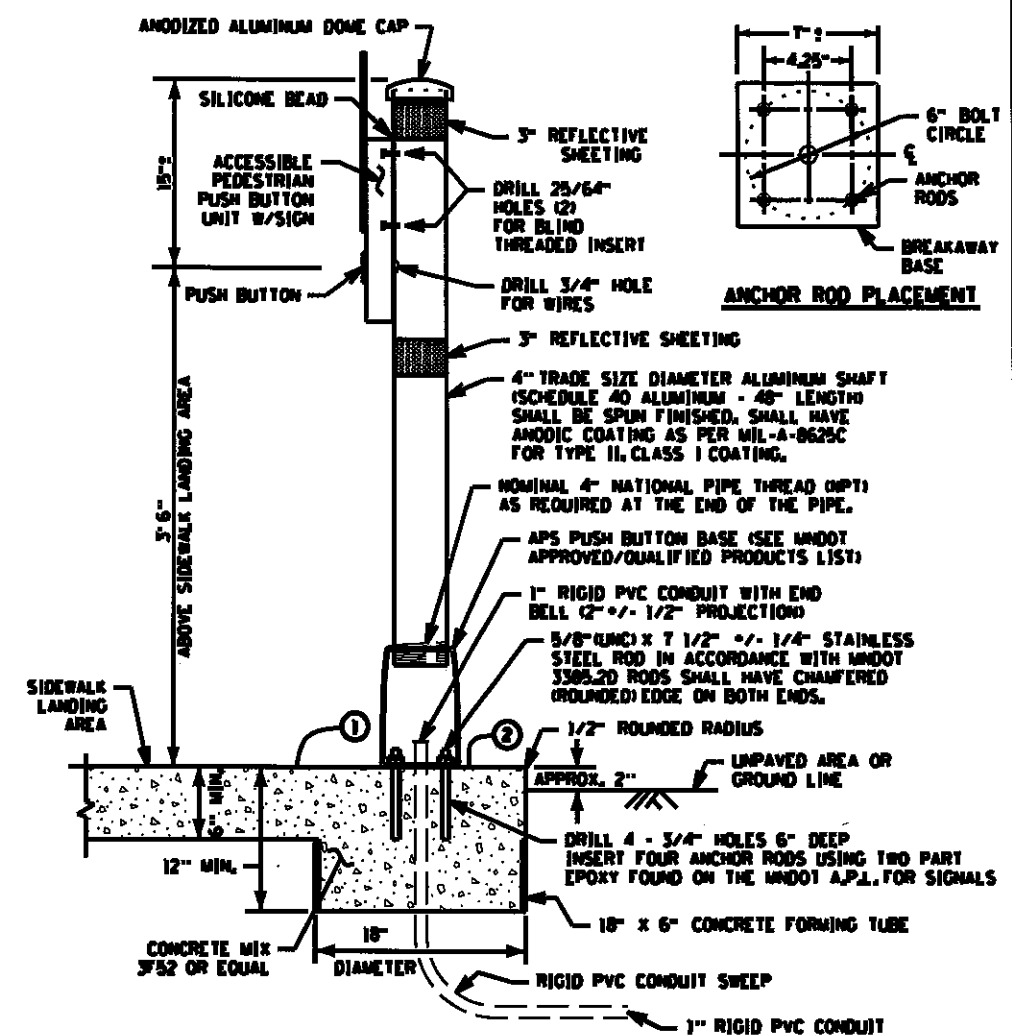


WHITE BEAR AVENUE  
STREET IMPROVEMENTS

**POLE MOUNT DETAIL**  
**TRAFFIC CONTROL SIGNAL SYSTEM**

SHEET  
SL4  
OF  
145  
SHEETS

**APS PUSH BUTTON STATION**



- NOTES:**
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK, SCREW IN POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.
  - ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
  - PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
  - BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
  - BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 - 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .33", APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MVDOT QUALIFIED PRODUCTS LIST FOR SIGNALS.
  - APS MOUNTING BOLTS SHALL BE 1/4 - 20 STAINLESS STEEL. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
  - APPLY A BEAD OF 100Z SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" POST.
  - THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MVDOT SIGNING QUALIFIED PRODUCTS LIST (OPL) FOR APPROVED TUBE DELINEATOR SHEETING.
  - ANTI-SEIZE COMPOUND MUST BE USED ON ALL THREADED BOLTS WHEN ASSEMBLING PEDESTRIAN PUSH BUTTON STATIONS.
- ① THE PUSH BUTTON STATION FOUNDATION IS CONSTRUCTED AS PART OF THE SIDEWALK. INCREASE THE SIDEWALK THICKNESS TO 12" THICK (MIN.) TO PROVIDE FOR THE PUSH BUTTON STATION FOUNDATION.
- ② ALL JOINTS SHALL BE A MINIMUM OF 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

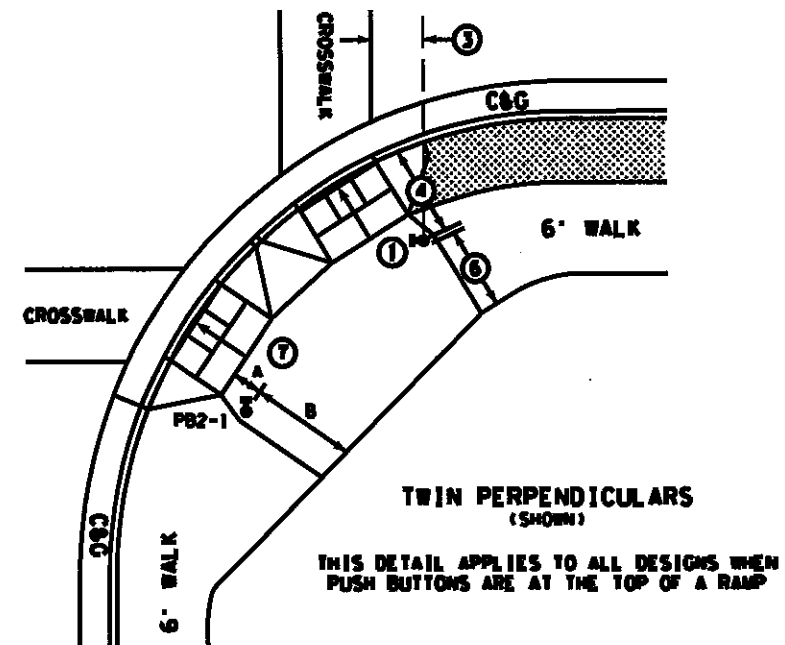
**TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION**

THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

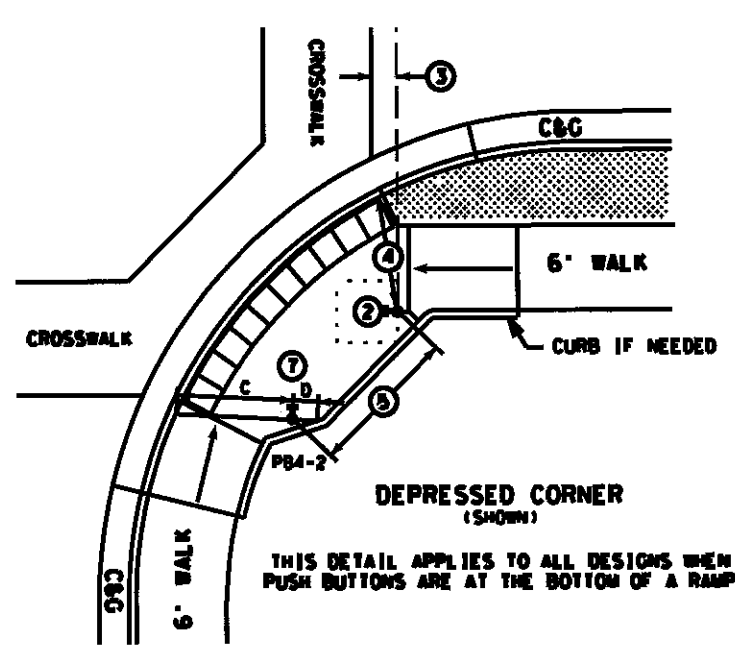
**SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:**

- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.
- A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.
- BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.
- BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.
- BUTTONS SHALL BE AT LEAST 10 FT APART.
- PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.
- BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.

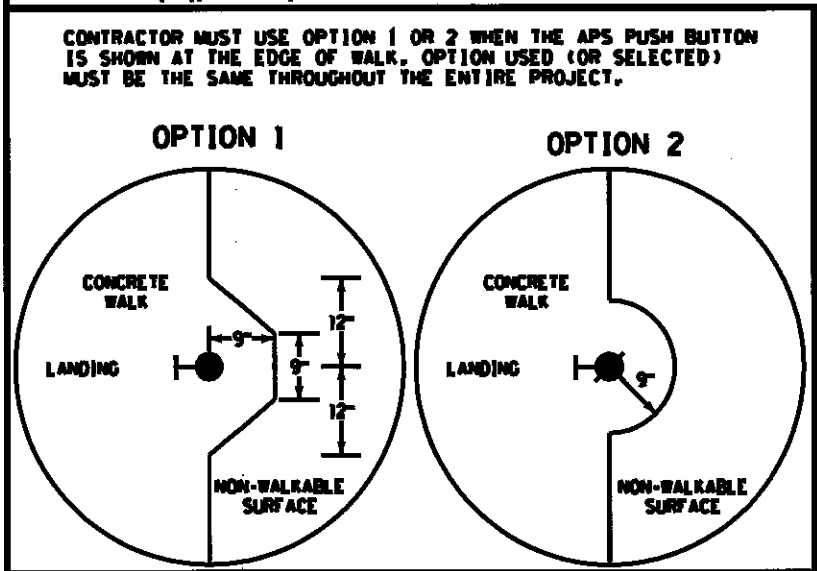
ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS  
  
DONE BY: CMG  
DATE: 2/13/18



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP



SIGNAL NO.	SIGNAL CONTROL POINTS		DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
	X	Y		
PB2-1	-	-	A	B
PB4-2	-	-	C	D

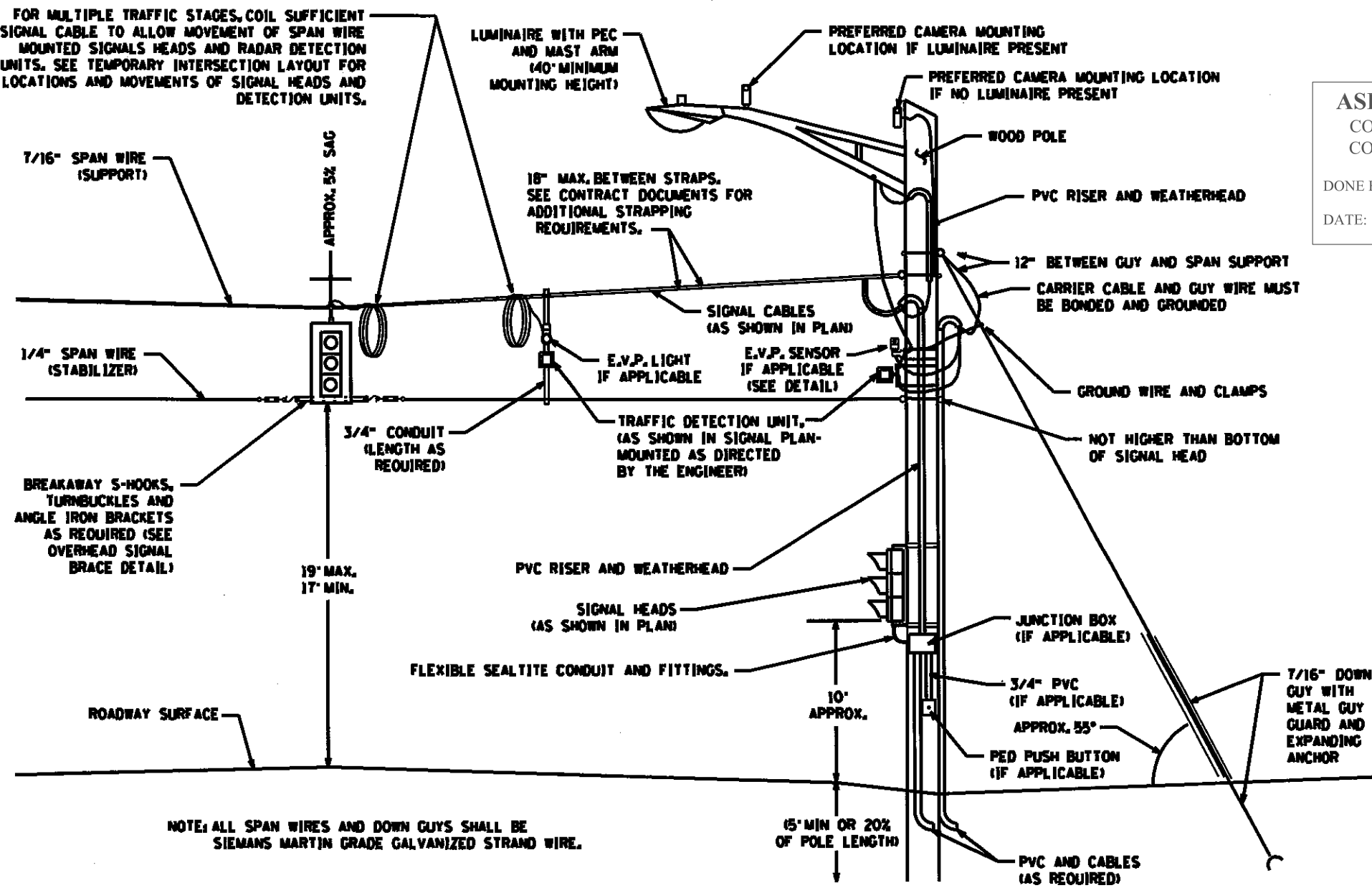
- A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP
- B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK
- C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOWNS IN THE DIRECTION OF TRAVEL
- D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

Date Printed: 1/11/2018 10:53 AM File Name: K:\2018\1808\20180816\180816.dwg

# TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS

(NOT TO SCALE)

FOR MULTIPLE TRAFFIC STAGES, COIL SUFFICIENT SIGNAL CABLE TO ALLOW MOVEMENT OF SPAN WIRE MOUNTED SIGNALS HEADS AND RADAR DETECTION UNITS. SEE TEMPORARY INTERSECTION LAYOUT FOR LOCATIONS AND MOVEMENTS OF SIGNAL HEADS AND DETECTION UNITS.



NOTE: ALL SPAN WIRES AND DOWN GUYS SHALL BE SIEMANS MARTIN GRADE GALVANIZED STRAND WIRE.

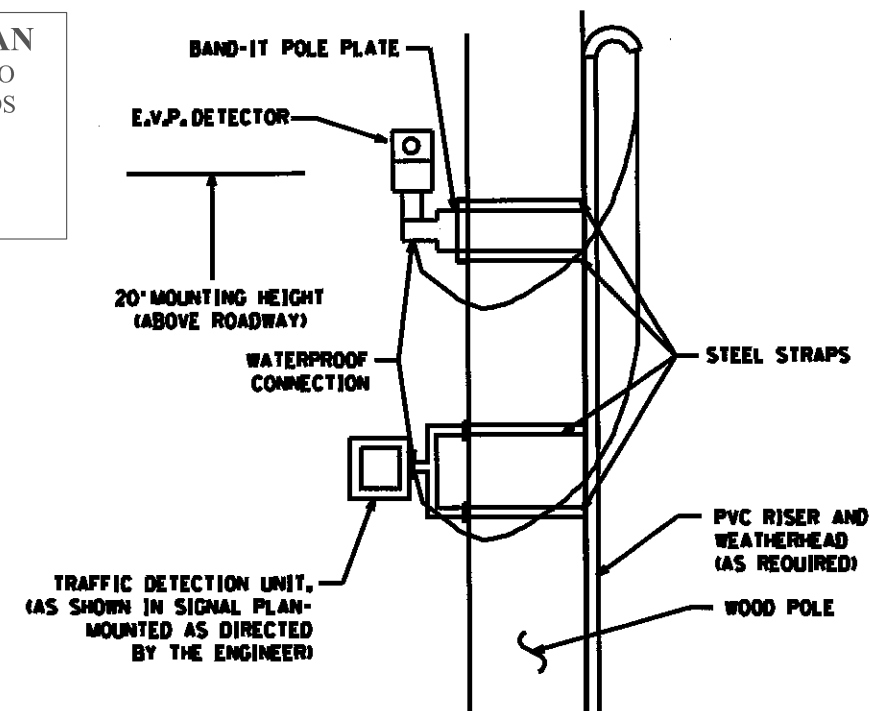
# E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT

(NOT TO SCALE)

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

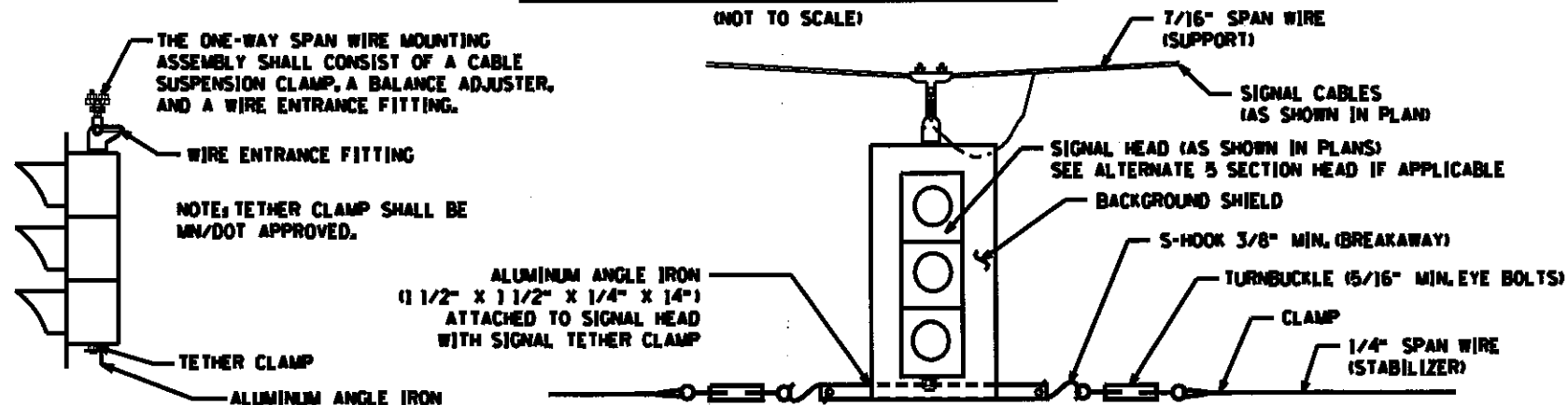
DONE BY: CMG

DATE: 2/13/18



# OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



THE ONE-WAY SPAN WIRE MOUNTING ASSEMBLY SHALL CONSIST OF A CABLE SUSPENSION CLAMP, A BALANCE ADJUSTER, AND A WIRE ENTRANCE FITTING.

WIRE ENTRANCE FITTING

NOTE: TETHER CLAMP SHALL BE MN/DOT APPROVED.

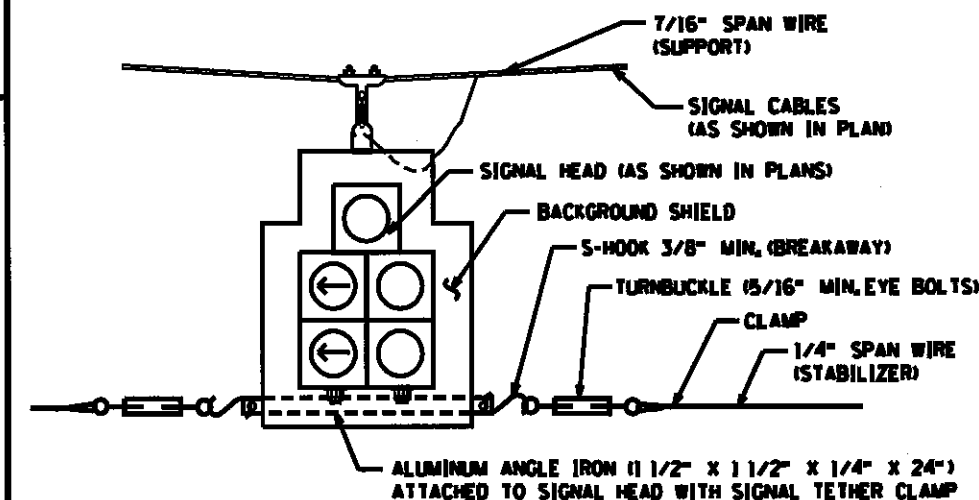
TETHER CLAMP

ALUMINUM ANGLE IRON

ALUMINUM ANGLE IRON (1 1/2\"/>

# 5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL

(NOT TO SCALE)



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	MAS
PLAN BY:	MAS
CHECKED BY:	SD
APPROVED BY:	SD

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

CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SAN DELGADO - PE  
DATE: 02/17/18 LIC. NO: 40945



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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

WOOD POLE SPAN WIRE DETAIL  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL6  
OF  
145  
SHEETS

Date Printed: 11/13/2015  
WSB File Name: K:\2018\18-000\asb\plan\001189-000-s-bcr.dgn

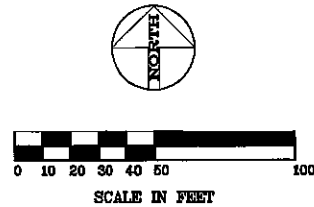
FOR INFORMATION ONLY

Table with columns: FACE, PHASE, FLASH, INDICATION SIZE ("). Rows include signal phases 2-1, 2-2, 2-3, 4-1, 4-2, 4-3, 6-1, 6-2, 6-3.

X DENOTES AN OPTICALLY PROGRAMMED SIGNAL HEAD

PULLBOX CHART table with columns: NO., SIZE (WxLxH), SYSTEM INSTALLED UNDER.

DETECTOR CHART table with columns: DESIGNATION, PHASE, SIZE, DISTANCE FROM STOP BAR.



2" N.M.C. IN PLACE
3 - 1/C #4 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

1 1/4" R.M.C. IN PLACE
2 - 2/C #14 IN PLACE

3" R.M.C. IN PLACE
1 - 12/C #12 IN PLACE
2 - 3/C #12 IN PLACE
2 - 2/C #14 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

3" R.M.C. IN PLACE
4 - 12/C #12 IN PLACE
2 - 3/C #12 IN PLACE
1 - 3/C #20 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

3" R.M.C. IN PLACE
3 - 12/C #12 IN PLACE
2 - 3/C #12 IN PLACE
1 - 3/C #20 IN PLACE
2 - 2/C #14 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

3" R.M.C. IN PLACE
2 - 12/C #12 IN PLACE
1 - 3/C #12 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

3" R.M.C. IN PLACE
2 - 25 PR. #19 (INTCN.) REMOVE & SALVAGE
1 - F.O. CABLE (12 MM) (INTCN.)
1 - F.O. CABLE (12 SM) (INTCN.)
1 - 1/C #10 \*

2" N.M.C. IN PLACE
3 - 1/C #4 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

- 1 TYPE A100-A-30 IN PLACE
1 - ONE WAY SIGNAL (OVERHEAD) END MOUNTED IN PLACE
1 - PEDESTRIAN INDICATION (TYPE 30A) POLE MOUNTED AT 0 DEG. IN PLACE
1 - ONE WAY SIGNAL (TYPE 10B) POLE MOUNTED AT 270 DEG. IN PLACE
1 - TWO WAY E.V.P. DETECTOR & LIGHTS IN PLACE
1 - PEDESTRIAN PUSH BUTTON IN PLACE
2 PEDESTAL POLE & FOUNDATION IN PLACE
1 - ONE WAY SIGNAL (TYPE 1C MODIFIED) IN PLACE

NOT IN USE
NOT IN USE

3" R.M.C. IN PLACE
2 - 1/C #4 (SERVICE) IN PLACE
1 - 1/C #8 BR. GR. IN PLACE
1 - 25 PR. #19 (INTCN.) REMOVE & SALVAGE
1 - F.O. CABLE (12 MM) (INTCN.)
1 - F.O. CABLE (12 SM) (INTCN.)
1 - 1/C #10 \*

3" R.M.C. IN PLACE
2 - 25 PR. #19 (INTCN.) REMOVE & SALVAGE
2 - 12/C #12 IN PLACE
3 - 3/C #12 IN PLACE
3 - 3/C #20 IN PLACE
6 - 2/C #14 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE
1 - F.O. CABLE (12 MM) (INTCN.)
1 - F.O. CABLE (12 SM) (INTCN.)
1 - 1/C #10 \*

3" R.M.C. IN PLACE
2 - 25 PR. #19 (INTCN.) REMOVE & SALVAGE
2 - 12/C #12 IN PLACE
2 - 3/C #12 IN PLACE
3 - 3/C #20 IN PLACE
3 - 2/C #14 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE
1 - F.O. CABLE (12 MM) (INTCN.)
1 - F.O. CABLE (12 SM) (INTCN.)
1 - 1/C #10 \*

1 1/4" R.M.C. IN PLACE
2 - 2/C #14 IN PLACE
1 - 1/C #8 BR. GR. IN PLACE

1 1/4" R.M.C. IN PLACE
1 - 2/C #14 IN PLACE

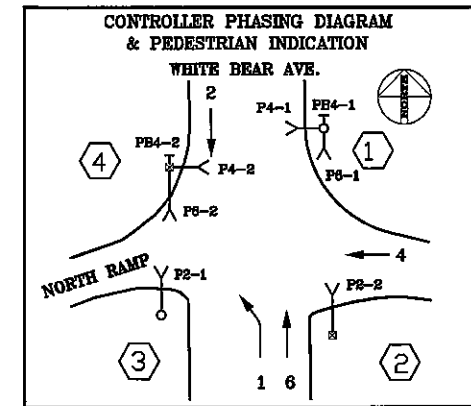
2" N.M.C. IN PLACE
3 - 1/C #4 (LTG.) IN PLACE
1 - 1/C #8 BR. GR. (LTG.) IN PLACE

3" R.M.C. IN PLACE
3 - 12/C #12 IN PLACE
4 - 3/C #12 IN PLACE
1 - 3/C #20 IN PLACE
3" R.M.C. IN PLACE
2 - 25 PR. #19 (INTCN.) REMOVE & SALVAGE
1 - F.O. CABLE (12 MM) (INTCN.)
1 - F.O. CABLE (12 SM) (INTCN.)
1 - 1/C #10 \*

LEGEND

- SIGNAL INSTALLATION NO.
SIGNAL FACE NO.
CONTROLLER CABINET ASSEMBLY & FOUNDATION
CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE
PULLBOX - SIGNAL
PULLBOX - LIGHTING
PULLBOX - IN PLACE
CONDUIT (TYPE AND SIZE AS NOTED)
CONDUIT - IN PLACE
SIGNAL FACE
SIGNAL FACE - IN PLACE
PEDESTRIAN INDICATION
PEDESTRIAN INDICATION - IN PLACE
PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED
SIGNAL PEDESTAL POLE - IN PLACE
SIGNAL PEDESTAL POLE AND FOUNDATION
FOUNDATION FOR LIGHTING OR SIGNAL POLE
FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE
MAST ARM ASSEMBLY & FOUNDATION
MAST ARM ASSEMBLY & FOUNDATION - IN PLACE
MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE
MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE - IN PLACE
WOOD POLE
WOOD POLE - IN PLACE
POWER SOURCE
E.V.P. DETECTOR AND LIGHTS
LOOP DETECTOR
LOOP DETECTOR - IN PLACE
TEMPORARY SIGNAL.

- 1. CONTROLLER CABINET ASSEMBLY (INCLUDES- CONTROLLER, WIRED CABINET, CONTROL EQUIPMENT & ANCHOR BOLTS)
2. MAST ARM ASSEMBLY (INCLUDES- TRUSS ARM, MAST ARM POLE, TRANSFORMER BASE AND ANCHOR BOLTS)
3. LUMINAIRE (INCLUDES- LUMINAIRE & LUMINAIRE EXTENSIONS)
4. ALL 12" OVERHEAD SIGNAL FACES SHALL BE FURNISHED WITH BACKGROUND SHIELDS. ANY OTHER BACKGROUND SHIELDS TO BE FURNISHED WILL BE NOTED ON THE PLANS.
5. ALL ITEMS NOTED AS IN PLACE SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED.
6. ALL PEDESTRIAN INDICATIONS ON THIS PLAN SHEET ARE 9" x 9", AND USE THE WALK, DON'T WALK LEGEND.
7. ALL PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED BY THE ENGINEER IN THE FIELD.
8. SEE INTERCONNECT PLAN AND SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION PERTAINING TO INTERCONNECT LAYOUT AND TERMINATION.
9. ALL WORK ON THIS PLAN SHEET SHALL BE CONSIDERED A PART OF PAY ITEM 0505.004 REVEAL SIGNAL SYSTEM - ALL EXCEPT TRUSS ITEMS IDENTIFIED BY ASTERISK AS INTERCONNECT PAY ITEM
10. PEDESTRIAN INDICATIONS UTILIZE 3/C #12 TO OPERATE ON POLES 1, 3, & 4.



ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

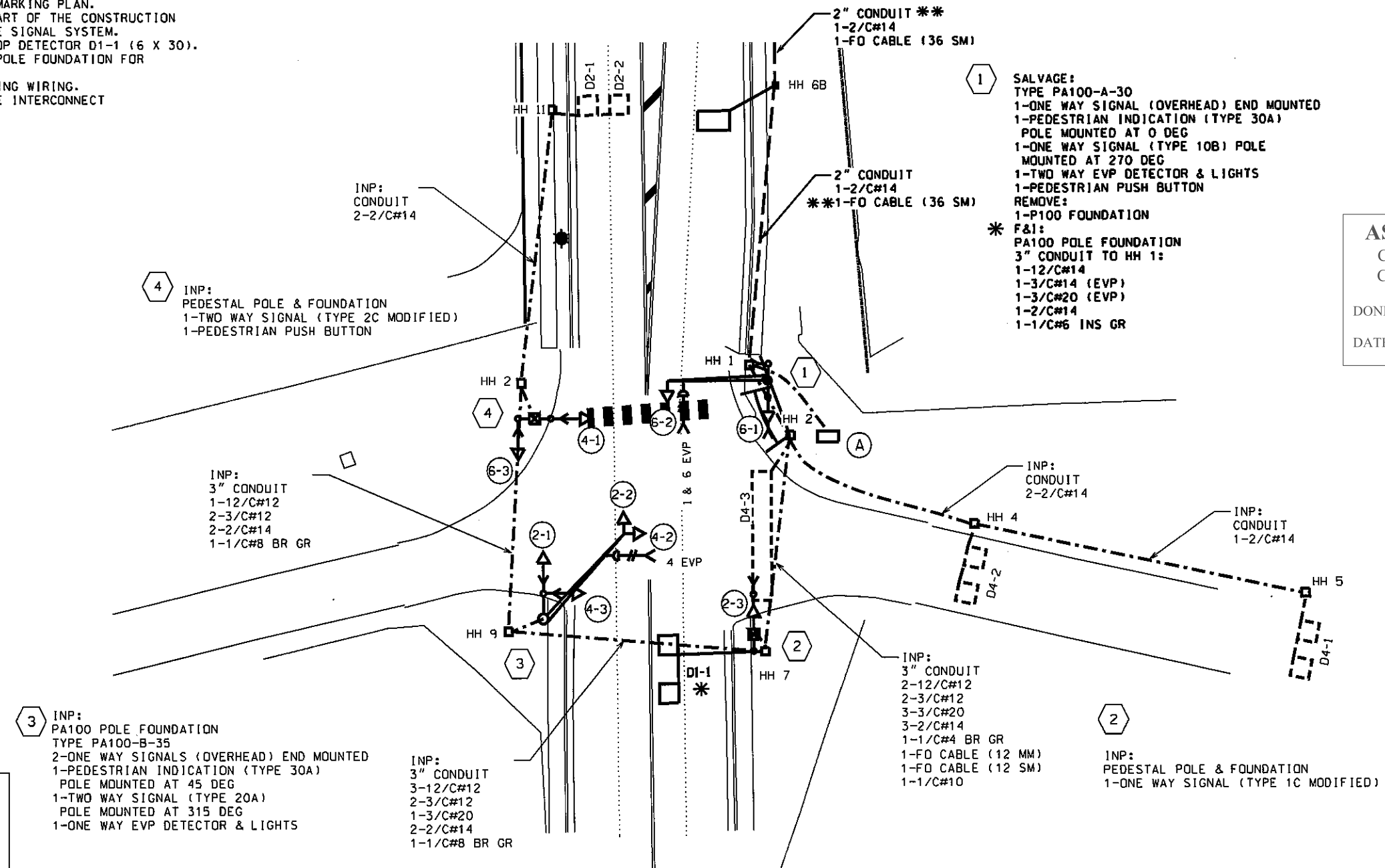
DONE BY: CMG
DATE: 2/13/18

Professional Engineer information including WSB logo, license details for Sean Delaney, and project title: WHITE BEAR AVENUE STREET IMPROVEMENTS.

- NOTES:  
 1. SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.  
 2. THE EXACT LOCATION OF POLE SHALL BE VERIFIED IN THE FIELD BY TRAFFIC OFFICE PERSONNEL.  
 3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL.  
 4. PAVEMENT MARKINGS ARE INCLUDED IN PAVEMENT MARKING PLAN.  
 5. CONSTRUCTION OF PEDESTRIAN CURB RAMP ARE PART OF THE CONSTRUCTION PLAN AND ARE NOT INCLUDED IN PAYMENT FOR THE SIGNAL SYSTEM.  
 6. CONTRACTOR SHALL FURNISH AND INSTALL PVC LOOP DETECTOR D1-1 (6 X 30).  
 7. CONTRACTOR SHALL FURNISH AND INSTALL PA100 POLE FOUNDATION FOR POLE 1.  
 8. SEE "FOR INFORMATION ONLY" SHEETS FOR EXISTING WIRING.  
 9. ITEMS DENOTED WITH \*\* ARE IN PAYMENT FOR THE INTERCONNECT SYSTEM PAY ITEM.

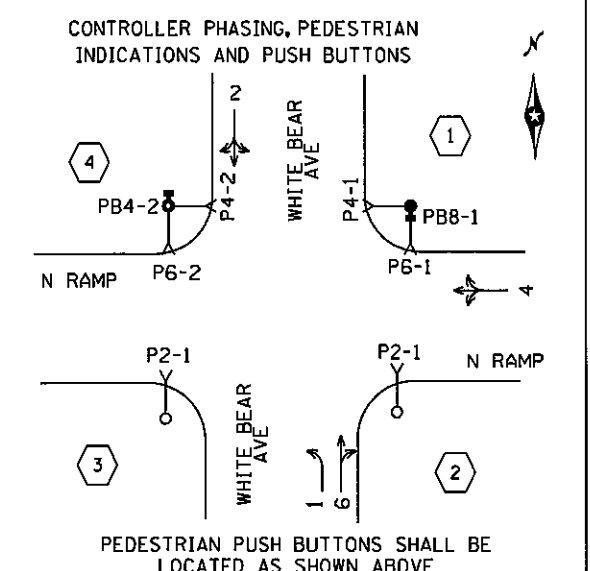
LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	2-6x6	5' & 20'
D4-1	2-6x6	INP
D4-2	2-6x6	INP
D4-3	6 X 40	INP
D4-3	6 X 25	INP

-ALL LOOP DETECTORS SHALL BE PVC  
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



SALVAGE:  
 TYPE PA100-A-30  
 1-ONE WAY SIGNAL (OVERHEAD) END MOUNTED  
 1-PEDESTRIAN INDICATION (TYPE 30A) POLE MOUNTED AT 0 DEG  
 1-ONE WAY SIGNAL (TYPE 10B) POLE MOUNTED AT 270 DEG  
 1-TWO WAY EVP DETECTOR & LIGHTS  
 1-PEDESTRIAN PUSH BUTTON  
 REMOVE:  
 1-PA100 FOUNDATION  
 F&I:  
 PA100 POLE FOUNDATION  
 3" CONDUIT TO HH 1:  
 1-12/C#14  
 1-3/C#14 (EVP)  
 1-3/C#20 (EVP)  
 1-2/C#14  
 1-1/C#6 INS GR

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18



3 INP:  
 PA100 POLE FOUNDATION  
 TYPE PA100-B-35  
 2-ONE WAY SIGNALS (OVERHEAD) END MOUNTED  
 1-PEDESTRIAN INDICATION (TYPE 30A) POLE MOUNTED AT 45 DEG  
 1-TWO WAY SIGNAL (TYPE 20A) POLE MOUNTED AT 315 DEG  
 1-ONE WAY EVP DETECTOR & LIGHTS

INP:  
 3" CONDUIT  
 3-12/C#12  
 2-3/C#12  
 1-3/C#20  
 2-2/C#14  
 1-1/C#8 BR GR

INP:  
 3" CONDUIT  
 2-12/C#12  
 2-3/C#12  
 3-3/C#20  
 3-2/C#14  
 1-1/C#4 BR GR  
 1-FD CABLE (12 MM)  
 1-FD CABLE (12 SM)  
 1-1/C#10

INP:  
 PEDESTAL POLE & FOUNDATION  
 1-ONE WAY SIGNAL (TYPE 1C MODIFIED)

\* = DENOTES FURNISH AND INSTALL

SIGNAL FACE CHART				
FACE	R	Y	G	GRN
2-1	○	○	○	
2-2	○	○	○	
2-3	○	○	○	
4-1	○	○	○	
4-2	○	○	○	
4-3	○	○	○	
6-1	○	○	○	
6-2	○	○	○	◀
6-3	○	○	○	◀

-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
 PLAN BY: MAS  
 CHECKED BY: SD  
 APPROVED BY: SD

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

CERTIFIED BY: *[Signature]*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE  
 DATE: 02/17/18 LIC. NO.: 40945

**WSB**  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 wsbang.com



WHITE BEAR AVENUE STREET IMPROVEMENTS

WHITE BEAR AVE @ N. RAMP FOR INFORMATION ONLY-SYSTEM "A" TRAFFIC CONTROL SIGNAL SYSTEM

**NOTE:**  
 THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATIONS AND EQUIPMENT THAT IS TO BE USED AS PART OF A TEMPORARY SIGNAL SYSTEM. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE PRESENT DURING INSTALL. OVERHEAD SIGNAL INDICATORS WILL NEED TO BE ADJUSTED IN ACCORDANCE WITH EACH CONSTRUCTION PHASE.

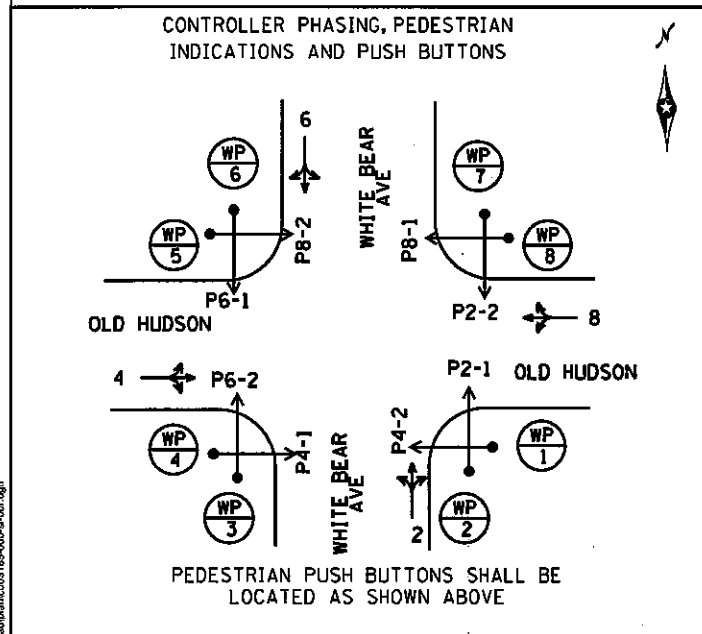
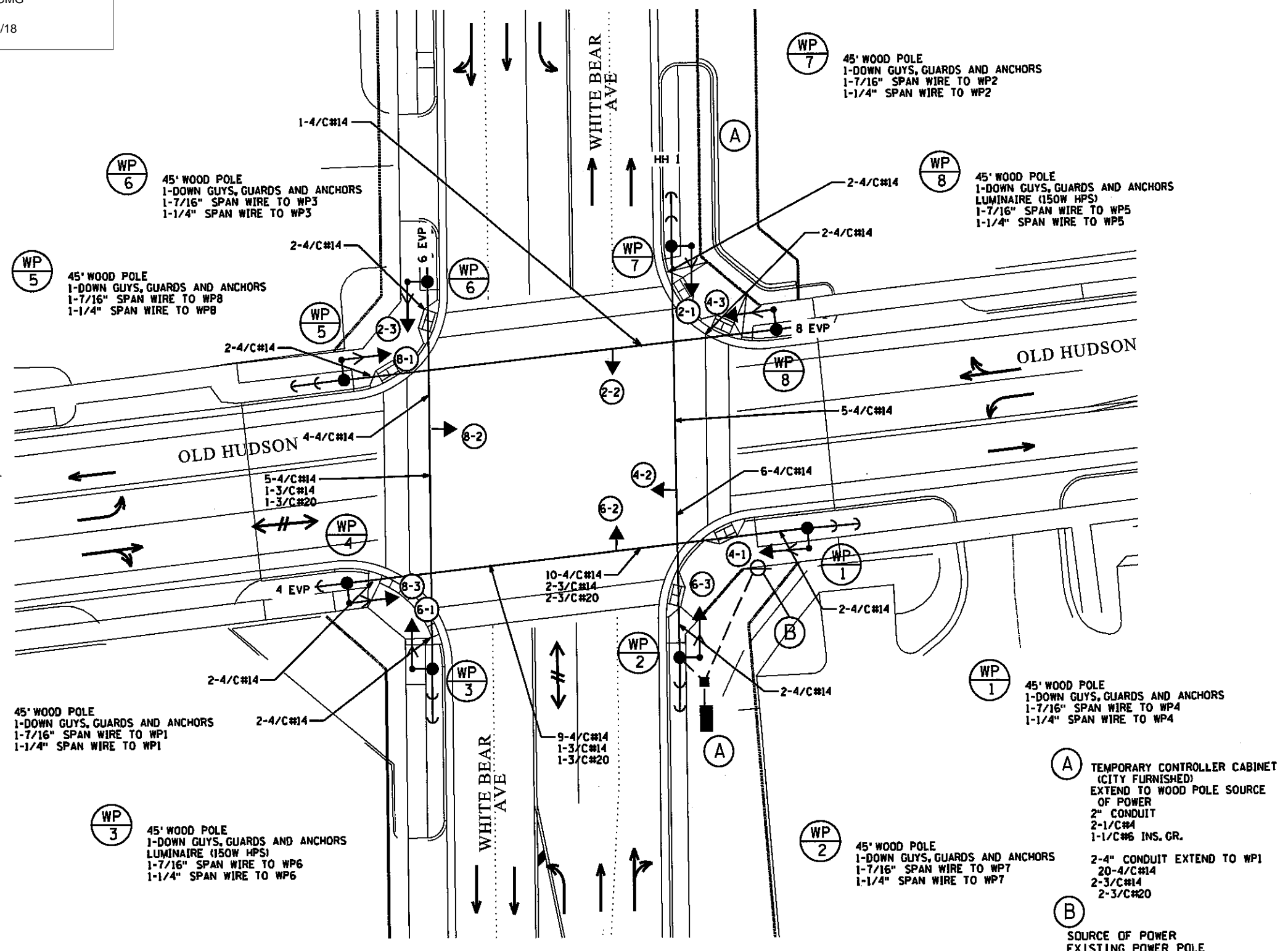
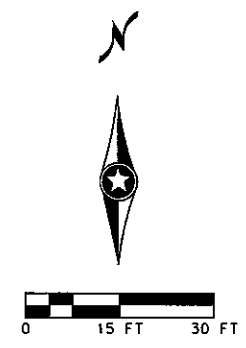
**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

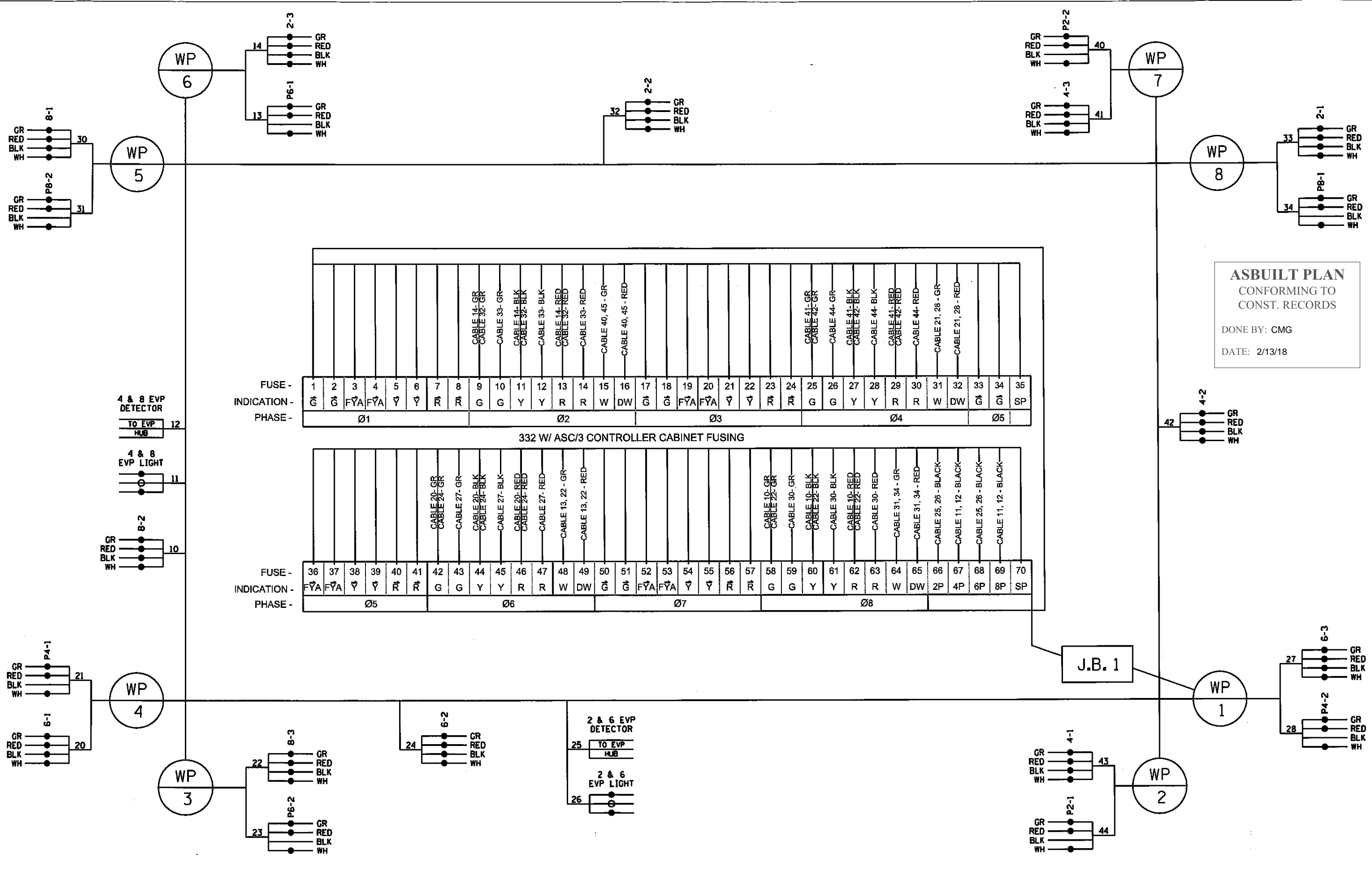
**SIGNAL FACE CHART**

FACE	R	Y	G
2-1, 2-2, 2-3	●	●	●
4-1, 4-2, 4-3	●	●	●
6-1, 6-2, 6-3	●	●	●
8-1, 8-2, 8-3	●	●	●

-ALL SIGNAL INDICATIONS SHALL BE 12" LED  
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS







**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
 PLAN BY: MAS  
 CHECKED BY: SD  
 APPROVED BY: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: *Sean Delore*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DELORE, PE  
 DATE: 02/17/16 LIC. NO.: 40945



701 Xenia Avenue South, Suite 200  
 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
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WHITE BEAR AVENUE  
 STREET IMPROVEMENTS

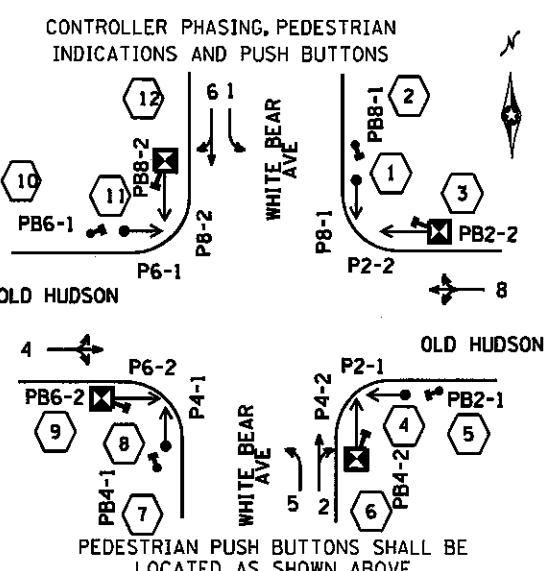
TEMPORARY WHITE BEAR AVE @ OLD HUDSON WIRING DIAGRAM-SYSTEM "B"  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 SHEET SL10 OF 145 SHEETS

Date Printed: 11/13/2015  
 WBS Filename: \\030188-2000\share\plan\03188-001a-lsdr.dgn

**NOTES:**

1. ALL EQUIPMENT SHOWN IS FURNISH AND INSTALL UNLESS OTHERWISE NOTED. CONTRACTOR SHALL INSTALL CITY FURNISHED CABINET, CONTROLLER, SERVICE CABINET AND EVP. (SEE SPECIAL PROVISIONS)
2. ALL OVERHEAD SIGNAL INDICATIONS SHALL HAVE BACKGROUND SHEILD.
3. ALL PEDESTRIAN INDICATIONS SHALL BE COUNTDOWN TIMERS (16" X 18"), SINGLE HOUSED, HAND/MAN INDICATIONS.
4. THE EXACT LOCATION OF HAND HOLES, POLES, PEDESTALS, PEDESTRIAN BUSH BUTTON STATIONS, AND EQUIPMENT PAD SHALL BE DETERMINED IN THE FIELD BY CITY OF ST PAUL TRAFFIC ENGINEERING PERSONNEL. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
5. THE CONTRACTOR SHALL COORDINATE THE SOURCE OF POWER CONNECTION WITH XCEL ENERGY.
6. ONE WAY SIGNAL HEADS AND PEDESTRIAN INDICATIONS MOUNTED ON MAST ARM POLE SHAFTS SHALL UTILIZE ONE-WAY MOUNTS.
7. ALL EQUIPMENT SHALL BE BONDED AND GROUNDED PER THE CITY OF SAINT PAUL BONDING AND GROUNDING STANDARDS, INCLUDING INSTALLING A GROUND ROD AS PER ST. PAUL STANDARD PLATE 5001.
8. SIGNAL LUMINAIRES TO BE CONNECTED TO LIGHTING CIRCUIT AS SHOWN IN LIGHTING PLANS OR AS DIRECTED BY ENGINEER.
9. SEE LIGHTING PLAN AND SPECIAL PROVISIONS FOR LIGHTING REQUIREMENTS.
10. ITEMS DENOTED WITH \*\*\* ARE INSTALLED AS PART OF THE LIGHTING SYSTEM PAY ITEM.
11. ITEMS DENOTED WITH \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM. EVP IS CITY SUPPLIED. CONTRACTOR SHALL INSTALL.
12. ITEMS DENOTED WITH ^ ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM PAY ITEM.

- (A) PRE-CAST CONTROLLER CABINET FOUNDATION SERVICE CABINET (CITY FURNISHED) TYPE ASC3/332 CONTROLLER CABINET ASSEMBLY (CITY FURNISHED)**
- 2-4" CONDUIT TO HH 1: 9-12/C#14
  - 7-12/C#14
  - 2-3/C#20 (EVP)
  - 6-2/C#14
  - 1-1/C#4 INS. GR.
  - 3" CONDUIT STUBBED OUT - CAPPED BOTH ENDS
  - 3/4" CONDUIT STUBBED OUT CAPPED FOR TELEPHONE LINE
  - 2" CONDUIT TO SERVICE CABINET
  - 2-1/C#4 (SERVICE)
  - 1-1/C#6 INS. GR.
  - 2-2" CONDUIT STUBBED OUT AND CAPPED BOTH ENDS (ONE FROM CONTROLLER CABINET, ONE FROM SERVICE CABINET)
  - 2" CONDUIT TO SERVICE CABINET (COMMS)
  - SERVICE CABINET TO HH 7:
  - 2" CONDUIT
  - 2-1/C#4
  - SERVICE CABINET TO HH 1:
  - 2" CONDUIT
  - \*\*\* 4-1/C#4 (LUM)
  - SERVICE CABINET TO HH 2:
  - 2" CONDUIT
  - \*\*\* 4-1/C#4 (LUM)



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**SIGNAL SYSTEM OPERATION**

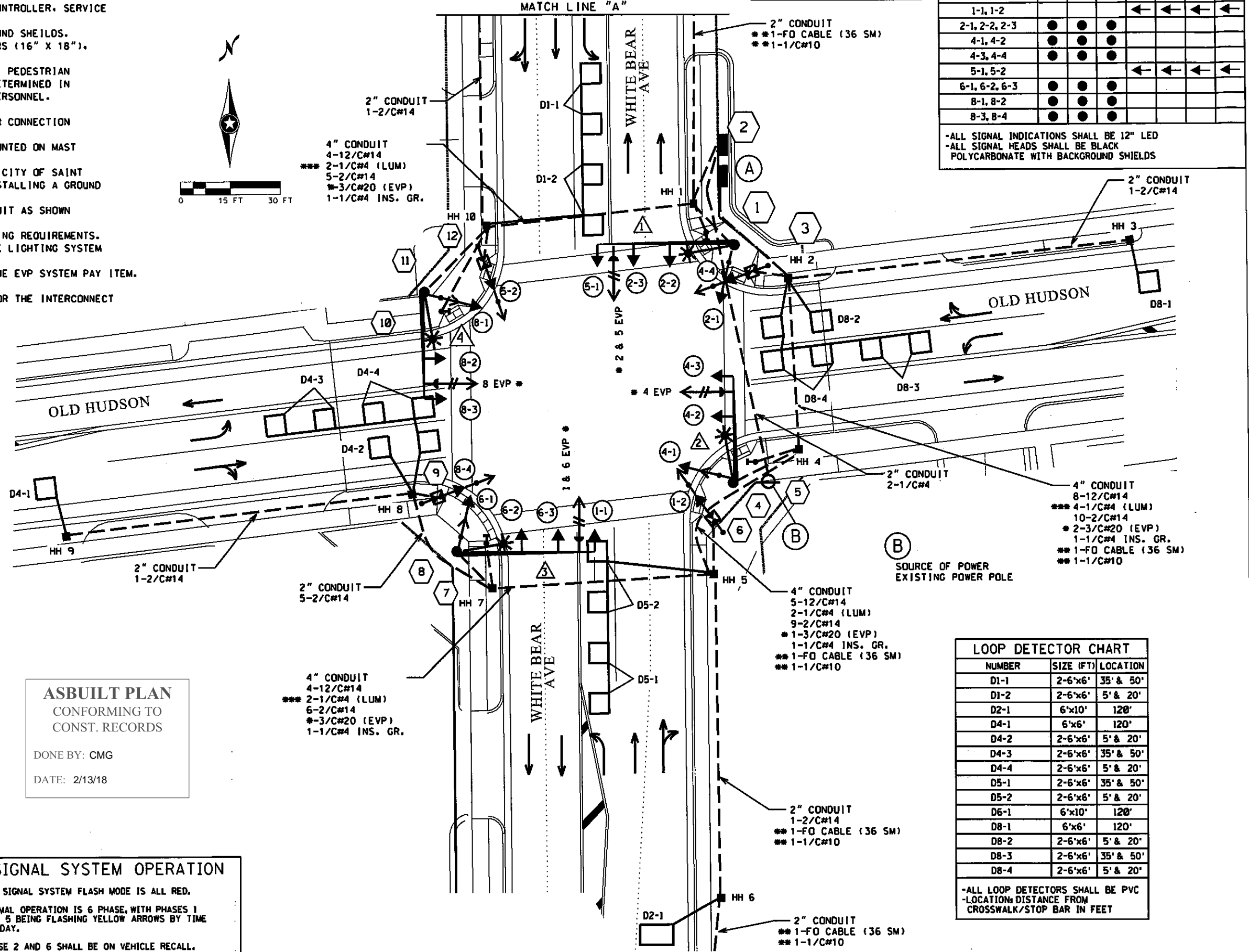
- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASE 2 AND 6 SHALL BE ON VEHICLE RECALL.

SIGNAL ID NO: 352

**SIGNAL FACE CHART**

FACE	R	Y	G	RED	YEL	GRN	FYA
1-1, 1-2				←	←	←	←
2-1, 2-2, 2-3	●	●	●				
4-1, 4-2	●	●	●				
4-3, 4-4	●	●	●				
5-1, 5-2				←	←	←	←
6-1, 6-2, 6-3	●	●	●				
8-1, 8-2	●	●	●				
8-3, 8-4	●	●	●				

-ALL SIGNAL INDICATIONS SHALL BE 12" LED  
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS



**(B) SOURCE OF POWER EXISTING POWER POLE**

**LOOP DETECTOR CHART**

NUMBER	SIZE (FT)	LOCATION
D1-1	2-6'x6'	35' & 50'
D1-2	2-6'x6'	5' & 20'
D2-1	6'x10'	120'
D4-1	6'x6'	120'
D4-2	2-6'x6'	5' & 20'
D4-3	2-6'x6'	35' & 50'
D4-4	2-6'x6'	5' & 20'
D5-1	2-6'x6'	35' & 50'
D5-2	2-6'x6'	5' & 20'
D6-1	6'x10'	120'
D8-1	6'x6'	120'
D8-2	2-6'x6'	5' & 20'
D8-3	2-6'x6'	35' & 50'
D8-4	2-6'x6'	5' & 20'

-ALL LOOP DETECTORS SHALL BE PVC  
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  SEAN DELORE, PE LICENSED PROFESSIONAL ENGINEER - SEAN DELORE, PE DATE: 02/17/16 LIC. NO.: 40945
PLAN BY: MAS	
CHECKED BY: SD	
APPROVED BY: SD	



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**WHITE BEAR AVENUE STREET IMPROVEMENTS**

**WHITE BEAR AVE @ OLD HUDSON INTERSECTION LAYOUT-SYSTEM "B" TRAFFIC CONTROL SIGNAL SYSTEM**

1 PA100 POLE FOUNDATION  
 TYPE PA100-A-40-X30-6  
 ONE WAY SIGNAL (ANGLE MOUNT OVERHEAD)  
 2-ONE WAY SIGNAL (STRAIGHT MOUNT OVERHEAD)  
 ONE WAY SIGNAL (ANGLE MOUNT) AT 225 DEG  
 ONE PEDESTRIAN INDICATION (ANGLE MOUNT) AT 225 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT (PHASES 2 & 5)  
 LUMINAIRE 108 WATT LED  
 1-SIGN OLD HUDSON RD  
 1-SIGN R10-X12 MOUNTED ADJACENT  
 TO HEAD 5-1  
 3" CONDUIT TO HH 1:  
 3-12/C#14  
 2-1/C#4 (LUM)  
 1-3/C#20 (EVP)  
 1-1/C#4 INS. GR.

2 PED PUSH BUTTON STATION  
 1-APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (LT ARROW PB8-1)  
 1" CONDUIT INTO HH 1:  
 1-2/C#14

3 PEDESTAL POLE FOUNDATION  
 15' PEDESTAL POLE AND BASE  
 ONE WAY SIGNAL (TYPE 1C)  
 APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (R10-3E) (PB2-2)  
 1" CONDUIT INTO HH 2:  
 1-12/C#14  
 1-2/C#14  
 1-1/C#4 INS. GR.

4 PA90 POLE FOUNDATION  
 TYPE PA90-A-30-X30-6  
 ONE WAY SIGNAL (ANGLE MOUNT OVERHEAD)  
 ONE WAY SIGNAL (STRAIGHT MOUNT OVERHEAD)  
 ONE WAY SIGNAL (ANGLE MOUNT) AT 225 DEG  
 ONE PEDESTRIAN INDICATION (ANGLE MOUNT) AT 225 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT (PHASE 4)  
 LUMINAIRE 108 WATT LED  
 1-SIGN OLD HUDSON RD  
 3" CONDUIT TO HH 3:  
 3-12/C#14  
 2-1/C#4 (LUM)  
 1-3/C#20 (EVP)  
 1-1/C#4 INS. GR.

5 PED PUSH BUTTON STATION  
 1-APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (LT ARROW PB2-1)  
 1" CONDUIT INTO HH 3:  
 1-2/C#14

6 PEDESTAL POLE FOUNDATION  
 15' PEDESTAL POLE AND BASE  
 ONE WAY SIGNAL (TYPE 1C)  
 APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (R10-3E) (PB4-2)  
 1" CONDUIT INTO HH 4:  
 1-12/C#14  
 1-2/C#14  
 1-1/C#4 INS. GR.

7 PED PUSH BUTTON STATION  
 1-APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (LT ARROW PB4-1)  
 1" CONDUIT INTO HH 5:  
 1-2/C#14

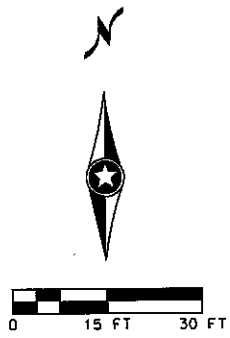
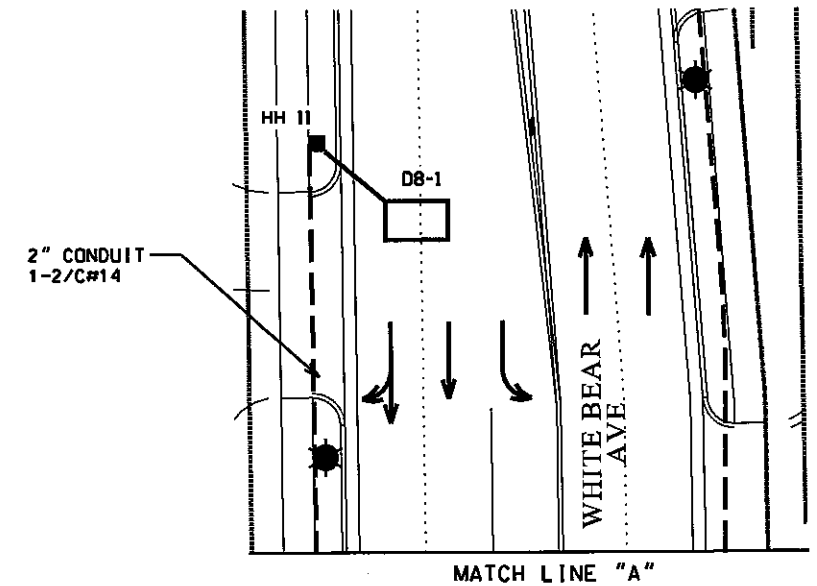
8 PA100 POLE FOUNDATION  
 TYPE PA100-A-40-X30-6  
 ONE WAY SIGNAL (ANGLE MOUNT OVERHEAD)  
 2-ONE WAY SIGNALS (STRAIGHT MOUNT OVERHEAD)  
 ONE WAY SIGNAL (ANGLE MOUNT) AT 225 DEG  
 ONE PEDESTRIAN INDICATION (ANGLE MOUNT) AT 225 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT (PHASES 1 & 6)  
 LUMINAIRE 108 WATT LED  
 1-SIGN WHITE BEAR AVE  
 1-SIGN R10-X12 MOUNTED ADJACENT TO HEAD 1-1  
 2" NMC STUB  
 3" CONDUIT TO HH 5:  
 3-12/C#14  
 2-1/C#4 (LUM)  
 1-3/C#20 (EVP)  
 1-1/C#4 INS. GR.

9 PEDESTAL POLE FOUNDATION  
 15' PEDESTAL POLE AND BASE  
 ONE WAY SIGNAL (TYPE 1C)  
 APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (R10-3E) (PB6-2)  
 1" CONDUIT INTO HH 5:  
 1-12/C#14  
 1-2/C#14  
 1-1/C#4 INS. GR.

10 PED PUSH BUTTON STATION  
 1-APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (LT ARROW PB6-1)  
 1" CONDUIT INTO HH 6:  
 1-2/C#14

11 PA90 POLE FOUNDATION  
 TYPE PA90-A-30-X30-6  
 ONE WAY SIGNAL (ANGLE MOUNT OVERHEAD)  
 2-ONE WAY SIGNAL (STRAIGHT MOUNT OVERHEAD)  
 ONE WAY SIGNAL (ANGLE MOUNT) AT 225 DEG  
 ONE PEDESTRIAN INDICATION (ANGLE MOUNT) AT 225 DEG  
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY  
 LIGHT (PHASE 8)  
 LUMINAIRE 108 WATT LED  
 1-SIGN WHITE BEAR AVE  
 3" CONDUIT TO HH 6:  
 3-12/C#14  
 2-1/C#4 (LUM)  
 1-3/C#20 (EVP)  
 1-1/C#4 INS. GR.

12 PEDESTAL POLE FOUNDATION  
 15' PEDESTAL POLE AND BASE  
 ONE WAY SIGNAL (TYPE 1C)  
 APS PEDESTRIAN PUSH BUTTON  
 AND SIGN (R10-3E) (PB8-2)  
 1" CONDUIT INTO HH 6:  
 1-12/C#14  
 1-2/C#14  
 1-1/C#4 INS. GR.



ASBUILT PLAN  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

Data Printed: 1/11/2018 10:58 AM W:\P\Projects\18103\18103.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
 PLAN BY: MAS  
 CHECKED BY: SD  
 APPROVED BY: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 CERTIFIED BY: *[Signature]*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DELLORE, PE  
 DATE: 02/17/18 LIC. NO.: 40945



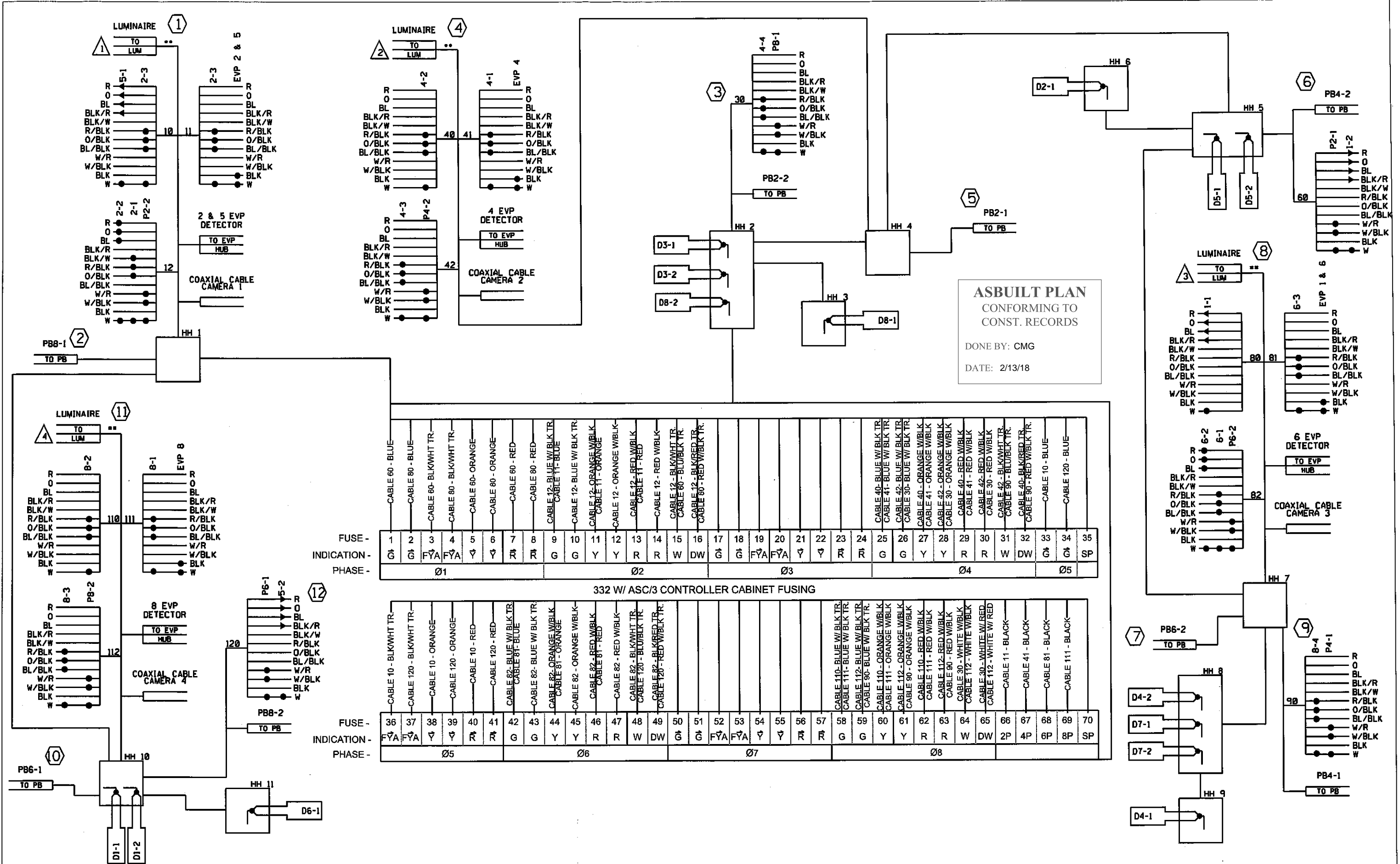
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 Minneapolis, MN 55416  
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WHITE BEAR AVENUE  
 STREET IMPROVEMENTS

WHITE BEAR AVE @ OLD HUDSON INTERSECTION LAYOUT-SYSTEM "B"  
 TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
 SL12  
 OF  
 145  
 SHEETS



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

**332 W/ ASC/3 CONTROLLER CABINET FUSING**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Ø1	Ø1	FYA	FYA	Y	Y	R	R	G	G	Y	Y	R	R	W	DW	G	G	FYA	FYA	Y	Y	R	R	G	G	Y	Y	R	R	W	DW	G	G	SP
Ø1		Ø2				Ø3				Ø4				Ø5																				

36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
FYA	FYA	Y	Y	R	R	G	G	Y	Y	R	R	W	DW	G	G	FYA	FYA	Y	Y	R	R	G	G	Y	Y	R	R	W	DW	2P	4P	6P	8P	SP
Ø5		Ø6				Ø7				Ø8																								

Date Plotted: 1/13/2015  
 WSB Filename: K:\03185-000\asb\plan\c03185-000-4-bld.dgn

NO.	DATE	BY	CHK	REVISIONS

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CERTIFIED BY: *[Signature]*  
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 DATE: 02/17/16 LIC. NO.: 40945



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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**WHITE BEAR AVE @ OLD HUDSON INTERSECTION LAYOUT-SYSTEM "B"  
 TRAFFIC CONTROL SIGNAL SYSTEM**

SHEET  
 SL13  
 OF  
 145  
 SHEETS

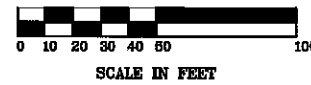
FOR INFORMATION ONLY

FACE	PHASE	FLASH	INDICATION SIZE (")			
			R	Y	G	GRN YEL
2-1	2	R	8	8	8	
2-2	2	R	12	12	12	
2-3	2	R	8	8	8	
4-1	4	R	8	8	8	
4-2	4	R	8	8	8	
4-3	4	R	8	8	8	
4-4	4	R	8	8	8	
6-1	6	R	8	8	8	
6-2	6	R	12	12	12	
6-3	6	R	8	8	8	

DETECTOR CHART			
DESIGNATION	PHASE	SIZE	DISTANCE FROM STOP BAR
D4-1	4	1-8'x16'	80' IN PLACE
D4-2	4	2-8'x13'	0', 16' IN PLACE
D4-3	4	1-8'x16'	80' IN PLACE
D4-4	4	2-8'x15'	0', 16' IN PLACE

LEGEND

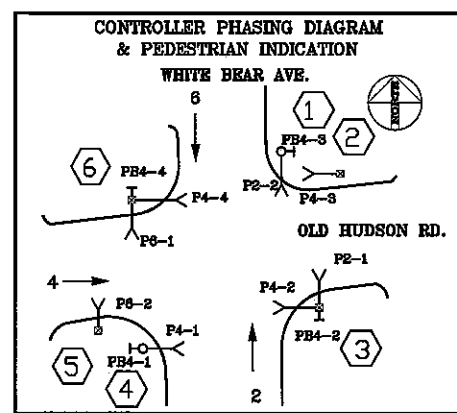
- SIGNAL INSTALLATION NO. ....
  - SIGNAL FACE NO. ....
  - CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE
  - CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE
  - PULLBOX - SIGNAL
  - PULLBOX - LIGHTING
  - PULLBOX - IN PLACE
  - CONDUIT (TYPE AND SIZE AS NOTED)
  - CONDUIT - IN PLACE
  - SIGNAL FACE - IN PLACE
  - SIGNAL FACE - IN PLACE
  - PEDESTRIAN INDICATION - IN PLACE
  - PEDESTRIAN INDICATION - IN PLACE
  - PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED
  - SIGNAL PEDESTAL POLE - IN PLACE
  - SIGNAL PEDESTAL POLE AND FOUNDATION
  - FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE
  - FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE
  - MAST ARM ASSEMBLY & FOUNDATION
  - MAST ARM ASSEMBLY & FOUNDATION - IN PLACE
  - MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE
  - MAST ARM ASSEMBLY, FOUNDATION, & LUMINAIRE - IN PLACE
  - WOOD POLE
  - WOOD POLE - IN PLACE
  - POWER SOURCE
  - EVP DETECTOR AND LIGHTS
  - LOOP DETECTOR
  - LOOP DETECTOR - IN PLACE
  - TEMPORARY SIGNAL
1. CONTROLLER CABINET ASSEMBLY (INCLUDES- CONTROLLER, WIRED CABINET, CONTROL EQUIPMENT & ANCHOR BOLTS)
  2. MAST ARM ASSEMBLY (INCLUDES- TRUSS ARM, MAST ARM POLE, TRANSFORMER BASE AND ANCHOR BOLTS)
  3. LUMINAIRE (INCLUDES- LUMINAIRE & LUMINAIRE EXTENSIONS)
  4. ALL 12" OVERHEAD SIGNAL FACES SHALL BE FURNISHED WITH BACKGROUND SHIELDS. ANY OTHER BACKGROUND SHIELDS TO BE FURNISHED WILL BE NOTED ON THE PLANS.
  5. ALL ITEMS NOTED AS IN PLACE SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED.
  6. ALL PEDESTRIAN INDICATIONS ON THIS PLAN SHEET ARE 9" x 8", AND USE THE WALK, DON'T WALK LEGEND.
  7. ALL PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED BY THE ENGINEER IN THE FIELD.
  8. SEE INTERCONNECT PLAN AND SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION PERTAINING TO INTERCONNECT LAYOUT AND TERMINATION.
  9. ALL WORK ON THIS SHEET SHALL BE CONSIDERED A PART OF PAY ITEM 0565.804 REVERSE SIGNAL SYSTEM "AM" EXCEPT THOSE ITEMS IDENTIFIED BY ASTERISK AS: \* INTERCONNECT PAY ITEM.



X DENOTES AN OPTICALLY PROGRAMMED SIGNAL HEAD

(A) CONTROLLER FOUNDATION IN PLACE  
CORE DRILL TO RECEIVE 2" CONDUIT \*  
170/332 CONTROLLER & CABINET IN PLACE  
F & I 470I FROM MODULE \*

(B) WOOD POLE IN PLACE  
SERVICE EQUIPMENT IN PLACE  
(SERVES AS SERVICE FOR N. RAMP & WHITE BEAR  
SIGNAL ID. NO. 075)



- (1) TYPE-A-15-D30-8, DAVIT AT 0 DEG. IN PLACE  
150 W H.P.S. LUMINAIRE IN PLACE  
1 - ONE WAY SIGNAL (OVERHEAD) END MOUNTED IN PLACE  
1 - ONE WAY SIGNAL (TYPE 10B) POLE MOUNTED AT 225 DEG. IN PLACE  
1 - TWO WAY E.V.P. DETECTOR & LIGHTS IN PLACE  
1 - PEDESTRIAN PUSH BUTTON IN PLACE
- (2) PEDESTAL POLE & FOUNDATION IN PLACE  
1 - ONE WAY SIGNAL (TYPE 1C MODIFIED) IN PLACE
- (3) PEDESTAL POLE & FOUNDATION IN PLACE  
1 - TWO WAY SIGNAL (TYPE 2C) IN PLACE  
1 - PEDESTRIAN PUSH BUTTON IN PLACE

- (4) TYPE-A-25-D30-8, DAVIT AT 0 DEG. IN PLACE  
250 W H.P.S. LUMINAIRE IN PLACE  
1 - ONE WAY SIGNAL (OVERHEAD) END MOUNTED IN PLACE  
1 - ONE WAY SIGNAL (TYPE 10B) POLE MOUNTED AT 270 DEG. IN PLACE  
1 - PEDESTRIAN PUSH BUTTON IN PLACE
- (5) PEDESTAL POLE & FOUNDATION IN PLACE  
1 - ONE WAY SIGNAL (TYPE 1C MODIFIED)  
1 - TWO WAY E.V.P. DETECTOR AND LIGHTS (BRACKET EXTENDED UP) IN PLACE
- (6) PEDESTAL POLE & FOUNDATION IN PLACE  
1 - TWO WAY SIGNAL (TYPE 2C) IN PLACE  
1 - TWO WAY E.V.P. DETECTOR & LIGHTS IN PLACE  
1 - PEDESTRIAN PUSH BUTTON IN PLACE

PULLBOX CHART			
NO.	SIZE (WxLxH)		SYSTEM INSTALLED UNDER
	13"x24"x24"	17"x30"x24"	
1			CONCRETE IN PLACE
2			CONCRETE IN PLACE
3			CONCRETE IN PLACE
4			CONCRETE IN PLACE
5			CONCRETE IN PLACE
6			CONCRETE IN PLACE
7			CONCRETE IN PLACE

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

96-T-1277 DALE, MARYLAND & WHITE BEAR CO REDUCTION 42/71  
SIGNAL DR. 6 DWG. NO. S-1415

CITY PROJECT NO. 96-T-1277 SP-164-020-83  
CMA-6296(057)

SHEET 42 OF 71

Date Plotted: 1/13/2015 WSB Filename: K:\03185-000\plan\asb\03185-000-42b.dgn

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

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CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SEAN DEL GRE - PE  
DATE: 02/17/18 LIC. NO.: 40945

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Tel: (763) 541-8800 - Fax (763) 541-1700  
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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

WHITE BEAR AVE @ OLD HUDSON FOR INFORMATION ONLY-SYSTEM "B"  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL14  
OF  
145  
SHEETS

- NOTES:
1. SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
  2. THE EXACT LOCATION OF PUSH BUTTON STATIONS, SHALL BE VERIFIED IN THE FIELD BY TRAFFIC OFFICE PERSONNEL.
  3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL.
  4. PAVEMENT MARKINGS ARE INCLUDED IN PAVEMENT MARKING PLAN.
  5. CONSTRUCTION OF PEDESTRIAN CURB RAMPS ARE PART OF THE CONSTRUCTION PLAN AND ARE NOT INCLUDED IN PAYMENT FOR THE SIGNAL SYSTEM.
  6. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
  7. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
  8. CONTRACTOR SHALL CONTACT ANOKA COUNTY PRIOR TO ANY SIGNAL MODIFICATIONS.
  9. ITEMS DENOTED WITH \*\*\* ARE INSTALLED AS PART OF THE LIGHTING SYSTEM PAY ITEM.
  10. ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM PAY ITEM.

1  
INP:  
PA85 POLE FOUNDATION  
TYPE PA85-A-20-X30-6 (DAVIT AT 350 DEG)  
TWO WAY SIGNAL (TYPE 20C) AT 270 DEG  
TWO WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
1-LUMINAIRE  
2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
2" CONDUIT STUB CONNECT TO LIGHTING SYSTEM  
REMOVE:  
LUMINAIRE  
2-PUSH BUTTONS AND SIGNS  
\* F&I:  
\*\*\* LUMINAIRE 108 WATT LED

2  
INP:  
PA85 POLE FOUNDATION  
TYPE PA85-A-20-X30-6 (DAVIT AT 350 DEG)  
TWO WAY SIGNAL (TYPE 20C) AT 270 DEG  
TWO WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
1-LUMINAIRE  
2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
2" CONDUIT STUB CONNECT TO LIGHTING SYSTEM  
REMOVE:  
LUMINAIRE  
2-PUSH BUTTONS AND SIGNS  
\* F&I:  
\*\*\* LUMINAIRE 108 WATT LED

LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D2-1	6 X 17	120
D4-1	6 X 14	INP
D4-2	2-6 X 14	5 & 20
D6-1	6 X 17	120
D8-1	6 X 14	INP
D8-2	2-6 X 14	5 & 20

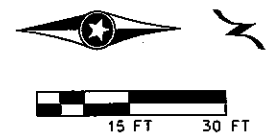
-ALL LOOP DETECTORS SHALL BE PVC  
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS  
  
DONE BY: CMG  
DATE: 2/13/18

1  
INP:  
PA85 POLE FOUNDATION  
TYPE PA85-A-20-X30-6 (DAVIT AT 350 DEG)  
TWO WAY SIGNAL (TYPE 20C) AT 270 DEG  
TWO WAY EVP DETECTOR AND CONFIRMATORY LIGHT  
1-LUMINAIRE  
2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
2" CONDUIT STUB CONNECT TO LIGHTING SYSTEM  
REMOVE:  
LUMINAIRE  
2-PUSH BUTTONS AND SIGNS  
\* F&I:  
\*\*\* LUMINAIRE 108 WATT LED

\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (LT ARROW PB4-1)  
1" CONDUIT INTO HH 11:  
1-2/C#14  
  
\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (RT ARROW PB6-2)  
1" CONDUIT INTO HH 1:  
1-2/C#14

\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (LT ARROW PB6-1)  
1" CONDUIT INTO HH 3:  
1-2/C#14  
  
\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (RT ARROW PB8-2)  
1" CONDUIT INTO HH 3:  
1-2/C#14

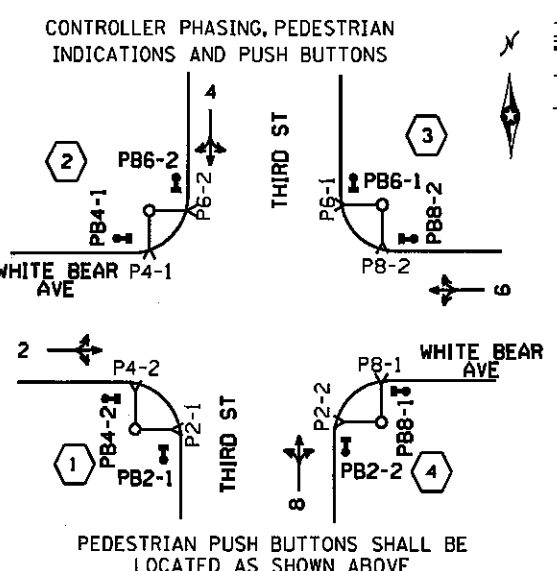
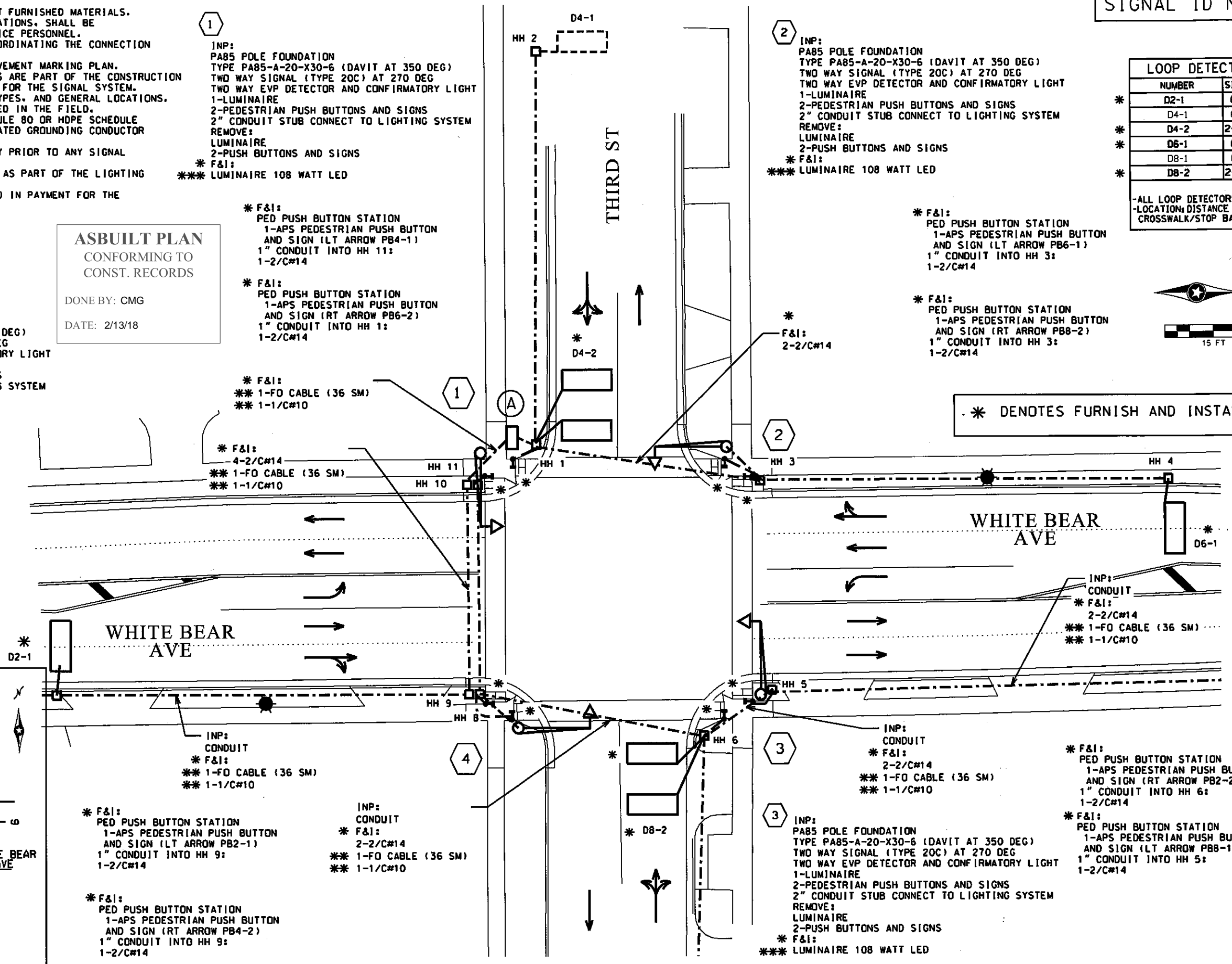


\* DENOTES FURNISH AND INSTALL

A  
INP:  
EQUIPMENT PAD  
SERVICE CABINET  
CONTROLLER AND CABINET  
\* F&I FROM INP HH 10:  
5-2/C#14  
FROM INP HH 1:  
3-2/C#14

\* F&I:  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10  
  
\* F&I:  
4-2/C#14  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10

INP:  
CONDUIT  
\* F&I:  
2-2/C#14  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10



INP:  
CONDUIT  
\* F&I:  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10  
  
\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (LT ARROW PB2-1)  
1" CONDUIT INTO HH 9:  
1-2/C#14  
  
INP:  
CONDUIT  
\* F&I:  
2-2/C#14  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10  
  
\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (RT ARROW PB4-2)  
1" CONDUIT INTO HH 9:  
1-2/C#14

INP:  
CONDUIT  
\* F&I:  
2-2/C#14  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10

\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (RT ARROW PB2-2)  
1" CONDUIT INTO HH 6:  
1-2/C#14  
  
\* F&I:  
PED PUSH BUTTON STATION  
1-APS PEDESTRIAN PUSH BUTTON  
AND SIGN (LT ARROW PB8-1)  
1" CONDUIT INTO HH 5:  
1-2/C#14

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
  
CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SAN DELGADO, PE  
DATE: 02/17/18 LIC. NO.: 40945



701 Xena Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax: (763) 541-1700  
wsbeng.com

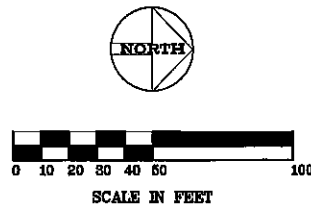


WHITE BEAR AVENUE STREET IMPROVEMENTS

WHITE BEAR AVE @ 3RD ST INTERSECTION LAYOUT-SYSTEM "C" TRAFFIC CONTROL SIGNAL SYSTEM

SHEET SL15 OF 145 SHEETS

FACE	PHASE	FLASH	INDICATION SIZE (")					
			R	Y	G	Y	G	YEL
2-1	2	R	8	8	8			
2-2	2	R	12	12	12			
2-3	2	R	8	8	8			
4-1	4	R	8	8	8			
4-2	4	R	12	12	12			
4-3	4	R	8	8	8			
6-1	6	R	8	8	8			
6-2	6	R	12	12	12			
6-3	6	R	8	8	8			
8-1	8	R	8	8	8			
8-2	8	R	12	12	12			
8-3	8	R	8	8	8			



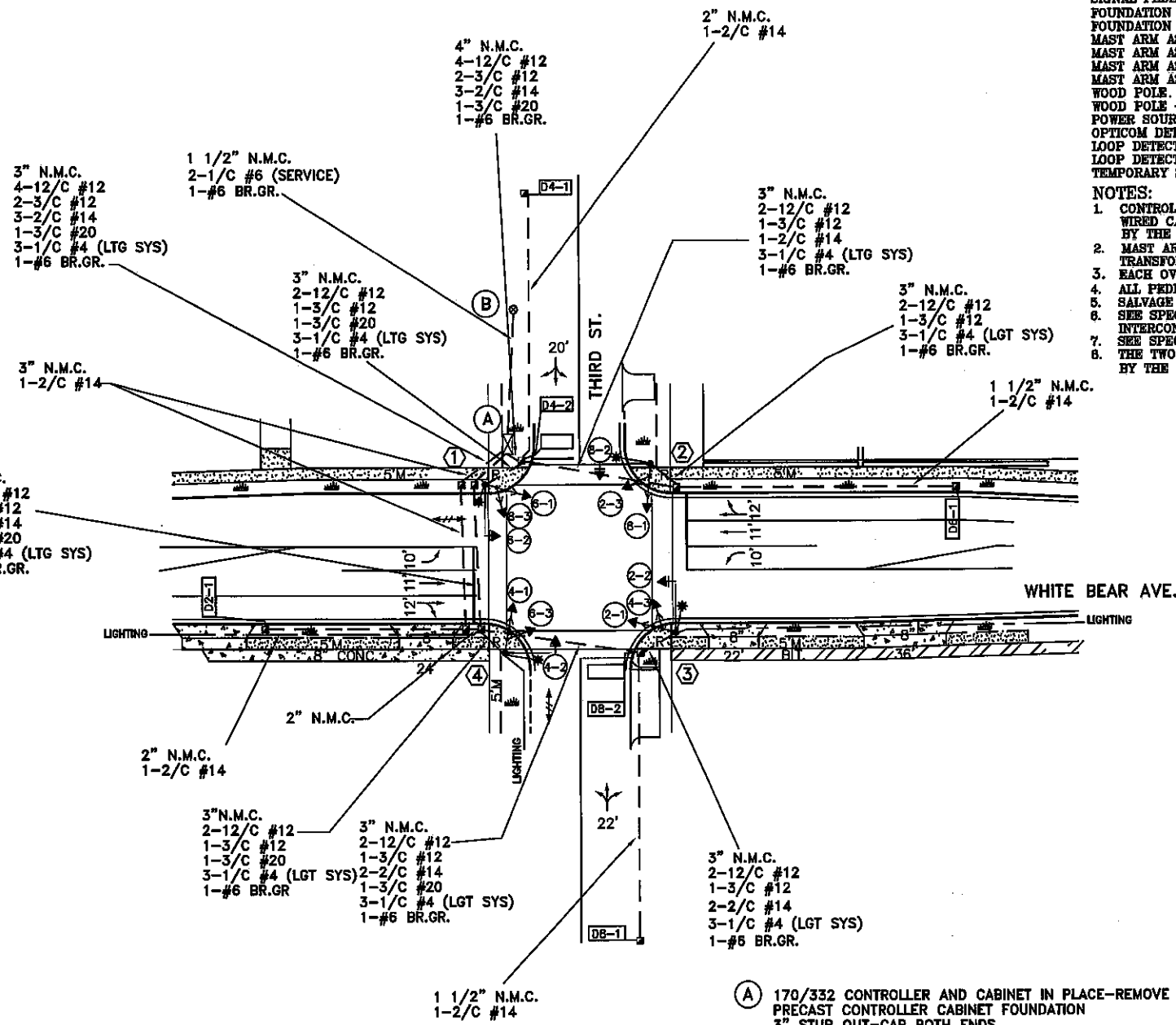
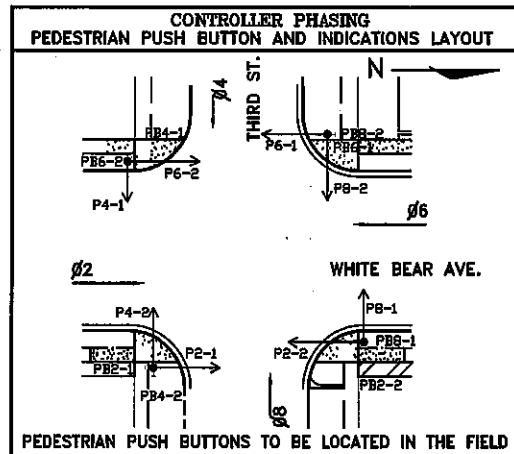
**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

- LEGEND**
- SIGNAL INSTALLATION NO. [Symbol]
  - SIGNAL FACE NO. [Symbol]
  - CONTROLLER CABINET ASSEMBLY & FOUNDATION [Symbol]
  - CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE [Symbol]
  - PULLBOX - SIGNAL USAGE [Symbol]
  - PULLBOX - LIGHTING USAGE [Symbol]
  - PULLBOX - IN PLACE [Symbol]
  - CONDUIT INSTALLATION [Symbol]
  - CONDUIT - IN PLACE [Symbol]
  - SIGNAL FACE [Symbol]
  - SIGNAL FACE - IN PLACE [Symbol]
  - PEDESTRIAN INDICATION [Symbol]
  - PEDESTRIAN INDICATION - IN PLACE [Symbol]
  - PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED [Symbol]
  - SIGNAL PEDESTAL POLE AND FOUNDATION [Symbol]
  - FOUNDATION FOR LIGHTING OR SIGNAL POLE [Symbol]
  - FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE [Symbol]
  - MAST ARM ASSEMBLY & FOUNDATION [Symbol]
  - MAST ARM ASSEMBLY & FOUNDATION - IN PLACE [Symbol]
  - MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE [Symbol]
  - MAST ARM ASSEMBLY, FOUNDATION, & LUMINAIRE - IN PLACE [Symbol]
  - WOOD POLE [Symbol]
  - WOOD POLE - IN PLACE [Symbol]
  - POWER SOURCE [Symbol]
  - OPTICOM DETECTOR [Symbol]
  - LOOP DETECTOR [Symbol]
  - LOOP DETECTOR - IN PLACE [Symbol]
  - TEMPORARY SIGNAL [Symbol]

**DETECTOR CHART**

DESIGNATION	PHASE	SIZE	DISTANCE TO STOP BAR
D4-1	4	1-6"x14"	120'
D4-2	4	2-6"x14"	4'-20"
DB-2	8	2-6"x16"	4'-20"
DB-1	8	1-6"x16"	120'
D2-1	2	1-6"x17"	120'
D6-1	6	1-6"x17"	120'

\* PREFORMED NMC LOOP DETECTOR (SEE SPECIAL PROVISIONS)



- NOTES:**
- CONTROLLER CABINET ASSEMBLY (INCLUDES- CONTROLLER, WIRED CABINET & CONTROL EQUIPMENT)-FURNISHED BY THE CITY INSTALLED BY THE CONTRACTOR.
  - MAST ARM ASSEMBLY (INCLUDES- TRUSS ARM, MAST ARM POLE, TRANSFORMER BASE, ANCHOR BOLTS & LUMINAIRE EXTENSION).
  - EACH OVERHEAD SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD (4 TOTAL)
  - ALL PEDESTRIAN INDICATIONS SHALL BE 12" X 12" WITH INTERNATIONAL SYMBOLS
  - SALVAGE EXISTING SIGNAL SYSTEM, SEE SPECIAL PROVISIONS.
  - SEE SPECIAL PROVISIONS AND INTERCONNECT PLAN FOR INTERCONNECT REQUIREMENTS.
  - SEE SPECIAL PROVISIONS AND LIGHTING PLAN FOR LIGHTING REQUIREMENTS.
  - THE TWO-WAY E.V.P. DETECTOR AND LIGHTS AT POLES 1 AND 4 WILL BE FURNISHED BY THE CITY AND INSTALLED BY THE CONTRACTOR.

- ① TYPE PA85-A-20-X30-6  
 PA85 POLE FOUNDATION  
 150 W. H.P.S. LUMINAIRE  
 TWO WAY SIGNAL (TYPE 20C) AT 270°  
 TWO WAY E.V.P. DETECTOR AND LIGHT  
 2-PEDESTRIAN PUSH BUTTONS AND DECALS  
 2" N.M.C. STUB CONNECT TO LIGHTING SYSTEM
- ② TYPE PA85-A-20-X30-6  
 PA85 POLE FOUNDATION  
 150 W. H.P.S. LUMINAIRE  
 TWO WAY SIGNAL (TYPE 20C) AT 270°  
 2-PEDESTRIAN PUSH BUTTONS AND DECALS  
 2" N.M.C. STUB CONNECT TO LIGHTING SYSTEM
- ③ TYPE PA85-A-20-X30-6  
 PA85 POLE FOUNDATION  
 150 W. H.P.S. LUMINAIRE  
 TWO WAY SIGNAL (TYPE 20C) AT 270°  
 2-PEDESTRIAN PUSH BUTTONS AND DECALS  
 2" N.M.C. STUB CONNECT TO LIGHTING SYSTEM
- ④ TYPE PA85-A-20-X30-6  
 PA85 POLE FOUNDATION  
 150 W. H.P.S. LUMINAIRE  
 TWO WAY SIGNAL (TYPE 20C) AT 270°  
 TWO WAY E.V.P. DETECTOR AND LIGHT  
 2-PEDESTRIAN PUSH BUTTONS AND DECALS  
 2" N.M.C. STUB CONNECT TO LIGHTING SYSTEM

- Ⓐ 170/332 CONTROLLER AND CABINET IN PLACE-REMOVE AND REINSTALL PRECAST CONTROLLER CABINET FOUNDATION 3" STUB OUT-CAP BOTH ENDS
- Ⓑ SOURCE OF POWER INPLACE WOOD POLE SERVICE EQUIPMENT SEE SPECIAL PROVISIONS

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

REG. NO. \_\_\_\_\_ DATE \_\_\_\_\_

SIGNAL DR 2 DWG. NO. \_\_\_\_\_

CITY PROJECT NO. 95-T-1266 S.A.P. NO. 164-206-12 SHEET 3 OF 6

Date Printed: 1/13/2018 WSB Filename: C:\300\300\asb\plan\20180218-000-4-bdr.dgn

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	MAS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER - SEAN DELORE - PE DATE: 02/17/18 LIC. NO.: 40945
PLAN BY:	MAS	
CHECKED BY:	SD	
APPROVED BY:	SD	

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 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax (763) 541-1700  
 wsbeng.com



WHITE BEAR AVENUE  
 STREET IMPROVEMENTS

WHITE BEAR AVE @ 3RD ST FOR INFORMATION ONLY-SYSTEM "C"  
 TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
 SL16  
 OF  
 145  
 SHEETS

FOR INFORMATION ONLY

**THIRD ST. AT  
WHITE BEAR AVE.  
WIRING DIAGRAM**

LOCATION	INDICATION	CONDUCTOR	HEAD	CABLE	FUSE
<b>POLE 1</b>					
S. B. OH. (END)	GREEN	Sol. Green	6-2	2	18
	YELLOW	Sol. Orange	6-2	2	21
	RED	Sol. Red	6-2	2	24
	OPTICOM	Black	Phase 2,6	2	57
	COMMON	White	6-2	2	-
S. B. FAR RT.	GREEN	Sol. Green	6-1	1	19
	YELLOW	Sol. Orange	6-1	1	22
	RED	Sol. Red	6-1	1	25
	COMMON	White	6-1	1	-
S.B. PED HEAD	WALK	Sol. Blue	P6-2	1	27
	D.WALK	Black/WTr.	P6-2	1	28
	COMMON	White	P6-2	1	-
W. B. FAR LT.	GREEN	Green/BTr.	4-6	2	35
	YELLOW	Orange/BTr.	4-6	2	38
	RED	Red/BTr.	4-6	2	41
	COMMON	White	4-6	2	-
W.B. PED HEAD	WALK	Blue/BTr.	P4-1	2	44
	D.WALK	White/BTr.	P4-1	2	45
	COMMON	White	P4-1	2	-

page 1 of 4

THIRD/WHITE BEAR ID. #277

LOCATION	INDICATION	COLOR	HEAD	CABLE	FUSE
<b>POLE 2</b>					
W. B. OH. (END)	GREEN	Green/BTr.	4-5	3	36
	YELLOW	Orange/BTr.	4-5	3	39
	RED	Red/BTr.	4-5	3	42
	COMMON	White	4-5	3	-
W. B. FAR RT.	GREEN	Green/BTr.	4-4	5	37
	YELLOW	Orange/BTr.	4-4	5	40
	RED	Red/BTr.	4-4	5	43
	COMMON	White	4-4	5	-
W.B. PED HEAD	WALK	Blue/BTr.	P4-4	5	44
	D.WALK	White/BTr.	P4-4	5	45
	COMMON	White	P4-4	5	-
N. B. FAR LT.	GREEN	Sol. Green	2-3	3	7
	YELLOW	Sol. Orange	2-3	3	10
	RED	Sol. Red	2-3	3	13
	COMMON	White	2-3	3	-
N.B. PED HEAD	WALK	Sol. Blue	P6-1	3	27
	D.WALK	Black/WTr.	P6-1	3	28
	COMMON	White	P6-1	3	-

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

page 2 of 4

THIRD/WHITE BEAR ID. #277

**FOR INFORMATION ONLY**

Date Printed: 1/13/2015  
WSB File Name: K03188-001-001-001-001-001-001.dwg

NO.	DATE	BY	CHK	REVISIONS	DESIGN BY: MAS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  CERTIFIED BY: <i>Sean O'Leary</i> LICENSED PROFESSIONAL ENGINEER - SEAN O'LEARY, PE DATE: 02/17/18 LIC. NO.: 40845	 701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 Tel: (763) 541-4800 - Fax (763) 541-1700 wsbeng.com	 RAMEY COUNTY	WHITE BEAR AVENUE STREET IMPROVEMENTS	WHITE BEAR AVE @ 3RD ST FOR INFORMATION ONLY-SYSTEM "C" TRAFFIC CONTROL SIGNAL SYSTEM	SHEET SL17 OF 145 SHEETS
				PLAN BY: MAS							
				CHECKED BY: SD							
				APPROVED BY: SD							



LOCATION	INDICATION	COLOR	HEAD	CABLE	FUSE
<b>POLE 3</b>					
N.B. OH. (END)	GREEN	Sol. Green	2-2	6	8
	YELLOW	Sol. Orange	2-2	6	11
	RED	Sol. Red	2-2	6	14
	COMMON	White	2-2	6	-
N.B. FAR RT.	GREEN	Sol. Green	2-1	4	9
	YELLOW	Sol. Orange	2-1	4	12
	RED	Sol. Red	2-1	4	15
	COMMON	White	2-1	4	-
N.B. PED HEAD	WALK	Sol. Blue	P2-2	4	16
	D.WALK	Black/WTr.	P2-2	4	17
	COMMON	White	P2-2	4	-
E. B. FAR LT.	GREEN	Green/BTr.	4-3	6	35
	YELLOW	Orange/BTr.	4-3	6	38
	RED	Red/BTr.	4-3	6	41
	COMMON	White	4-3	6	-
E.B. PED HEAD	WALK	Blue/BTr.	P4-3	6	44
	D.WALK	White/BTr.	P4-3	6	45
	COMMON	White	P4-3	6	-

LOCATION	INDICATION	COLOR	HEAD	CABLE	FUSE
<b>POLE 4</b>					
E. B. OH. (END)	GREEN	Green/BTr.	4-2	7	36
	YELLOW	Orange/BTr.	4-2	7	39
	RED	Red/BTr.	4-2	7	42
	OPTICOM	Black	Phase 4,8	7	58
	COMMON	White	4-2	7	-
E. B. FAR RT.	GREEN	Green/BTr.	4-1	8	37
	YELLOW	Orange/BTr.	4-1	8	40
	RED	Red/BTr.	4-1	8	43
	COMMON	White	4-1	8	-
E.B. PED HEAD	WALK	Blue/BTr.	P4-2	8	44
	D.WALK	White/BTr.	P4-2	8	45
	COMMON	White	P4-2	8	-
S. B. FAR LT.	GREEN	Sol. Green	6-3	7	20
	YELLOW	Sol. Orange	6-3	7	23
	RED	Sol. Red	6-3	7	26
	COMMON	White	6-3	7	-
S.B. PED HEAD	WALK	Sol. Blue	P2-1	7	16
	D.WALK	Black/WTr.	P2-1	7	17
	COMMON	White	P2-1	7	-

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

NOTE:

Sol. =====> Solid colors  
/WTr. =====> White tracers  
/BTr. =====> Black tracers

page 3 of 4

THIRD/WHITE BEAR ID. #277

page 4 of 4

THIRD/WHITE BEAR ID. #277

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NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	MAS
PLAN BY:	MAS
CHECKED BY:	SD
APPROVED BY:	SD

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

CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SEAN DELANEY, PE  
DATE: 02/17/18 LIC. NO.: 40945



701 Xerxes Avenue South, Suite 300  
Minneapolis, MN 55416  
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WHITE BEAR AVENUE  
STREET IMPROVEMENTS

WHITE BEAR AVE @ 3RD ST FOR INFORMATION ONLY-SYSTEM "C"  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL18  
OF  
145  
SHEETS

FOR INFORMATION ONLY

**NOTES:**

1. ALL EQUIPMENT SHOWN IS FURNISH AND INSTALL UNLESS OTHERWISE NOTED.
2. ALL OVERHEAD SIGNAL INDICATIONS SHALL HAVE BACKGROUND SHIELDS.
3. ALL PEDESTRIAN INDICATIONS SHALL BE COUNTDOWN TIMERS (18" X 16"), SINGLE HOUSED, HAND/MAN INDICATIONS.
4. THE EXACT LOCATION OF HAND HOLES, POLES, PEDESTALS AND PEDESTRIAN BUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY CITY OF SAINT PAUL TRAFFIC ENGINEERING PERSONNEL. CONDUITS UNDER ROADWAY MAY REQUIRE BORING.
5. THE CONTRACTOR SHALL COORDINATE THE SOURCE OF POWER CONNECTION WITH XCEL ENERGY.
6. ONE WAY SIGNAL HEADS AND PEDESTRIAN INDICATIONS MOUNTED ON MAST ARM POLE SHAFTS SHALL UTILIZE ONE-WAY MOUNTS.
7. ALL EQUIPMENT SHALL BE BONDED AND GROUNDED PER THE CITY OF SAINT PAUL BONDING AND GROUNDING STANDARDS, INCLUDING INSTALLING A GROUND ROD AS PER ST. PAUL STANDARD PLATE 5001.
8. SIGNAL LUMINAIRES TO BE CONNECTED TO LIGHTING CIRCUIT AS SHOWN IN LIGHTING PLANS OR AS DIRECTED BY ENGINEER.
9. SEE LIGHTING PLAN AND SPECIAL PROVISIONS FOR LIGHTING REQUIREMENTS.
10. ITEMS DENOTED WITH \*\* ARE INSTALLED AS PART OF THE LIGHTING SYSTEM PAY ITEM.
11. ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM PAY ITEM.

- 4** PAB5-A-30  
TYPE PAB5-A-30  
2-3-SEC POLY YELLOW RED/RED/XL OVER  
AMB XL901-HAWK MOUNTED AT 0° AND 12°  
1-ANGLE MOUNT C.D. PED IND AT 270 DEG  
1-PEDESTRIAN PUSH BUTTON AND SIGN  
(LT ARROW PB4-2)  
\*\*\* LUMINAIRE 108 WATT LED  
1-SIGN R10-23 MOUNTED AT 6°  
3" CONDUIT TO HH 4;  
1-12/C#14  
1-2/C#14  
1-1/C#6 INS GR
- 5** PED PUSH BUTTON STATION (BIKES)  
1-PEDESTRIAN PUSH BUTTON  
AND SIGN R10-3L (LT ARROW PB4-1)  
1" CONDUIT INTO HH 4;  
1-2/C#14

- 6** PAB5 POLE FOUNDATION  
TYPE PAB5-A-0-X35-9  
\*\*\* LUMINAIRE 108 WATT LED  
1-ANGLE MOUNT C.D. PED IND  
MOUNTED AT 180 DEG  
1-PEDESTRIAN PUSH BUTTON AND SIGN (LT  
ARROW PB8-3)  
3" CONDUIT INTO HH 5;  
1-12/C#14  
1-2/C#14  
1-1/C#6 INS GR

INP:  
CONDUIT  
(SEE INTERCONNECT PLAN)

\*\* CONDUIT (SEE  
LIGHTING PLAN)  
1-3/C#4

\*\* CONDUIT (SEE  
LIGHTING PLAN)  
1-3/C#4

WHITE BEAR  
AVE

WHITE BEAR  
AVE

\* F&I:  
2" CONDUIT  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10

4" CONDUIT  
1-12/C#14  
2-2/C#14  
1-1/C#6 INS GR

4" CONDUIT  
2-12/C#14  
2-2/C#14  
1-1/C#6 INS GR  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10

4" CONDUIT  
1-12/C#14  
1-2/C#14  
1-1/C#6 INS GR

INP:  
CONDUIT  
\* F&I:  
\*\* 1-FO CABLE (36 SM)  
\*\* 1-1/C#10

**2** PED PUSH BUTTON STATION (BIKES)  
1-PEDESTRIAN PUSH BUTTON  
AND SIGN R10-3L (LT ARROW PB8-1)  
1" CONDUIT INTO HH 1;  
1-2/C#14

**3** PEDESTAL FOUNDATION  
8' POLE PLUS BASE  
1-ANGLE MOUNT C.D. PED IND AT 180 DEG  
1-PEDESTRIAN PUSH BUTTON AND SIGN (LT  
ARROW PB4-3)  
3" CONDUIT TO HH 2;  
1-12/C#14  
1-2/C#14  
1-1/C#6 INS GR

**1** PAB5-A-30  
TYPE PAB5-A-30  
2-3-SEC POLY YELLOW RED/RED/XL OVER  
AMB XL901-HAWK MOUNTED AT 0° AND 12°  
1-ANGLE MOUNT C.D. PED IND AT 90 DEG  
1-PEDESTRIAN PUSH BUTTON AND SIGN (RT  
ARROW PB8-2)  
1-SIGN R10-23 MOUNTED AT 6°  
HAWK SYSTEM CABINET MOUNTED TO POLE 1  
3" CONDUIT TO HH 1;  
1-12/C#14  
1-2/C#14  
1-1/C#6 INS GR


**B** SOP  
INPLACE TRANSFORMER  
MOUNT SERVICE METER  
TO WOOD POLE

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY:	MAS	I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.   CERTIFIED BY: SEAN DELORE - PE LICENSED PROFESSIONAL ENGINEER - SEAN DELORE - PE DATE: 02/17/16 LIC. NO.: 40945
PLAN BY:	MAS	
CHECKED BY:	SD	
APPROVED BY:	SD	

**WSB**  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax (763) 541-1700  
wsbeng.com

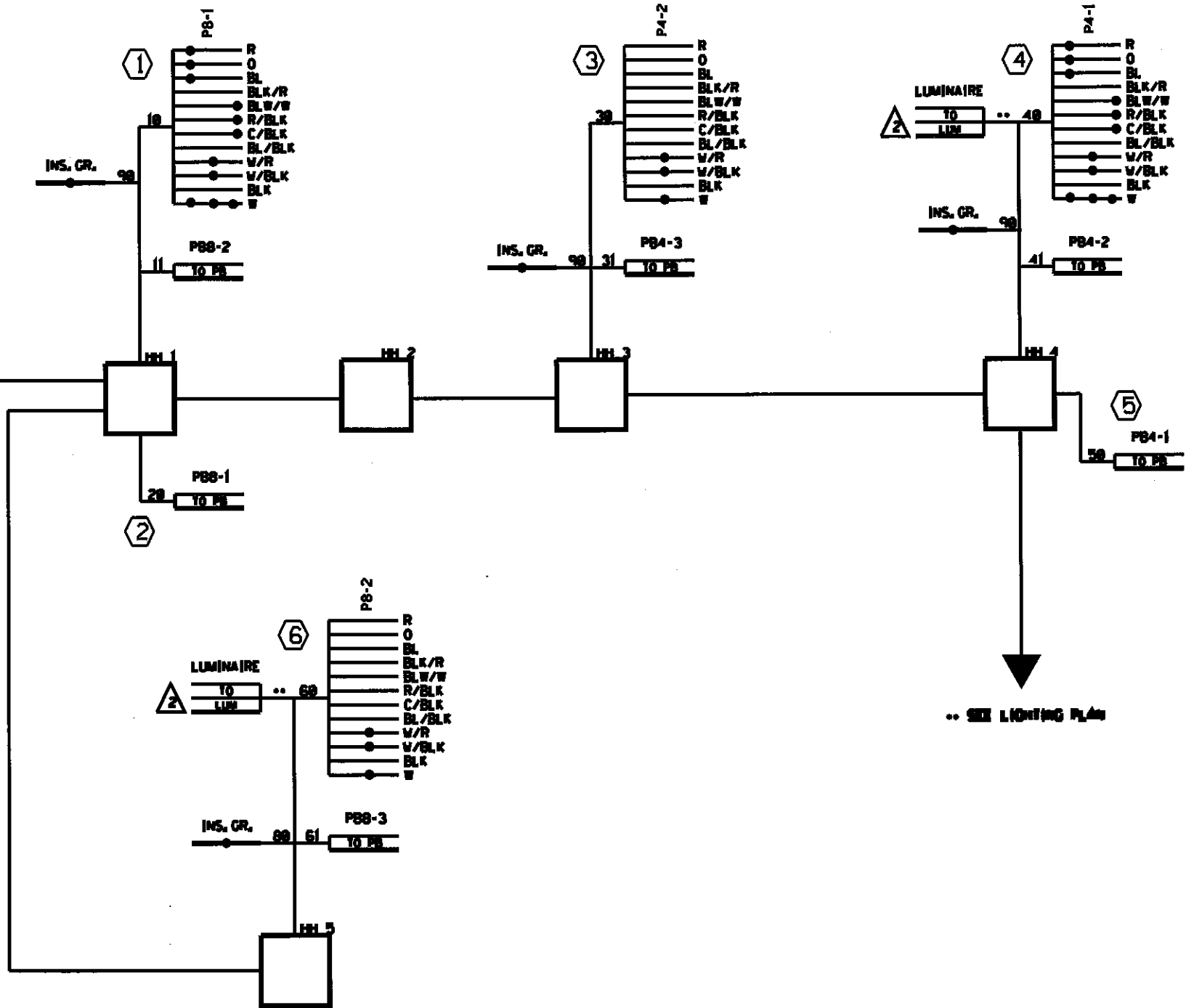


WHITE BEAR AVENUE  
STREET IMPROVEMENTS

WHITE BEAR AVE @ MARGARET ST HAWK SYSTEM "D"  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL19  
OF  
145  
SHEETS

HAWK CABINET  
MOUNTED ON  
POLE 1



ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

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

CERTIFIED BY: *Sean Delore*  
LICENSED PROFESSIONAL ENGINEER - SEAN DELORE, PE  
DATE: 02/17/18 LIC. NO.: 40945

**RAMSEY COUNTY MINNESOTA**

**WSB**

701 Kent Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax (763) 541-1700  
wsbang.com

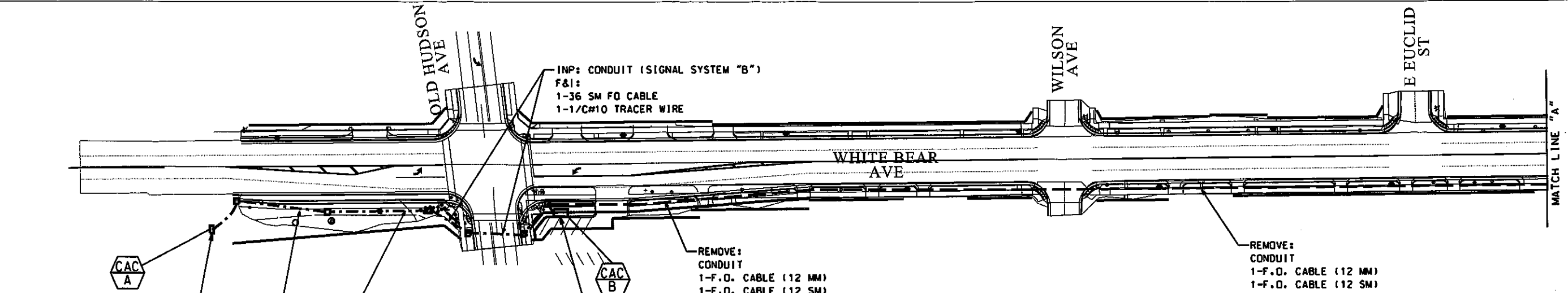
**RAMSEY COUNTY**

**WHITE BEAR AVENUE STREET IMPROVEMENTS**

WHITE BEAR AVE @ MARGARET ST-HAWK SYSTEM-SYSTEM "D"  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL20  
OF  
145  
SHEETS

Date Printed: 1/13/2015  
WSB Filename: K:\2018\02\02\asb\plan\asb\185-020-01-bor.dgn



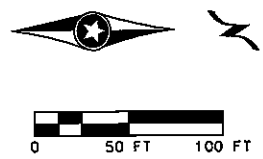
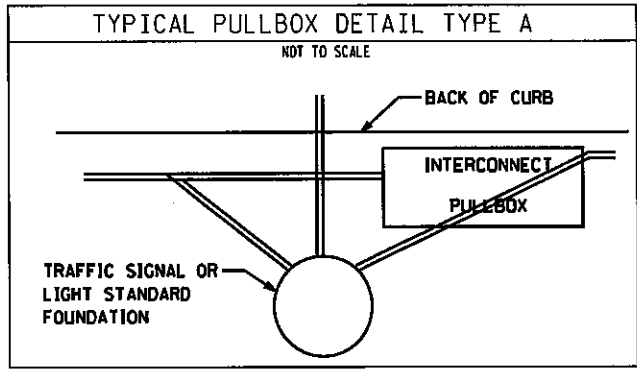
CAC-A  
INSTALL A GROUNDING BUSHING  
AT BOTH ENDS  
2" NMC (HDPE)  
1-1/C#10

INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

INP: CONDUIT (SIGNAL SYSTEM "B")  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

REMOVE:  
CONDUIT  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
2" NMC (HDPE)  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

CAC-A TO CAC-B  
INSTALL A GROUNDING BUSHING  
AT BOTH ENDS  
2" NMC (HDPE)  
1-1/C#10



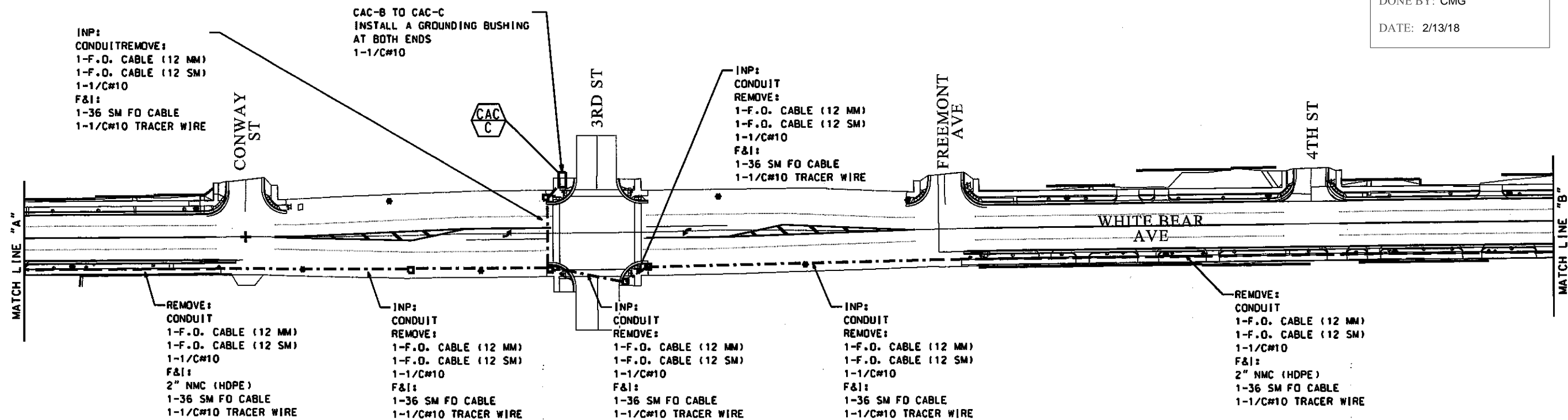
NOTES:

1. THE NMC (HDPE) SHALL BE INSTALLED (42" DEPTH) AS ONE CONTINUOUS RUN WITHOUT SPLICES FROM CABINET TO CABINET.
2. THE 36 (36 SM) FIBER OPTIC CABLE AND THE 1/C#14 SHALL BE INSTALLED AS ONE CONTINUOUS RUN WITHOUT SPLICES FROM CAC-A TO CAC-B, CAC-B TO CAC-C, CAC-C TO CAC-E.
3. THE 1/C#10 SHALL BE USED AS A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
4. THE CONTRACTOR SHALL PLACE COMMON BACK FILL AND RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO IT'S ORIGINAL CONDITION OR BETTER. THIS WORK SHALL BE INCIDENTAL AND AS DIRECTED BY THE ENGINEER.
5. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.

- THE CONTRACTOR SHALL PERFORM THE FOLLOWING WORK:
1. CONTRACTOR SHALL REMOVE 1-F.O. CABLE (12 MM), 1-F.O. CABLE (12 SM), AND 1-1/C#10.
  2. BREAK INTO VARIOUS EXISTING CONDUIT INSTALL BELL ENDS OR BUSHINGS AS DIRECTED.
  3. REDIRECT AND EXTEND ALL CONDUIT SIZES AND TYPES INTO PULLBOX.
  4. CONTRACTOR SHALL FURNISH AND INSTALL 1-36 SM F.O. CABLE, AND 1-1/C#10 TRACER WIRE.

ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

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

CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SCAM DEL. (P.E.)  
DATE: 02/17/16 LIC. NO.: 40945



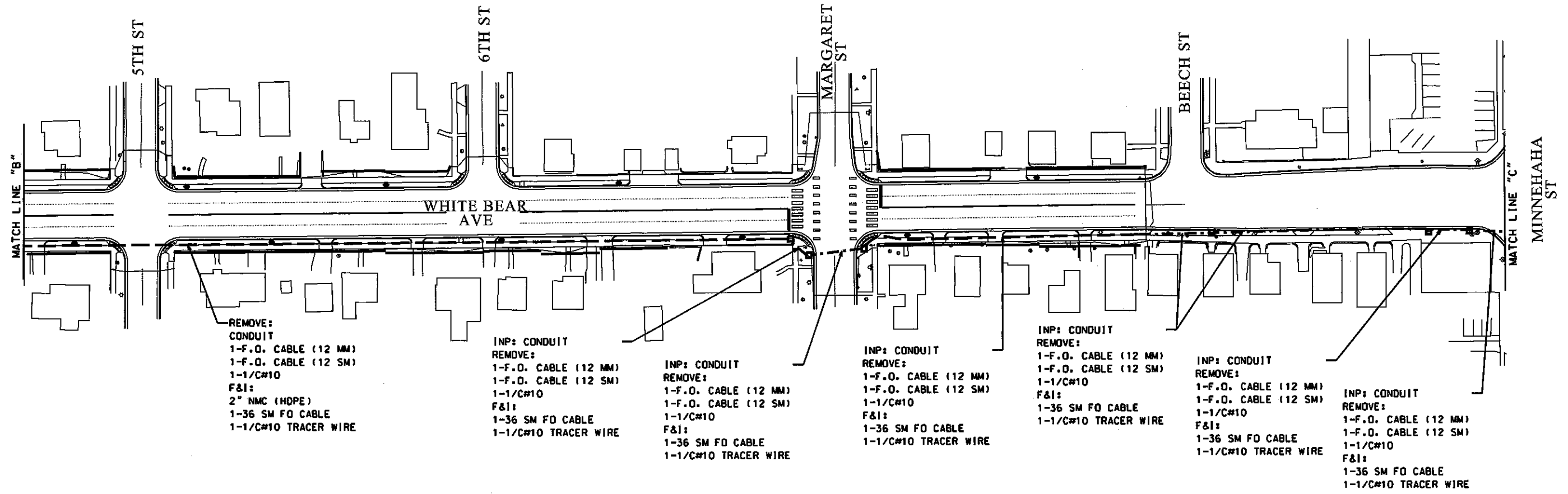
701 Xena Avenue South, Suite 303  
Minneapolis, MN 55416  
Tel: (763) 541-4880 - Fax: (763) 541-1700  
wsbeng.com



WHITE BEAR AVENUE  
STREET IMPROVEMENTS

INTERCONNECT LAYOUT  
TRAFFIC CONTROL SIGNAL SYSTEM

Date Plotted: 1/13/2015  
WSB Filename: K:\2018-0000\del\mcd0189-000-sl-bor.dgn



REMOVE:  
CONDUIT  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
2" NMC (HDPE)  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

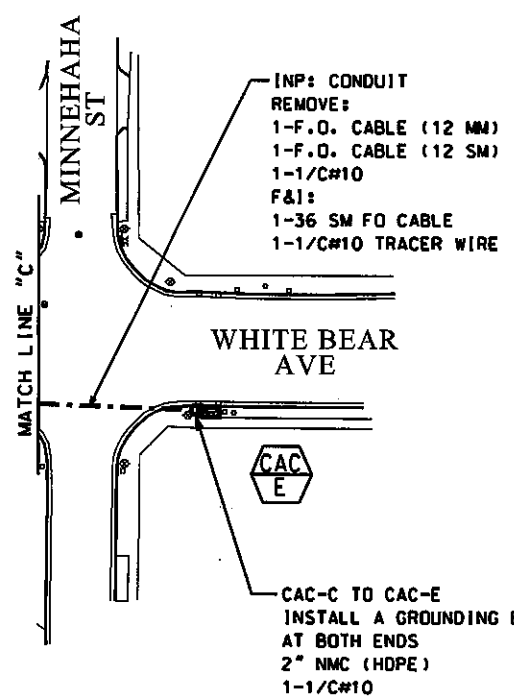
INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

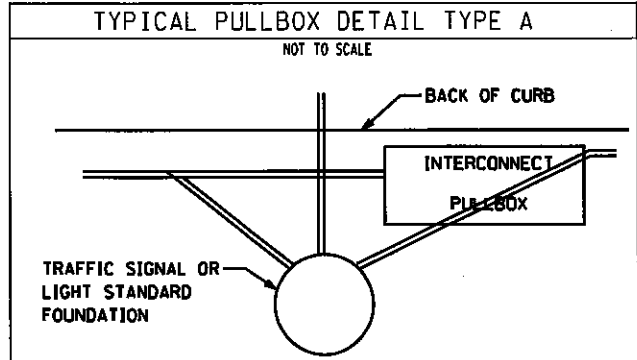
INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE



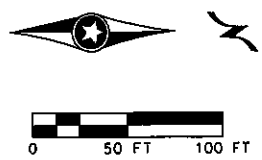
INP: CONDUIT  
REMOVE:  
1-F.O. CABLE (12 MM)  
1-F.O. CABLE (12 SM)  
1-1/C#10  
F&I:  
1-36 SM FO CABLE  
1-1/C#10 TRACER WIRE

CAC-C TO CAC-E  
INSTALL A GROUNDING BUSHING  
AT BOTH ENDS  
2" NMC (HDPE)  
1-1/C#10



- THE CONTRACTOR SHALL PERFORM THE FOLLOWING WORK:
1. CONTRACTOR SHALL REMOVE 1-F.O. CABLE (12 MM), 1-F.O. CABLE (12 SM), AND 1-1/C#10.
  2. BREAK INTO VARIOUS EXISTING CONDUIT INSTALL BELL ENDS OR BUSHINGS AS DIRECTED.
  3. REDIRECT AND EXTEND ALL CONDUIT SIZES AND TYPES INTO PULLBOX.
  4. CONTRACTOR SHALL FURNISH AND INSTALL 1-36 SM F.O. CABLE, AND 1-1/C#10 TRACER WIRE.

- NOTES:
1. THE NMC (HDPE) SHALL BE INSTALLED (42" DEPTH) AS ONE CONTINUOUS RUN WITHOUT SPLICES FROM CABINET TO CABINET.
  2. THE 36 (36 SM) FIBER OPTIC CABLE AND THE 1/C#14 SHALL BE INSTALLED AS ONE CONTINUOUS RUN WITHOUT SPLICES FROM CAC-A TO CAC-B, CAC-B TO CAC-C, CAC-C TO CAC-E.
  3. THE 1/C#10 SHALL BE USED AS A TRACER AND LOCATOR WIRE FOR THE FIBER OPTIC CABLE.
  4. THE CONTRACTOR SHALL PLACE COMMON BACK FILL AND RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO IT'S ORIGINAL CONDITION OR BETTER. THIS WORK SHALL BE INCIDENTAL AND AS DIRECTED BY THE ENGINEER.
  5. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.



**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

Date Plotted: 1/17/2018  
WSB File Name: K:\2018\000\000\plan\03185\_000-444r.dgn

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

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

CERTIFIED BY: *[Signature]*  
LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE  
DATE: 02/17/18 LIC. NO.: 40945

701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax: (763) 541-1700  
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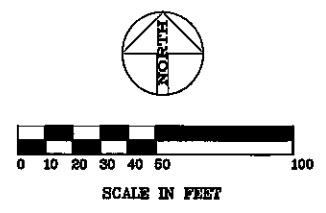


WHITE BEAR AVENUE  
STREET IMPROVEMENTS

INTERCONNECT LAYOUT  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL22  
OF  
145  
SHEETS

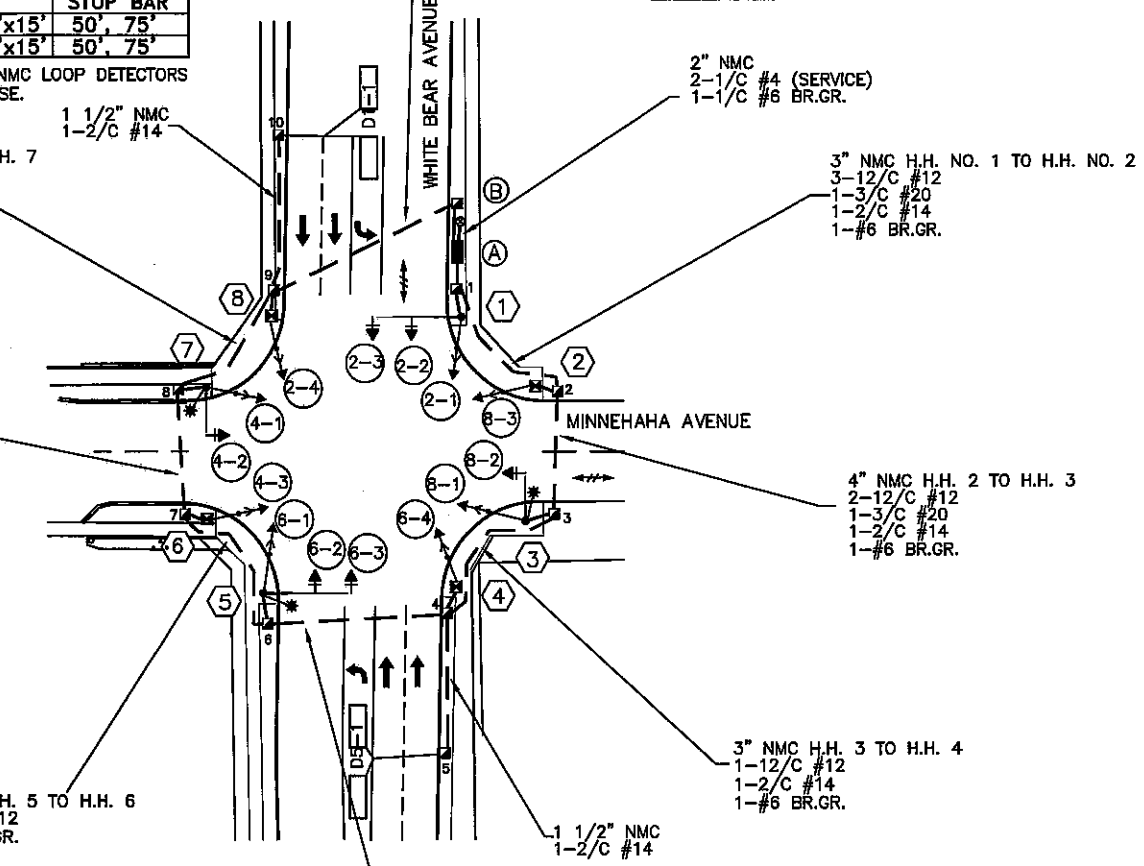
FACE	PHASE	FLASH	INDICATION SIZE (")					
			R	Y	G	Y	G	YEL
2-1	2	R	12	12	12			
2-2	2	R	12	12	12			
2-3	2	R	12	12	12	12	12	
2-4	2	R	12	12	12	12	12	
6-1	6	R	12	12	12			
6-2	6	R	12	12	12			
6-3	6	R	12	12	12	12	12	
6-4	6	R	12	12	12	12	12	
4-1	4	R	12	12	12			
4-2	4	R	12	12	12			
4-3	4	R	12	12	12			
8-1	8	R	12	12	12			
8-2	8	R	12	12	12			
8-3	8	R	12	12	12			



DESIGNATION	PHASE	SIZE	DISTANCE TO STOP BAR
D1-1	1	2-6"x15"	50', 75'
D5-1	5	2-6"x15"	50', 75'

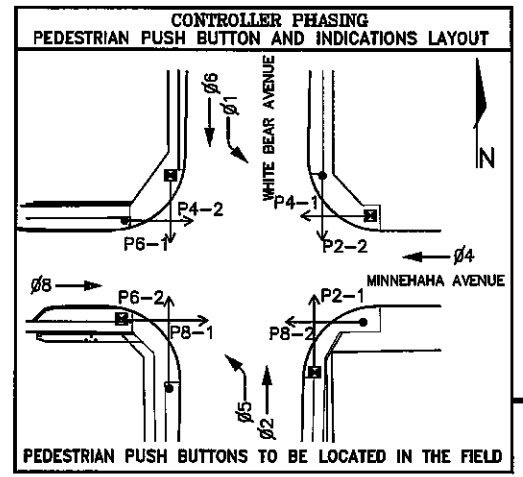
ALL LOOP DETECTORS SHALL BE NMC LOOP DETECTORS INSTALLED IN THE BITUMINOUS BASE.

H.H. NO.	H.H. SIZE
1	17"X30"X24"
2	17"X30"X24"
3	17"X30"X24"
4	17"X30"X24"
5	13"X24"X24"
6	13"X24"X24"
7	13"X24"X24"
8	13"X24"X24"
9	13"X24"X24"
10	13"X24"X24"

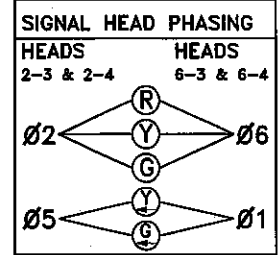


- ① TYPE PA90-A-30-X30-6  
TYPE PA90 POLE FOUNDATION  
2-ONE WAY SIGNALS (OVERHEAD)  
ONE WAY SIGNAL POLE MOUNTED AT 225° (SEE NOTE 9)  
ONE WAY PEDESTRIAN INDICATION AND COUNT DOWN  
TIMER POLE MOUNTED AT 225° (SEE NOTE 9)  
TWO WAY E.V.P. DETECTOR AND LIGHTS  
3" NMC-EXTEND TO H.H. NO. 1  
3-12/C #12  
1-3/C #20  
2-1/C #4 (LIGHTING)  
1-#6 BR.GR.
- ② SIGNAL PEDESTAL POLE  
PEDESTAL POLE FOUNDATION  
ONE WAY SIGNAL (TYPE 5B)  
PEDESTRIAN COUNT DOWN TIMER  
3" NMC-EXTEND TO H.H. NO. 2  
1-12/C #12  
1-#6 BR.GR.
- ③ TYPE PA85-A-15-X30-6  
TYPE PA85 POLE FOUNDATION  
ONE WAY SIGNAL (OVERHEAD)  
ONE WAY SIGNAL POLE MOUNTED AT 225° (SEE NOTE 9)  
ONE WAY PEDESTRIAN INDICATION AND COUNT DOWN  
TIMER POLE MOUNTED AT 225° (SEE NOTE 9)  
TWO WAY E.V.P. DETECTOR AND LIGHTS  
150 WATT LUMINAIRE  
3" NMC-EXTEND TO H.H. NO. 3  
3-12/C #12  
1-3/C #20  
2-1/C #4 (LIGHTING)  
1-#6 BR.GR.
- ④ SIGNAL PEDESTAL POLE  
PEDESTAL POLE FOUNDATION  
ONE WAY SIGNAL (TYPE 5B)  
PEDESTRIAN COUNT DOWN TIMER  
3" NMC-EXTEND TO H.H. NO. 2  
1-12/C #12  
1-#6 BR.GR.
- ⑤ TYPE PA90-A-30-X30-6  
TYPE PA90 POLE FOUNDATION  
2-ONE WAY SIGNALS (OVERHEAD)  
ONE WAY SIGNAL POLE MOUNTED AT 225° (SEE NOTE 9)  
ONE WAY PEDESTRIAN INDICATION AND COUNT DOWN  
TIMER POLE MOUNTED AT 225° (SEE NOTE 9)  
150 WATT HPS LUMINAIRE  
3" NMC-EXTEND TO H.H. NO. 5  
2-12/C #12  
2-1/C #4 (LIGHTING)  
1-#6 BR.GR.
- ⑥ SIGNAL PEDESTAL POLE  
PEDESTAL POLE FOUNDATION  
ONE WAY SIGNAL (TYPE 5B)  
PEDESTRIAN COUNT DOWN TIMER  
3" NMC-EXTEND TO H.H. NO. 6  
1-12/C #12  
1-#6 BR.GR.
- ⑦ TYPE PA85-A-15-X30-6  
TYPE PA85 POLE FOUNDATION  
ONE WAY SIGNAL (OVERHEAD)  
ONE WAY SIGNAL POLE MOUNTED AT 225° (SEE NOTE 9)  
ONE WAY PEDESTRIAN INDICATION AND COUNT DOWN  
TIMER POLE MOUNTED AT 225° (SEE NOTE 9)  
150 WATT LUMINAIRE  
3" NMC-EXTEND TO H.H. NO. 7  
2-12/C #12  
2-1/C #4 (LIGHTING)  
1-#6 BR.GR.
- ⑧ SIGNAL PEDESTAL POLE  
PEDESTAL POLE FOUNDATION  
ONE WAY SIGNAL (TYPE 5B)  
PEDESTRIAN COUNT DOWN TIMER  
3" NMC-EXTEND TO H.H. NO. 8  
2-12/C #12  
1-#6 BR.GR.

- NOTES:
- CONTROLLER CABINET ASSEMBLY (INCLUDES- CONTROLLER, WIRED CABINET & CONTROL EQUIPMENT.)-FURNISHED BY THE CITY INSTALLED BY THE CONTRACTOR.
  - MAST ARM ASSEMBLY (INCLUDES- TRUSS ARM, MAST ARM POLE, TRANSFORMER BASE, ANCHOR BOLTS & LUMINAIRE EXTENSION.)
  - EACH OVERHEAD SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD (6 TOTAL)
  - PEDESTRIAN INDICATIONS SHALL BE 12"X12" UNLESS OTHERWISE NOTED.
  - SEE SPECIAL PROVISIONS AND TRAFFIC CONTROL INTERCONNECT PLAN FOR INTERCONNECT REQUIREMENTS.
  - SEE SPECIAL PROVISIONS LIGHTING PLAN FOR LIGHTING REQUIREMENTS.
  - THE E.V.P. DETECTORS AND LIGHTS AT POLES 1 AND 3 WILL BE FURNISHED BY THE CITY AND INSTALLED BY THE CONTRACTOR.
  - ALL SIGNAL INDICATIONS AND INTERNATIONAL PEDESTRIAN SYMBOLS SHALL USE LIGHT EMITTING DIODE (LED) TECHNOLOGY.
  - ALL PEDESTRIAN INDICATIONS SHALL INCLUDE 12"X12" COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
  - ONE WAY SIGNAL HEAD AND PEDESTRIAN INDICATION MOUNTS ON VERTICAL POLE SHAFTS SHALL BE IN ACCORDANCE WITH Mn/DOT STANDARD PLATE NO. 8124E (SEE SPECIAL PROVISIONS).



- Ⓐ TYPE 170/332 CONTROLLER CABINET ASSEMBLY (FURNISHED BY THE CITY)  
PRE-CAST CONTROLLER CABINET FOUNDATION  
4" NMC EXTEND TO H.H. 1  
4-12/C #12  
1-2/C #14  
2-3/C #20  
1-#6 BR.GR.  
4" NMC EXTEND TO H.H. 8  
4-12/C #12  
1-#6 BR.GR.  
3" NMC STUB
- Ⓑ SOURCE OF POWER XCEL ENERGY WOOD POLE SIGNAL SERVICE EQUIPMENT (SEE SPECIAL PROVISIONS)



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 \_\_\_\_\_ REG. NO. \_\_\_\_\_

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

**SIGNAL SYSTEM  
INTERSECTION LAYOUT  
WHITE BEAR AVENUE  
AT  
MINNEHAHA AVENUE**

DATE 5/13/05  
PREPARED BY JWM  
DWG. NO. S-1508

SIGNAL DR. 2 DWG. NO. S-1508

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
PLAN BY: MAS  
CHECKED BY: SD  
APPROVED BY: SD

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CERTIFIED BY: *Sean Delaney*  
LICENSED PROFESSIONAL ENGINEER - SEAN DELANEY, PE  
DATE: 02/17/18 LIC. NO.: 40945

**WSB**  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
Tel: (763) 541-4800 - Fax: (763) 541-1700  
wsbang.com

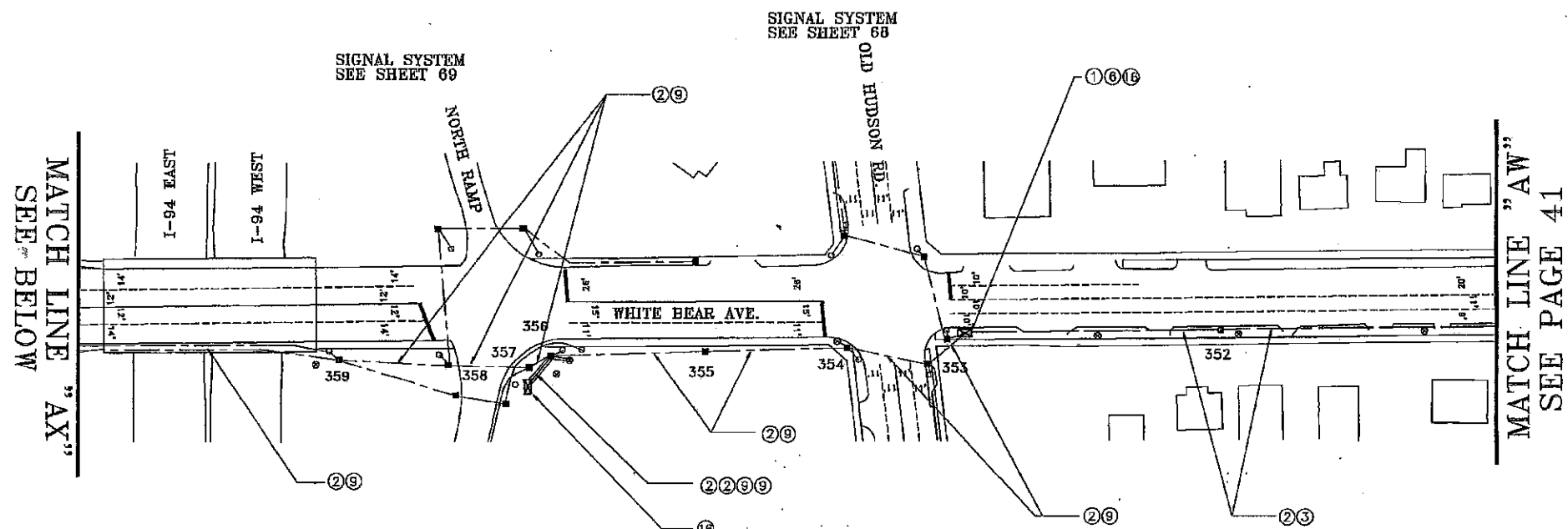


**WHITE BEAR AVENUE  
STREET IMPROVEMENTS**

**WHITE BEAR AVE & INNEHAHA AVE "FOR INFORMATION ONLY"  
TRAFFIC CONTROL SIGNAL SYSTEM**

**FOR INFORMATION ONLY**

FOR INFORMATION ONLY

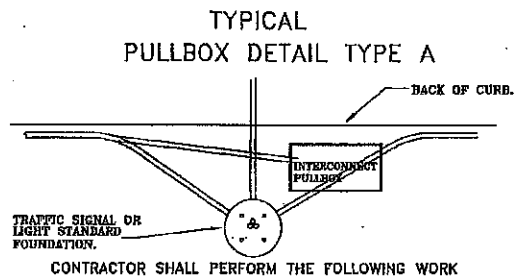


**LEGEND**

SIGNAL INSTALLATION NO.	.....
SIGNAL FACE NO.	.....
CONTROLLER CABINET ASSEMBLY & FOUNDATION	.....
PULLBOX - SIGNAL	.....
PULLBOX - LIGHTING	.....
PULLBOX - IN PLACE	.....
CONDUIT (TYPE AND SIZE AS NOTED)	.....
CONDUIT - IN PLACE	.....
SIGNAL FACE	.....
SIGNAL FACE - IN PLACE	.....
PEDESTRIAN INDICATION	.....
PEDESTRIAN INDICATION - IN PLACE	.....
PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED	.....
SIGNAL PEDESTAL POLE - IN PLACE	.....
SIGNAL PEDESTAL POLE AND FOUNDATION	.....
FOUNDATION FOR LIGHTING OR SIGNAL POLE	.....
FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE	.....
MAST ARM ASSEMBLY & FOUNDATION	.....
MAST ARM ASSEMBLY & FOUNDATION - IN PLACE	.....
MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE	.....
MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE - IN PLACE	.....
WOOD POLE	.....
WOOD POLE - IN PLACE	.....
POWER SOURCE	.....
RFV DETECTOR AND LIGHTS	.....
LOOP DETECTOR	.....
LOOP DETECTOR - IN PLACE	.....
TEMPORARY SIGNAL	.....

**PULLBOX CHART**

NO.	SIZE (WxLxH)	SYSTEM INSTALLED UNDER
352	18"x24"x24" 17"x30"x24"	OTHER
353	X	INTERCONNECT
354		CONCRETE IN PLACE
355		CONCRETE IN PLACE
356		CONCRETE IN PLACE
357		CONCRETE IN PLACE
358		CONCRETE IN PLACE
359		CONCRETE IN PLACE
360		CONCRETE IN PLACE
361		CONCRETE IN PLACE
362		CONCRETE IN PLACE
363		CONCRETE IN PLACE
364		CONCRETE IN PLACE
365		CONCRETE IN PLACE

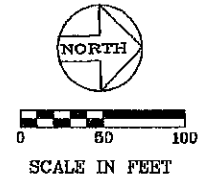
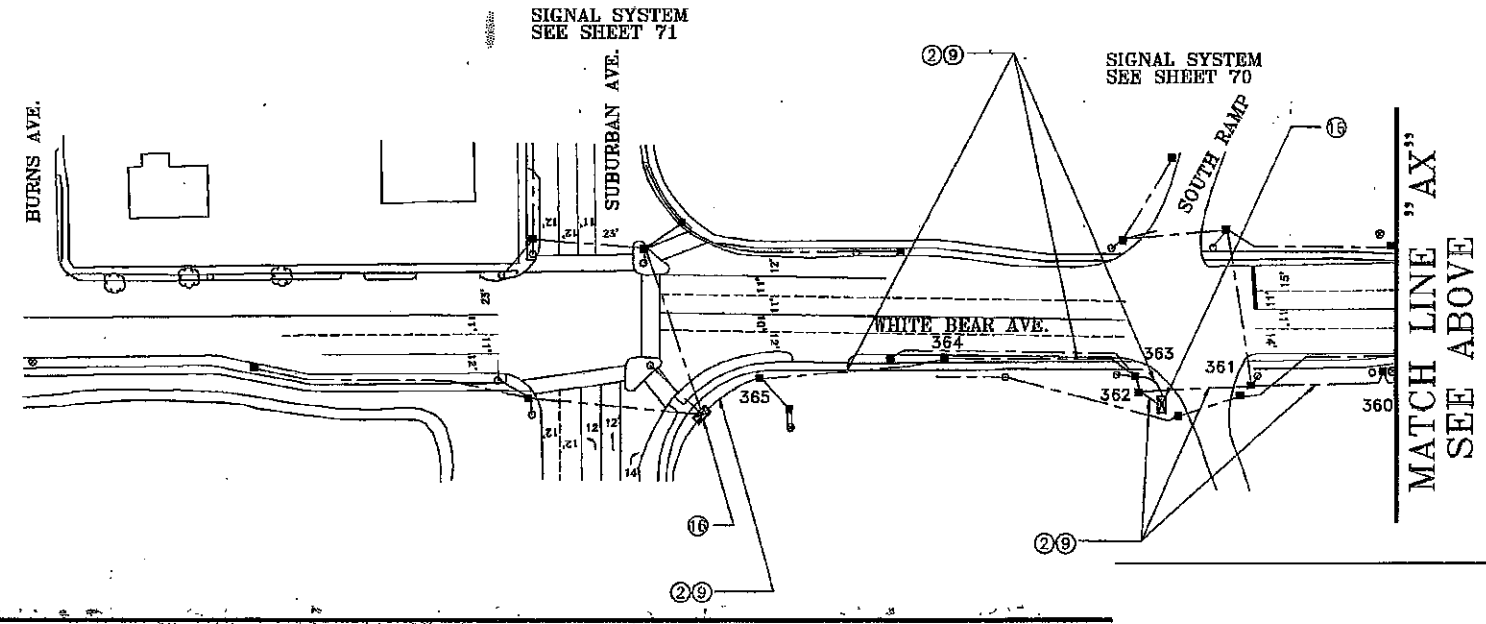


- CONTRACTOR SHALL PERFORM THE FOLLOWING WORK
- DISCONNECT, PULLBACK AND PROTECT ALL EXISTING CONDUCTORS
  - INSTALL PULLBOX OF VARIOUS SIZES OVER EXISTING CONDUIT
  - BREAK INTO VARIOUS EXISTING CONDUIT INSTALL BELL ENDS OR BUSHINGS AS DIRECTED
  - REDIRECT AND EXTEND ALL CONDUIT SIZES AND TYPES INTO PULLBOX
  - REINSTALL EXISTING CONDUCTORS AND FURNISH AND INSTALL ADDITIONAL CONDUCTORS AS REQUIRED

- CORE DRILL CONTROLLER FOUNDATION
- F & I: 1 - F.O. CABLE (12 MM), 1 - F.O. CABLE (12 SM), 1 - 1/8" #10 XHHW (LOCATING WIRE)
- F & I: 2" N.M.C.
- F & I: 2 1/2" N.M.C.
- F & I: 3" N.M.C.
- F & I: 470I PROM MODULE IN EXISTING 170 CONTROLLER
- INSTALL PULLBOX AS PER DETAIL "A"
- SPLICE TO EXISTING CONDUIT
- REMOVE EXISTING INTERCONNECT
- NOTE ② IN PLACE
- 25PR #19 IN PLACE
- 6PR #19 IN PLACE
- F & I: 1 - 25PR #19
- REMOVAL & REPLACEMENT OF SIDEWALK PANEL AS REQUIRED IN ORDER TO INSTALL CONDUIT OR PULLBOX AS DETERMINED BY THE ENGINEER.
- REPLACEMENT OF PULLBOX COVER REQUIRED. MATCH SIZE & TYPE
- F & I F.O. CONTROLLER INTERFACE COMPONENTS SEE SPECIAL PROVISIONS.
- REMOVE EXISTING PULLBOX. F & I NEW PULLBOX. ADJUST CONDUIT AND CABLE AS DIRECTED BY THE ENGINEER.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG  
DATE: 2/13/18

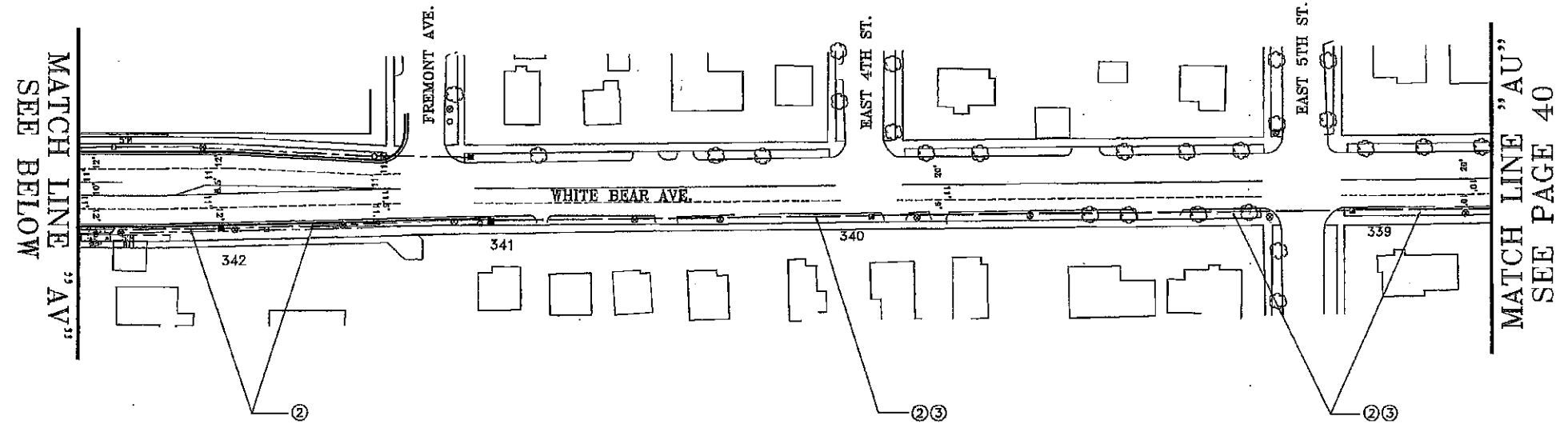


90-T-1277 WHITE BEAR AVE. 42  
SIGNAL DB. 6 DWG. NO. S-1425 71

<p>NO. DATE BY CHK REVISIONS</p>	<p>DESIGN BY: MAS</p> <p>PLAN BY: MAS</p> <p>CHECKED BY: SD</p> <p>APPROVED BY: SD</p>	<p>I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p><i>Scott Johnson</i> SCOTT JOHNSON LICENSED PROFESSIONAL ENGINEER - SAN BERNARDINE, PE DATE: 02/17/18 LIC. NO.: 40945</p>	<p>701 Xerox Avenue South, Suite 300 Minneapolis, MN 55418 Tel: (763) 541-4800 - Fax: (763) 541-1700 wsberg.com</p>	<p>WHITE BEAR AVENUE STREET IMPROVEMENTS</p>	<p>INTERCONNECT "FOR INFORMATION ONLY" TRAFFIC CONTROL SIGNAL SYSTEM</p>	<p>SHEET SL24 OF 145 SHEETS</p>
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Date Plotted: 1/15/2015 WSB Filename: c:\03189-000\dwg\sl24\90-t-1277-s-1425.dwg

# FOR INFORMATION ONLY

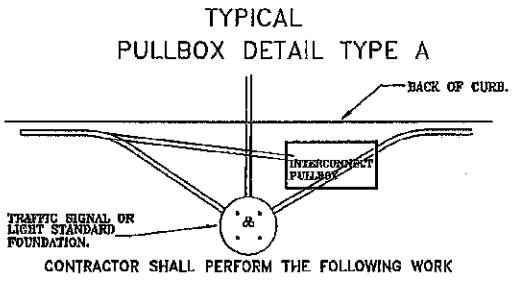


### LEGEND

.....	SIGNAL INSTALLATION NO.
.....	SIGNAL FACE NO.
.....	CONTROLLER CABINET ASSEMBLY & FOUNDATION
.....	CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE
.....	PULLBOX - SIGNAL
.....	PULLBOX - LIGHTING
.....	PULLBOX - IN PLACE
.....	CONDUIT (TYPE AND SIZE AS NOTED)
.....	CONDUIT - IN PLACE
.....	SIGNAL FACE
.....	SIGNAL FACE - IN PLACE
.....	PEDESTRIAN INDICATION
.....	PEDESTRIAN INDICATION - IN PLACE
.....	PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED
.....	SIGNAL PEDESTAL POLE - IN PLACE
.....	SIGNAL PEDESTAL POLE AND FOUNDATION
.....	FOUNDATION FOR LIGHTING OR SIGNAL POLE
.....	FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE
.....	MAST ARM ASSEMBLY & FOUNDATION
.....	MAST ARM ASSEMBLY & FOUNDATION - IN PLACE
.....	MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE
.....	MAST ARM ASSEMBLY, FOUNDATION, & LUMINAIRE - IN PLACE
.....	WOOD POLE - IN PLACE
.....	WOOD POLE - IN PLACE
.....	POWER SOURCE
.....	EVP DETECTOR AND LIGHTS
.....	LOOP DETECTOR
.....	LOOP DETECTOR - IN PLACE
.....	TEMPORARY SIGNAL

### PULLBOX CHART

NO.	SIZE (WxLxH)			SYSTEM INSTALLED UNDER
	13"x24"x24"	17"x30"x24"	OTHER	
339	X			INTERCONNECT
340	X			INTERCONNECT
341		17"x30"x12"		IN PLACE
342		17"x30"x12"		IN PLACE
343		17"x30"x12"		IN PLACE
344			X	IN PLACE
345			X	IN PLACE
346			X	IN PLACE
347		17"x30"x12"		IN PLACE
348		17"x30"x12"		IN PLACE
349		13"x24"x12"		IN PLACE
350	X			INTERCONNECT
351	X			INTERCONNECT



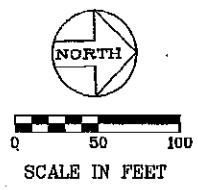
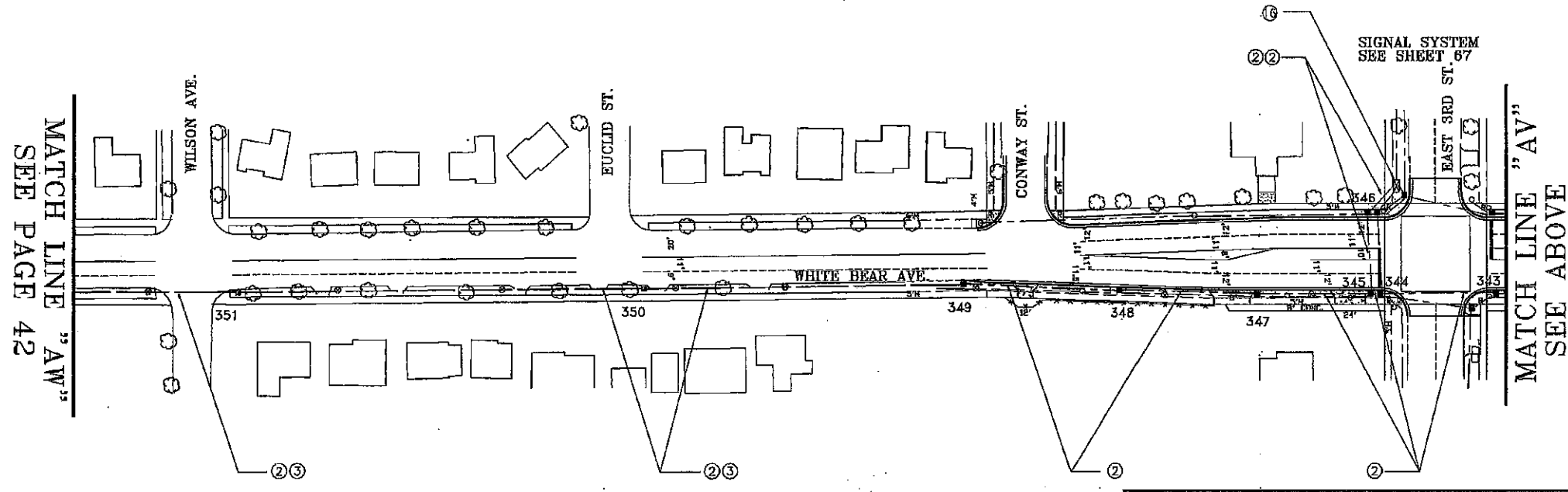
- 1 DISCONNECT, PULLBACK AND PROTECT ALL EXISTING CONDUCTORS
- 2 INSTALL PULLBOX OF VARIOUS SIZES OVER EXISTING CONDUIT
- 3 BREAK INTO VARIOUS EXISTING CONDUIT INSTALL BELL ENDS OR BUSHINGS AS DIRECTED
- 4 REDIRECT AND EXTEND ALL CONDUIT SIZES AND TYPES INTO PULLBOX
- 5 REINSTALL EXISTING CONDUCTORS AND FURNISH AND INSTALL ADDITIONAL CONDUCTORS AS REQUIRED

- 1 CORE DRILL CONTROLLER FOUNDATION
- 2 F & I: 1 - F.O. CABLE (12 MM), 1 - F.O. CABLE (12 SM), 1 - 1/8" #10 XHHW (LOCATING WIRE)
- 3 F & I 2" N.M.C.
- 4 F & I 2 1/2" N.M.C.
- 5 F & I 3" N.M.C.
- 6 F & I 470I PROM MODULE IN EXISTING 170 CONTROLLER
- 7 INSTALL PULLBOX AS PER DETAIL "A"
- 8 SPLICE TO EXISTING CONDUIT
- 9 REMOVE EXISTING INTERCONNECT
- 10 NOTE 2 IN PLACE
- 11 25PR #19 IN PLACE
- 12 6PR #19 IN PLACE
- 13 F & I 1 - 25PR #19
- 14 REMOVAL & REPLACEMENT OF SIDEWALK PANEL AS REQUIRED IN ORDER TO INSTALL CONDUIT OR PULLBOX AS DETERMINED BY THE ENGINEER.
- 15 REPLACEMENT OF PULLBOX COVER REQUIRED. MATCH SIZE & TYPE
- 16 F & I F.O. CONTROLLER INTERFACE COMPONENTS SEE SPECIAL PROVISIONS.
- 17 REMOVE EXISTING PULLBOX. F & I NEW PULLBOX. ADJUST CONDUIT AND CABLE AS DIRECTED BY THE ENGINEER.

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



DB-T-1277 WHITE BEAR AVE. 41  
SIGNAL DR. 6 DWG. NO. S-1424 41

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: MAS  
 PLAN BY: MAS  
 CHECKED BY: SD  
 APPROVED BY: SD

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

CERTIFIED BY: *[Signature]*  
 LICENSED PROFESSIONAL ENGINEER - STATE OF MINN. PE  
 DATE: 02/17/18 LIC. NO.: 40945



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 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax (763) 541-1700  
 wsbeng.com



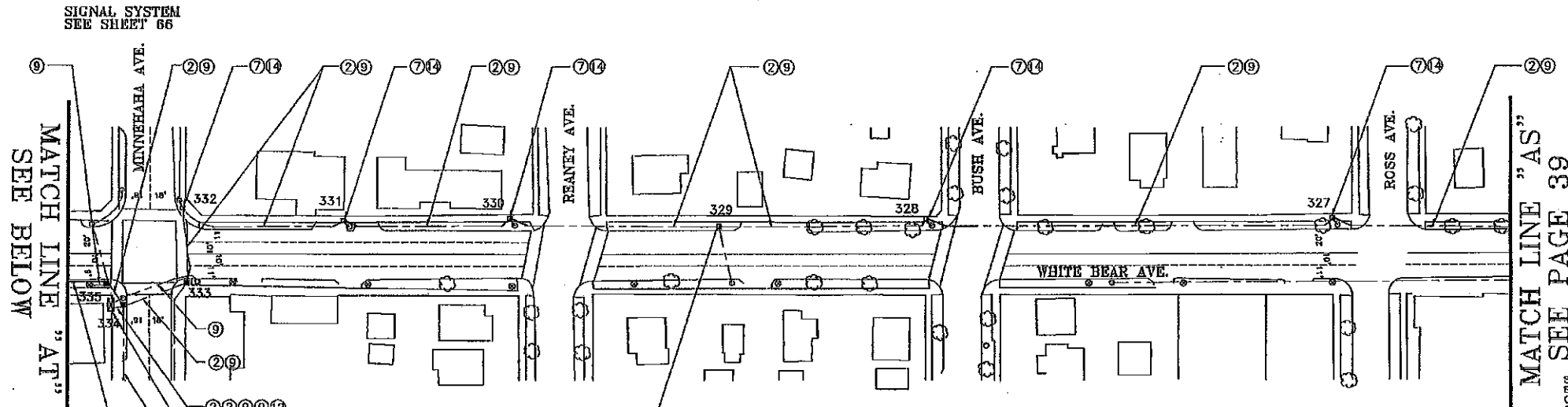
WHITE BEAR AVENUE  
STREET IMPROVEMENTS

INTERCONNECT "FOR INFORMATION ONLY"  
TRAFFIC CONTROL SIGNAL SYSTEM

SHEET  
SL25  
OF  
145  
SHEETS



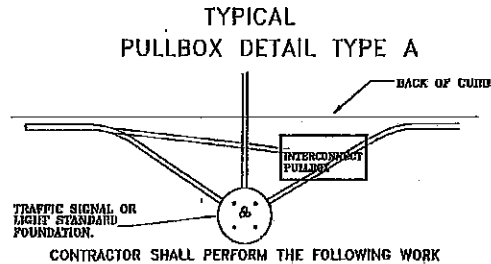
# FOR INFORMATION ONLY



MATCH LINE "AT"  
SEE BELOW

MATCH LINE "AS"  
SEE PAGE 39

NO.	SIZE (WxLxH)			SYSTEM INSTALLED UNDER
	15"x24"x24"	17"x30"x24"	OTHER	
327	X			INTERCONNECT
328	X			INTERCONNECT
329	X			INTERCONNECT
330	X			INTERCONNECT
331	X			INTERCONNECT
332		X		INTERCONNECT
333		X		IN PLACE
334		X		IN PLACE
335	X			IN PLACE
336	X			INTERCONNECT
337	X			INTERCONNECT
338	X			INTERCONNECT

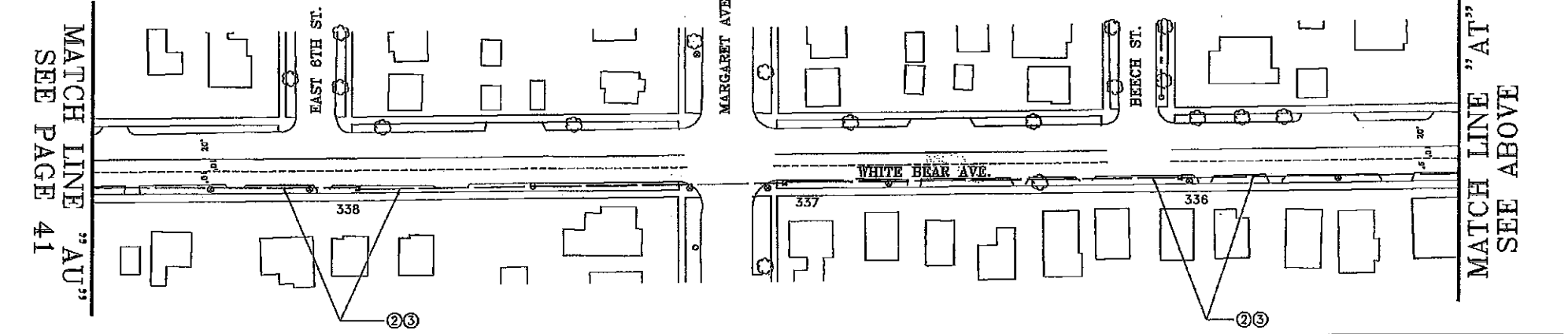


- CONTRACTOR SHALL PERFORM THE FOLLOWING WORK
- 1 DISCONNECT, PULLBACK AND PROTECT ALL EXISTING CONDUCTORS
  - 2 INSTALL PULLBOX OF VARIOUS SIZES OVER EXISTING CONDUIT
  - 3 BREAK INTO VARIOUS EXISTING CONDUIT INSTALL BELL ENDS OR BUSHINGS AS DIRECTED
  - 4 REDIRECT AND EXTEND ALL CONDUIT SIZES AND TYPES INTO PULLBOX
  - 5 REINSTALL EXISTING CONDUCTORS AND FURNISH AND INSTALL ADDITIONAL CONDUCTORS AS REQUIRED

- 1 CORE DRILL CONTROLLER FOUNDATION
- 2 F & I: 1 - F.O. CABLE (12 MM), 1 - F.O. CABLE (12 SM), 1 - 1/C #10 XHHW (LOCATING WIRE)
- 3 F & I 2" N.M.C.
- 4 F & I 2 1/2" N.M.C.
- 5 F & I 3" N.M.C.
- 6 F & I 470I PROM MODULE IN EXISTING 170 CONTROLLER
- 7 INSTALL PULLBOX AS PER DETAIL "A"
- 8 SPLICE TO EXISTING CONDUIT
- 9 REMOVE EXISTING INTERCONNECT
- 10 NOTE 2 IN PLACE
- 11 25PR #19 IN PLACE
- 12 6PR #19 IN PLACE
- 13 F & I 1 - 25PR #19
- 14 REMOVAL & REPLACEMENT OF SIDEWALK PANEL AS REQUIRED IN ORDER TO INSTALL CONDUIT OR PULLBOX AS DETERMINED BY THE ENGINEER.
- 15 REPLACEMENT OF PULLBOX COVER REQUIRED. MATCH SIZE & TYPE
- 16 F & I F.O. CONTROLLER INTERFACE COMPONENTS SEE SPECIAL PROVISIONS.
- 17 REMOVE EXISTING PULLBOX. F & I NEW PULLBOX. ADJUST CONDUIT AND CABLE AS DIRECTED BY THE ENGINEER.

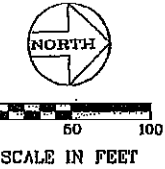
LEGEND

.....	SIGNAL INSTALLATION NO.
.....	SIGNAL FACE NO.
.....	CONTROLLER CABINET ASSEMBLY & FOUNDATION
.....	CONTROLLER CABINET ASSEMBLY & FOUNDATION - IN PLACE
.....	PULLBOX - SIGNAL
.....	PULLBOX - LIGHTING
.....	PULLBOX - IN PLACE
.....	CONDUIT (TYPE AND SIZE AS NOTED)
.....	CONDUIT - IN PLACE
.....	SIGNAL FACE
.....	SIGNAL FACE - IN PLACE
.....	PEDESTRIAN INDICATION
.....	PEDESTRIAN INDICATION - IN PLACE
.....	PEDESTRIAN PUSH BUTTON - NEW OR IN PLACE AS NOTED
.....	SIGNAL PEDESTAL POLE - IN PLACE
.....	SIGNAL PEDESTAL POLE AND FOUNDATION
.....	FOUNDATION FOR LIGHTING OR SIGNAL POLE
.....	FOUNDATION FOR LIGHTING OR SIGNAL POLE - IN PLACE
.....	MAST ARM ASSEMBLY & FOUNDATION
.....	MAST ARM ASSEMBLY & FOUNDATION - IN PLACE
.....	MAST ARM ASSEMBLY, FOUNDATION & LUMINAIRE
.....	MAST ARM ASSEMBLY, FOUNDATION, & LUMINAIRE - IN PLACE
.....	WOOD POLE
.....	WOOD POLE - IN PLACE
.....	POWER SOURCE
.....	FWP DETECTOR AND LIGHTS
.....	LOOP DETECTOR
.....	LOOP DETECTOR - IN PLACE
.....	TEMPORARY SIGNAL



MATCH LINE "AU"  
SEE PAGE 41

MATCH LINE "AT"  
SEE ABOVE



ASBUILT PLAN  
CONFORMING TO  
CONST. RECORDS

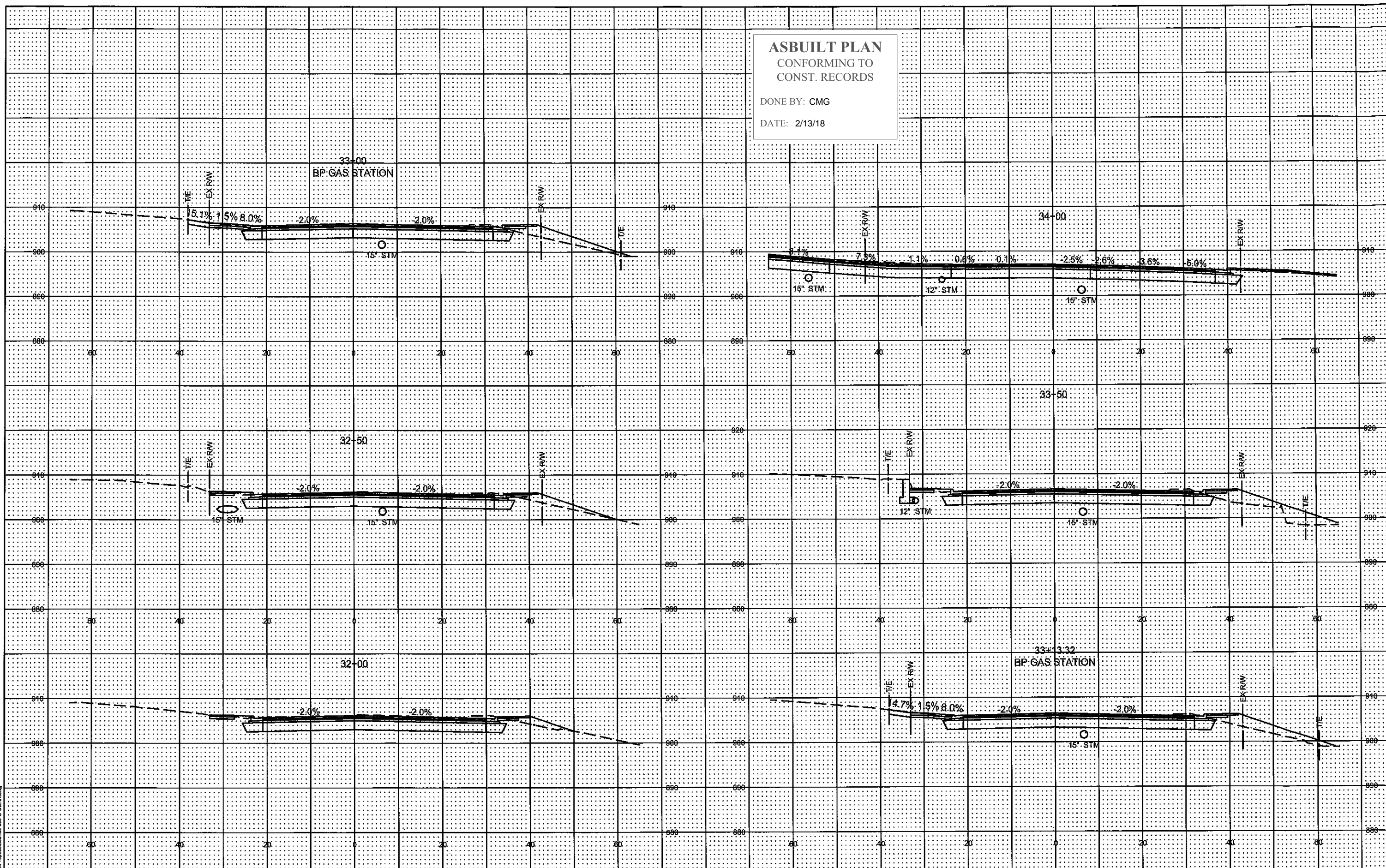
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DATE: 2/13/18

96-T-1277 WHITE BEAR AVE. 40  
SIGNAL DR. & DWG. NO. S-1423

Date Plotted: 1/13/2015  
WSB Filename: K:\2018\9600\asb\plan\mod318-000-1-bdr.dgn

**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18



Date Printed: 1/26/2018  
 WSB Filename: K:\03186-000\Cad\Proposed\03186-000-C-CORR.dwg

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**WHITE BEAR AVE  
 CROSS SECTIONS**

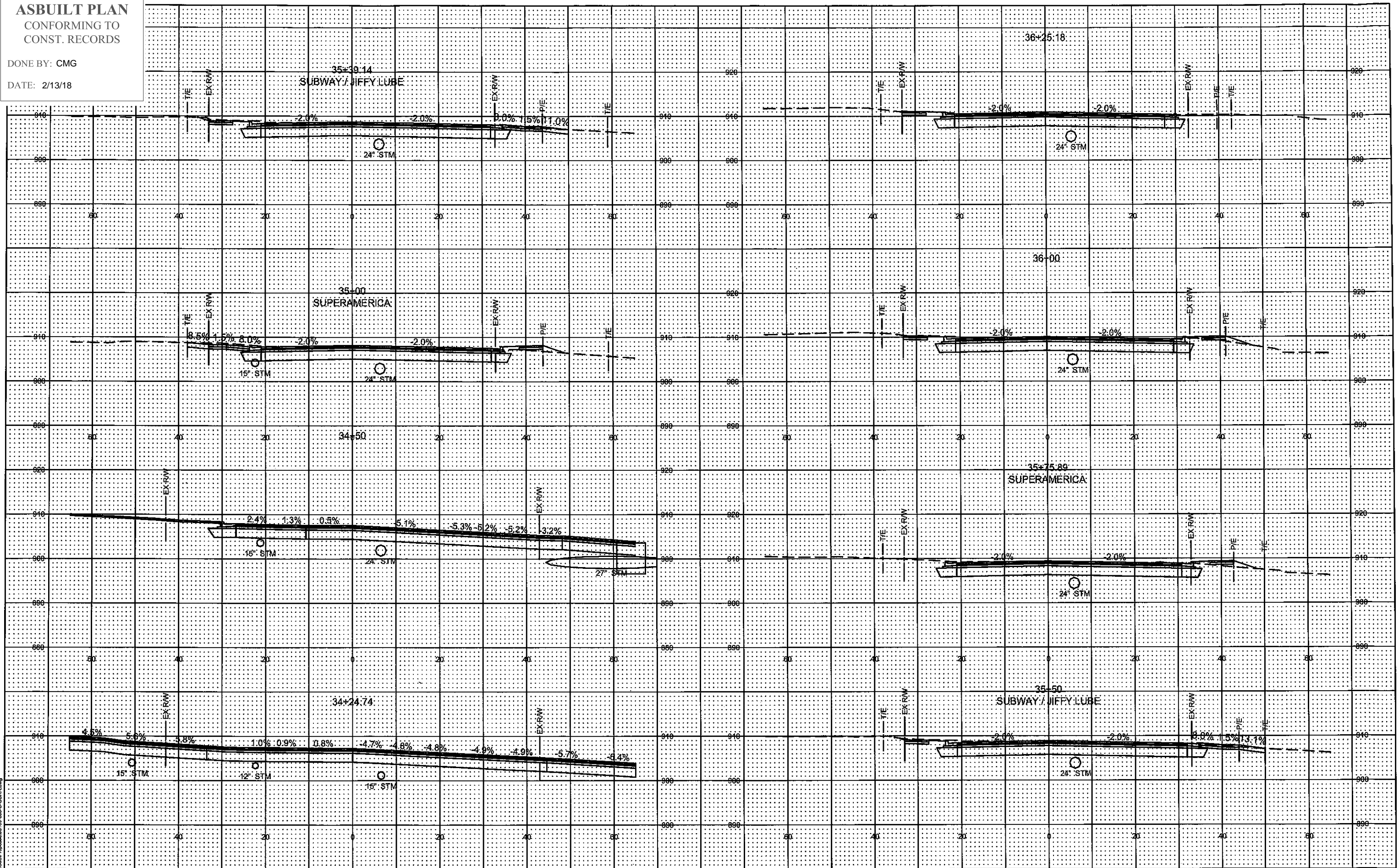
S.P. 062-665-052 / S.P. 164-020-138

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 OF  
 145  
 SHEETS

**ASBUILT PLAN**  
CONFORMING TO  
CONST. RECORDS

DONE BY: CMG

DATE: 2/13/18



NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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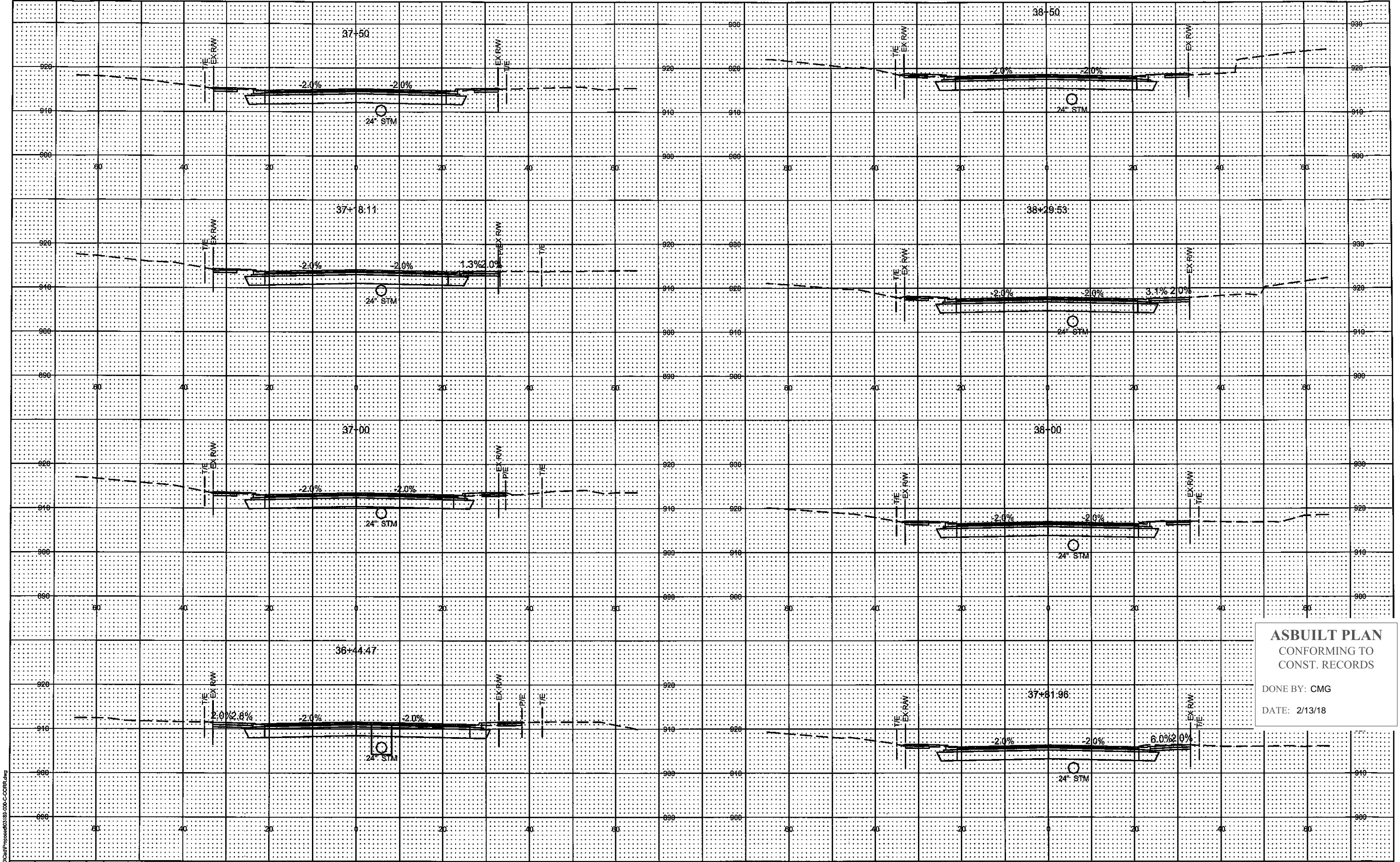
**WHITE BEAR AVENUE**  
STREET IMPROVEMENTS

**RAMSEY COUNTY, MINNESOTA**

**WHITE BEAR AVE**  
CROSS SECTIONS  
S.P. 062-665-052 / S.P. 164-020-138

SHEET  
X2  
OF  
145  
SHEETS

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 User: ramsey\cmg



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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 Minneapolis, MN 55418  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
 wabeng.com

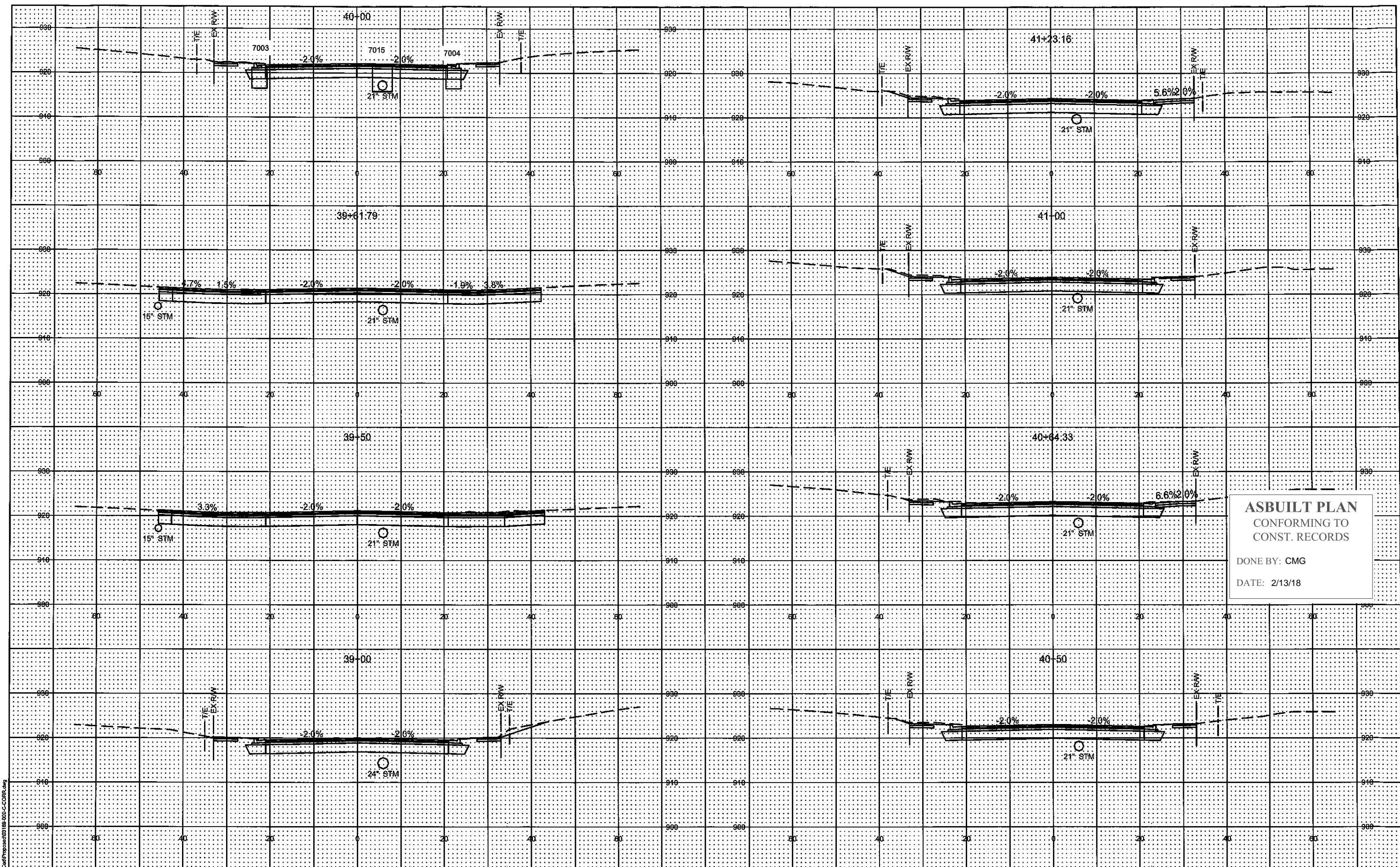


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

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 OF  
**145**  
 SHEETS

Date Printed: 1/26/2018  
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**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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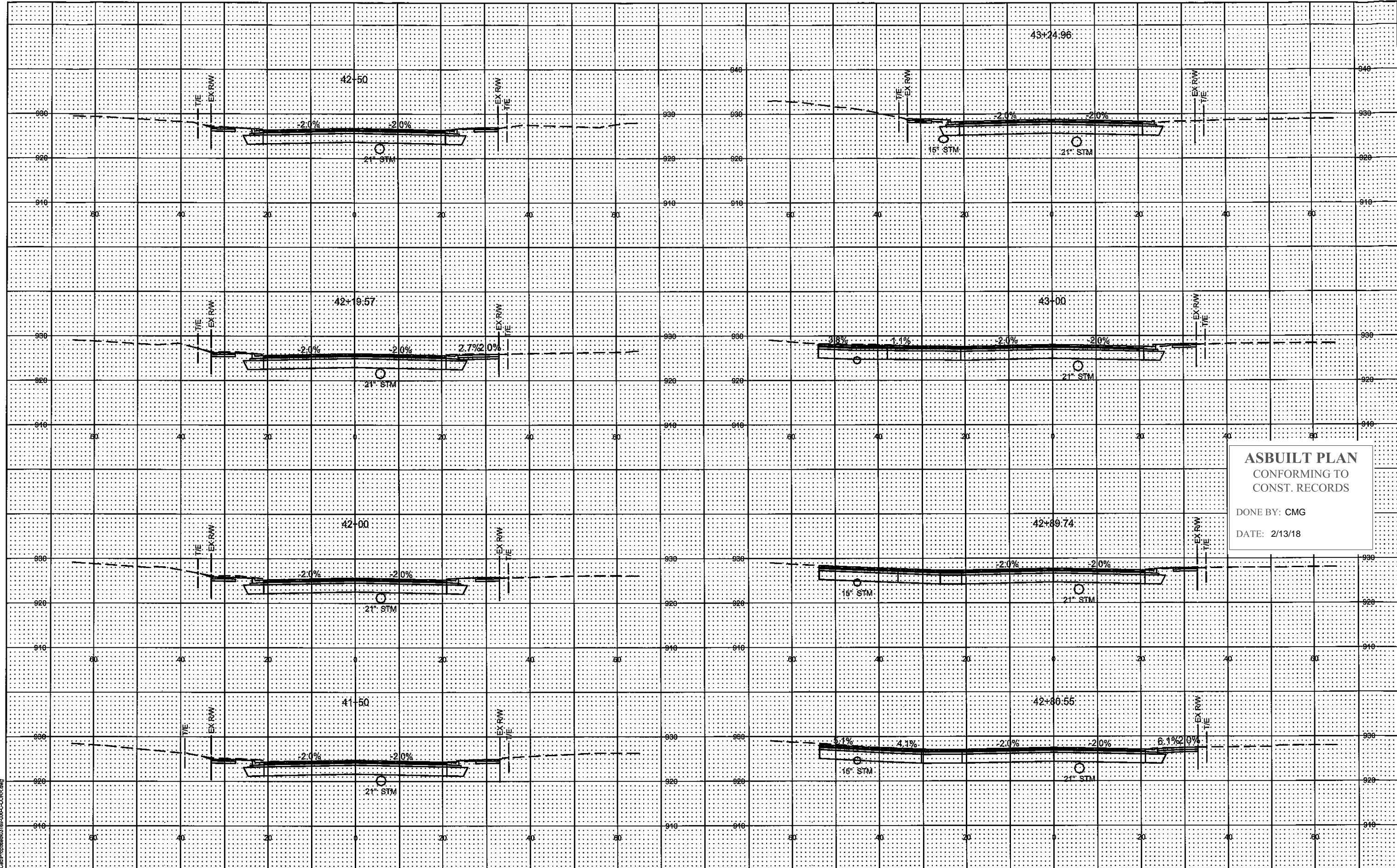


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

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 OF  
**145**  
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Date Printed: 1/26/2018  
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**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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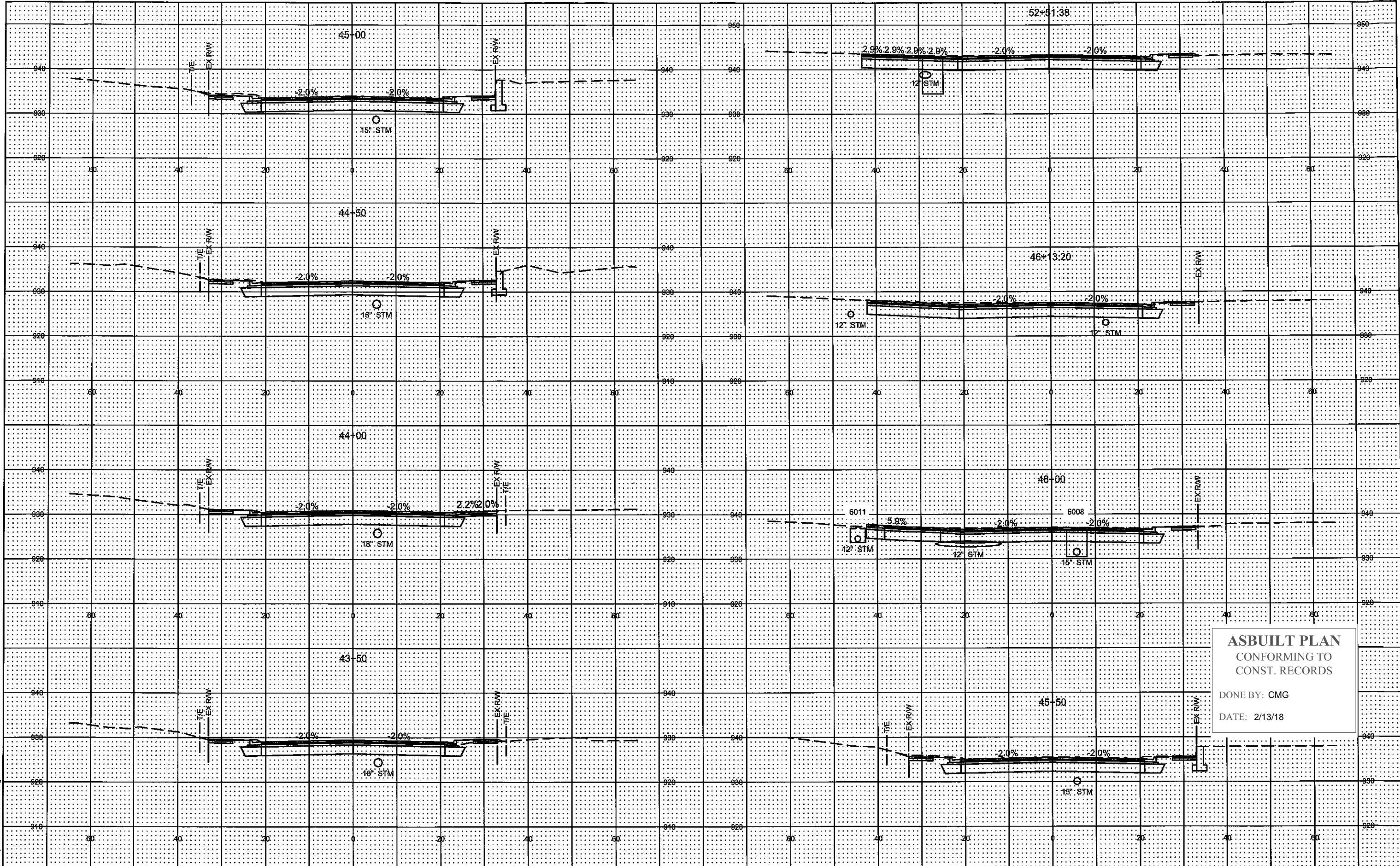


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

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**145**  
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Date Printed: 1/26/2018  
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**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS  
 DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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 Minneapolis, MN 55416  
 Tel: (763) 541-4800 - Fax: (763) 541-1700  
 waberg.com

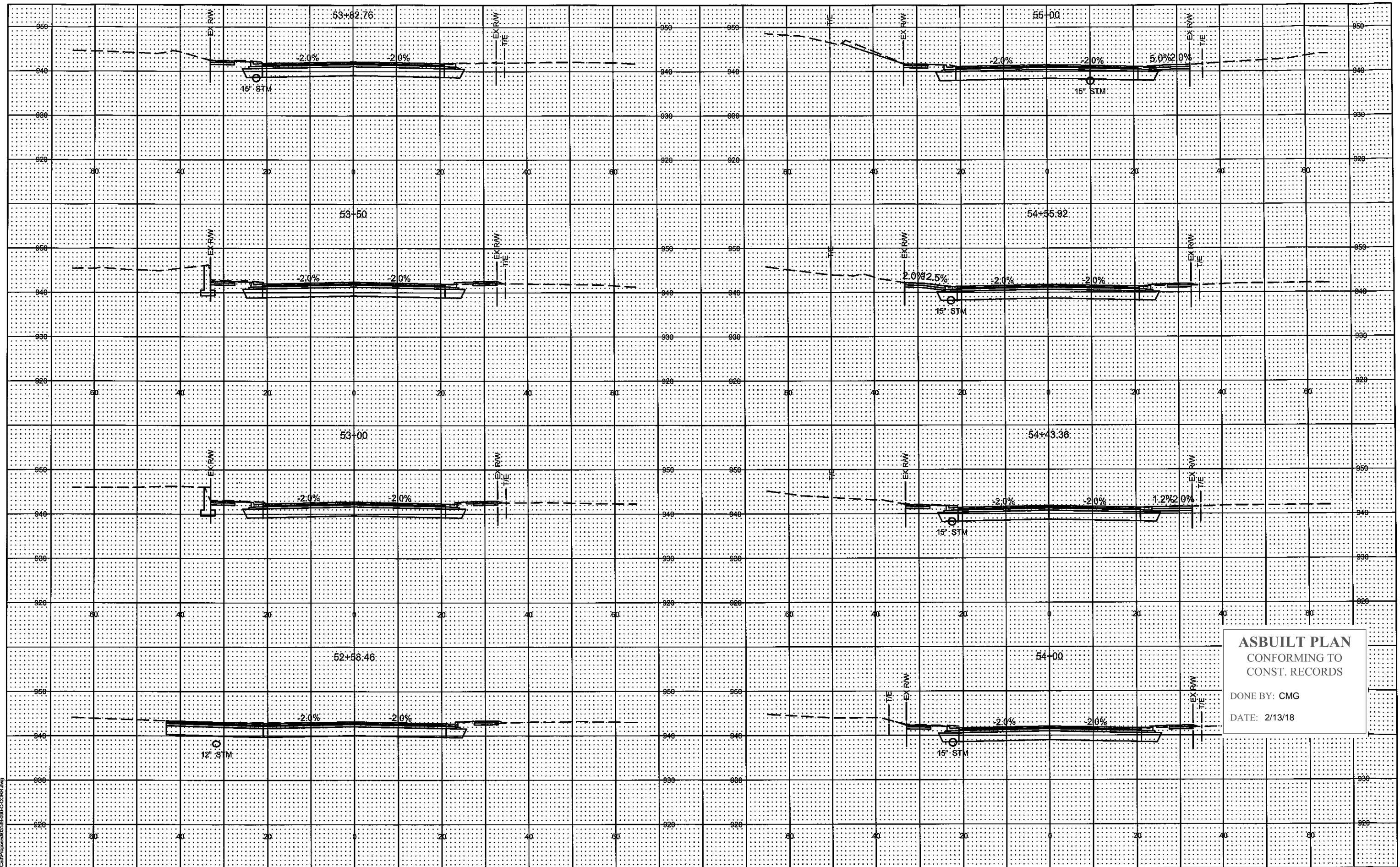


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
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 OF  
**145**  
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Date Plotted: 1/26/2018  
 WSB Filename: K:\03169-000\03169-000-C-CORR.dwg



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



701 Xava Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
 waberg.com



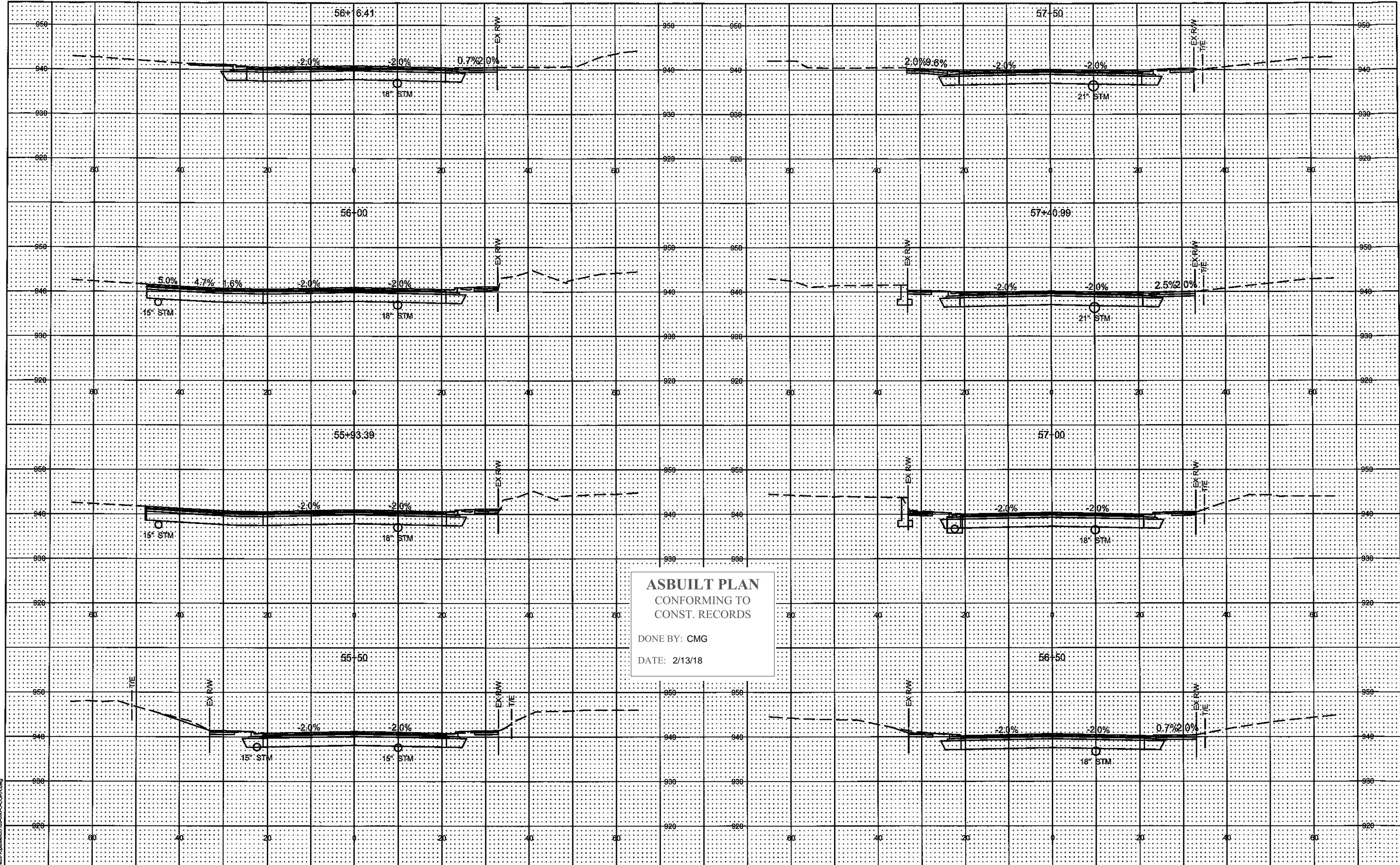
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
 X7  
 OF  
 145  
 SHEETS

Date Plotted: 1/26/2018  
 WSB Filename: K:\031818-000\Cad\Drawings\031818-000-C-CORR.dwg





**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



701 Xmas Avenue South, Suite 300  
 Minneapolis, MN 55416  
 Tel: (783) 641-4830 • Fax: (783) 641-1700  
 waberg.com

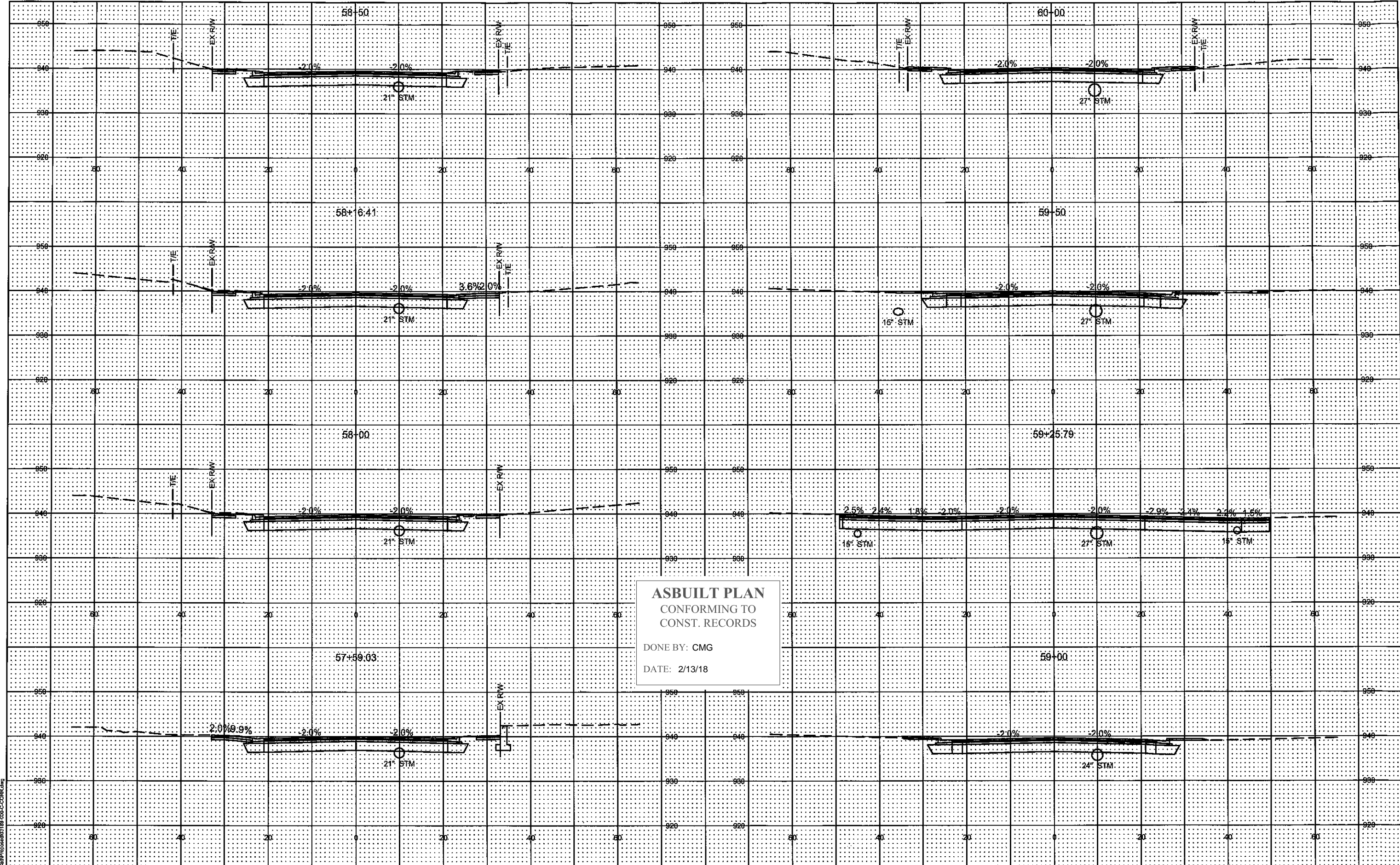


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE**  
**CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
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 OF  
**145**  
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Date Printed: 1/26/2016  
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**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



701 Xona Avenue South, Suite 300  
 Minneapolis, MN 55418  
 Tel: (783) 541-4800 - Fax: (783) 541-1700  
 wsbang.com

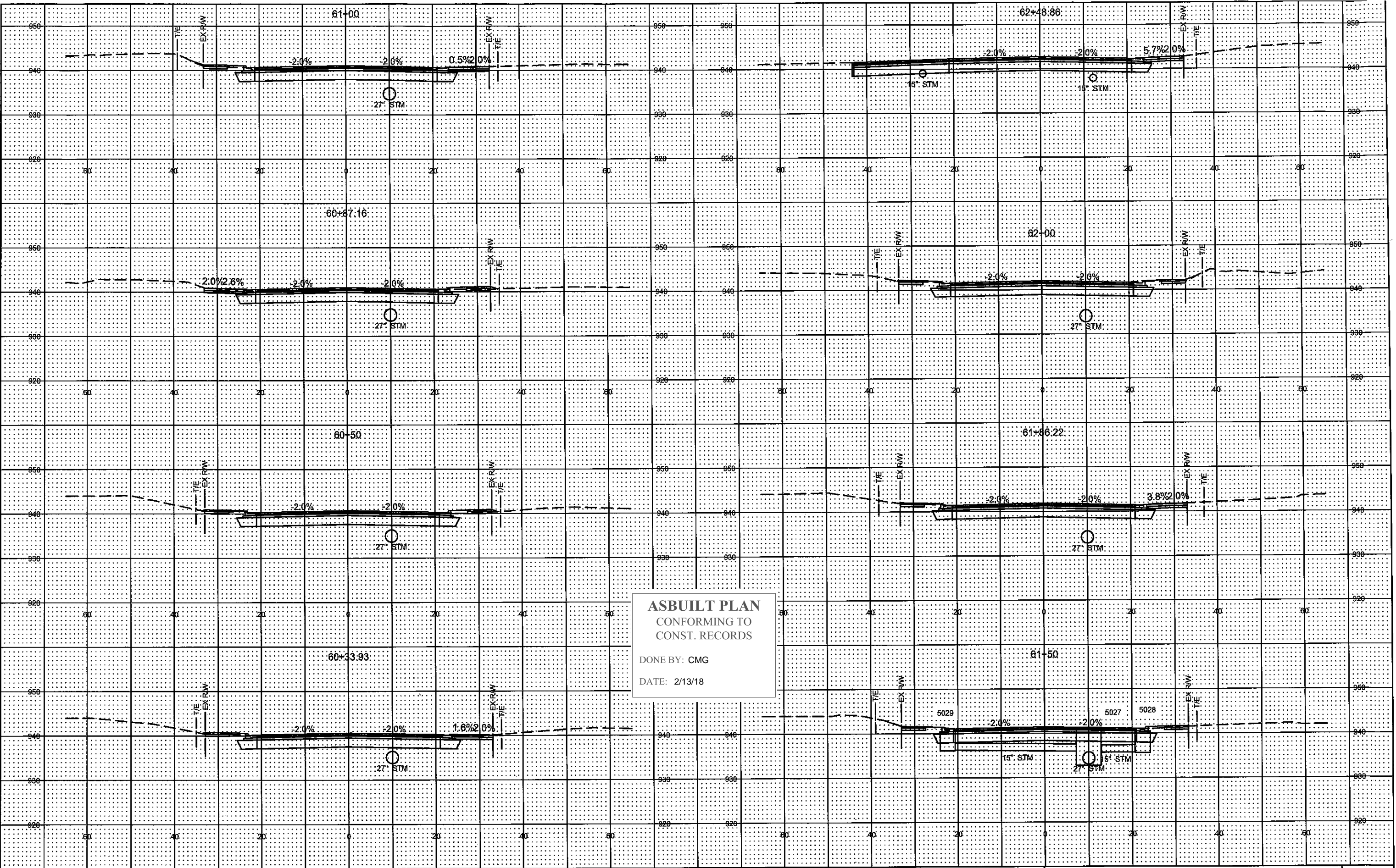


**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**X9**  
 OF  
**145**  
 SHEETS

Date Printed: 1/26/2018  
 WSB Filename: K:\03168-000\Cad\Process\0318-000-C-CORR.dwg



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS

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 Tel: (783) 541-4800 • Fax: (783) 541-1700  
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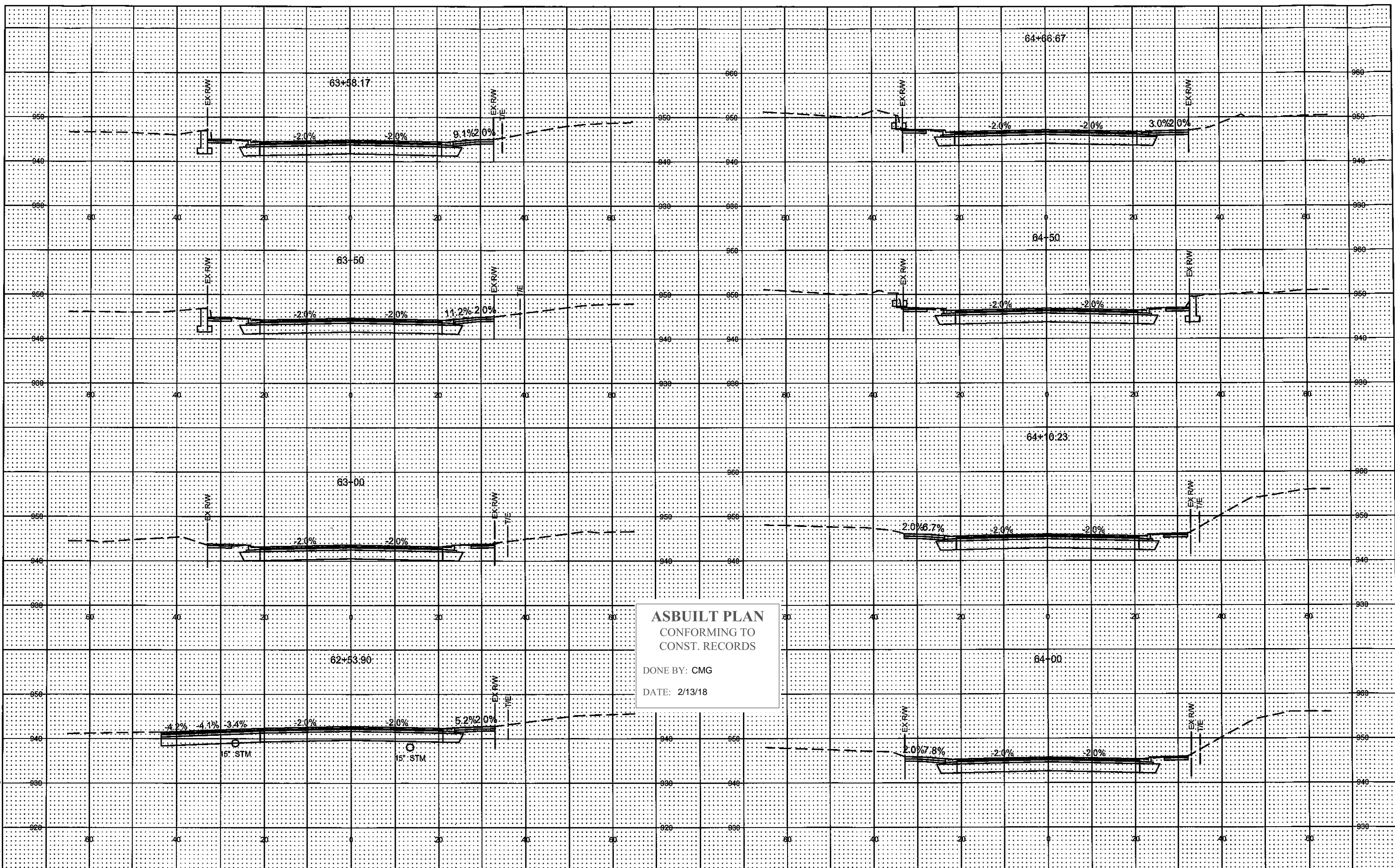
**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**  
**WHITE BEAR AVE  
 CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**X10**  
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**145**  
 SHEETS

Data Printed: 1/26/2018  
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Date Plotted: 1/26/2016  
 WSB Filename: R:\011819-000\Civil\Proposed\011819-000-CCORR.dwg



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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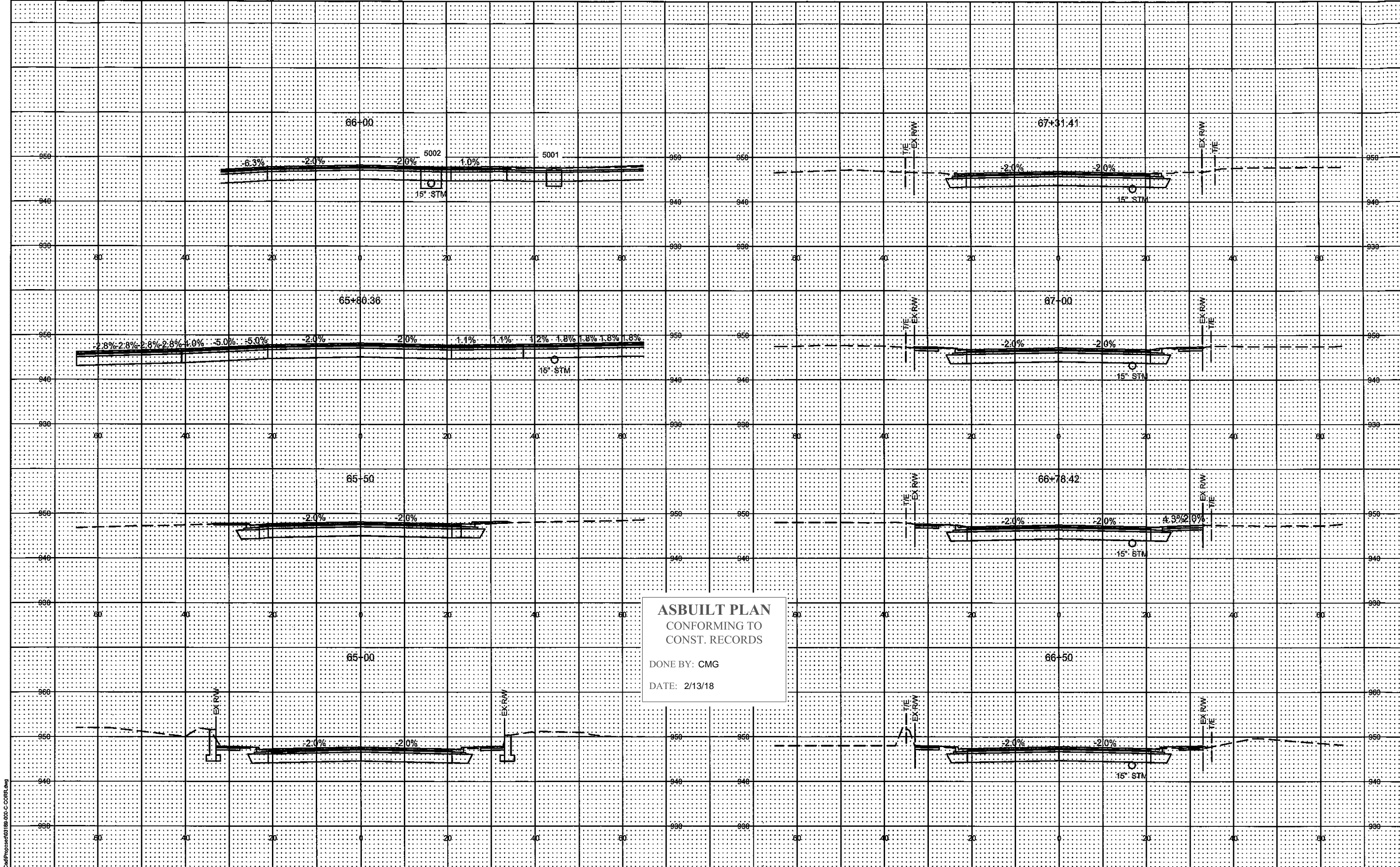


**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

**WHITE BEAR AVE**  
**CROSS SECTIONS**  
 S.P. 062-665-052 / S.P. 164-020-138

SHEET  
**X11**  
 OF  
**145**  
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**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS


DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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**WHITE BEAR AVENUE**  
**STREET IMPROVEMENTS**

**RAMSEY COUNTY, MINNESOTA**

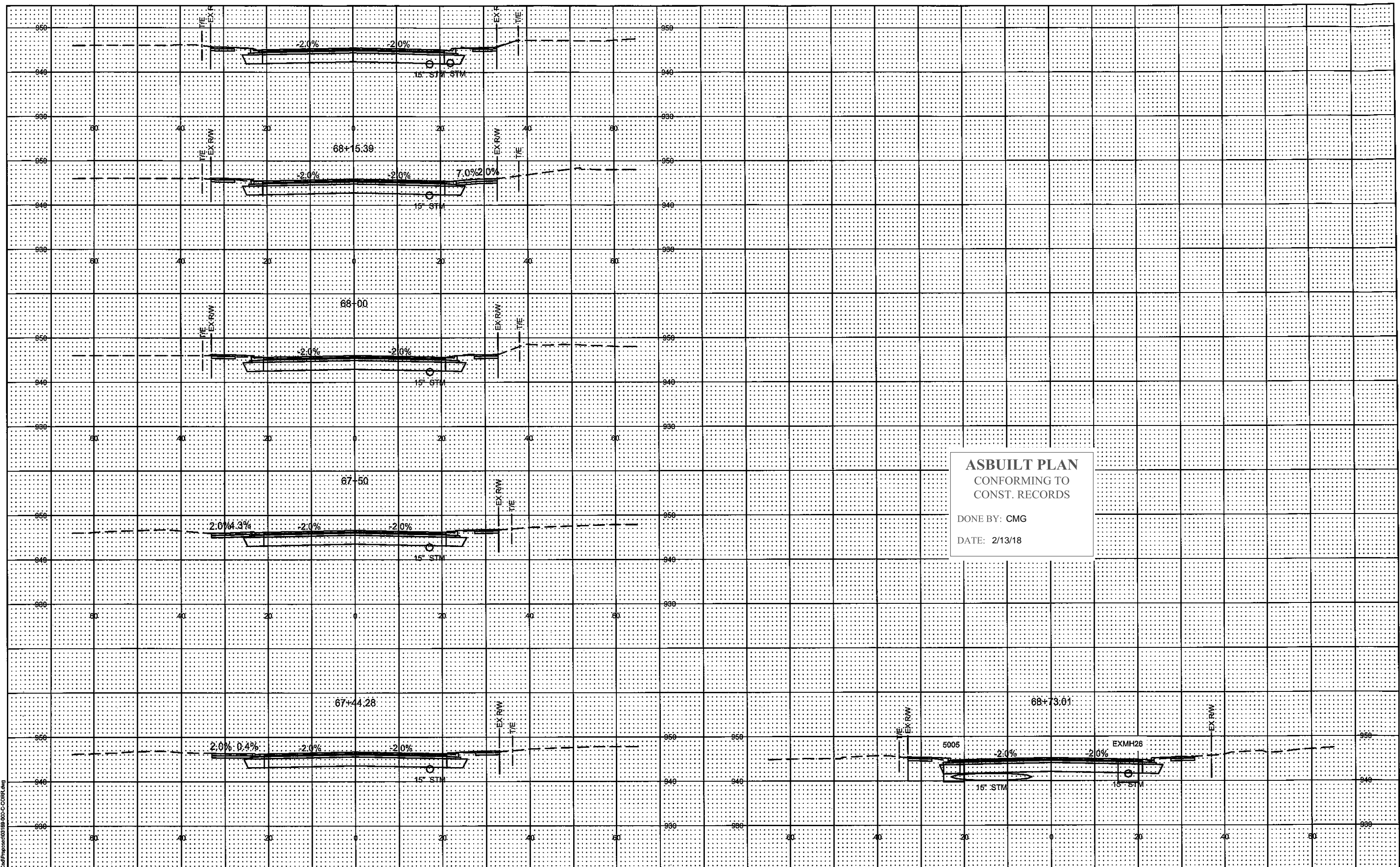
**WHITE BEAR AVE**  
**CROSS SECTIONS**

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**X12**  
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**145**  
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Date Printed: 1/25/2018  
WSB Filename: I:\2018\18-00-C-CDRR.dwg



**ASBUILT PLAN**  
 CONFORMING TO  
 CONST. RECORDS

DONE BY: CMG  
 DATE: 2/13/18

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: DSS  
 PLAN BY: ERW  
 CHECKED BY: JLB  
 APPROVED BY: DSS



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**WHITE BEAR AVENUE  
 STREET IMPROVEMENTS**

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