

EXISTING TOPOGRAPHIC SYMBOLS

	ACCESS GRATE		REGULATION STATION GAS
	AIR CONDITION UNIT		SATELLITE DISH
	ANTENNA		SIGN NON TRAFFIC
	AUTO SPRINKLER CONNECTION		SIGN TRAFFIC
	BARRICADE PERMANENT		SIGNAL CONTROL CABINET
	BASKETBALL POST		SOIL BORING
	BENCH		SIREN
	BIRD FEEDER		TELEPHONE BOOTH
	BOLLARD		TILE INLET
	BUSH		TILE OUTLET
	CATCH BASIN RECTANGULAR CASTING		TILE RISER
	CATCH BASIN CIRCULAR CASTING		TRANSFORMER-ELECTRIC
	CURB STOP		TREE-CONIFEROUS
	CLEAN OUT		TREE-DEAD
	CULVERT END		TREE-DECIDUOUS
	DRINKING FOUNTAIN		TREE STUMP
	DOWN SPOUT		TRAFFIC ARM BARRIER
	FILL PIPE		TRAFFIC SIGNAL
	FIRE HYDRANT		TRASH CAN
	FLAG POLE		UTILITY MARKER
	FLARED END / APRON		VALVE
	FUEL PUMP		VALVE POST INDICATOR
	GRILL		VALVE VAULT
	GUY WIRE ANCHOR		VAULT
	HANDHOLE		VENT PIPE
	HANDICAP SPACE		WATER SPIGOT
	IRRIGATION SPRINKLER HEAD		WELL
	IRRIGATION VALVE BOX		WETLAND DELINEATED MARKER
	LIFT STATION CONTROL PANEL		WETLAND
	LIFT STATION		WET WELL
	LIGHT ON POLE		YARD HYDRANT
	LIGHT-GROUND		
	MAILBOX		

PROPOSED TOPOGRAPHIC SYMBOLS

	CLEANOUT
	MANHOLE
	LIFT STATION
	STORM SEWER CIRCULAR CASTING
	STORM SEWER RECTANGULAR CASTING
	STORM SEWER FLARED END / APRON
	STORM SEWER OUTLET STRUCTURE
	STORM SEWER OVERFLOW STRUCTURE
	CURB BOX
	FIRE HYDRANT
	WATER VALVE
	WATER REDUCER
	WATER BEND
	WATER TEE
	WATER CROSS
	WATER SLEEVE
	WATER CAP / PLUG
	RIP RAP
	DRAINAGE FLOW
	TRAFFIC SIGNS

SURVEY SYMBOLS

	BENCHMARK LOCATION
	CONTROL POINT
	MONUMENT FOUND
	CAST IRON MONUMENT
	STONE MONUMENT

EXISTING TOPOGRAPHIC LINES

	RETAINING WALL
	FENCE
	FENCE-DECORATIVE
	GUARD RAIL
	TREE LINE
	BUSH LINE

SURVEY LINES

	CONTROLLED ACCESS BOUNDARY
	CENTERLINE
	EXISTING EASEMENT LINE
	PROPOSED EASEMENT LINE
	EXISTING LOT LINE
	PROPOSED LOT LINE
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	SETBACK LINE
	SECTION LINE
	QUARTER LINE
	SIXTEENTH LINE
	TEMPORARY EASEMENT

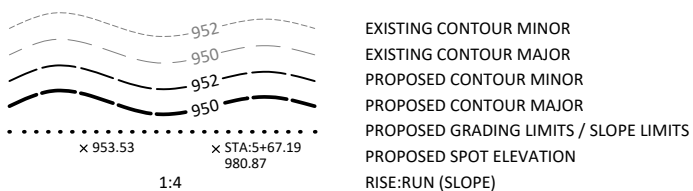
EXISTING UTILITY LINES

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE

PROPOSED UTILITY LINES

	FORCEMAIN
	SANITARY SEWER
	SANITARY SERVICE
	STORM SEWER
	STORM SEWER DRAIN TILE
	WATERMAIN
	WATER SERVICE
	PIPE CASING

GRADING INFORMATION



HATCH PATTERNS

	BITUMINOUS		GRAVEL
	CONCRETE		

EXISTING PRIVATE UTILITY LINES

NOTE:
 EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

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

	UNDERGROUND FIBER OPTIC
	UNDERGROUND ELECTRIC
	UNDERGROUND GAS
	UNDERGROUND COMMUNICATION
	OVERHEAD ELECTRIC
	OVERHEAD COMMUNICATION
	OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
 EXAMPLE: UNDERGROUND GAS, QUALITY LEVEL A
 UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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DESIGNED	AJN	NO. 1	ISSUED FOR	DATE
DRAWN	AJN	2	SA SUBMIT	1/13/21
CHECKED	JDP	0	CONSTR	5/12/21
CLIENT PROJ. NO.	U17-120606			

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
LEGEND

SHEET
G0.02

STATEMENT OF ESTIMATED QUANTITIES

TAB	BID ITEM	SPEC. ITEM	ITEM DESCRIPTION	TOTAL QUANTITY	UNIT	S.A.P. 038-635-001 CSAH 35 (4TH AVENUE)	S.A.P. 038-630-001 CSAH 30 (8TH STREET)	S.A.P. 038-630-001 CSAH 30 (8TH STREET STORM SEWER)	S.A.P. 038-620-010 CSAH 20 (7TH STREET)	CITY PROJECT N16.121170
	1	2021.501	MOBILIZATION	1	LS	0.08	0.26		0.01	0.65
F	2	2101.505	CLEARING	1.0	AC					1.0
F	3	2101.505	GRUBBING	1.0	AC					1.0
F	4	2101.524	CLEARING	55	TREE	8	5			42
F	5	2101.524	GRUBBING	55	TREE	8	5			42
F	6	2104.502	SALVAGE SIGN	28	EA	7	8			13
F	7	2104.502	REMOVE HYDRANT	5	EA					5
F	8	2104.502	REMOVE GATE VALVE & BOX	6	EA					6
F	9	2104.502	REMOVE MANHOLE OR CATCH BASIN	15	EA		4			11
F	10	2104.503	REMOVE CONCRETE CURB	44	LF		20			24
F	11	2104.503	SALVAGE FENCE	226	LF	131	39			56
F	12	2104.503	REMOVE SEWER PIPE (SANITARY)	2,351	LF					2,351
F	13	2104.503	REMOVE SEWER PIPE (STORM)	430	LF			430		
F	14	2104.503	REMOVE CURB & GUTTER	5,968	LF	1,014	1,972		208	2,774
F	15	2104.503	REMOVE WATER MAIN	2,506	LF					2,506
F	16	2104.503	REMOVE METAL PIPE RAILING	170	LF					170
F	17	2104.504	REMOVE PAVEMENT	9,088	SY	1,983	2,855		87	4,163
F	18	2104.518	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	2,329	SF		1,184			1,145
F	19	2104.518	REMOVE CONCRETE DRIVEWAY PAVEMENT	1,393	SF		502			891
F	20	2104.518	REMOVE CONCRETE WALK	30,356	SF	676	10,458		1,462	17,760
F	21	2104.601	REMOVE WATER MAIN (CROSS CONNECT)	1	LS					1
F	22	2104.601	SALVAGE & REINSTALL DECK	1	LS	1				
F	23	2104.603	SAWING PAVEMENT (FULL DEPTH)	651	LF	104			225	218
F	24	2104.603	ABANDON WATER MAIN	380	LF					380
F	25	2104.618	REMOVE CONCRETE STEPS	84	SF		40			44
H	26	2105.504	GEOTEXTILE FABRIC TYPE 5	12,685	SY	2,341	3,487			6,857
G	27	2105.607	EXCAVATION SPECIAL	50	CY		50			
G	28	2105.607	HAUL & DISPOSE CONTAMINATED MATERIALS	50	CY		50			
G	29	2106.507	EXCAVATION - COMMON (EV) (P)	10,611	CY	1,522	2,779			6,310
H	30	2106.507	EXCAVATION - SUBGRADE (EV)	643	CY	118	175			350
H	31	2106.507	SELECT GRANULAR EMBANKMENT (CV)	5,204	CY	957	1,425		14	2,808
H	32	2118.507	AGGREGATE SURFACING (CV) CLASS 5	128	CY	2	31			95
H	33	2123.510	MOTOR GRADER (HAUL ROAD)	40	HR					40
H	34	2123.602	SUBSURFACE INVESTIGATION (POTHOLE UTILITY)	3	EA					3
H	35	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	40	HR	10	10			20
H	36	2123.610	SKID LOADER	40	HR	10	10			20
H	37	2211.507	AGGREGATE BASE (CV) CLASS 5	4,243	CY	792	1,154		56	2,241
I	38	2231.604	BITUMINOUS PATCH SPECIAL (3.5")	245	SY		122			123
I	39	2231.604	BITUMINOUS PATCH SPECIAL (5.5")	70	SY				50	20
I	40	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	768	GAL	155	227			385.6
I	41	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 1.5" THICK	1,058	TON	218	319			521
I	42	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) 2" THICK	2,102	TON	580	852			671
J	43	2402.503	PIPE RAILING	118	LF					118
J	44	2402.603	SALVAGE & INSTALL METAL RAILING	40	LF					40
J	45	2411.618	CONCRETE STEP DESIGN SPECIAL	278	SF		48			230
J	46	2411.618	MODULAR BLOCK RETAINING WALL	371	SF	325	46			
H	47	2502.503	6" PERF PVC PIPE DRAIN	4,138	LF		1,858			2,280
M	48	2502.602	CONNECT TO EXISTING STRUCTURE (STORM) - (SKUNK CREEK TUNNEL)	1	EA			1		
H	49	2502.602	6" PVC PIPE DRAIN CLEANOUT	9	EA		4			5
L	50	2502.618	4" INSULATION	600	SF					600
M	51	2503.503	12" RC PIPE SEWER DES 3006 CLASS III	159	LF			159		
M	52	2503.503	15" RC PIPE SEWER DES 3006 CLASS III	92	LF			92		
M	53	2503.503	18" RC PIPE SEWER DES 3006 CLASS III	165	LF			165		
M	54	2503.503	24" RC PIPE SEWER DES 3006 CLASS III	28	LF			28		
M	55	2503.503	42" RC PIPE SEWER DES 3006 CLASS III	439	LF			439		
K	56	2503.601	PUMPING (SANITARY BYPASS)	1	LS					1
H	57	2503.602	TRENCH EXCAVATION (RESTRICTIVE)	2	EA					2
M	58	2503.602	CONNECT TO EXISTING STORM SEWER	1	EA			1		
K	59	2503.602	CONNECT TO EXISTING SANITARY SEWER	6	EA					6
K	60	2503.602	CONNECT TO EXISTING SANITARY SEWER SERVICE	72	EA					72
H	61	2503.602	CONNECT TO EXISTING STRUCTURE (STORM DRAIN)	2	EA					2
K	62	2503.602	8"x6" WYE	72	EA					72
K	63	2503.603	6" PVC SANITARY SERVICE PIPE	2,537	LF					2,537
K	64	2503.603	2" HDPE FORCE MAIN	20	LF					20
K	65	2503.603	8" PVC PIPE SEWER	2,328	LF					2,328
K	66	2503.603	VIDEO TAPE PIPE SEWER	2,328	LF					2,328
L	67	2504.601	TEMPORARY WATER SERVICE	1	LS					1
L	68	2504.602	CONNECT TO EXISTING WATER MAIN	12	EA					12
L	69	2504.602	CONNECT TO EXISTING WATER SERVICE	73	EA					73
L	70	2504.602	HYDRANT	8	EA					8
L	71	2504.602	4" GATE VALVE & BOX	1	EA					1
L	72	2504.602	6" GATE VALVE & BOX	19	EA					19
L	73	2504.602	WATERMAIN OFFSET	1	EA					1
L	74	2504.602	0.75" CORPORATION STOP	72	EA					72
L	75	2504.602	0.75" CURB STOP & BOX	72	EA					72
L	76	2504.602	VALVE BOX (WATER SERVICES IN PAVEMENT)	5	EA					5
L	77	2504.603	4" WATERMAIN DUCTILE IRON CL 52	44	LF					44
L	78	2504.603	6" WATERMAIN DUCTILE IRON CL 52	2,673	LF					2,673
L	79	2504.603	12" WATERMAIN DUCTILE IRON CL 52	36	LF					36
L	80	2504.603	3/4" TYPE K COPPER PIPE	2,080	LF					2,080
L	81	2504.608	WATERMAIN FITTINGS	1,257	LB					1,257

BASIS OF ESTIMATED QUANTITIES	B
AGGREGATE BASE CLASS 5	100 LBS / SY INCH THICKNESS
BITUMINOUS PAVEMENT	115 LBS / SY INCH THICKNESS
BITUMINOUS TACK	0.075 GAL / SQ YD
SEED MIXTURE 25-131	300 LB / ACRE
SEED MIXTURE 33-361	300 LB / ACRE
FERTILIZER TYPE 3	350 LB / ACRE
HYDRAULIC BONDED FIBER MATRIX	3500 LB / ACRE
RAPID STABILIZATION, METHOD 3	6000 GAL / ACRE

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NOTES:
(P) PLAN QUANTITY
(EV) EXCAVATED VOLUME
(CV) COMPACTED VOLUME
(LV) LOOSE VOLUME

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DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STATEMENT OF ESTIMATED QUANTITIES

SHEET
G1.01

TAB	BID ITEM	SPEC. ITEM	ITEM DESCRIPTION	TOTAL QUANTITY	UNIT	S.A.P. 038-635-001 CSAH 35 (4TH AVENUE)	S.A.P. 038-630-001 CSAH 30 (8TH STREET)	S.A.P. 038-630-001 CSAH 30 (8TH STREET STORM SEWER)	S.A.P. 038-620-010 CSAH 20 (7TH STREET)	CITY PROJECT N16.121170
N	82	2506.502	CASTING ASSEMBLY	26	EA			14		12
N	83	2506.502	ADJUST FRAME & RING CASTING	12	EA					12
N	84	2506.602	CASTING ASSEMBLY SPECIAL (CLEANOUT IN PAVEMENT)	4	EA		4			
M	85	2506.602	REPAIR DRAINAGE STRUCTURE - TUNNEL EXISTING STORM INLETS	2	EA			2		
J	86	2506.602	CONCRETE COLLAR (VALVE BOX)	19	EA					19
J	87	2506.602	CONCRETE COLLAR (MANHOLE)	12	EA					12
M	88	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	10.3	LF			10.3		
M	89	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4022	33.7	LF			33.7		
M	90	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (R-1)	27.5	LF			27.5		
K	91	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1 (4007)	128.0	LF					128.0
J	92	2521.518	4" CONCRETE WALK	24,387	SF	2,404	4,069		588	17,326
J	93	2521.518	6" CONCRETE WALK	13,243	SF	4,689	3,568		971	4,015
J	94	2531.503	CONCRETE CURB & GUTTER DESIGN B618	3,101	LF	992	1,900		209	
J	95	2531.503	CONCRETE CURB & GUTTER DESIGN B624	3,840	LF					3,840
J	96	2531.504	7" CONCRETE DRIVEWAY PAVEMENT	451	SY	47	97			307
J	97	2531.504	8" CONCRETE DRIVEWAY PAVEMENT	162	SY		112			50
J	98	2531.603	CONCRETE CURB DESIGN V	310	LF		264			46
J	99	2531.618	TRUNCATED DOMES	486	SF	112	183		72	119
J	100	2557.603	INSTALL FENCE (SALVAGED)	226	LF	131	39			56
	101	2563.601	TRAFFIC CONTROL	1	LS	0.08	0.26		0.01	0.65
R	102	2564.502	INSTALL SIGN	44	EA	5	16			23
R	103	2564.518	SIGN PANELS TYPE C	160.5	SF	17	40.75			102.75
R	104	2564.618	SIGN TYPE SPECIAL	60	SF					60
	105	2573.501	STABILIZED CONSTRUCTION EXIT	1	LS	0.3	0.7			
O	106	2573.502	STORM DRAIN INLET PROTECTION	21	EA		19			2
O	107	2573.503	SILT FENCE, TYPE MS	550	LF					550
O	108	2573.503	SEDIMENT CONTROL LOG TYPE ROCK	196	LF	60	64		28	44
	109	2573.601	EROSION AND TURF SUPERVISOR	1	LS	0.08	0.26			0.66
O	110	2573.603	SEDIMENT CONTROL LOG (BIOROLL)	72	LF		48			
P	111	2574.507	COMMON TOPSOIL BORROW (LV)	715	CY	32	113			570
P	112	2574.507	COMPOST GRADE 2 (LV)	179	CY	8	28			143
P	113	2574.508	FERTILIZER TYPE 3	266	LB	12	42			212
O	114	2575.504	EROSION CONTROL BLANKETS CATEGORY 3N	313	SY		178			135
P	115	2575.504	SODDING TYPE LAWN	100	SY	50				50
P	116	2575.505	SEEDING	1.33	AC	0.06	0.21			1.06
P	117	2575.508	HYDRAULIC BONDED FIBER MATRIX	4,655	LB	210	735			3,710
P	118	2575.523	WATER (IRRIGATION TURF ESTABLISHMENT)	100	MGAL	7	28			65
P	119	2575.508	SEED MIXTURE 25-151	158.55	LB	7.20	25.20			126.15
P	120	2575.508	SEED MIXTURE 33-361	1.05	LB					1.05
P	121	2575.523	RAPID STABILIZATION METHOD 3	12.0	MGAL	0.54	1.89			9.54
Q	122	2582.503	4" DOUBLE SOLID LINE PAINT GROUND IN	1,240	LF	400	840			
Q	123	2582.503	6" SOLID LINE PAINT GROUND IN	1,980	LF	835	1,055			90
Q	124	2582.503	24" SOLID LINE PAINT GROUND IN	12	LF					12
END OF BASE BID QUANTITIES AND ITEMS										
*ADD ALTERNATE 1: MINNEHAHA SCHOOL 5TH AVENUE PARKING (SEE NOTE BELOW)										
	125	2105.504	GEOTEXTILE FABRIC TYPE 5	422	SY					422
	126	2106.507	SELECT GRANULAR EMBANKMENT (CV)	151	CY					151
	127	2211.507	AGGREGATE BASE (CV) CLASS 5	107	CY					107
	128	2231.604	BITUMINOUS PATCH SPECIAL (3.5")	-6	SY					-6
	129	2357.506	BITUMINOUS MATERIAL FOR TACK COAT	4	GAL					4
	130	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 1.5" THICK	6	TON					6
	131	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C) 2" THICK	8	TON					8
	132	2531.503	CONCRETE CURB & GUTTER DESIGN B624	60	LF					60
	133	2531.504	8" CONCRETE DRIVEWAY PAVEMENT	62	SY					62
	134	2531.604	8" CONCRETE VALLEY GUTTER	115	SY					115
	135	2531.618	TRUNCATED DOMES	12	SF					12
	136	2574.507	COMMON TOPSOIL BORROW (LV)	-11	CY					-11
	137	2574.508	FERTILIZER TYPE 3	-4.0	LB					-4.0
	138	2575.505	SEEDING	-0.02	AC					-0.02
	139	2575.508	SEED MIXTURE 25-151	-2.4	LB					-2.4
	140	2575.523	RAPID STABILIZATION METHOD 3	-0.2	MGAL					-0.2
	141	2582.503	4" SOLID LINE PAINT GROUND IN	427	LF					427
	142	2582.602	PAVEMENT MESSAGE PAINT GROUND IN	1	EA					1
ADD ALTERNATE 2: LAKE COUNTY SWCD STORMWATER TREATMENT										
	143	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3	1	EA			1		
	144	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 4	1	EA			1		
	145	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	-4.2	LF			-3.0		
	146	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (R-1)	-4.1	LF			-2.9		

STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.		D
STANDARD PLATES		D
PLATE NO.	DESCRIPTION	
3000M	REINFORCED CONCRETE PIPE	
3006H	GASKET JOINT FOR RC PIPES	
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES	
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE	
4010H	CONCRETE SHORT CONE AND ADJUSTING RING	
4011E	PRECAST CONCRETE BASE	
4020J	MANHOLE OR CATCH BASIN FOR USE WITH OR WITHOUT TRAFFIC LOADS	
4022A	MANHOLE OR CATCH BASIN COVER - 3' X 2' OPENING	
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN	
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)	
4180J	MANHOLE OR CATCH BASIN STEP	
7020K	CONCRETE CURB (DESIGN B, V, S, DR & BR)	
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES	
7100H	CONCRETE CURB & GUTTER (DESIGN B & V)	
7102K	CONCRETE CURB & GUTTER (DESIGN D, S, & R)	
8000J	CHANNELIZERS	

PRIVATE UTILITY CONTACT INFORMATION			E
UTILITY	OWNER	CONTACT	NUMBER
WATER & SEWER	CITY OF TWO HARBORS	PAUL JOHNSON	218-834-8812
GAS	CITY OF TWO HARBORS	PAUL JOHNSON	218-834-8812
ELECTRIC	CITY OF TWO HARBORS	BLAKE PRINCE	218-834-8811
DATA	MEDIACOM	SCOTT SANDQUIST	507-838-8627
DATA	NORTHEAST SERVICE COOPERATIVE	JOE WEBER	218-748-7626
DATA	FRONTIER COMMUNICATIONS	PAUL COSTLY	218-283-9447

NOTES:
(P) PLAN QUANTITY
(EV) EXCAVATED VOLUME
(CV) COMPACTED VOLUME
(LV) LOOSE VOLUME

*ADD ALTERNATE 1 QUANTITIES REPRESENT THE DIFFERENCE BETWEEN THE BASE BID LAYOUT AND THE ALTERNATE BID LAYOUT FOR 5TH AVENUE.

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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]
JOSEPH D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21
CLIENT PROJ. NO. U17.120606			

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STATEMENT OF ESTIMATED QUANTITIES

SHEET

G1.02

MISCELLANEOUS REMOVAL TABULATION																					F		
LOCATION	STATION	CLEAR & GRUB	CLEAR & GRUB	REMOVE CURB & GUTTER	REMOVE PAVEMENT	REMOVE METAL PIPE RAILING	REMOVE CONCRETE CURB	REMOVE CONCRETE STEPS	REMOVE CONCRETE DRIVEWAY PAVEMENT	REMOVE CONCRETE WALK	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SAWING PAVEMENT (FULL DEPTH)	SALVAGE SIGN	SALVAGE FENCE	ABANDON WATER	REMOVE MANHOLE OR CATCH BASIN	REMOVE SEWER PIPE (SANITARY)	REMOVE HYDRANT	REMOVE WATER MAIN	REMOVE WATER MAIN (CROSS CONNECT)	REMOVE GATE VALVE & BOX	REMOVE SEWER PIPE (STORM)	
		TREE	ACRE	LF	SY	LF	LF	SF	SF	SF	SF	SF	LF	EA	LF	LF	EA	LF	EA	LF	EA	EA	LF
CSAH 35																							
038-635-001	4TH AVENUE	13+07.38 - 17+93.06	8		1,014	1,983				676		104	7	131									
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):			8		1,014	1,983				676		104	7	131									
CSAH 30																							
038-630-001	8TH STREET	51+02.35 - 55+19.35	2		690	994	20	40		4,046			3	39									
038-630-001	8TH STREET	55+19.35 - 61+55.28	3		1,282	1,861			502	6,412	1,184	104	5			4						430	
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):			5		1,972	2,855	20	40	502	10,458	1,184	104	8	39		4							430
CSAH 20																							
038-620-010	7TH STREET	65+50 - 66+39.72			208	87				1,462		225											
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):					208	87				1,462		225											
CITY AVENUES																							
	4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68	7		461	735	4	4	601	3,045		83	2		380	4	689	2	713	1	1		
	5TH AVENUE	22+20 - 30+75	16		1,469	2,294		8	290	9,457	640	25	7			4	804	2	846		3		
	6TH AVENUE	33+50 - 43+35	19	1.0	844	1,134	170	32	16	5,258	505	110	4	56		3	858	1	947		2		
COUNTY PROJECT TOTALS			13		3,194	4,925		40	20	12,596	1,184	433	15	170		4						430	
CITY PROJECT TOTALS			42	1.0	2,774	4,163	170	44	891	17,760	1,145	218	13	56	380	11	2,351	5	2,506	1	6		
COMBINED PROJECT TOTALS			55	1.0	5,968	9,088	170	84	1,393	30,356	2,329	651	28	226	380	15	2,351	5	2,506	1	6	430	

EARTHWORK TABULATION						G
LOCATION	STATION	CUT VOLUME	FILL VOLUME	EXCAVATION - COMMON (EV) (P)	EXCAVATION SPECIAL (1)	
		CY	CY	CY	CY	
CSAH 35						
038-635-001	4TH AVENUE	13+03.4 - 17+90.8	1,498	24	1,522	
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):		1,498	24	1,522		
CSAH 30						
038-630-001	8TH STREET	51+02.35 - 55+19.35	1,070	14	1,084	
038-630-001	8TH STREET	55+19.35 - 61+55.28	1,695		1,695	
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):		2,765	14	2,779	50	
CSAH 20						
038-620-010	7TH STREET	65+50 - 66+39.72				
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):						
CITY AVENUES						
	4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68	64	6	70	
	5TH AVENUE	22+20 - 30+75	2,254	196	2,450	
	6TH AVENUE	33+50 - 43+35	3,411	379	3,790	
COUNTY PROJECT TOTALS		4,263	38	4,301	50	
CITY PROJECT TOTALS		5,729	581	6,310		
COMBINED PROJECT TOTALS		9,992	619	10,611	50	

NOTES:
(1) EXCAVATION SPECIAL AND HAUL AND DISPOSAL OF CONTAMINATED MATERIAL TO BE PAID PER SCHEDULE OF UNIT PRICES

AGGREGATE & BASE TABULATION														H
LOCATION	STATION	AGGREGATE BASE	AGGREGATE SURFACING (CV)	SELECT GRANULAR EMBANKMENT (CV)	EXCAVATION - SUBGRADE (EV)	GEOTEXTILE FABRIC TYPE 5	MOTOR GRADER (HAUL ROAD)	STREET SWEEPER (WITH PICKUP BROOM)	SKID LOADER	SUBSURFACE INVESTIGATION (POTHOLE UTILITY)	TRENCH EXCAVATION (RESTRICTIVE)	6" PVC PIPE DRAIN CLEANOUT	CONNECT TO EXISTING STRUCTURE (STORM DRAIN)	6" PERF PVC PIPE DRAIN
		(CV) CLASS 5	CLASS 5	(CV)	(EV)	SY	HR	HR	HR	EA	EA	EA	EA	LF
CSAH 35														
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	792	2	957	118		2,341		10		10		
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):		792	2	957	118		2,341		10			10		
CSAH 30														
038-630-001	8TH STREET	51+02.35 - 55+19.35	458	12	562	69		1,376		5		5		2
038-630-001	8TH STREET	55+19.35 - 61+55.28	696	19	863	106		2,111		5		5		601
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):		1,154	31	1,425	175		3,487		10			10		1,257
CSAH 20														
038-620-010	7TH STREET	65+50 - 66+39.72	56		14									1,858
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):		56		14										1,858
CITY AVENUES														
	4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68	367	41	389	50		945	40	6		6		780
	5TH AVENUE	22+20 - 30+75	1,067	52	1,194	150		2,912		6		6		
	6TH AVENUE	33+50 - 43+35	807	2	1,225	150		3,000		8		8		
COUNTY PROJECT TOTALS		2,002	33	2,396	293		5,828		20		3	20		1,500
CITY PROJECT TOTALS		2,241	95	2,808	350		6,857	40	20		2	20		1,858
COMBINED PROJECT TOTALS		4,243	128	5,204	643		12,685	40	40		3	40		2,280

BITUMINOUS TABULATION							I
LOCATION	STATION	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C)	BITUMINOUS PATCH SPECIAL (3.5")	BITUMINOUS PATCH SPECIAL (5.5")	BITUMINOUS MATERIAL FOR TACK COAT	
		1.5" THICK	2" THICK	SY	SY	GAL	
CSAH 35							
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	218	580		155	
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):		218	580			155	
CSAH 30							
038-630-001	8TH STREET	51+02.35 - 55+19.35	126	337		90	
038-630-001	8TH STREET	55+19.35 - 61+55.28	193	515	122	138	
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):		319	852	122		227	
CSAH 20							
038-620-010	7TH STREET	65+50 - 66+39.72			50		
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):					50		
CITY AVENUES							
	4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68	70	90		55.7	
	5TH AVENUE	22+20 - 30+75	225	290	89	166.5	
	6TH AVENUE	33+50 - 43+35	226	291	34	163.4	
COUNTY PROJECT TOTALS		537	1,432	122	50	382	
CITY PROJECT TOTALS		521	671	123	20	385.6	
COMBINED PROJECT TOTALS		1,058	2,102	245	70	768	

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

Joseph H. Pelawa
JOSEPH H. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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DESIGNED	AJN	NO. 1	ISSUED FOR	DATE
DRAWN	AJN	2	SA SUBMIT	1/13/21
CHECKED	JDP	0	SA SUBMIT	2/1/21
			CONSTR	5/12/21
CLIENT PROJ. NO.	U17.120606			

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
TABULATIONS

SHEET
G1.03

CONCRETE TABULATION																	J
LOCATION	STATION	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B624	7" CONCRETE DRIVEWAY PAVEMENT	8" CONCRETE DRIVEWAY PAVEMENT	4" CONCRETE WALK	6" CONCRETE WALK	TRUNCATED DOMES	CONCRETE COLLAR (VALVE BOX)	CONCRETE COLLAR (MANHOLE)	MODULAR BLOCK RETAINING WALL	INSTALL FENCE (SALVAGED)	CONCRETE CURB DESIGN V	CONCRETE STEP DESIGN SPECIAL	SALVAGE & INSTALL METAL RAILING	PIPE RAILING	
		LF	LF	SY	SY	SF	SF	SF	EA	EA	SF	LF	LF	SF	LF	LF	
CSAH 35																	
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	992		47		2,404	4,689	112			325	131				
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):			992		47		2,404	4,689	112			325	131				
CSAH 30																	
038-630-001	8TH STREET	51+02.35 - 55+19.35	652		25		1,759	2,876	50			46	39	264	48		
038-630-001	8TH STREET	55+19.35 - 61+55.28	1,248		97		2,310	692	133								
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):			1,900		97		4,069	3,568	183			46	39	264	48		
CSAH 20																	
038-620-010	7TH STREET	65+50 - 66+39.72	209				588	971	72								
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):			209				588	971	72								
CITY AVENUES																	
	4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68		540	123		2,328	365	47	7	4						
	5TH AVENUE	22+20 - 30+75		1,550	156		5,800	3,350	48	5	4		8	40		20	
	6TH AVENUE	33+50 - 43+35		1,750	28	50	9,198	300	24	7	4		38	190	40	98	
COUNTY PROJECT TOTALS			3,101		144	112	7,061	9,228	367			371	170	264	48		
CITY PROJECT TOTALS				3,840	307	50	17,326	4,015	119	19	12		56	46	230	40	
COMBINED PROJECT TOTALS			3,101	3,840	451	162	24,387	13,243	486	19	12	371	226	310	278	40	

SANITARY TABULATION																			K				
STRUCTURE ID	ALIGNMENT	STATION	LOCATION	MH TYPE	CASTING TYPE	BUILD HT VERT FT	RIM ELEV	OUTLET ELEV	DRAINS TO STRUCTURE	PIPE GRADE	DOWNSTREAM ELEV	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1 (4007)	8" X 6" WYE	6" PVC SANITARY SEWER SERVICE	8" PVC PIPE SEWER	2" HDPE FORCE MAIN	CONNECT TO EXISTING SANITARY SEWER	CONNECT TO EXISTING SANITARY SEWER SERVICE	PUMPING (SANITARY BYPASS)	VIDEO TAPE PIPE SEWER	NOTES		
												LF	EA	LF	LF	LF	EA	EA	LS	LF			
CITY AVENUES																							
2-34	4TH AVENUE	17+74.68	1.1' RT	4007	R-1733	9.9	675.91	666.02	2-34A	0.83%	663.75	9.9					1			X			
2-35A	4TH AVENUE	15+76.58	0.0'	4007	R-1733	10.5	677.63	667.11	2-34	0.50%	666.12	10.5	8	280	198						198		
2-35	4TH AVENUE	13+04.2	0.0'	4007	R-1733	11.6	680.00	668.42	2-35A	0.45%	667.21	11.6	5	175	272		1		5	X	272		
2-36	4TH AVENUE	10+86.57	1.0' RT	4007	R-1733	10.4	682.07	671.70	2-35	1.46%	668.52	10.4	9	317	218				9		218		
3-12	5TH AVENUE	30+67.17	0.4' RT	4007	R-1733	9.3	668.43	659.18	3-12A	1.50%	655.58	9.3									X		
3-13A	5TH AVENUE	28+70.57	0.0'	4007	R-1733	10.6	672.61	662.03	3-12	1.40%	659.28	10.6	3	105	197						197		
3-13	5TH AVENUE	25+90.73	0.0'	4007	R-1733	11.0	676.93	665.95	3-13A	1.37%	662.13	11.0	3	105	280		1		3	X	280		
3-14	5TH AVENUE	22+85.23	0.0'	4007	R-1733	10.4	683.30	672.92	3-13	2.25%	666.05	10.4	16	575	306				16		306		
3-23A	6TH AVENUE	43+05.58	6.0' RT	4007	R-1733	8.9	663.91	655.00	3-22	6.40%	646.54	8.9									X		
3-23	6TH AVENUE	42+07.33	0.0'	4007	R-1733	12.8	668.45	655.69	3-23A	0.60%	655.10	12.8	4	140	98						98		
3-24A	6TH AVENUE	38+16.4	0.0'	4007	R-1733	12.3	675.25	662.96	3-23	1.83%	655.79	12.3	13	455	391		1		13	X	391		
3-24	6TH AVENUE	34+48.35	0.0'	4007	R-1733	10.5	677.23	666.74	3-24A	1.00%	663.06	10.5	11	385	368				11		368		
CITY PROJECT TOTAL												128.0	72	2,537	2,328	20		6		72		1	2,328

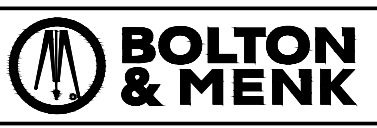
WATERMAIN TABULATION																			L
LOCATION	STATION	HYDRANT	4" GATE VALVE & BOX	6" GATE VALVE & BOX	VALVE BOX (WATER SERVICES IN PAVEMENT)	4" WATERMAIN DUCTILE IRON	6" WATERMAIN DUCTILE IRON	12" WATERMAIN DUCTILE IRON	WATERMAIN FITTINGS	WATERMAIN OFFSET	TEMPORARY WATER SERVICE	CONNECT TO EXISTING WATERMAIN	4" INSULATION	3/4" TYPE K COPPER PIPE	0.75" CORPORATION STOP	0.75" CURB STOP & BOX	CONNECT TO EXISTING WATER SERVICE		
						CL 52	CL 52	CL 52										LB	EA
CITY AVENUES																			
	4TH AVENUE	10+46 - 18+68	3		7			8	475		0.33	4	200	750	21	21	22		
	5TH AVENUE	22+20 - 30+75	2		5			8	343		0.33	4	200	580	23	23	23		
	6TH AVENUE	33+50 - 43+35	3	1	7	44	1,010	20	439	1	0.34	4	200	750	28	28	28		
PROJECT TOTALS			8	1	19	5	44	36	1,257	1	1	12	600	2,080	72	72	73		

STORM TABULATION																				M		
STRUCTURE ID	ALIGNMENT	STATION	LOCATION	TYPE	DESIGN	CASTING	RIM ELEVATION	OUTLET ELEVATION	DRAINS TO STRUCTURE	PIPE GRADE	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4022	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (R-1)	12" RC PIPE SEWER DES 3006 CL III	15" RC PIPE SEWER DES 3006 CL III	18" RC PIPE SEWER DES 3006 CL III	24" RC PIPE SEWER DES 3006 CL III	42" RC PIPE SEWER DES 3006 CL III	CONNECT TO EXISTING STRUCTURE (STORM) (SKUNK CREEK TUNNEL)	CONNECT TO EXISTING STORM SEWER	REPAIR DRAINAGE STRUCTURE - TUNNEL EXISTING STORM INLETS	NOTES
											LF	LF	LF	LF	LF	LF	LF	EA	EA	EA		
S.A.P. 038-630-001																						
1	CSAH 30	57+20.63	13.70' LT	CBMH	4022-48	R-3067-L	672.25	665.66	7	1.00%		6.6						28				
2	CSAH 30	55+55.27	13.60' LT	CBMH	4022-48	R-3067-L	675.83	672.16	1	3.87%		3.7				165						(2)
3	CSAH 30	55+33.24	41.50' LT	CB	R-1	R-3067-L	676.33	672.79	2	1.01%			3.6		36							
4	CSAH 30	55+05.25	41.50' LT	CB	R-1	R-3067-L	676.33	673.12	3	0.81%			3.3		28							
5	CSAH 30	54+77.22	21.70' LT	CB	R-1	R-3067-L	676.97	673.52	4	0.88%			3.5		34							
6	CSAH 30	54+77.21	13.70' RT	CB	R-1	R-3067-L	677.13	673.98	5	1.01%			3.2		35							
7	CSAH 30	57+20.63	14.40' RT	CBMH	4022-60	R-3067-L	672.22	660.29	EXISTING	1.66%	12.0							11	1		2	(1)
8	CSAH 30	59+28.38	14.00' RT	CBMH	4022-60	R-3067-L	675.24	667.20	7	1.27%	8.1							208				
9	CSAH 30	59+31.48	13.70' LT	CB	R-1	R-3067-L	675.28	670.99	8	0.99%			4.3		28							(2)
10	CSAH 30	59+02.18	30.70' LT	CB	R-1	R-3067-L	674.48	671.40	9	0.92%			3.1		34							
11	CSAH 30	58+74.27	36.50' LT	CB	R-1	R-3067-L	674.50	671.78	10	0.99%			2.8		28							
12	CSAH 30	60+74.15	14.00' RT	CBMH	R-1	R-3067-C	676.16	669.01	8	1.24%	7.2							146				
13	CSAH 30	60+74.36	13.70' LT	CB	R-1	R-3067-C	676.14	672.53	12	1.02%			3.7		28							
14	CSAH 30	61+48.53	15.00' RT	CBMH	4022-60	R-3067-L	676.55	670.17	12	1.42%	6.4							74			1	
CSAH 30 (S.A.P. 038-630-001) TOTALS												33.7	10.3	27.5	159	92	165	28	439	1	1	2

NOTES:
(1) SEE SKUNK CREEK BOX CULVERT CONNECTION DETAIL SHEET C1.06
(2) ADD ALTERNATE 2 ITEM TO BE PAID IN LIEU OF BASE BID STRUCTURE AS SPECIFIED

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Joseph D. Pelawa, P.E.
LIC. NO. 42603 DATE 12/15/2020



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AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	3	REV 1	4/28/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
TABULATIONS

SHEET
G1.04

CASTING ASSEMBLY TABULATION					N
LOCATION	STATION	CASTING ASSEMBLY	ADJUST FRAME & RING CASTING	CASTING ASSEMBLY SPECIAL (CLEANOUT IN PAVEMENT)	EA
CSAH 35					
038-635-001	4TH AVENUE	13+07.4 - 17+93.1			
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):					
CSAH 30					
038-630-001	8TH STREET	51+02.35 - 55+19.35	3		2
038-630-001	8TH STREET	55+19.35 - 61+55.28	11		2
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):					
CSAH 20					
038-620-010	7TH STREET	65+50 - 66+39.72			
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):					
CITY AVENUES					
4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68		4	4	
5TH AVENUE	22+20 - 30+75		4	4	
6TH AVENUE	33+50 - 43+35		4	4	
COUNTY PROJECT TOTALS					4
CITY PROJECT TOTALS					12
COMBINED PROJECT TOTALS					26

CASTING NOMENCLATURE:
R-3067-L - NEENAH CASTING WITH TYPE L GRATE OR EQUAL
R-3067-C - NEENAH CASTING WITH TYPE L GRATE OR EQUAL WITHOUT HOOD
R-1733 - NEENAH SELF SEALING LID WITH CONCEALED PICKHOLES LETTERED "SANITARY SEWER"

CASTING TYPE	S.A.P. 038-630-001	CITY PROJECT
	EACH	EACH
R-3067-L	12	
R-3067-C	2	
R-1733		12

EROSION CONTROL TABULATION							O
LOCATION	STATION	SILT FENCE, TYPE MS	SEDIMENT CONTROL LOG (BIOROLL)	SEDIMENT CONTROL LOG TYPE ROCK	STORM DRAIN INLET PROTECTION	EROSION CONTROL BLANKET CATEGORY 3N	SY
CSAH 35							
038-635-001	4TH AVENUE	13+07.4 - 17+93.1		24	60		
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):							
CSAH 30							
038-630-001	8TH STREET	51+02.35 - 55+19.35		48	3		178
038-630-001	8TH STREET	55+19.35 - 61+55.28		64	16		
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):							
CSAH 20							
038-620-010	7TH STREET	65+50 - 66+39.72			28		
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):							
CITY AVENUES							
4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68			16			
5TH AVENUE	22+20 - 30+75			20			
6TH AVENUE	33+50 - 43+35	550		8	2		135
COUNTY PROJECT TOTALS							178
CITY PROJECT TOTALS							135
COMBINED PROJECT TOTALS							313

TURF ESTABLISHMENT TABULATION											P
LOCATION	STATION	COMMON TOPSOIL BORROW (LV)	COMPOST GRADE 2 (LV)	SODDING TYPE LAWN	SEEDING	SEED MIXTURE 25-151	SEED MIXTURE 33-361	FERTILIZER TYPE 3	HYDRAULIC BONDED FIBER MATRIX	WATER (IRRIGATION TURF ESTABLISHMENT)	RAPID STABILIZATION METHOD 3
CSAH 35											
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	32	8	50	0.06	7.20	12	210	7	0.54
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):											
CSAH 30											
038-630-001	8TH STREET	51+02.35 - 55+19.35	38	10		0.07	8.40	14	340	14	0.63
038-630-001	8TH STREET	55+19.35 - 61+55.28	75	19		0.14	16.80	28	395	14	1.26
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):											
CITY AVENUES											
4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68		59	15		0.11	13.20	22	1,200	20	0.99
5TH AVENUE	22+20 - 30+75		188	47	50	0.35	42.00	70	1,220	20	3.15
6TH AVENUE	33+50 - 43+35		323	81		0.60	70.95	120	1,290	25	5.40
COUNTY PROJECT TOTALS											2
CITY PROJECT TOTALS											9.54
COMBINED PROJECT TOTALS											12.0


PAVEMENT MARKING TABULATION					Q
LOCATION	STATION	4" DOUBLE SOLID LINE PAINT GROUND IN	6" SOLID LINE PAINT GROUND IN	24" STOP LINE PAINT GROUND IN	LF
CSAH 35					
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	400	835	
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):					
CSAH 30					
038-630-001	8TH STREET	51+02.35 - 55+19.35	305	635	
038-630-001	8TH STREET	55+19.35 - 61+55.28	535	420	
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):					
CSAH 20					
038-620-010	7TH STREET	65+50 - 66+39.72			
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):					
CITY AVENUES					
4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68			30	12
5TH AVENUE	22+20 - 30+75				
6TH AVENUE	33+50 - 43+35			60	
COUNTY PROJECT TOTALS					1,240
CITY PROJECT TOTALS					90
COMBINED PROJECT TOTALS					1,980

NOTES:
(1) SEE SHEET C7.03 FOR PAVEMENT MARKING LOCATIONS.
(2) 4" DOUBLE SOLID LINE PAINT GROUND IN TO BE YELLOW IN COLOR.
(3) 6" SOLID LINE PAINT GROUND IN TO BE WHITE IN COLOR.
(4) 24" STOP LINE PAINT GROUND IN TO BE WHITE IN COLOR.

SIGNING TABULATION					R
LOCATION	STATION	INSTALL SIGN	SIGN PANEL TYPE C	SIGN TYPE SPECIAL	EA
CSAH 35					
038-635-001	4TH AVENUE	13+07.4 - 17+93.1	5	17	
SUBTOTAL 4TH AVENUE (S.A.P. 038-635-001):					
CSAH 30					
038-630-001	8TH STREET	51+02.35 - 55+19.35	5	21.75	
038-630-001	8TH STREET	55+19.35 - 61+55.28	11	19.0	
SUBTOTAL 8TH STREET (S.A.P. 038-630-001):					
CSAH 20					
038-620-010	7TH STREET	65+50 - 66+39.72			
SUBTOTAL 7TH STREET (S.A.P. 038-620-010):					
CITY AVENUES					
4TH AVENUE	10+46 - 13+07.4, 17+93.1 - 18+68		4	27.75	30
5TH AVENUE	22+20 - 30+75		10	42.50	30
6TH AVENUE	33+50 - 43+35		9	32.50	
COUNTY PROJECT TOTALS					60
CITY PROJECT TOTALS					102.75
COMBINED PROJECT TOTALS					160.50

NOTES:
(1) SEE MNMUTCD FOR TYPICAL MOUNTING.
(2) SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWING OF PANELS.
(3) CONTRACTOR SHALL SALVAGE AND DELIVER EXISTING STREET SIGNS TO CITY PUBLIC WORKS.
(4) CONTRACTOR TO PROVIDE NEW SIGNS AND POSTS.
(5) SEE STREET SIGNAGE PLANS FOR SIGN LOCATIONS.
(6) CITY STREET NAME SIGNS AND POSTS TO BE INSTALLED BY OTHERS.

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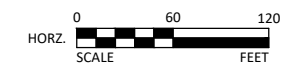
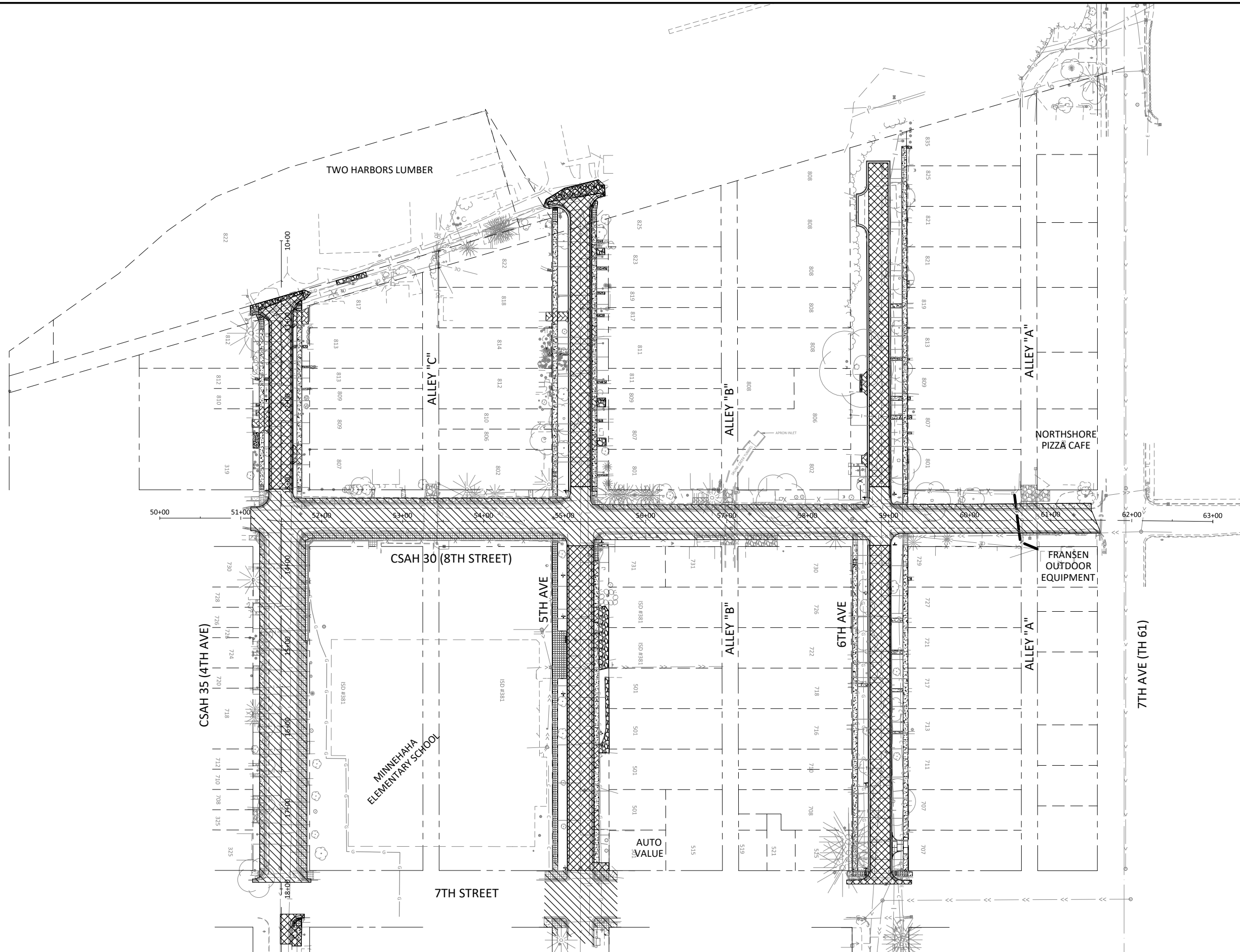


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AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21
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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
TABULATIONS

SHEET

G1.05



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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 LOCATION PLAN

SHEET
G2.01

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LUMBER YARD ACCESS ROUTE NOTES:

- CONTRACTOR TO ADD 6" OF AGGREGATE SURFACING TO EXISTING GRAVEL ON DESIGNATED ACCESS ROUTE.
- CONTRACTOR TO MAINTAIN ACCESS ROUTE DAILY. BLADE & COMPACT AS NEEDED.
- ACCESS ROUTE IS TO BE USED WHENEVER 4TH AVENUE IS INACCESSIBLE FOR VEHICLES.
- TEMPORARY NO PARKING SIGNS ON THE NORTH SIDE OF 5TH AVENUE, WEST OF CSAH 30 WHENEVER THE LUMBER YARD ACCESS ROUTE IS ACTIVE (INCIDENTAL).

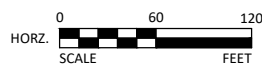


NOTE:
- STREET SURFACE REMOVAL AND MAINTENANCE SHALL COMPLY WITH SPECIFICATION REQUIREMENTS.

SUGGESTED PHASING

- NORTH CSAH 30 PHASE (SEE SPECIAL PROVISIONS)
- SCHOOL LOOP PHASE (SEE SPECIAL PROVISIONS)
- WEST PHASE

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[Signature]
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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
CONSTRUCTION PHASING PLAN

SHEET
G2.02



TEMPORARY WATER LAYOUT OPTIONS & WATERMAIN INSTALLATION NOTES:




- 4TH AVENUE (SCHOOL LOOP PHASE):**
- STEP 1: SET UP TEMPORARY WATER FOR THE SCHOOL LOOP PHASE. USING THE EXISTING HYDRANT AT 3RD AVENUE & 8TH STREET.
 - STEP 2: REMOVE EXISTING HYDRANT EAST OF 7TH STREET. CONNECT TO EXISTING 4" WATERMAIN WEST OF 7TH STREET, INSTALL 6"x4" REDUCER, 6"x6" TEE, HYDRANT, & 6" GATE VALVE. CLOSE NEW MAINLINE GATE VALVE WEST OF HYDRANT TO RESTORE WATER TO THE 600 BLOCK OF 4TH AVENUE. (SHUTDOWNS #1 & #2)
 - STEP 3: INSTALL NEW 6" GATE VALVE & HYDRANT WEST OF 8TH STREET AT STATION 13+05. CONNECT TO THE EXISTING 4" WATERMAIN WEST OF THE NEW 6" GATE VALVE. CLOSE NEW 6" GATE VALVE TO RESTORE WATER TO 800 BLOCKS OF 4TH & 5TH AVENUE, & THE EXISTING 12" WATERMAIN TO THE WEST. (SHUTDOWN #3)
 - COMPLETE WATERMAIN INSTALLATION FOR THE SCHOOL LOOP PHASE.
 - PROPERTIES CAN ONLY BE SERVICED OFF OF TEMPORARY WATER DURING ONE CALENDAR YEAR.

- 4TH AVENUE (WEST PHASE):**
- USE HYDRANT INSTALLED DURING THE SCHOOL LOOP PHASE WEST OF 8TH STREET FOR TEMPORARY WATER.

- 5TH AVENUE (SCHOOL LOOP PHASE):**
- STEP 1: SET UP TEMPORARY WATER FOR THE SCHOOL LOOP PHASE. USING THE EXISTING HYDRANT AT THE WEST END OF 5TH AVENUE.
 - STEP 2: CONNECT TO EXISTING 4" WATERMAIN WEST OF 7TH STREET, INSTALL 6"x4" REDUCER, & 6" GATE VALVE. CLOSE NEW GATE VALVE TO RESTORE WATER TO THE 600 BLOCK OF 5TH AVENUE. (WATER SHUTDOWN #4)
 - STEP 3: INSTALL NEW 6" GATE VALVE & HYDRANT WEST OF 8TH STREET AT STATION 25+90. CONNECT TO THE EXISTING 4" WATERMAIN WEST OF THE NEW 6" GATE VALVE. CLOSE NEW 6" GATE VALVE TO RESTORE WATER TO 800 BLOCKS OF 4TH & 5TH AVENUE, & THE EXISTING 12" WATERMAIN TO THE WEST.
 - COMPLETE WATERMAIN INSTALLATION FOR THE SCHOOL LOOP PHASE.
 - PROPERTIES CAN ONLY BE SERVICED OFF OF TEMPORARY WATER DURING ONE CALENDAR YEAR.

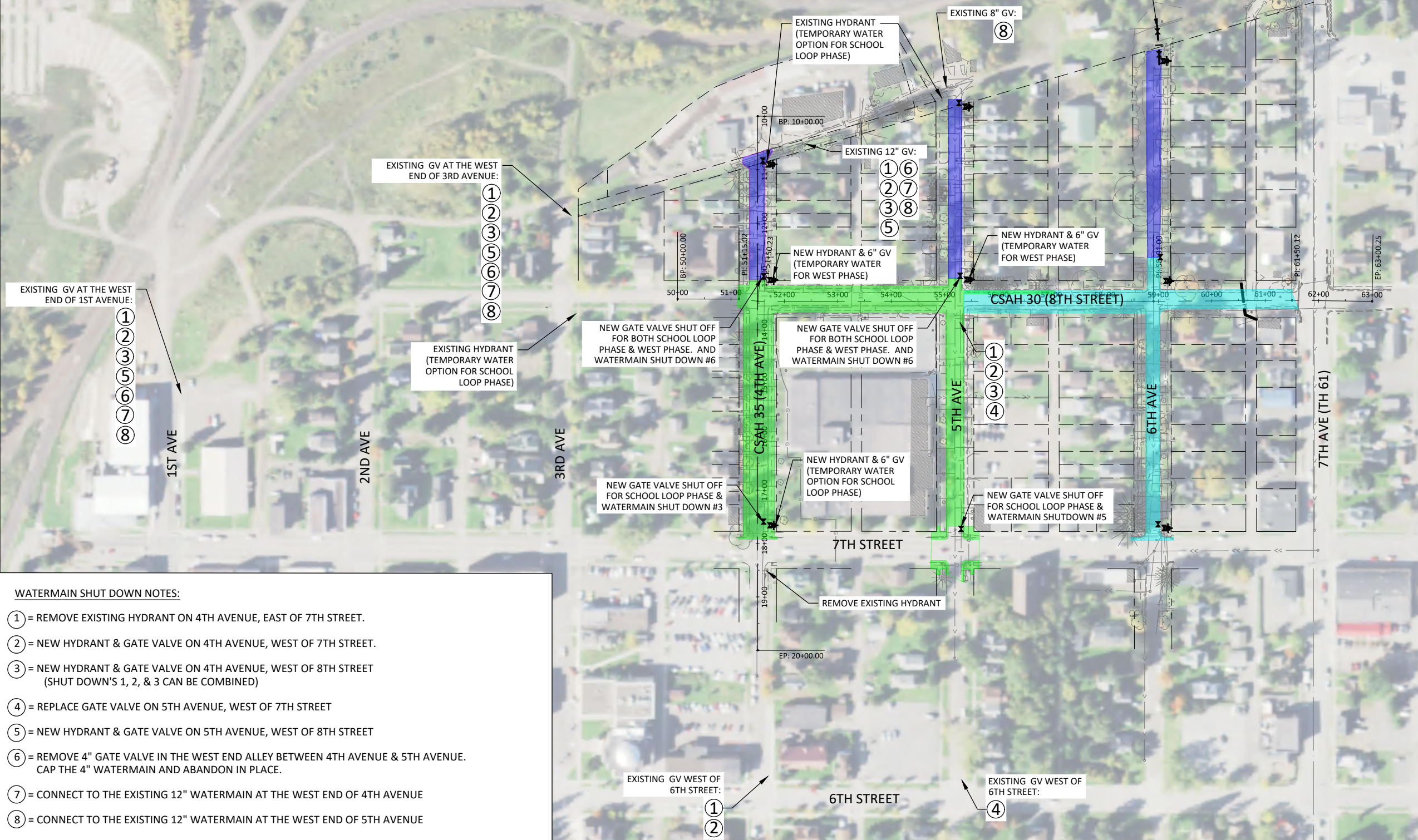
- 5TH AVENUE (WEST PHASE):**
- USE HYDRANT INSTALLED DURING THE SCHOOL LOOP PHASE WEST OF 8TH STREET FOR TEMPORARY WATER.

SUGGESTED PHASING

-  NORTH CSAH 30 PHASE (BIT BY 10/1/2021)
-  SCHOOL LOOP PHASE (BIT BY 8/15/2021)
-  WEST PHASE

LEGEND:

⑧ = GATE VALVE LOCATION THAT WILL BE SHUT OFF FOR EACH INDIVIDUAL WATERMAIN SHUT DOWN.



WATERMAIN SHUT DOWN NOTES:

- ① = REMOVE EXISTING HYDRANT ON 4TH AVENUE, EAST OF 7TH STREET.
- ② = NEW HYDRANT & GATE VALVE ON 4TH AVENUE, WEST OF 7TH STREET.
- ③ = NEW HYDRANT & GATE VALVE ON 4TH AVENUE, WEST OF 8TH STREET (SHUT DOWN'S 1, 2, & 3 CAN BE COMBINED)
- ④ = REPLACE GATE VALVE ON 5TH AVENUE, WEST OF 7TH STREET
- ⑤ = NEW HYDRANT & GATE VALVE ON 5TH AVENUE, WEST OF 8TH STREET
- ⑥ = REMOVE 4" GATE VALVE IN THE WEST END ALLEY BETWEEN 4TH AVENUE & 5TH AVENUE. CAP THE 4" WATERMAIN AND ABANDON IN PLACE.
- ⑦ = CONNECT TO THE EXISTING 12" WATERMAIN AT THE WEST END OF 4TH AVENUE
- ⑧ = CONNECT TO THE EXISTING 12" WATERMAIN AT THE WEST END OF 5TH AVENUE

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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 TEMPORARY WATER LAYOUT - 4TH & 5TH AVENUE


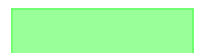

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TEMPORARY WATER LAYOUT & WATERMAIN INSTALLATION NOTES:

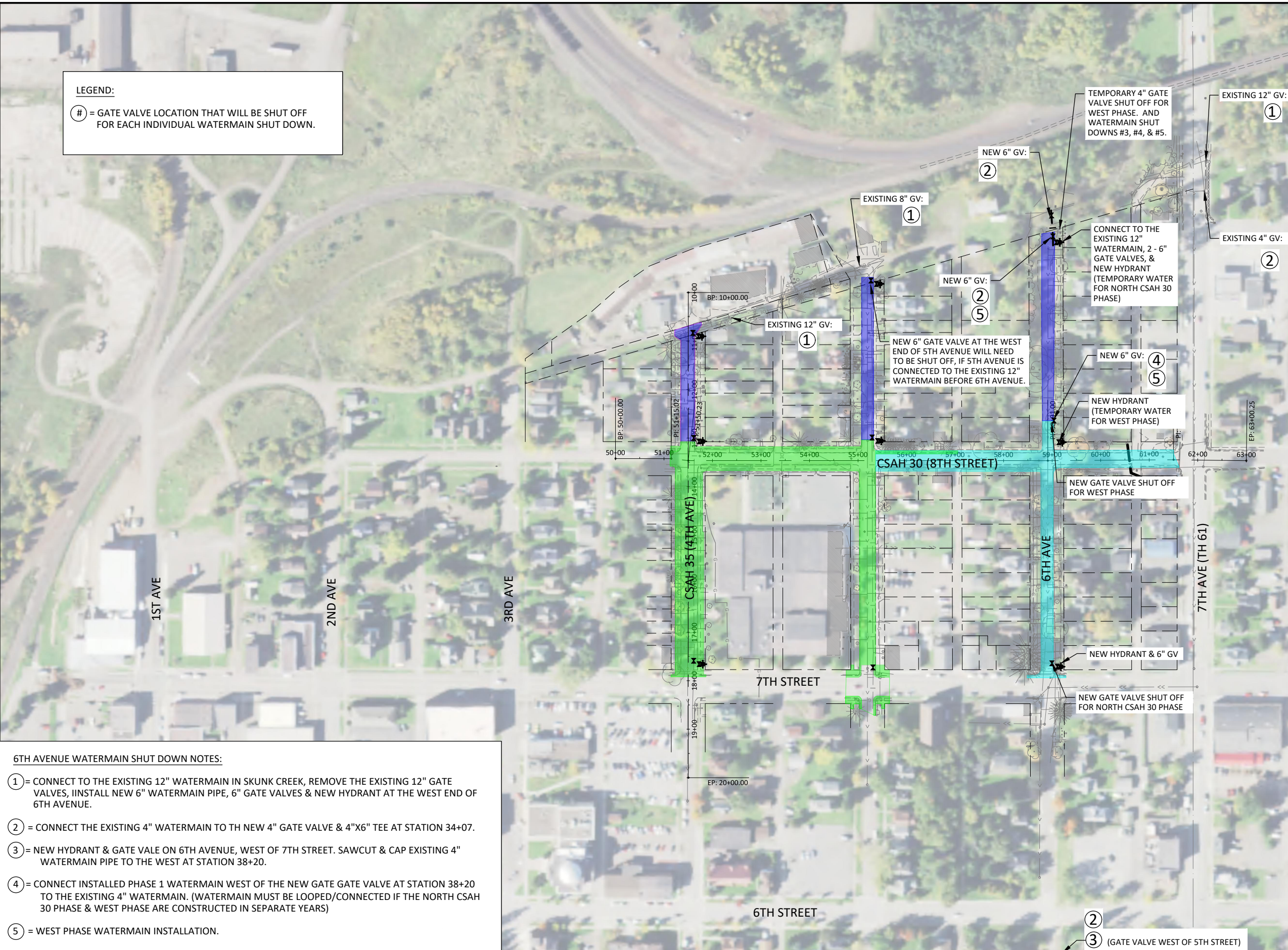
- 6TH AVENUE (NORTH CSAH 30 PHASE):**
- STEP 1: CONNECT TO THE EXISTING 12" WATERMAIN. INSTALL NEW 6" WATERMAIN TO THE NEW GATE VALVES AND HYDRANT LOCATION AT THE WEST END OF 6TH AVENUE. CAP NEW 6" WATERMAIN EAST OF THE NEW 6"X6" TEE. USE THE NEW HYDRANT FOR TEMPORARY WATER FOR THE NORTH CSAH 30 PHASE. (DEPENDANT ON A PASSING BUG TEST BEFORE THE NEW HYDRANT IS USED)
 - STEP 2: TURN OFF THE 4" GATE VALVE IN TRUNK HIGHWAY 61 & THE 4" GATE VALVE WEST OF 5TH STREET. CONNECT EXISTING 4" WATERMAIN TO THE NEW 4" GATE VALVE & 4"X6" TEE. TURN THE GATE VALVES BACK ON.
 - STEP 3: SET UP TEMPORARY WATER FOR THE NORTH CSAH 30 PHASE. USING THE NEW HYDRANT AT THE WEST END OF 6TH AVENUE.
 - STEP 4: SHUT OFF THE NEW TEMPORARY 4" GATE VALVE AT THE WEST END OF 6TH AVENUE, AND THE EXISTING 4" GATE VALVE AT THE 6TH AVENUE & 5TH STREET INTERSECTION (WEST OF 5TH STREET). SAWCUT EXISTING 4" WATERMAIN AT STATION 38+20, CAP EXISTING 4" WATERMAIN TO THE WEST. CONNECT TO THE EXISTING 4" WATERMAIN IN THE NORTHWEST CORNER OF THE 7TH STREET INTERSECTION. INSTALL A 6"X4" REDUCER, 6"X6" TEE, HYDRANT, & 6" GATE VALVE. CLOSE NEW GATE VALVE WEST OF THE NEW HYDRANT TO RESTORE WATER TO THE 600 & 500 BLOCKS OF 6TH AVENUE.
 - COMPLETE WATERMAIN INSTALLATION FOR THE NORTH CSAH 30 PHASE.
 - AFTER THE NORTH CSAH 30 PHASE WATERMAIN IS COMPLETED, CONNECT THE NEW 6" WATERMAIN WEST OF THE NEW GATE VALVE AT STATION 38+20 TO THE EXISTING 4" WATERMAIN. (WATERMAIN MUST BE LOOPED/CONNECTED IF THE NORTH CSAH 30 PHASE & WEST PHASE ARE CONSTRUCTED IN SEPARATE YEARS)
- 6TH AVENUE (WEST PHASE):**
- USE HYDRANT INSTALLED DURING THE NORTH CSAH 30 PHASE, WEST OF 8TH STREET FOR TEMPORARY WATER.
 - REMOVE TEMPORARY 4" GATE VALVE AT THE WEST END OF 6TH AVENUE. CAP AT THE 4"X4 TEE.

SUGGESTED PHASING

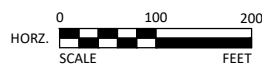
-  NORTH CSAH 30 PHASE (BIT BY 10/1/2021)
-  SCHOOL LOOP PHASE (BIT BY 8/15/2021)
-  WEST PHASE

LEGEND:

① = GATE VALVE LOCATION THAT WILL BE SHUT OFF FOR EACH INDIVIDUAL WATERMAIN SHUT DOWN.



- 6TH AVENUE WATERMAIN SHUT DOWN NOTES:**
- ① = CONNECT TO THE EXISTING 12" WATERMAIN IN SKUNK CREEK, REMOVE THE EXISTING 12" GATE VALVES, INSTALL NEW 6" WATERMAIN PIPE, 6" GATE VALVES & NEW HYDRANT AT THE WEST END OF 6TH AVENUE.
 - ② = CONNECT THE EXISTING 4" WATERMAIN TO THE NEW 4" GATE VALVE & 4"X6" TEE AT STATION 34+07.
 - ③ = NEW HYDRANT & GATE VALVE ON 6TH AVENUE, WEST OF 7TH STREET. SAWCUT & CAP EXISTING 4" WATERMAIN PIPE TO THE WEST AT STATION 38+20.
 - ④ = CONNECT INSTALLED PHASE 1 WATERMAIN WEST OF THE NEW GATE VALVE AT STATION 38+20 TO THE EXISTING 4" WATERMAIN. (WATERMAIN MUST BE LOOPED/CONNECTED IF THE NORTH CSAH 30 PHASE & WEST PHASE ARE CONSTRUCTED IN SEPARATE YEARS)
 - ⑤ = WEST PHASE WATERMAIN INSTALLATION.



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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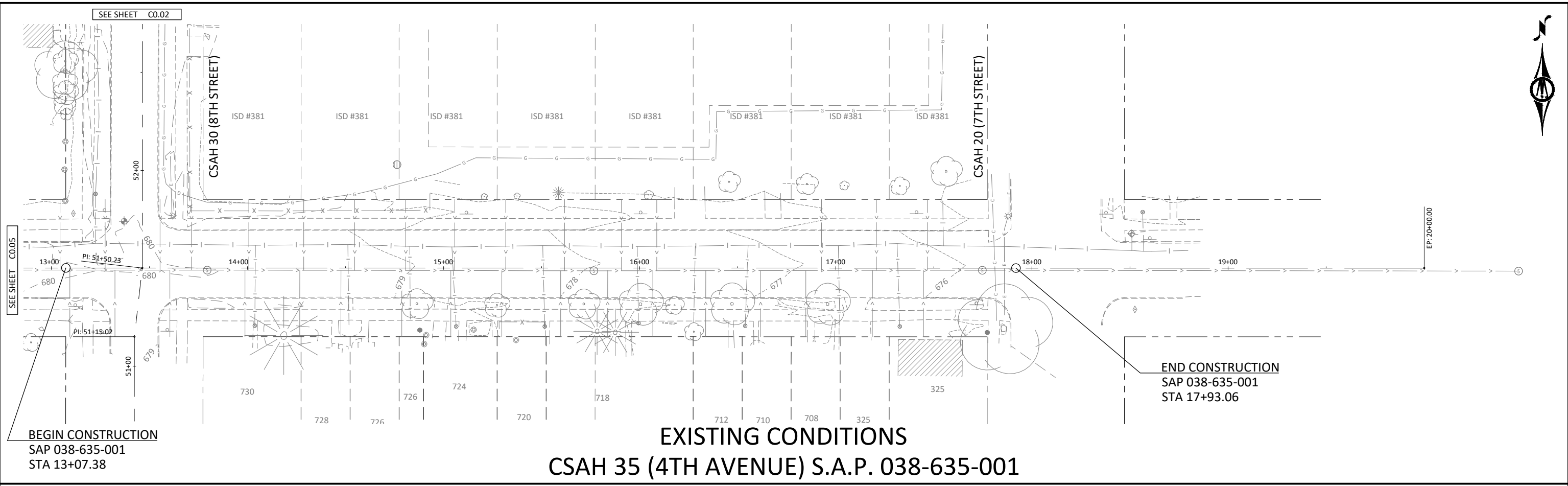
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

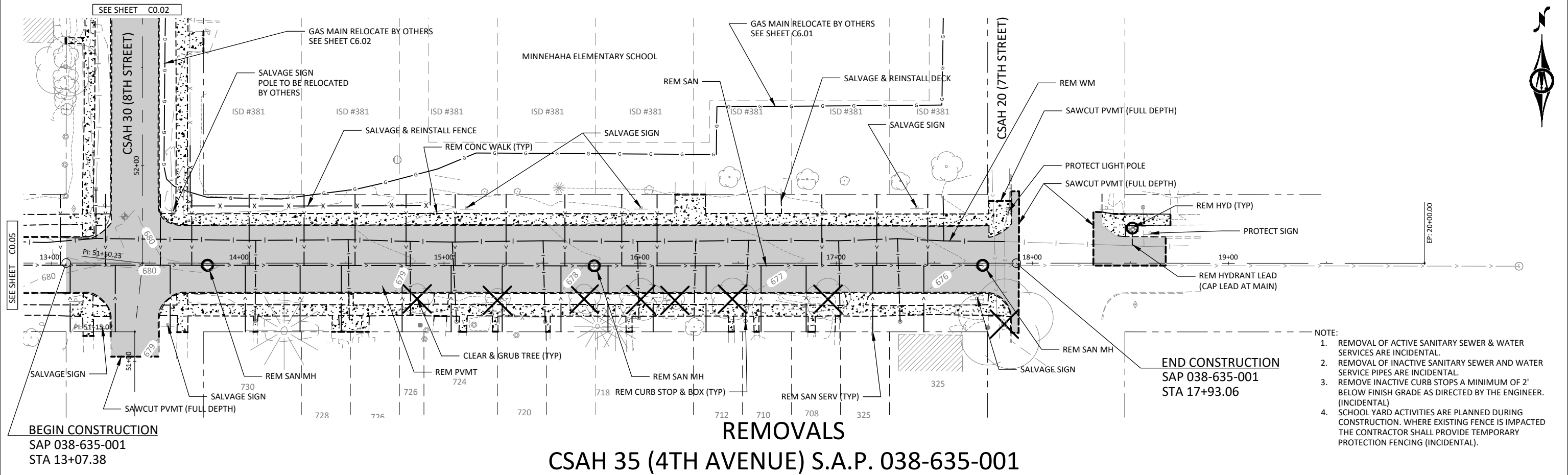
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 TEMPORARY WATER LAYOUT - 6TH AVENUE

SHEET
G2.04

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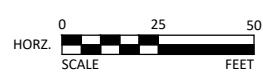
EXISTING CONDITIONS
CSAH 35 (4TH AVENUE) S.A.P. 038-635-001



REMOVALS
CSAH 35 (4TH AVENUE) S.A.P. 038-635-001

- NOTE:
1. REMOVAL OF ACTIVE SANITARY SEWER & WATER SERVICES ARE INCIDENTAL.
 2. REMOVAL OF INACTIVE SANITARY SEWER AND WATER SERVICE PIPES ARE INCIDENTAL.
 3. REMOVE INACTIVE CURB STOPS A MINIMUM OF 2' BELOW FINISH GRADE AS DIRECTED BY THE ENGINEER. (INCIDENTAL)
 4. SCHOOL YARD ACTIVITIES ARE PLANNED DURING CONSTRUCTION. WHERE EXISTING FENCE IS IMPACTED THE CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTION FENCING (INCIDENTAL).

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020

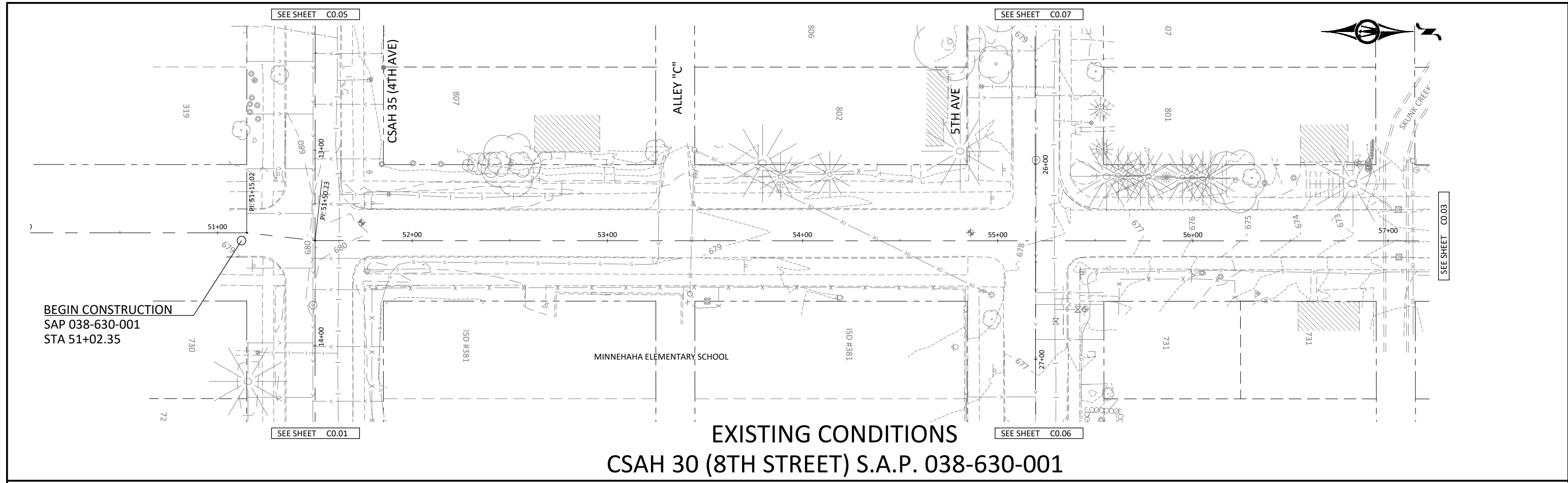


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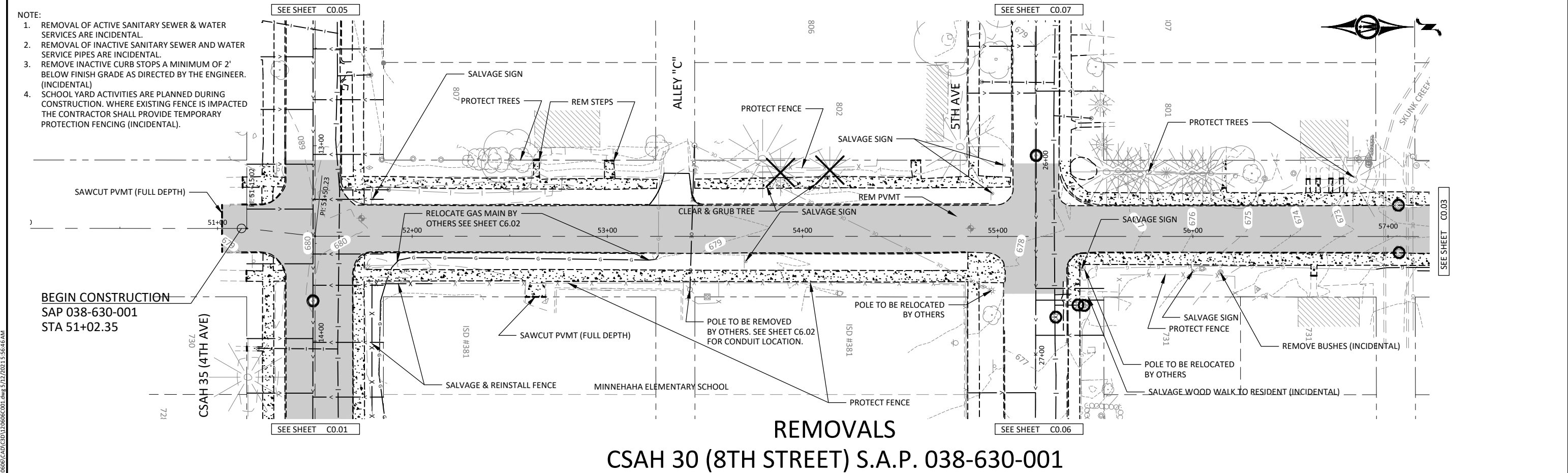


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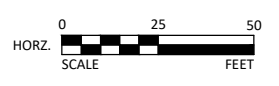


EXISTING CONDITIONS
CSAH 30 (8TH STREET) S.A.P. 038-630-001



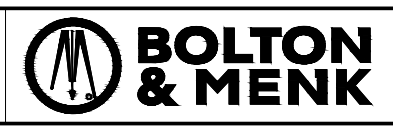
REMOVALS
CSAH 30 (8TH STREET) S.A.P. 038-630-001

- NOTE:**
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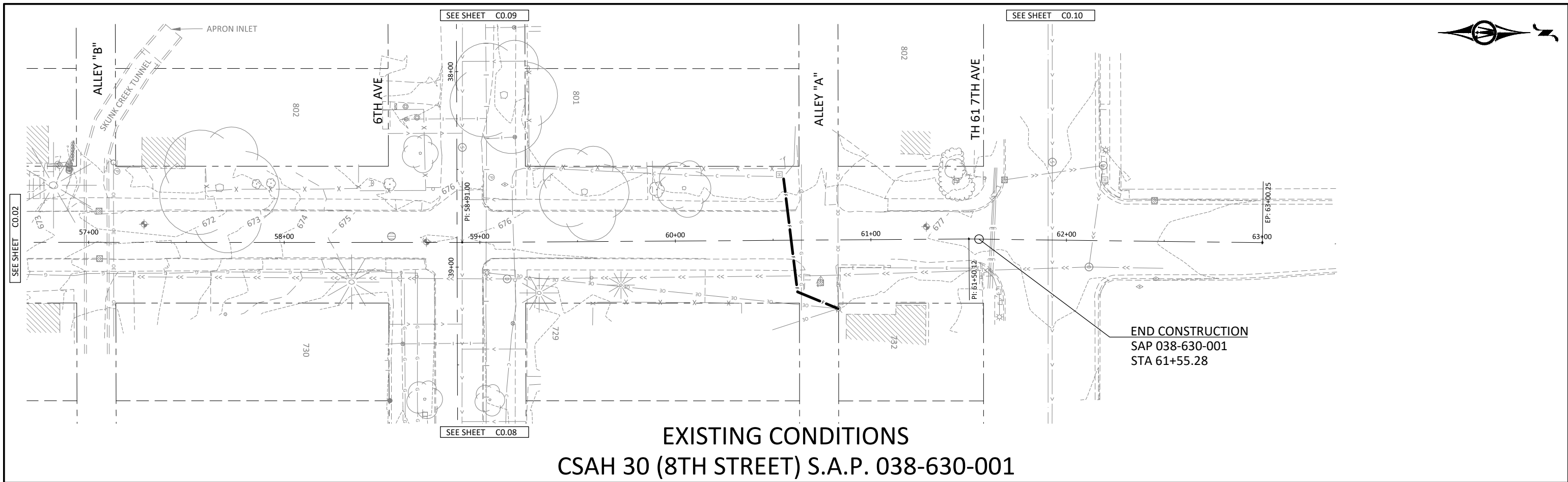
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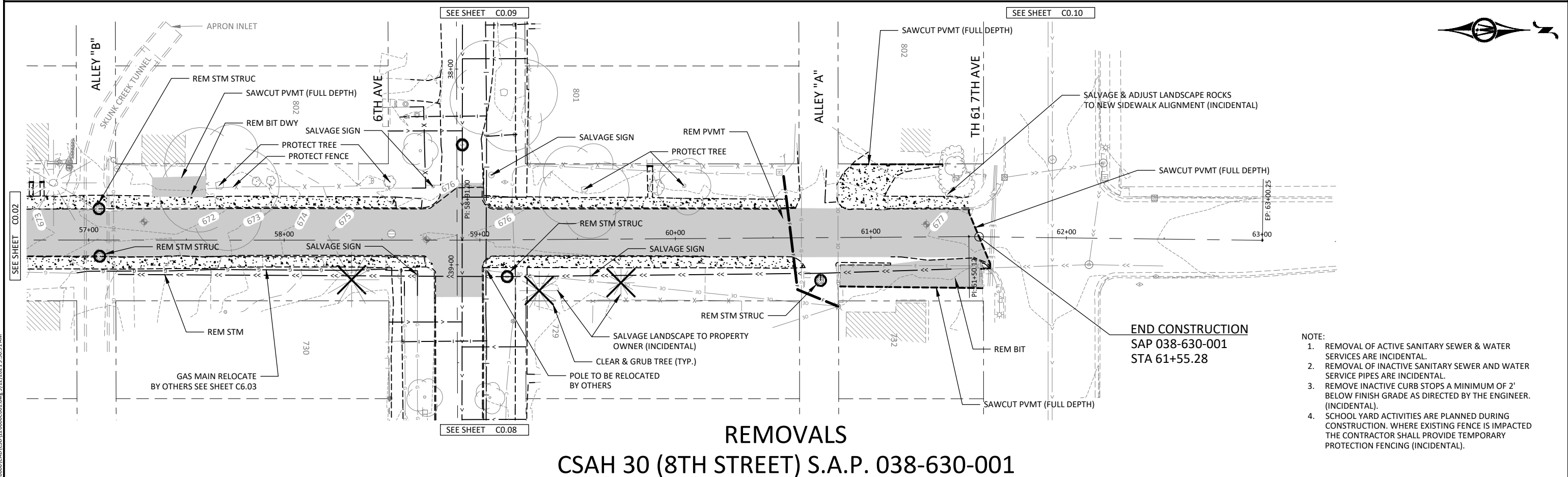
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 EXISTING CONDITIONS & REMOVALS - CSAH 30 (8TH STREET)

SHEET
C0.02

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EXISTING CONDITIONS
CSAH 30 (8TH STREET) S.A.P. 038-630-001



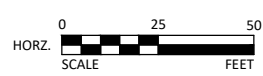
REMOVALS
CSAH 30 (8TH STREET) S.A.P. 038-630-001

END CONSTRUCTION
 SAP 038-630-001
 STA 61+55.28

END CONSTRUCTION
 SAP 038-630-001
 STA 61+55.28

- NOTE:
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[Signature]
 J. D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020

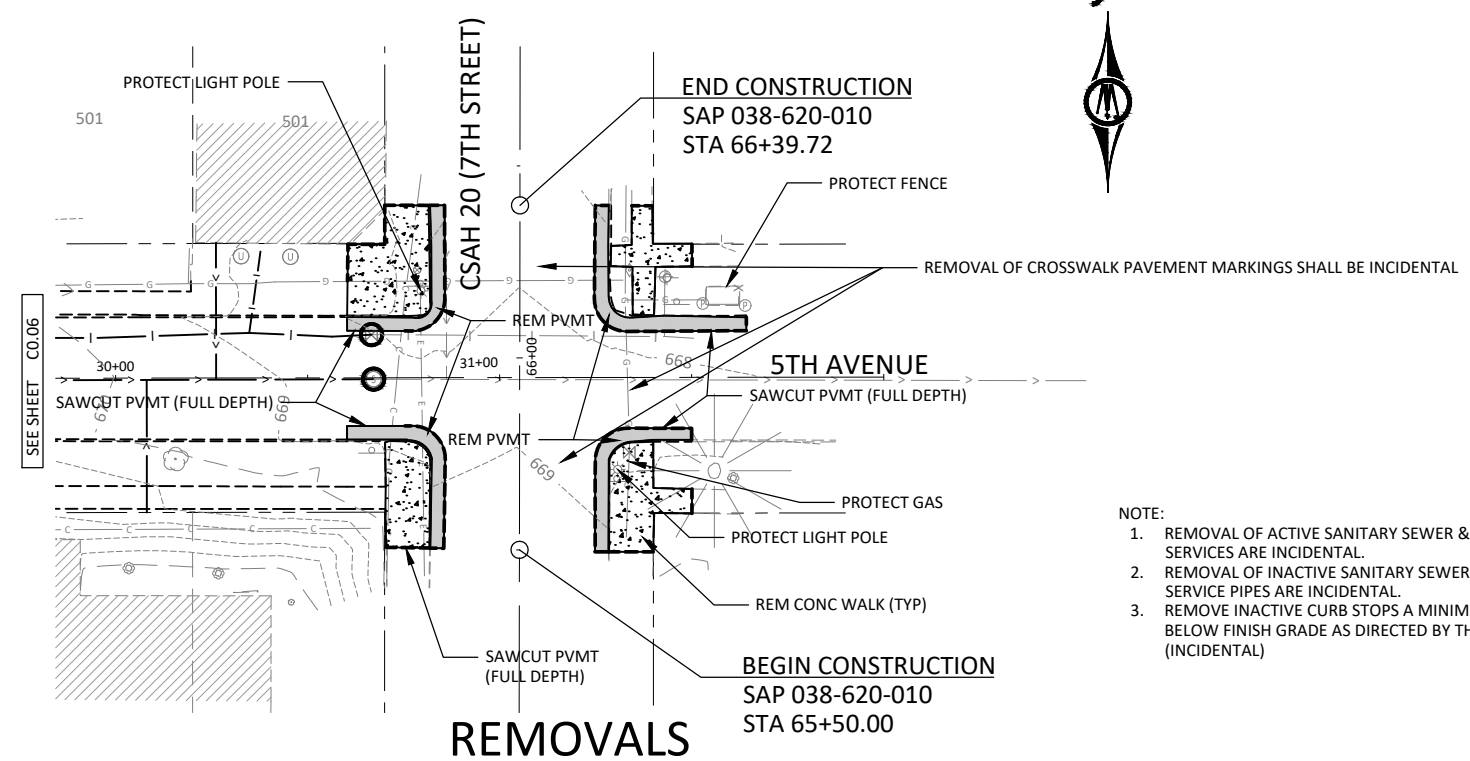
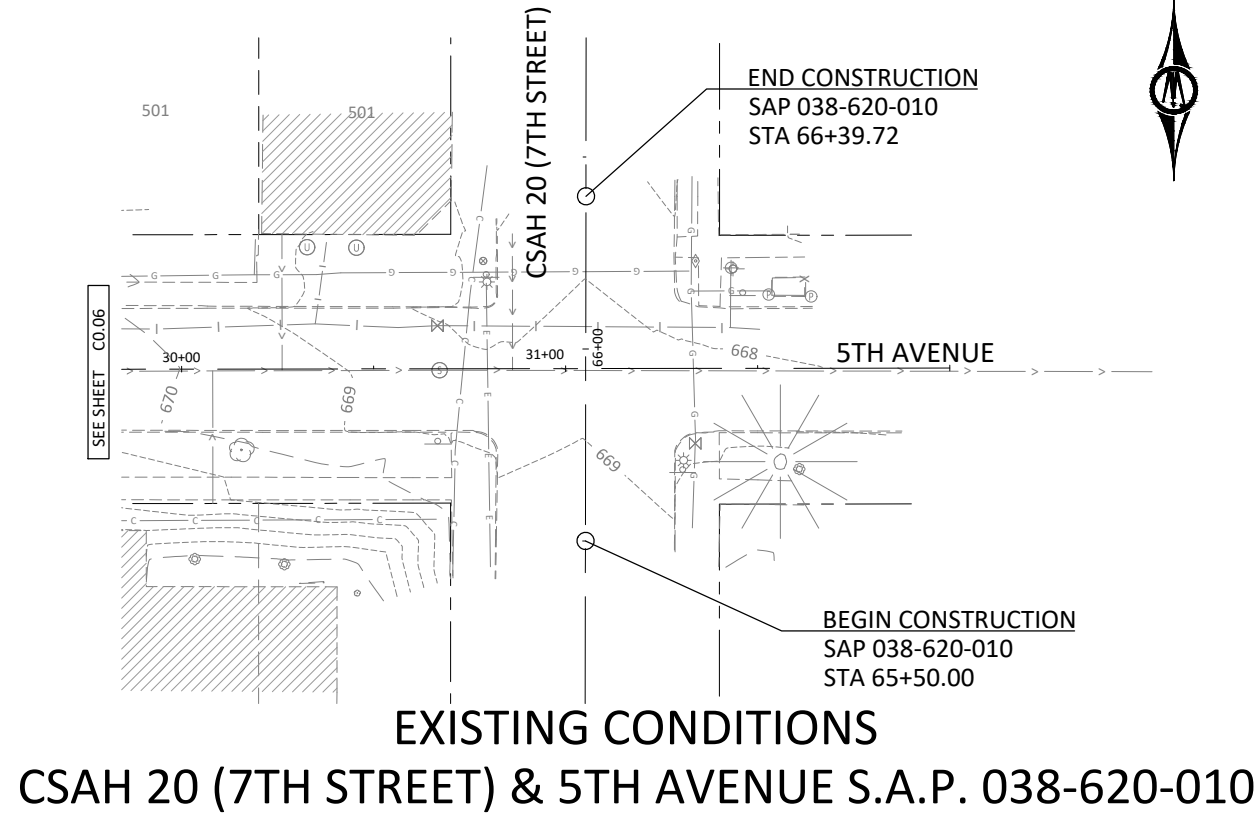


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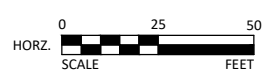
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606



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 JOSEPH D. PELAWA, P.E.
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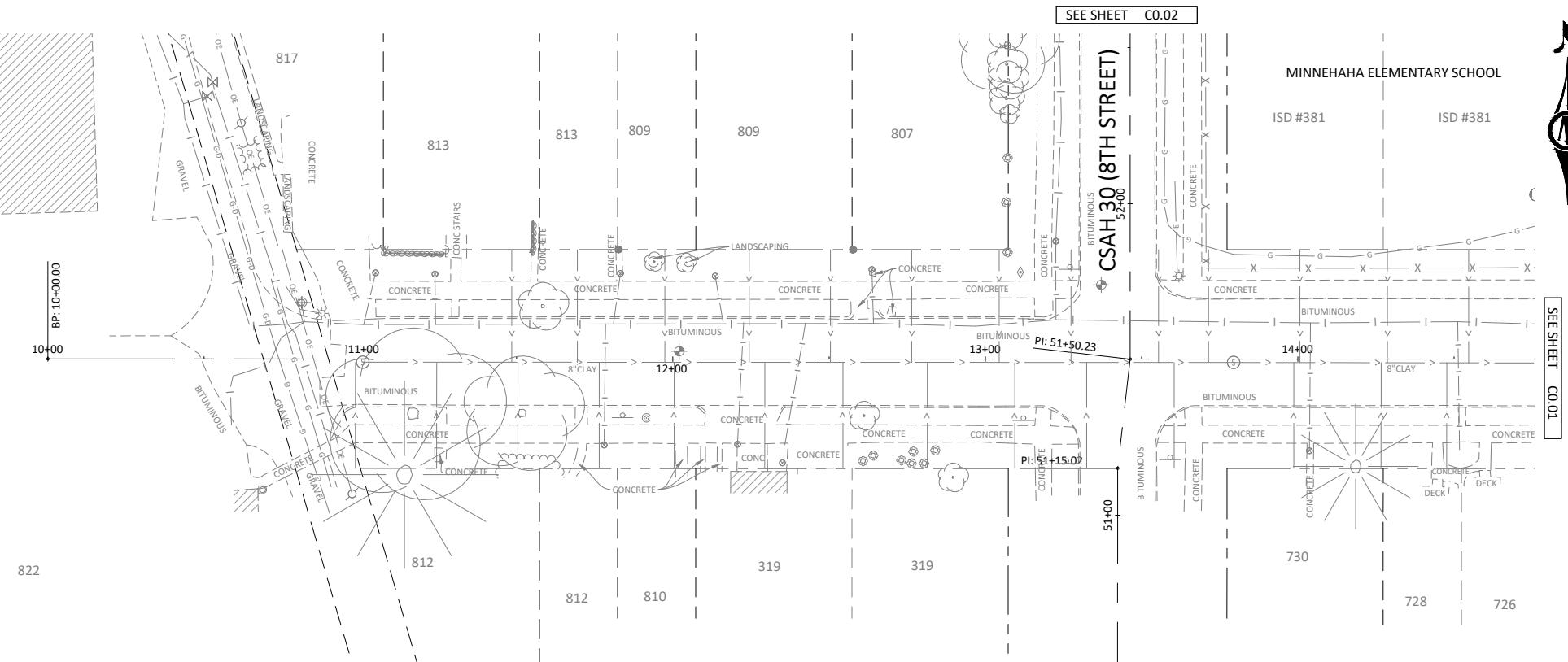


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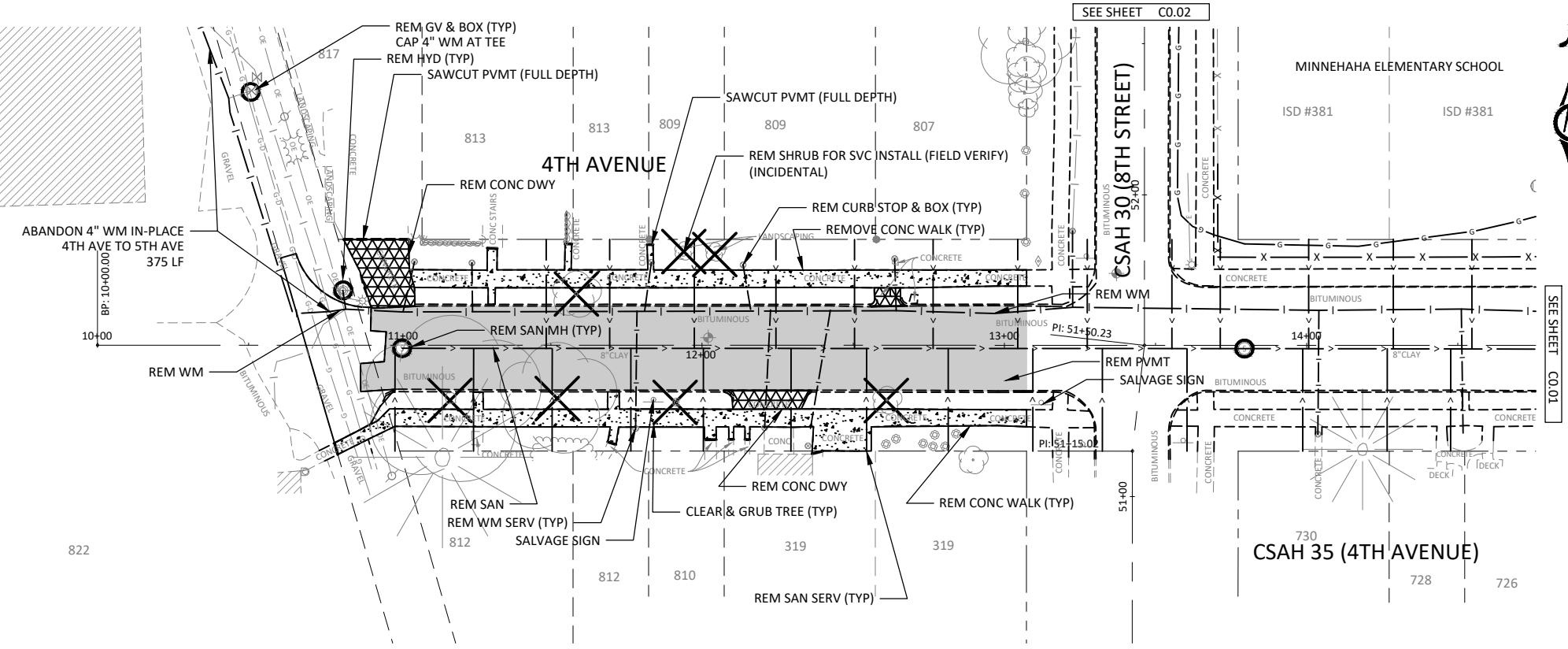
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 EXISTING CONDITIONS & REMOVALS - CSAH 20 (7TH STREET)

SHEET
C0.04

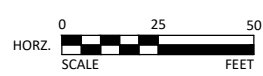


EXISTING CONDITIONS 4TH AVENUE



REMOVALS 4TH AVENUE

- NOTE:
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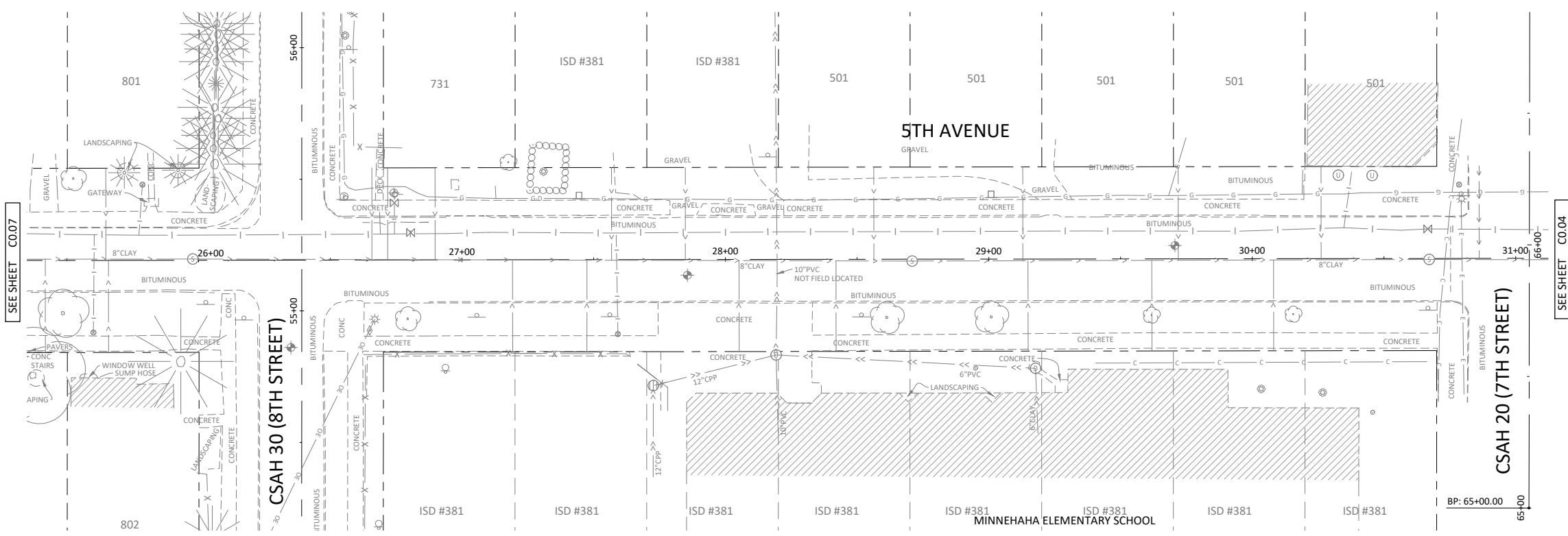
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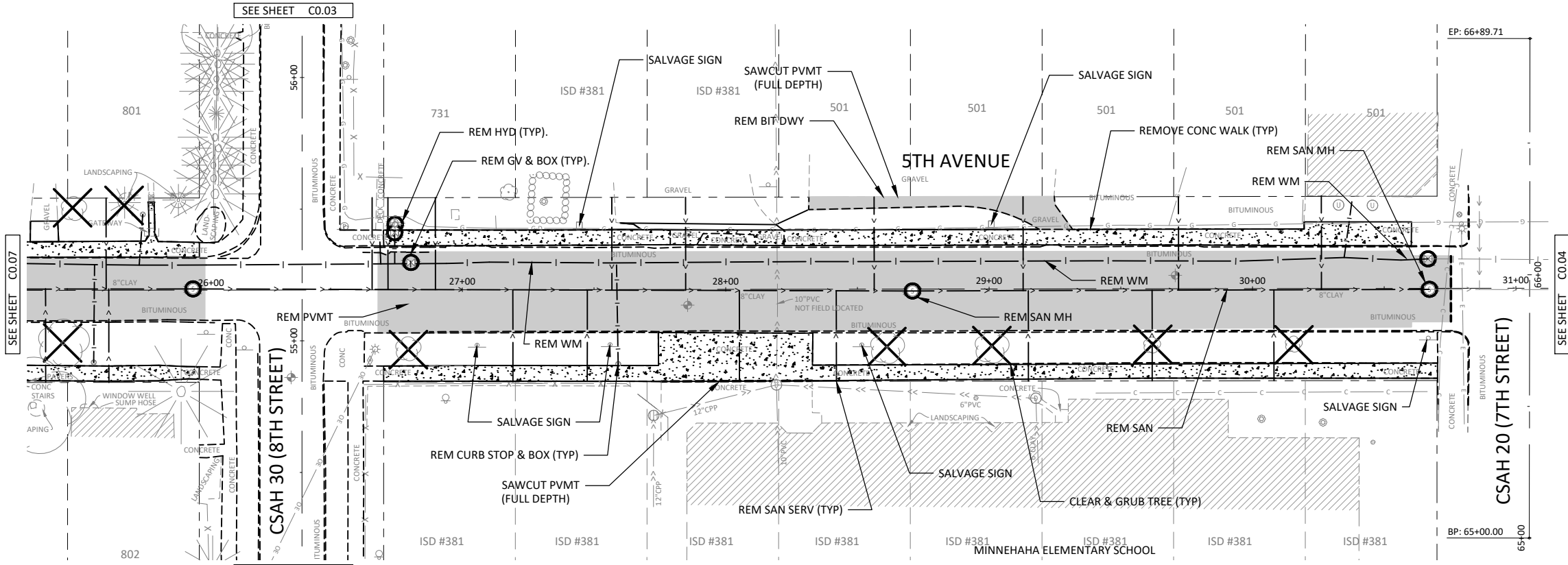
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 EXISTING CONDITIONS & REMOVALS - 4TH AVENUE

SHEET
C0.05

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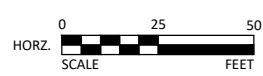
EXISTING CONDITIONS 5TH AVENUE



REMOVALS 5TH AVENUE

- NOTE:
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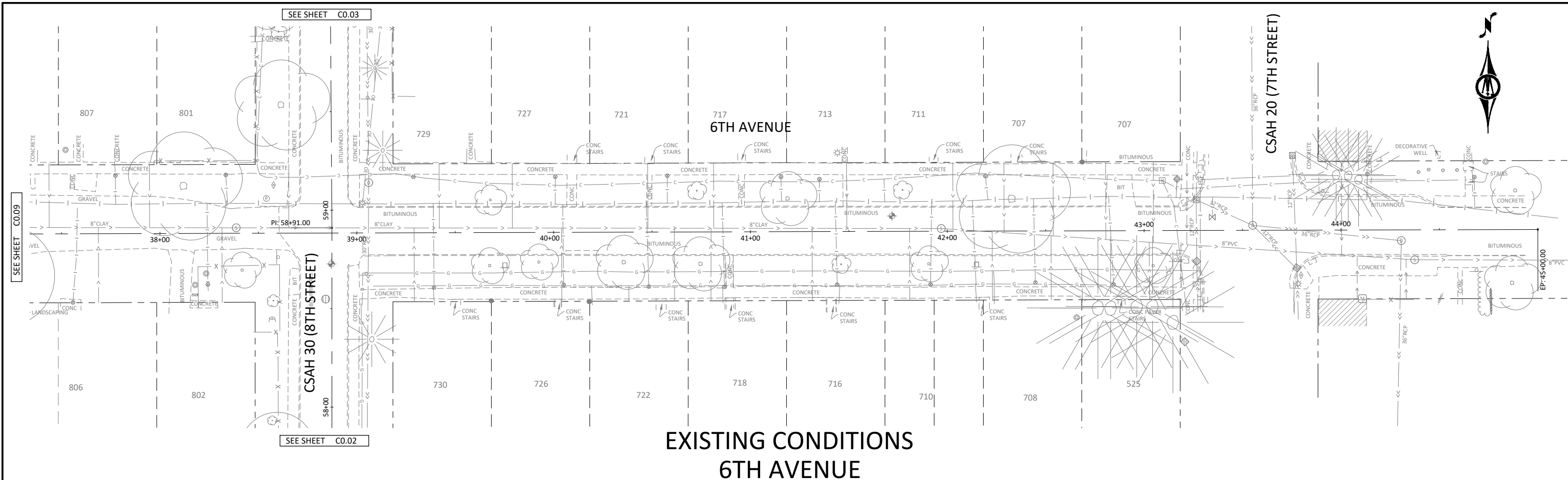


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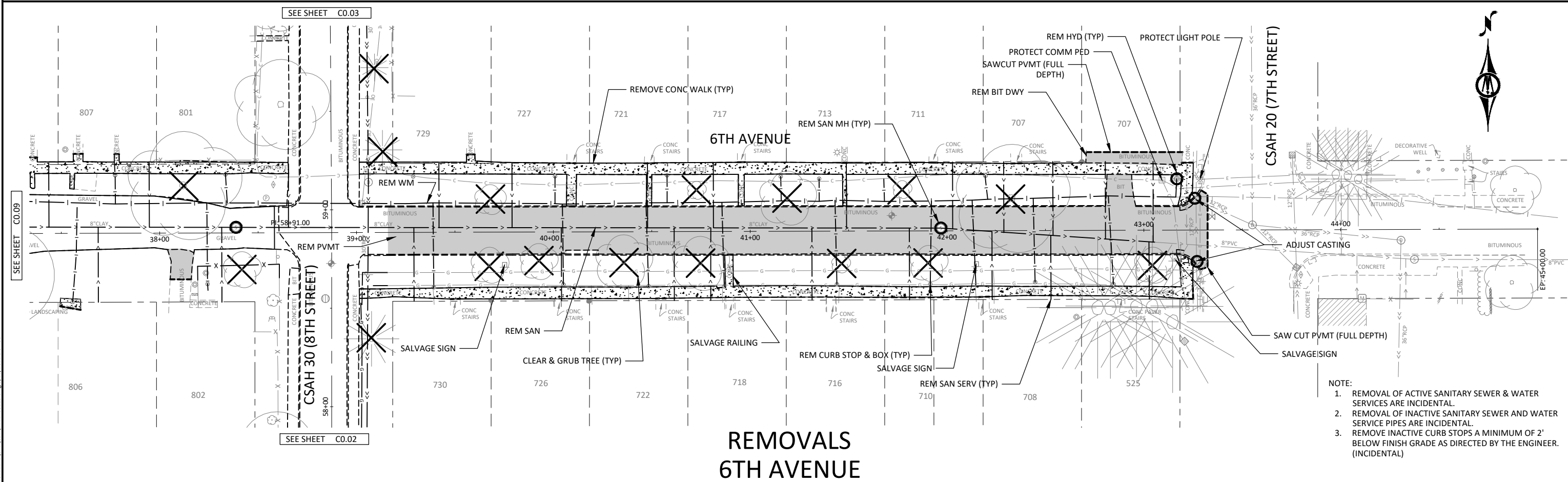
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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
EXISTING CONDITIONS & REMOVALS - 5TH AVENUE

SHEET
C0.06



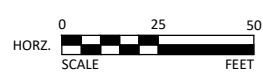
**EXISTING CONDITIONS
6TH AVENUE**



**REMOVALS
6TH AVENUE**

- NOTE:
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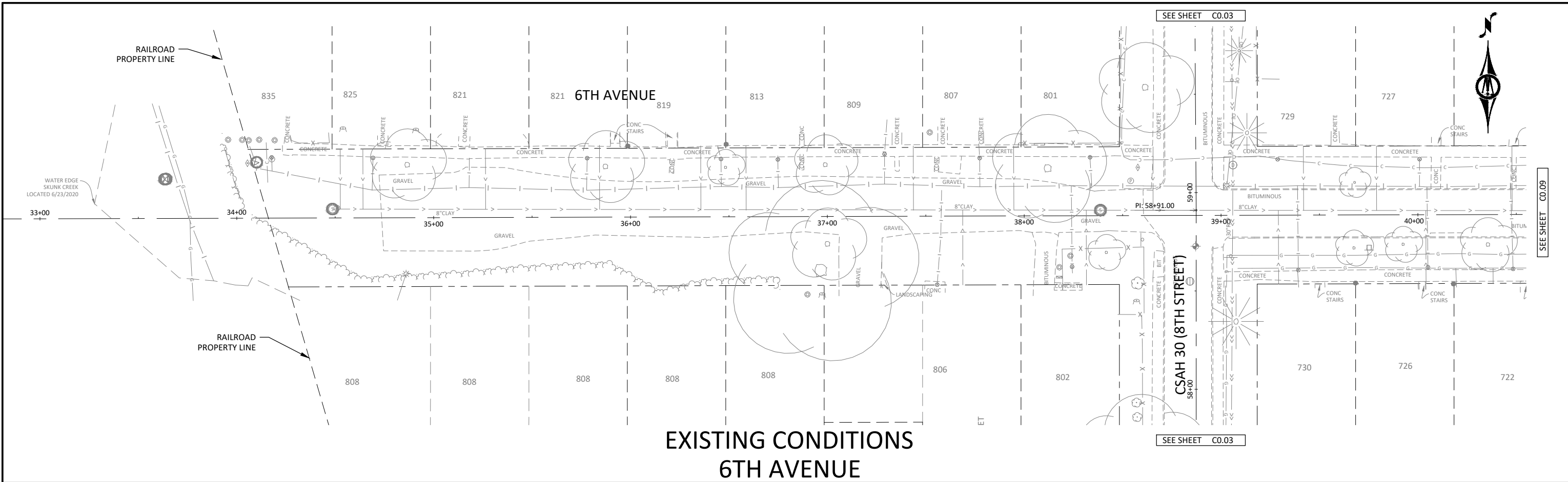
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LAKE COUNTY, MINNESOTA

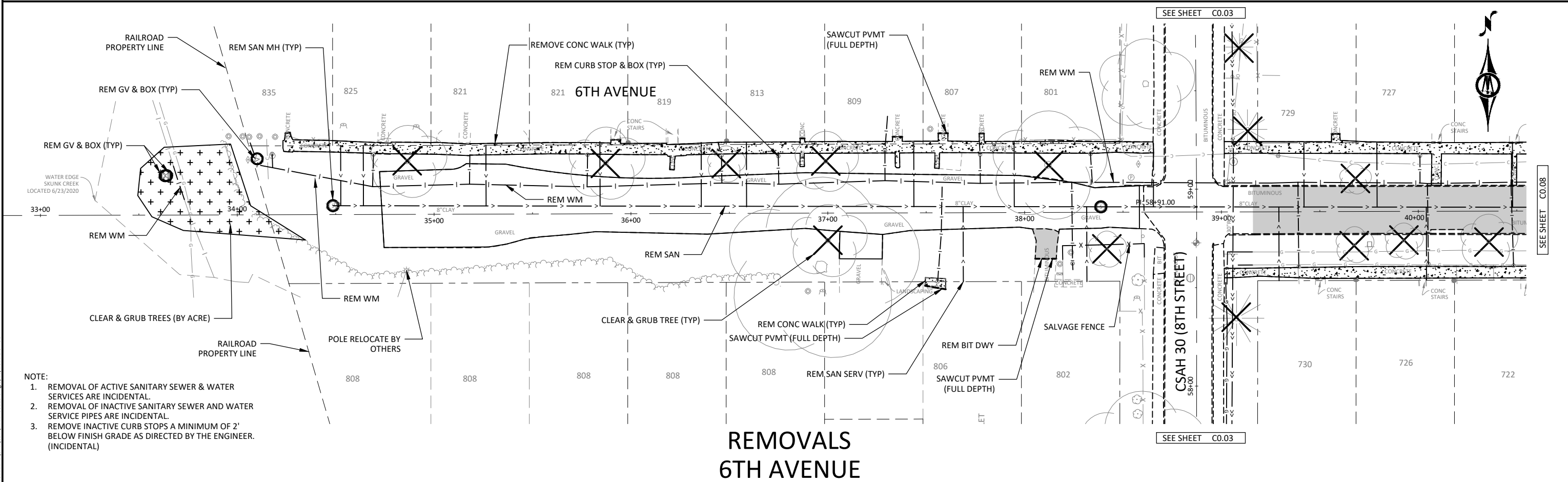
2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010

EXISTING CONDITIONS & REMOVALS - 6TH AVENUE

SHEET
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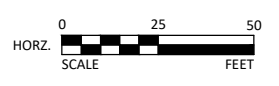


**EXISTING CONDITIONS
6TH AVENUE**



**REMOVALS
6TH AVENUE**

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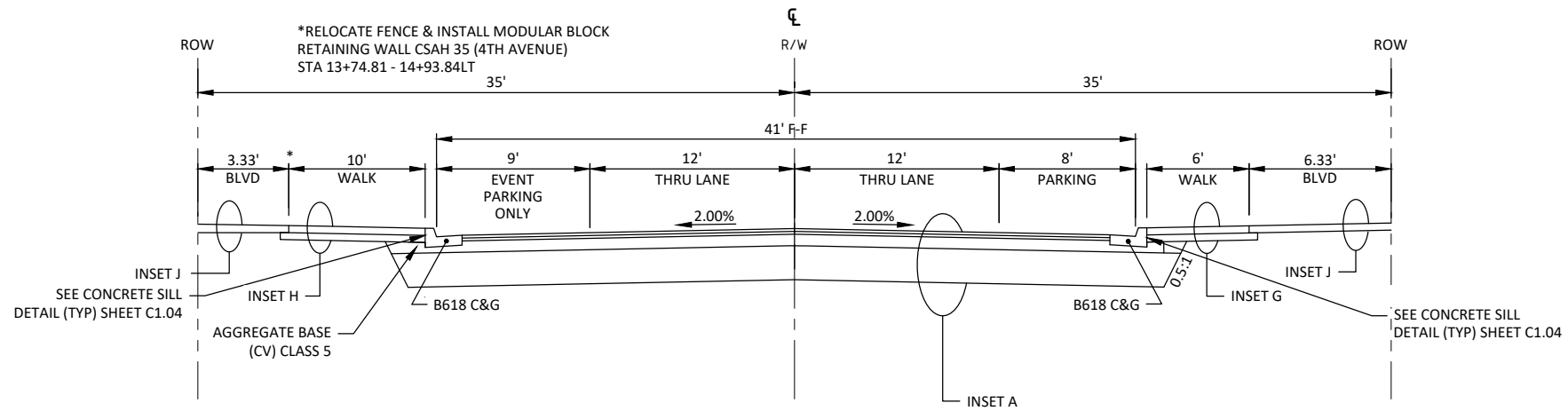
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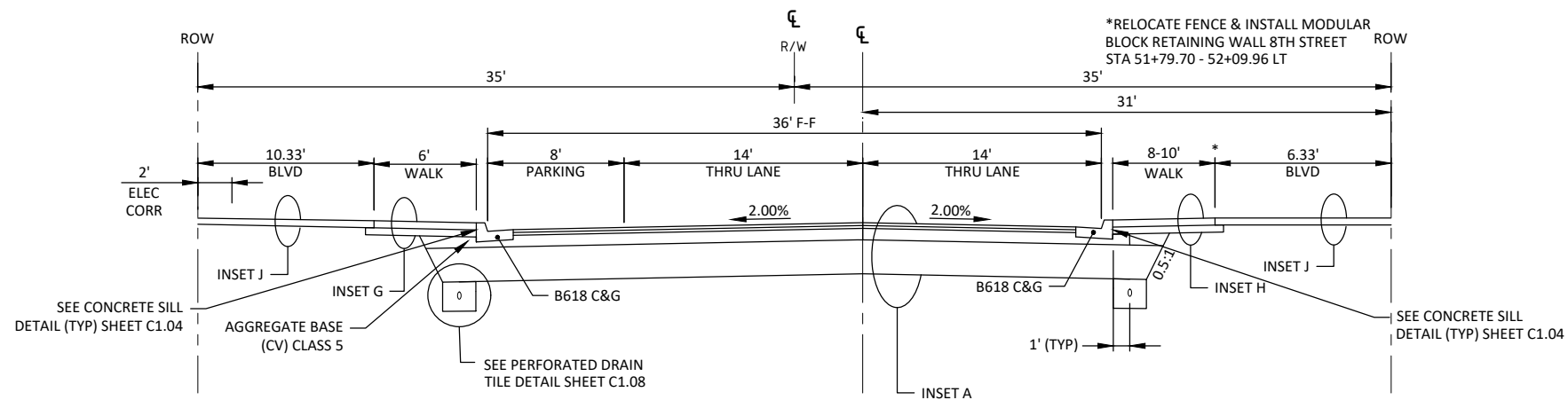
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 EXISTING CONDITIONS & REMOVALS - 6TH AVENUE

SHEET
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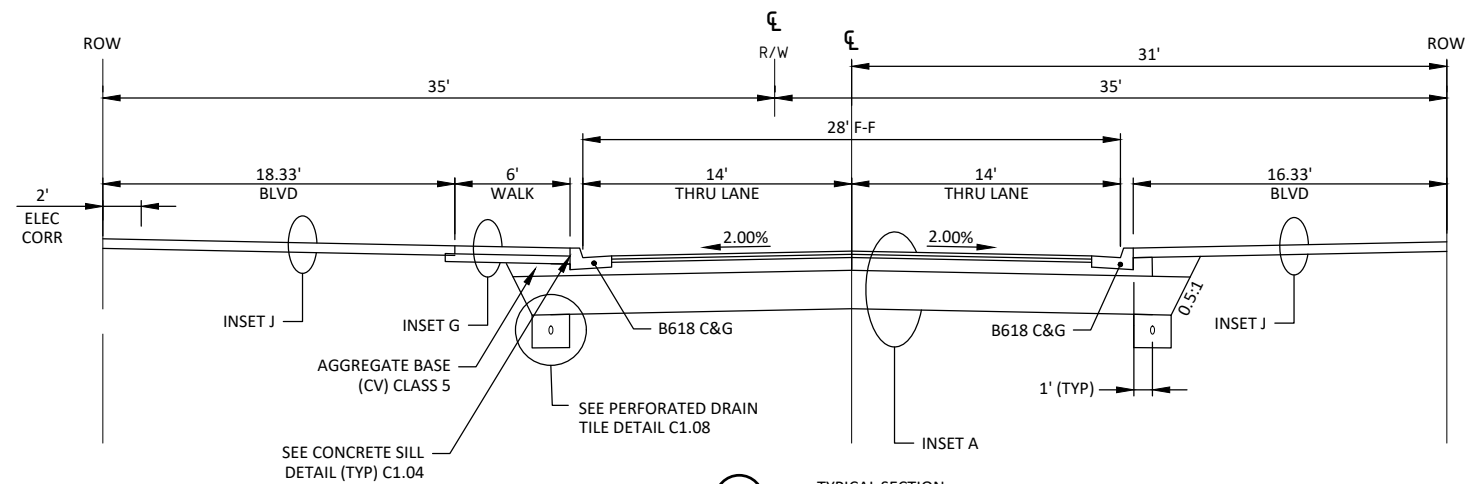
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A TYPICAL SECTION
CSAH 35 (4TH AVENUE) STA. 13+07.38 - 17+93.06



B TYPICAL SECTION
CSAH 30 (8TH STREET) STA. 51+02.35 - STA. 55+19.35



C TYPICAL SECTION
CSAH 30 (8TH STREET) STA. 55+19.35 - STA. 61+55.28

NOTES:
1. SEE SHEET C1.03 FOR INSETS.

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Joseph D. Pelawa
JOSEPH D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



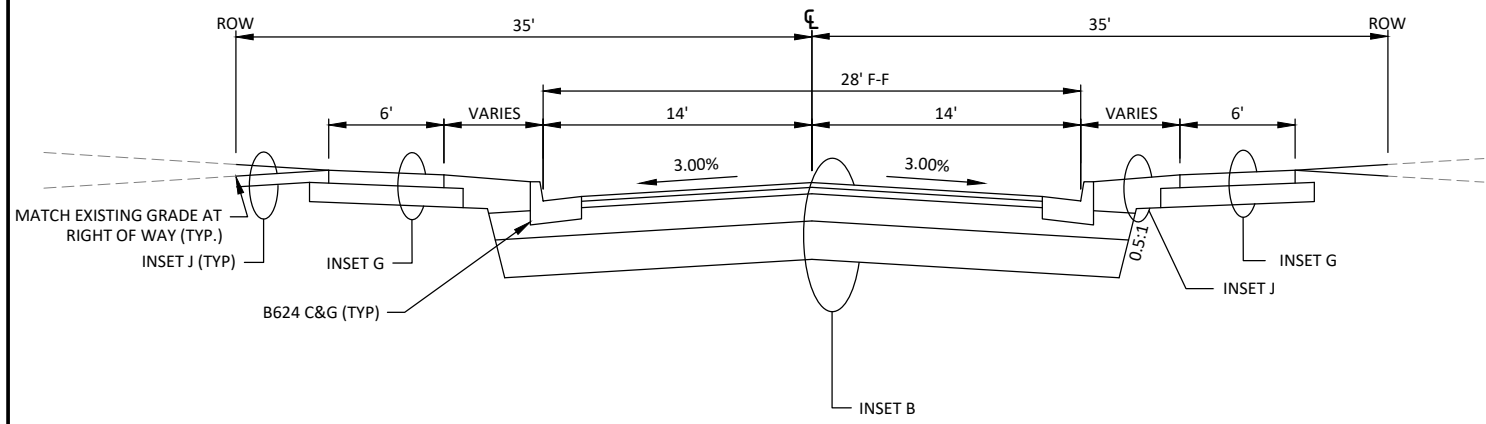
4960 MILLER TRUNK HIGHWAY, SUITE 350
DULUTH, MINNESOTA 55811
Phone: (218) 729-5939
Email: BMI@bolton-menk.com
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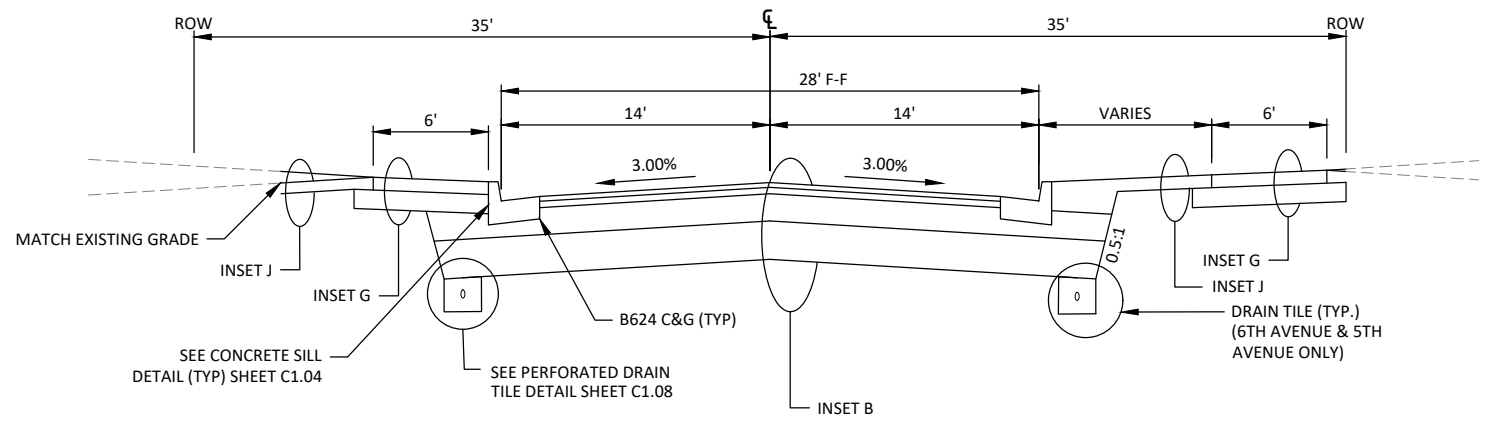
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21
CLIENT PROJ. NO. U17.120606			

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
TYPICAL SECTIONS

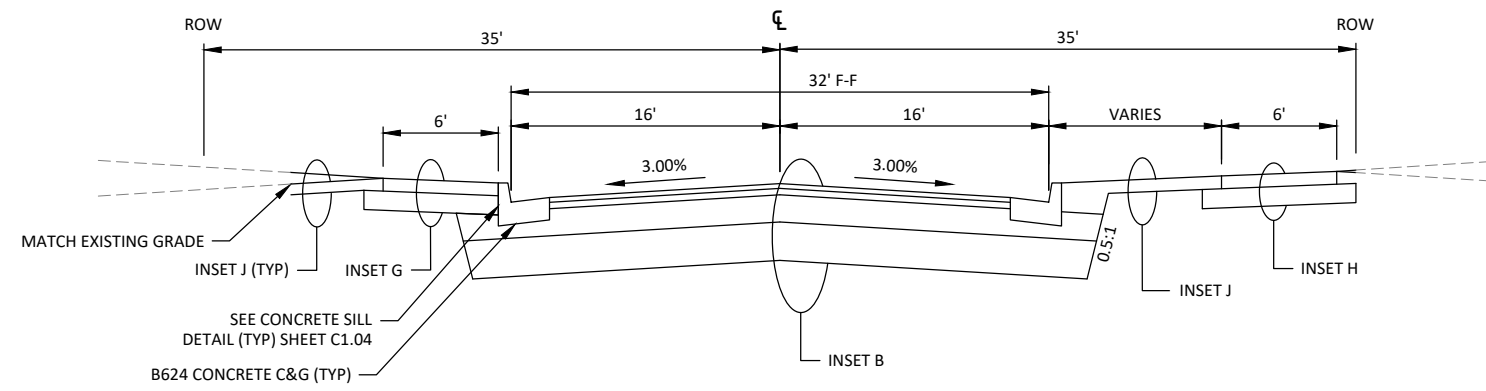
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C1.01



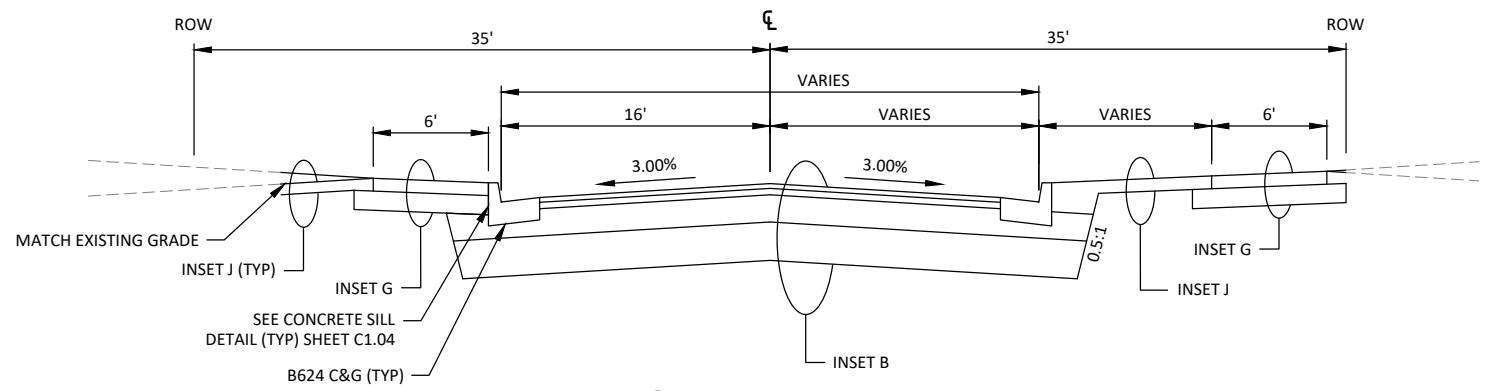
D TYPICAL SECTION
 (4TH AVENUE - WEST END TO 8TH STREET)
 (SEE SHEET C6.05)



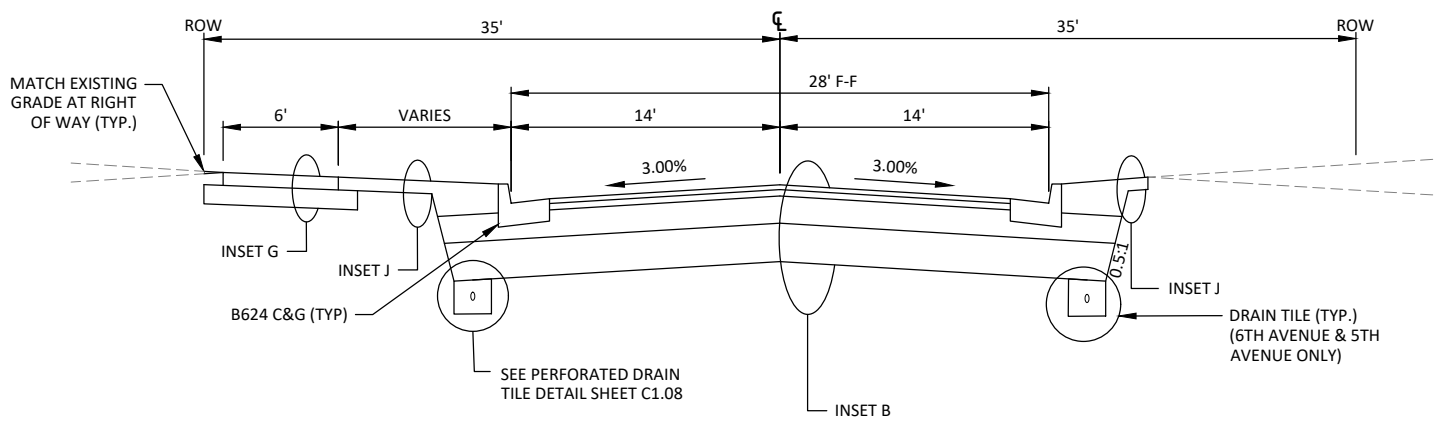
E TYPICAL SECTION
 (5TH AVENUE - WEST END TO 8TH STREET)
 (SEE SHEET C6.07)



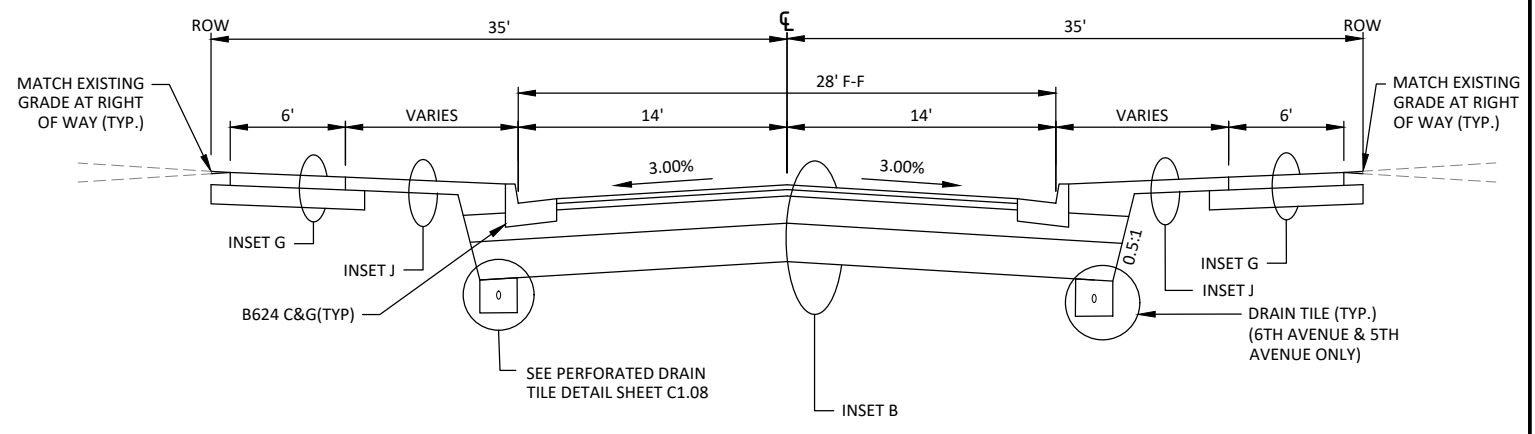
F TYPICAL SECTION
 (5TH AVENUE - 8TH STREET TO 7TH STREET)
 (SEE SHEET 6.06)



G TYPICAL SECTION - ALTERNATE 1
 (5TH AVENUE ALTERNATE - 8TH STREET TO 7TH STREET)
 (SEE SHEET C6.06A)



H TYPICAL SECTION
 (6TH AVENUE - WEST END TO 8TH STREET)
 (SEE SHEET C6.09)



I TYPICAL SECTION
 (6TH AVENUE - 8TH STREET TO 7TH STREET)
 (SEE SHEET C6.08)

NOTES:
 1. SEE SHEET C1.03 FOR INSETS.

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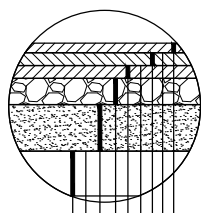
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 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 TYPICAL SECTIONS

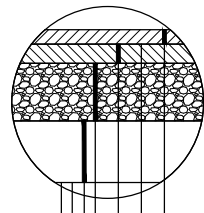
SHEET
C1.02

INSET A - BITUMINOUS PAVEMENT (COUNTY ROAD)



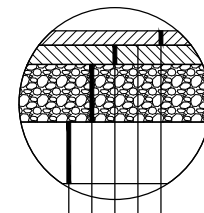
- 1.5" - TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) (SPWEA330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- 8" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 15" - SELECT GRANULAR EMBANKMENT (CV) (2106)
- GEOTEXTILE FABRIC, TYPE 5 (2105) (SEE NOTE 1)
- 12" SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET B - BITUMINOUS PAVEMENT (CITY STREETS)



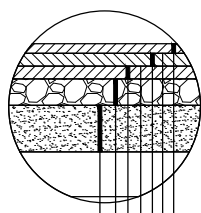
- 1.5" - TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) (SPWEA330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- 8.5" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 12" - SELECT GRANULAR EMBANKMENT (CV) (2106)
- GEOTEXTILE FABRIC, TYPE 5 (2105) (SEE NOTE 1)
- 12" SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET C - BITUMINOUS PATCH SPECIAL (3.5") (ALLEYS/DRIVEWAYS)



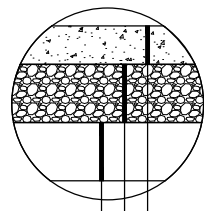
- 1.5" - TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) (SPWEA330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- 8" - AGGREGATE BASE (CV) CLASS 5 (2211) (INCIDENTAL)
- 12" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET D - BITUMINOUS PATCH SPECIAL (5.5") (COUNTY ROAD)



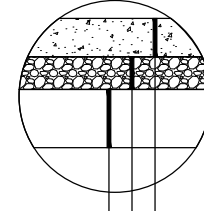
- 1.5" - TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) (SPWEA330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- BITUMINOUS TACK COAT (2357)
- 2" - TYPE SP 12.5 NON-WEAR COURSE MIXTURE (3,C) (SPNWB330C) (2360)
- 8" - AGGREGATE BASE (CV) CLASS 5 (2211) (INCIDENTAL)
- 15" - SELECT GRANULAR EMBANKMENT (2106) (INCIDENTAL)

INSET E - CONCRETE PAVEMENT (ALLEYS/COMMERCIAL DRIVEWAYS)



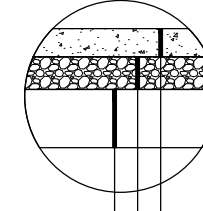
- 8" - CONCRETE PAVEMENT (2531 HIGH EARLY)
- 6" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 12" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET F - CONCRETE PAVEMENT (RESIDENTIAL DRIVEWAYS)



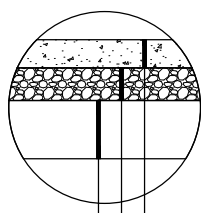
- 7" - CONCRETE PAVEMENT (2531 HIGH EARLY)
- 6" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 12" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET G - 4" CONCRETE WALK



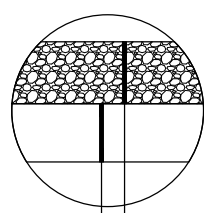
- 4" - CONCRETE WALK (2521)
- 6" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 12" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET H - 6" CONCRETE WALK



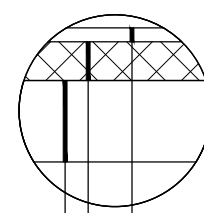
- 6" - CONCRETE WALK (2521)
- 6" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 12" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET I - GRAVEL DRIVEWAY



- 6" - AGGREGATE BASE (CV) CLASS 5 (2211)
- 6" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

INSET J - TURF RESTORATION AREAS



- 3/4" - COMPOST GRADE 2 (LV) (2574)
- 4" - COMMON TOPSOIL BORROW (LV) (2574)
- 6" - SUBGRADE PREPARATION (INCIDENTAL) (2112)

NOTES:
 1. WRAP GEOTEXTILE FABRIC MINIMUM 12" UP SIDEWALLS OF STREET SECTION.
 2. GEOTEXTILE FABRIC SEAMS ARE TO BE GLUED PER MANUFACTURER RECOMMENDATIONS.

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 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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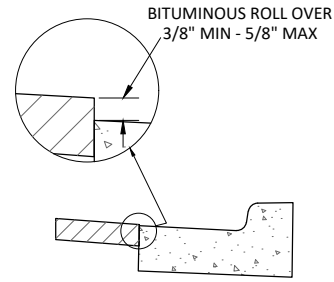
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 TYPICAL SECTIONS

SHEET

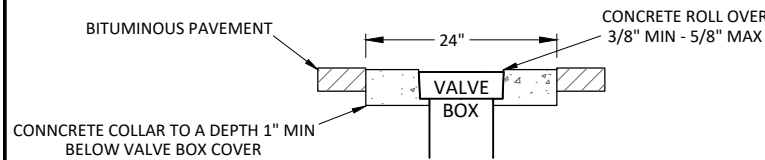
C1.03

NOTES:

1. BITUMINOUS MIX PLACED AND COMPACTED TO ACHIEVE SPECIFIED COMPACTION.
2. CONTRACTOR SHALL NOT PLACE MATERIAL SPACER OR SUPPORT MATERIAL ON CASTING THAT WOULD REDUCE COMPACTION ADJACENT TO CASTING.
3. CIRCULAR CONCRETE BOX-OUTS SHALL BE USED AT ALL STRUCTURES LOCATED WITHIN BITUMINOUS PAVEMENT.



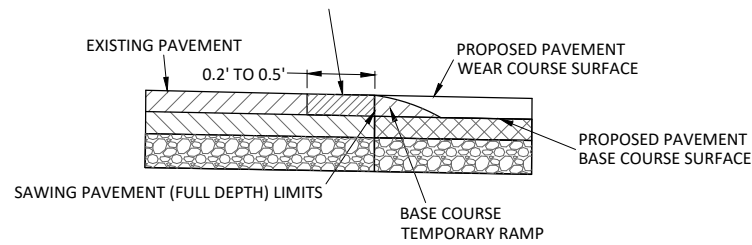
PAVING AT CURB



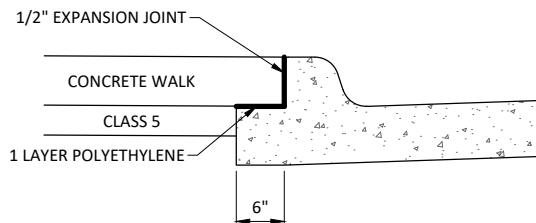
PAVING AT VALVE BOX

WEAR COURSE PAVING
NOT TO SCALE

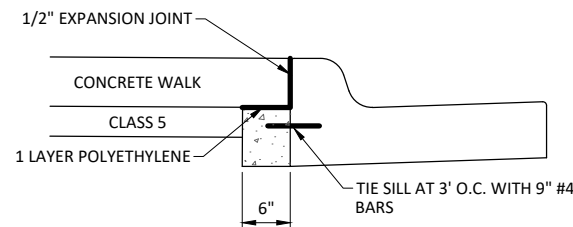
MILL EDGE JOINT PRIOR TO WEAR COURSE PAVING. COST OF MILLING SHALL BE INCIDENTAL.



WEAR COURSE JOINT MILLING
NOT TO SCALE

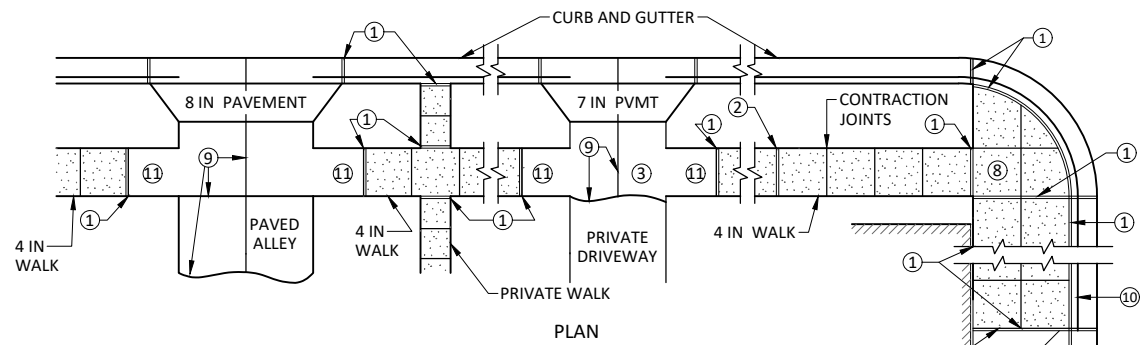


CONCRETE SILL INTEGRAL
NOT TO SCALE

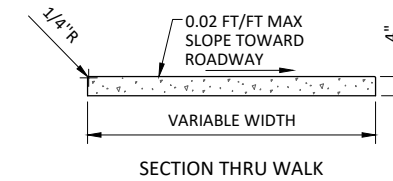


CONCRETE SILL DOWELED (ALTERNATE)
NOT TO SCALE

- NOTES:**
1. PAYMENT FOR SILL SHALL BE INCIDENTAL TO CURB.
 2. SEE TYPICAL SECTION FOR CURB DIMENSIONS.



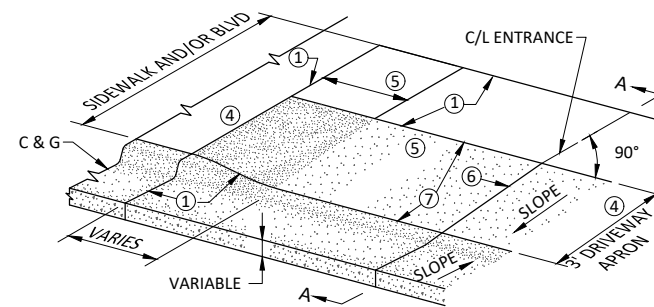
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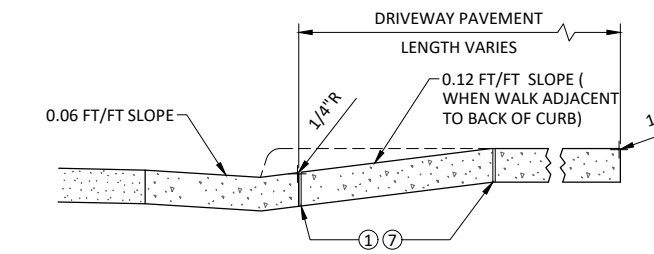
SECTION THRU WALK

CONCRETE WALK

PROVIDE INTERMEDIATE JOINT AT SQUARED END IN SIDEWALK, WHEN SIDEWALK IS ADJACENT TO CURB AND GUTTER



HALF PLAN PERSPECTIVE



**SECTION A-A
CURB RETURN**

CONCRETE WALK & CURB RETURNS AT ENTRANCES
NOT TO SCALE

NOTE:

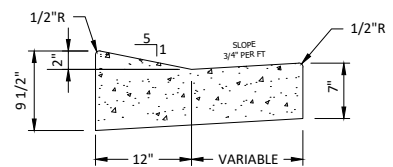
SEE MNDOT ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF ENTRANCES

WHERE THE MAX ALLOWABLE ENTRANCE GRADIENT WOULD BE EXCEEDED, DUE TO THE POSITION OF EXISTING WALK, THE WALK SHALL BE REMOVED AND REPLACED, OR THE PAVEMENT WARPED TO PROVIDE THE REQUIRED ENTRANCE SLOPE

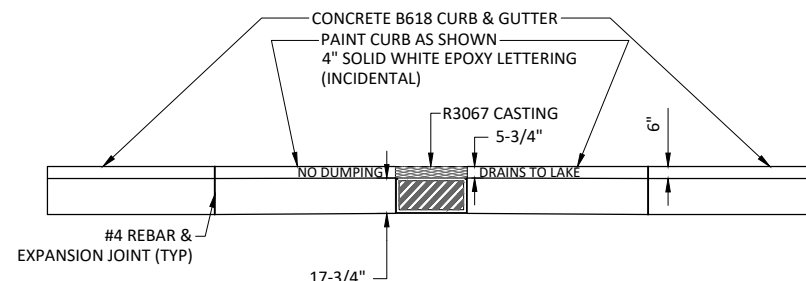
SEE PLANS FOR PLACEMENT OF WALK AND DIMENSIONS FOR CONSTRUCTION OF DRIVEWAYS

NO DEDUCTION SHALL BE MADE IN LF OF CURB & GUTTER THRU ENTRANCE

- 1 1/2" EXPANSION JOINT, 1/2" PREFORMED JOINT FILLER MATERIAL, AASHTO M 213 (REQUIRED WHEN 2 CONCRETE AREAS ARE POURED SEPARATELY)
- 2 1/2" EXPANSION JOINTS AT 60' (APPROX) MAXIMUM INTERVALS
- 3 MATCH INPLACE DRIVEWAY THICKNESS (6" MIN)
- 4 WITHOUT SIDEWALK, PAVE ONLY TO THE END OF TAPER WHEN ENTRANCE IS UNSURFACED OR CONSTRUCTION IS NOT NEEDED BEYOND THIS POINT
- 5 WITH SIDEWALK, PAVE TO THE BACK OF SIDEWALK, PAID FOR AS CONCRETE DRIVEWAY PAVEMENT. EXTEND DRIVEWAY PAVEMENT LONGITUDINALLY ALONG SIDEWALK TO END OF TAPER.
- 6 CONTRACTION JOINT (FORMED OR SAWED)
- 7 CONTROL JOINT REQUIRED IF ADJACENT SECTIONS ARE POURED MONOLITHICALLY, SEE SECTION A-A
- 8 SEE PED RAMP DETAILS FOR PLACEMENT OF PED CURB RAMP CONTROL
- 9 FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAXIMUM WIDTH 15' BETWEEN JOINTS)
- 10 WHEN SIDEWALK IS ADJACENT TO BACK OF CURB, ENSURE DRIVEWAY SLOPES & TAPERS ARE ADA COMPLIANT (MIN 4' TAPER ON B4 CURB, MIN 6' TAPER ON B6 CURB)
- 11 WHEN SIDEWALK IS NOT ADJACENT TO BACK OF CURB, CONSTRUCT DRIVEWAY PAVEMENT DEPTH 4' LONGITUDINALLY ON ADJACENT SIDEWALK



B-STYLE CURB MODIFICATION AT DRIVEWAY



CATCH BASIN - CURB DETAIL FOR R-3067
IN "B" STYLE CURB
NOT TO SCALE

STANDARD DETAILS

CURB AND GUTTER

TWO HARBORS, MINNESOTA

LAST REVISION:
JAN 2021

CITY PLATE NO.
STR-1

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[Signature]
D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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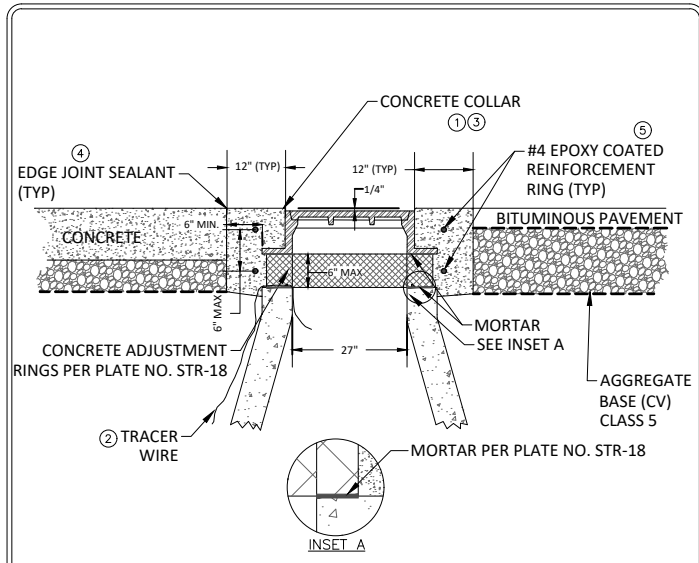
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DETAILS - CURB & SIDEWALK

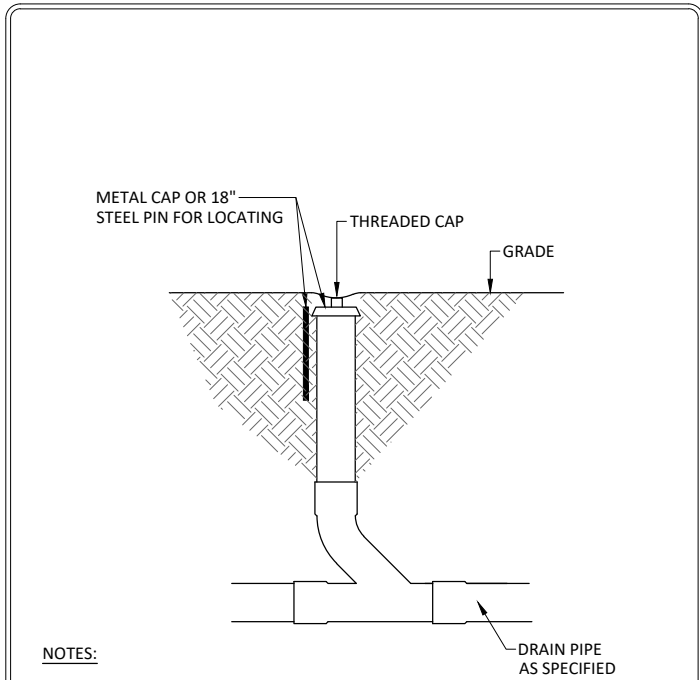
SHEET

C1.04



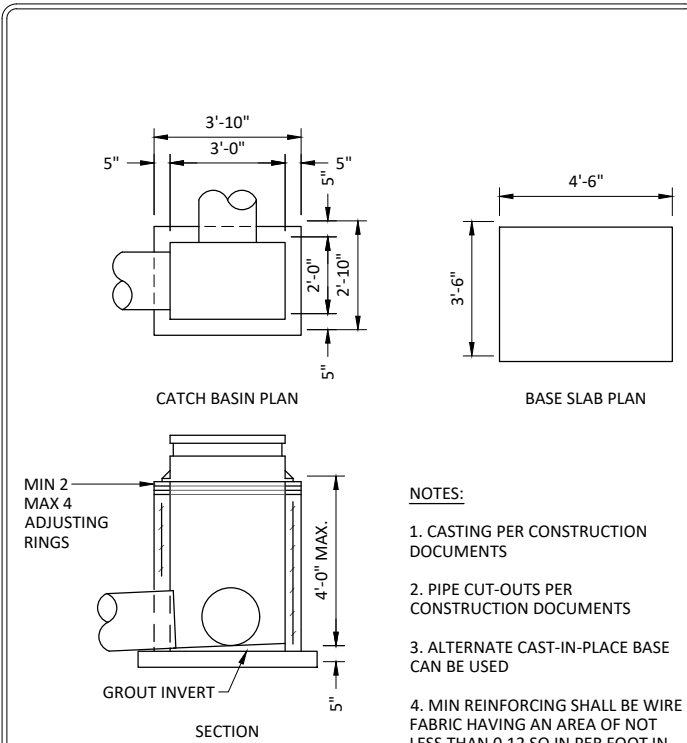
- NOTES:**
1. CONCRETE (MIX NO. 3G52) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
 2. TRACER WIRE REQUIRED ON ALL SANITARY SEWER MAINS.
 3. CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE.
 4. FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
 5. MAINTAIN 3.5" COVER ON REINFORCEMENT.

**CONCRETE ENCASED CASTING COLLAR
FOR SANITARY MANHOLE**
NOT TO SCALE



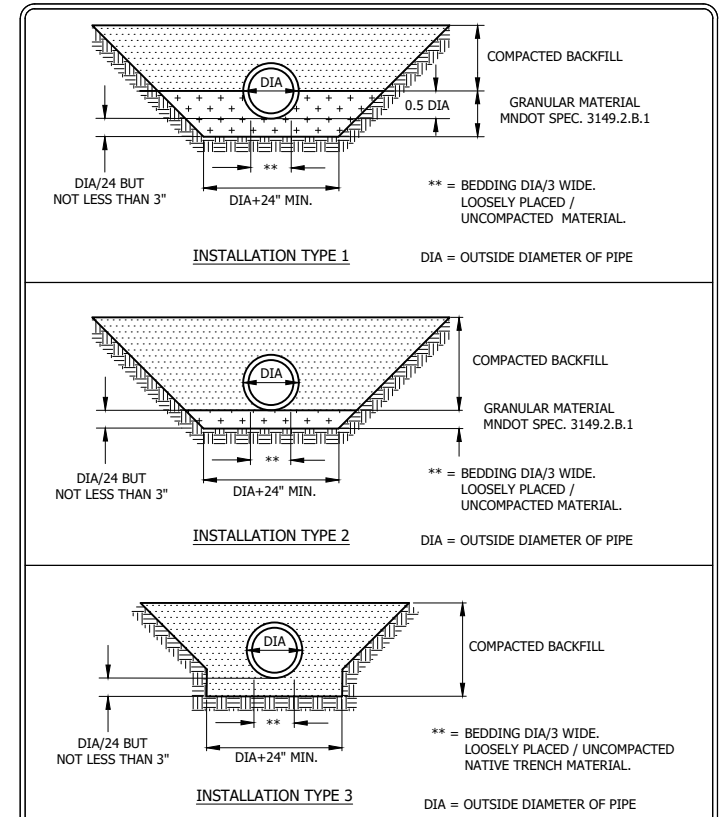
- NOTES:**
1. NEENAH R-3487 INSPECTION FRAME SHALL BE USED WHERE CLEANOUTS ARE LOCATED IN PAVED AREAS. TO BE PAID AS "CASTING ASSEMBLY SPECIAL (CLEANOUT IN PAVEMENT)".

6" PVC PIPE DRAIN CLEANOUT
NOT TO SCALE



- NOTES:**
1. CASTING PER CONSTRUCTION DOCUMENTS
 2. PIPE CUT-OUTS PER CONSTRUCTION DOCUMENTS
 3. ALTERNATE CAST-IN-PLACE BASE CAN BE USED
 4. MIN REINFORCING SHALL BE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN PER FOOT IN BOTH DIRECTIONS

**CATCH BASIN STRUCTURE
DESIGN SPECIAL (R-1)**
NOT TO SCALE



- NOTES:**
1. ALL BEDDING MATERIAL IS INCIDENTAL.

STANDARD DETAILS
PIPE FOUNDATION & BEDDING
METHODS FOR RCP & DIP
TWO HARBORS, MINNESOTA

LAST REVISION:
April 2018

PLATE NO.
BED-2

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LIC. NO. 42603 DATE 12/15/2020



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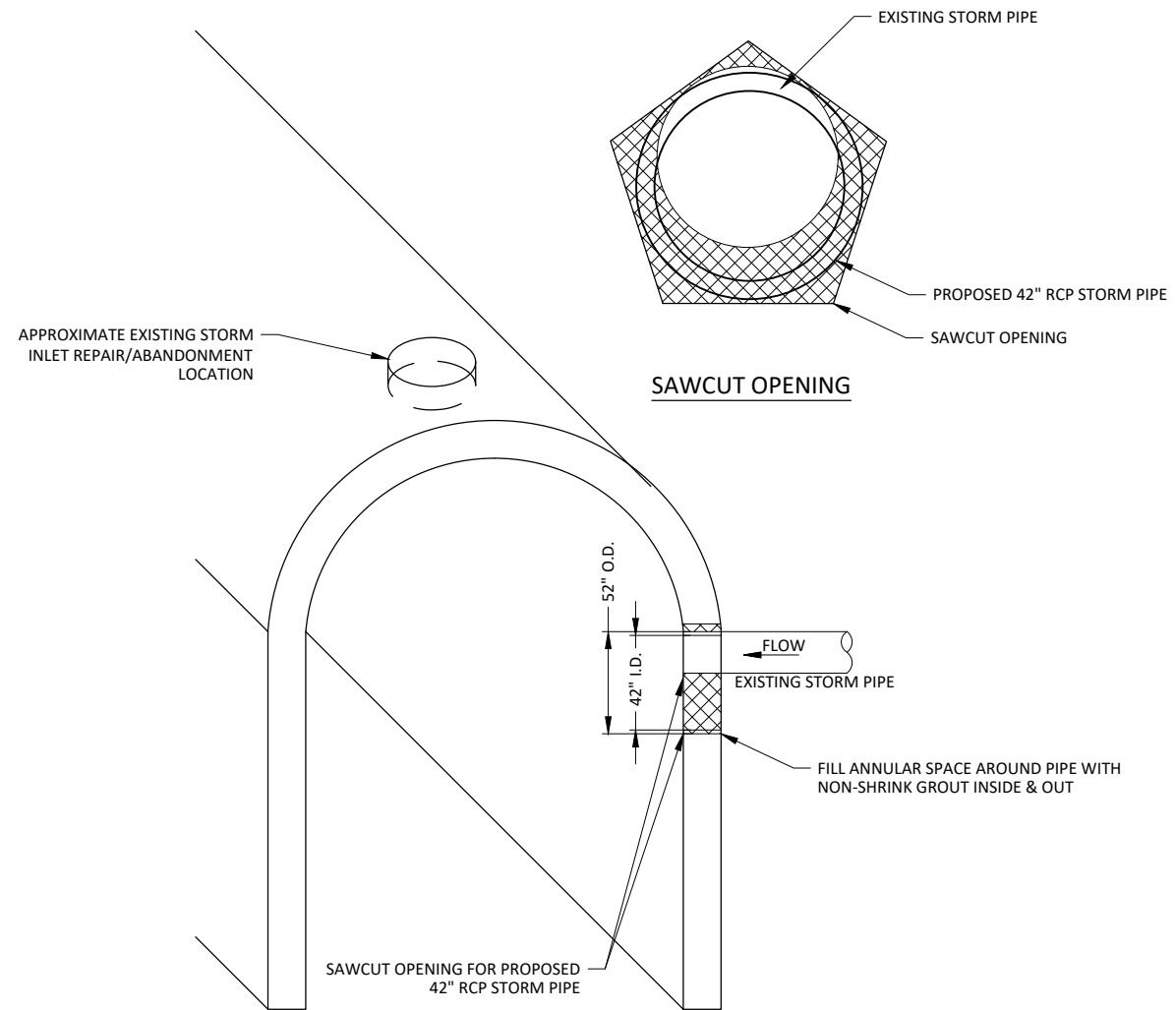


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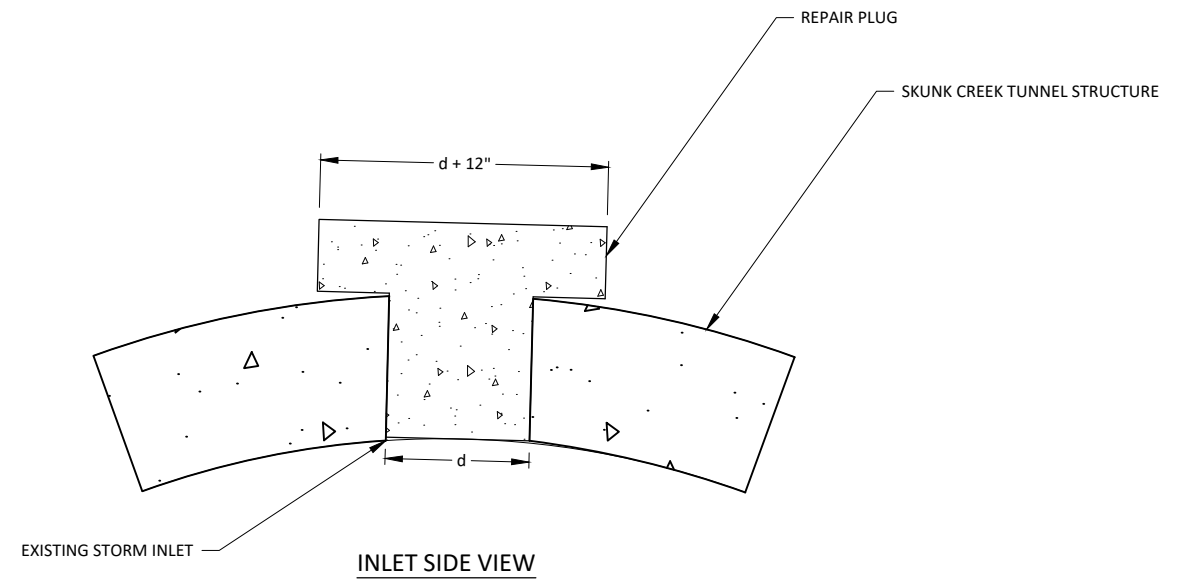
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
DETAILS - DRAINAGE

SHEET
C1.05

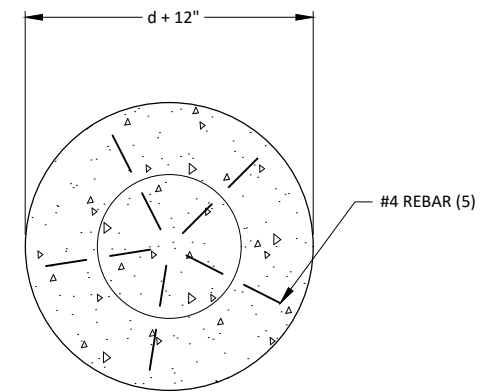


SKUNK CREEK TUNNEL STORM CONNECTION
NOT TO SCALE

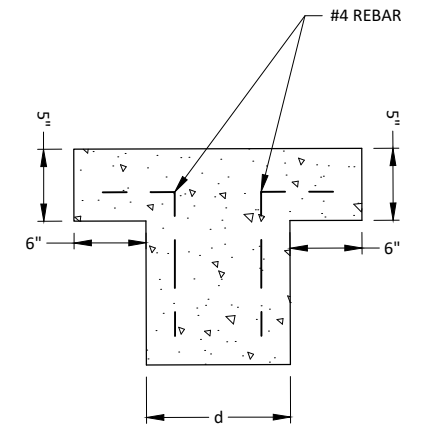
- NOTE:
- ITEM TO BE PAID AS "CONNECT TO EXISTING STRUCTURE (STORM) - (SKUNK CREEK TUNNEL)".



INLET SIDE VIEW



PLUG TOP VIEW



PLUG CROSS SECTION

EXISTING STORM INLET REPAIR/ABANDONMENT
NOT TO SCALE

- NOTE:
- ITEM TO BE PAID AS "REPAIR DRAINAGE STRUCTURE - TUNNEL EXISTING STORM INLETS".

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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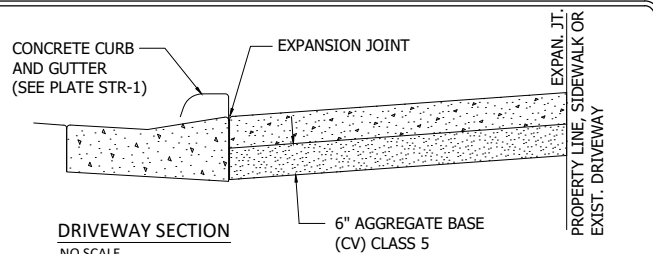


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

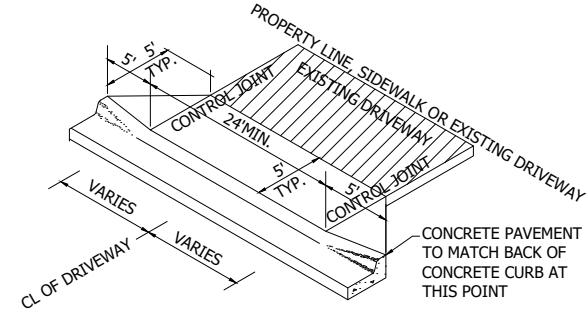
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 DETAILS - SKUNK CREEK TUNNEL

SHEET
C1.06



- PANEL WIDTH SHALL NOT EXCEED 10 FEET WITHOUT A CONTRACTION JOINT.
- DRIVEWAY TO BE ONE COURSE CONCRETE PAVEMENT.
- 7" THICK FOR RESIDENTIAL, 8" THICK FOR COMMERCIAL, AND ALLEY OR AS SPECIFIED.
- DRIVEWAY WIDTH IS 24' UNLESS OTHERWISE NOTED.
- MINIMUM DISTANCE FROM LOT LINE IS 5'.
- NEENAH R-1914-A CASTING IS REQUIRED FOR CURBSTOPS LOCATED IN DRIVEWAYS.
- MAX. CROSS SLOPE OF SIDEWALK THROUGH DRIVEWAY IS 0.02 FT/FT. ADJUST APRON RUNNING SLOPE AS NEEDED.



NOTE:
CONTROL JOINTS IN CONCRETE CURB NOT TO EXCEED 10' SPACING THROUGH DRIVEWAY SECTION.

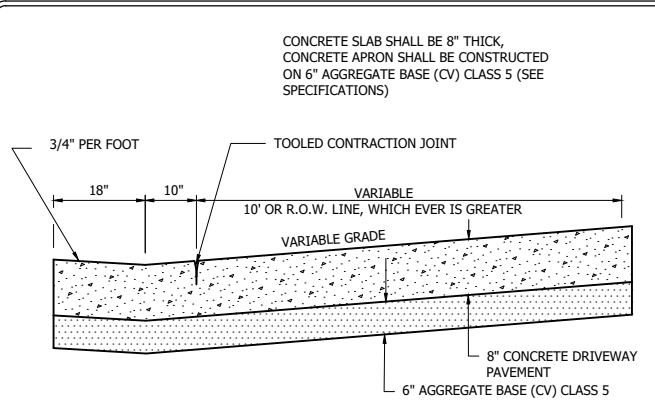
STANDARD DETAILS

CONCRETE DRIVEWAY APRON

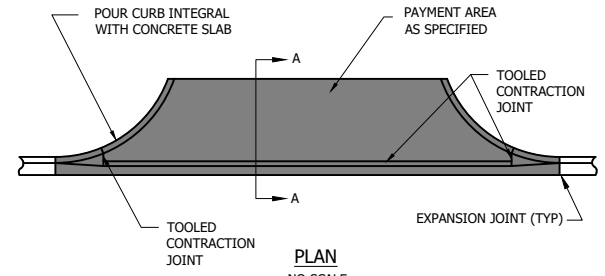
TWO HARBORS, MINNESOTA

LAST REVISION:
DEC 2012

CITY PLATE NO.
STR-5



SECTION A-A
NO SCALE



PLAN
NO SCALE

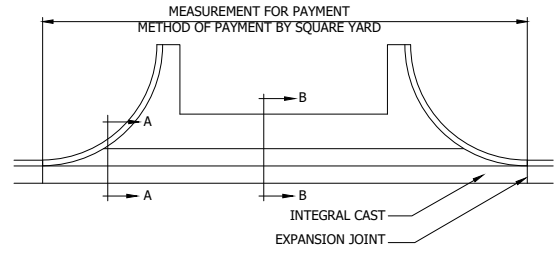
STANDARD DETAILS

CONCRETE DRIVEWAY APRON
COMMERCIAL

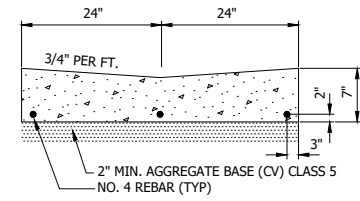
TWO HARBORS, MINNESOTA

LAST REVISION:
February 2012

CITY PLATE NO.
STR-8



SECTION A-A THRU
B618 C & G



SECTION B-B
THRU CONCRETE GUTTER

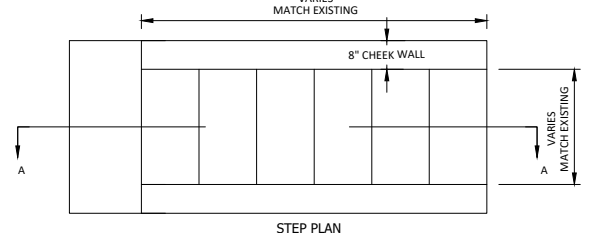
STANDARD DETAILS

CONCRETE VALLEY GUTTER

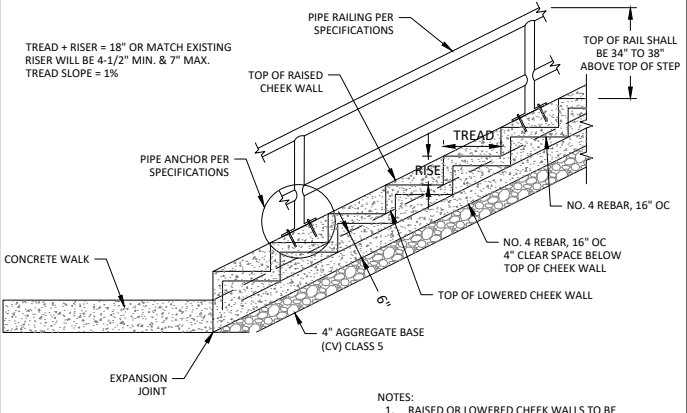
TWO HARBORS, MINNESOTA

LAST REVISION:
APR 2000

CITY PLATE NO.
STR-10



STEP PLAN



SECTION A-A

- NOTES:
- RAISED OR LOWERED CHEEK WALLS TO BE DETERMINED IN FIELD BY ENGINEER.
 - RAILINGS WILL BE REQUIRED WHERE THREE STEPS OR MORE ARE NEEDED. RAILINGS TO BE PAINTED PER SPECIFICATIONS.

STANDARD DETAILS

CONCRETE STEPS

TWO HARBORS, MINNESOTA

LAST REVISION:
JAN 2021

CITY PLATE NO.
STR-14A

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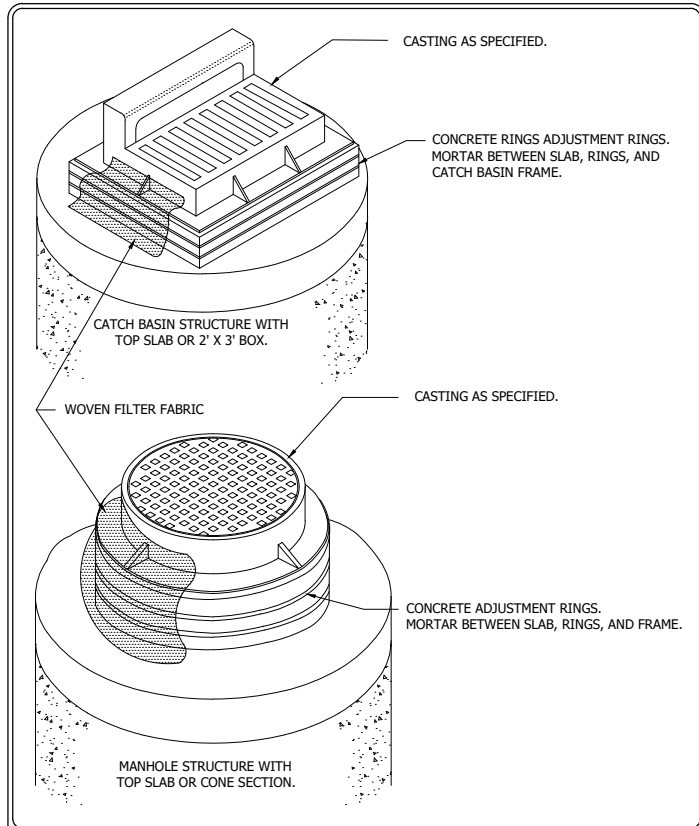


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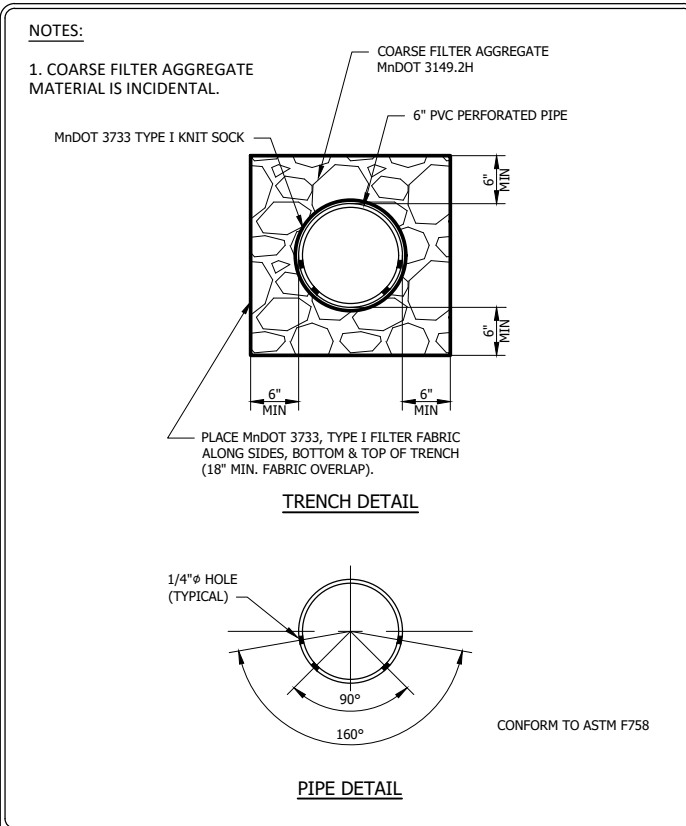
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
DETAILS - CITY STANDARD PLATES

SHEET
C1.07



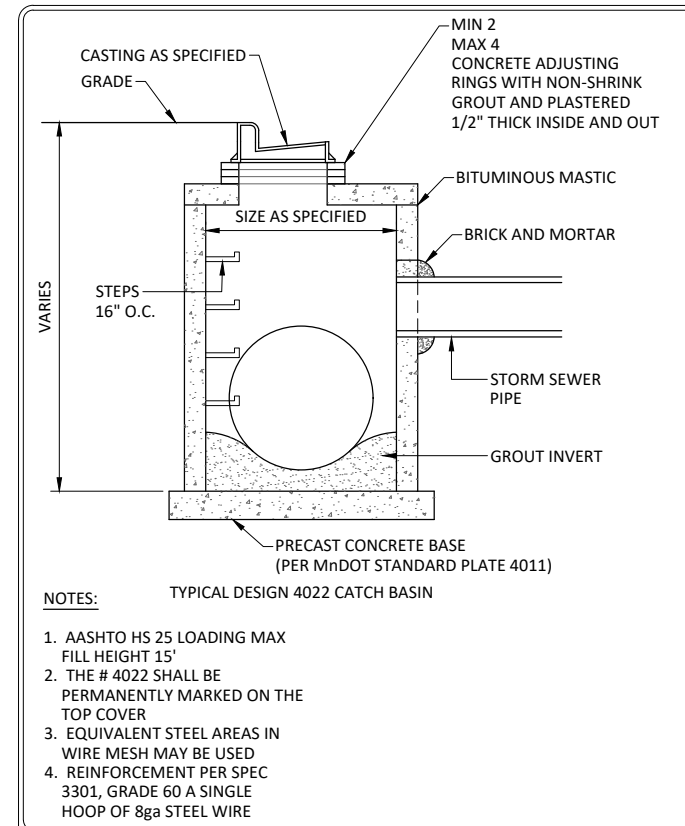
STANDARD DETAILS
CATCH BASIN AND MANHOLE ADJUSTMENT
TWO HARBORS, MINNESOTA

LAST REVISION:
JAN 2021
CITY PLATE NO.
STR-18

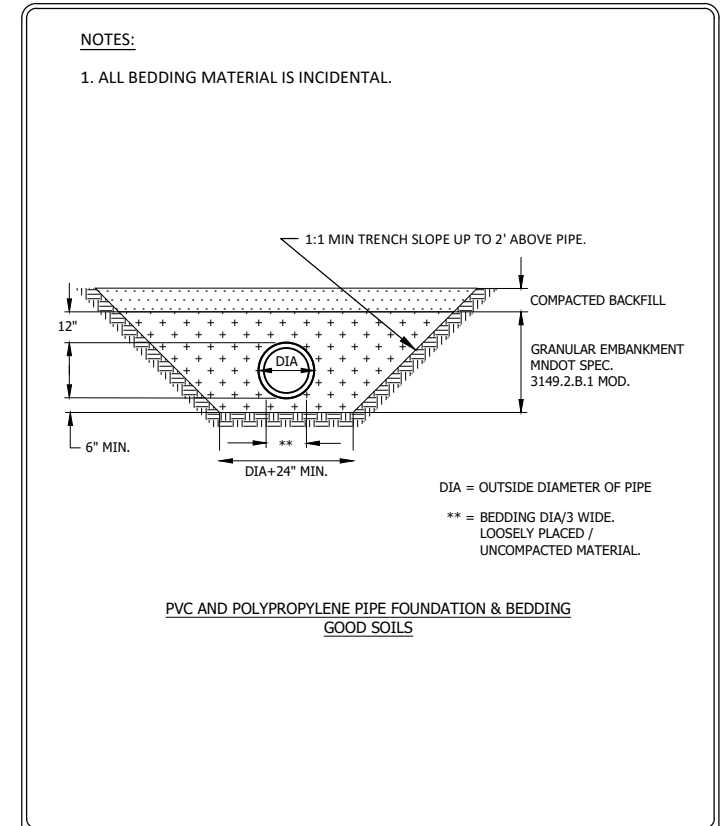


PVC PERFORATED PIPE DRAIN TILE
TRENCH DETAIL

LAST REVISION:
PLATE NO.
STR-27



STORM SEWER STRUCTURE
DESIGN 4020
NOT TO SCALE



STANDARD DETAILS
PIPE FOUNDATION & BEDDING
METHOD FOR PVC & POLYPROPYLENE PIPE TRENCH
TWO HARBORS, MINNESOTA

LAST REVISION:
April 2018
PLATE NO.
BED-1

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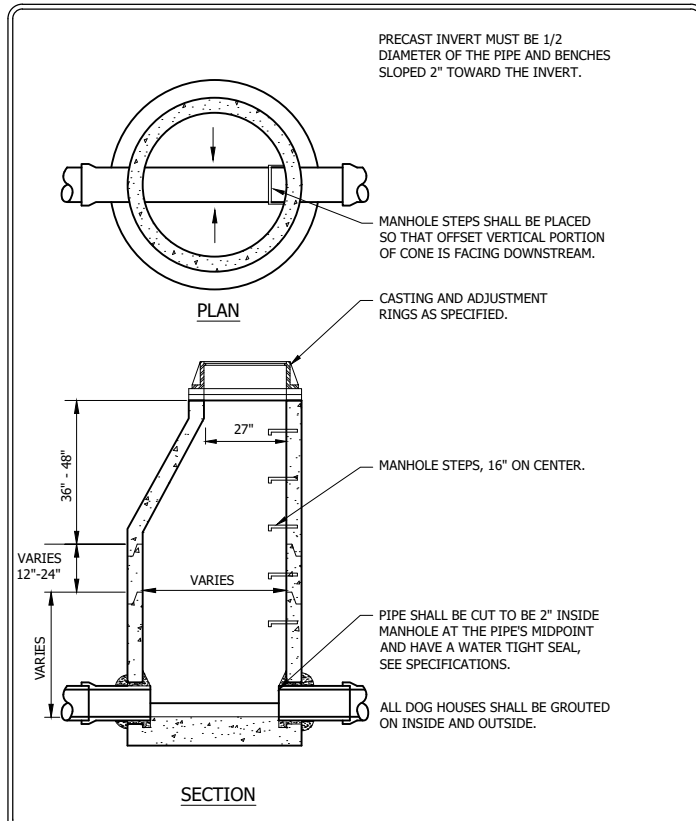


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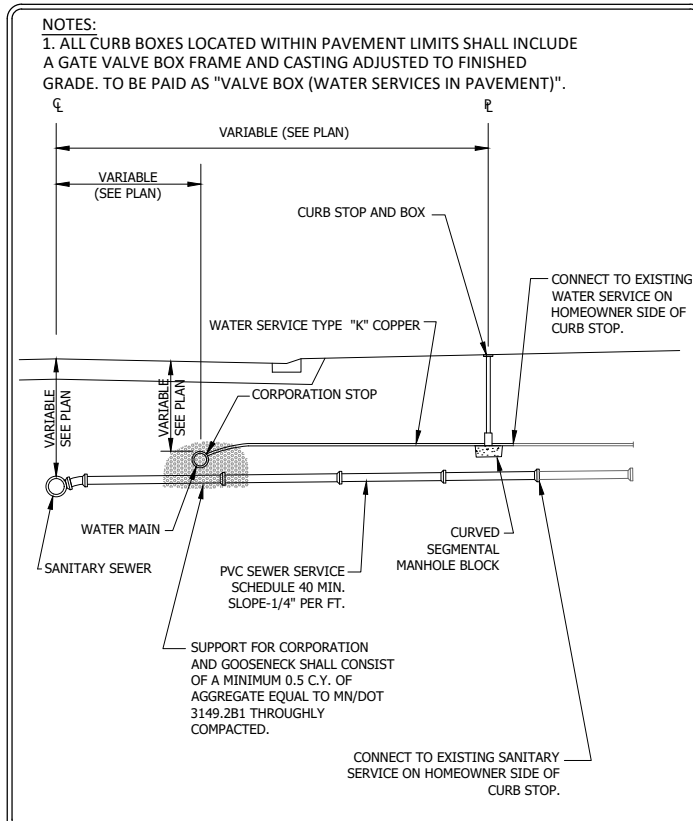
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
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DETAILS - CITY STANDARD PLATES

SHEET
C1.08



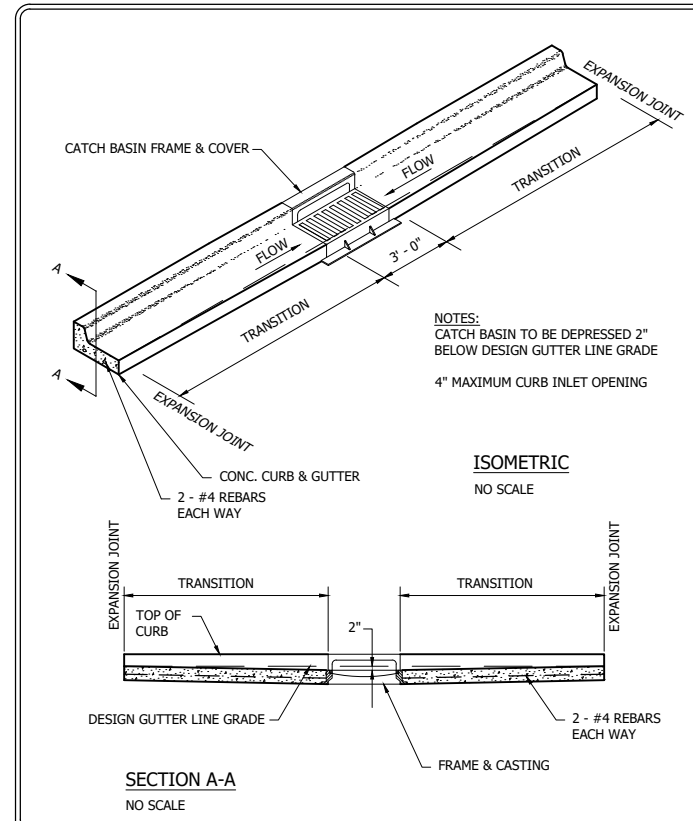
STANDARD DETAILS
SANITARY SEWER MANHOLE
TWO HARBORS, MINNESOTA

LAST REVISION:
November 2017
CITY PLATE NO.
SAN-1



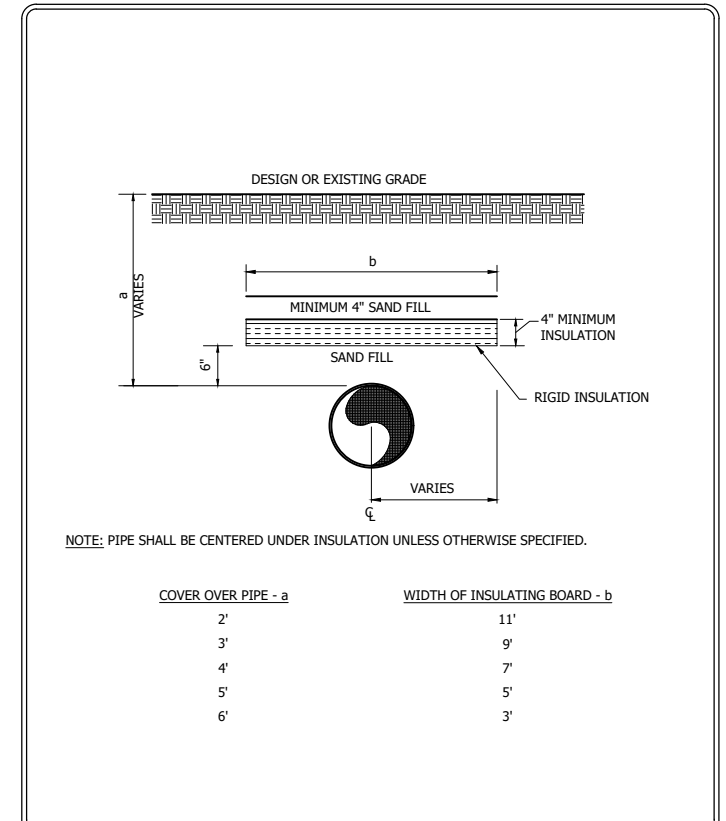
STANDARD DETAILS
SEWER AND WATER
SERVICE CONNECTIONS
TWO HARBORS, MINNESOTA

LAST REVISION:
APR 2016
CITY PLATE NO.
SER-1



STANDARD DETAILS
CURB & GUTTER
CONSTRUCTION AT CATCH BASIN
TWO HARBORS, MINNESOTA

LAST REVISION:
JAN 2021
CITY PLATE NO.
STR-4A



STANDARD DETAILS
INSULATION DETAIL
TWO HARBORS, MINNESOTA

LAST REVISION:
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CITY PLATE NO.
WAT-13

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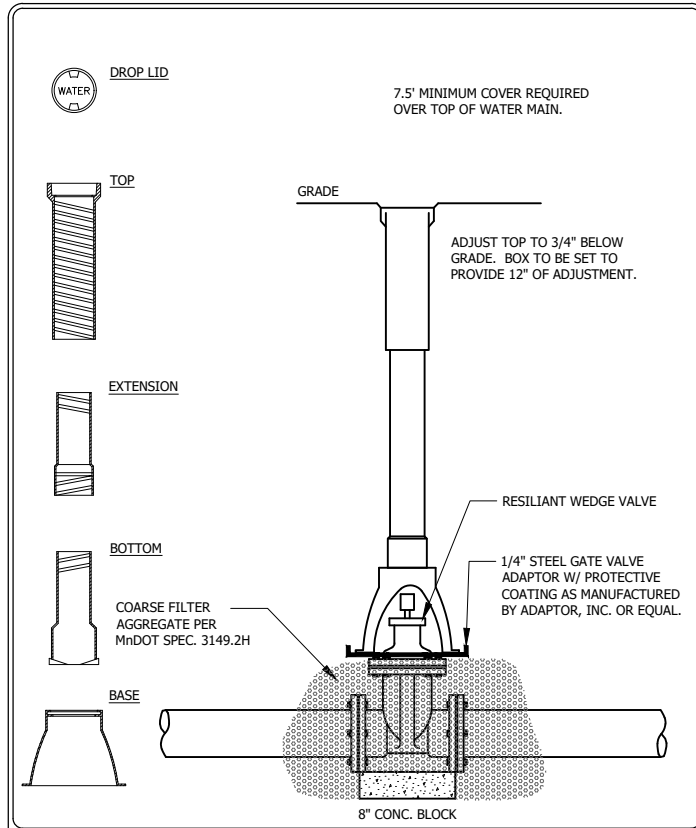


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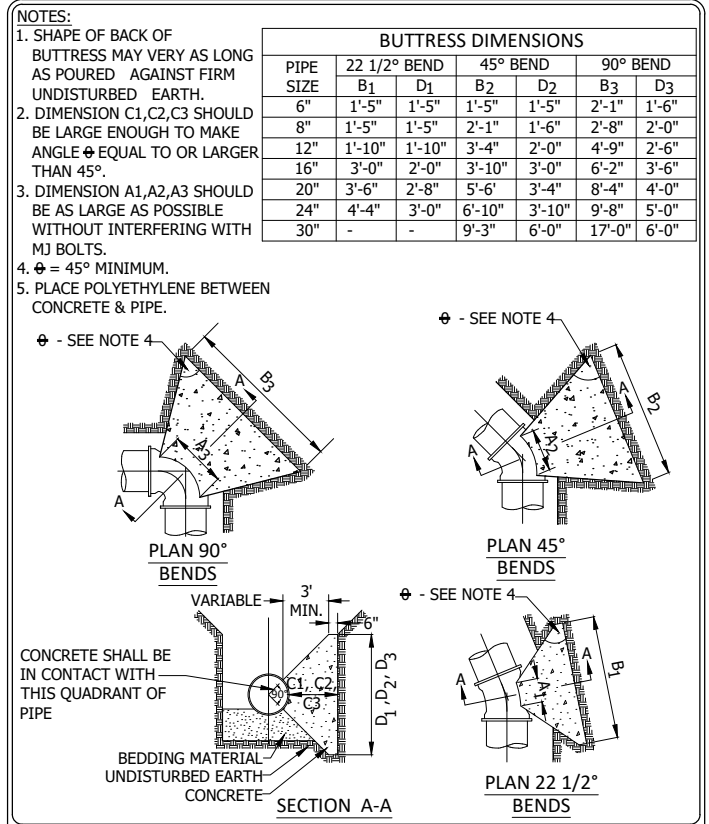
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
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DETAILS - CITY STANDARD PLATES

SHEET
C1.09



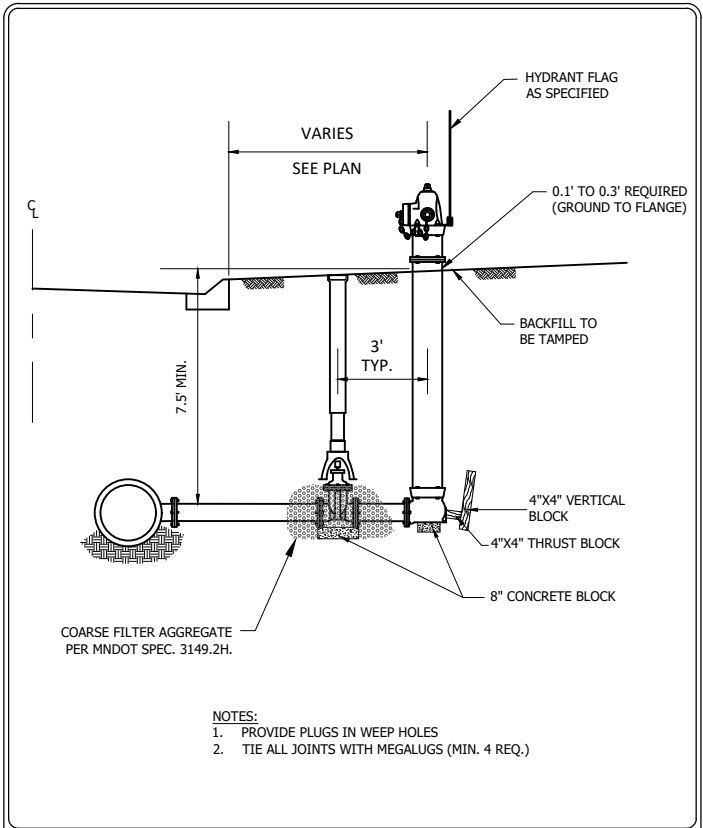
STANDARD DETAILS
GATE VALVE AND BOX
INSTALLATION
TWO HARBORS, MINNESOTA

LAST REVISION:
 March 2013
 CITY PLATE NO.
 WAT-3



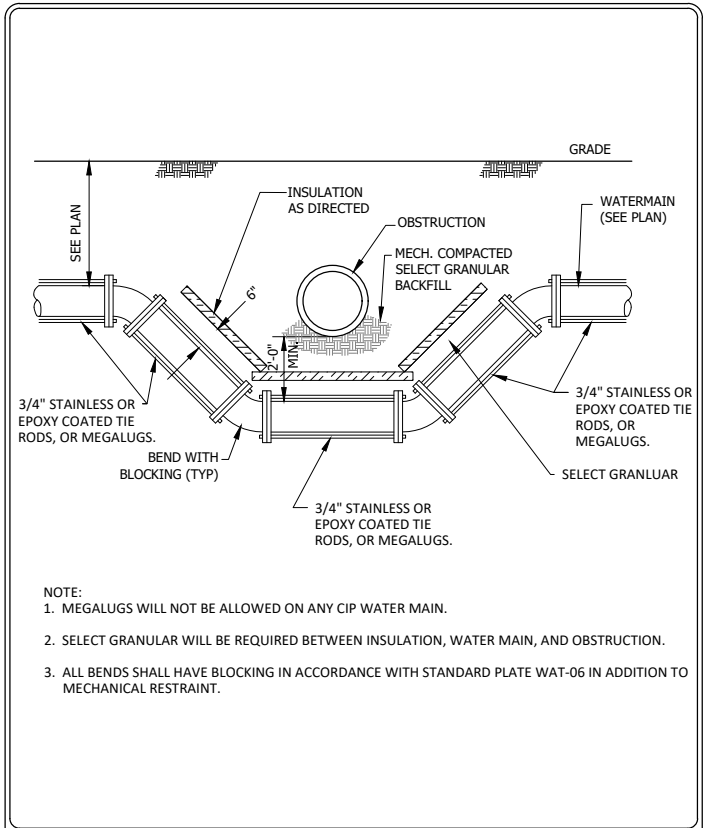
STANDARD DETAILS
CONCRETE THRUST BLOCKING
TWO HARBORS, MINNESOTA

LAST REVISION:
 APR 2000
 CITY PLATE NO.
 WAT-6



STANDARD DETAILS
HYDRANT DETAIL
W/ MEGALUGS
TWO HARBORS, MINNESOTA

LAST REVISION:
 March 2019
 CITY PLATE NO.
 WAT-8



STANDARD DETAILS
WATER MAIN OFFSET
TWO HARBORS, MINNESOTA

LAST REVISION:
 JAN 2021
 CITY PLATE NO.
 WAT-10

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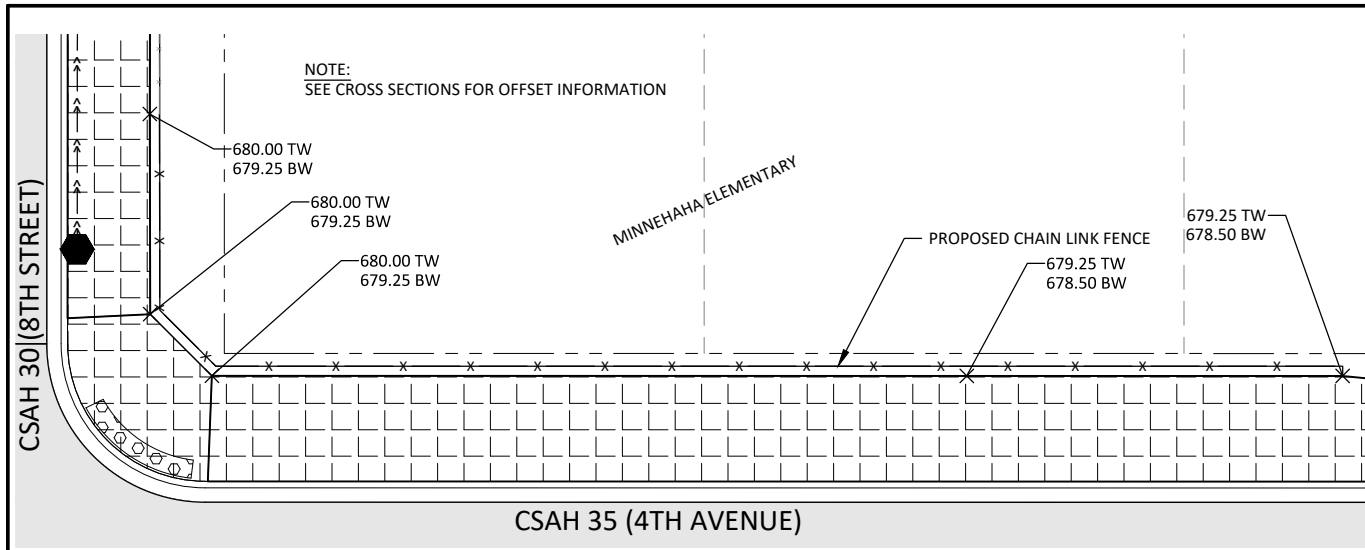


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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 DETAILS - CITY STANDARD PLATES

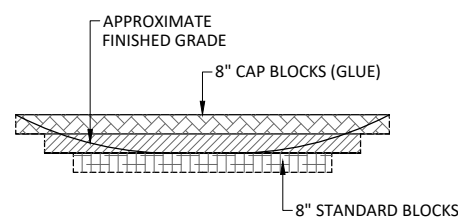
SHEET
C1.10



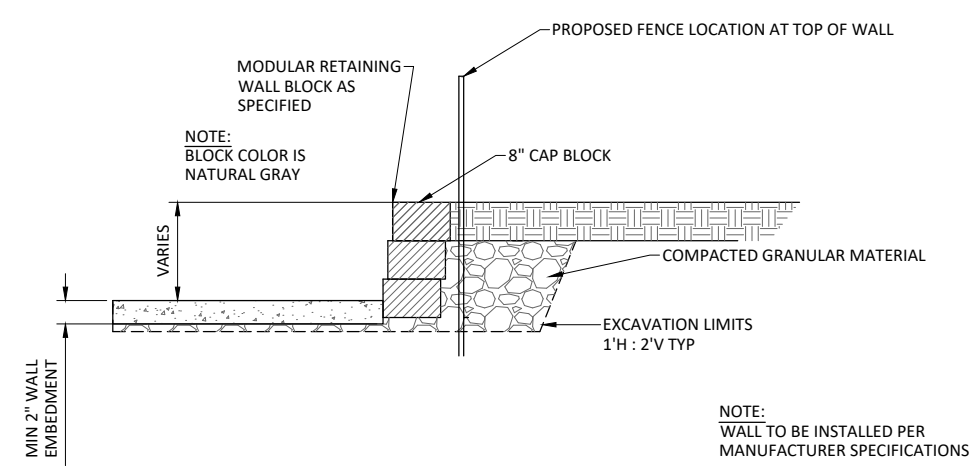
MINNEHAHA ELEMENTARY

CSAH 35 (4TH AVENUE)

NOTE:
STAIR-STEPPING AS SHOWN IS APPROXIMATE ONLY.
BUILD WALL TO MATCH EXISTING GROUND AND
PROPOSED GRADES.

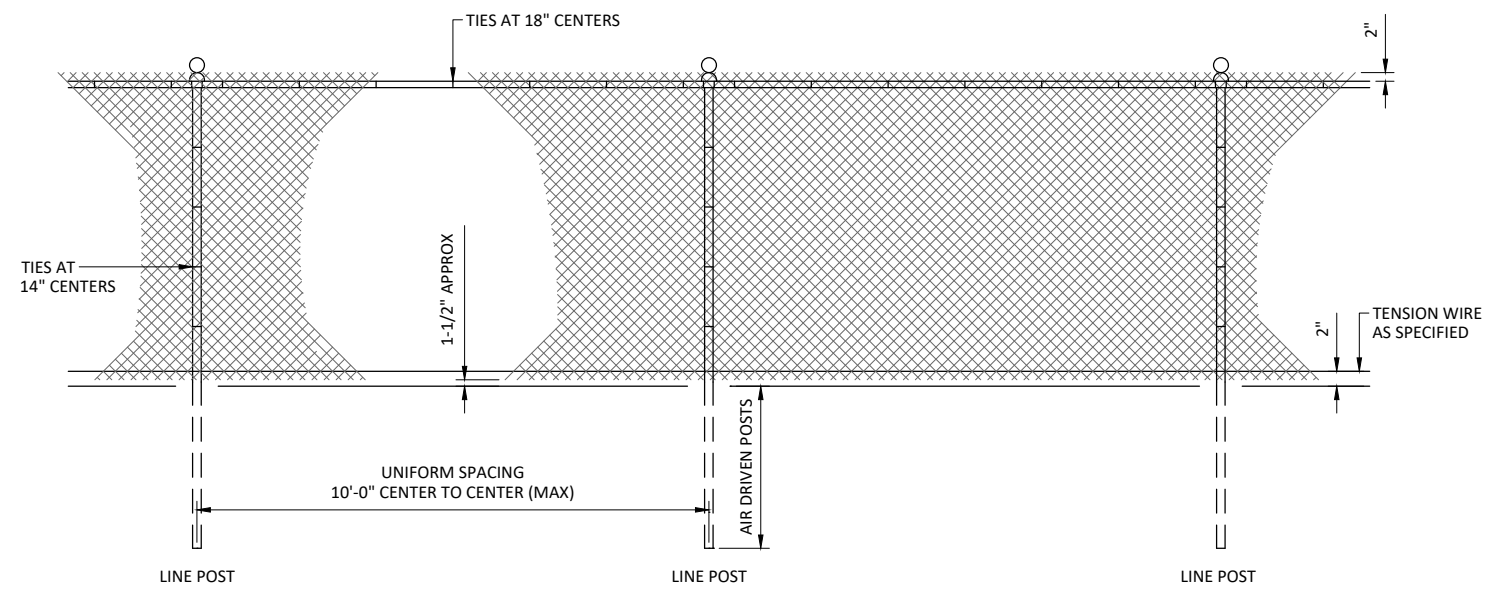


ELEVATION

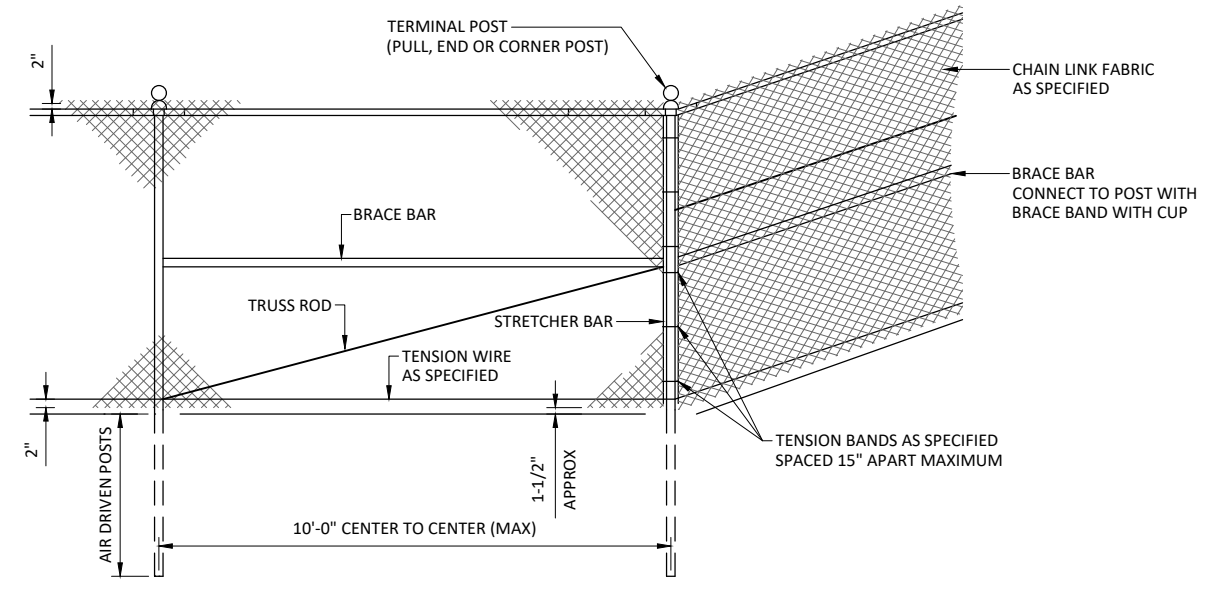


SECTION
MODULAR BLOCK RETAINING WALL
NOT TO SCALE

NOTE:
WALL TO BE INSTALLED PER
MANUFACTURER SPECIFICATIONS



LINE SECTION



PULL, END OR CORNER POST

SALVAGED CHAIN LINK FENCE (MINNEHAHA ELEMENTARY)

NOTE:
FIELD VERIFY EXISTING FENCE CONSTRUCTION,
REINSTALL AS APPROVED BY ENGINEER

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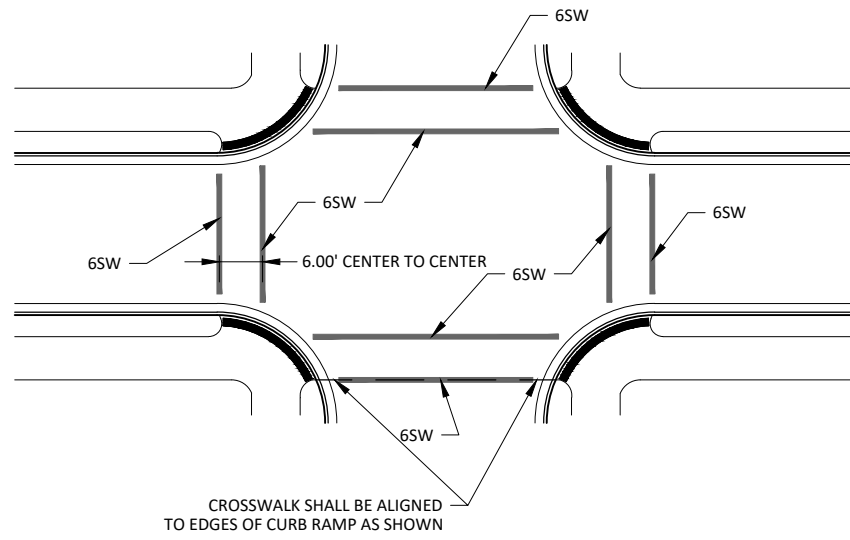


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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
DETAILS - RETAINING WALL & FENCE

SHEET
C1.11



NOTE:

1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 18" CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB. IF THE LAST PAINTED AREA FALLS INTO THIS DISTANCE, IT MUST BE OMITTED.
3. 6SW = 6" SOLID LINE PAINT GROUND IN (WHITE)
4. SEE SHEET C7.03 FOR COMPREHENSIVE STRIPING PLAN.

PEDESTRIAN CROSSWALK STRIPING

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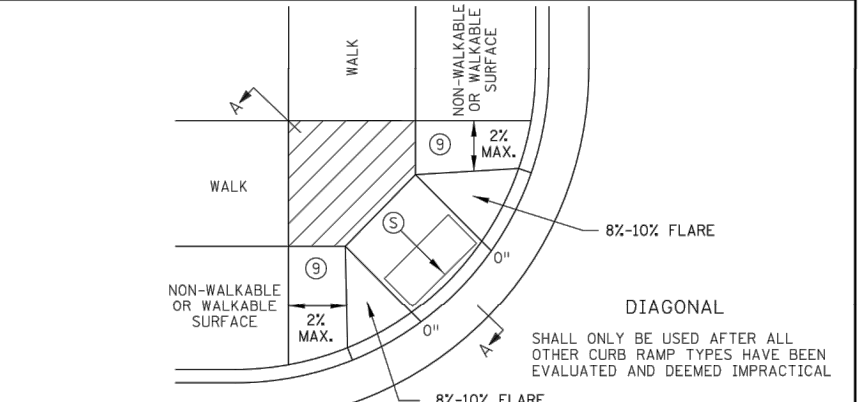
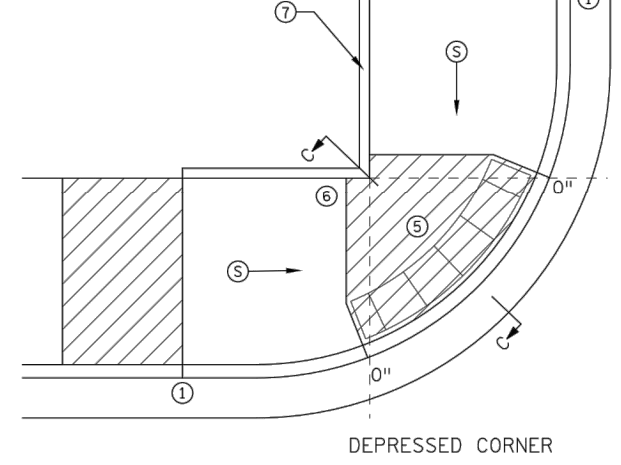
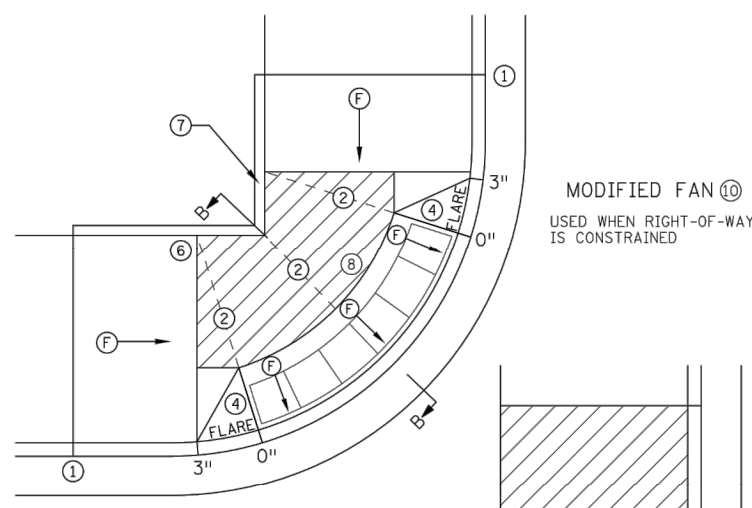
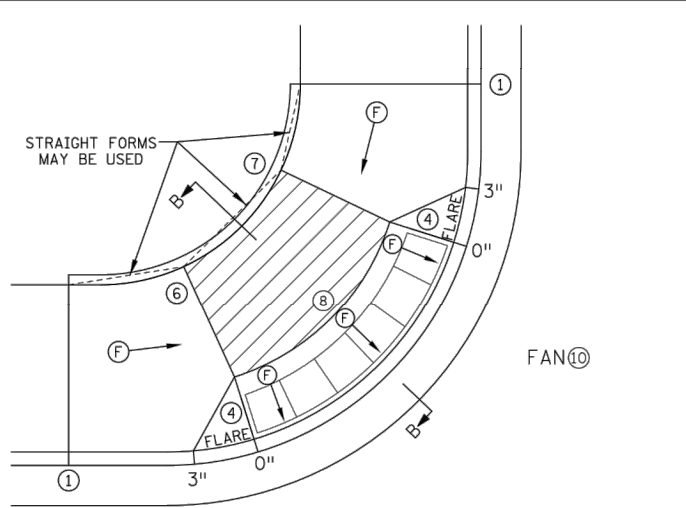
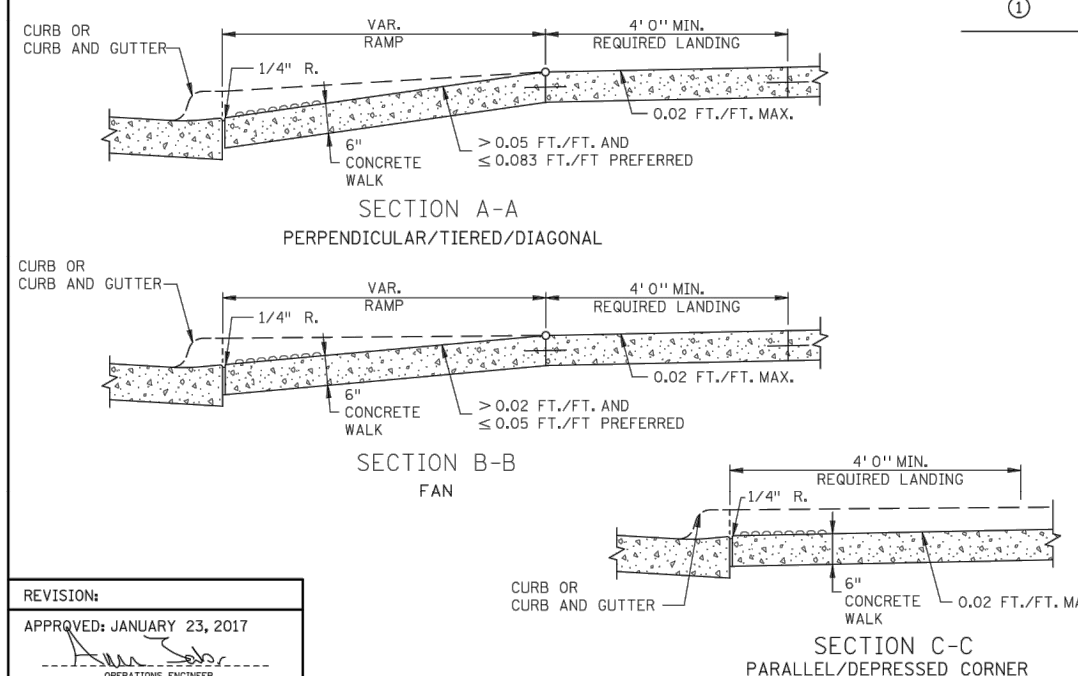
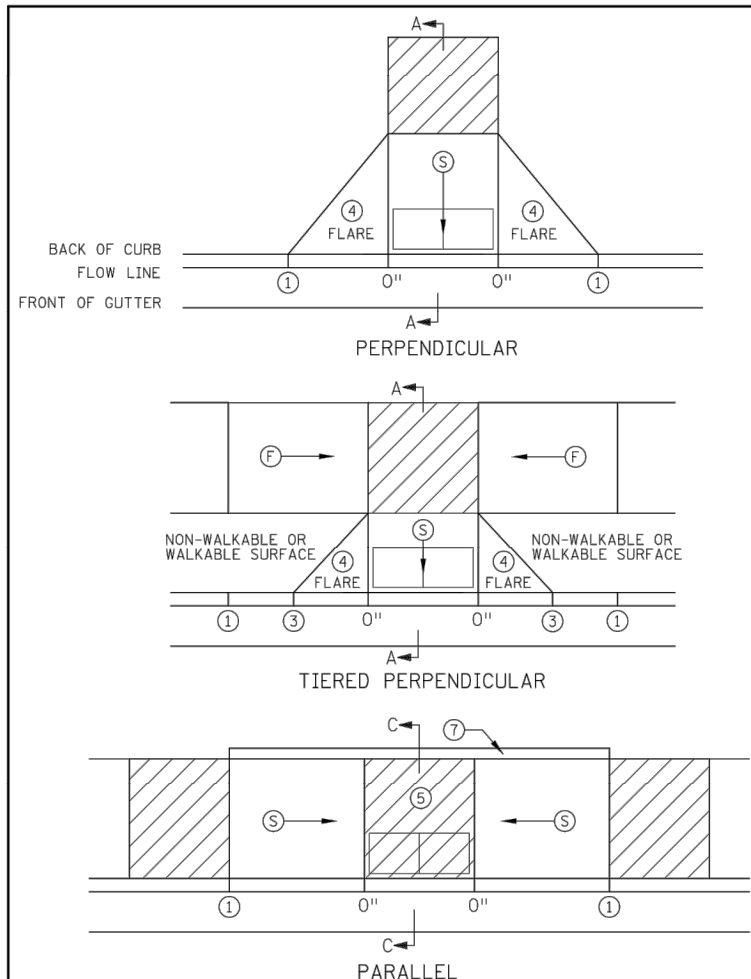


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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 DETAILS - CROSSWALK STRIPING

SHEET

C1.12



NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

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, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH, EXCEPT AS STATED IN 6 BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

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.

- MATCH FULL HEIGHT CURB.
- 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
- DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
- PAVE FULL WALK WIDTH.
- "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
(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%.	
(X) LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.	
X" CURB HEIGHT	

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
1-23-2017

PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250
1 OF 6

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D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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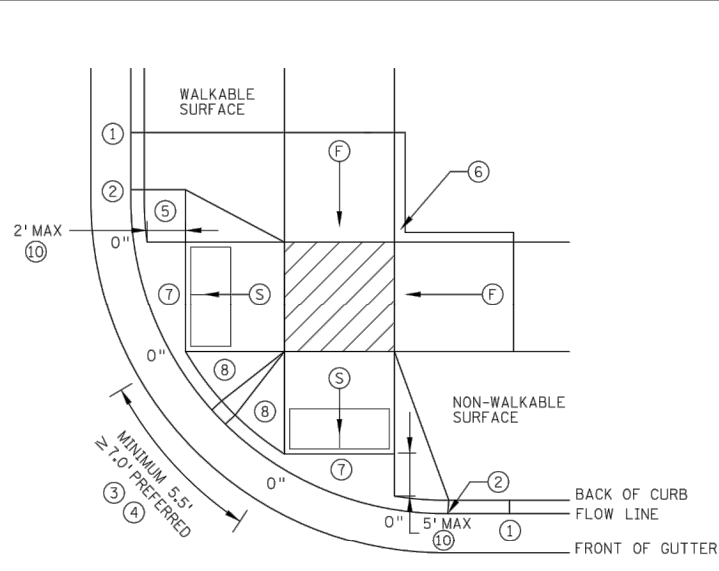


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

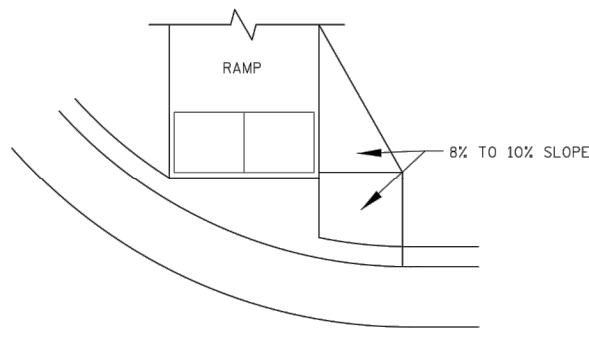
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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
DETAILS - MNDOT STANDARD PLANS

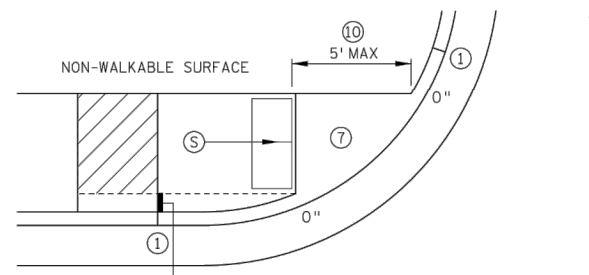
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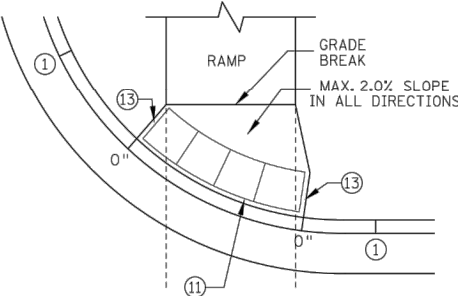
COMBINED DIRECTIONAL ⑨



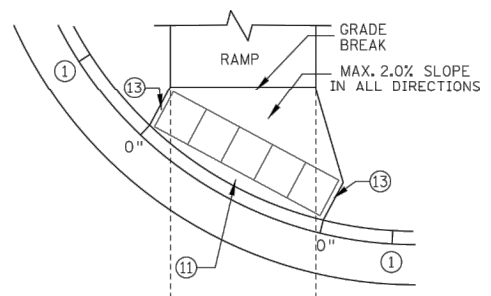
DIRECTIONAL RAMP WALKABLE FLARE



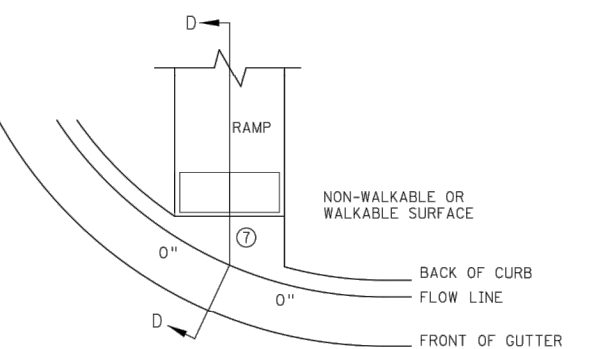
STANDARD ONE-WAY DIRECTIONAL ⑨



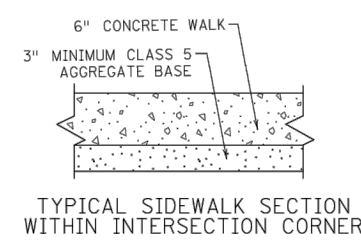
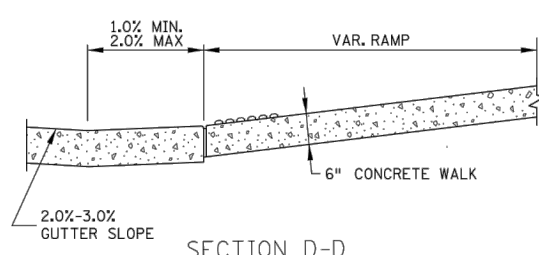
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫



ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) 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, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- 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 WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.
- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ 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.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ 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. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
Ⓢ	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%.
Ⓣ	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%.
▨	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
X"	CURB HEIGHT

REVISIONS:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER
1-23-2017

PEDESTRIAN CURB RAMP DETAILS
STANDARD PLAN 5-297.250 | 2 OF 6

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JOSEPH D. PELAWA, P.E.
42603
DATE 12/15/2020



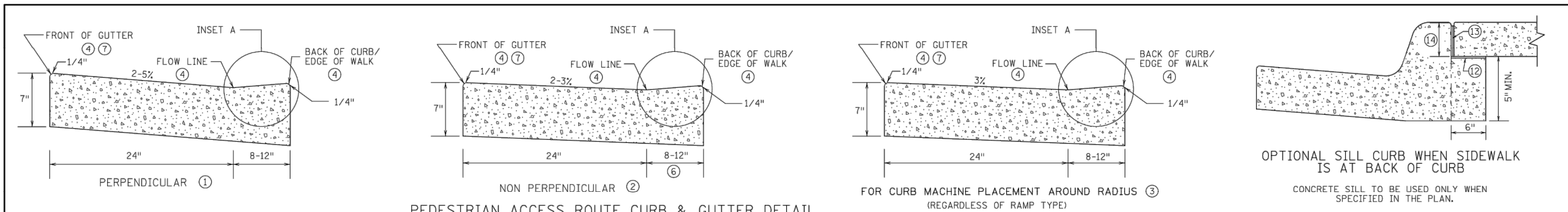
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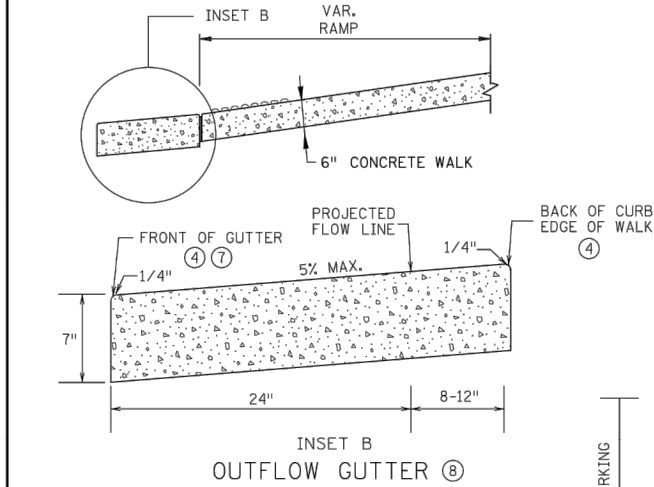
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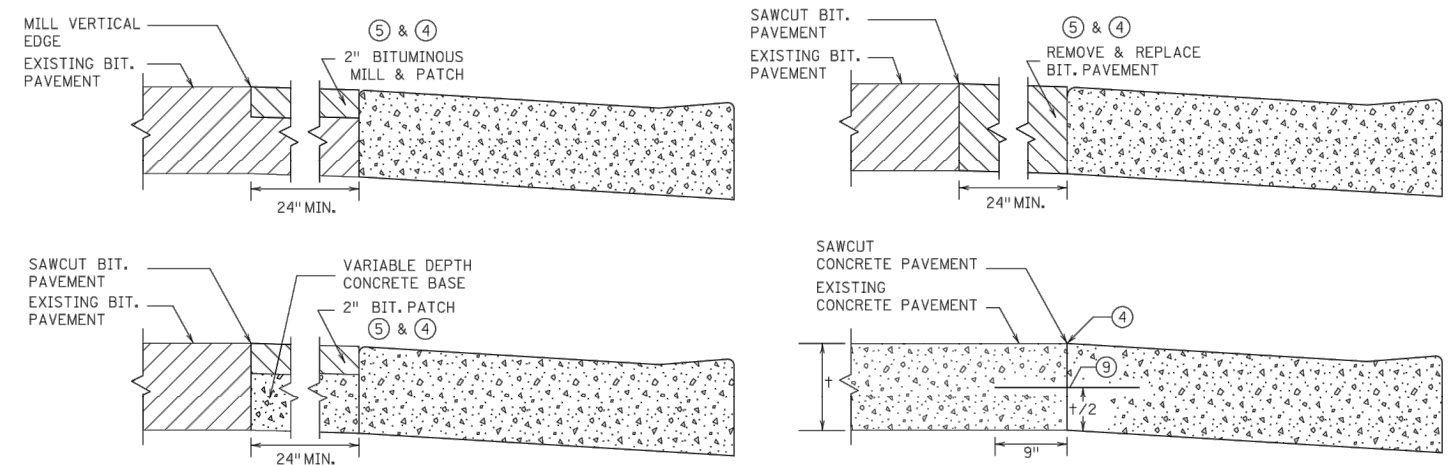
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PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

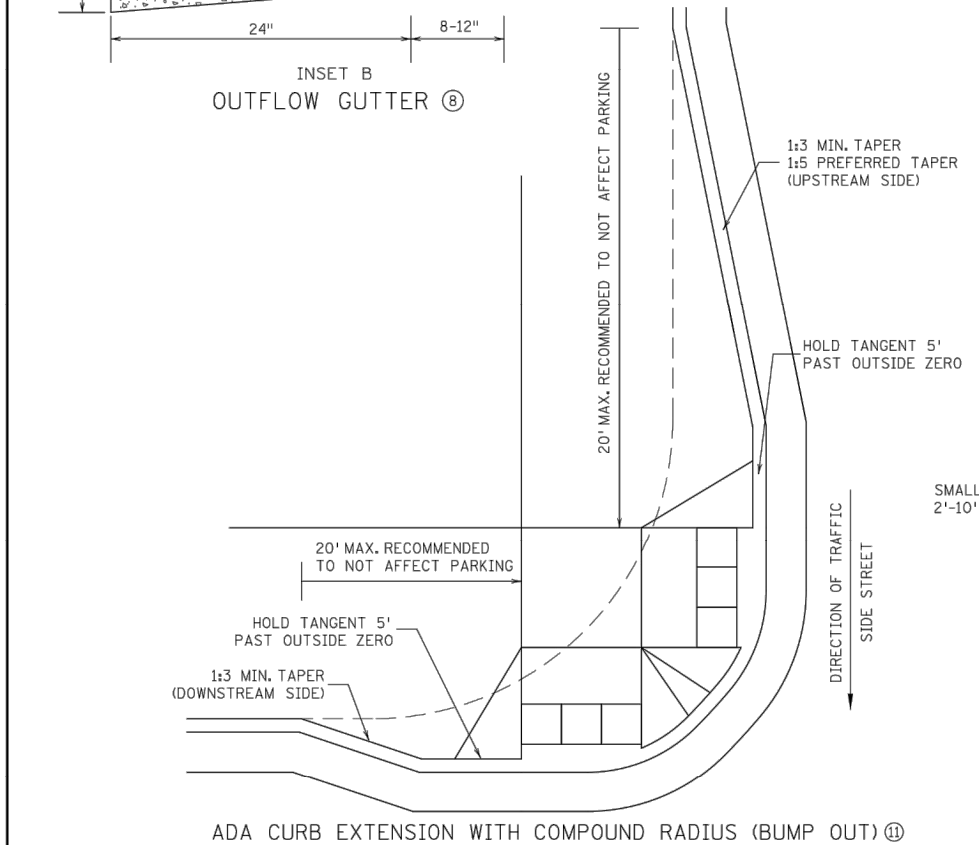


INSET B OUTFLOW GUTTER

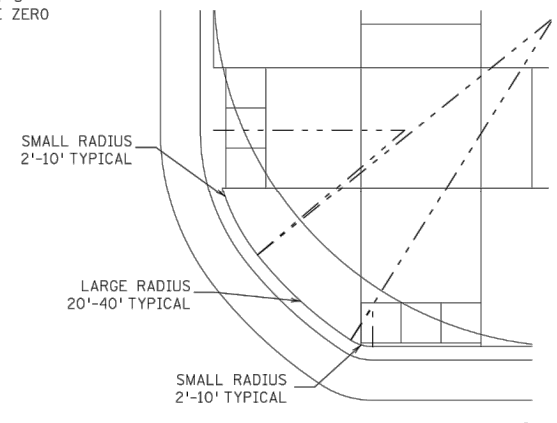


ONLY ALLOWED PER ENGINEER'S APPROVAL

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



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT)



COMBINED DIRECTIONAL (COMPOUND RADIUS)

- 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 PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
 - ② FOR USE AT CURB RAMP WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
 - ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMP.
 - ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
 - 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. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
 - ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
 - ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
 - ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1" MINIMUM FROM ALL JOINTS.
 - ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
 - ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
 - ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
 - ⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
 - ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:
 APPROVED: JANUARY 23, 2017
 OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
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PEDESTRIAN CURB RAMP DETAILS
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 J. DELAWA, P.E.
 42603 DATE 12/15/2020



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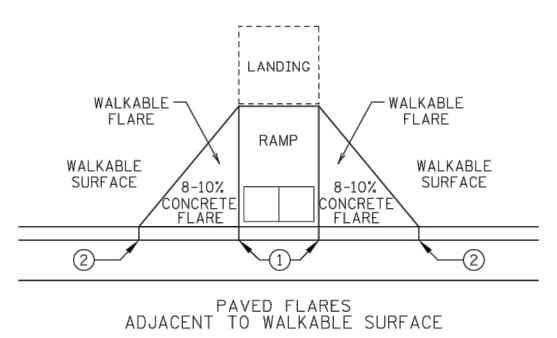


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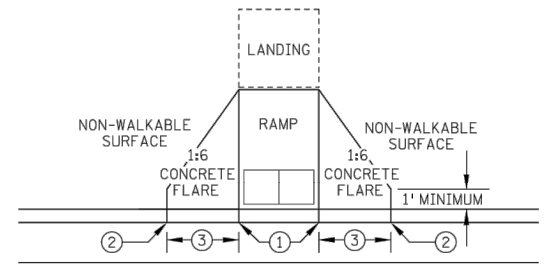
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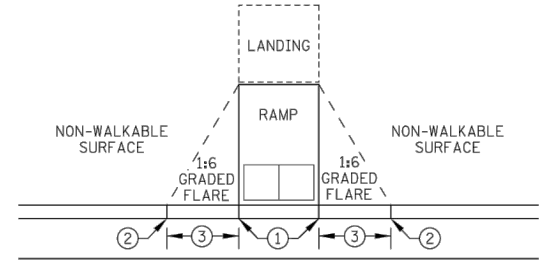
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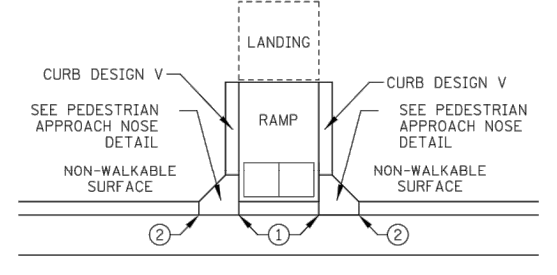
PAVED FLARES ADJACENT TO WALKABLE SURFACE



PAVED FLARES ADJACENT TO NON-WALKABLE SURFACE



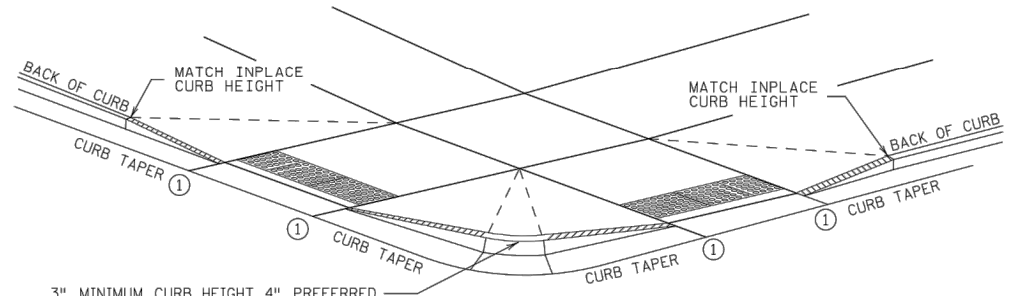
GRADED FLARES



RETURNED CURB ⑤

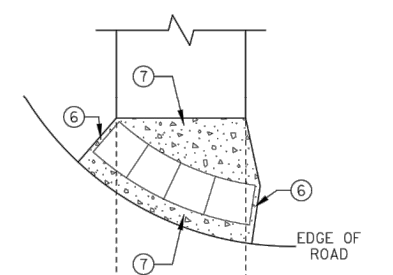
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

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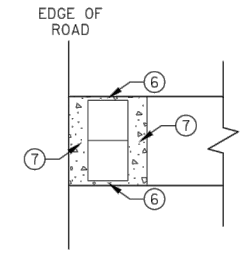


3" MINIMUM CURB HEIGHT, 4" PREFERRED (MEASURED AT FRONT FACE OF CURB) FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH ⑧ CURB AND GUTTER

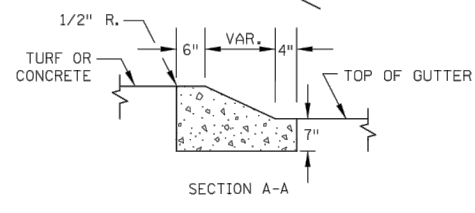
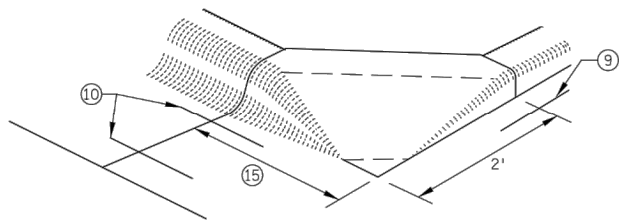


RADIAL DETECTABLE WARNING

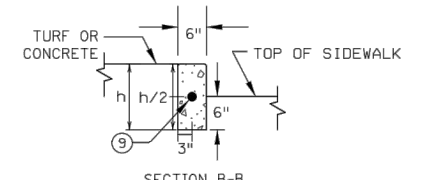


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

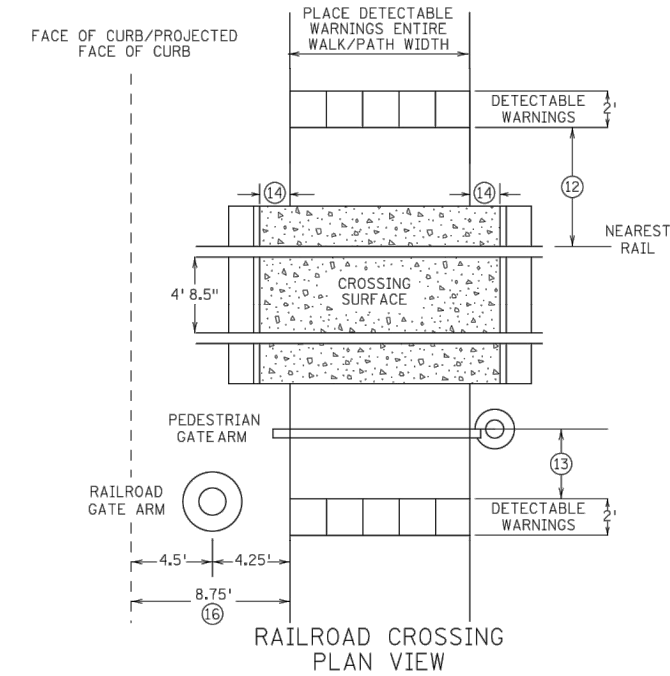


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

- NOTES:
 SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
 A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
 CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMP FROM THE BACK OF CURB.
- 0" CURB HEIGHT.
 - FULL CURB HEIGHT.
 - 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
 - SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED 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.
 - TYPICALLY USED FOR MEDIANS AND ISLANDS.
 - WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
 - IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
 - 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.
 - DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
 - DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
 - SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6" LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.
 - 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.
 - 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. THIS CRITERIA GOVERNS OVER NOTE ⑫.
 - CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
 - FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
 - SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS
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 JOSEPH D. PELAWA, P.E.
 42603 DATE 12/15/2020



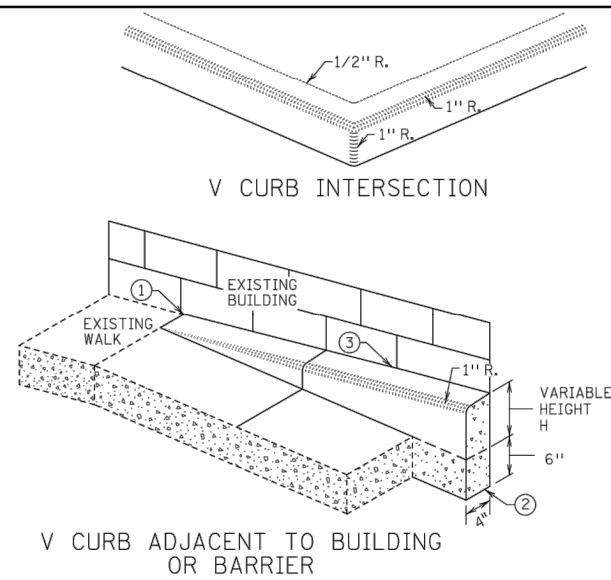
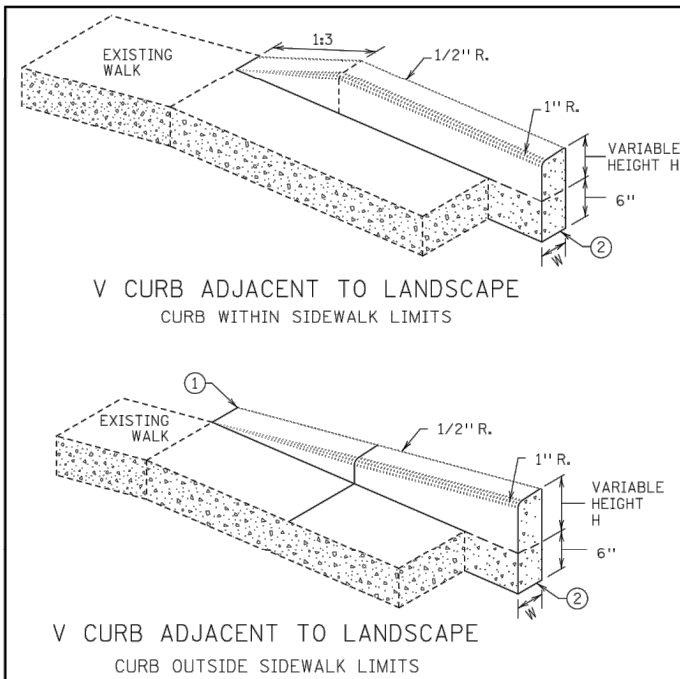
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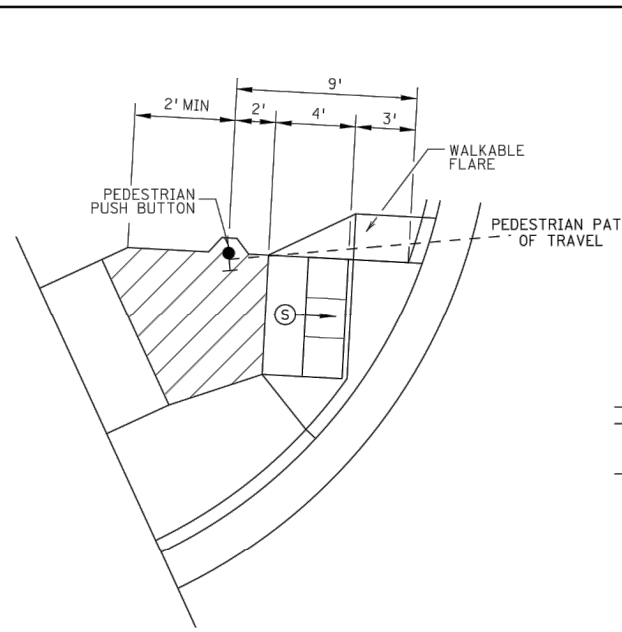
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CLIENT PROJ. NO. U17.120606
 DETAILS - MNDOT STANDARD PLANS

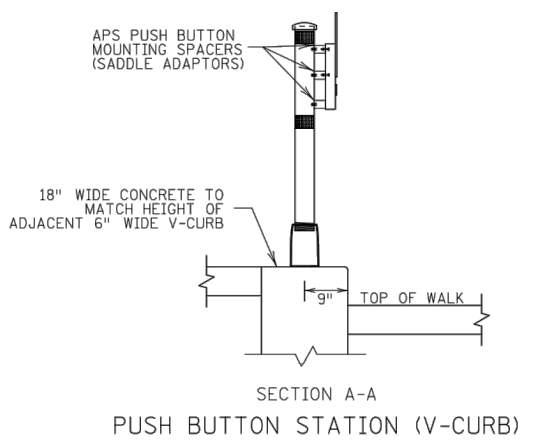
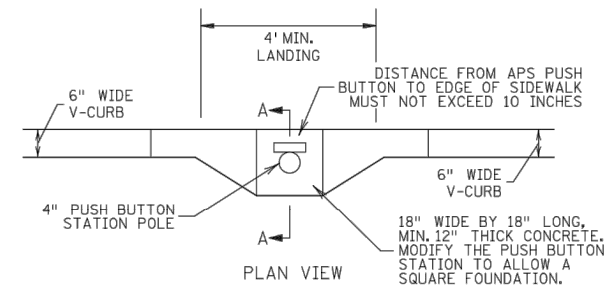
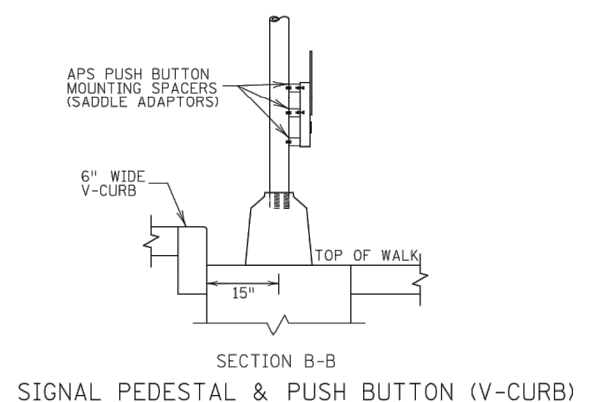
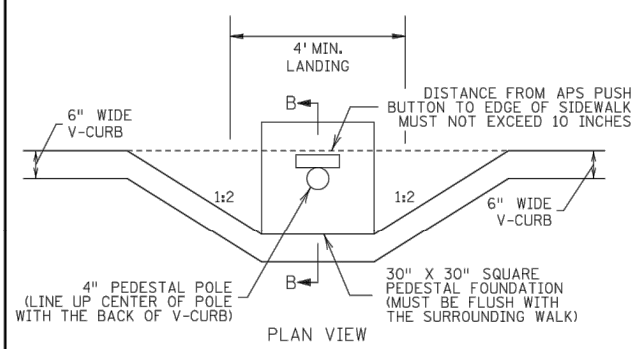
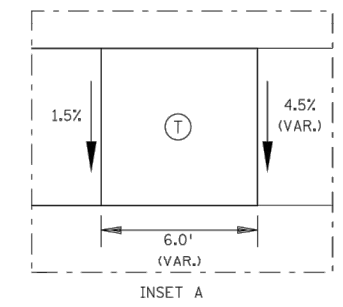
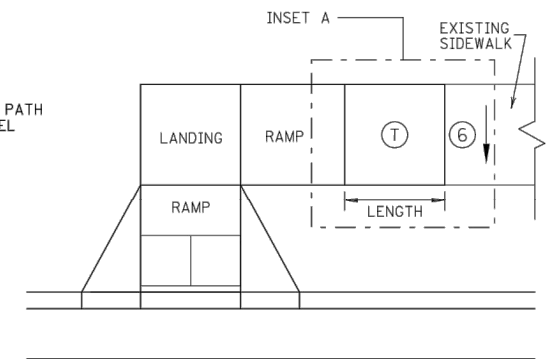
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CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



SEMI-DIRECTIONAL RAMP (3,4,9)
 3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB
 PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)



- NOTES:**
- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
 - 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 THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
 - ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
 - ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND	
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%.
④	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
③	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1' LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
 APPROVED: JANUARY 23, 2017
 OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
 STATE DESIGN ENGINEER
 1-23-2017

PEDESTRIAN CURB RAMP DETAILS
 STANDARD PLAN 5-297.250 5 OF 6

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.
 J. PELAWA, P.E.
 42603 12/15/2020



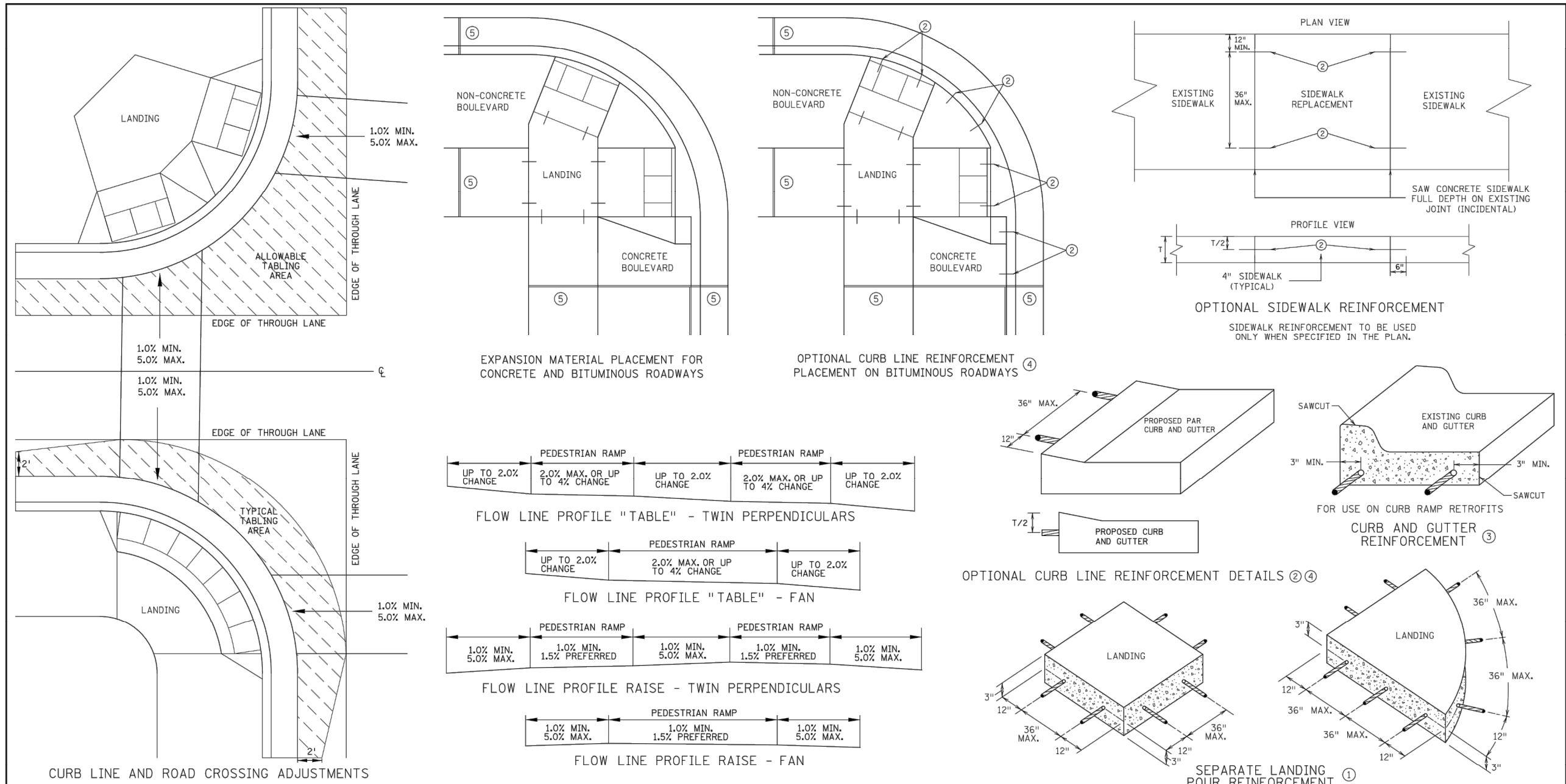
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 DETAILS - MNDOT STANDARD PLANS

SHEET
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"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- ④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- ⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:
 APPROVED: JANUARY 23, 2017
 OPERATIONS ENGINEER

DESIGNED: AJN
 DRAWN: AJN
 CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

REVISED:
 APPROVED: 1-23-2017
 STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS
 STANDARD PLAN 5-297.250 6 OF 6

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 LIC. NO. 42603 DATE 12/15/2020



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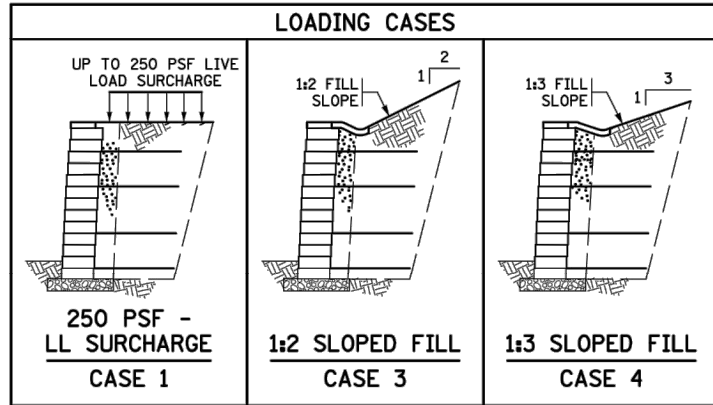
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 DETAILS - MNDOT STANDARD PLANS

SHEET
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PLOTTED/REVISED: 4-APR-2018

I/PLOT NAME: 6640_L_spr
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CASE 2 IS OMITTED INTENTIONALLY

NOTES TO CONTRACTOR:

APPROVED COMBINATIONS OF MODULAR BLOCK UNIT AND SOIL REINFORCEMENT PRODUCTS LIST WITH MBW REINFORCEMENT CLASS NOTED ARE HELD AND MAINTAINED BY THE FOUNDATIONS UNIT, AND POSTED AT <http://www.mnr.dot.state.mn.us/geotechnical/foundations/foundations.asp> UNDER FOUNDATIONS UNIT. ONLY APPROVED PRODUCT COMBINATIONS, INCLUDING BLOCK PRODUCED FROM APPROVED SOURCES MEETING DURABILITY AND QUALITY CONTROL REQUIREMENTS, MAY BE USED IN STANDARD DESIGNS.

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- SUBMIT, WITH THE DETAILED DRAWINGS, A COPY OF Mn/DOT STANDARD SHEETS FOR LOADING CASE(S) USED WITH OPTIONS USED MARKED IN THE TABLE.
- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 4" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- NOTE BLOCK, REINFORCEMENT, AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATION OF MBW UNIT AND GEOSYNTHETIC REINFORCEMENT, INCLUDING Mn/DOT CLASSIFICATION CODE, NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION/FASTENING INSTRUCTIONS FOR THE CAPS. CAP UNITS SHALL BE SET IN A BED OF ADHESIVE DESIGNED TO WITHSTAND MOISTURE AND TEMPERATURE EXTREMES, REMAIN FLEXIBLE, AND SHALL BE SPECIFICALLY FORMULATED FOR BONDING MASONRY TO MASONRY.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND Mn/DOT MSEW STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES ARE PERMITTED BY VALUE ENGINEERING SUBMITTAL ONLY ON PROJECTS WITH OVER 5000 SQ. FT. OF WALL.

DEFINITION OF TERMS

MBW	=	MODULAR BLOCK WALL
LL	=	LIVE LOAD
C.I.P.	=	CAST-IN-PLACE
H	=	WALL HEIGHT
S	=	VERTICAL REINFORCEMENT SPACING
REINFORCEMENT COVERAGE RATIO	=	WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)

DESIGN CRITERIA

DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.

- THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER IS GREATER.
- THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
- THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
- THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:
 OVERTURNING: 2.0
 SLIDING: 1.5
 ECCENTRICITY: $e < L/6$
 BEARING CAPACITY: 2.5
 DEEP SEATED STABILITY: 1.3

- BEARING:
- SEE FOUNDATION REPORT FOR ALLOWABLE SOIL BEARING PRESSURE.
 - CASES 1 AND 4 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2000 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO: $2000 \text{ PSF} + (H-10)(625 \text{ PSF})$ WITH H IN FEET.
 - CASE 3 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2500 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO: $2500 \text{ PSF} + (H-10)(850 \text{ PSF})$ WITH H IN FEET.

- REINFORCED WALL FILL CHARACTERISTICS:
- SELECT GRANULAR MATERIAL MODIFIED FOLLOWING SPEC. 3149.2B.2. MODIFICATION: SELECT GRANULAR MATERIAL MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO)
 - INTERNAL ANGLE OF FRICTION (ϕ_p) = 35°
 - COHESION (C) = 0
 - MOIST UNIT WEIGHT (γ_p) = 125 PSF

- COARSE FILTER AGGREGATE CHARACTERISTICS:
- COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H. INCIDENTAL, NO DIRECT PAYMENT WILL BE MADE.

- RETAINED BACKFILL CHARACTERISTICS:
- INTERNAL ANGLE OF FRICTION (ϕ_b) = 30°
 - COHESION (C) = 0
 - MOIST UNIT WEIGHT (γ_b) = 120 PSF

- FOUNDATION SOILS CHARACTERISTICS:
- INTERNAL ANGLE OF FRICTION (ϕ_f) = 30°
 - COHESION (C) = 0
 - UNIT WEIGHT (γ_f) = 120 PSF

SAMPLE ESTIMATED QUANTITIES FOR MODULAR BLOCK WALLS

	UNIT	QUANTITY
STRUCTURE EXCAVATION CLASS ---	CU. YD.	
SELECT GRANULAR MATERIAL MODIFIED (CV)	CU. YD.	
STRUCTURAL CONCRETE (1A43)	CU. YD.	
MODULAR BLOCK RETAINING WALL	SQ. FT.	
TYPE I GEOTEXTILE FABRIC	SQ. YD.	

- VERTICAL FACE AREA OF MODULAR BLOCK AS MEASURED FROM PLAN TOP OF WALL TO 2 FT. BELOW FINISHED GRADE AT BOTTOM OF WALL.
- PAY ITEM FOR MBW WALLS SHALL BE 2411.
- REFER TO TABULATIONS / ESTIMATE SHEETS FOR QUANTITIES.

NOTES TO DESIGNER:

HEIGHT AND LOCATION RESTRICTIONS FOR ISSUES SUCH AS FREEZE-THAW DURABILITY ARE GOVERNED BY APPROPRIATE TECHNICAL MEMORANDUMS. CURRENT GOVERNING TECH. MEMO. NO.: 14-03-MAT-01.

IN ADDITION TO THE STANDARD SHEETS, PLAN AND FRONT ELEVATION VIEWS OF THE MODULAR BLOCK RETAINING WALLS SHALL BE INCLUDED IN THE PLANS. THE PLAN VIEW MUST SHOW ALIGNMENT BASELINE, LIMITS OF BOTTOM OF WALL ALIGNMENT, AND LIMITS OF TOP OF WALL ALIGNMENT AS ALIGNMENTS VARY WITH BATTER OF WALL SYSTEM ACTUALLY SUPPLIED. THE FRONT ELEVATION MUST IDENTIFY BOTTOM AND TOP OF WALL ELEVATIONS, EXISTING GRADES, AND FINISHED GRADES.

IF THE WALL IS CURVED, THE RADIUS AT THE BOTTOM AND THE TOP OF EACH WALL SEGMENT AND THE P.C. AND P.T. STATION POINTS OFF OF BASELINE AND LIMITS OF BOTTOM AND TOP OF WALL ALIGNMENT MUST BE SHOWN.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO AND Mn/DOT DESIGN MANUALS, STANDARD PLATES AND DETAILS FOR REQUIREMENTS.

SURFACE DRAINAGE PATTERNS SHALL BE SHOWN IN THE PLAN VIEW. PROVIDE DIMENSIONS FOR WIDTH AND DEPTH OF THE DRAINAGE SWALE AS WELL AS THE TYPE OF IMPERVIOUS LINER MATERIAL. SURFACE WATER RUNOFF SHOULD BE COLLECTED ABOVE AND DIVERTED AROUND WALL FACE.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL WALL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO HYDRAULIC STRUCTURE). THE SPACING FOR DRAIN PIPE OUTLET SHALL NOT BE MORE THAN 250 FT.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE WALL HEIGHT H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

- STANDARD DESIGN CHARTS ARE NOT APPLICABLE TO:
- PROJECT/SITES WHERE FOUNDATION SOILS SHEAR STRENGTH AND/OR BEARING CAPACITY DO NOT MEET OR EXCEED VALUES USED IN THE DEVELOPMENT OF STANDARD DESIGN CHARTS.
 - PROJECTS WITH A LARGE QUANTITY OF FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN Mn/DOT ROAD DESIGN MANUAL.
 - WHERE SLOPES IN FRONT OF WALL ARE STEEPER THAN 1:3.
 - WHERE MAXIMUM WALL HEIGHT EXCEEDS 12 FT.
 - WHERE WALLS ARE TIERED.
 - WALLS WITH NOISE WALLS.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

PROVIDE PROJECT SPECIFIC AESTHETIC REQUIREMENTS INCLUDING COLOR AND FASCIA SURFACING IN THE SPECIAL PROVISIONS.

CHAPTER 9 OF THE Mn/DOT "ROAD DESIGN MANUAL" CONTAINS GUIDELINES, TRAFFIC SAFETY AND OTHER ASPECTS.

GENERAL NOTES:

UTILITIES: EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK: ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2451.

CAST-IN-PLACE CONCRETE: ALL CONCRETE SHALL CONFORM TO Mn/DOT 2461, EXCEPT AS NOTED.

CONSTRUCTION: CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.

GEOMETRICS AND GRADES: DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

THE FILL SLOPE CONVENTION OF 1 VERTICAL TO HORIZONTAL IS USED IN THIS PLAN.

COMPACTION REQUIREMENTS: COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

REVISION:

APPROVED: DECEMBER 1, 2014
<i>[Signature]</i>
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	STANDARD PLAN 5-297.640	1 OF 1	MODULAR BLOCK RETAINING WALL	
	<i>[Signature]</i>	APPROVED: 12-1-2014 REVISED:		
STATE DESIGN ENGINEER	STATE PROJ. NO.	(T.H.)	SHEET NO.	OF SHEETS

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[Signature]
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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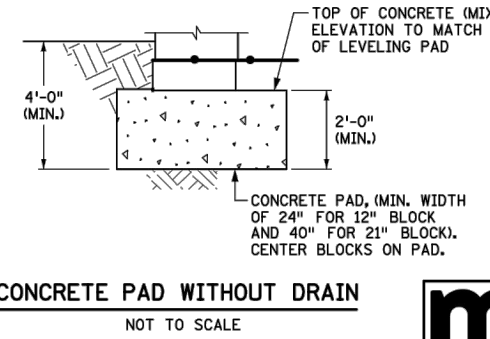
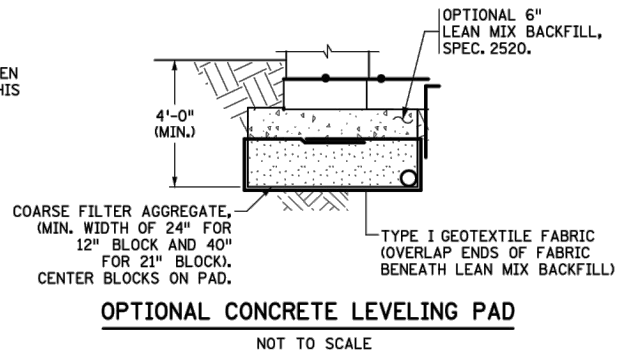
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 DETAILS - MNDOT STANDARD PLANS

I/PLOT NAME: s64L_J_spr PATH & FILENAME: OTS\DesignStandards\Development\New Border\600_Series\s64L_J_spr.dgn PLOTTED/REVISED: 4-APR-2018

MODULAR BLOCK WALL REINFORCEMENT LAYOUT														
CASE 1 - LEVEL BACKFILL WITH 250 PSF SURCHARGE														
MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF)		① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES)	③ MAXIMUM UNREINFORCED WALL HT, A (IN.)	ZONE 1		ZONE 2		ZONE 3		
	LG. TERM (T _{cl})	DESIGN (T _d)						H1 (FT.)	S1 _{MAX} (IN.)	H2 (FT.)	S2 _{MAX} (IN.)	H3 (FT.)	S3 _{MAX} (IN.)	
MBW-700	1050	700	0.7 H	12.0	12	0 3	15	7.9	24	4.1	16			
								9.8	24	2.2	16			
								11.5	24	0.5	16			
								12.0	24					
						21	0 3	32	4.9	32	3.0	24	4.1	16
									4.9	32	4.9	24	2.2	16
									5.9	32	6.1	24		
									7.2	32	4.8	24		
MBW-1050	1575	1050	0.7 H	12.0	12	0 3	15	12.0	24					
								12.0	24					
								12.0	24					
								12.0	24					
					21	0 3	36	5.9	42	4.9	32	1.2	24	
								8.5	42	3.5	32			
								9.8	42	2.2	32			
								9.8	42	2.2	32			
MBW-1400	2100	1400	0.7 H	12.0	12	0 3	15	12.0	24					
								12.0	24					
								12.0	24					
								12.0	24					
					21	0 3	36	6.6	48	3.3	42	2.1	32	
								8.2	48	3.8	42			
								9.8	48	2.2	42			
								9.8	48	2.2	42			

NOTES TO CONTRACTOR:

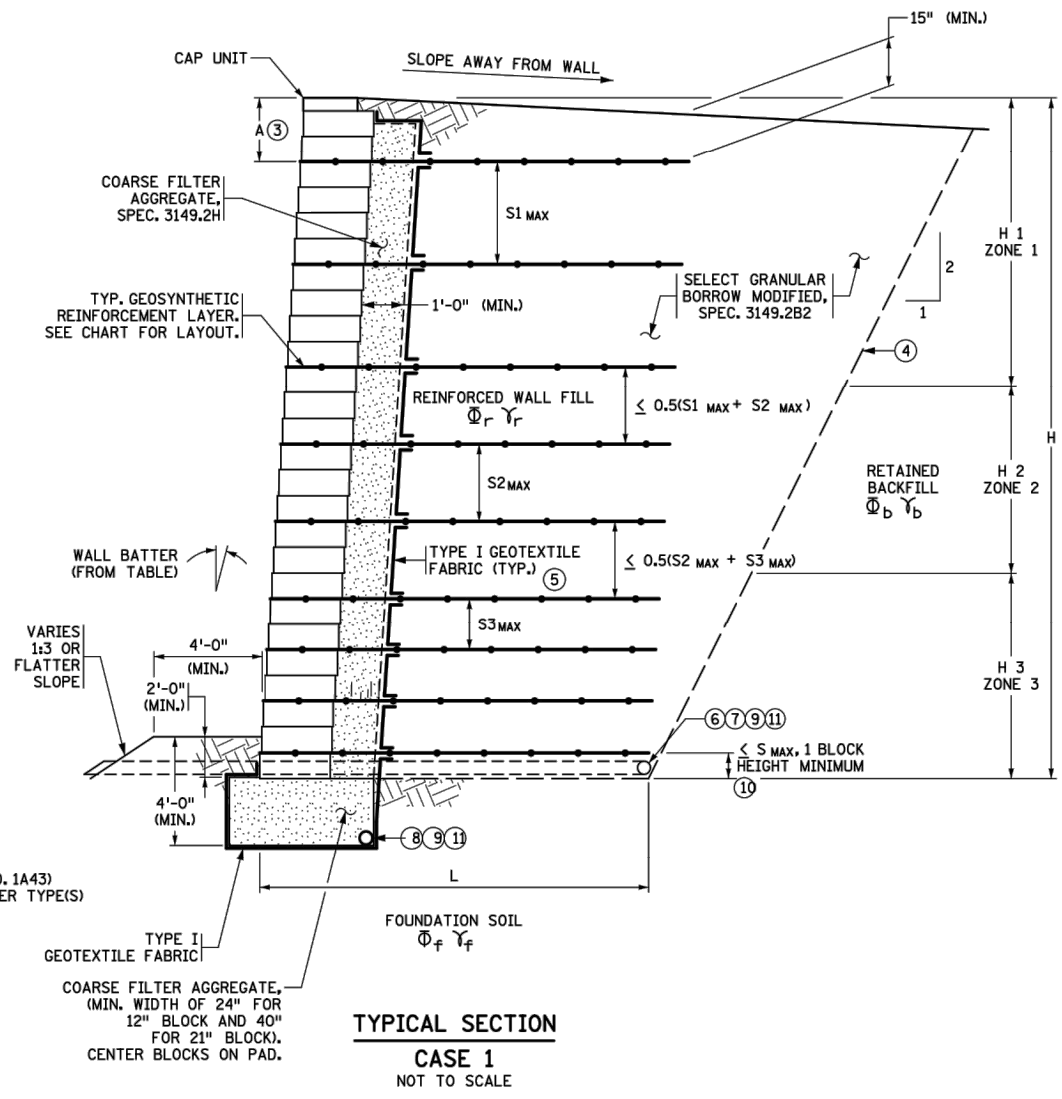
- OR 4 FT. MINIMUM, WHICHEVER IS GREATER.
- WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.
- MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.
- PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.
- THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".
- INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.
- PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.
- IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.
- 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.
- S_{MAX} = 0.5 S1_{MAX} IF THE WALL HEIGHT IS WITHIN ZONE 1.
S_{MAX} = 0.5 S2_{MAX} IF THE WALL HEIGHT IS WITHIN ZONE 2.
S_{MAX} = 0.5 S3_{MAX} IF THE WALL HEIGHT IS WITHIN ZONE 3.
- THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.



INSTRUCTIONS TO CONTRACTOR:

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp.



REVISION:
APPROVED: 8-6-2014
<i>[Signature]</i>
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	STANDARD PLAN 5-297.641	1 OF 1	MODULAR BLOCK RETAINING WALL SOIL REINFORCEMENT FOR LEVEL FILL, CASE 1
	APPROVED: 8-6-2014 REVISED:	STATE PROJ. NO.	

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[Signature]
 J. SCOTT D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 www.bolton-menk.com



DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21
CLIENT PROJ. NO.	U17.120606		

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 DETAILS - MNDOT STANDARD PLANS

SHEET
C1.20

PLOTTED/REVISED: 4-APR-2018

I/PLOT NAME: 6645_1_spr
 PATH & FILENAME: OT\S\DesignStandards\Development\New Border\600_Series\645_1_spr.dgn

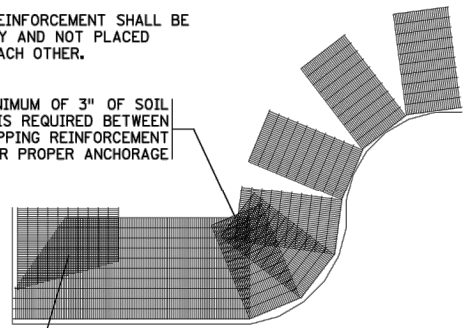
NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.

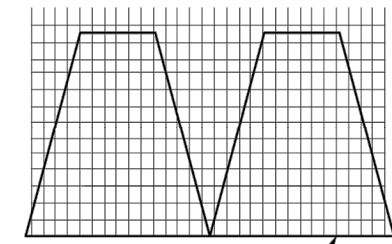
ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.

MINIMUM OF 3" OF SOIL FILL IS REQUIRED BETWEEN OVERLAPPING REINFORCEMENT FOR PROPER ANCHORAGE

STAGGER REINFORCEMENT BY ONE BLOCK HEIGHT. REINFORCEMENTS SHALL NOT BE PLACED DIRECTLY ON TOP OF EACH OTHER.

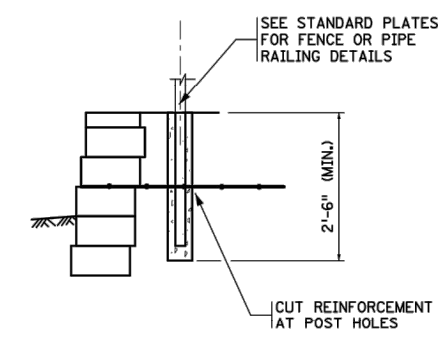


REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS

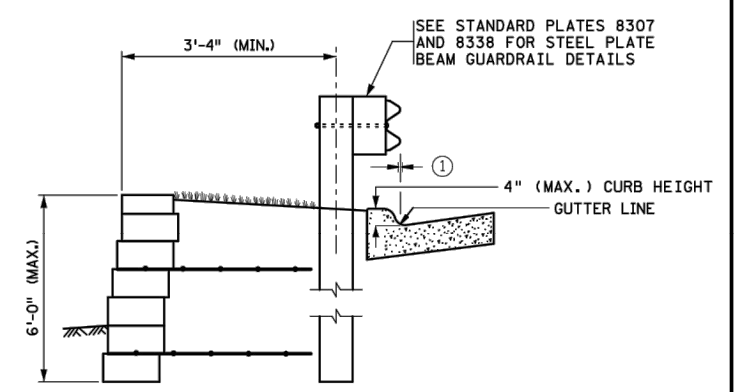


REINFORCEMENT IS TO BE PLACED ON LEVEL BACKFILL AND EXTENDED TO FRONT FACE OF OVERLYING BLOCKS. PLACE NEXT UNIT. PULL REINFORCEMENT TAUT AND BACKFILL AS REQUIRED.

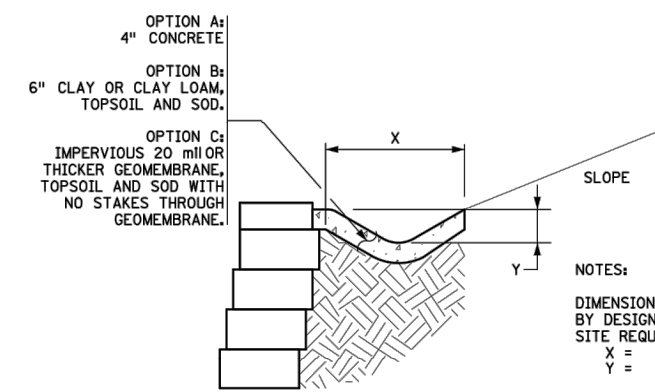
REINFORCEMENT PLACEMENT BETWEEN BLOCK UNITS



POST DETAIL
 TYPICAL HANDRAIL AND/OR FENCE POST

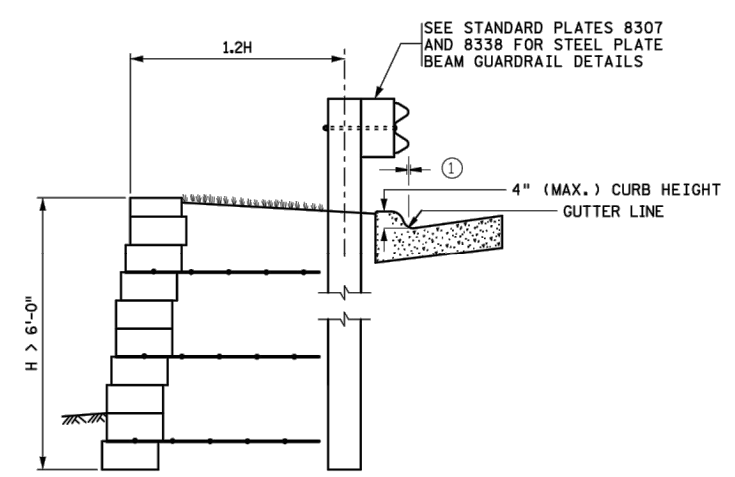


STEEL PLATE BEAM GUARDRAIL DETAIL 1

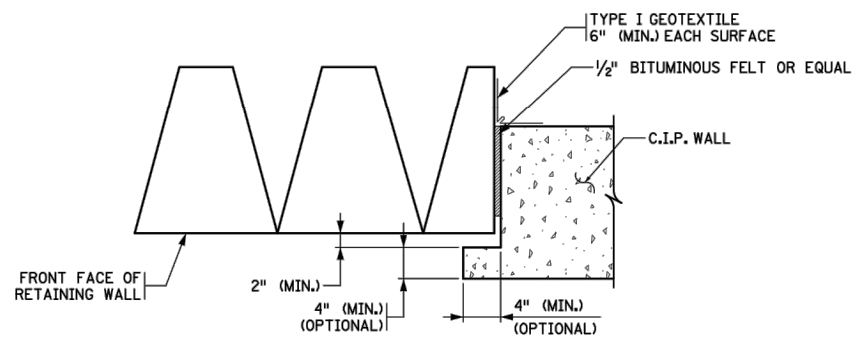


TYPICAL DRAIN SWALE DETAIL

NOTES:
 DIMENSIONS TO BE DETERMINED BY DESIGN ENGINEER BASED ON SITE REQUIREMENTS.
 X =
 Y =
 SEE PLAN VIEW FOR SURFACE DRAINAGE PATTERNS.



STEEL PLATE BEAM GUARDRAIL DETAIL 2
 (AADT SHALL BE LESS THAN 5000)
 STEEL PLATE BEAM GUARDRAIL SHOWN.



CONNECTION DETAIL AT JUNCTURE OF MSEW AND C.I.P. STRUCTURE

NOTES:

① USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL. GENERALLY PLACE CURB DIRECTLY BELOW GUARDRAIL. SEE PLANS OR REFER TO STANDARD PLAN 5-297.601 (2). FOR CURB LOCATIONS ON NCHRP REPORT NO. 350 APPROVED BRIDGE TRANSITIONS, SEE STANDARD PLANS 5-297.603, .605, .606 ETC..

REVISION:
APPROVED: 8-6-2014
<i>[Signature]</i>
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

	STANDARD PLAN 5-297.645	1 OF 1	MODULAR BLOCK RETAINING WALL DETAILS	
	APPROVED: 8-6-2014 REVISOR:	STATE PROJ. NO.		

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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]
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020

BOLTON & MENK

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DESIGNED: AJN
 DRAWN: AJN
 CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

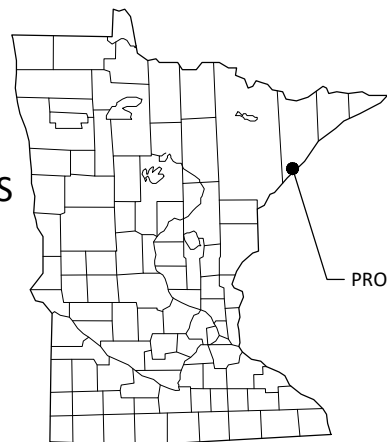
NO. ISSUED FOR DATE
 1 SA SUBMIT 1/13/21
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 0 CONSTR 5/12/21

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 DETAILS - MNDOT STANDARD PLANS

SHEET
C1.21

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

2021 STREET & UTILITY IMPROVEMENTS
CSAH 20, 30 & 35
CITY OF TWO HARBORS 4TH, 5TH & 6TH AVENUES
CITY OF TWO HARBORS
LAKE COUNTY, MINNESOTA



PROJECT LOCATION

LEGEND

- PROJECT BOUNDARY
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- SKUNK CREEK (IMPAIRED)

PROJECT AREAS:

Total Project Size (disturbed area) =	4.7	ACRES
Existing area of impervious surface =	3.2	ACRES
Post construction area of impervious surface =	0.0	ACRES
Total new impervious surface area created =	0.0	ACRES

Planned Construction Start Date:	May 2021
Estimated Construction Completion Date:	Aug 2022

PERMANENT STORMWATER MANAGEMENT SYSTEM:

Type of storm water management used if more than 1 acre of new impervious surface is created:

	Wet Sedimentation Basin
	Infiltration/Filtration
	Regional Pond
X	Permanent Stormwater Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
LAKE	T52N	R11W	1	47.02318°	-91.67473°

BMP SUMMARY	QUANTITY	UNIT
SEDIMENT CONTROL LOG (BIOROLL)	72	LF
SEDIMENT CONTROL LOG TYPE ROCK	153	LF
STORM DRAIN INLET PROTECTION	21	EA
SILT FENCE TYPE MS	550	LF
EROSION CONTROL BLANKET CATEGORY 3N	313	SY
STABILIZED CONSTRUCTION EXIT	1	LS
RAPID STABILIZATION METHOD 3	12	MGAL

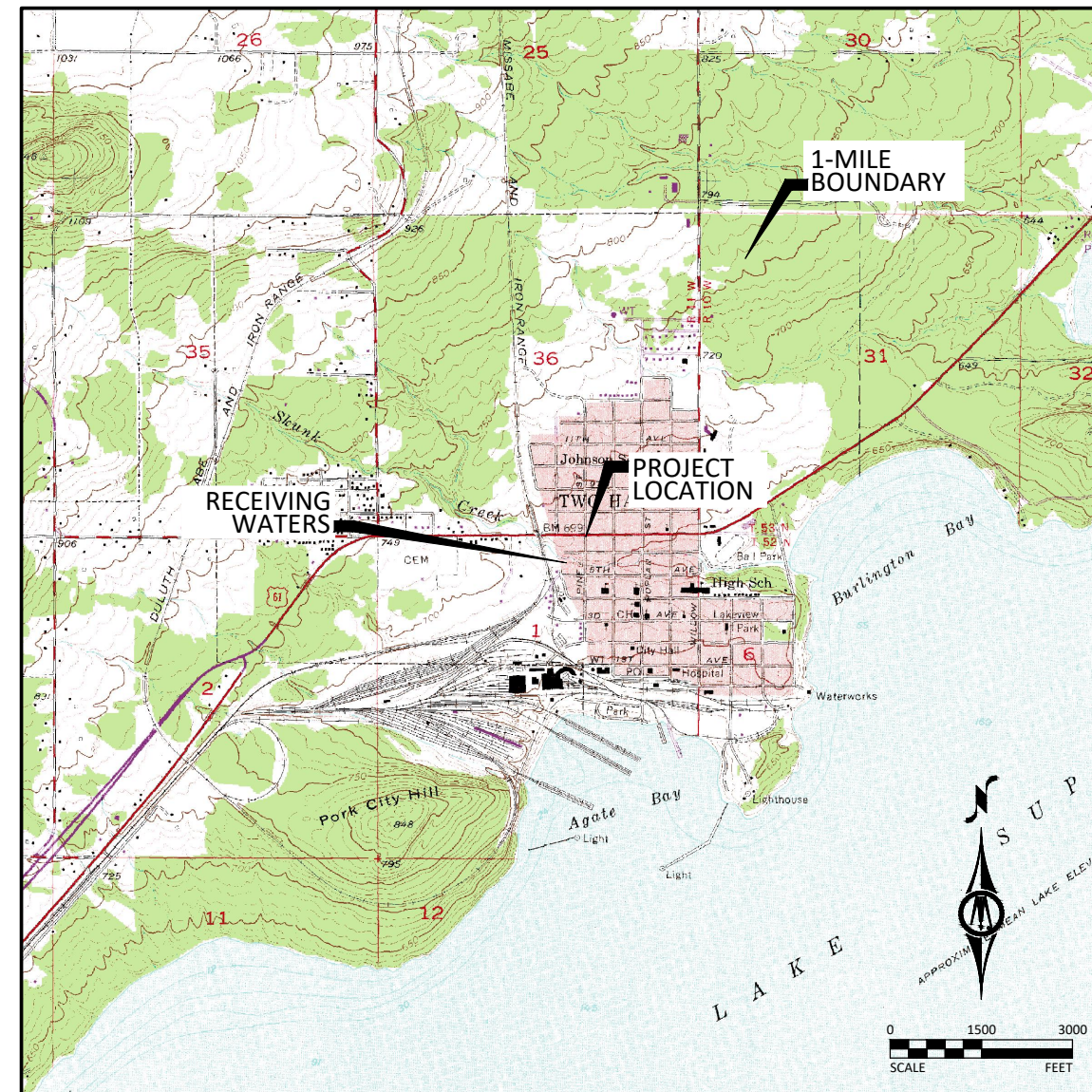
DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:

Construction activities include: Street grading, utility reconstruction including storm sewer, sanitary sewer and water main, roadway reconstruction and bituminous paving, temporary erosion and sediment control, and permanent stabilization.

The intersection of CSAH 35 (4th Avenue) and CSAH 30 (8th Street) acts as a high point at which all drainage flows away to east and south for eventual capture and ultimate discharge to Lake Superior. North of CSAH 35 (4th Avenue) drainage flows to the low point north of 5th Avenue (Skunk Creek). Drainage structures at this low point discharge to Skunk Creek. East of CSAH 30 (8th Street) stormwater on 5th and 6th Avenue drain to CSAH 20 (7th Street) prior to capture and discharge to Skunk Creek.

After construction surface discharge flows will be maintained to the same locations as before construction.

No permanent stormwater management is required as part of this project.



RECEIVING WATERS:

Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water ¹	Flows to Impaired Water Within 1-Mile ²	USEPA Approved Construction Related TMDL ³
SKUNK CREEK	CREEK	NO	YES	TURBIDITY
LAKE SUPERIOR	LAKE	YES	NO	NO

¹ Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001).

² Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

³ Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

- 1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
- 2) Install perimeter sediment control, inlet protection, and construction exit.
- 3) Remove existing pavement.
- 4) Excavate to subgrade.
- 5) Complete utility improvements.
- 6) Pave roadway and driveway surfaces.
- 7) Add additional temporary BMPs as necessary during construction based on inspection reports.
- 8) Ensure final stabilization measures are complete.
- 9) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
- 10) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

RESPONSIBLE PARTIES:

The Contractor and Owner will be joint applicants under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program.

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	Lake County, MN	Jason DiPiazza, P.E.	218-834-8380
SWPPP DESIGNER:	Bolton & Menk, Inc.	Adam Nix	218-729-5939
CONTRACTOR:	TBD	TBD	TBD
CONSTRUCTION SWPPP MANAGER:	TBD	TBD	TBD
PARTY RESPONSIBLE FOR LONG TERM O&M:	City of Two Harbors, MN	Mark Jones	218-834-8810

The SWPPP Designer, Construction SWPPP Manager, and BMP Installer must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager and BMP Installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL COMPENSATION

Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

DOCUMENT RETENTION

Permittees must make the SWPPP, including all inspection reports, maintenance records, training records and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT.

GENERAL STORMWATER DISCHARGE REQUIREMENTS

All requirements listed in Section 5.1 of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

Permanent stormwater treatment systems for this project have been designed in accordance with the guidance in the MN Stormwater Manual in place at the time of bidding. Copies of the design information and calculations are part of this SWPPP and will be provided in digital format upon written request to the Engineer.

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

JOSEPH D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
SWPPP - SWPPP PLAN

SHEET

C2.01

Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN R100001 (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: <https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf>

SWPPP AMENDMENTS AND SUBMITTALS

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations.

1. Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
2. There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
 - a. Types and/or Locations of BMPs
 - b. Material Storage and Spill Response
 - c. Fueling Plans
 - d. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
 - e. Project Phasing
3. It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
4. The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order.

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

EROSION PREVENTION PRACTICES

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system.

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

SEDIMENT CONTROL PRACTICES

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete.

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment.

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

The use of polymers, flocculants, or other sedimentation treatment chemicals are not proposed as part of this SWPPP as designed by the Engineer. If methods or phasing of construction require the use of any of these chemicals, the Contractor shall prepare and submit to the Engineer a SWPPP amendment that meets the minimum requirements of Section 9 of the Permit.

TEMPORARY SEDIMENTATION BASINS

A temporary sedimentation basin has not been included in this SWPPP as designed by the Engineer. If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment. Temporary sedimentation basins shall meet or exceed the minimum requirements of Section 14 of the Permit and shall include a basin draining plan meeting or exceeding the minimum requirements of Section 10 of the Permit. Where the site discharges to Special and/or Impaired Waters the SWPPP amendment shall also meet or exceed the minimum requirements of Section 23 of the permit.

DEWATERING

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the minimum requirements of Section 10 of the Permit.

POLLUTION PREVENTION

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

- a. Inspections of areas with permanent cover to be reduced to once per month,
- b. Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes,
- c. Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

Inspections must include:

1. All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness.
2. Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
3. Construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles.
4. Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

PUBLIC WATER RESTRICTIONS:

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

FINAL STABILIZATION

Final Stabilization is not complete until all the following requirements have been met:

1. Substantial Completion has been reached and no ground disturbing activities are anticipated.
2. Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.

3. Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.
4. All sediment has been removed from conveyance systems
5. All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.
6. For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the permittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner.
7. For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

SITE STABILIZATION COMPLETION:

Stabilization of exposed soils shall begin immediately and shall be completed after the construction activity has temporarily or permanently ceased no later than:	7 calendar days
--	-----------------

SITE INSPECTION INTERVAL:

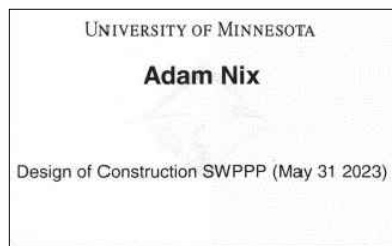
A trained person shall routinely inspect the entire construction site during active construction at an interval of no less than:	3 calendar days
--	-----------------

SPECIAL ENVIRONMENTAL CONSIDERATIONS AND PERMITS:

1)	Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" for any Public Water this site discharges to during fish spawning?	NO

TYPE OF PERMIT	PERMITTING AGENCY	PERMIT STATUS AND CONDITIONS
Watermain Plan Review	MDH	
Miscellaneous Work Permit	MnDOT	
Utility Installation Permit	Lake County	
Construction Stormwater NPDES Permit	MPCA	
Work in R/W Permit	City of Two Harbors	
Contractor Permit	City of Two Harbors	

SWPPP DESIGNER TRAINING DOCUMENTATION:



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Signature
 J. SCOTT D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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

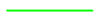




DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
	0	CONSTR	5/12/21
CHECKED	JDP		
CLIENT PROJ. NO.	U17.120606		

LAKE COUNTY, MINNESOTA		C2.02
2021 STREET & UTILITY IMPROVEMENTS		
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010		
SWPPP - SWPPP NARRATIVE		



LEGEND

-  PROJECT BOUNDARY
-  SOIL TYPE
-  OR  IMPAIRED, SPECIAL OR PROTECTED WATERS
-  NATIONAL WETLANDS INVENTORY



SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
D1-20A	CUTTRE COMPLEX	D	NHEL
E2-33E	MISKOAKI	D	NHEL


NHEL - Not Highly Erodible Land
 PHEL - Potentially Highly Erodible Land
 HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	C2.01
DIRECTION OF FLOW	C2.08 - C2.12
FINAL STABILIZATION	C2.08 - C2.12
SOILS	C2.03
DRAINAGE STRUCTURES	C5.01
DRAINAGE TABULATION	G1.04
STORM SEWER PLAN & PROFILE SHEETS	C5.01
EROSION & SEDIMENT CONTROL DETAILS	C2.04 - C2.07
EROSION CONTROL TABULATION	C2.01, G1.05
TURF ESTABLISHMENT TABULATION	G1.05
NARRATIVE & NOTES	C2.01 - C2.02

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 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020

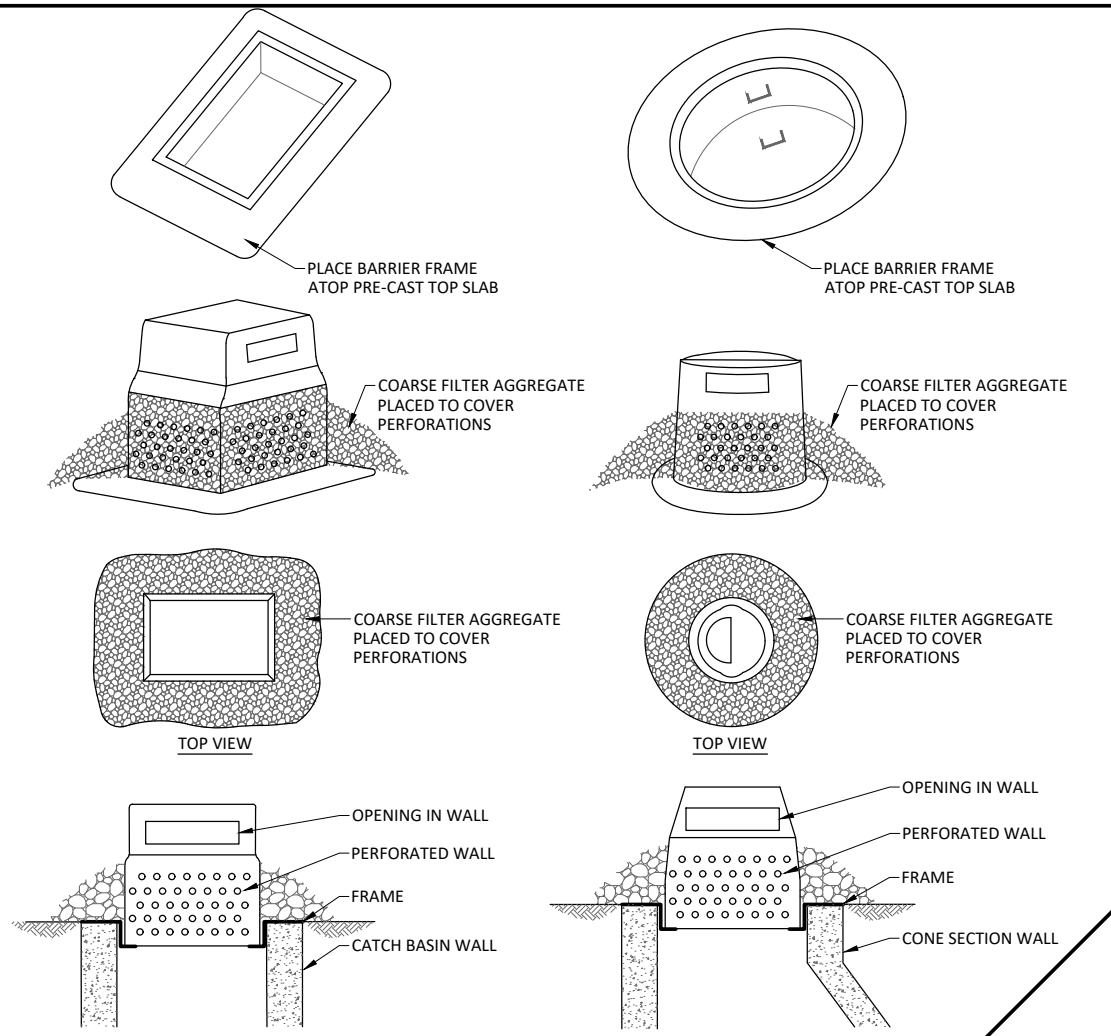


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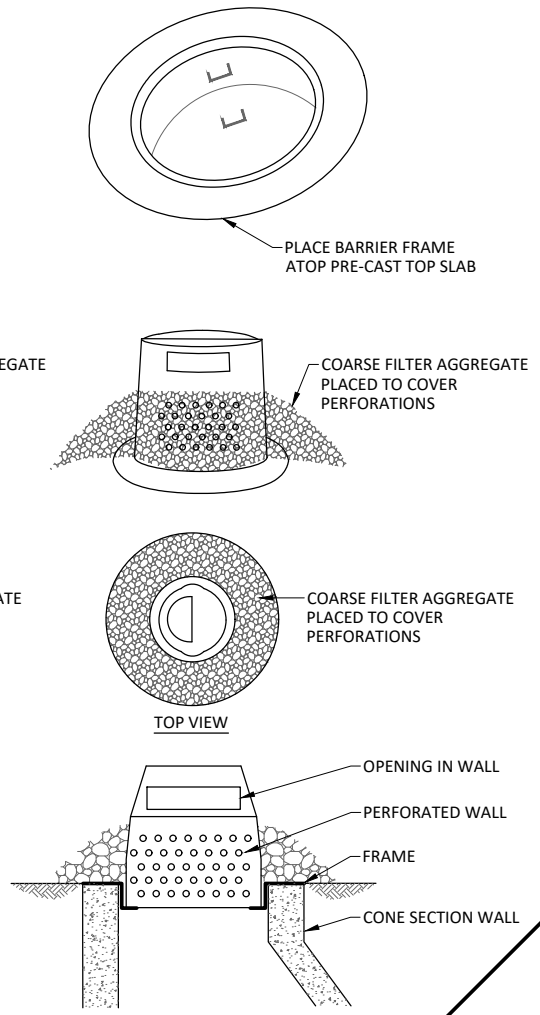


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AJN	2	SA SUBMIT	2/1/21
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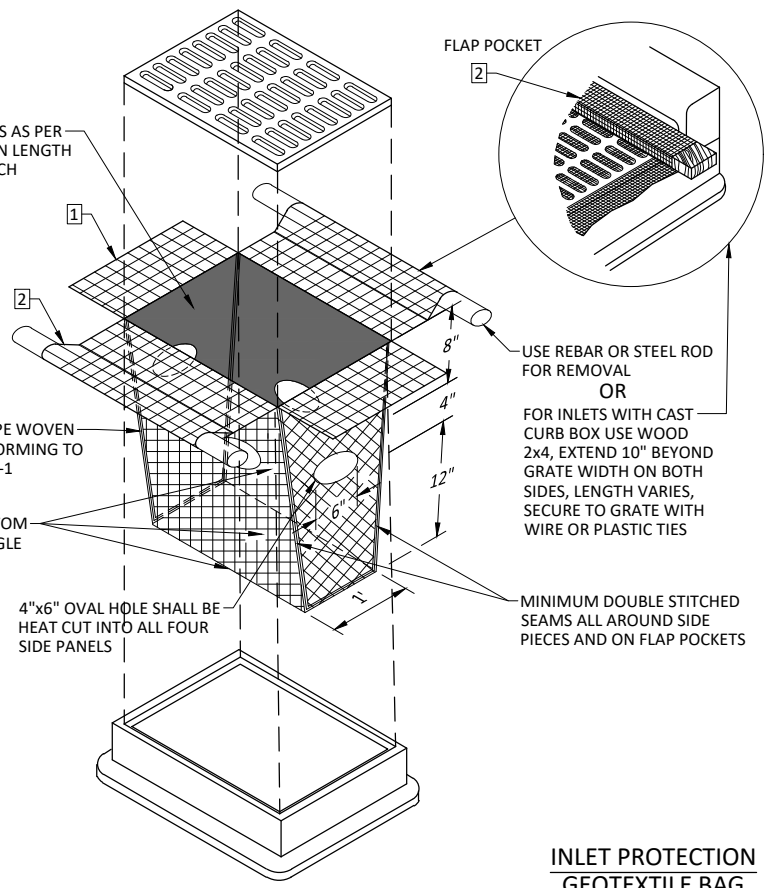
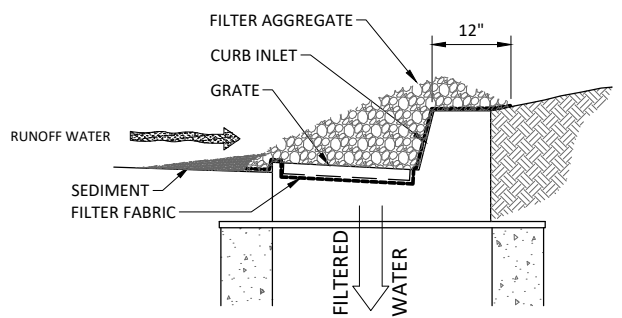


INLET PROTECTION PERFORATED WALL
NOT TO SCALE



INLET PROTECTION FILTER AGGREGATE
NOT TO SCALE

- NOTES:
1. FILTER AGGREGATE TO BE 1 TO 2 INCH CLEAN ROCK
 2. FILTER FABRIC SHALL MEET MnDOT SPECIFICATION 3733 GEOTEXTILE FABRIC TYPE II



INLET PROTECTION GEOTEXTILE BAG
NOT TO SCALE

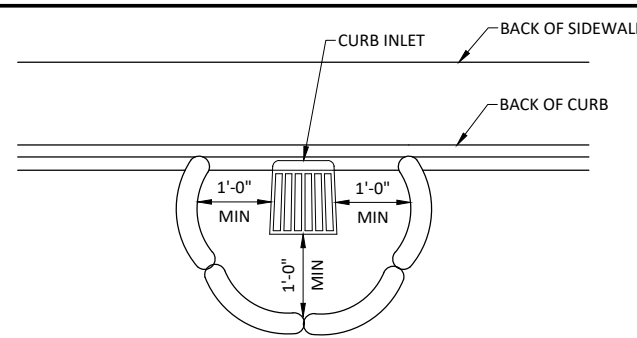
- NOTES:
1. INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENTS EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL IN THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
 2. FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

INSTALLATION NOTES:
DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

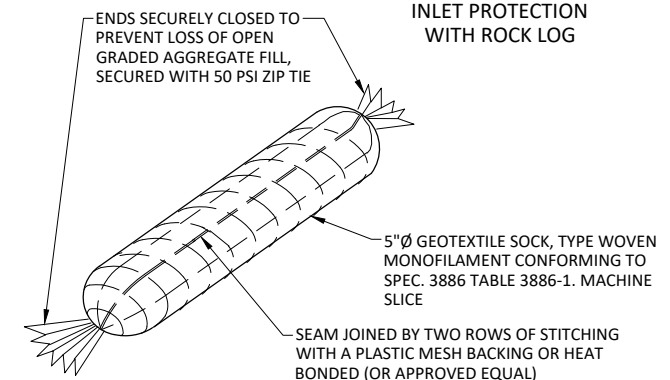


NOTE:
THIS INLET PROTECTION IS USED DURING ROUGH GRADING ONLY, USE BEFORE ROAD IS OPEN TO TRAFFIC OR IS PAVED

FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION.

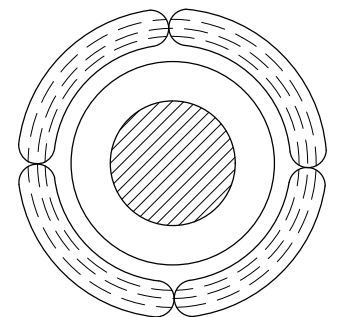
SIEVE SIZE	PERCENT PASSING
1 1/2"	100
1"	95-100
3/4"	65-95
3/8"	30-65
NO 4	10-35
NO 10	3-20
NO 40	0-8
NO 200	0-3

NOTE:
CRUSHED CONCRETE OR BITUMINOUS SHALL NOT BE USED FOR OPEN GRADED AGGREGATE.



INLET PROTECTION ROCK BAG
NOT TO SCALE

PAYMENT SHALL INCLUDE ALL MATERIALS, FILLING OF LOG, PLACEMENT, MAINTENANCE & REMOVAL; 80% OF BID PRICE SHALL BE PAID UPON PROPER PLACEMENT WITH THE FINAL 20% PAID UPON REMOVAL



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Joseph D. Pelawa
JOSEPH D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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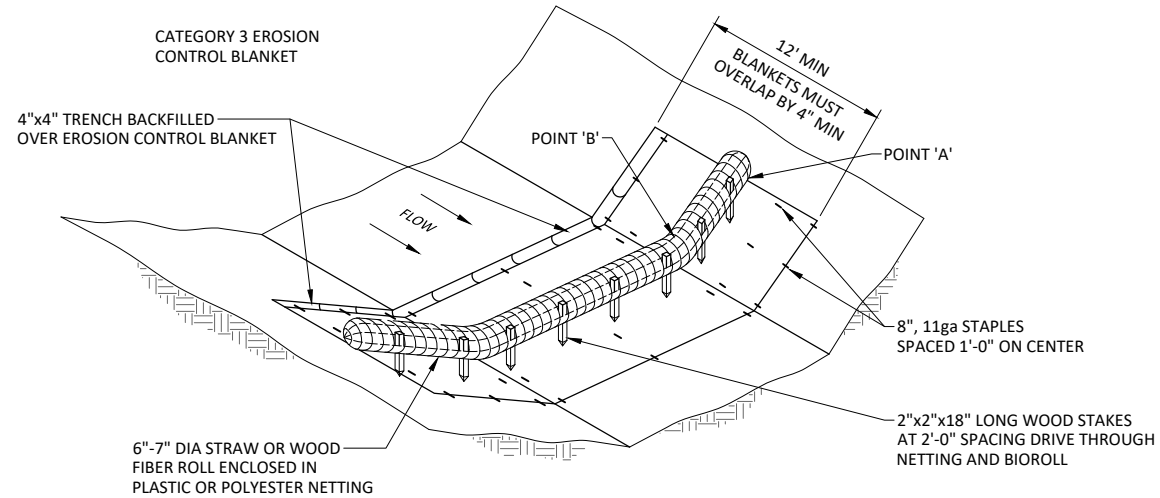


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

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CLIENT PROJ. NO.: U17.120606

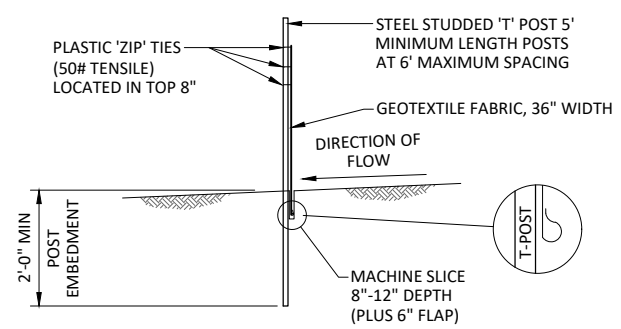
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
SWPPP - DETAILS

SHEET
C2.04

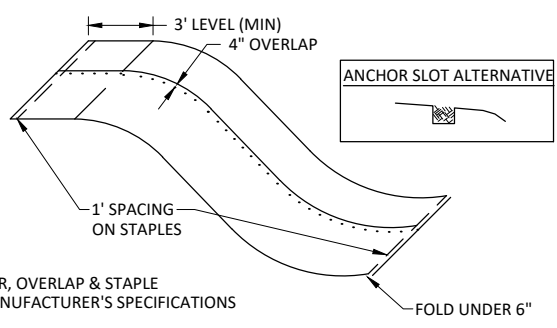


SEDIMENT CONTROL LOG (BIOROLL)
NOT TO SCALE

NOTE:
POINT 'A' MUST BE 1'-0" MIN HIGHER THAN
POINT 'B' TO ENSURE THAT WATER FLOWS OVER
THE DITCH CHECK AND NOT AROUND THE ENDS

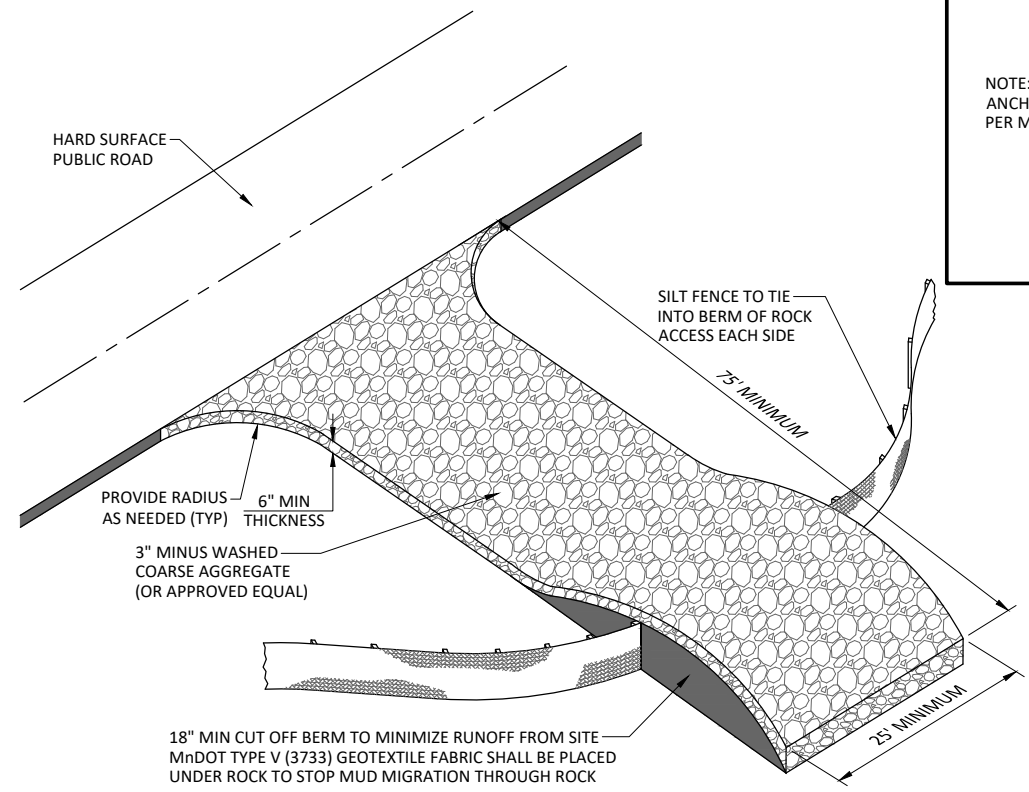


SILT FENCE - MACHINE SLICED
NOT TO SCALE



NOTE:
ANCHOR, OVERLAP & STAPLE
PER MANUFACTURER'S SPECIFICATIONS

EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

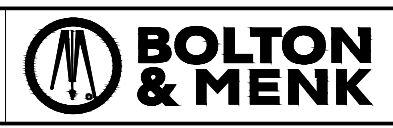


ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

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LIC. NO. 42603 DATE 12/15/2020



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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
SWPPP - DETAILS

SHEET
C2.05

SITE SPECIFIC DATA*			
PROJECT NUMBER	12036		
PROJECT NAME	CSAH 30		
PROJECT LOCATION	TWO HARBORS, MN		
STRUCTURE ID	CB 2		
WATER QUALITY FLOW RATE (CFS)	1		
PEAK FLOW RATE (CFS)	12.1		
PEAK STORM DURATION (YEARS)	100		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	672.43	RCP	15"
OUTLET PIPE 1	672.18	RCP	18"
RIM ELEVATION	677.53		
SUMP ELEVATION	666.43		
SURFACE LOADING REQUIREMENT		HS-25	
FRAME AND COVER		R-3067	
SKIMMER WALL HEIGHT		STANDARD	
KNOWN GROUNDWATER ELEVATION			
NOTES:			
*PER ENGINEER OF RECORD			

PERFORMANCE DATA				
TREATMENT FLOW RATE (CFS)			1.32	
TSS REMOVAL EFFICIENCY			80%	
SUMP CHAMBER CAPACITY				
	DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
SUMP	5.00	19.63	6.00	117.75

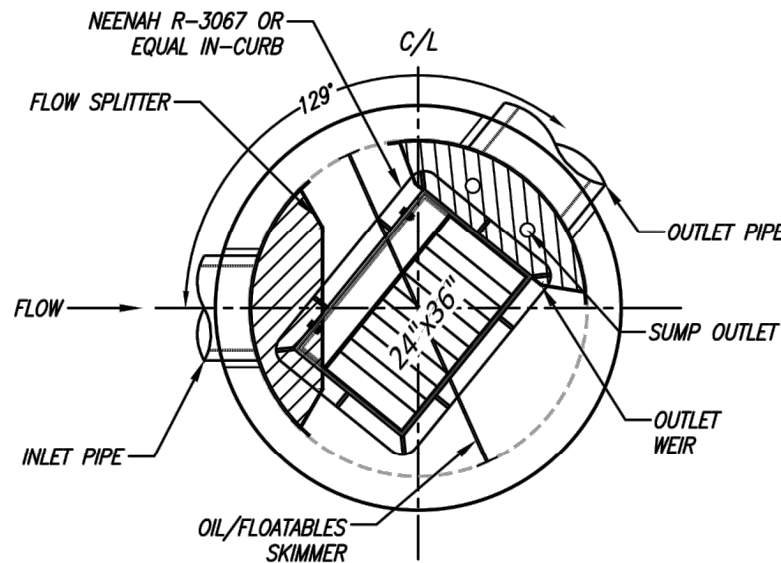
ADD ALTERNATE 2
 S.A.P. 038-630-001 - CSAH 30
 CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3
 (STORM STRUCTURE #2)
 STA 55+55.27 - 13.60' LT

GENERAL NOTES

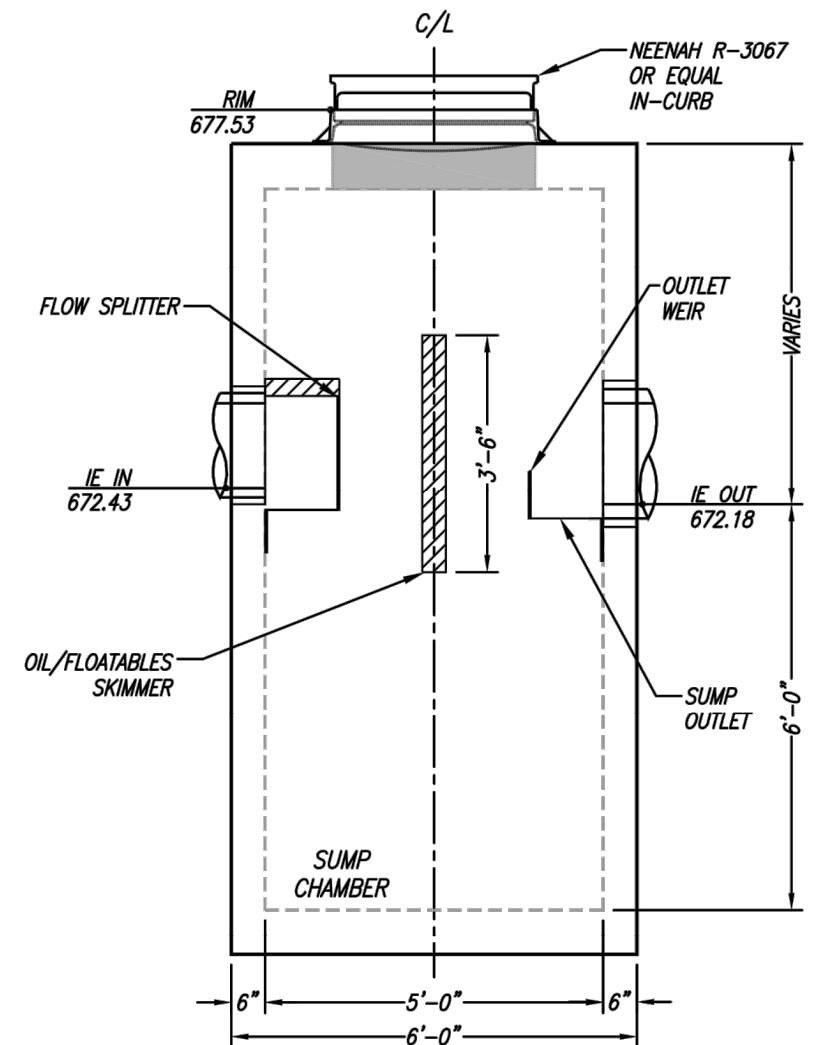
- BIO CLEAN TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS, AND ACCESSORIES PLEASE CONTACT BIO CLEAN.
- ALTERNATIVE HATCHES OR MANHOLES AVAILABLE UPON REQUEST.

INSTALLATION NOTES

- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- MANUFACTURER RECOMMENDS A 6"-12" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH).
- ALL GAPS AROUND PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT PER MANUFACTURER'S STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. ALL COVERS SHALL BE SHIPPED LOOSE. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.



PLAN VIEW
NTS



ELEVATION VIEW
NTS

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE US PATENTS, RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING

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SC-5-V
 HYDRODYNAMIC SEPARATOR
 STANDARD DETAIL

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12/11/20MSHEHAN

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 J. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SWPPP - ALTERNATE 2 - DETAILS

SHEET

C2.06

SITE SPECIFIC DATA*			
PROJECT NUMBER	12036		
PROJECT NAME	CSAH 30		
PROJECT LOCATION	TWO HARBORS, MN		
STRUCTURE ID	CB 9		
WATER QUALITY FLOW RATE (CFS)	1		
PEAK FLOW RATE (CFS)	12.3		
PEAK STORM DURATION (YEARS)	100		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	671.74	RCP	12"
OUTLET PIPE 1	671.64	RCP	15"
RIM ELEVATION	676.06		
SUMP ELEVATION	665.74		
SURFACE LOADING REQUIREMENT	HS-25		
FRAME AND COVER	R-3067		
SKIMMER WALL HEIGHT	STANDARD		
KNOWN GROUNDWATER ELEVATION			
NOTES:			
*PER ENGINEER OF RECORD			

PERFORMANCE DATA				
TREATMENT FLOW RATE (CFS)	1.32			
TSS REMOVAL EFFICIENCY	80%			
SUMP CHAMBER CAPACITY				
	DIAMETER (FT)	AREA (SF)	HEIGHT (FT)	TOTAL (CF)
SUMP	5.00	19.63	6.00	117.75

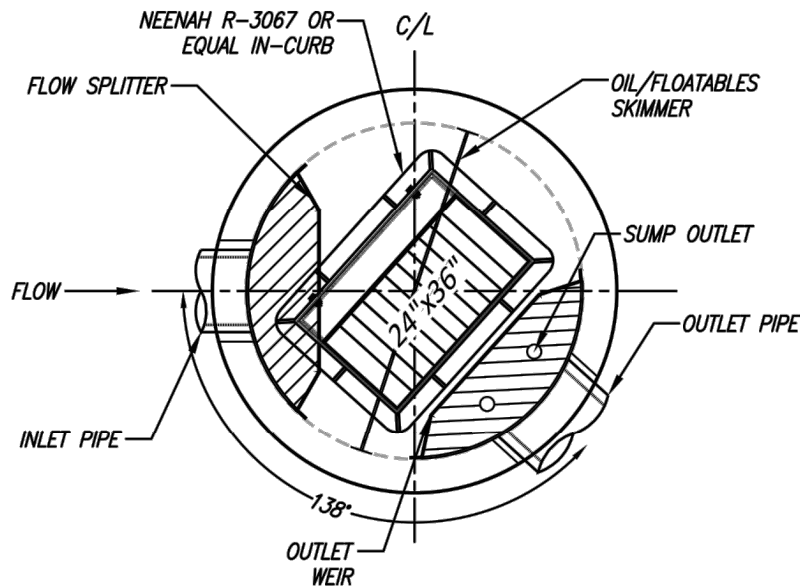
ADD ALTERNATE 2
 S.A.P. 038-630-001 - CSAH 30
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 (STORM STRUCTURE #9)
 STA 59+31.48 - 13.70' LT

GENERAL NOTES

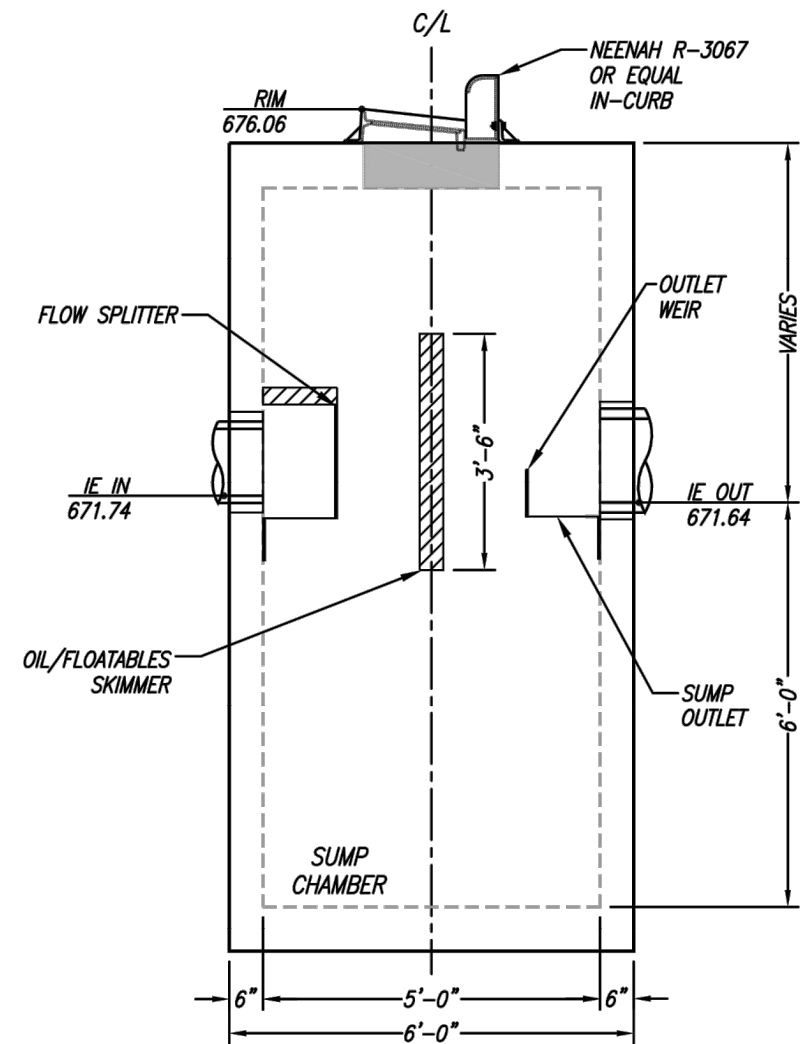
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- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS, AND ACCESSORIES PLEASE CONTACT BIO CLEAN.
- ALTERNATIVE HATCHES OR MANHOLES AVAILABLE UPON REQUEST.

INSTALLATION NOTES

- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE UNIT AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- MANUFACTURER RECOMMENDS A 6"-12" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH).
- ALL GAPS AROUND PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT PER MANUFACTURER'S STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. ALL COVERS SHALL BE SHIPPED LOOSE. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.



PLAN VIEW
NTS



ELEVATION VIEW
NTS

THE PRODUCT DESCRIBED MAY BE PROTECTED BY ONE OR MORE US PATENTS, RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING

PROPRIETARY AND CONFIDENTIAL:
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BIO CLEAN ENVIRONMENTAL SERVICES, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BIO CLEAN ENVIRONMENTAL SERVICES, INC. IS PROHIBITED.



SC-5-V
 HYDRODYNAMIC SEPARATOR
 STANDARD DETAIL

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12/11/20MSHEHAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



4960 MILLER TRUNK HIGHWAY, SUITE 350
 DULUTH, MINNESOTA 55811
 Phone: (218) 729-5939
 Email: BMI@bolton-menk.com
 www.bolton-menk.com



DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17-120606









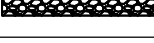
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SWPPP - ALTERNATE 2 - DETAILS

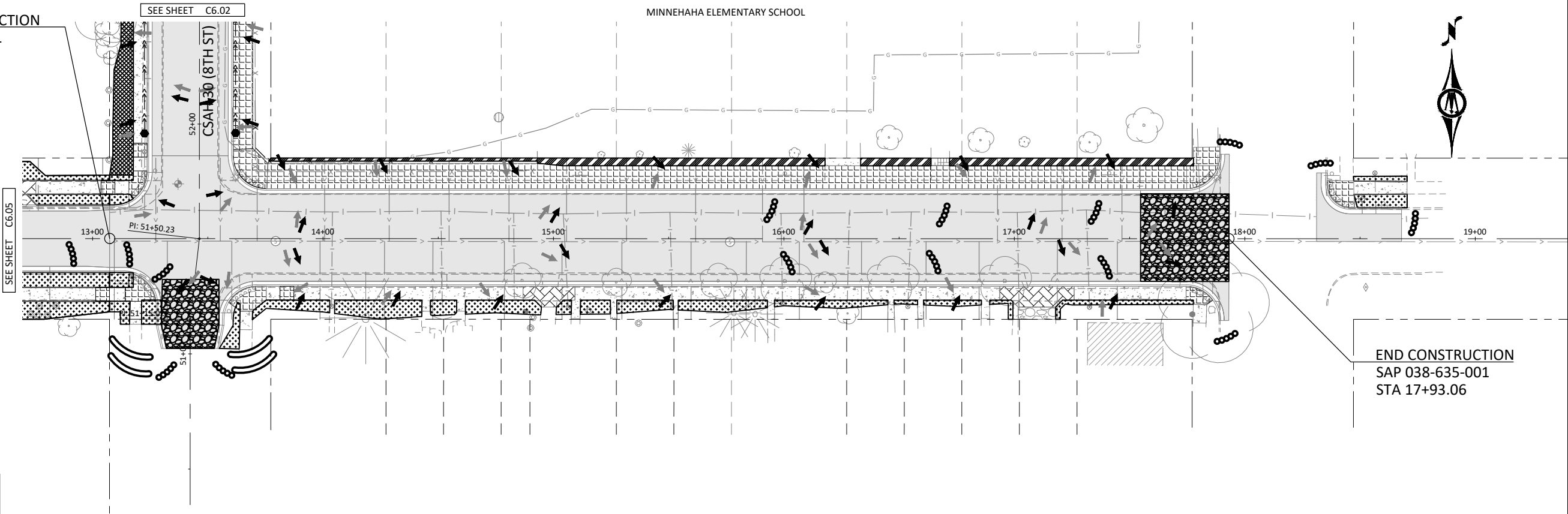
SHEET
 C2.07

BEGIN CONSTRUCTION
SAP 038-635-001
STA 13+07.38

MINNEHAHA ELEMENTARY SCHOOL

EROSION CONTROL LEGEND

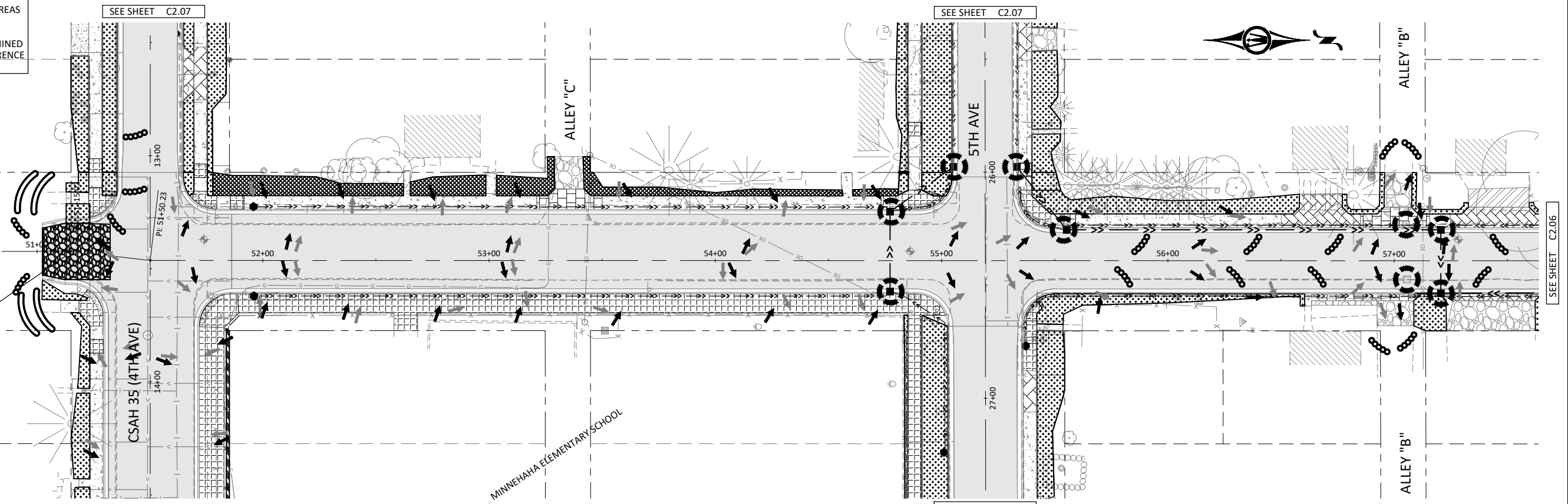
-  MS SILT FENCE TYPE MS
-  STORM DRAIN INLET PROTECTION
-  SEDIMENT CONTROL LOG (BIOROLL)
-  SEDIMENT CONTROL LOG TYPE ROCK
-  EXISTING/PROPOSED DRAINAGE FLOW
-  EROSION CONTROL BLANKET CAT 3N, SEED 25-151 & FERTILIZER TYPE 3
-  SEED 25-151, FERTILIZER TYPE 3 HYDRAULIC BONDED FIBER MATRIX
-  SODDING TYPE LAWN
-  STABILIZED CONSTRUCTION EXIT



END CONSTRUCTION
SAP 038-635-001
STA 17+93.06

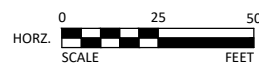
CSAH 35 (4TH AVENUE)

- NOTES:**
1. CONTRACTOR TO ESTABLISH CONCRETE WASHOUT PLAN FOR ENGINEER APPROVAL. NO CONCRETE WASHOUT ON SITE.
 2. HYDRAULIC BONDED FIBER MATRIX ESTIMATED AT 150% OF THE SEEDING AREA.
 3. RAPID STABILIZATION METHOD 3 TO BE USED AS APPROVED BY ENGINEER.
 4. SEED, FERTILIZER AND MULCH ALL DISTURBED AREAS AS SPECIFIED.
 5. BLANKET ALL SLOPES 1:3 OR GREATER.
 6. BMP LOCATION AND FREQUENCY TO BE DETERMINED BY CONTRACTOR. BMP'S SHOWN ARE FOR REFERENCE ONLY.



CSAH 30 (8TH STREET)

BEGIN CONSTRUCTION
SAP 038-630-001
STA 51+02.35



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[Signature]
D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



4960 MILLER TRUNK HIGHWAY, SUITE 350
DULUTH, MINNESOTA 55811
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www.bolton-menk.com



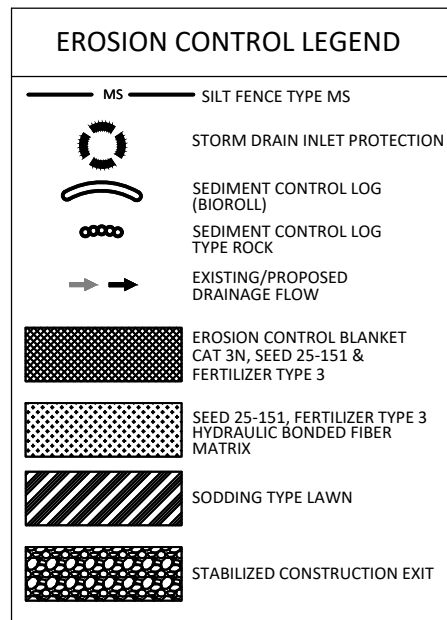
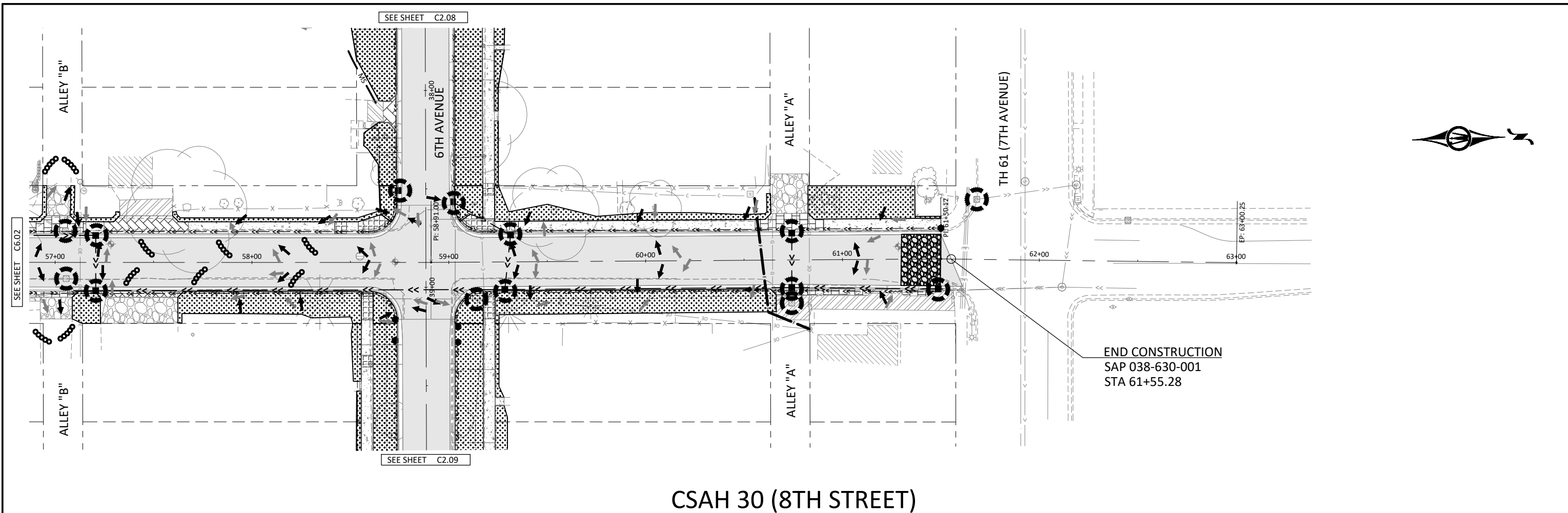
DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
CLIENT PROJ. NO.: U17.120606

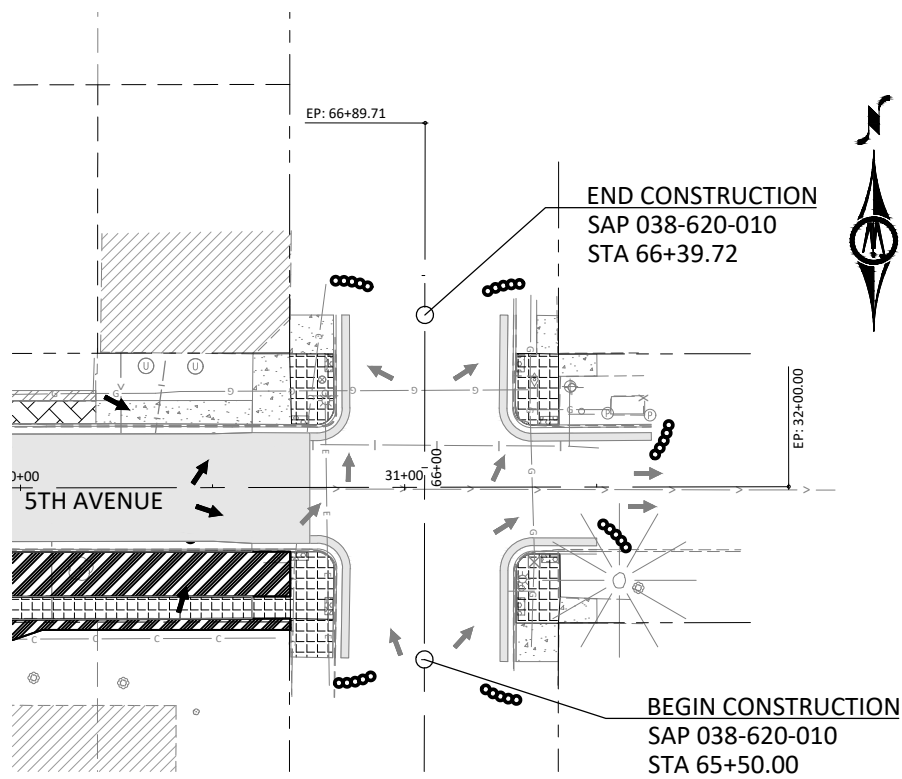
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
SWPPP - CSAH 35 (4TH AVENUE) & CSAH 30 (8TH STREET)

SHEET
C2.08

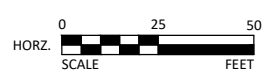
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- NOTES:
1. CONTRACTOR TO ESTABLISH CONCRETE WASHOUT PLAN FOR ENGINEER APPROVAL. NO CONCRETE WASHOUT ON SITE.
 2. HYDRAULIC BONDED FIBER MATRIX ESTIMATED AT 150% OF THE SEEDING AREA.
 3. RAPID STABILIZATION METHOD 3 TO BE USED AS APPROVED BY ENGINEER.
 4. SEED, FERTILIZER AND MULCH ALL DISTURBED AREAS AS SPECIFIED.
 5. BLANKET ALL SLOPES 1:3 OR GREATER.
 6. BMP LOCATION AND FREQUENCY TO BE DETERMINED BY CONTRACTOR. BMP'S SHOWN ARE FOR REFERENCE ONLY.



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Joseph D. Pelawa
JOSEPH D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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DULUTH, MINNESOTA 55811
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www.bolton-menk.com








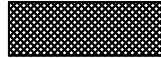



DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

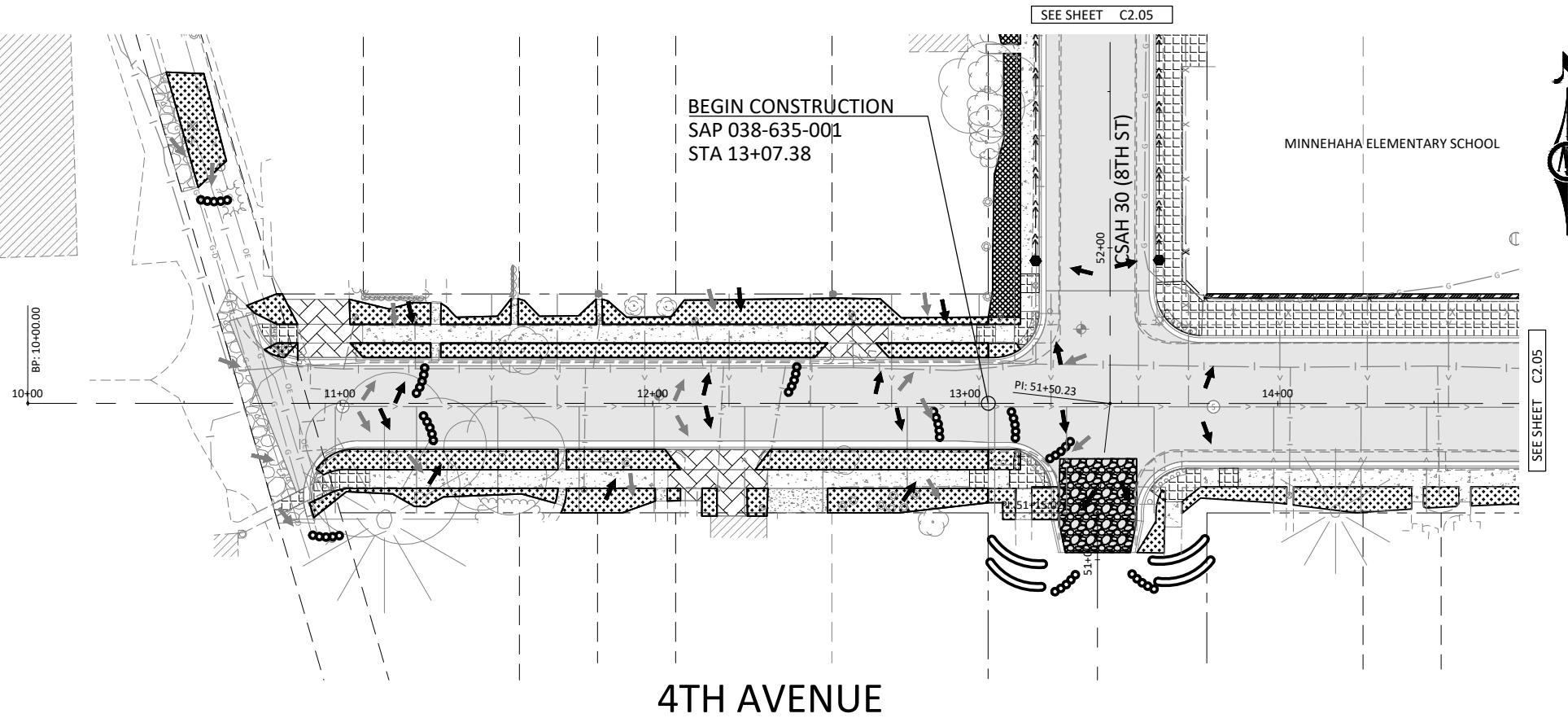
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CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
SWPPP - CSAH 30 (8TH STREET) & CSAH 20 (7TH STREET)

SHEET
C2.09

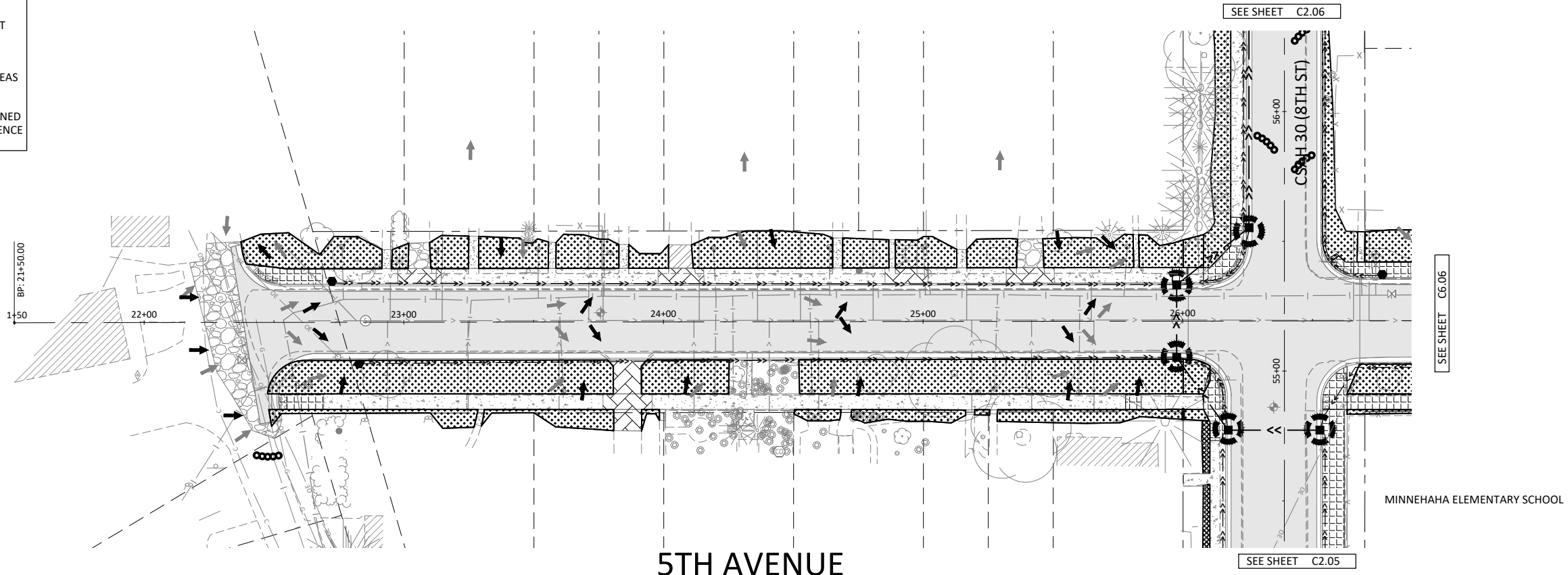
EROSION CONTROL LEGEND

-  MS SILT FENCE TYPE MS
-  STORM DRAIN INLET PROTECTION
-  SEDIMENT CONTROL LOG (BIOROLL)
-  SEDIMENT CONTROL LOG TYPE ROCK
-  EXISTING/PROPOSED DRAINAGE FLOW
-  EROSION CONTROL BLANKET CAT 3N, SEED 25-151 & FERTILIZER TYPE 3
-  SEED 25-151, FERTILIZER TYPE 3 HYDRAULIC BONDED FIBER MATRIX
-  SODDING TYPE LAWN
-  STABILIZED CONSTRUCTION EXIT

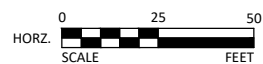


4TH AVENUE

- NOTES:
1. CONTRACTOR TO ESTABLISH CONCRETE WASHOUT PLAN FOR ENGINEER APPROVAL. NO CONCRETE WASHOUT ON SITE.
 2. HYDRAULIC BONDED FIBER MATRIX ESTIMATED AT 150% OF THE SEEDING AREA.
 3. RAPID STABILIZATION METHOD 3 TO BE USED AS APPROVED BY ENGINEER.
 4. SEED, FERTILIZER AND MULCH ALL DISTURBED AREAS AS SPECIFIED.
 5. BLANKET ALL SLOPES 1:3 OR GREATER.
 6. BMP LOCATION AND FREQUENCY TO BE DETERMINED BY CONTRACTOR. BMP'S SHOWN ARE FOR REFERENCE ONLY.



5TH AVENUE



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 DULUTH, MINNESOTA 55811
 Phone: (218) 729-5939
 Email: BMI@bolton-menk.com
 www.bolton-menk.com



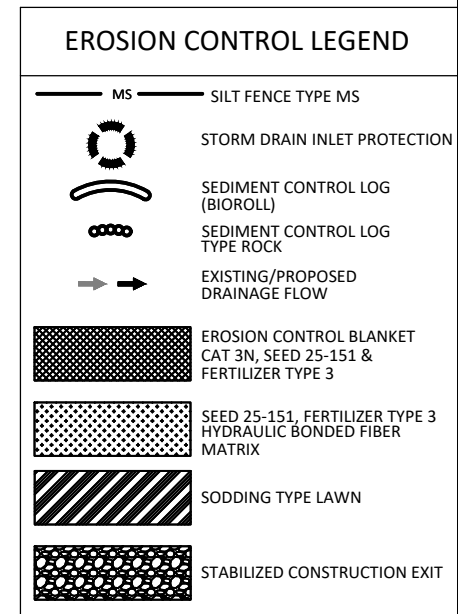
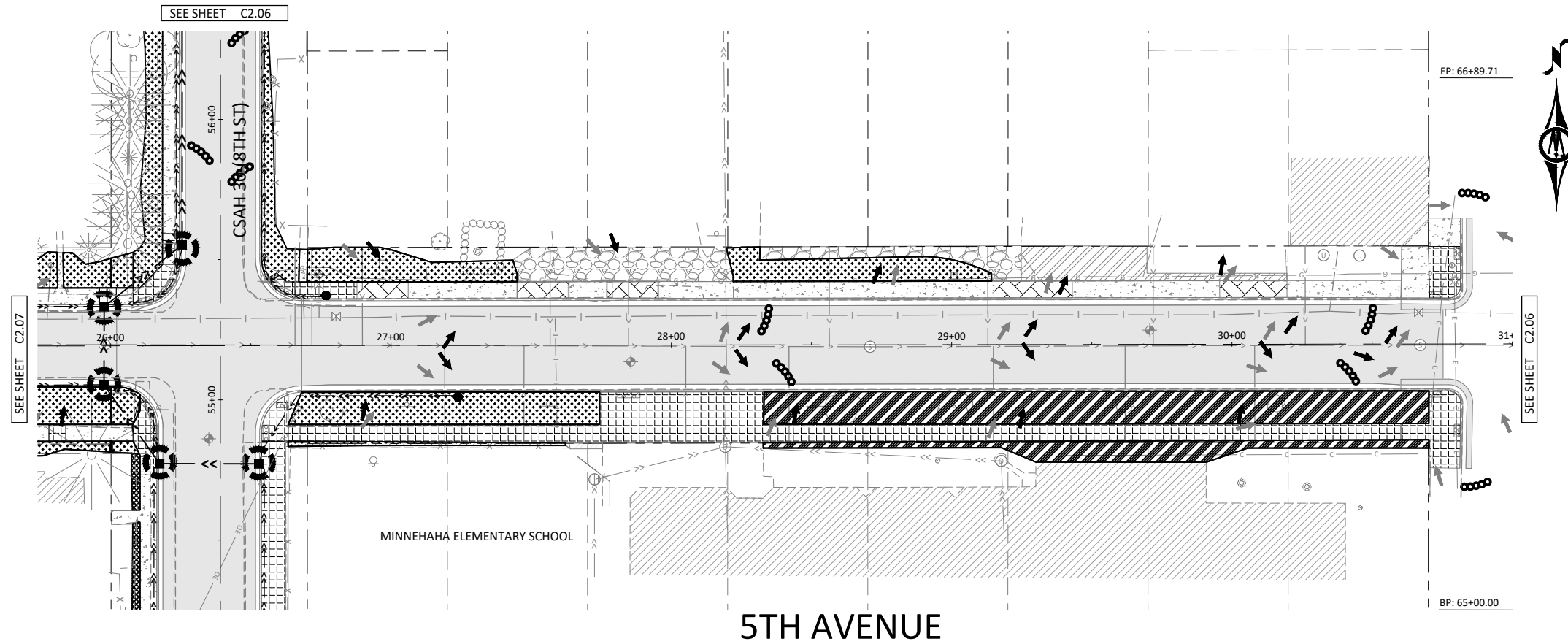
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CLIENT PROJ. NO.: U17-120606

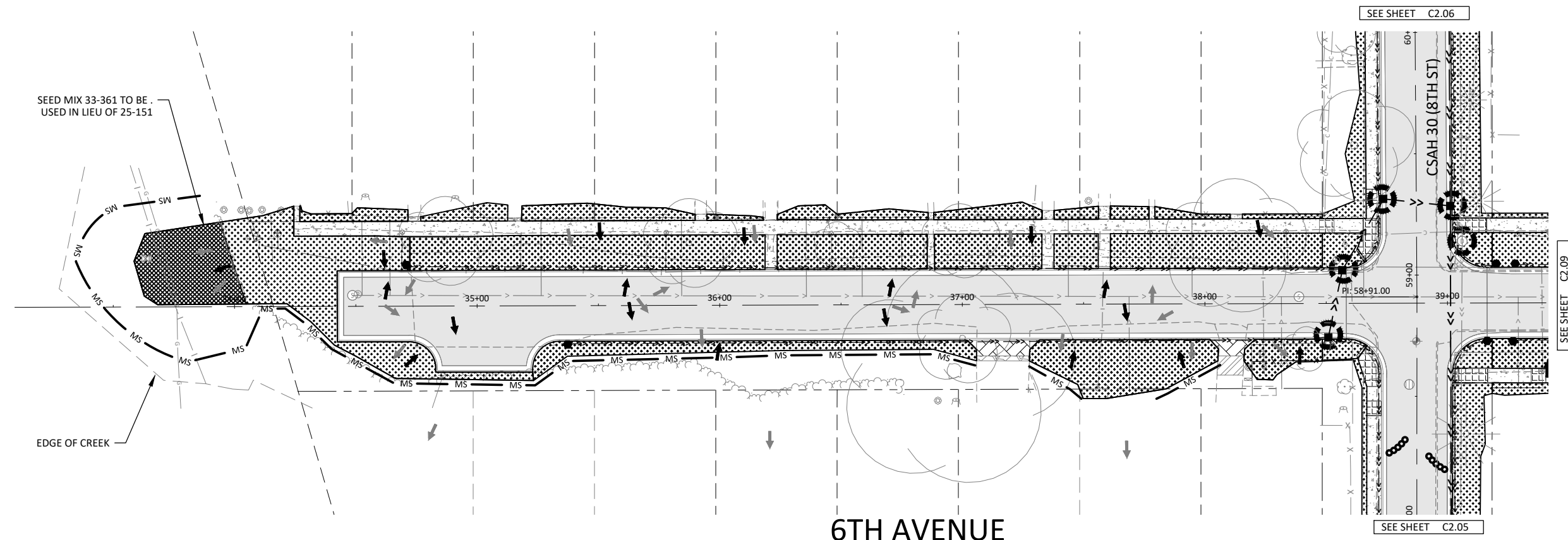
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SWPPP - 4TH AVENUE & 5TH AVENUE

SHEET
C2.10

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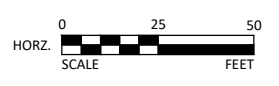


5TH AVENUE



- NOTES:
1. CONTRACTOR TO ESTABLISH CONCRETE WASHOUT PLAN FOR ENGINEER APPROVAL. NO CONCRETE WASHOUT ON SITE.
 2. HYDRAULIC BONDED FIBER MATRIX ESTIMATED AT 150% OF THE SEEDING AREA.
 3. RAPID STABILIZATION METHOD 3 TO BE USED AS APPROVED BY ENGINEER.
 4. SEED, FERTILIZER AND MULCH ALL DISTURBED AREAS AS SPECIFIED.
 5. BLANKET ALL SLOPES 1:3 OR GREATER.
 6. BMP LOCATION AND FREQUENCY TO BE DETERMINED BY CONTRACTOR. BMP'S SHOWN ARE FOR REFERENCE ONLY.

6TH AVENUE



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 DULUTH, MINNESOTA 55811
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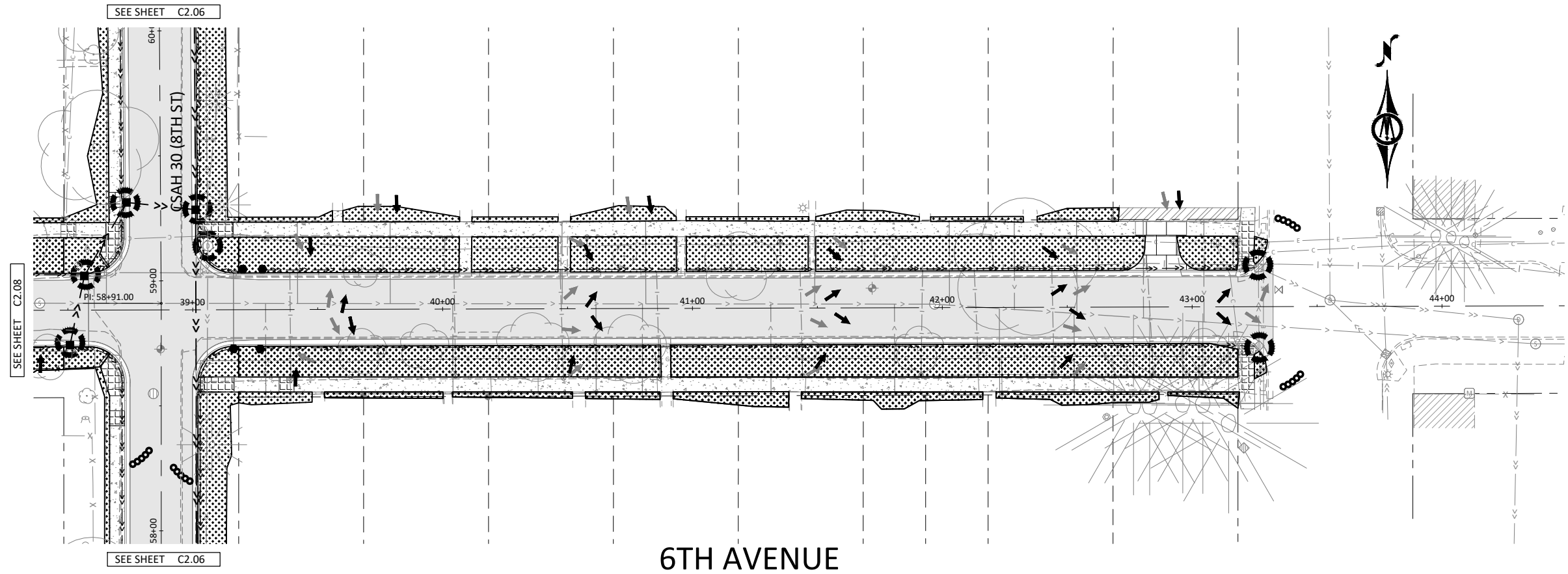
DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
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CHECKED: JDP
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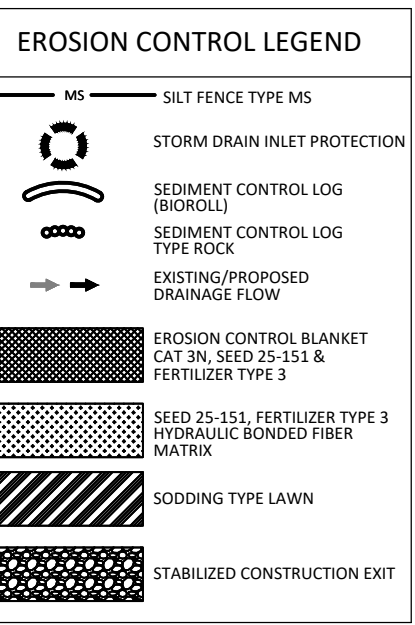
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SWPPP - 5TH AVENUE & 6TH AVENUE

SHEET
C2.11

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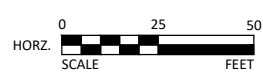


6TH AVENUE



- NOTES:
1. CONTRACTOR TO ESTABLISH CONCRETE WASHOUT PLAN FOR ENGINEER APPROVAL. NO CONCRETE WASHOUT ON SITE.
 2. HYDRAULIC BONDED FIBER MATRIX ESTIMATED AT 150% OF THE SEEDING AREA.
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 4. SEED, FERTILIZER AND MULCH ALL DISTURBED AREAS AS SPECIFIED.
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 6. BMP LOCATION AND FREQUENCY TO BE DETERMINED BY CONTRACTOR. BMP'S SHOWN ARE FOR REFERENCE ONLY.

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 DULUTH, MINNESOTA 55811
 Phone: (218) 729-5939
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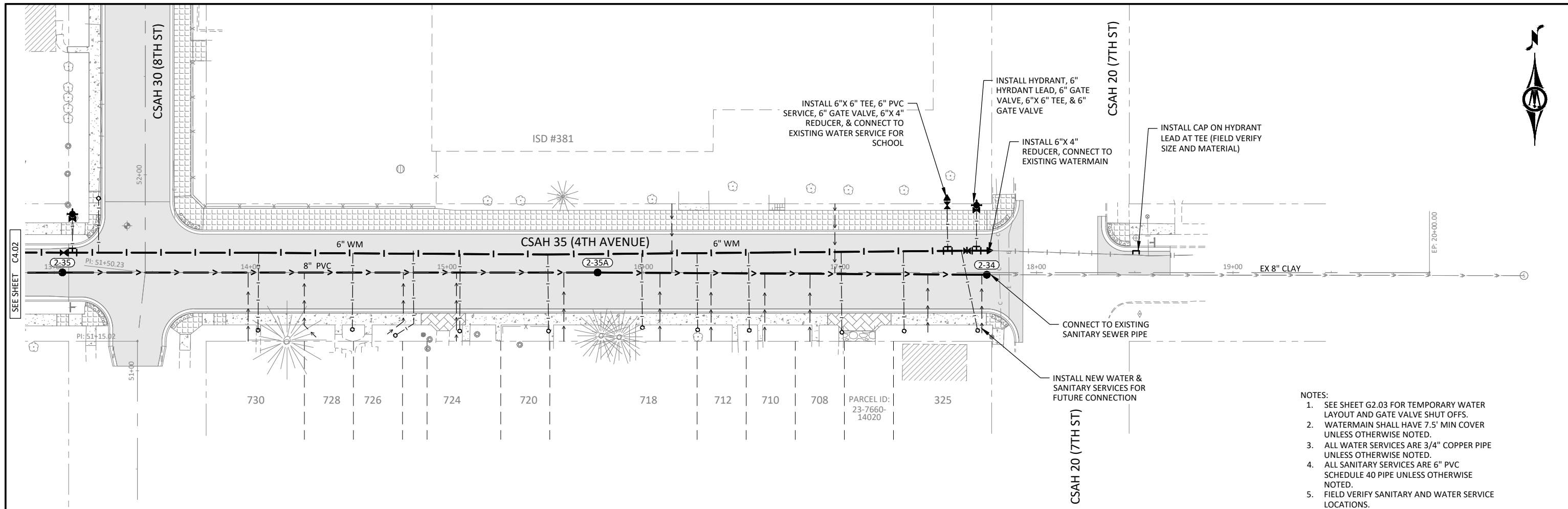


DESIGNED	NO.	ISSUED FOR	DATE
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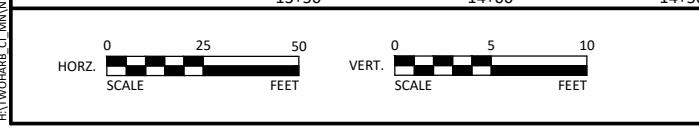
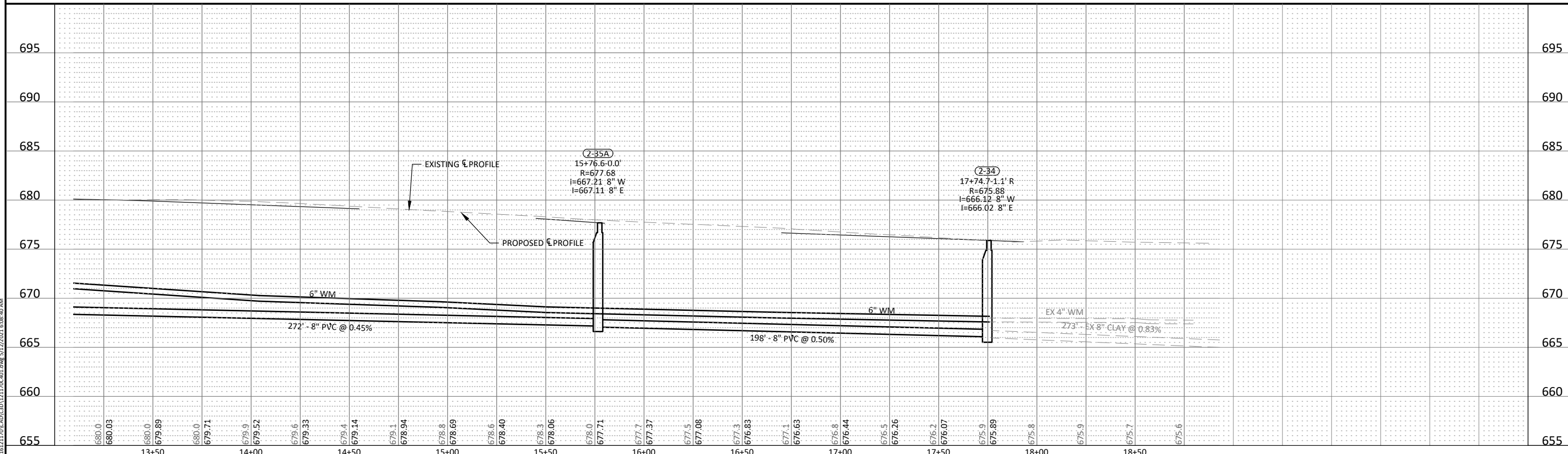
CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SWPPP - 6TH AVENUE

SHEET
C2.12



- NOTES:
1. SEE SHEET G2.03 FOR TEMPORARY WATER LAYOUT AND GATE VALVE SHUT OFFS.
 2. WATERMAIN SHALL HAVE 7.5' MIN COVER UNLESS OTHERWISE NOTED.
 3. ALL WATER SERVICES ARE 3/4" COPPER PIPE UNLESS OTHERWISE NOTED.
 4. ALL SANITARY SERVICES ARE 6" PVC SCHEDULE 40 PIPE UNLESS OTHERWISE NOTED.
 5. FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS.



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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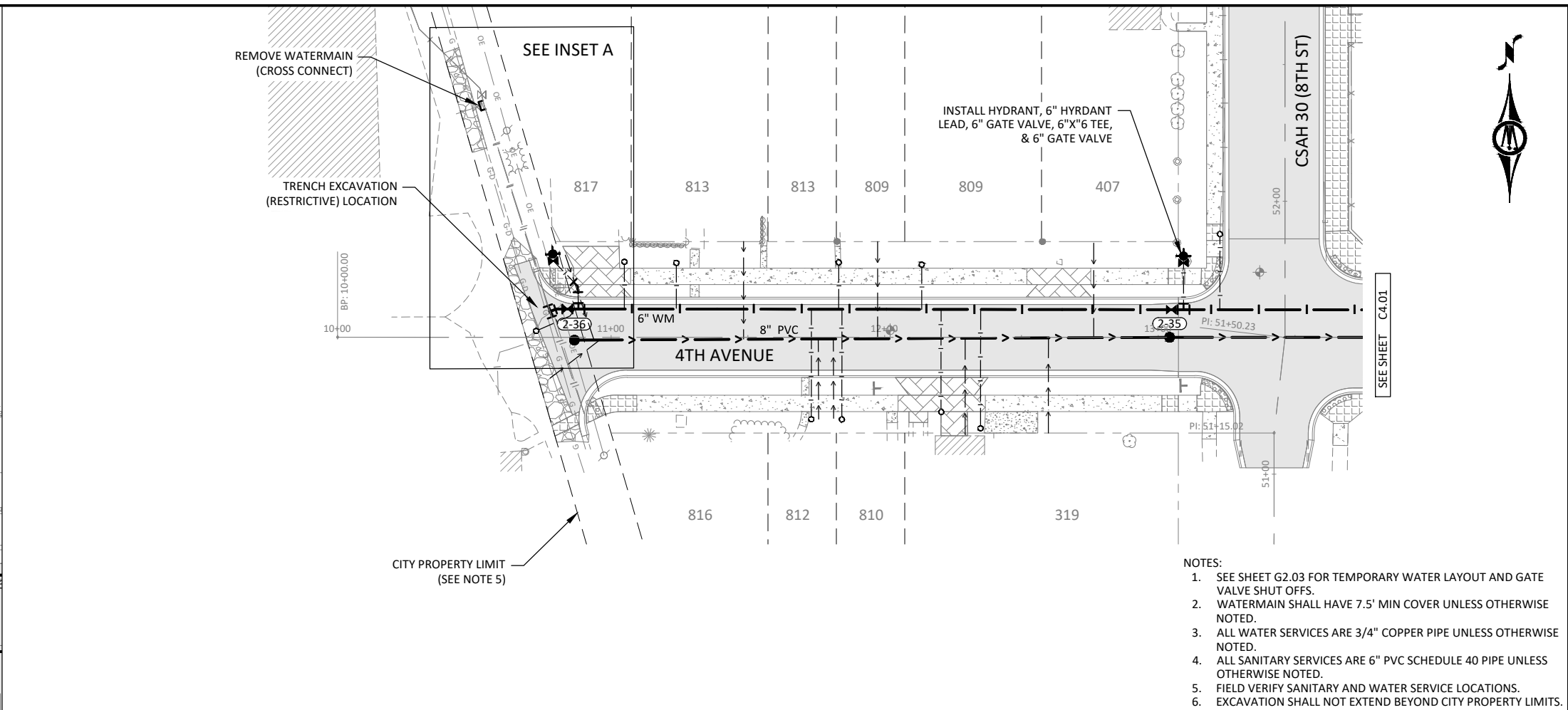
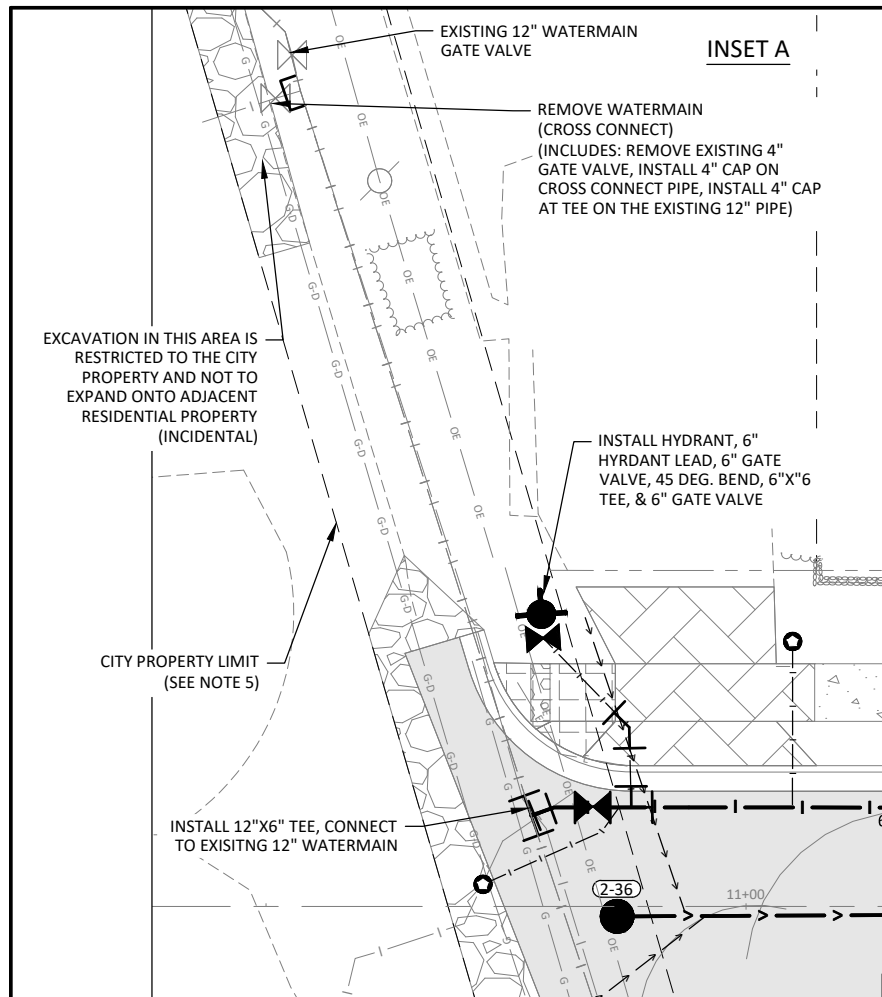
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JDP	0	CONSTR	5/12/21

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 CLIENT PROJ. NO.: U17.120606

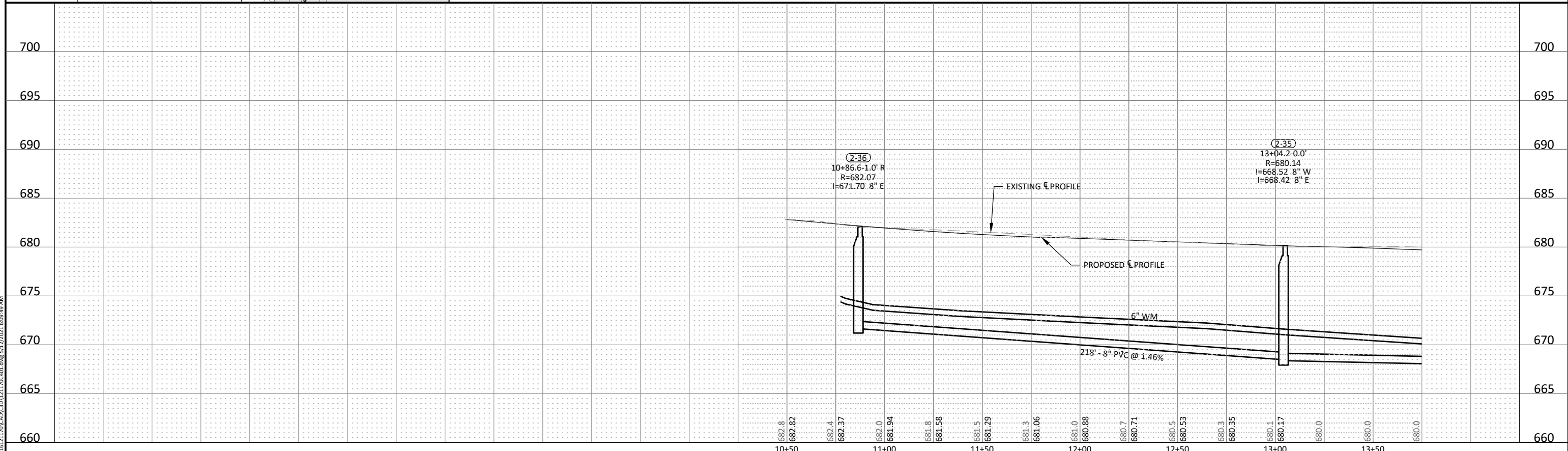
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SANITARY & WATER PLAN & PROFILE - CSAH 35 (4TH AVENUE)

SHEET C4.01

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- NOTES:
1. SEE SHEET G2.03 FOR TEMPORARY WATER LAYOUT AND GATE VALVE SHUT OFFS.
 2. WATERMAIN SHALL HAVE 7.5' MIN COVER UNLESS OTHERWISE NOTED.
 3. ALL WATER SERVICES ARE 3/4" COPPER PIPE UNLESS OTHERWISE NOTED.
 4. ALL SANITARY SERVICES ARE 6" PVC SCHEDULE 40 PIPE UNLESS OTHERWISE NOTED.
 5. FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS.
 6. EXCAVATION SHALL NOT EXTEND BEYOND CITY PROPERTY LIMITS.



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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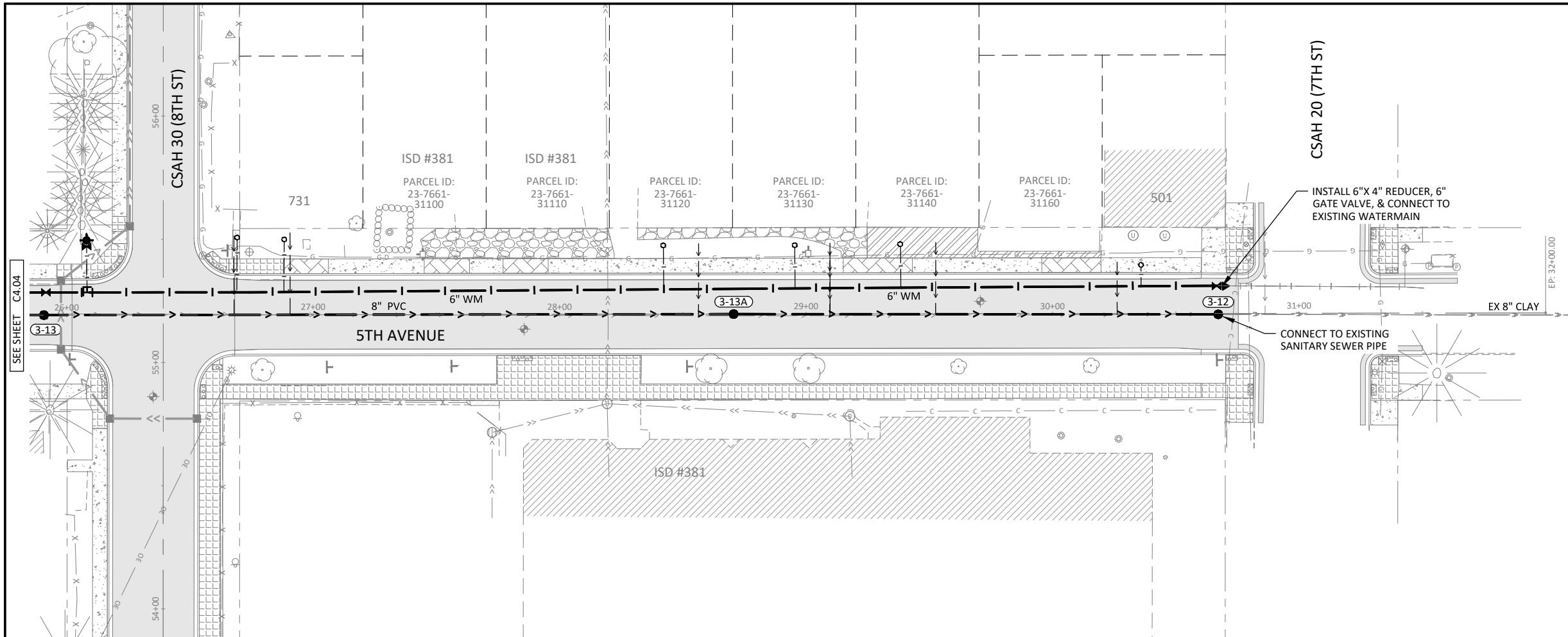


DESIGNED	NO.	ISSUED FOR	DATE
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JDP	0	CONSTR	5/12/21

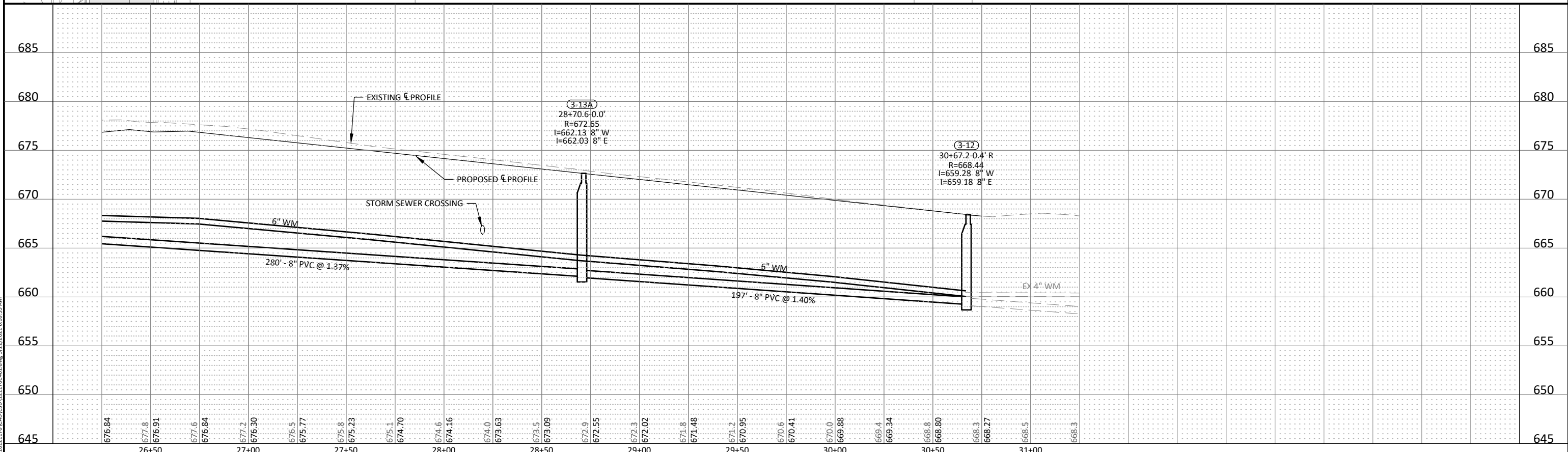
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SANITARY & WATER PLAN & PROFILE - 4TH AVENUE

SHEET
C4.02



- NOTES:
1. SEE SHEET G2.03 FOR TEMPORARY WATER LAYOUT AND GATE VALVE SHUT OFFS.
 2. WATERMAIN SHALL HAVE 7.5' MIN COVER UNLESS OTHERWISE NOTED.
 3. ALL WATER SERVICES ARE 3/4" COPPER PIPE UNLESS OTHERWISE NOTED.
 4. ALL SANITARY SERVICES ARE 6" PVC SCHEDULE 40 PIPE UNLESS OTHERWISE NOTED.
 5. FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS.



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 DULUTH, MINNESOTA 55811
 Phone: (218) 729-5939
 Email: BMI@bolton-menk.com
 www.bolton-menk.com

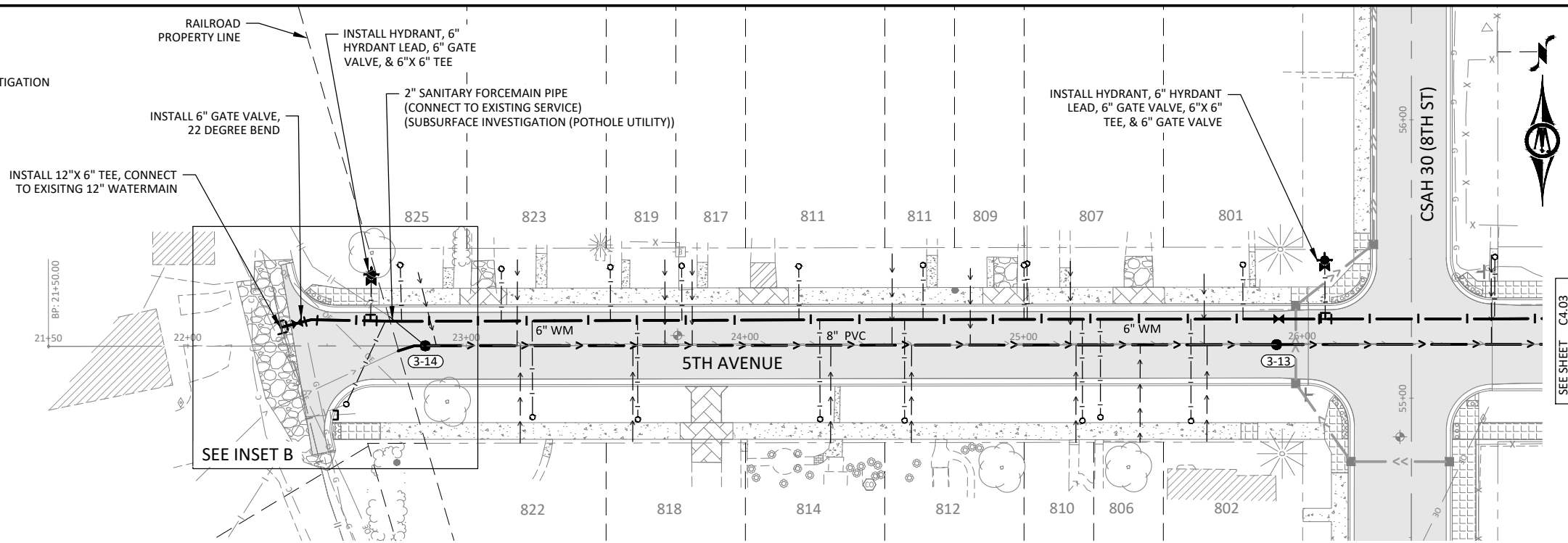
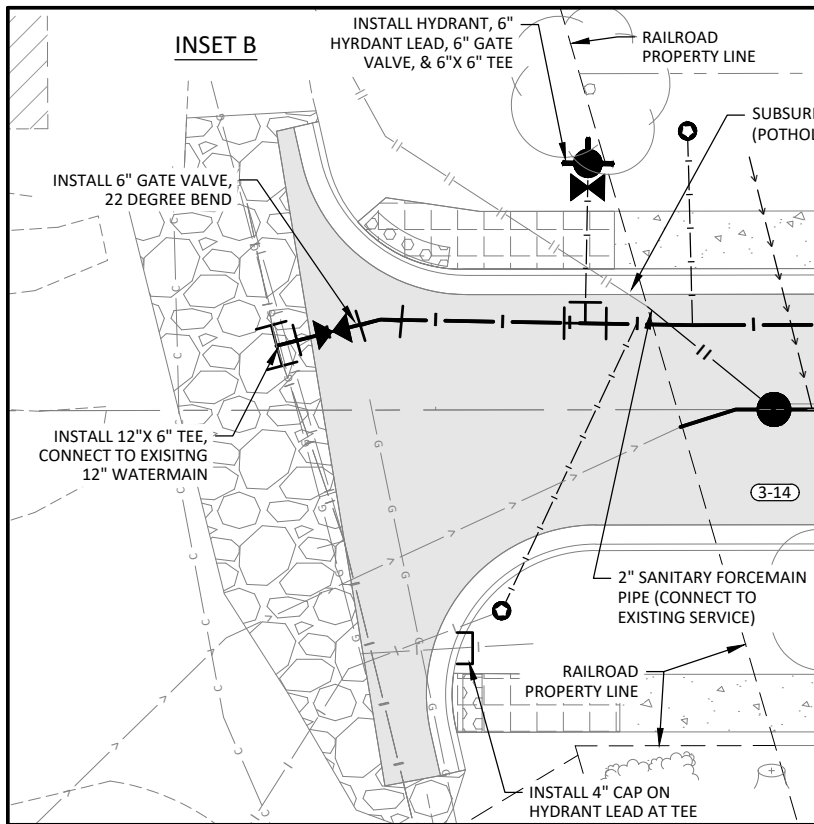


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

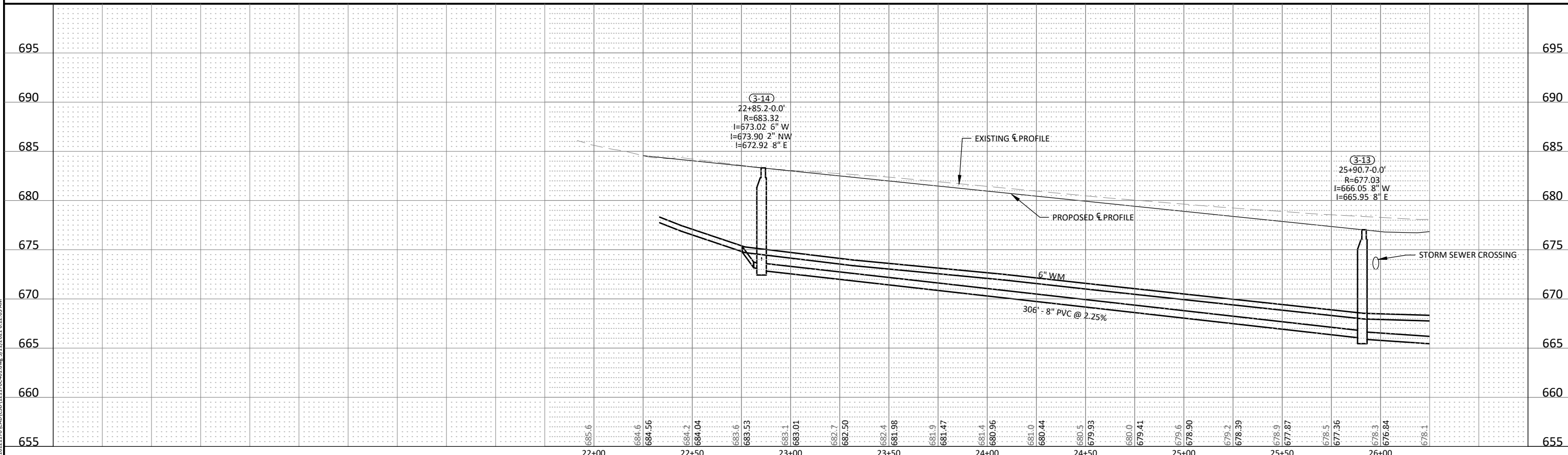
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 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SANITARY & WATER PLAN & PROFILE - 5TH AVENUE

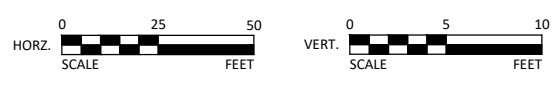
SHEET
C4.03



- NOTES:
1. SEE SHEET G2.03 FOR TEMPORARY WATER LAYOUT AND GATE VALVE SHUT OFFS.
 2. WATERMAIN SHALL HAVE 7.5' MIN COVER UNLESS OTHERWISE NOTED.
 3. ALL WATER SERVICES ARE 3/4" COPPER PIPE UNLESS OTHERWISE NOTED.
 4. ALL SANITARY SERVICES ARE 6" PVC SCHEDULE 40 PIPE UNLESS OTHERWISE NOTED.
 5. FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS.



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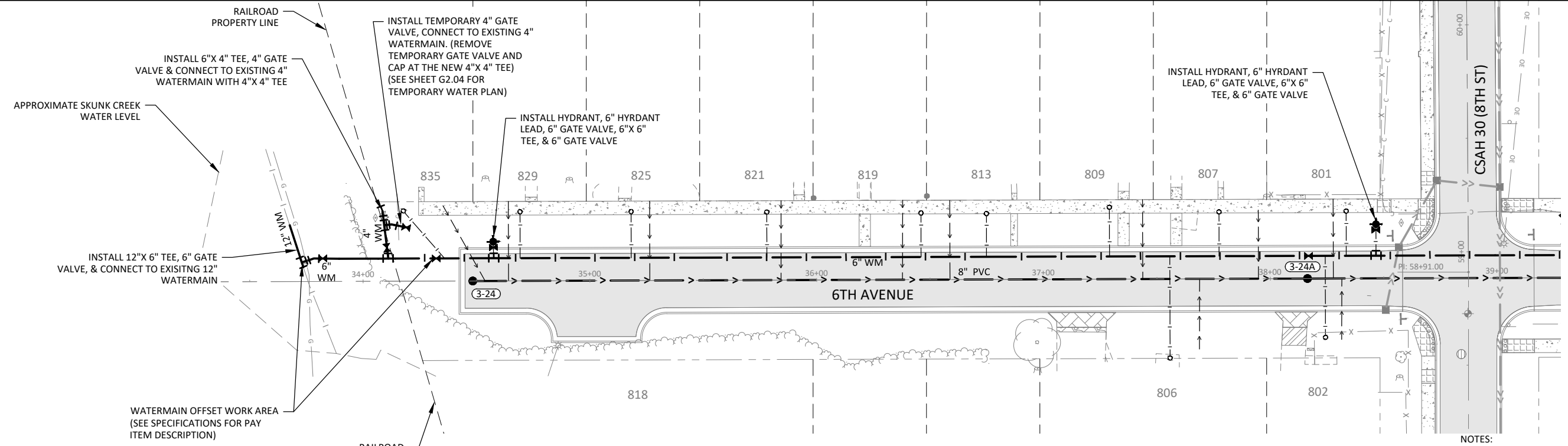
4960 MILLER TRUNK HIGHWAY, SUITE 350
 DULUTH, MINNESOTA 55811
 Phone: (218) 729-5939
 Email: BMI@bolton-menk.com
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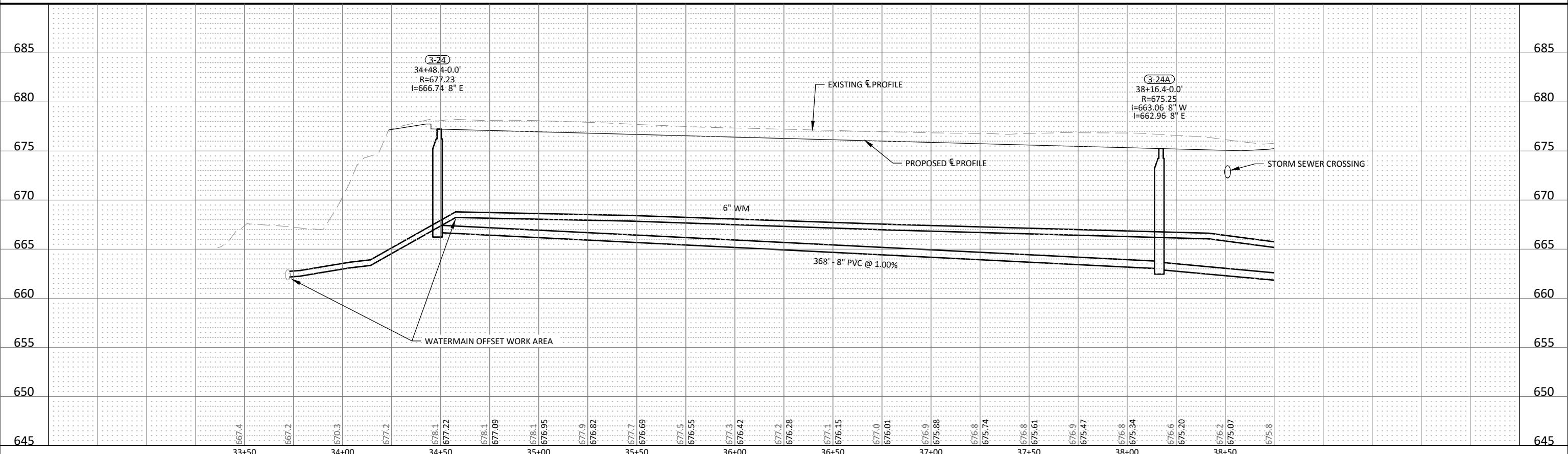
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DESIGNED	AJN	1/13/21
DRAWN	AJN	2/1/21
CHECKED	JDP	5/12/21
CLIENT PROJ. NO.	U17.120606	

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SANITARY & WATER PLAN & PROFILE - 5TH AVENUE

SHEET
C4.04



- NOTES:
1. SEE SHEET G2.04 FOR TEMPORARY WATER LAYOUT AND GATE VALVE SHUT OFFS.
 2. WATERMAIN SHALL HAVE 7.5' MIN COVER UNLESS OTHERWISE NOTED.
 3. ALL WATER SERVICES ARE 3/4" COPPER PIPE UNLESS OTHERWISE NOTED.
 4. ALL SANITARY SERVICES ARE 6" PVC SCHEDULE 40 PIPE UNLESS OTHERWISE NOTED.
 5. FIELD VERIFY SANITARY AND WATER SERVICE LOCATIONS.
 6. FIELD VERIFY EXISTING 12" WATERMAIN DEPTH AT CONNECTION TO PROPOSED 6" WATERMAIN.
 7. FIELD VERIFY EXISTING 4" WATERMAIN LOCATION AND DEPTH.



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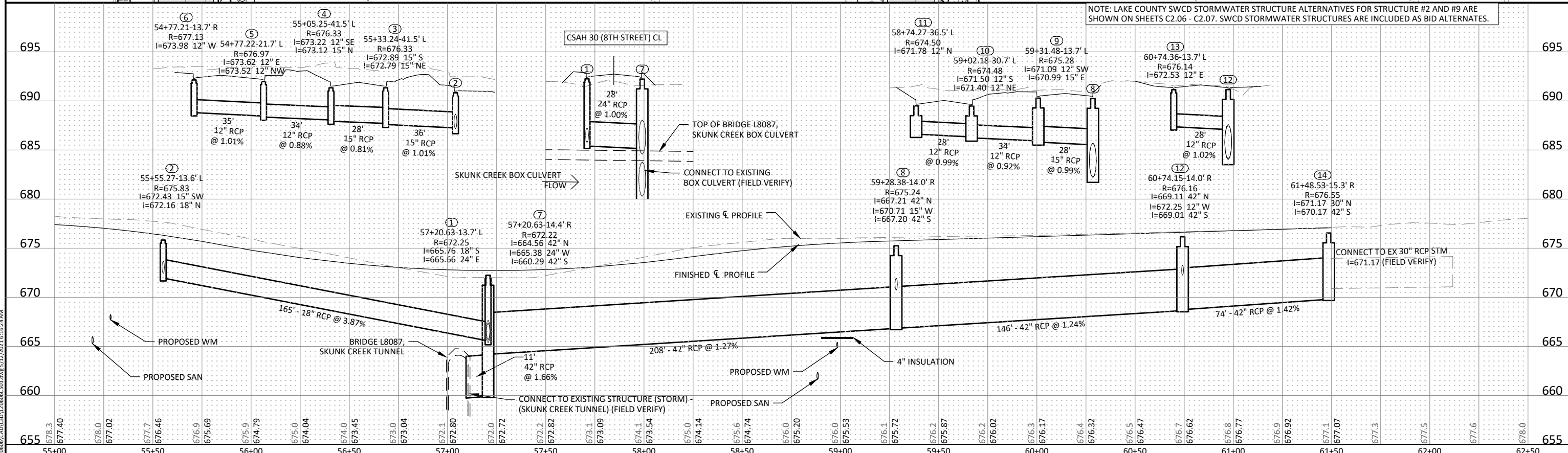
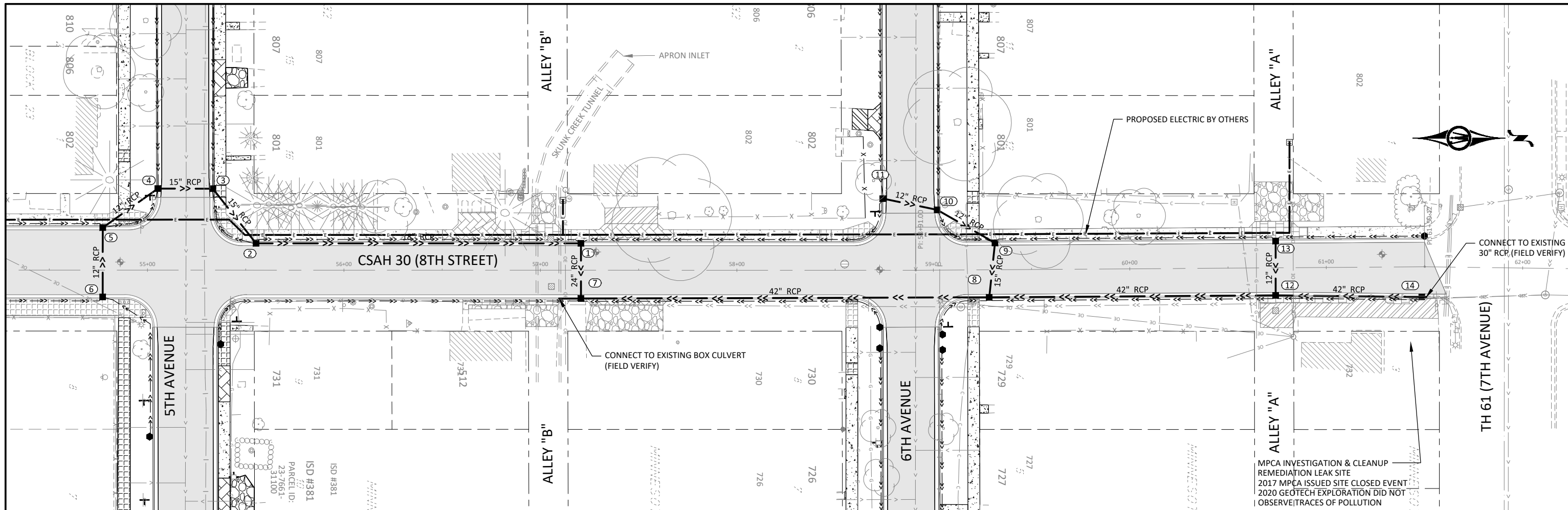


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 SANITARY & WATER PLAN & PROFILE - 6TH AVENUE

SHEET
C4.06



NOTE: LAKE COUNTY SWCD STORMWATER STRUCTURE ALTERNATIVES FOR STRUCTURE #2 AND #9 ARE SHOWN ON SHEETS C2.06 - C2.07. SWCD STORMWATER STRUCTURES ARE INCLUDED AS BID ALTERNATES.

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 D. PELAWA, P.E.
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AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	3	ADD 1	3/25/21
JDP	4	REV 1	4/28/21
CLIENT PROJ. NO.	0	CONSTR	5/12/21

U17.120606







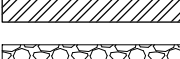

LAKE COUNTY, MINNESOTA

2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010

STORM SEWER PLAN & PROFILE - CSAH 30 (8TH STREET)

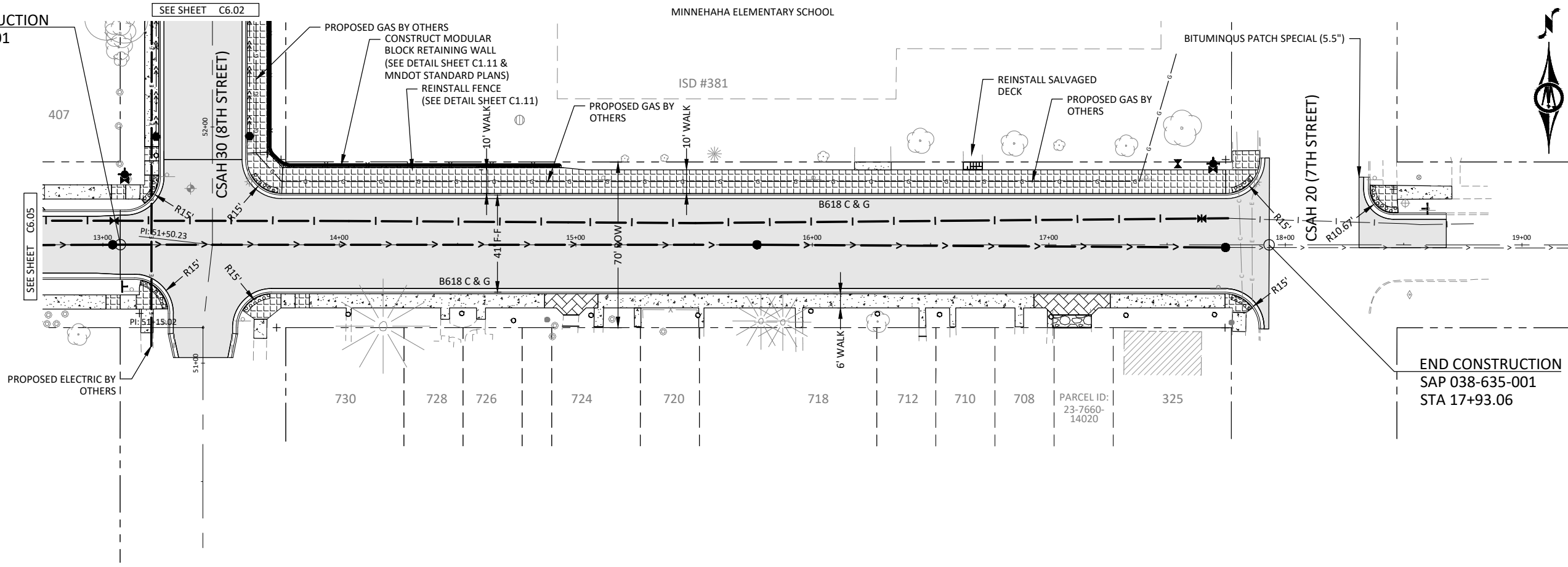
SHEET
C5.01

LEGEND

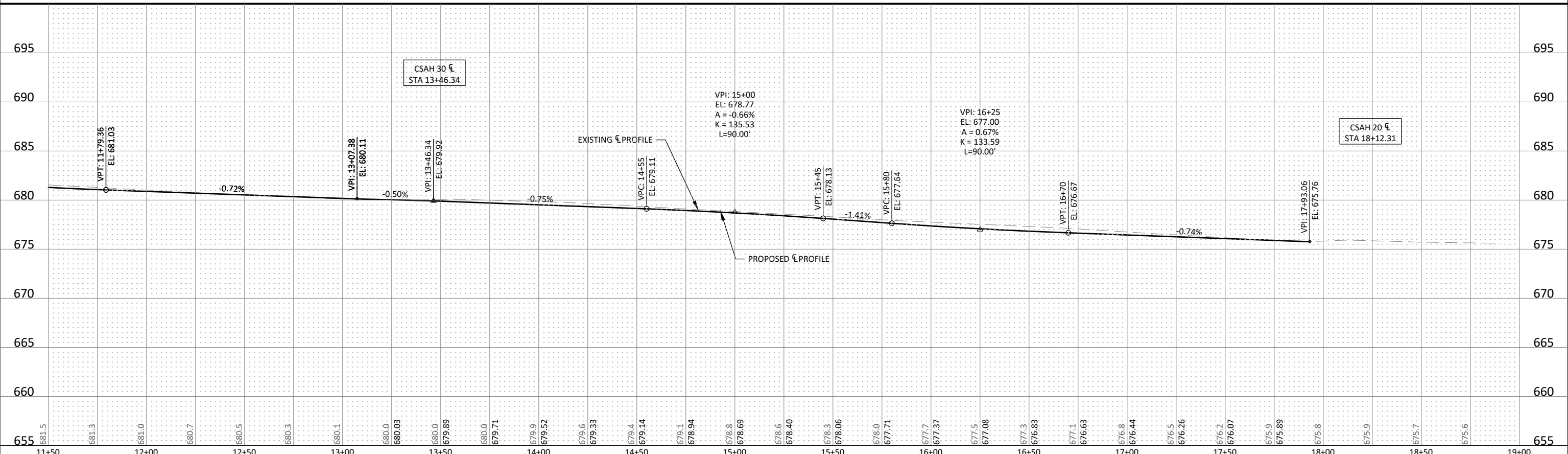
-  8" CONCRETE DRIVEWAY PAVEMENT
-  7" CONCRETE DRIVEWAY PAVEMENT
-  6" CONCRETE WALK
-  4" CONCRETE WALK
-  BITUMINOUS PAVEMENT
-  BITUMINOUS PATCH SPECIAL (3.5")
-  AGGREGATE SURFACING (CV) CLASS 5
-  TRUNCATED DOMES

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.

BEGIN CONSTRUCTION
SAP 038-635-001
STA 13+07.38



CSAH 35 (4TH AVENUE)



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[Signature]
D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
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JDP	0	CONSTR	5/12/21

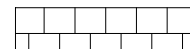


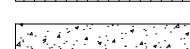
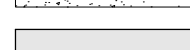



CLIENT PROJ. NO. U17.120606

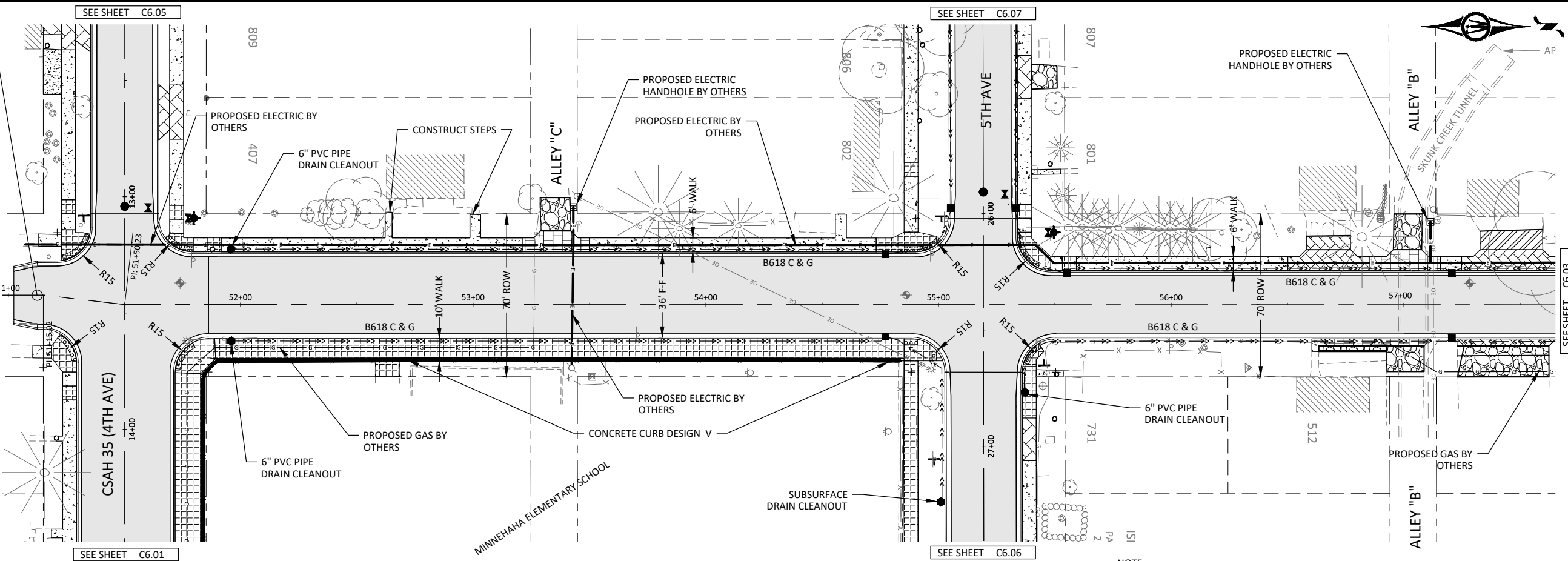
LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STREET PLAN & PROFILE - CSAH 35 (4TH AVENUE)

SHEET
C6.01

BEGIN CONSTRUCTION
SAP 038-630-001
STA 51+02.35

LEGEND

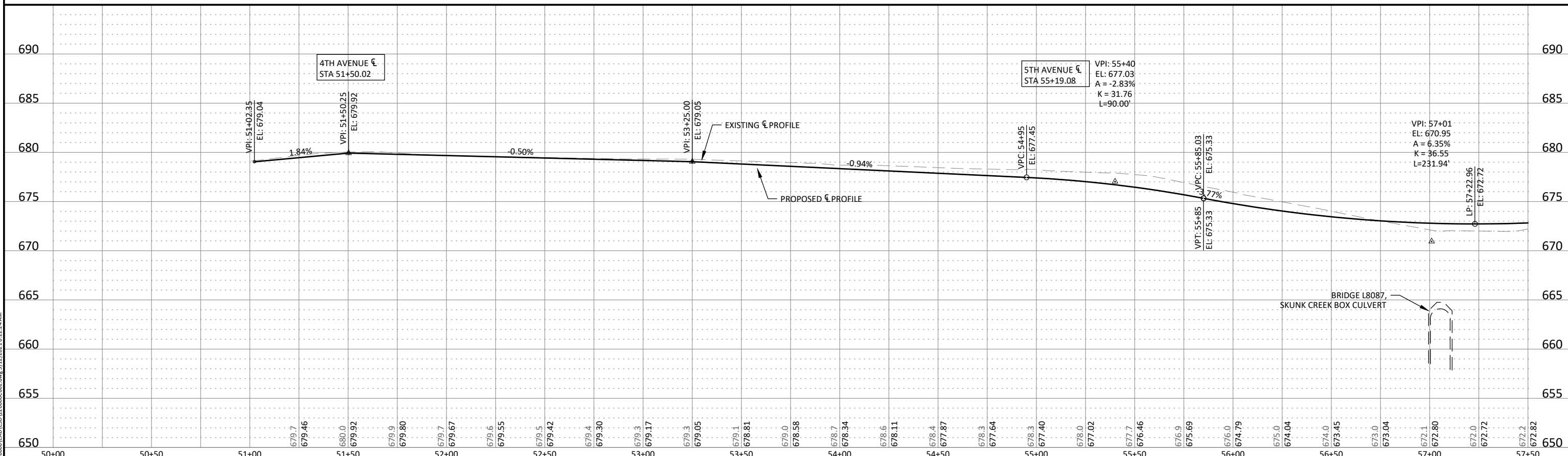
-  8" CONCRETE DRIVEWAY PAVEMENT
-  7" CONCRETE DRIVEWAY PAVEMENT
-  6" CONCRETE WALK
-  4" CONCRETE WALK
-  BITUMINOUS PAVEMENT
-  BITUMINOUS PATCH SPECIAL (3.5")
-  AGGREGATE SURFACING (CV) CLASS 5
-  TRUNCATED DOMES



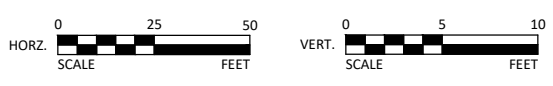
CSAH 30 (8TH STREET)

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.

NOTE:
1. CURB GRADES SHALL BE ADJUSTED AS NECESSARY TO CONVEY RUNOFF TO DRAINAGE STRUCTURES AT SKUNK CREEK.



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[Signature]
D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



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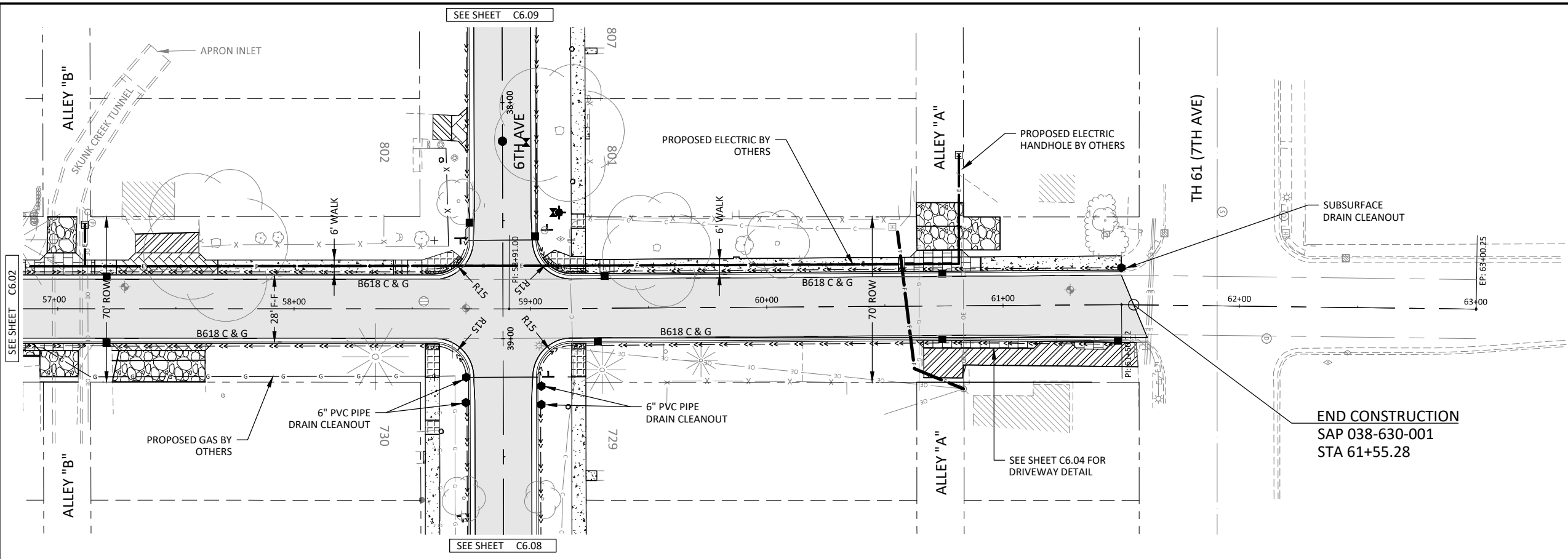


DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STREET PLAN & PROFILE - CSAH 30 (8TH STREET)

SHEET
C6.02

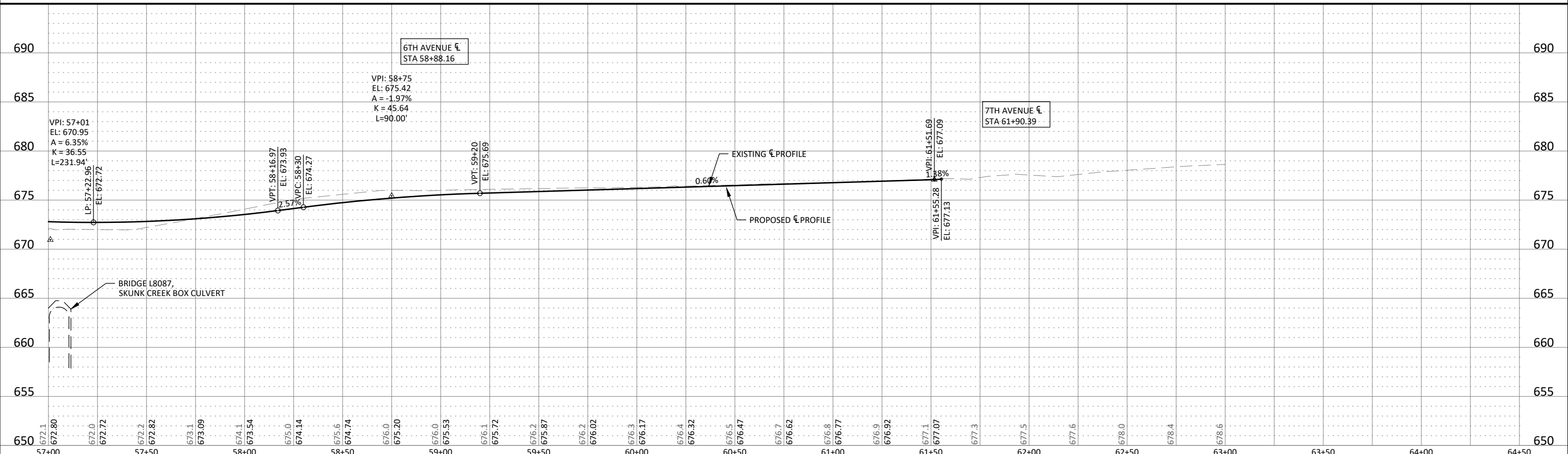


LEGEND

8" CONCRETE DRIVEWAY PAVEMENT
7" CONCRETE DRIVEWAY PAVEMENT
6" CONCRETE WALK
4" CONCRETE WALK
BITUMINOUS PAVEMENT
BITUMINOUS PATCH SPECIAL (3.5")
AGGREGATE SURFACING (CV) CLASS 5
TRUNCATED DOMES

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.

CSAH 30 (8TH STREET)



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[Signature]
D. PELAWA, P.E.
LIC. NO. 42603 DATE 12/15/2020



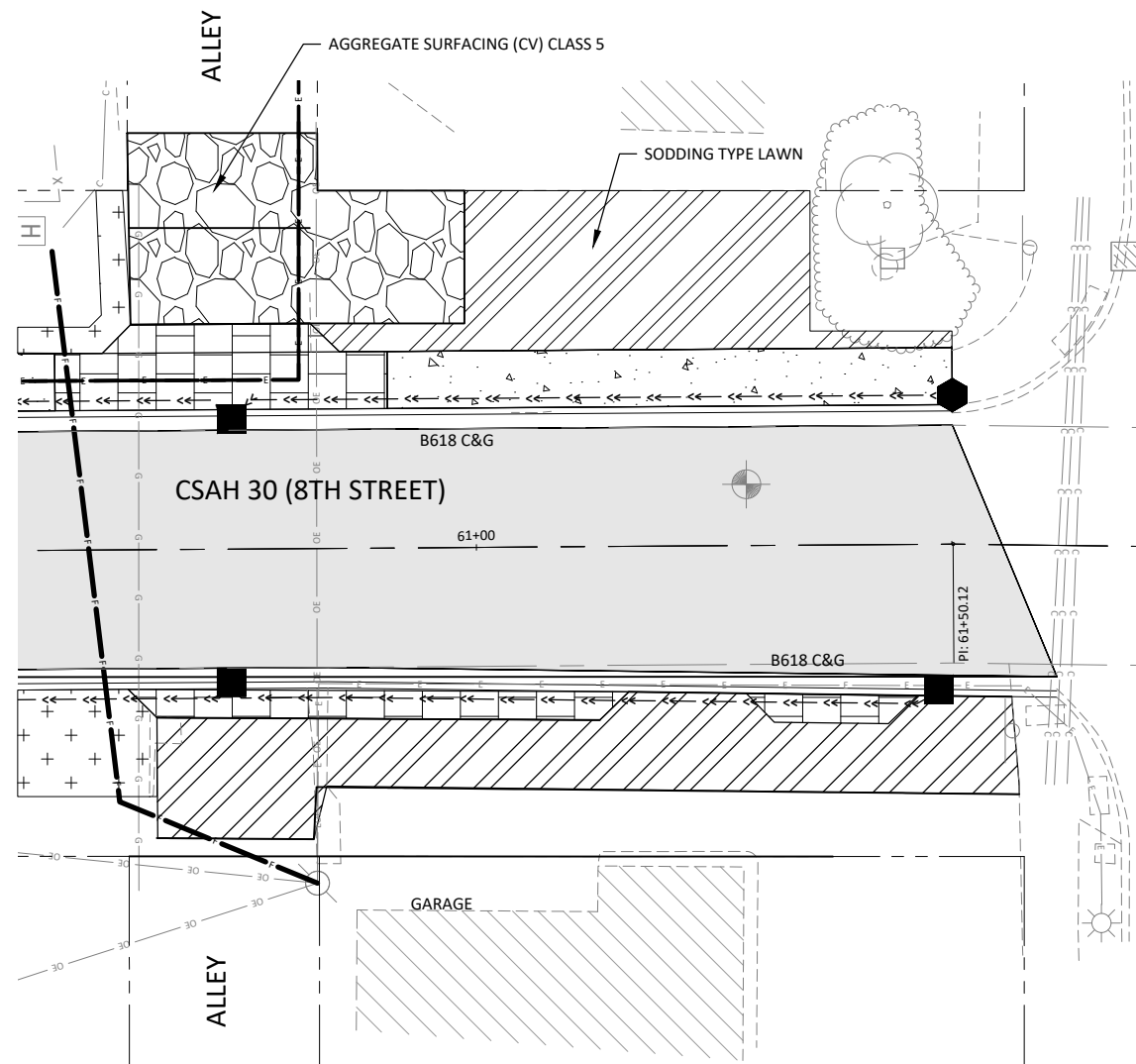
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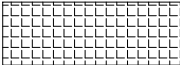



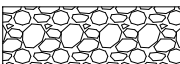

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CHECKED	JDP	NO.	0	ISSUED FOR	CONSTR	DATE	5/12/21
CLIENT PROJ. NO.	U17.120606						

LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STREET PLAN & PROFILE - CSAH 30 (8TH STREET)

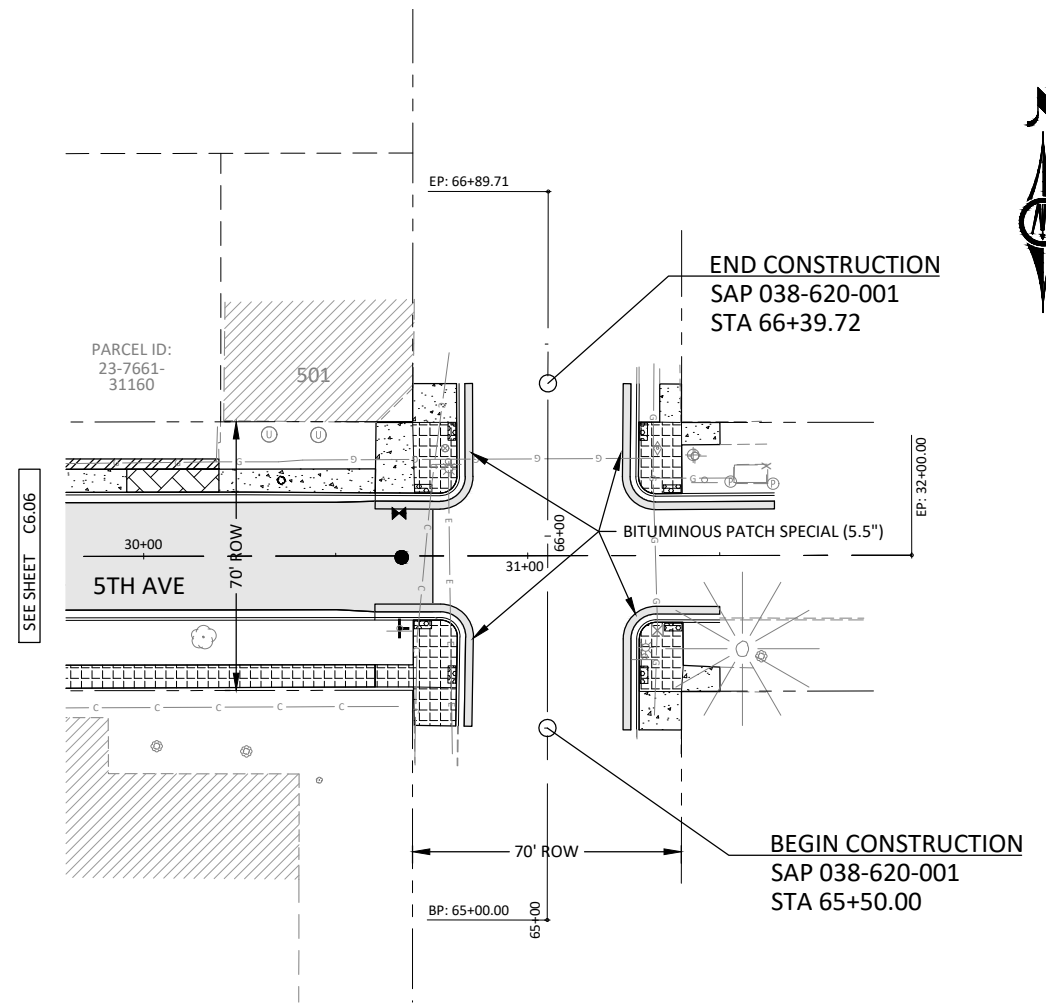
SHEET
C6.03



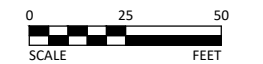
LEGEND

-  8" CONCRETE DRIVEWAY PAVEMENT
-  7" CONCRETE DRIVEWAY PAVEMENT
-  6" CONCRETE WALK
-  4" CONCRETE WALK
-  BITUMINOUS PAVEMENT
-  BITUMINOUS PATCH SPECIAL (3.5")
-  AGGREGATE SURFACING (CV) CLASS 5
-  TRUNCATED DOMES

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.



CSAH 30 (8TH STREET) & TH 61



CSAH 20 (7TH STREET)

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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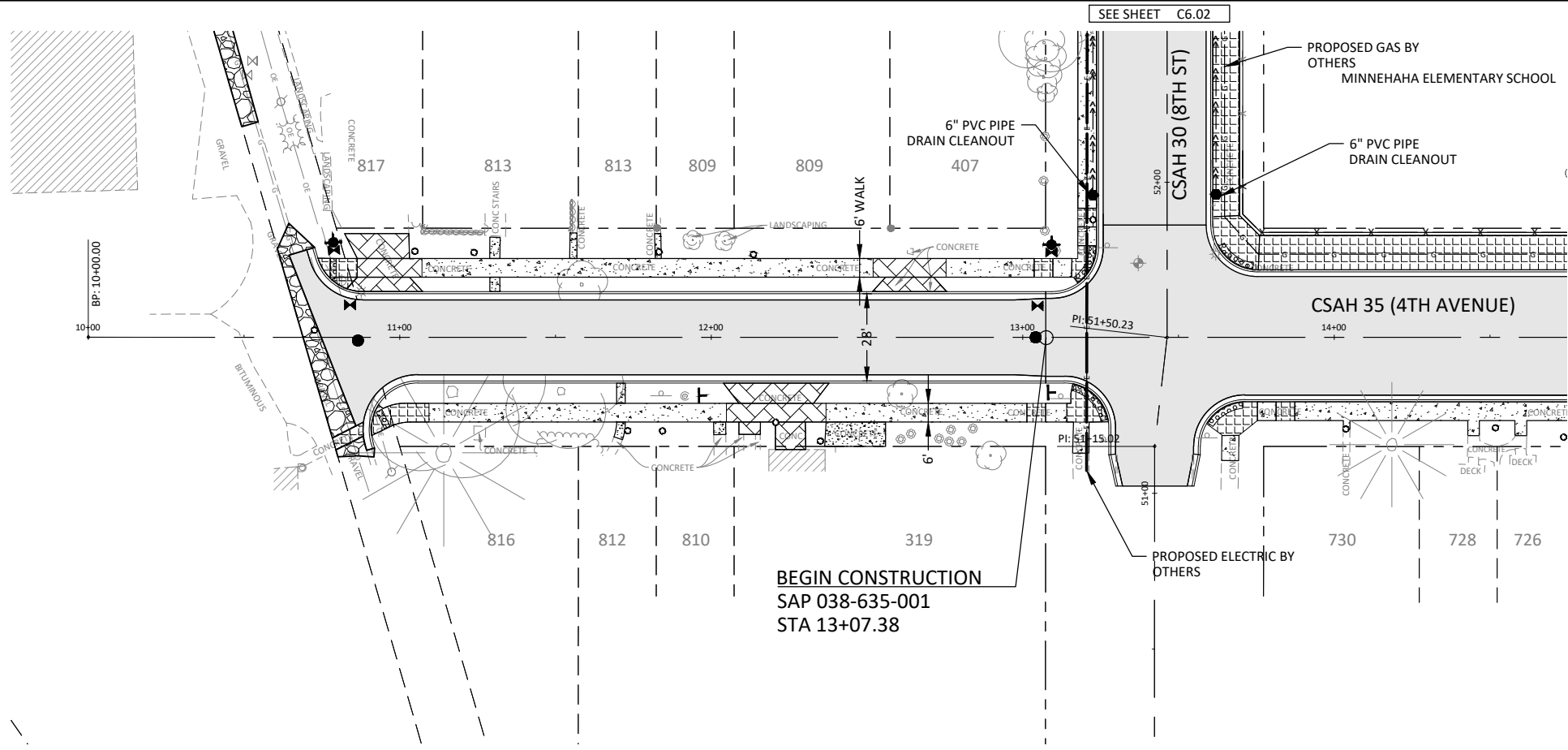


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 STREET PLAN & PROFILE - CSAH 30 (8TH STREET) & CSAH 20 (7TH STREET)

SHEET
C6.04



SEE SHEET C6.01

SEE SHEET C6.02

LEGEND

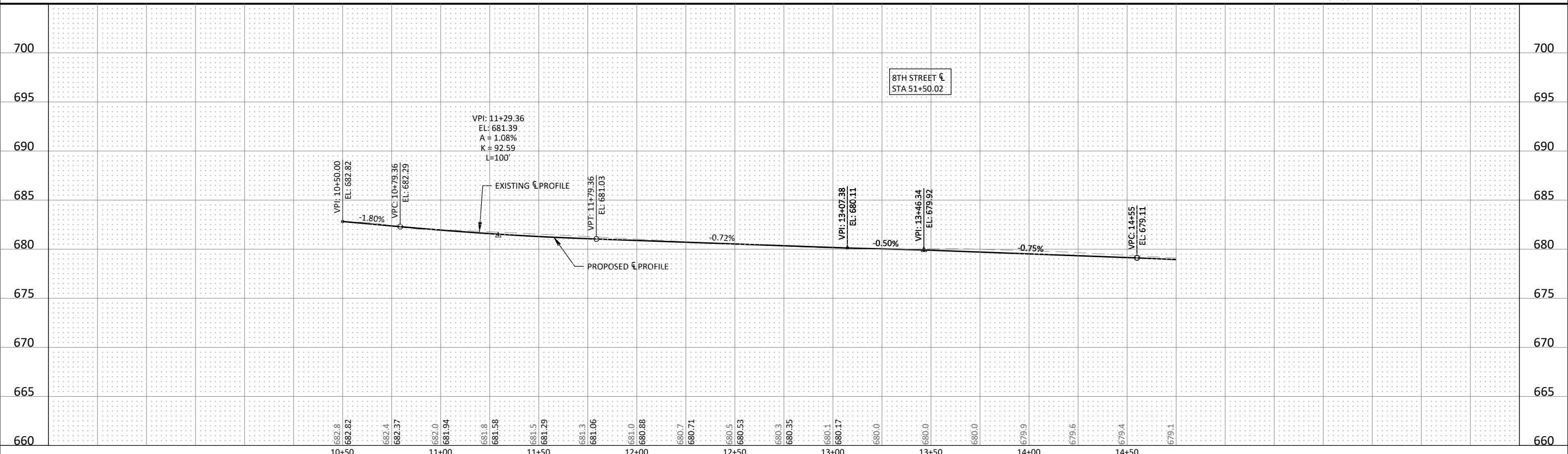
- 8" CONCRETE DRIVEWAY PAVEMENT
- 7" CONCRETE DRIVEWAY PAVEMENT
- 6" CONCRETE WALK
- 4" CONCRETE WALK
- BITUMINOUS PAVEMENT
- BITUMINOUS PATCH SPECIAL (3.5")
- AGGREGATE SURFACING (CV) CLASS 5
- TRUNCATED DOMES

NOTE:

- SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.
- TRANSITIONS BETWEEN PHASES BITUMINOUS PAVEMENT MUST BE LESS THAN OR EQUAL TO 8% GRADE. CONTRACTOR TO PAVE TRANSITIONAL BITUMINOUS PATCH IN ONE 2-INCH LIFT IF THE PHASES ARE NOT COMPLETED IN THE SAME YEAR.



4TH AVENUE



8TH STREET CL
STA 51+50.02

VPI: 11+29.36
EL: 681.39
A = 1.08%
K = 92.59
L = 100'

EXISTING CL PROFILE

PROPOSED CL PROFILE



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[Signature]
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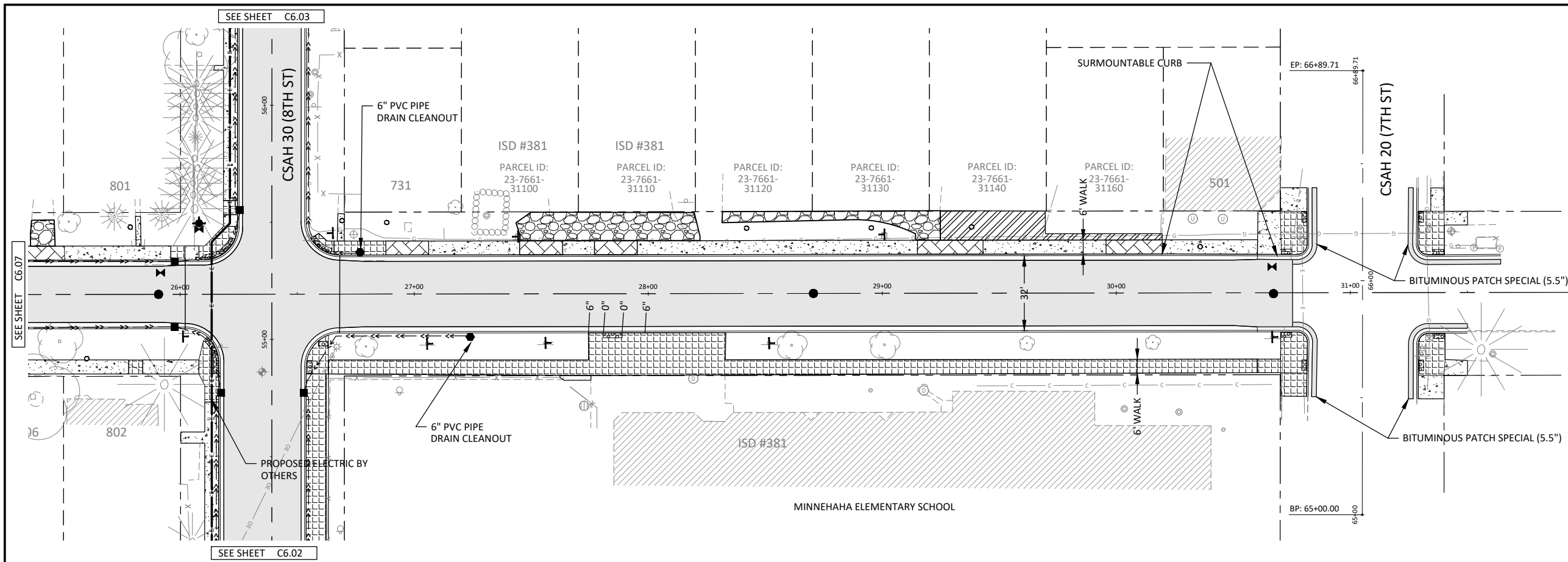
DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
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LAKE COUNTY, MINNESOTA
2021 STREET & UTILITY IMPROVEMENTS
S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
STREET PLAN & PROFILE - 4TH AVENUE

SHEET
C6.05

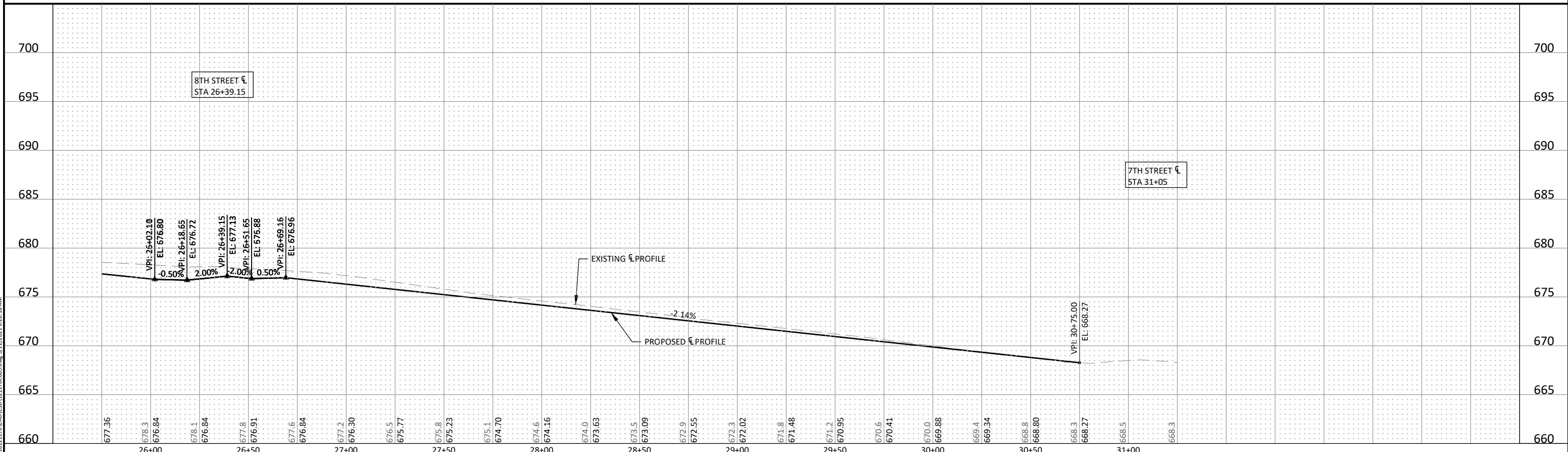
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- ### LEGEND
- 8" CONCRETE DRIVEWAY PAVEMENT
 - 7" CONCRETE DRIVEWAY PAVEMENT
 - 6" CONCRETE WALK
 - 4" CONCRETE WALK
 - BITUMINOUS PAVEMENT
 - BITUMINOUS PATCH SPECIAL (3.5")
 - AGGREGATE SURFACING (CV) CLASS 5
 - TRUNCATED DOMES

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.

5TH AVENUE



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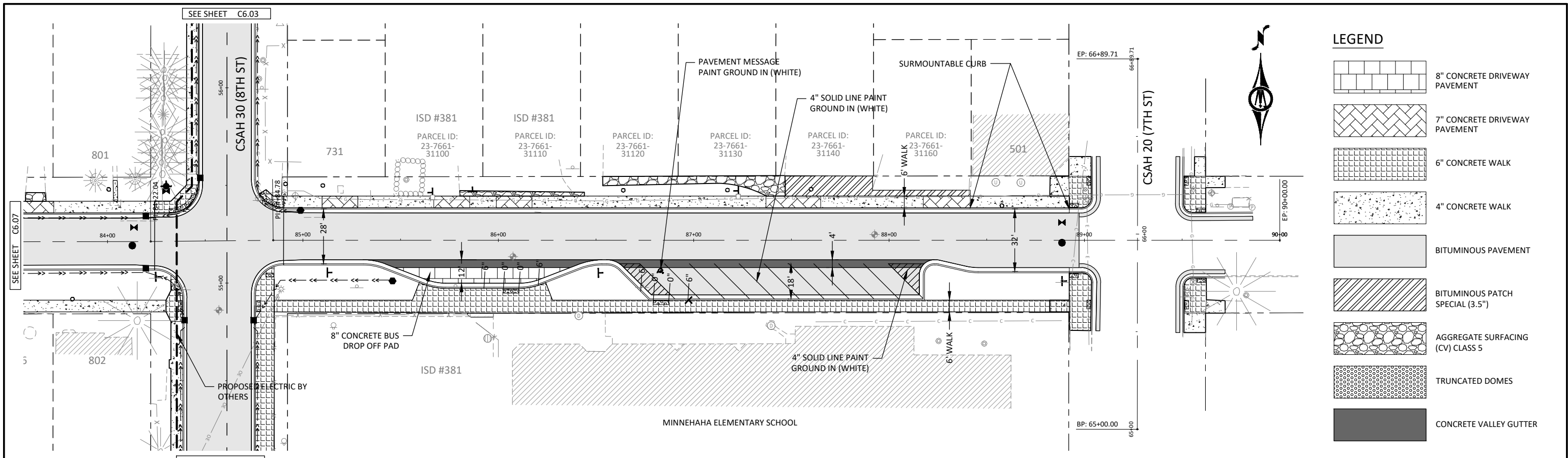
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AJN	2	SA SUBMIT	2/1/21
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CLIENT PROJ. NO. U17.120606

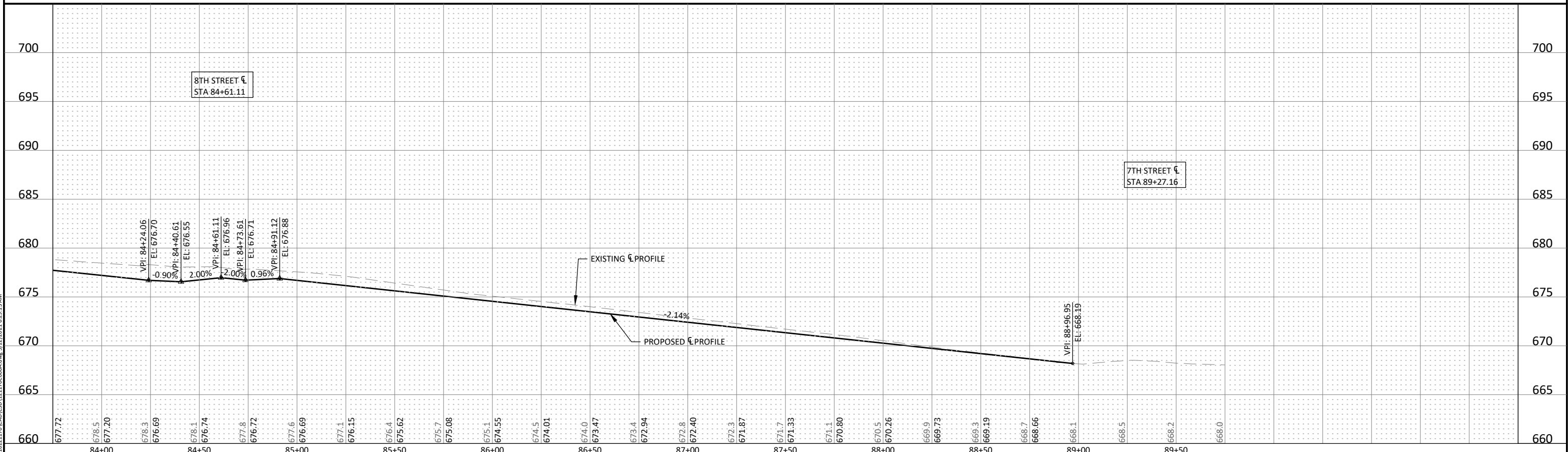
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET PLAN & PROFILE - 5TH AVENUE

SHEET
C6.06

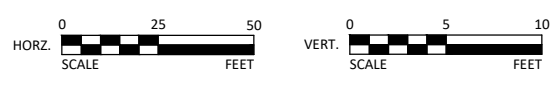
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5TH AVENUE - ALTERNATE



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 DULUTH, MINNESOTA 55811
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 www.bolton-menk.com

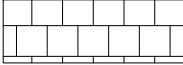

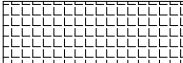



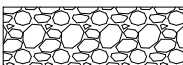



DESIGNED	NO.	DATE
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AJN	2 SA SUBMIT	2/1/21
JDP	0 CONSTR	5/12/21
CLIENT PROJ. NO. U17.120606		

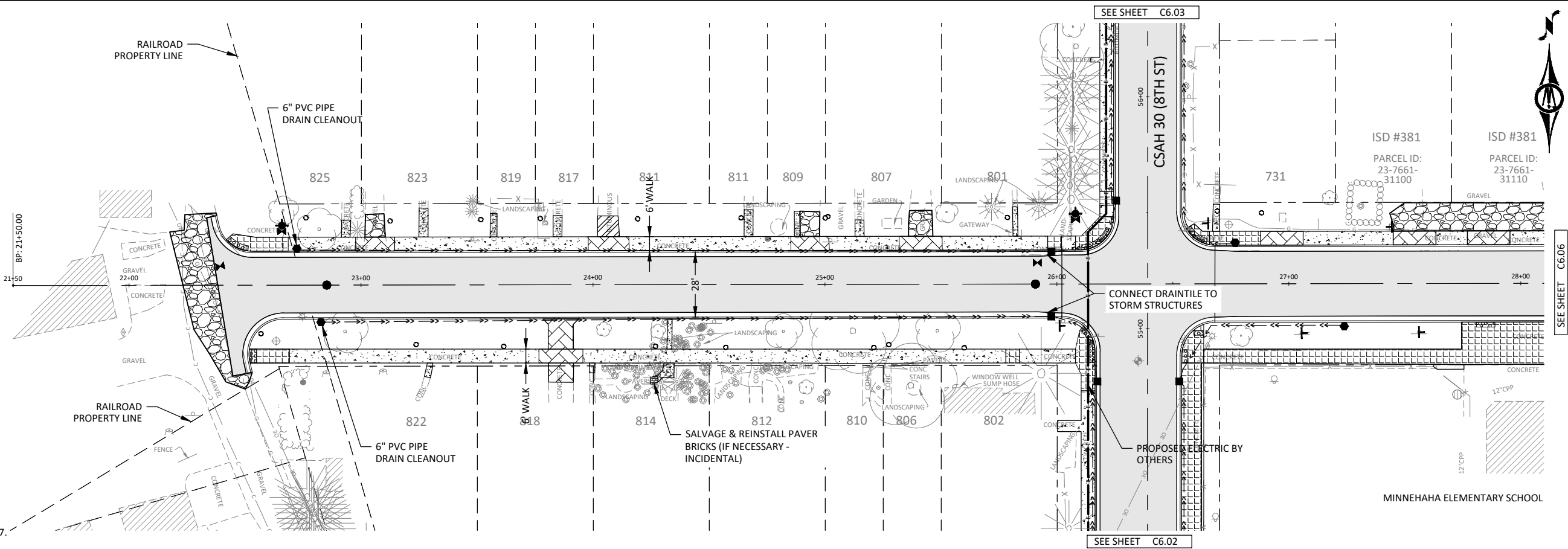
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET PLAN & PROFILE - 5TH AVENUE - ALTERNATE

SHEET C6.06A

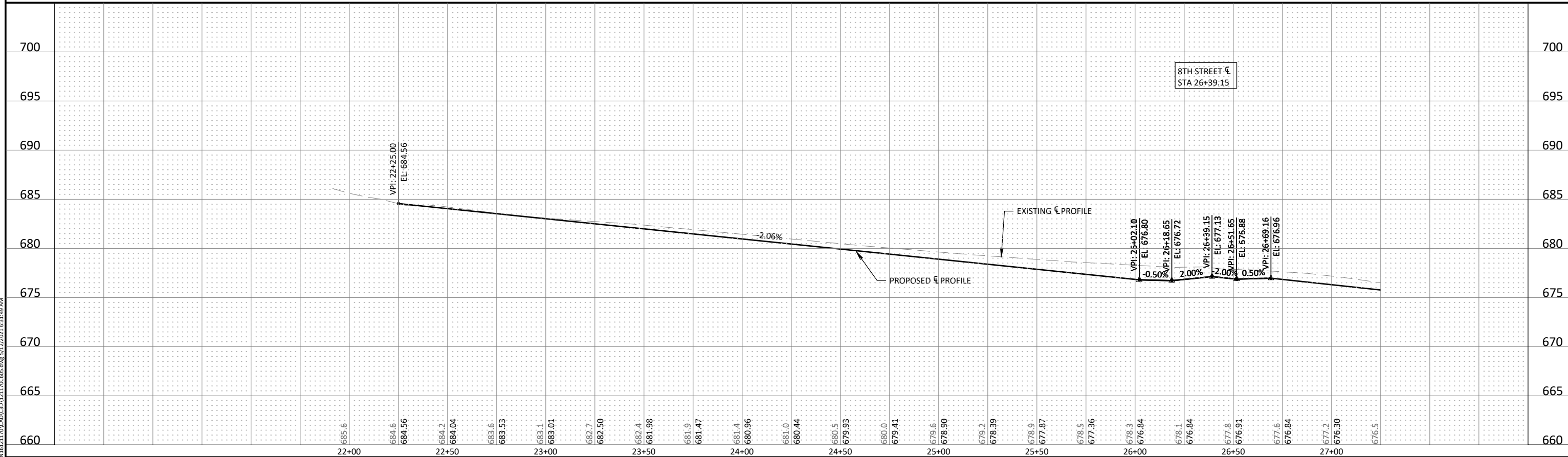
LEGEND

-  8" CONCRETE DRIVEWAY PAVEMENT
-  7" CONCRETE DRIVEWAY PAVEMENT
-  6" CONCRETE WALK
-  4" CONCRETE WALK
-  BITUMINOUS PAVEMENT
-  BITUMINOUS PATCH SPECIAL (3.5")
-  AGGREGATE SURFACING (CV) CLASS 5
-  TRUNCATED DOMES

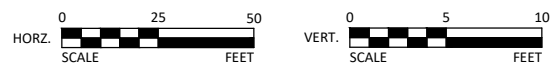
- NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.
 2. TRANSITIONS BETWEEN PHASES BITUMINOUS PAVEMENT MUST BE LESS THAN OR EQUAL TO 8% GRADE. CONTRACTOR TO PAVE TRANSITIONAL BITUMINOUS PATCH IN ONE 2-INCH LIFT IF THE PHASES ARE NOT COMPLETED IN THE SAME YEAR.



5TH AVENUE



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 LIC. NO. 42603 DATE 12/15/2020



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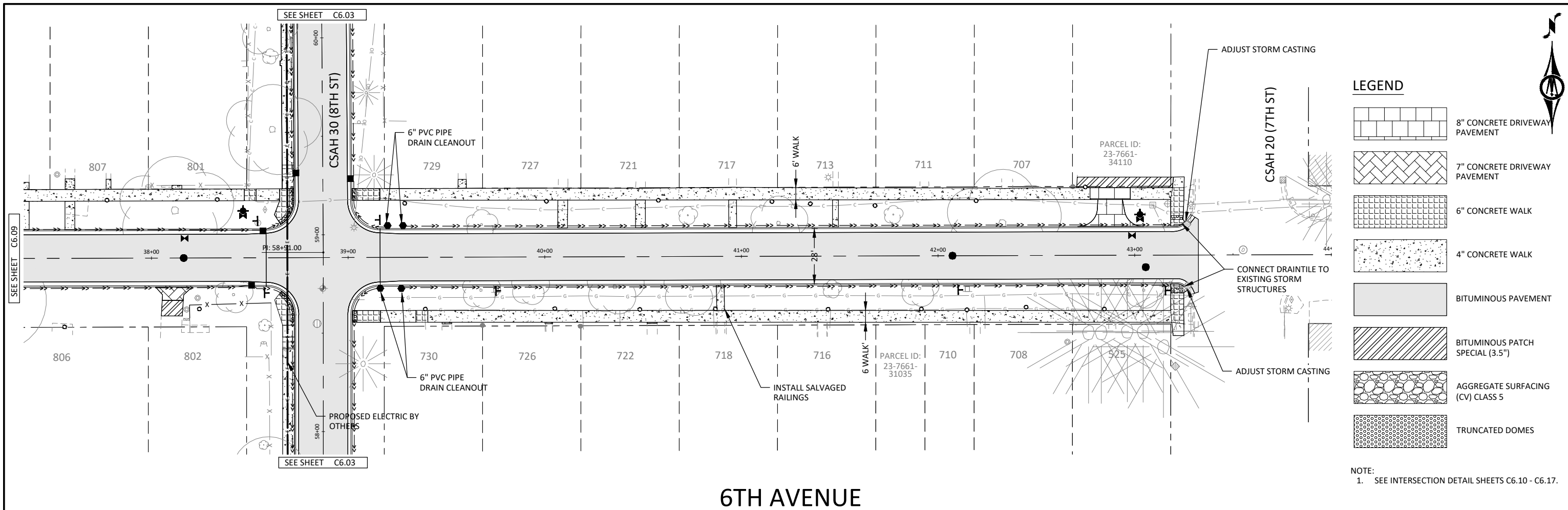


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET PLAN & PROFILE - 5TH AVENUE

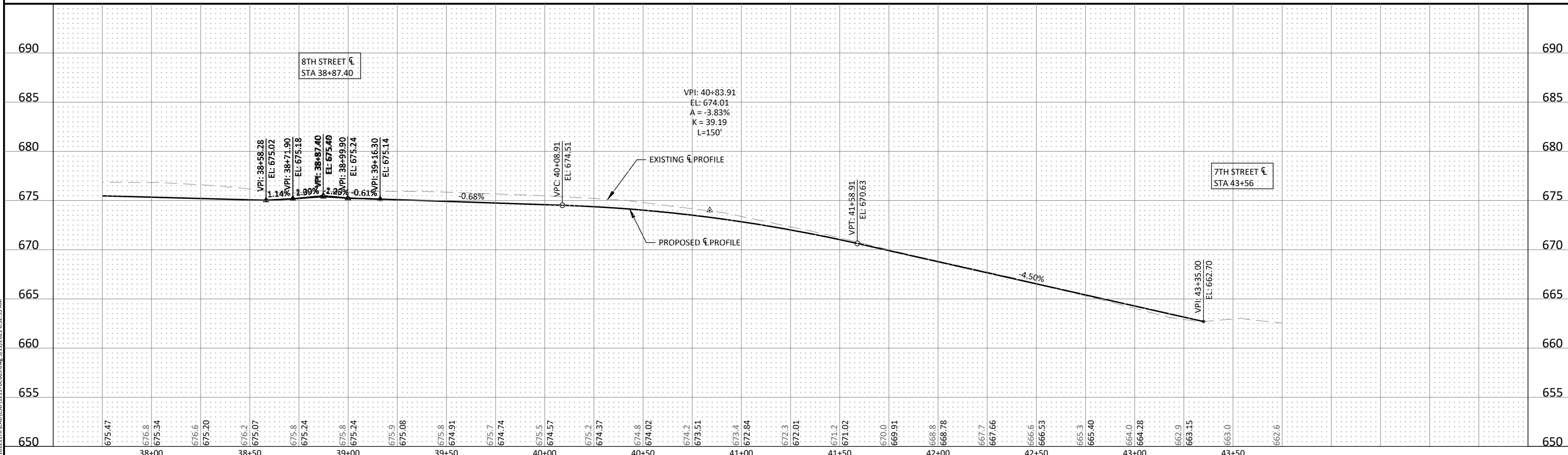
SHEET
C6.07



6TH AVENUE

- LEGEND**
- 8" CONCRETE DRIVEWAY PAVEMENT
 - 7" CONCRETE DRIVEWAY PAVEMENT
 - 6" CONCRETE WALK
 - 4" CONCRETE WALK
 - BITUMINOUS PAVEMENT
 - BITUMINOUS PATCH SPECIAL (3.5")
 - AGGREGATE SURFACING (CV) CLASS 5
 - TRUNCATED DOMES

NOTE:
1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.



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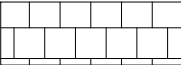


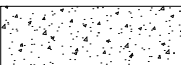


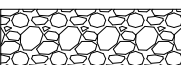

DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
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JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO. U17.120606

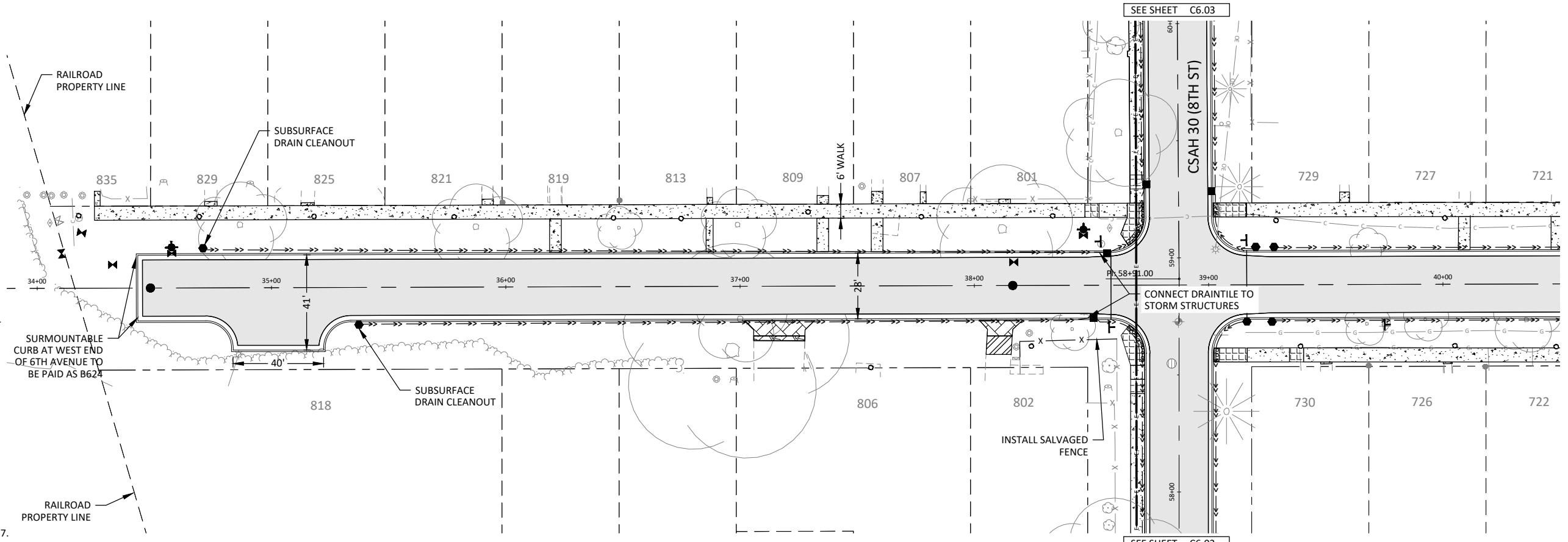
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET PLAN & PROFILE - 6TH AVENUE

SHEET
C6.08

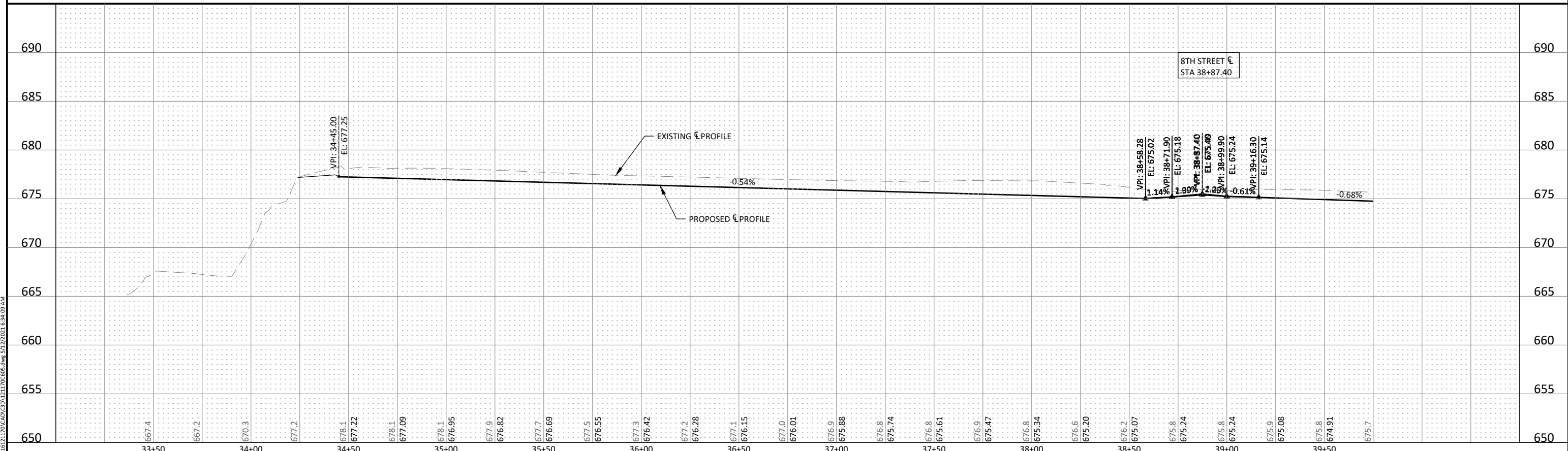
LEGEND

-  8" CONCRETE DRIVEWAY PAVEMENT
-  7" CONCRETE DRIVEWAY PAVEMENT
-  6" CONCRETE WALK
-  4" CONCRETE WALK
-  BITUMINOUS PAVEMENT
-  BITUMINOUS PATCH SPECIAL (3.5")
-  AGGREGATE SURFACING (CV) CLASS 5
-  TRUNCATED DOMES

NOTE:
 1. SEE INTERSECTION DETAIL SHEETS C6.10 - C6.17.
 2. TRANSITIONS BETWEEN PHASES BITUMINOUS PAVEMENT MUST BE LESS THAN OR EQUAL TO 8% GRADE. CONTRACTOR TO PAVE TRANSITIONAL BITUMINOUS PATCH IN ONE 2-INCH LIFT IF THE PHASES ARE NOT COMPLETED IN THE SAME YEAR.



6TH AVENUE



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 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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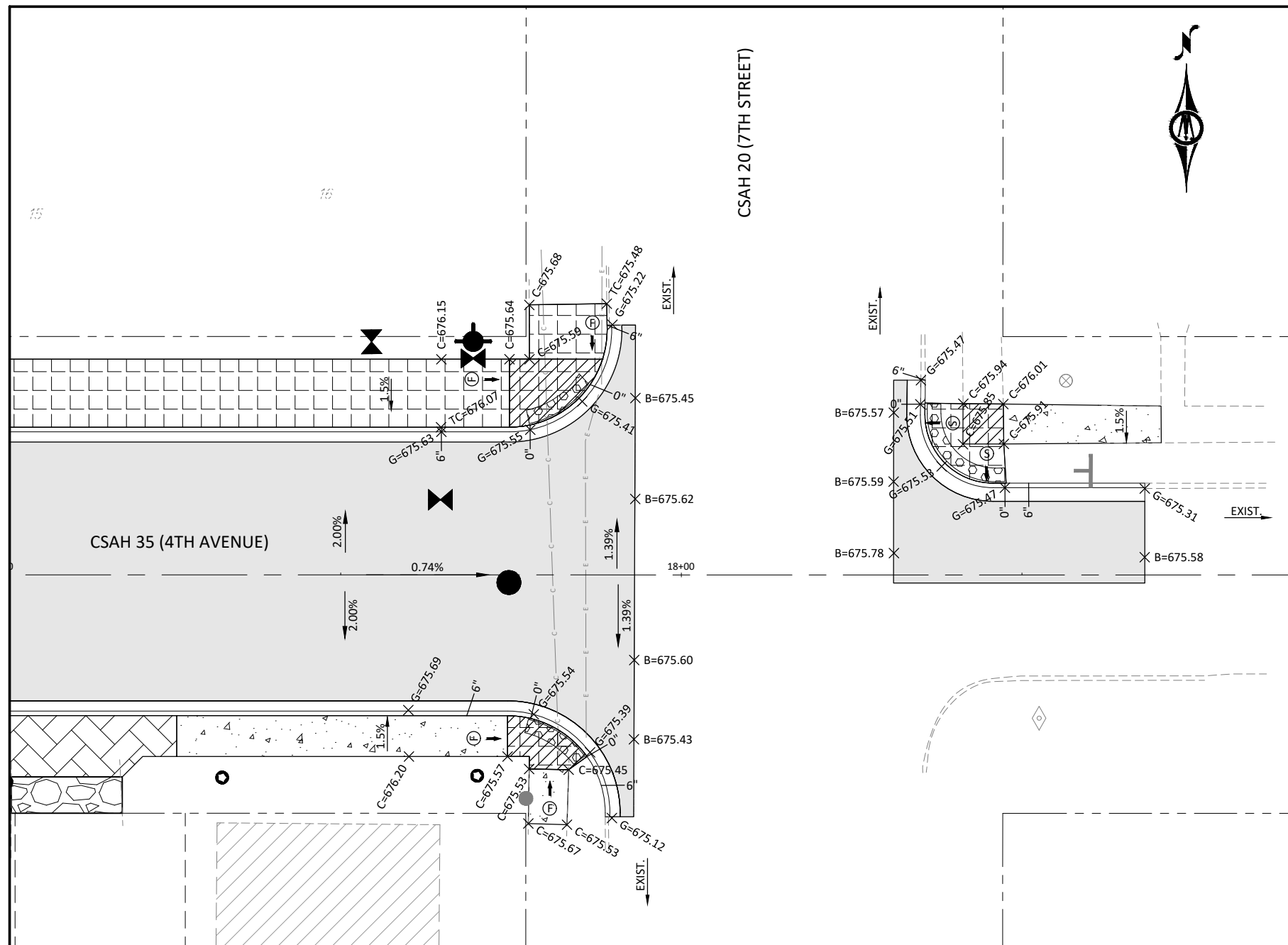


DESIGNED	AJN	NO.	1	ISSUED FOR	DATE
DRAWN	AJN	1	SA SUBMIT	1/13/21	
CHECKED	JDP	2	SA SUBMIT	2/1/21	
		0	CONSTR	5/12/21	
CLIENT PROJ. NO.	U17.120606				

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET PLAN & PROFILE - 6TH AVENUE

SHEET
C6.09

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LEGEND	
	TRUNCATED DOMES (SEE STANDARD PLATE 7038)
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)
	7" CONCRETE DRIVEWAY PAVEMENT
	8" CONCRETE DRIVEWAY PAVEMENT
	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%
	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%
	4" CONCRETE WALK
	6" CONCRETE WALK
	BITUMINOUS PAVEMENT
	AGGREGATE SURFACING (CV) CLASS 5
	PROPOSED CURB & GUTTER
	X" CURB HEIGHT
	X TC=XXX.XX = PROPOSED TOP OF CURB
	X G=XXX.XX = PROPOSED GUTTER
	X C=XXX.XX = PROPOSED TOP OF CONCRETE
	X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

NOTES:

1. ALL CURB ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED.
2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
5. STREET RADII TO BACK OF CURB.

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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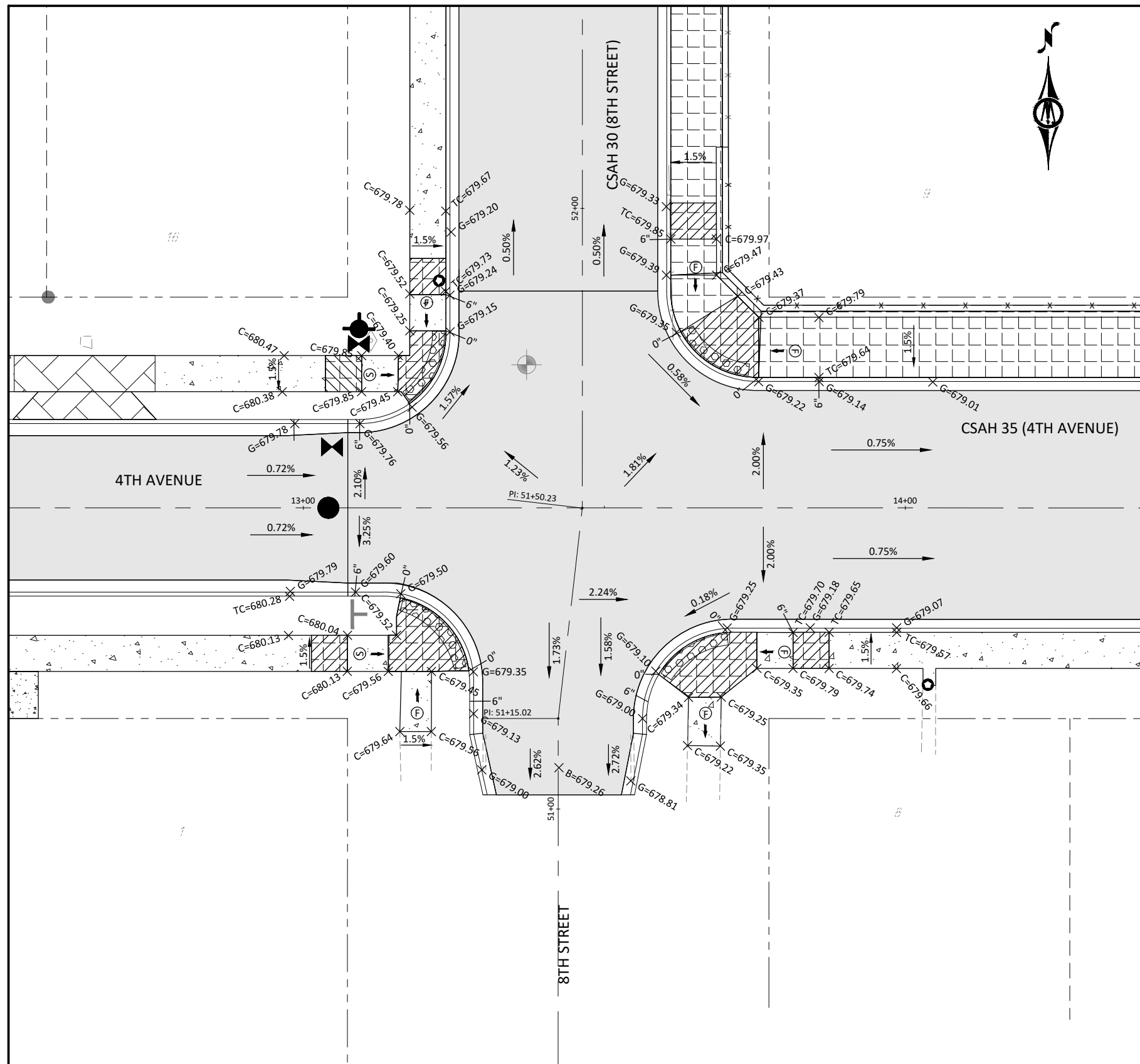


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - CSAH 35 (4TH AVENUE) & CSAH 20 (7TH STREET)

SHEET
C6.10

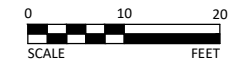


LEGEND

TRUNCATED DOMES (SEE STANDARD PLATE 7038)	4" CONCRETE WALK
(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)	6" CONCRETE WALK
7" CONCRETE DRIVEWAY PAVEMENT	BITUMINOUS PAVEMENT
8" CONCRETE DRIVEWAY PAVEMENT	AGGREGATE SURFACING (CV) CLASS 5
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%	PROPOSED CURB & GUTTER
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%	CURB HEIGHT X" TC=XXX.XX = PROPOSED TOP OF CURB X G=XXX.XX = PROPOSED GUTTER X C=XXX.XX = PROPOSED TOP OF CONCRETE X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

- NOTES:**
1. ALL CURB ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED.
 2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
 3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
 4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
 5. STREET RADII TO BACK OF CURB.

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[Signature]
 J. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 www.bolton-menk.com

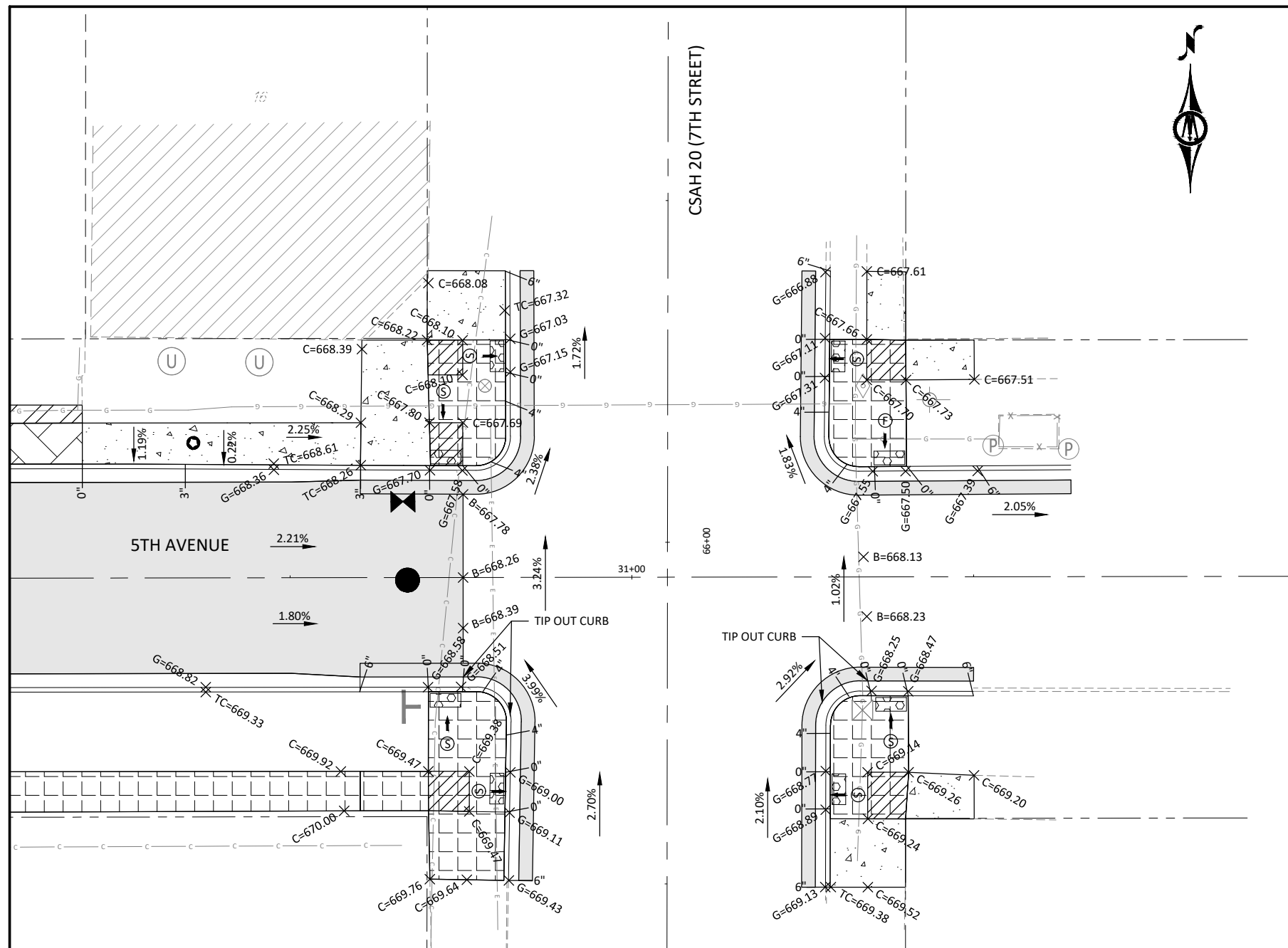


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - CSAH 35 (4TH AVENUE) & CSAH 30 (8TH STREET)

SHEET
C6.11

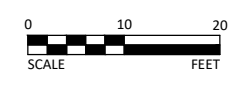


LEGEND

	TRUNCATED DOMES (SEE STANDARD PLATE 7038)		4" CONCRETE WALK
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)		6" CONCRETE WALK
	7" CONCRETE DRIVEWAY PAVEMENT		BITUMINOUS PAVEMENT
	8" CONCRETE DRIVEWAY PAVEMENT		AGGREGATE SURFACING (CV) CLASS 5
	PROPOSED CURB & GUTTER		PROPOSED CURB & GUTTER
	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%		CURB HEIGHT
	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%		X TC=XXX.XX = PROPOSED TOP OF CURB
			X G=XXX.XX = PROPOSED GUTTER
			X C=XXX.XX = PROPOSED TOP OF CONCRETE
			X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

- NOTES:**
1. ALL CURB ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED.
 2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
 3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
 4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
 5. STREET RADII TO BACK OF CURB.

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 LIC. NO. 42603 DATE 12/15/2020



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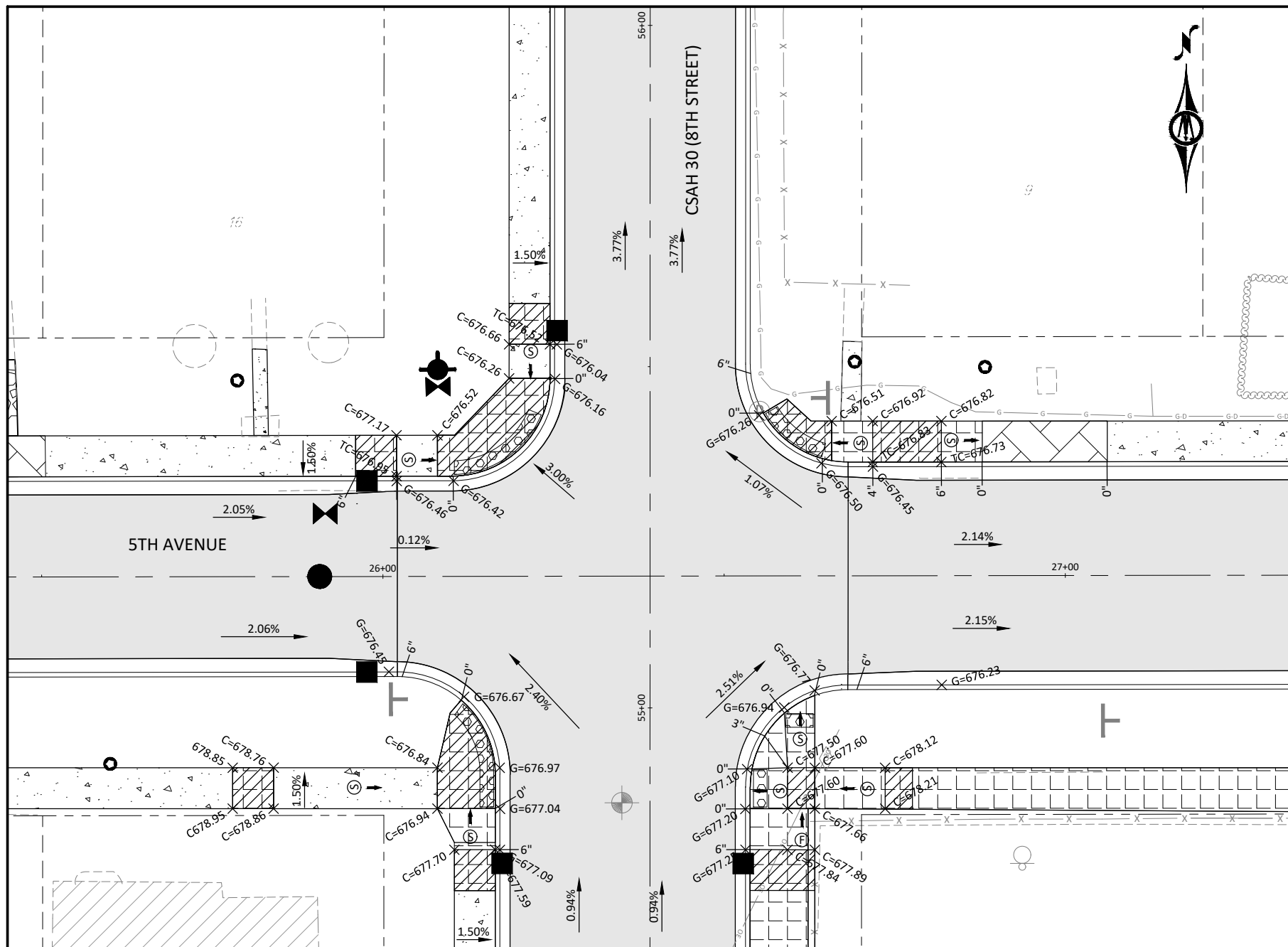


DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 5TH AVENUE & CSAH 20 (7TH STREET)

SHEET
C6.12

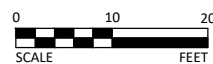


LEGEND	
	TRUNCATED DOMES (SEE STANDARD PLATE 7038)
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)
	7" CONCRETE DRIVEWAY PAVEMENT
	8" CONCRETE DRIVEWAY PAVEMENT
	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	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%
	4" CONCRETE WALK
	6" CONCRETE WALK
	BITUMINOUS PAVEMENT
	AGGREGATE SURFACING (CV) CLASS 5
	PROPOSED CURB & GUTTER
	X" CURB HEIGHT
	X TC=XXX.XX = PROPOSED TOP OF CURB
	X G=XXX.XX = PROPOSED GUTTER
	X C=XXX.XX = PROPOSED TOP OF CONCRETE
	X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

NOTES:

1. ALL CURB ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED.
2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
5. STREET RADII TO BACK OF CURB.

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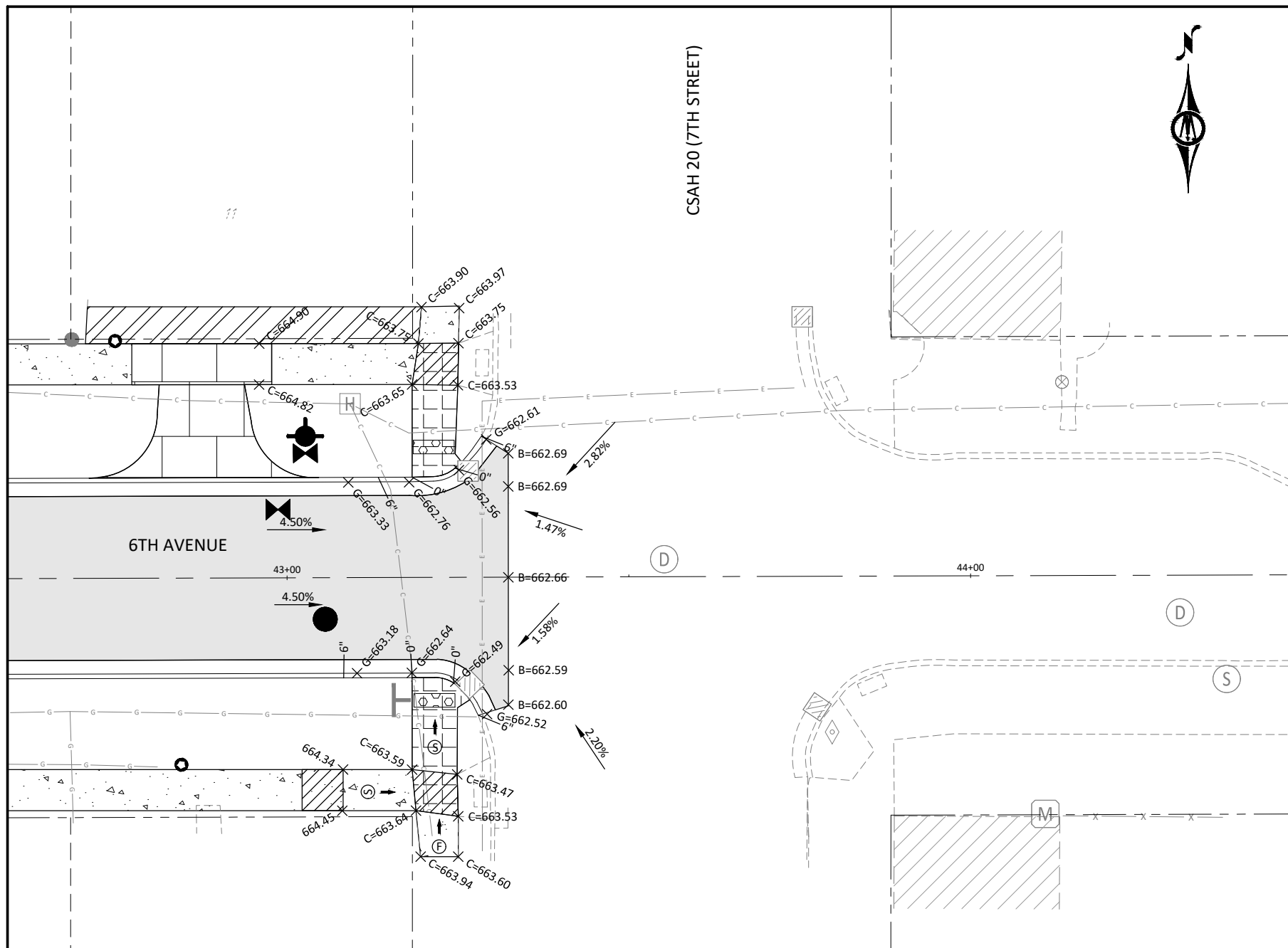


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	3	REV 1	4/29/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 5TH AVENUE & CSAH 30 (8TH STREET)

SHEET
C6.13



LEGEND	
	TRUNCATED DOMES (SEE STANDARD PLATE 7038)
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)
	7\"/>
	8\"/>
	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%
	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%
	4\"/>
	6\"/>
	BITUMINOUS PAVEMENT
	AGGREGATE SURFACING (CV) CLASS 5
	PROPOSED CURB & GUTTER
	X\"/>
	X TC=XXX.XX = PROPOSED TOP OF CURB
	X G=XXX.XX = PROPOSED GUTTER
	X C=XXX.XX = PROPOSED TOP OF CONCRETE
	X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

NOTES:

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2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
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4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
5. STREET RADII TO BACK OF CURB.

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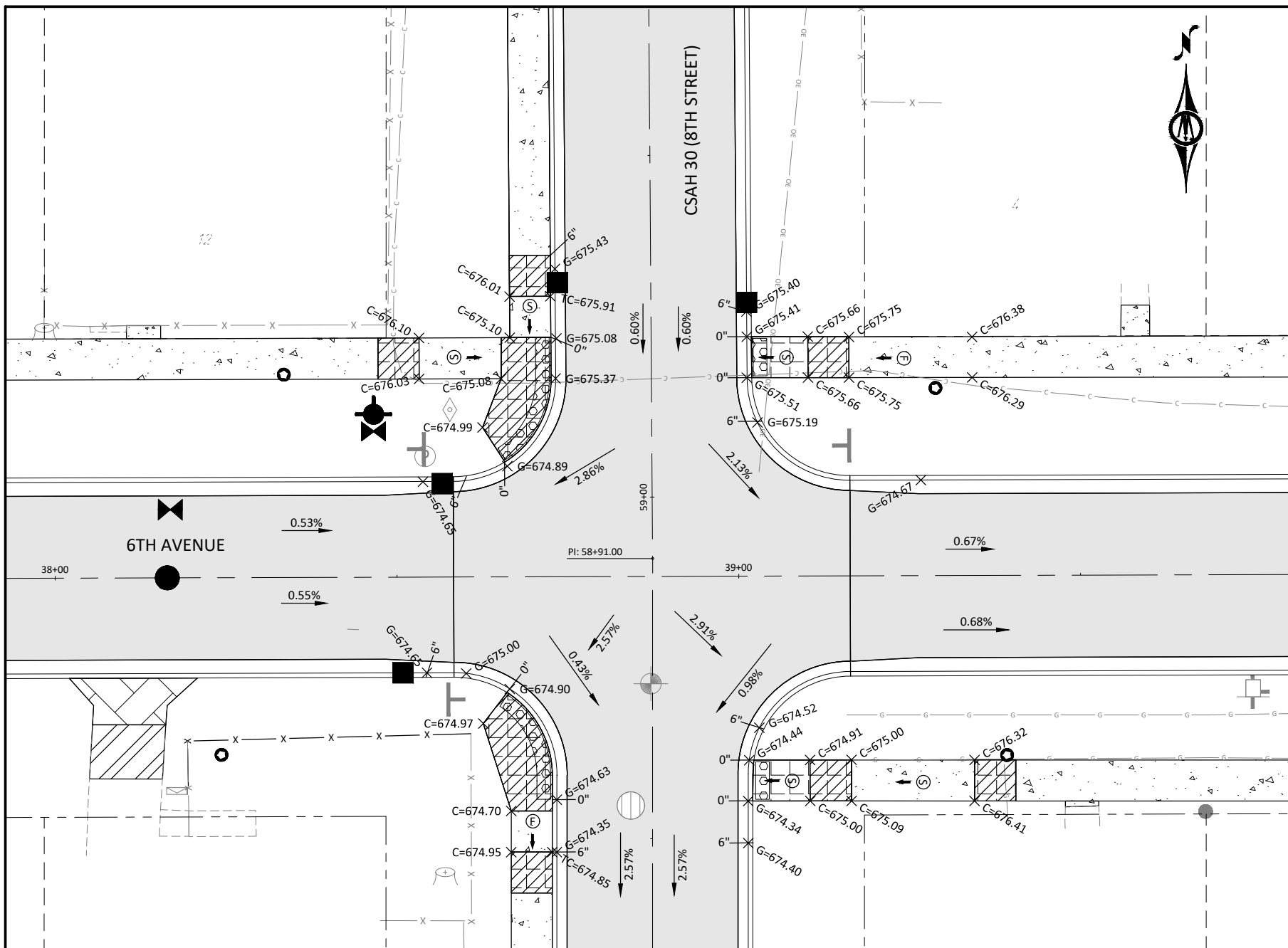


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CHECKED: JDP
 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 6TH AVENUE & CSAH 20 (7TH STREET)

SHEET
C6.14

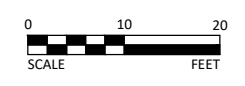


LEGEND

	TRUNCATED DOMES (SEE STANDARD PLATE 7038)		4" CONCRETE WALK
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)		6" CONCRETE WALK
	7" CONCRETE DRIVEWAY PAVEMENT		BITUMINOUS PAVEMENT
	8" CONCRETE DRIVEWAY PAVEMENT		AGGREGATE SURFACING (CV) CLASS 5
	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%		PROPOSED CURB & GUTTER
	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%		CURB HEIGHT
			X TC=XXX.XX = PROPOSED TOP OF CURB
			X G=XXX.XX = PROPOSED GUTTER
			X C=XXX.XX = PROPOSED TOP OF CONCRETE
			X B=XXX.XX = PROPOSED TOP OF BITUMINOUS

- NOTES:**
1. ALL CURB ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED.
 2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
 3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
 4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
 5. STREET RADII TO BACK OF CURB.

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[Signature]
 J. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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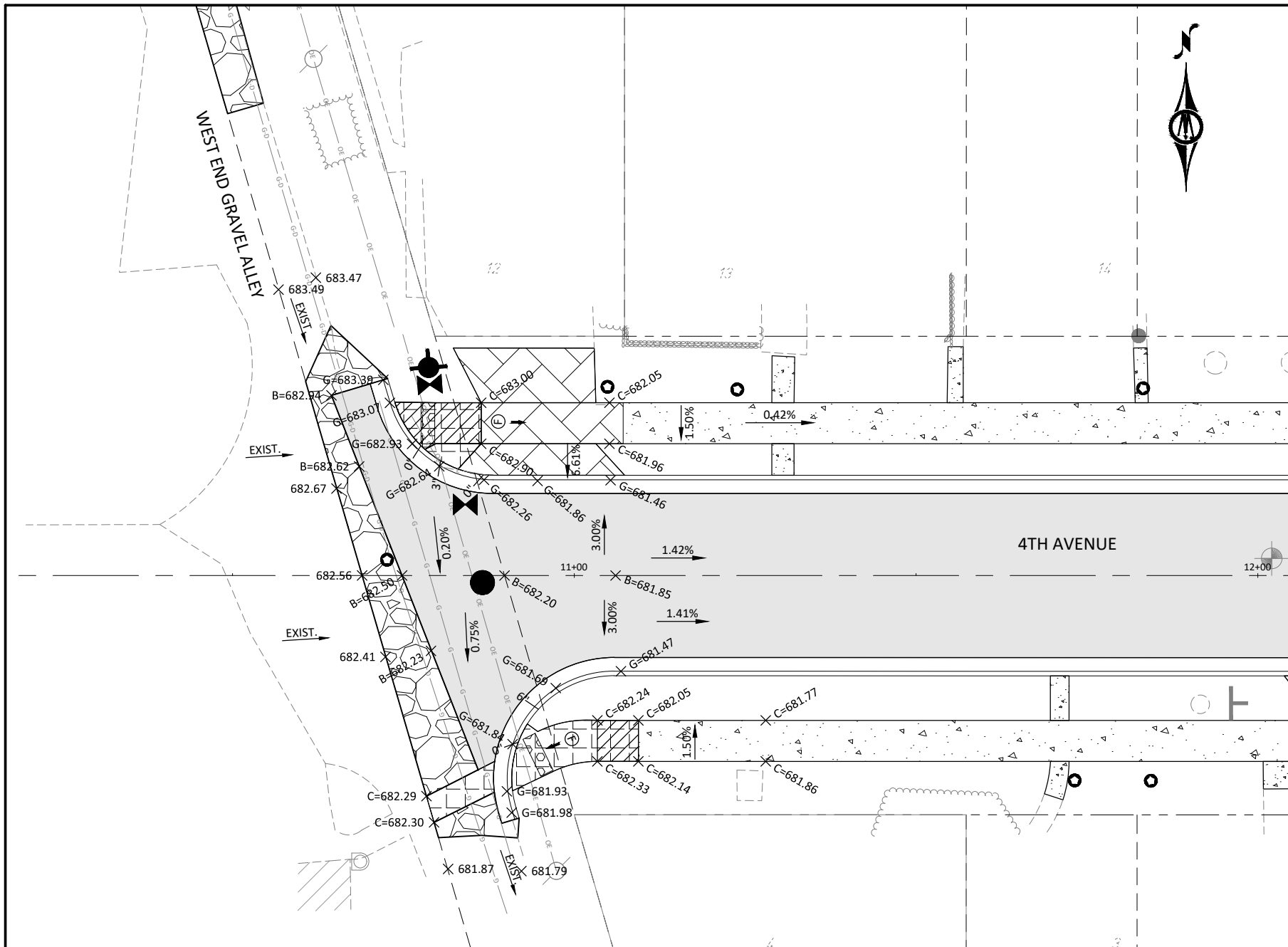


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

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 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 6TH AVENUE & CSAH 30 (8TH STREET)

SHEET
C6.15

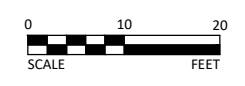


LEGEND

	TRUNCATED DOMES (SEE STANDARD PLATE 7038)		4" CONCRETE WALK
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)		6" CONCRETE WALK
	7" CONCRETE DRIVEWAY PAVEMENT		BITUMINOUS PAVEMENT
	8" CONCRETE DRIVEWAY PAVEMENT		AGGREGATE SURFACING (CV) CLASS 5
	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%		PROPOSED CURB & GUTTER
	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%		CURB HEIGHT
			X TC=XXX.XX = PROPOSED TOP OF CURB
			X G=XXX.XX = PROPOSED GUTTER
			X C=XXX.XX = PROPOSED TOP OF CONCRETE
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 2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
 3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
 4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
 5. STREET RADII TO BACK OF CURB.

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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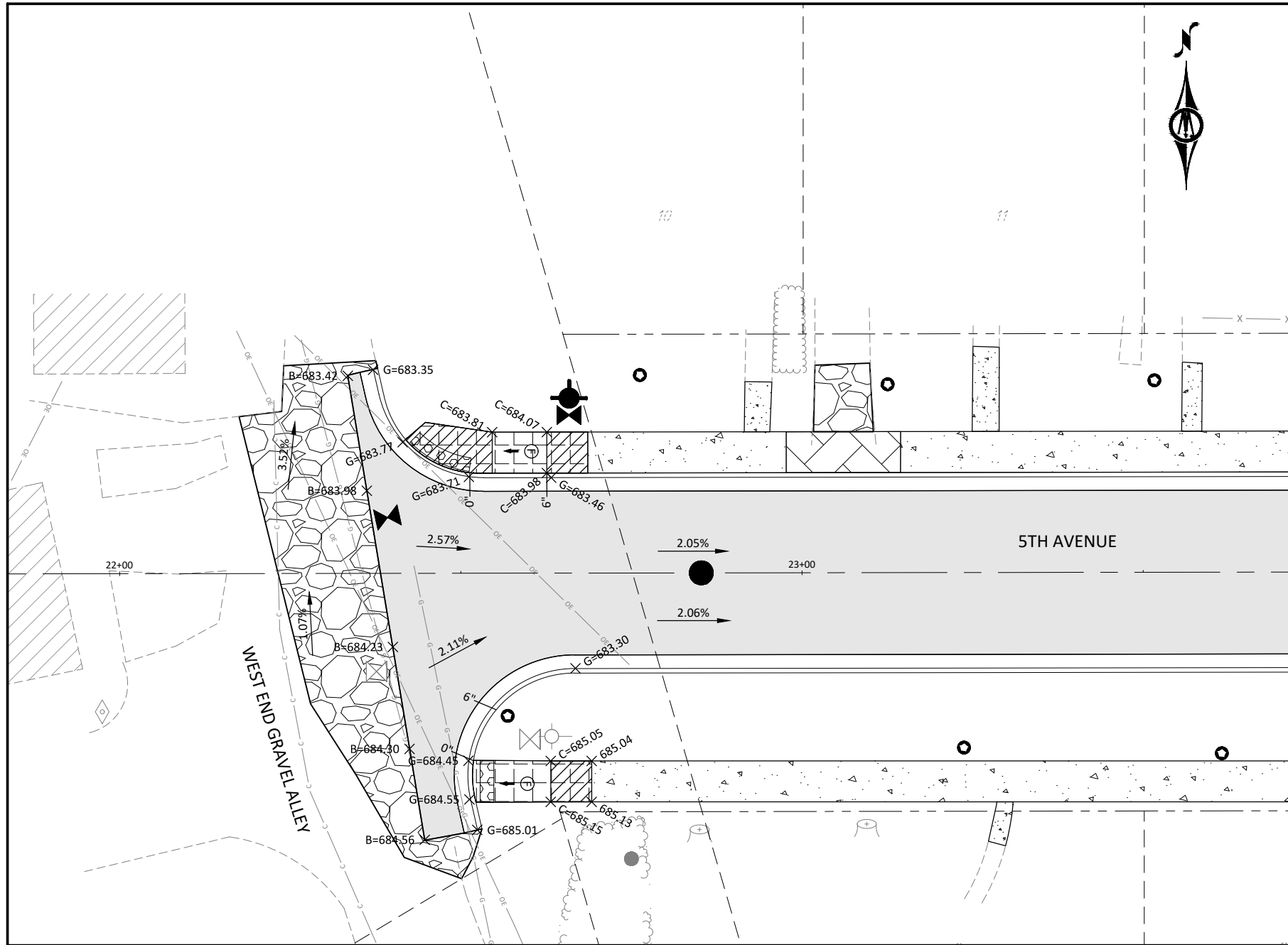


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JDP	0	CONSTR	5/12/21

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 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 4TH AVENUE & WEST END GRAVEL ALLEY

SHEET
C6.16

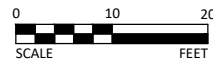


LEGEND

	TRUNCATED DOMES (SEE STANDARD PLATE 7038)		4" CONCRETE WALK
	(LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS)		6" CONCRETE WALK
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	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%		X" CURB HEIGHT
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			X G=XXX.XX = PROPOSED GUTTER
			X C=XXX.XX = PROPOSED TOP OF CONCRETE
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 2. ALL STREET ELEVATIONS ARE TO PROPOSED TOP OF BITUMINOUS.
 3. LENGTH OF CURB RADII ARE MEASURED AT BACK OF CURB.
 4. MATCH PROPOSED GUTTER TO EXISTING GUTTER.
 5. STREET RADII TO BACK OF CURB.

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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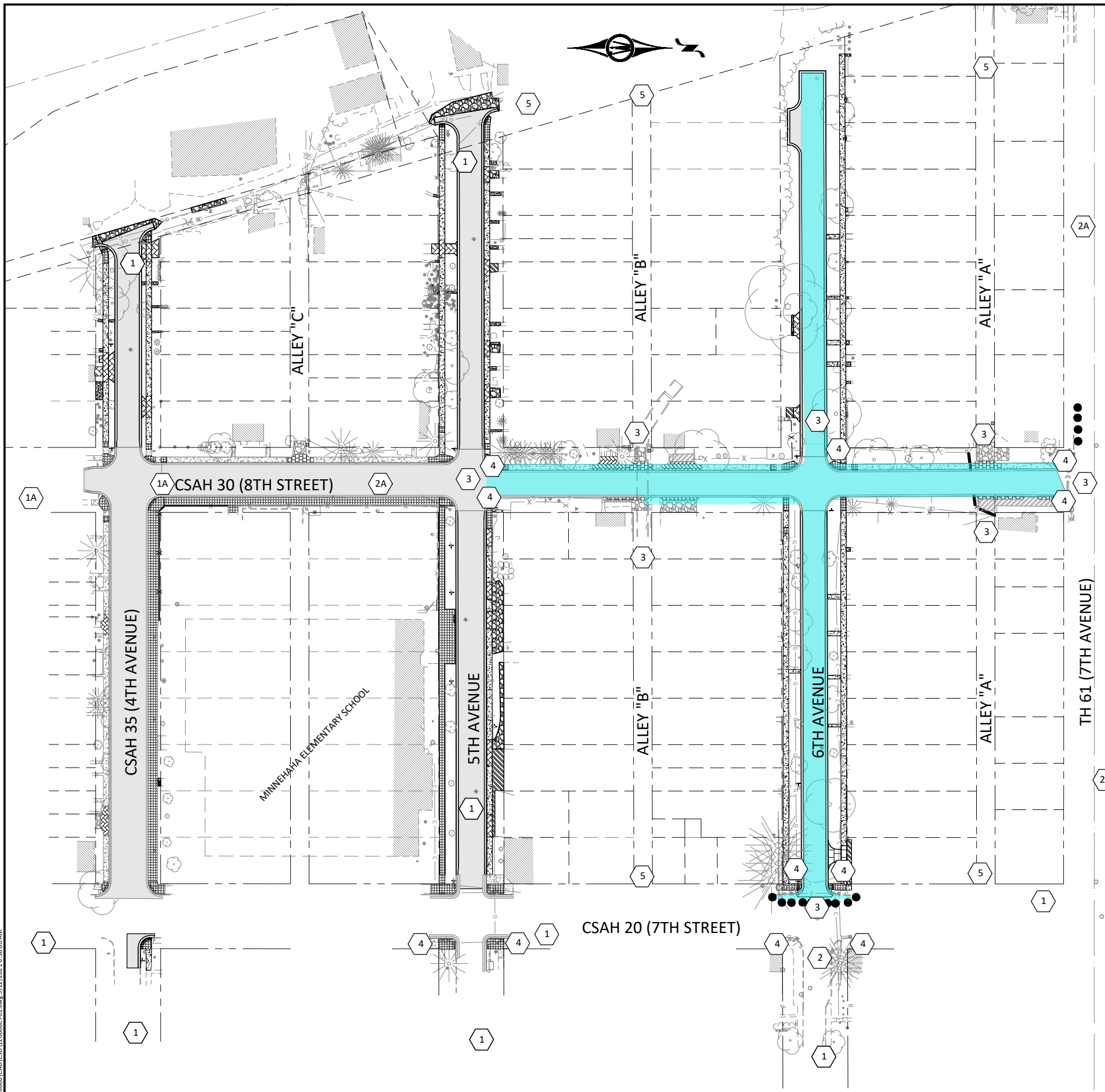


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AJN	2	SA SUBMIT	2/1/21
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CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 INTERSECTION DETAILS - 5TH AVENUE & WEST END GRAVEL ALLEY

SHEET
C6.17



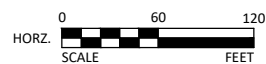
TRAFFIC CONTROL PLAN NOTES:

1. CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MNMUTCD) INCLUDING REVISIONS PUBLISHED PRIOR TO BID. THE "FIELD MANUAL FOR TEMPORARY TRAFFIC ZONE LAYOUTS" SHALL BE USED IN THE EVENT THAT A TEMPORARY CLOSURE (LESS THAN 3 DAYS) IS NEEDED.
2. SIGNAGE DETAILS BELOW ARE FOR REFERENCE ONLY. CONSTRUCTION SIGNAGE SHALL ADHERE TO THE MNMUTCD.
3. CONTRACTOR SHALL ONLY INSTALL CONSTRUCTION BARRICADES IN AREAS THAT ARE ACTUALLY UNDER CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE ACCESS FOR RESIDENTS, BUSINESSES, AND DELIVERY PERSONNEL DURING CONSTRUCTION.
5. ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE SHEETING.
6. LAYOUTS SHOWN ARE FOR TYPICAL INTERSECTION CLOSURES. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE NEEDED DEPENDING ON CONTRACTOR STAGING AND OPERATIONS.
7. ALTERNATIVE TRAFFIC CONTROL LAYOUTS PROPOSED BY CONTRACTOR SHALL BE SUBMITTED PRIOR TO INSTALLATION FOR ENGINEER APPROVAL.
8. REFER TO THE CONSTRUCTION PHASING PLAN (SHEET G2.02) AND SUBSEQUENT SIGNAGE PHASING PLAN SHEETS.
9. CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE ALL TRAFFIC CONTROL UPON COMPLETION OF WORK.
10. JERSEY BARRIERS REQUIRED NEXT TO TRAFFIC IF EXCAVATION PITS ARE OPEN OVERNIGHT.
11. TEMPORARY LUMBER YARD ACCESS ROUTE SHALL BE PROVIDED WHEN 4TH AVENUE IS CLOSED TO TRAFFIC. NO PARKING SIGNS NEEDED FOR THE NORTH SIDE OF 5TH AVENUE, WEST OF CSAH 30. SALVAGED NO PARKING SIGNS MAY BE USED. SEE SHEETS G2.02 AND C7.04.

● = BARRELS

ID.	SIGN ASSEMBLY		DESIGNATOR & SIZE	QUANTITY
1		A. B.	W21 - 4 36" X 36" M1 - X4 24" X 24"	12
2		A. B.	W20 - 3 36" X 36" M1 - X4 24" X 24"	2
3			R11 - 4 60" X 30" TYPE III BARRICADE	8
4			R5 - 8 24" X 12"	7
5			R11 - 4 60" X 30" TYPE III BARRICADE	5

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[Signature]
 J. D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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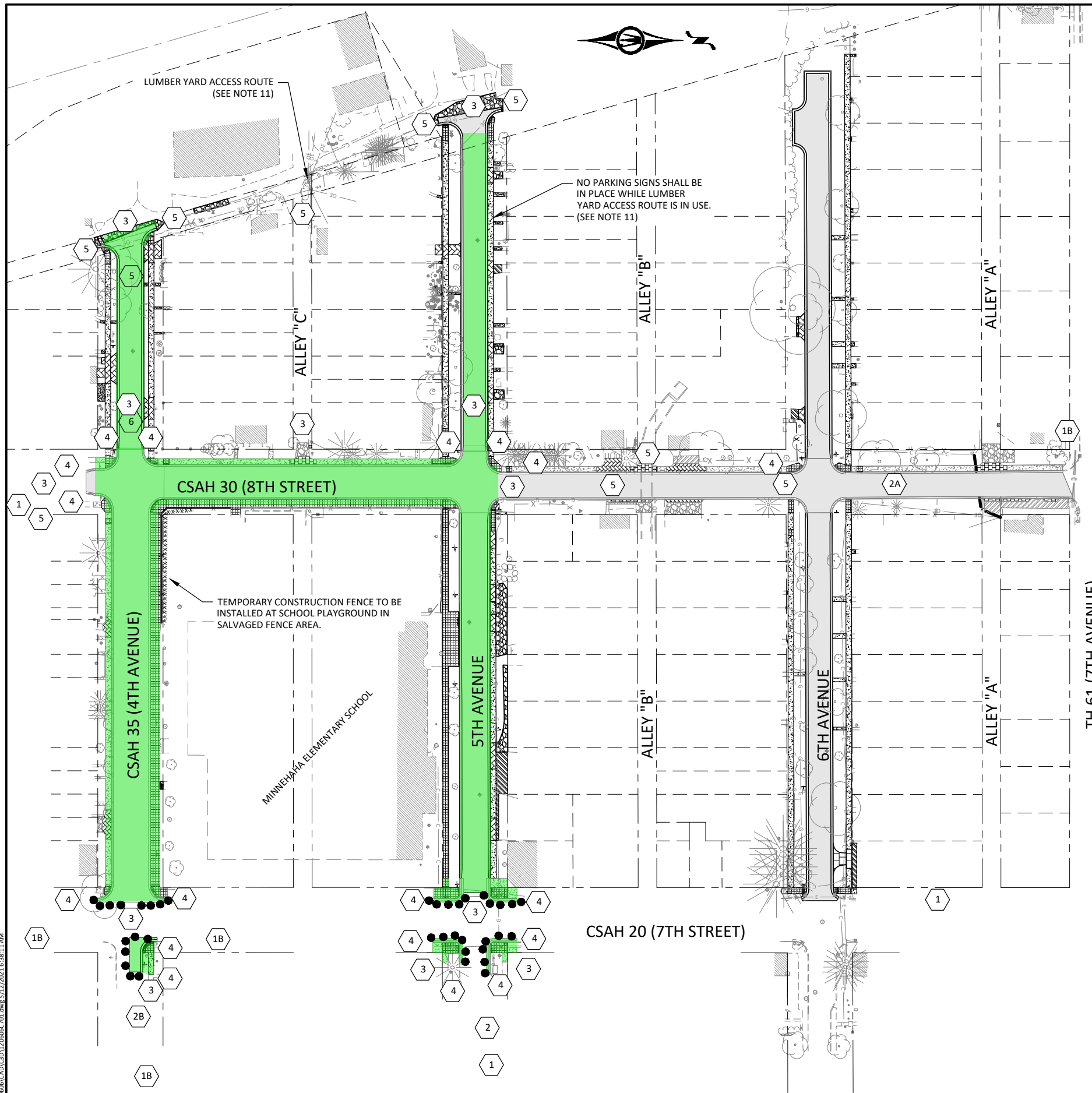


DESIGNED	NO.	ISSUED FOR	DATE
AJN	1	SA SUBMIT	1/13/21
AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET SIGNAGE PLAN - CONSTRUCTION SIGNAGE

SHEET
C7.01



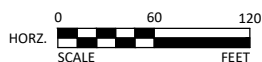
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- LAYOUTS SHOWN ARE FOR TYPICAL INTERSECTION CLOSURES. ADDITIONAL TRAFFIC CONTROL DEVICES MAY BE NEEDED DEPENDING ON CONTRACTOR STAGING AND OPERATIONS.
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- REFER TO THE CONSTRUCTION PHASING PLAN (SHEET G2.02) AND SUBSEQUENT SIGNAGE PHASING PLAN SHEETS.
- CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE ALL TRAFFIC CONTROL UPON COMPLETION OF WORK.
- JERSEY BARRIERS REQUIRED NEXT TO TRAFFIC IF EXCAVATION PITS ARE OPEN OVERNIGHT.
- TEMPORARY LUMBER YARD ACCESS ROUTE SHALL BE PROVIDED WHEN 4TH AVENUE IS INACCESSIBLE FOR VEHICLES. NO PARKING SIGNS NEEDED FOR THE NORTH SIDE OF 5TH AVENUE, WEST OF CSAH 30. SALVAGED NO PARKING SIGNS MAY BE USED. SEE SHEETS G2.02 AND C7.04.

● = BARRELS

ID.	SIGN ASSEMBLY	DESIGNATOR & SIZE	QUANTITY
1		W21 - 4 36" X 36" M1 - X4 24" X 24"	5
2		W20 - 3 36" X 36" M1 - X4 24" X 24"	2
3		R11 - 4 60" X 30" TYPE III BARRICADE	10
4		R5 - 8 24" X 12"	16
5		R11 - 4 60" X 30" TYPE III BARRICADE	5

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[Signature]
 J. D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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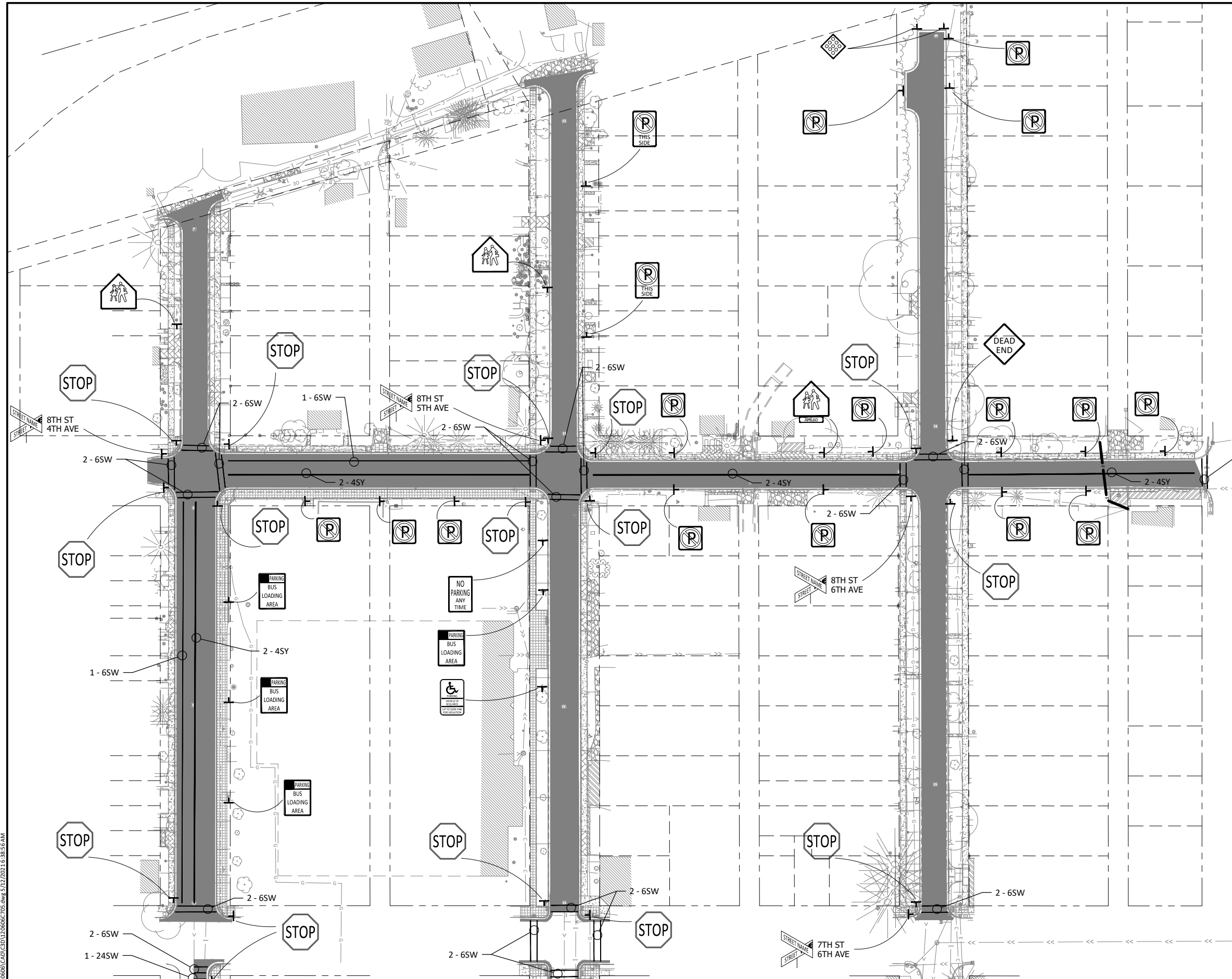


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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET SIGNAGE PLAN - CONSTRUCTION SIGNAGE

SHEET
C7.02



- NOTE:
1. SIGN PLACEMENT AND PAVEMENT MARKINGS SHALL CONFORM TO THE MN MUTCD CONTAINING ALL CURRENT REVISIONS.
 2. CROSSWALK STRIPING SHALL CONSIST OF TWO 6" SOLID WHITE LINES ALIGNED TO INTERSECTION GEOMETRY AS SHOWN.
 3. CSAH 35 (4TH AVENUE) AND CSAH 30 (8TH STREET) SHALL HAVE 4" DOUBLE SOLID YELLOW CENTERLINE STRIPING.
 4. 6" SOLID WHITE STRIPING SHALL DENOTE PARKING ON THE SOUTH SIDE OF CSAH 35 (4TH AVENUE) AND THE WEST SIDE OF CSAH 30 (8TH STREET) BETWEEN 4TH AND 5TH AVENUE.
 5. EXISTING STRIPING AT 4TH AVENUE EAST OF 7TH STREET SHALL BE RESTORED AS SHOWN.
 6. CONTRACTOR SHALL SALVAGE AND DELIVER EXISTING STREET SIGNS TO CITY OF TWO HARBORS PUBLIC WORKS.
 7. CONTRACTOR TO PROVIDE NEW SIGN AND POSTS.
 8. CITY STREET NAME SIGNS AND POSTS TO BE INSTALLED BY OTHERS.

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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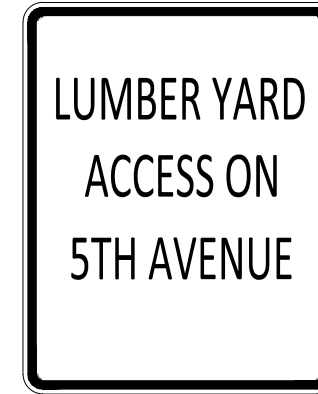
LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 STREET SIGNAGE PLAN - PERMANENT SIGNAGE & PAVEMENT MARKING

SHEET
C7.03

LUMBER YARD ACCESS (24 X 30)



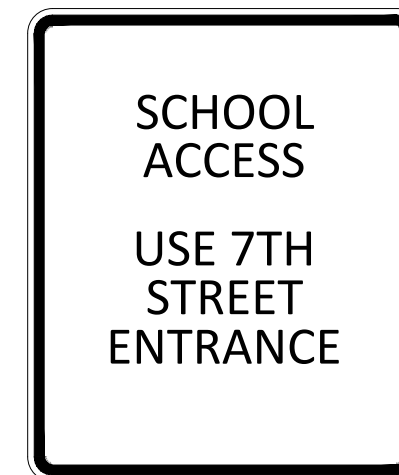
LUMBER YARD ACCESS (24 X 30)



LUMBER YARD ACCESS (24 X 30)



SCHOOL ACCESS (30 X 36)



- NOTE:
1. ACCESS SIGN PLACEMENT FOR THE LUMBER YARD AND SCHOOL ENTRANCE SHALL BE DETERMINED BY THE ENGINEER.
 2. QUANTITY OF ACCESS SIGNS NEEDED FOR BOTH THE LUMBER YARD AND SCHOOL ENTRANCE SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 3. SCHOOL & LUMBER YARD ACCESS SIGNS TO BE PAID AS SIGN TYPE SPECIAL.

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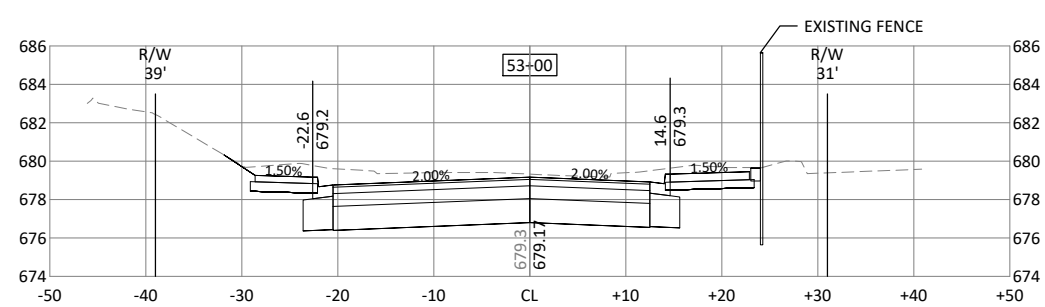
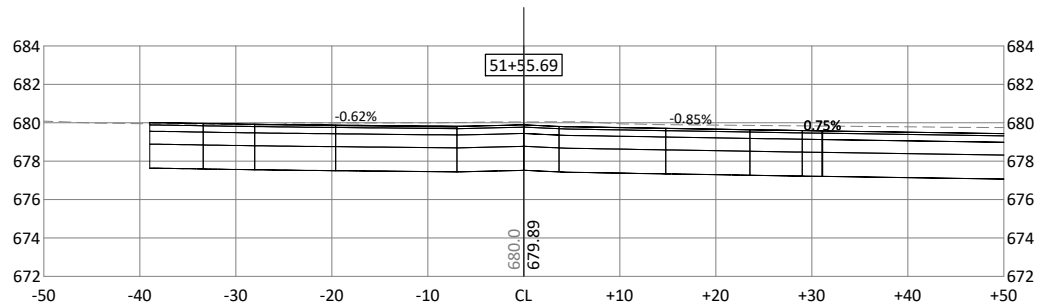
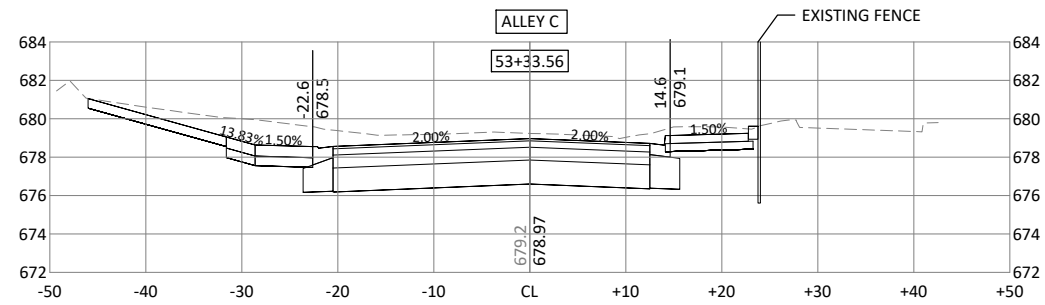
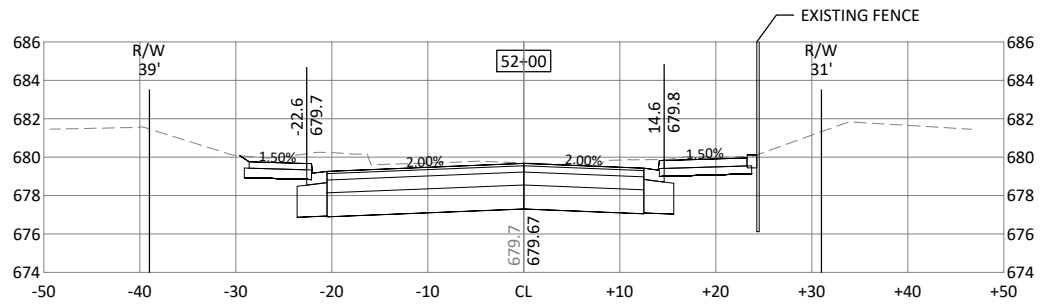
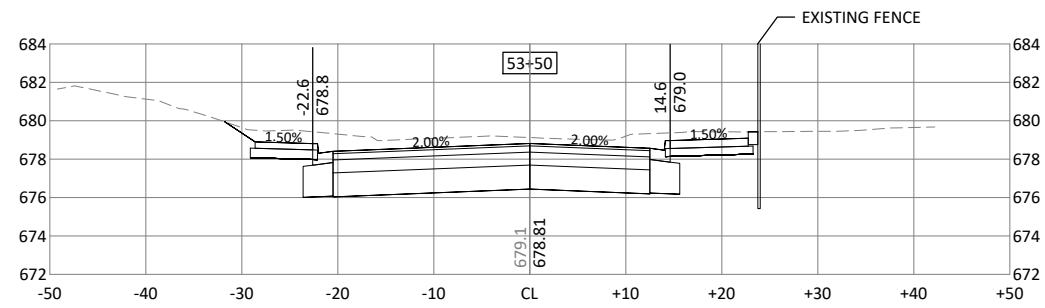
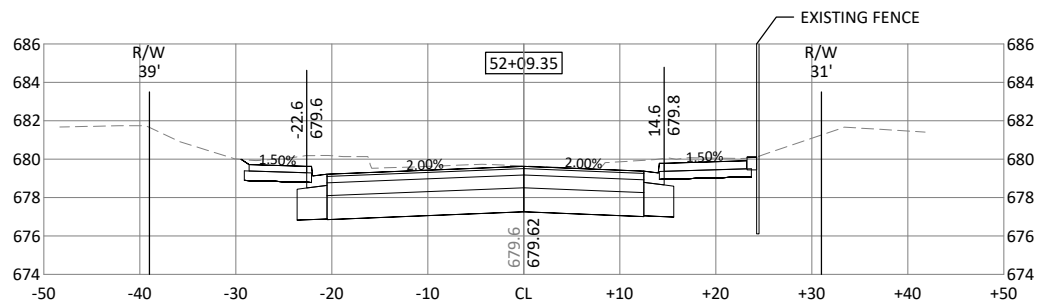
4960 MILLER TRUNK HIGHWAY, SUITE 350
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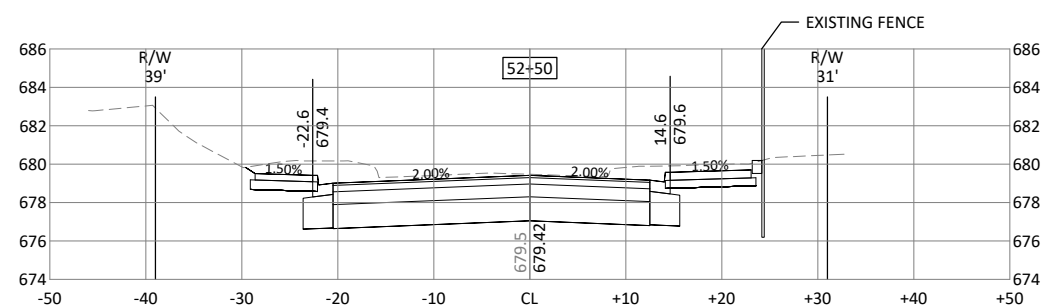
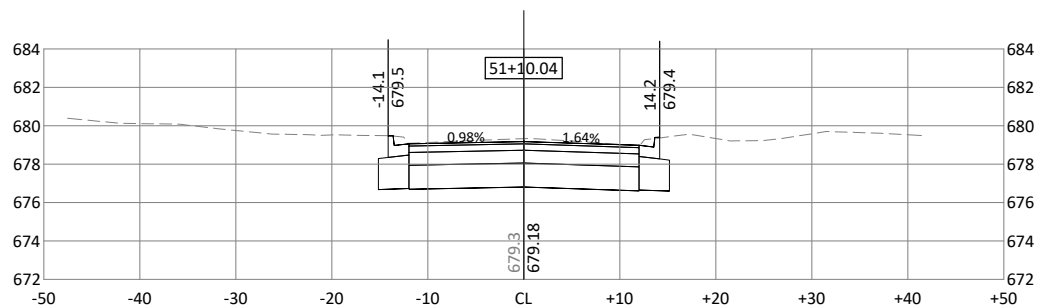
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AJN	2	SA SUBMIT	2/1/21
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 TRAFFIC CONTROL - ACCESS SIGN DETAILS

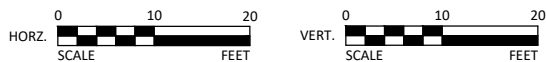
SHEET
 C7.04



51+50.02 4TH AVENUE CL



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[Signature]
 J. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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 Phone: (218) 729-5939
 Email: BMI@bolton-menk.com
 www.bolton-menk.com

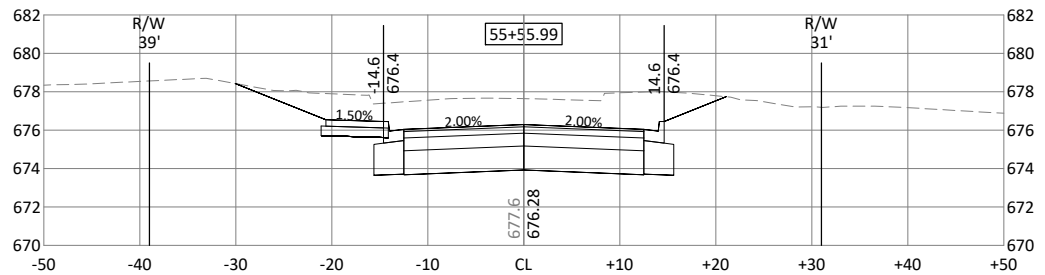


DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

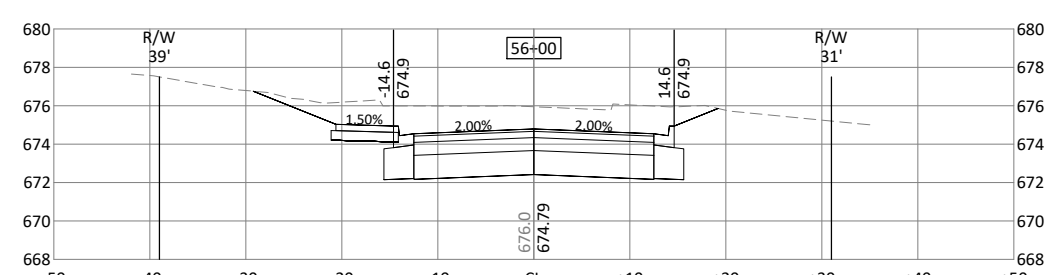
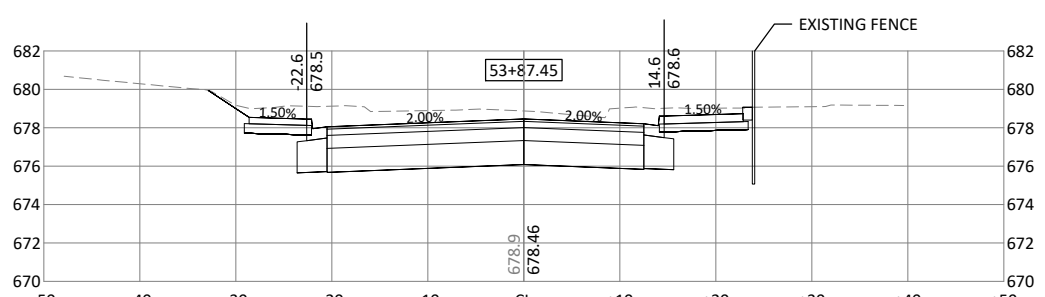
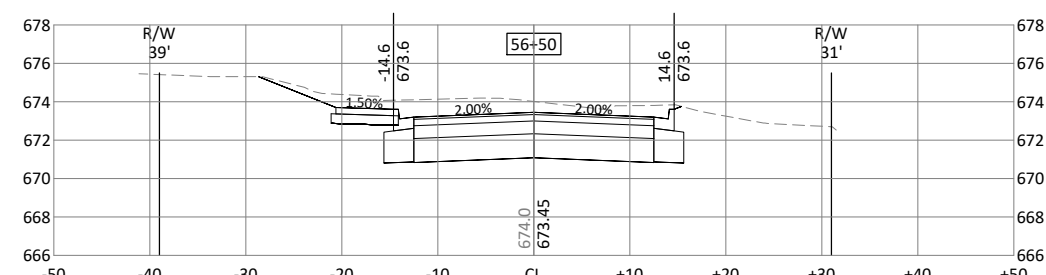
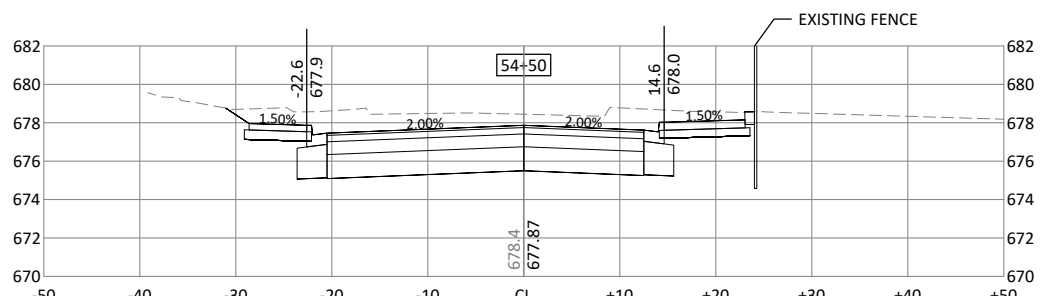
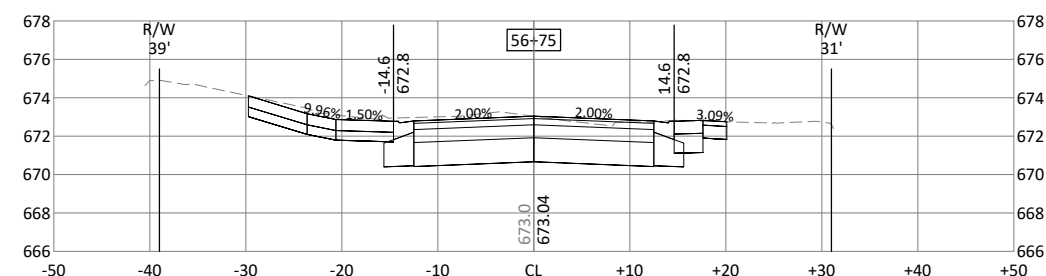
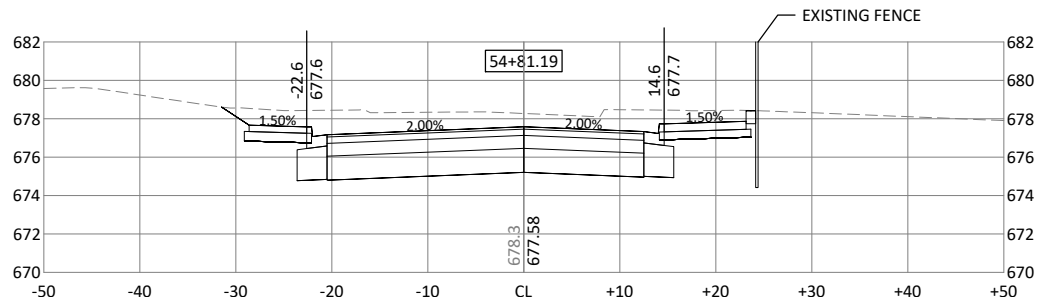
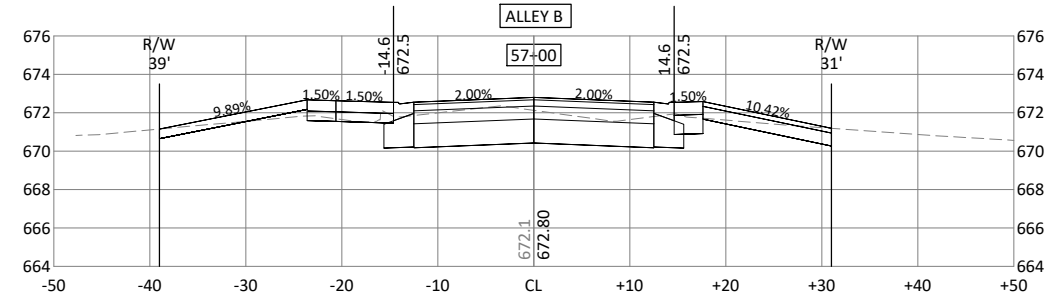
CLIENT PROJ. NO. U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CROSS SECTIONS - CSAH 30 (8TH STREET)

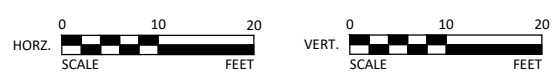
SHEET
C9.01



55+19.08 5TH AVENUE CL



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[Signature]
 J. SCOTT D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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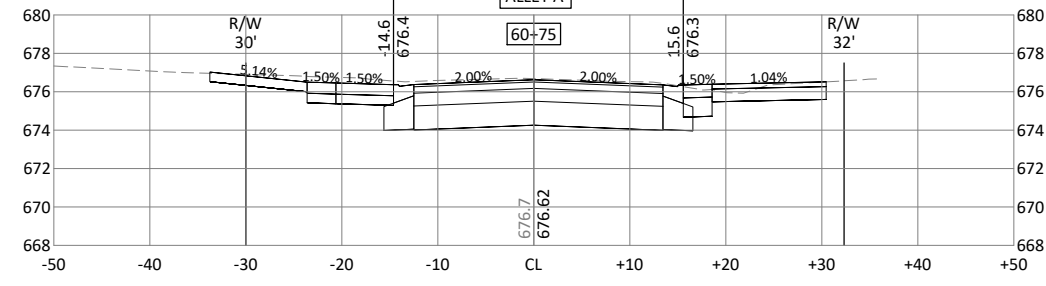
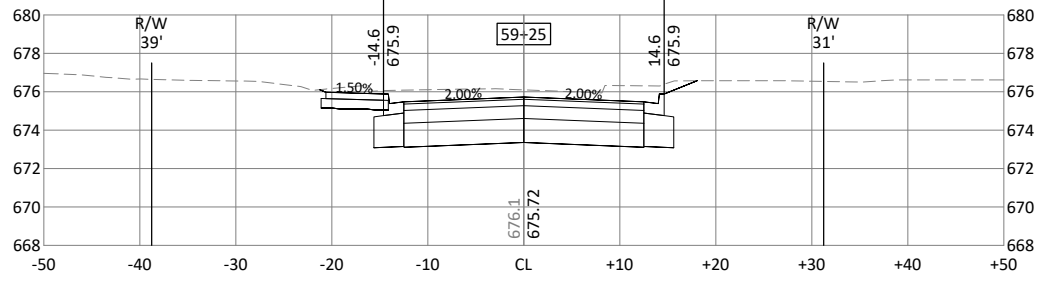


DESIGNED	NO.	ISSUED FOR	DATE
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

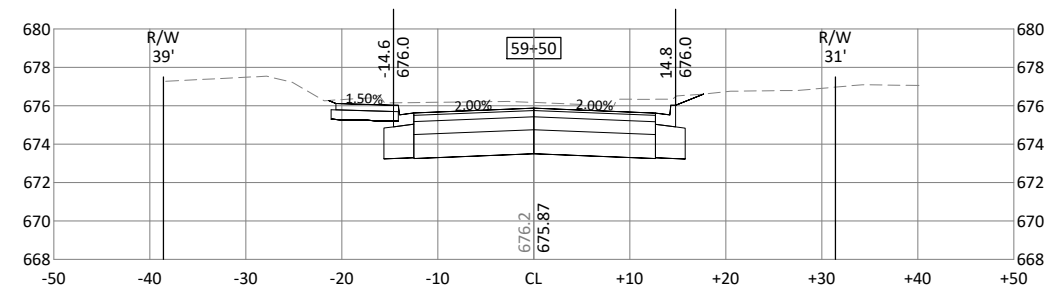
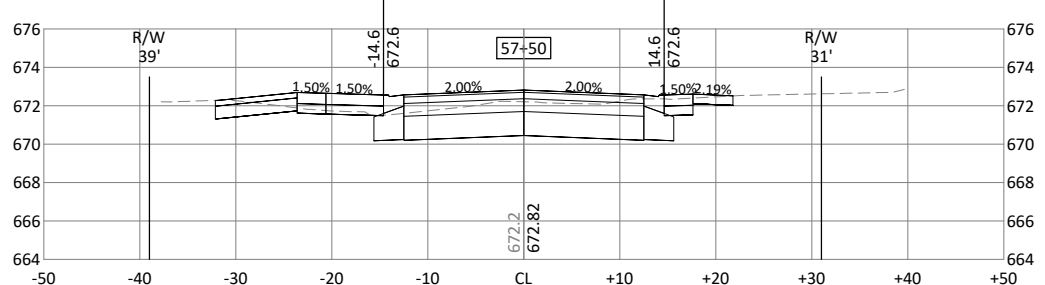
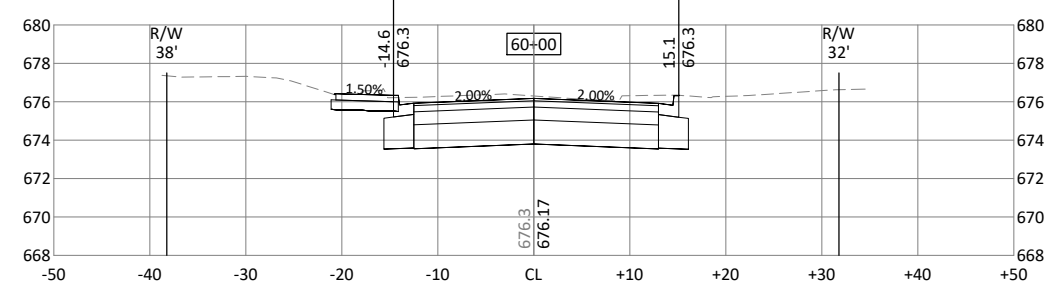
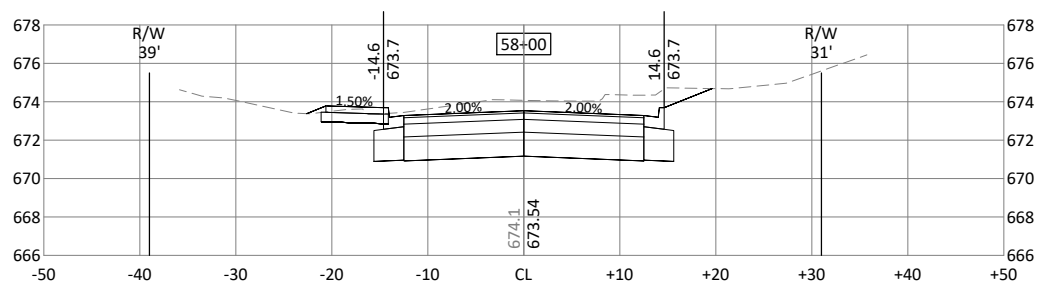
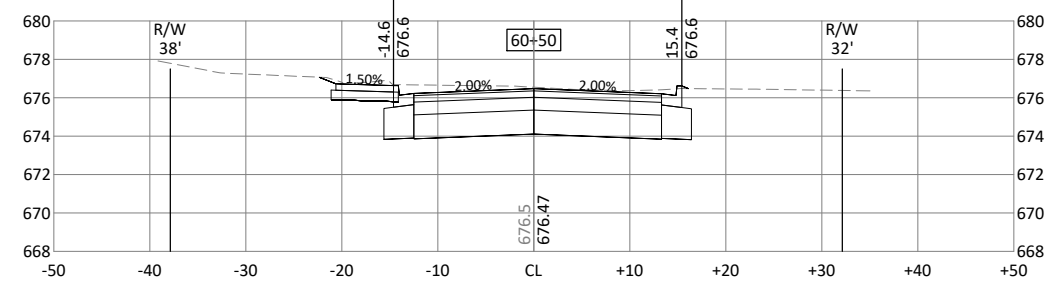
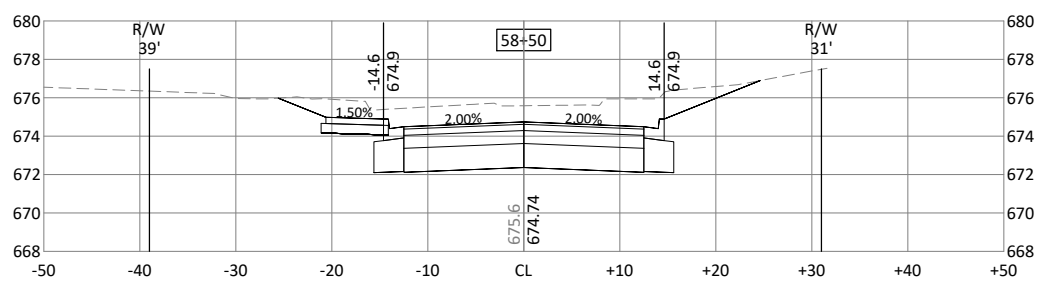
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CROSS SECTIONS - CSAH 30 (8TH STREET)

SHEET
C9.02



58+88.16 6TH AVENUE CL



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 J. PELAWA
 J. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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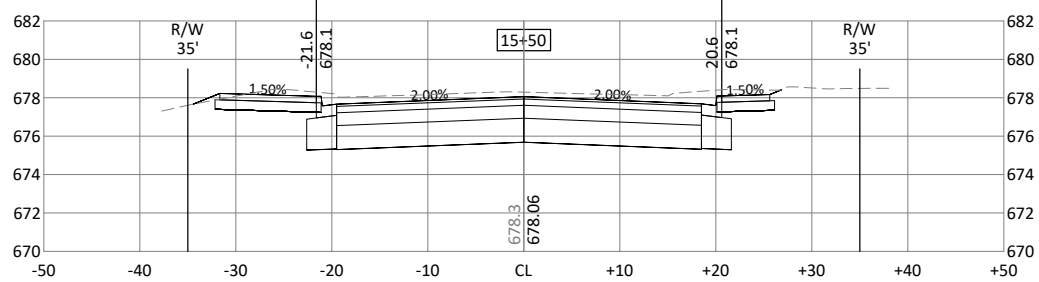
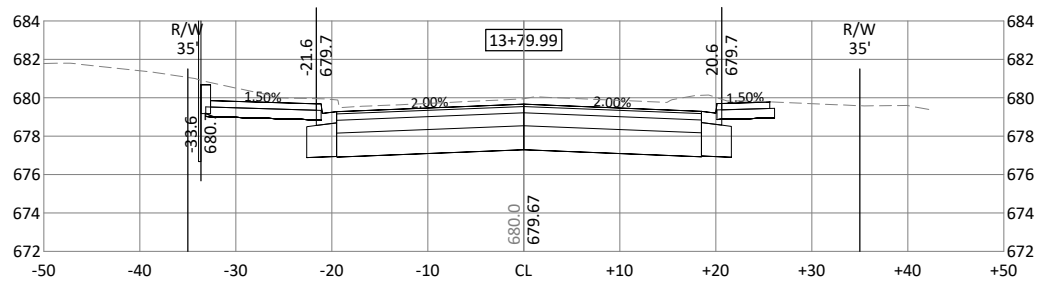
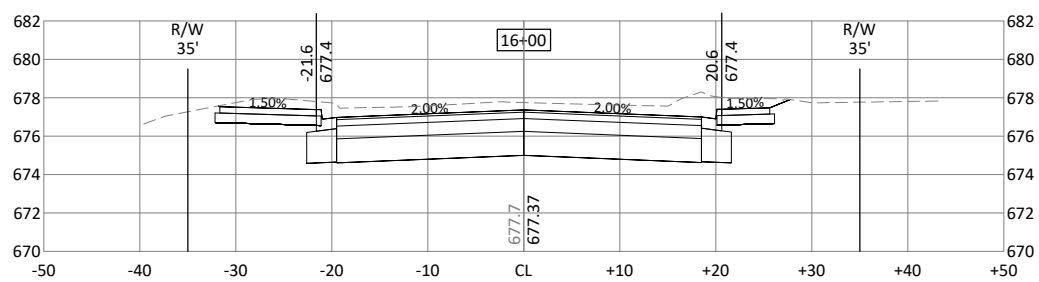
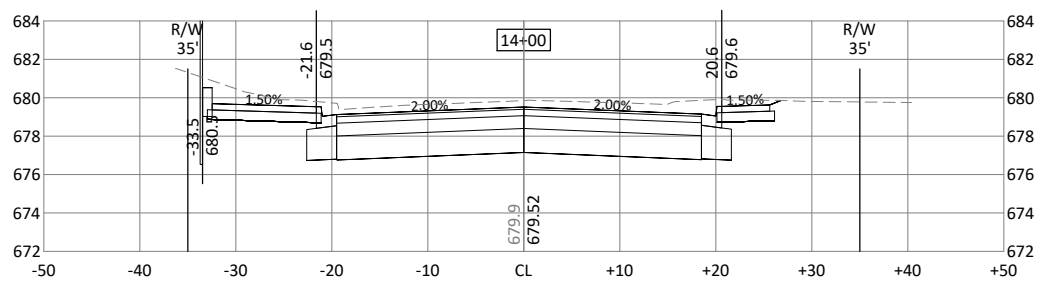
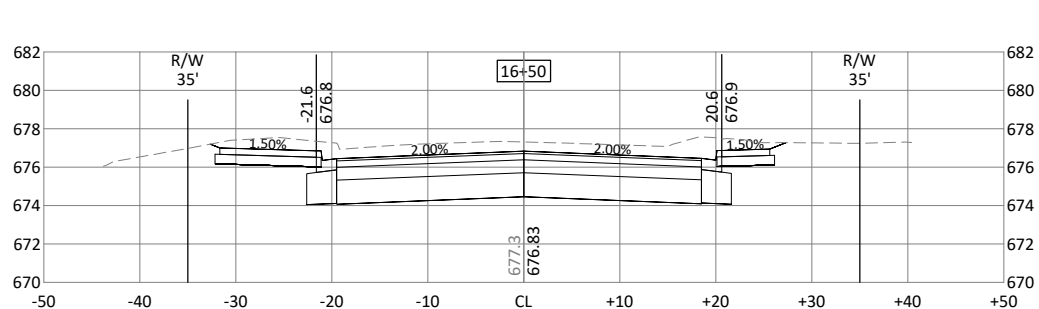
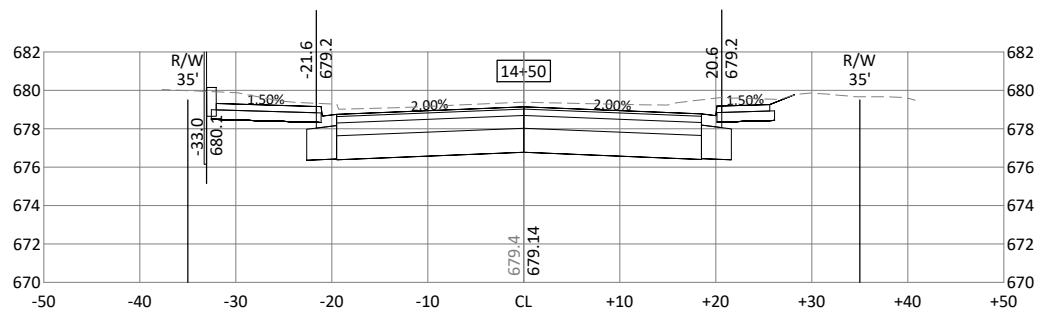
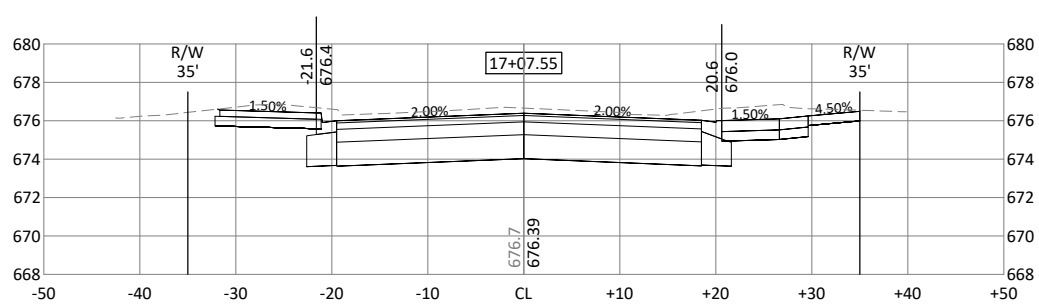
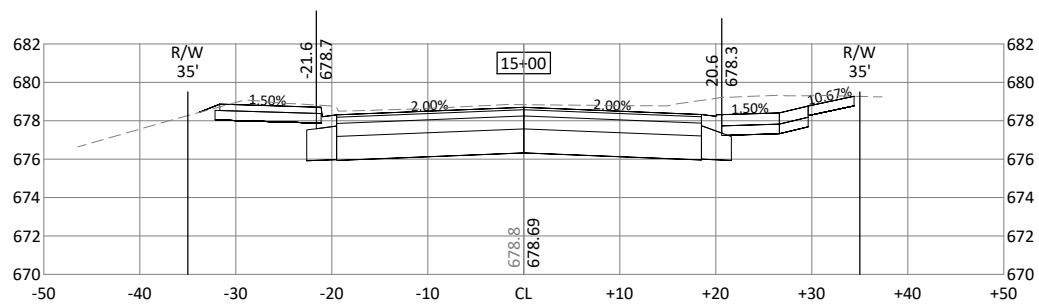


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

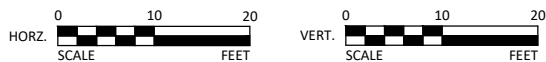
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 CLIENT PROJ. NO.: U17.120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CROSS SECTIONS - CSAH 30 (8TH STREET)

SHEET
 C9.03



13+46.34 8TH STREET CL



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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
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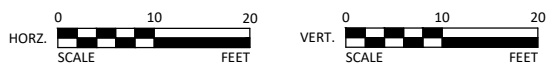
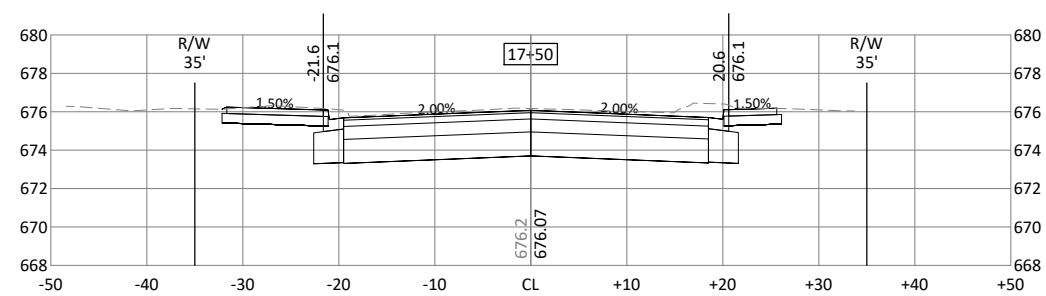
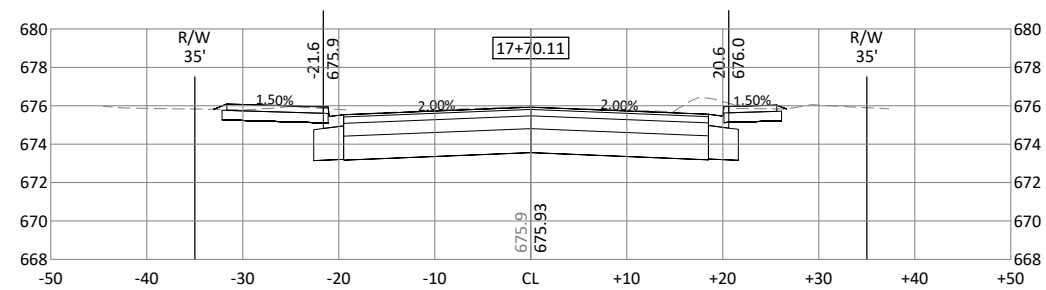
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AJN	1	SA SUBMIT	1/13/21
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CHECKED: JDP
 CLIENT PROJ. NO.: U17-120606

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 CROSS SECTIONS - CSAH 35 (4TH AVENUE)

SHEET
 C9.04

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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



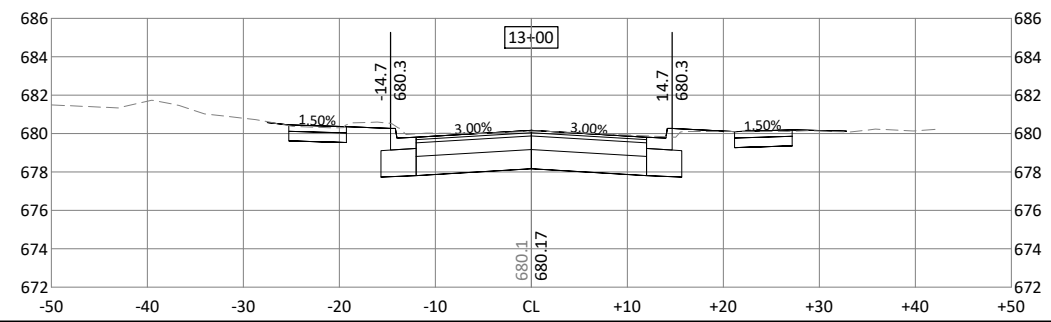
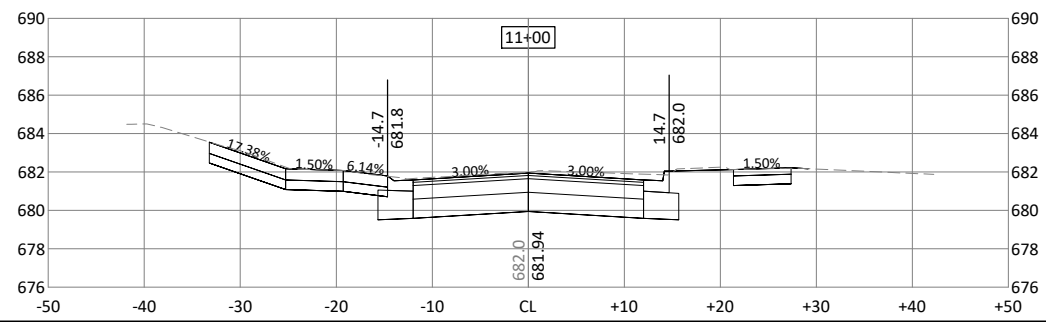
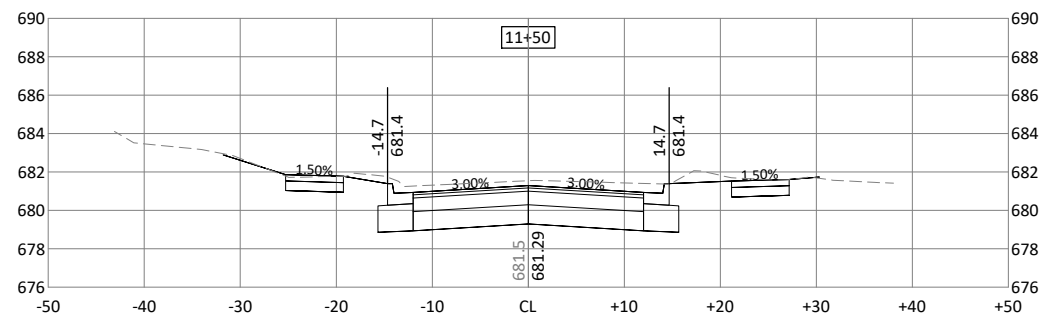
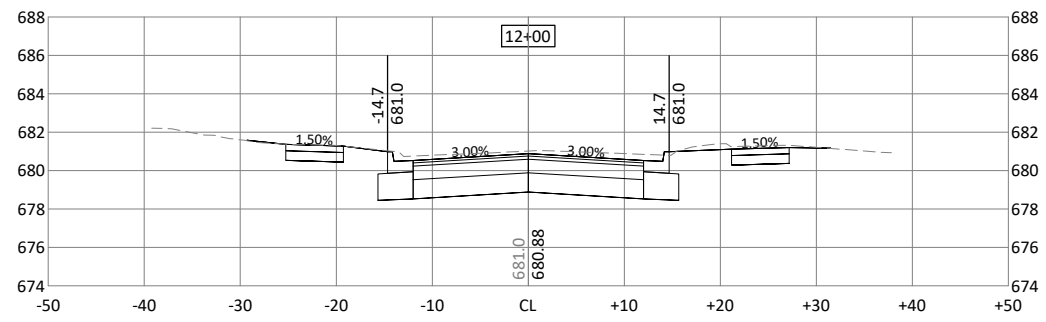
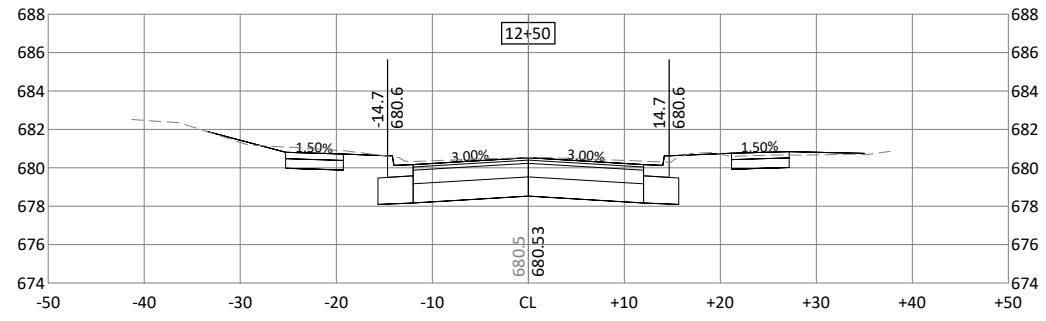
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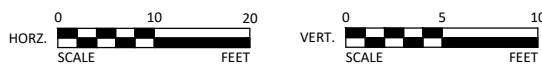
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JDP	0	CONSTR	5/12/21
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 CROSS SECTIONS - CSAH 35 (4TH AVENUE)

SHEET
 C9.05



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 JOSEPH D. PELAWA, P.E.
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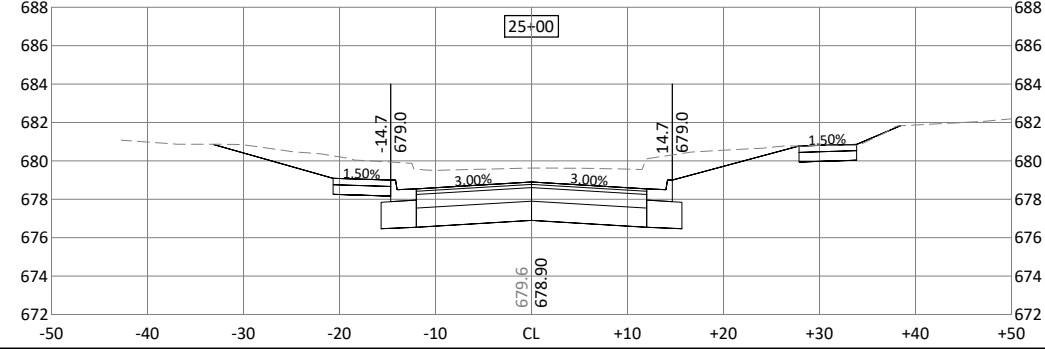
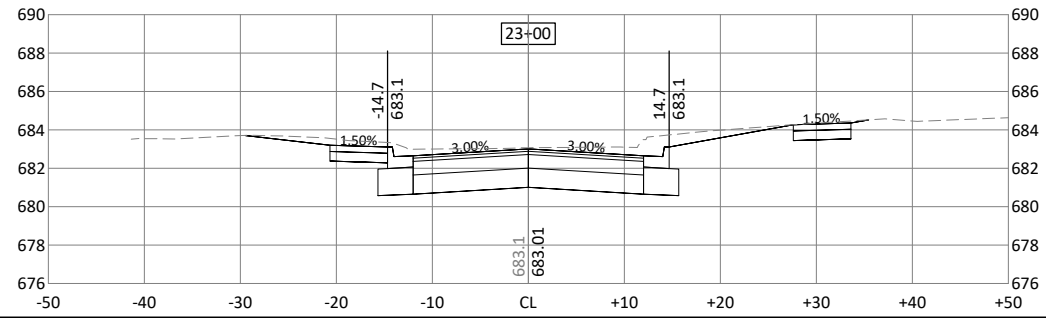
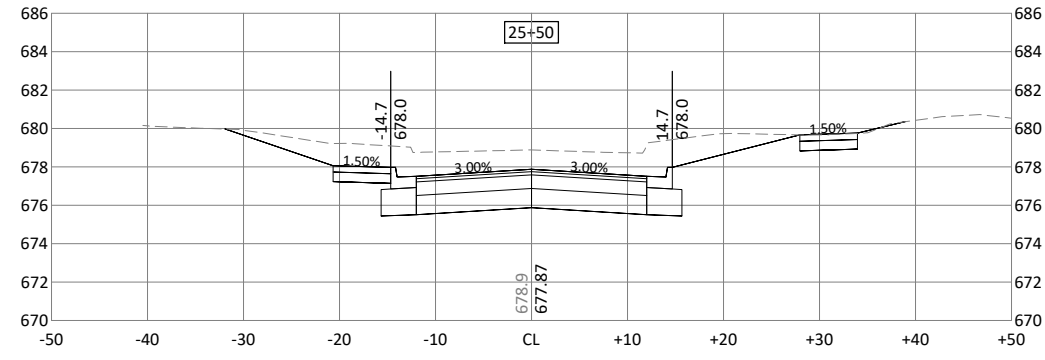
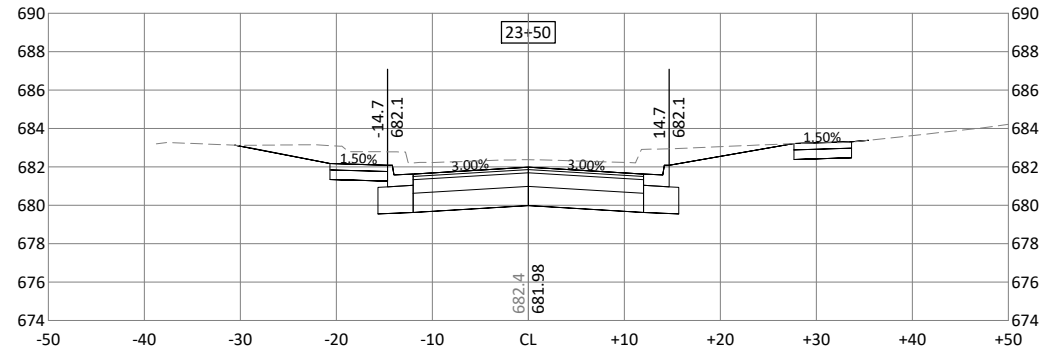
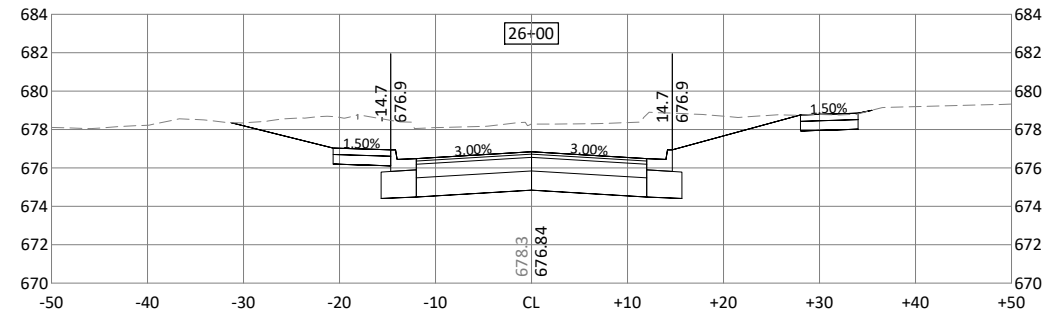
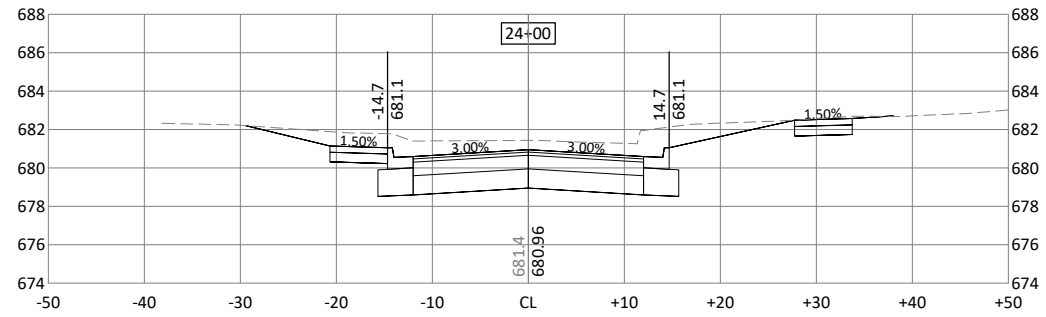
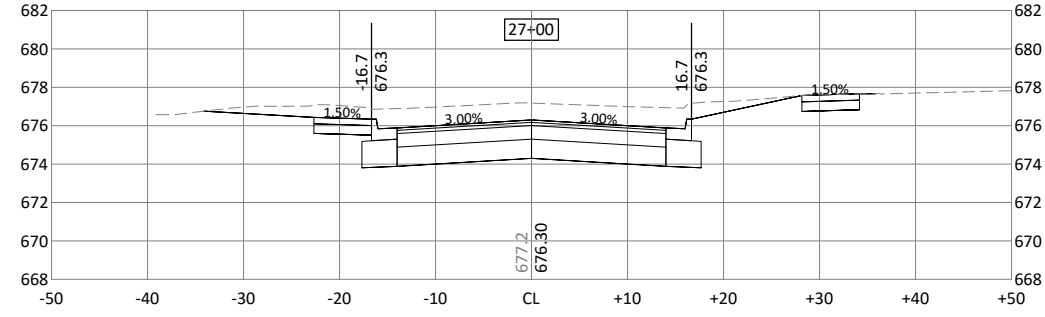
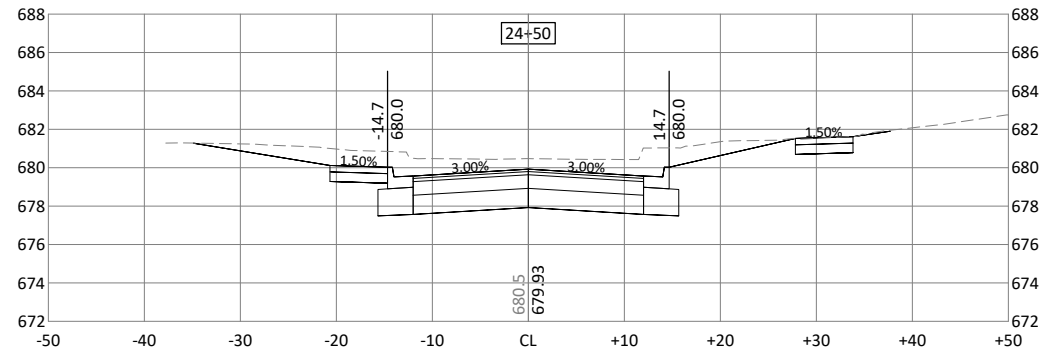


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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21

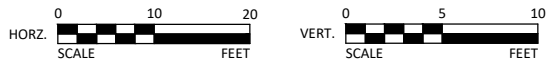
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CROSS SECTIONS - 4TH AVENUE

SHEET
C9.06



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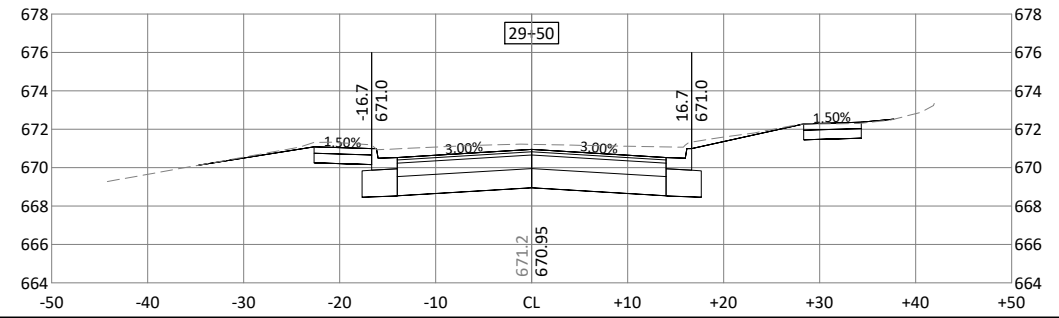
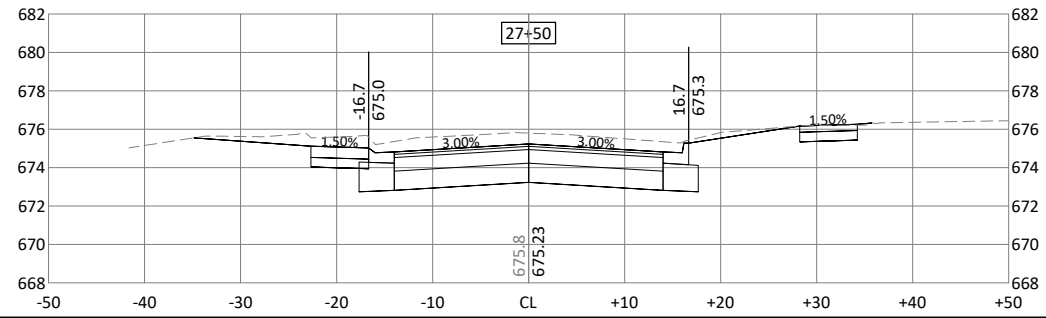
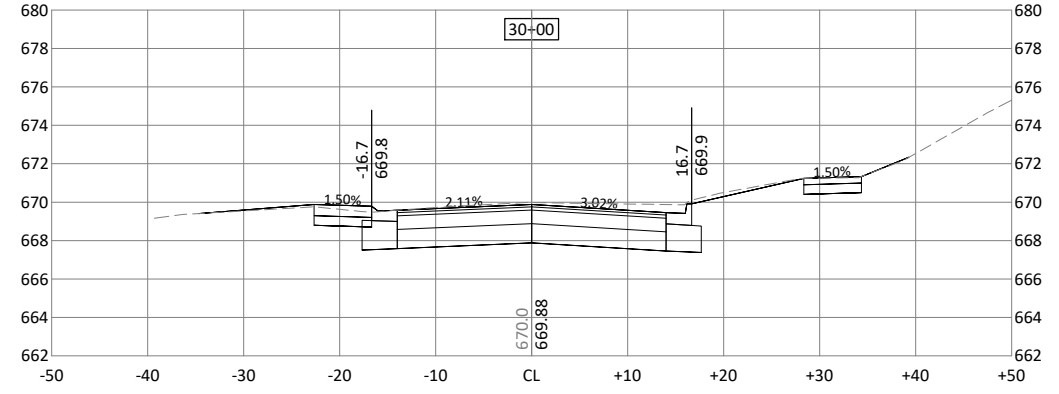
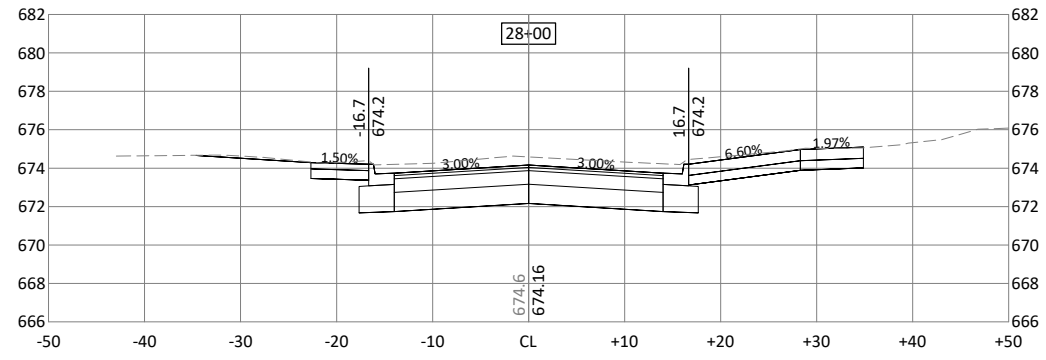
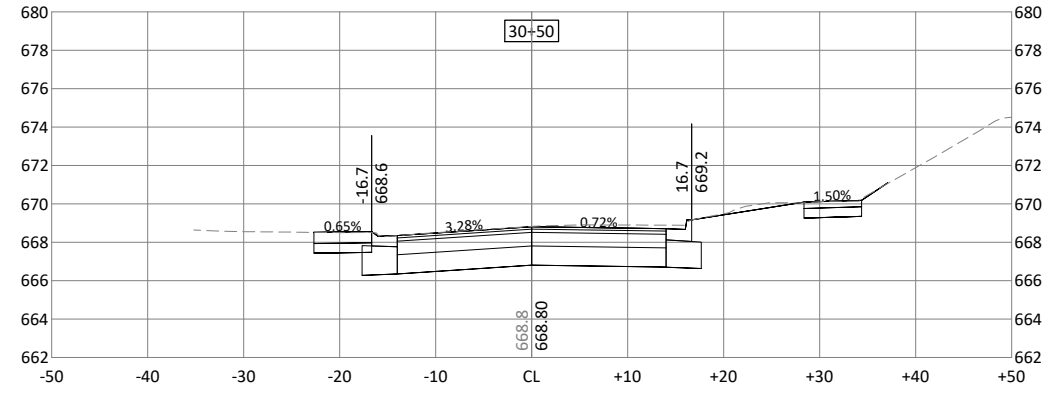
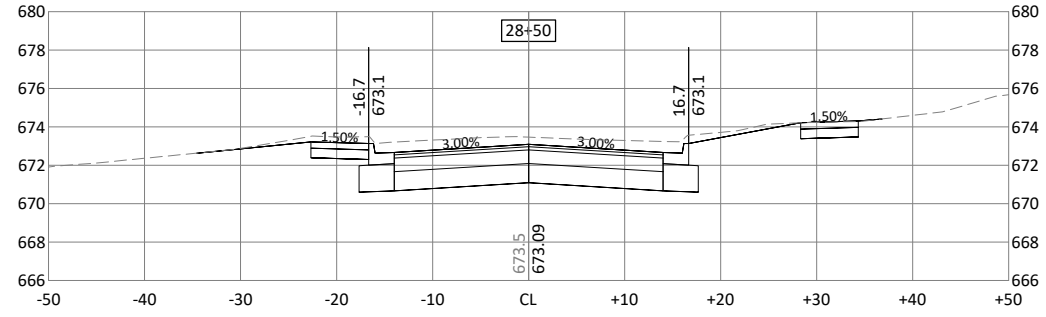
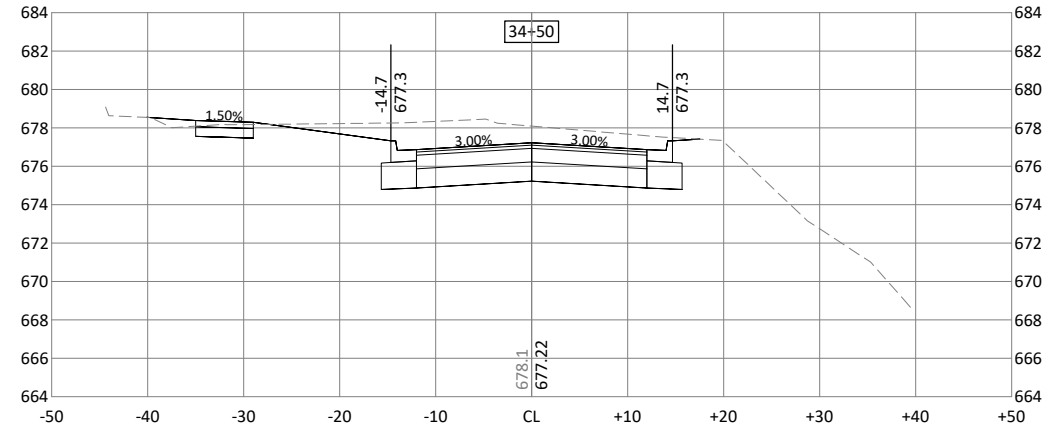
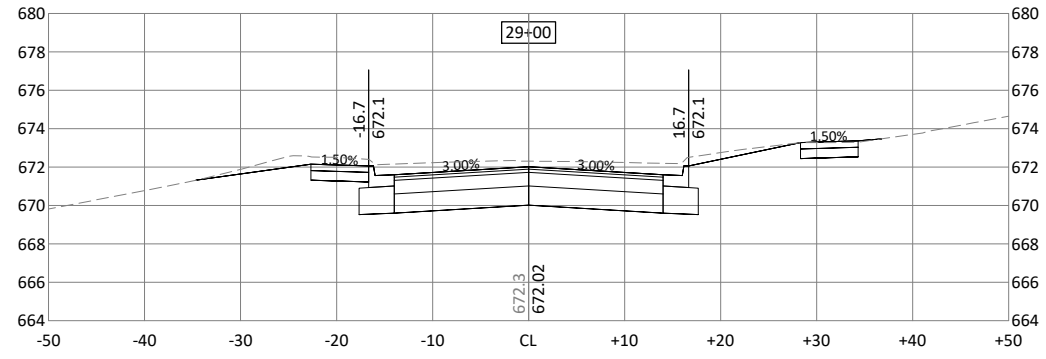
4960 MILLER TRUNK HIGHWAY, SUITE 350
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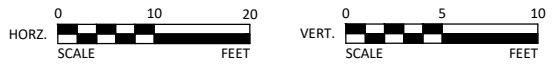
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CLIENT PROJ. NO.		U17.120606	

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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 CROSS SECTIONS - 5TH AVENUE

SHEET
C9.07



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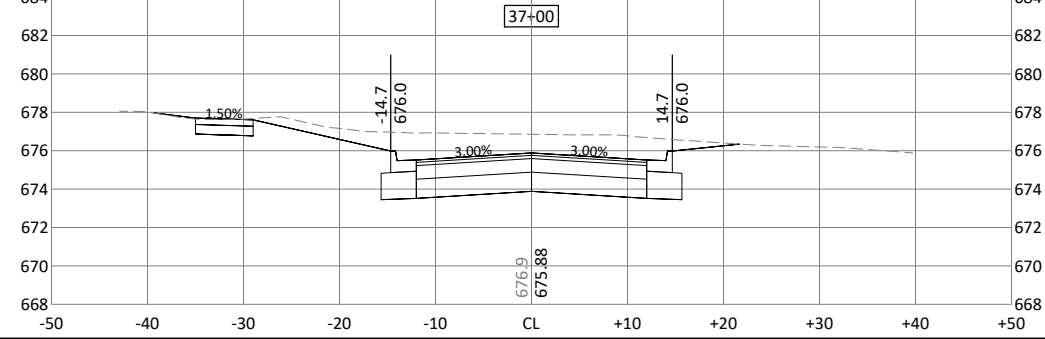
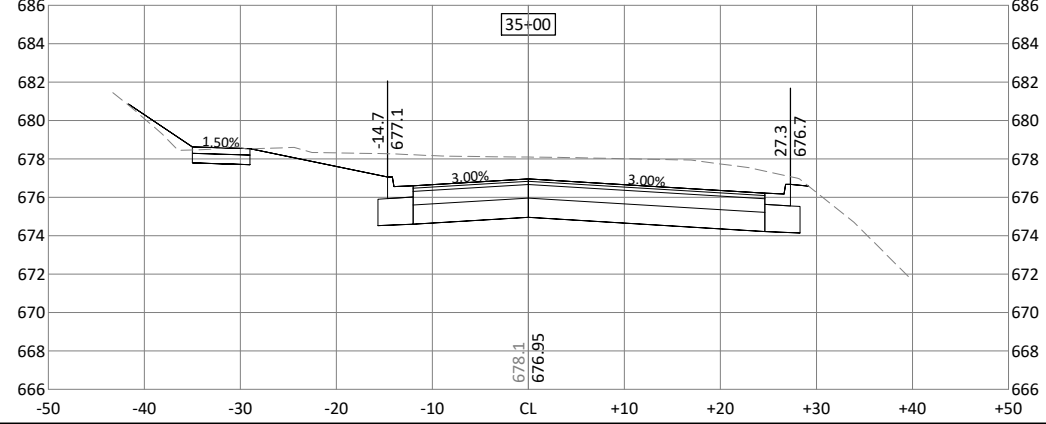
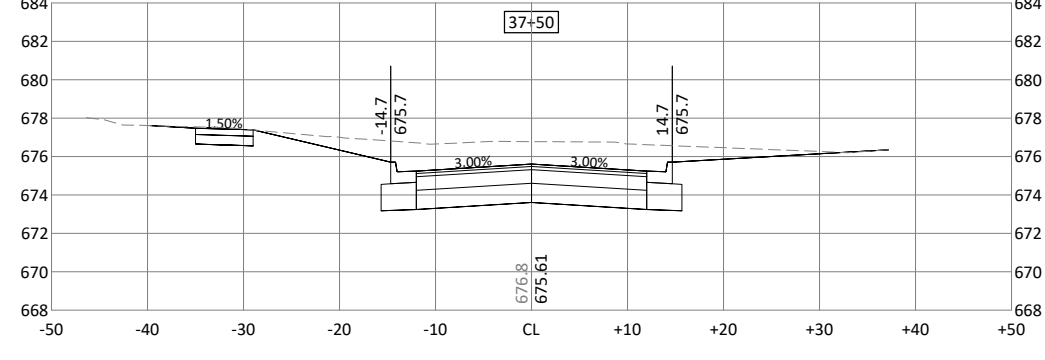
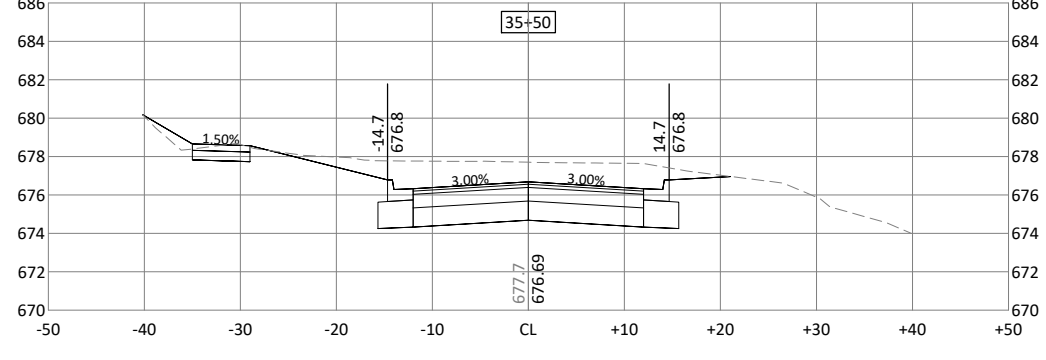
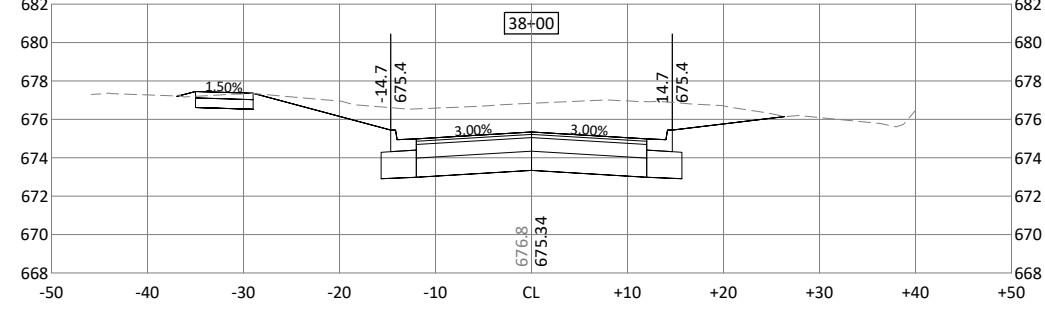
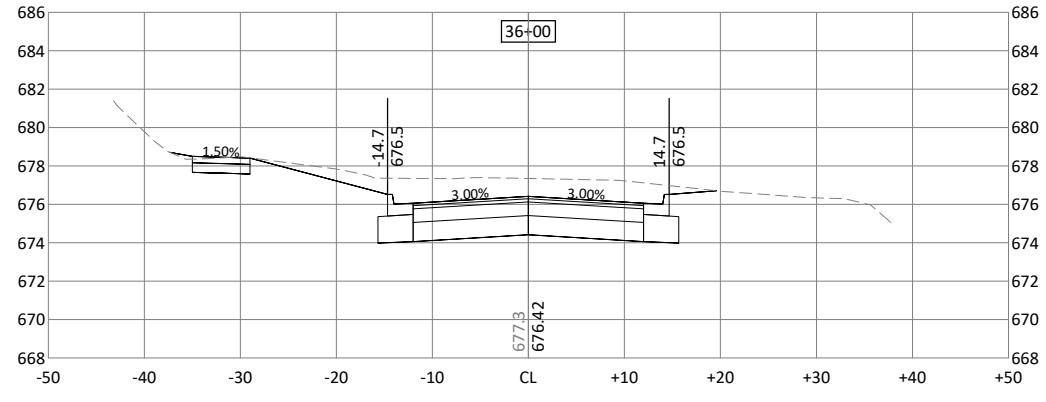
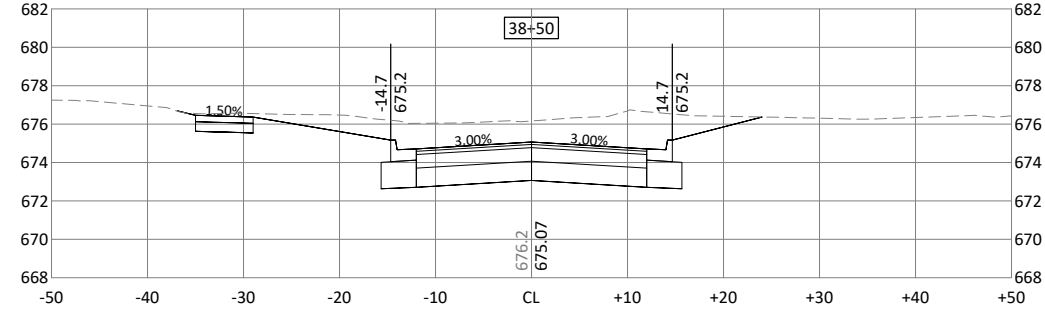
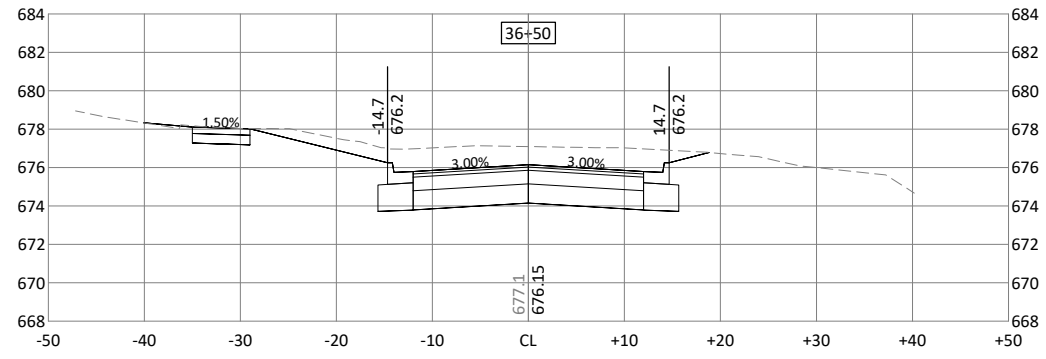
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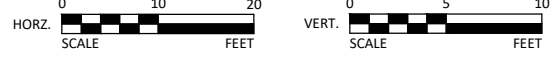
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AJN	2	SA SUBMIT	2/1/21
JDP	0	CONSTR	5/12/21
CLIENT PROJ. NO. U17.120606			

LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
 S.A.P. 038-630-001, S.A.P. 038-635-001, S.A.P. 038-620-010
 CROSS SECTIONS - 5TH AVENUE

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[Signature]
 JESSIE D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



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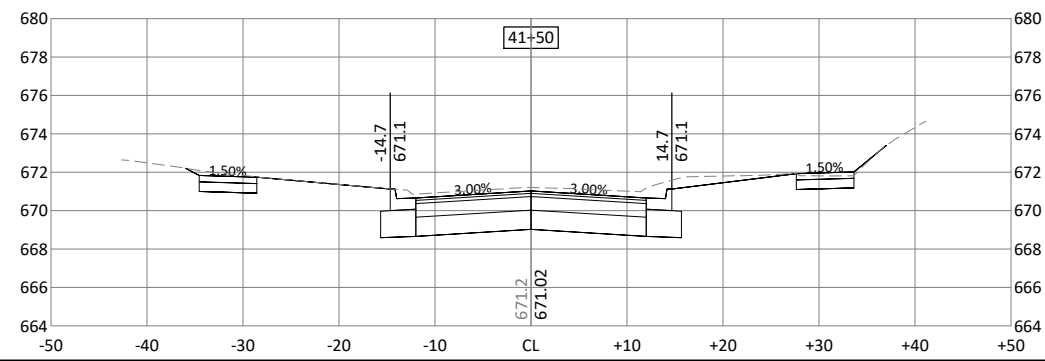
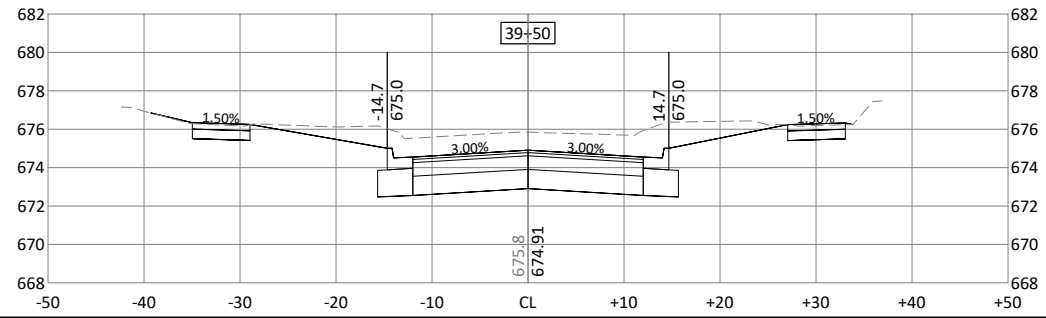
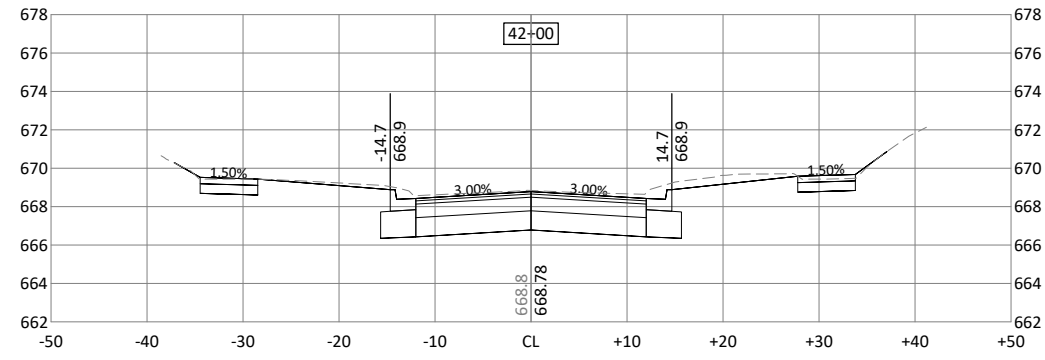
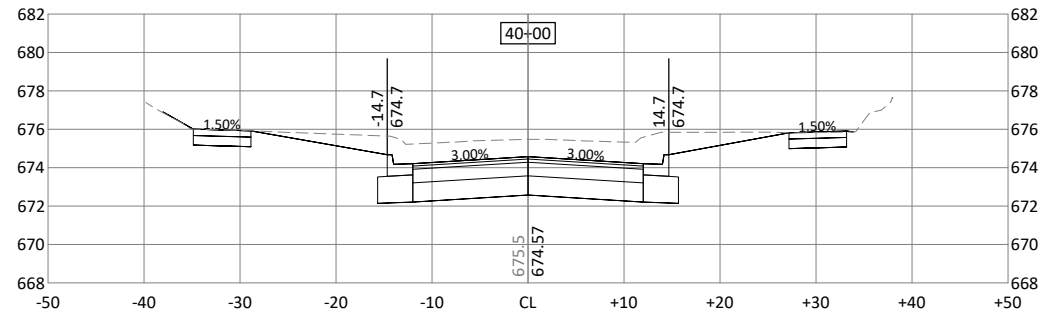
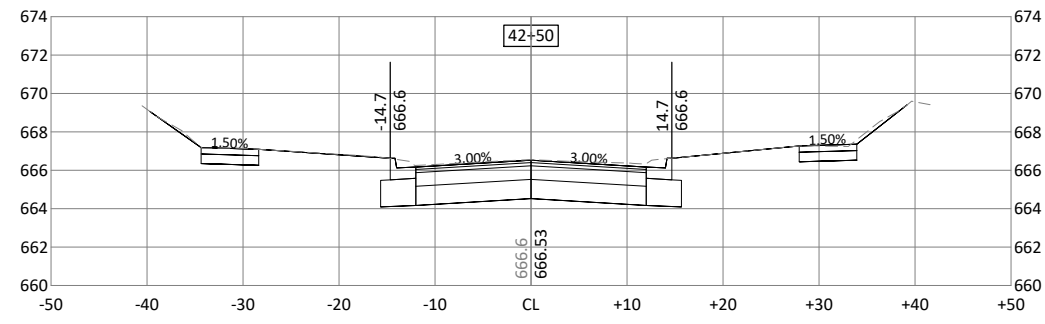
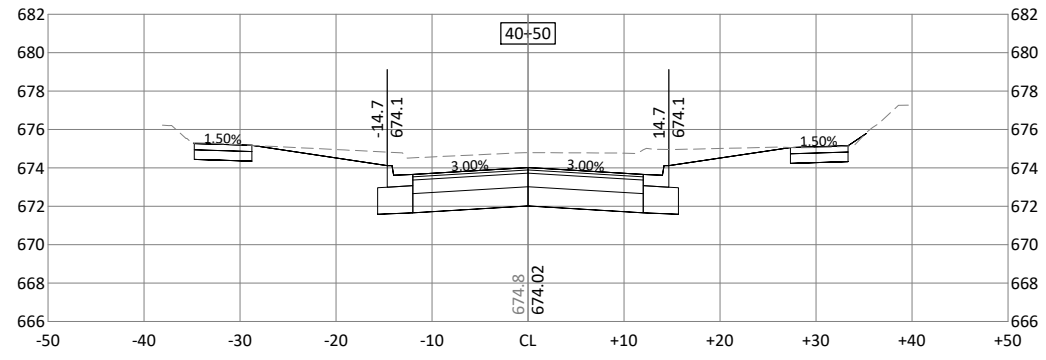
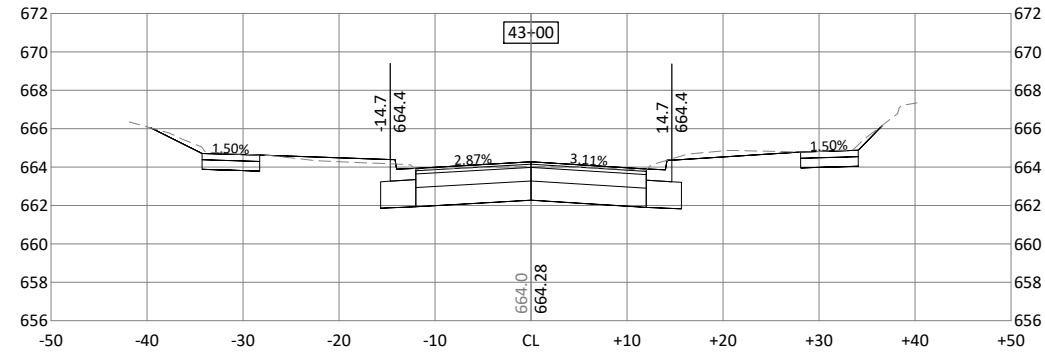
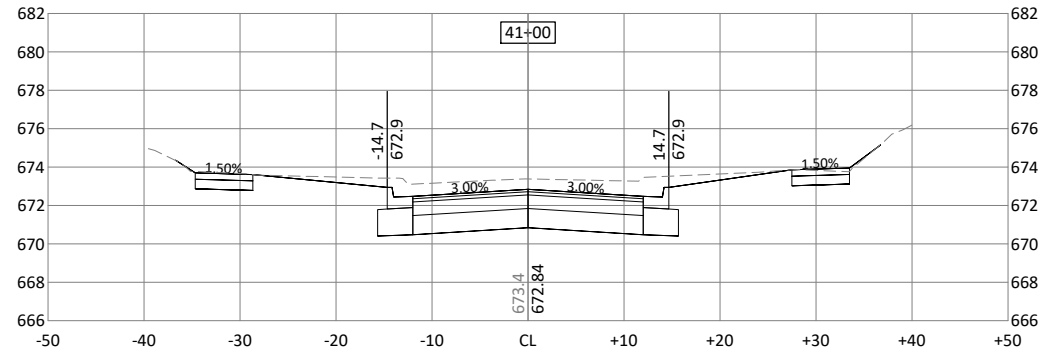


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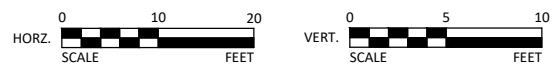
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LAKE COUNTY, MINNESOTA
 2021 STREET & UTILITY IMPROVEMENTS
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Joseph D. Pelawa
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



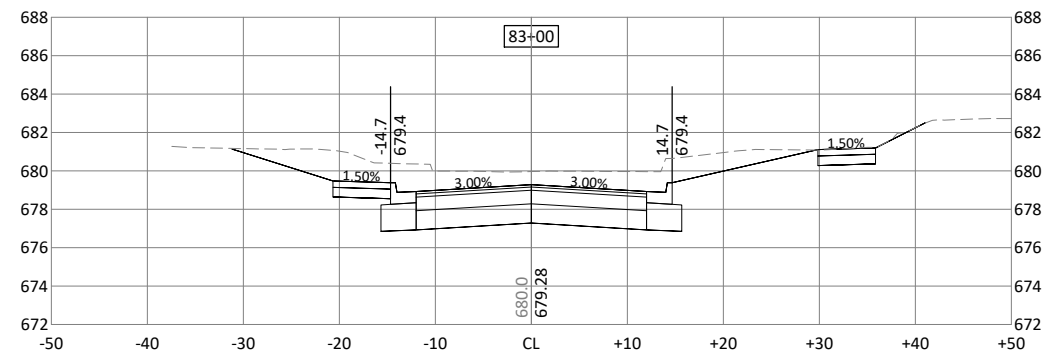
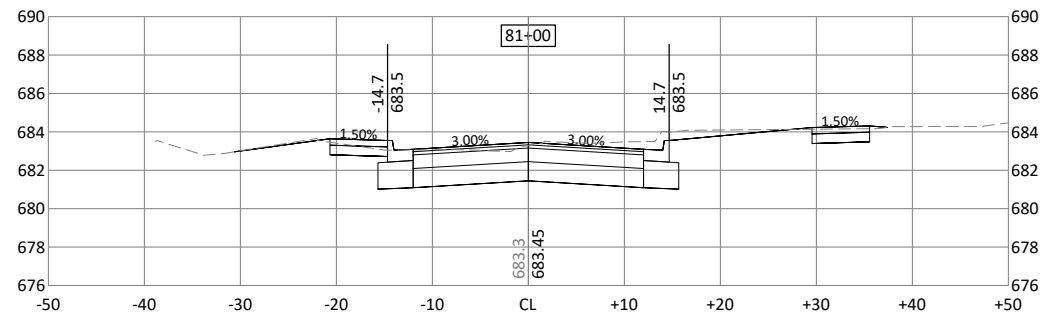
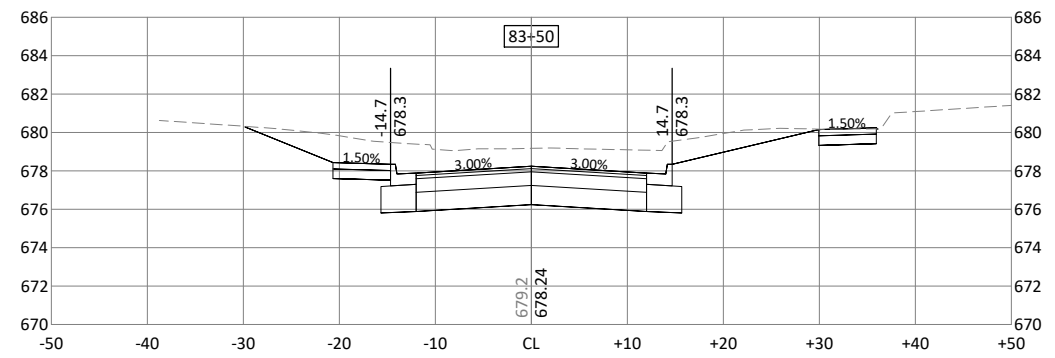
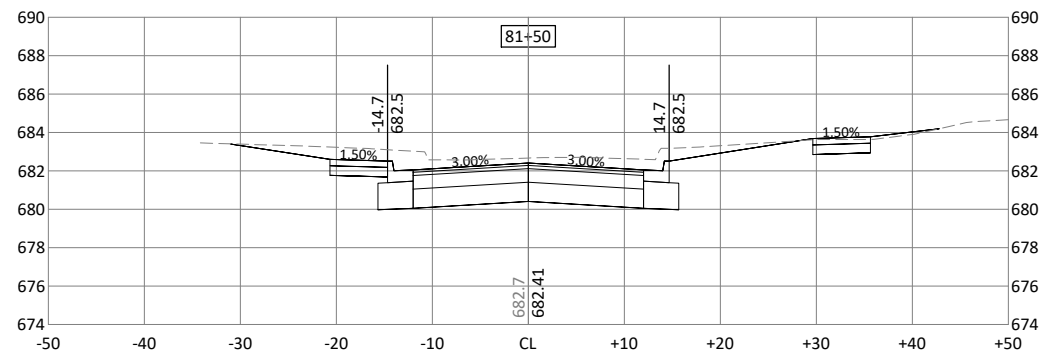
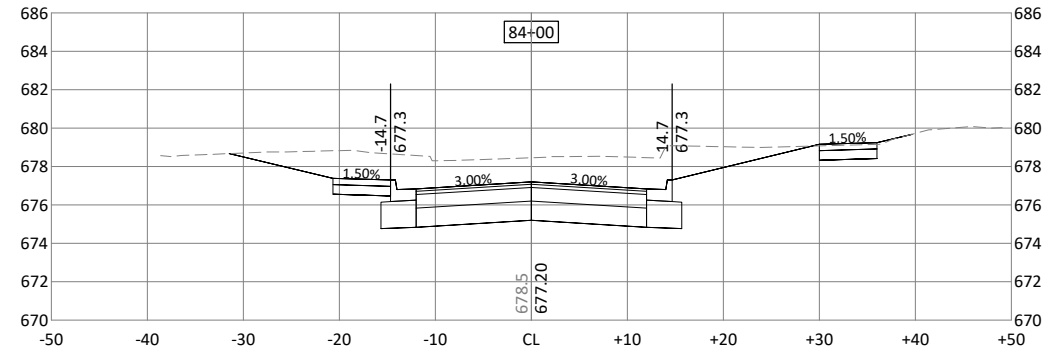
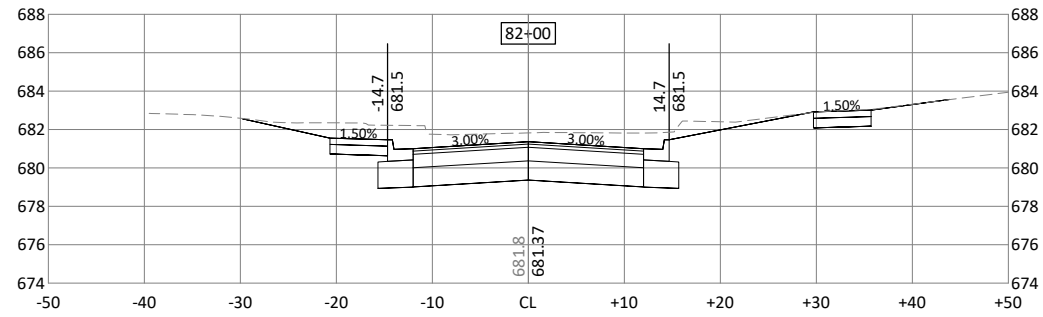
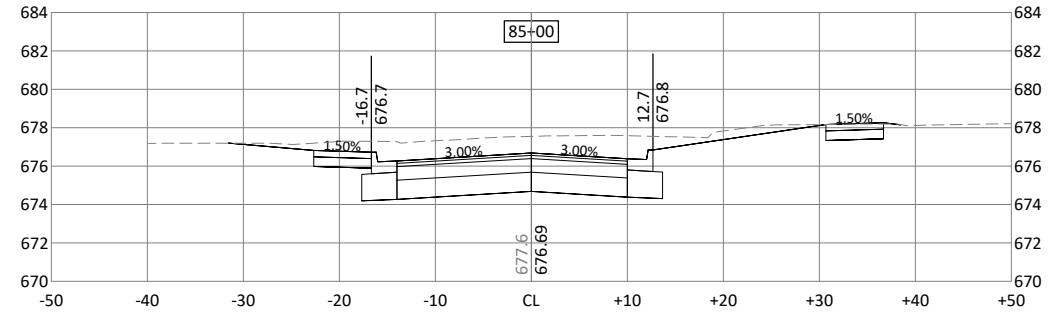
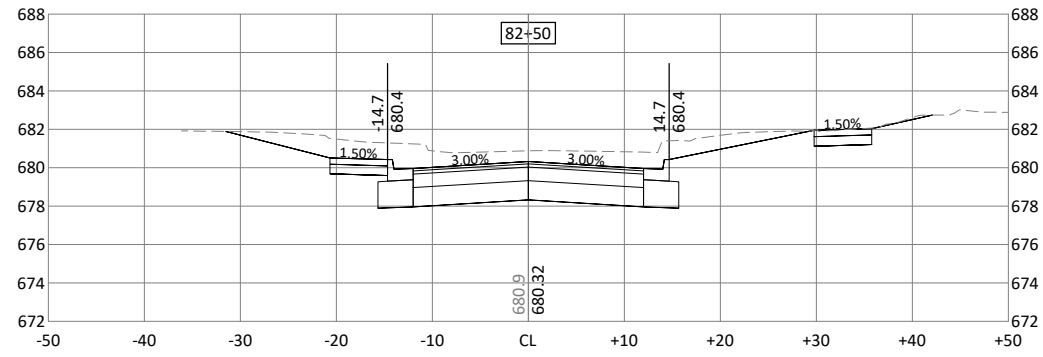
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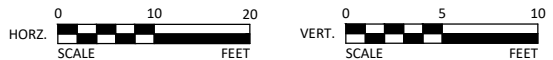
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[Signature]
 JOSEPH D. PELAWA, P.E.
 LIC. NO. 42603 DATE 12/15/2020



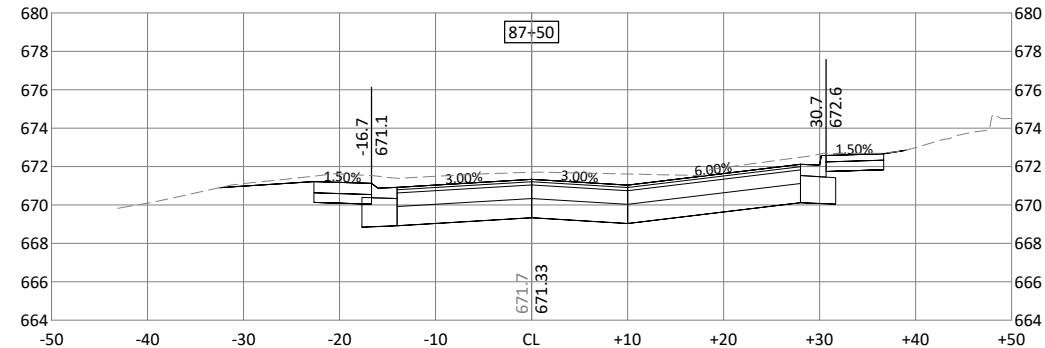
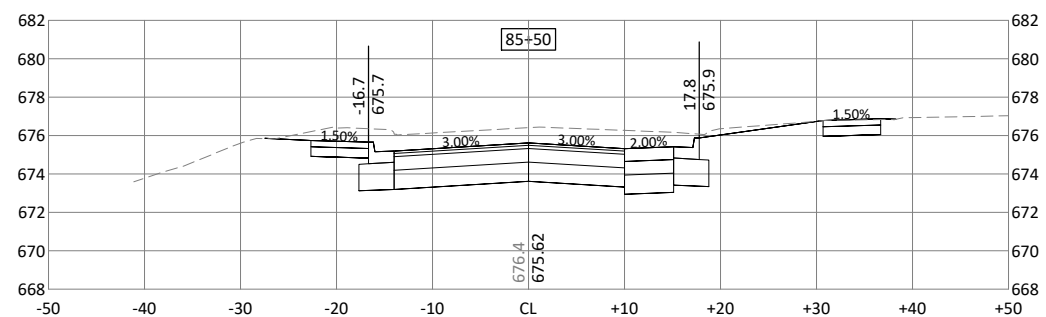
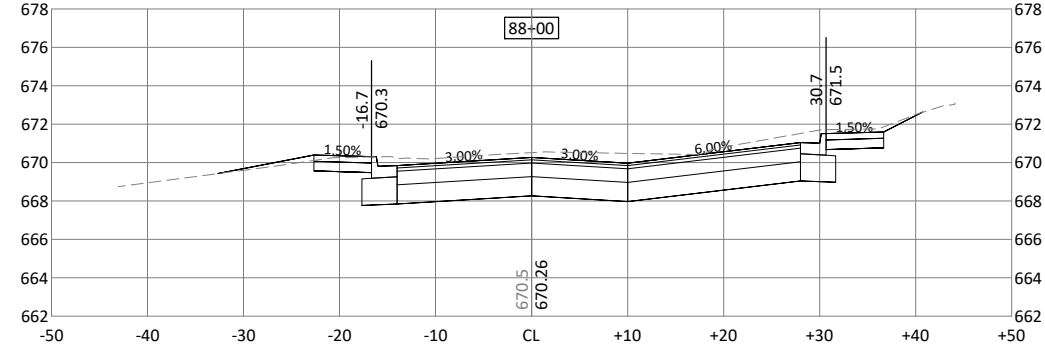
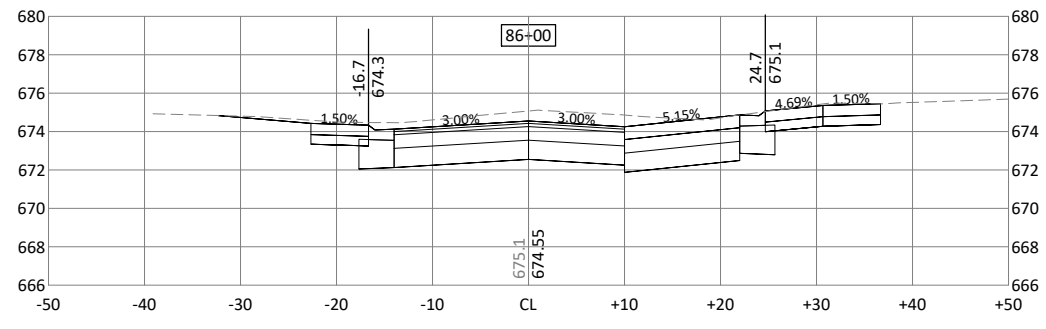
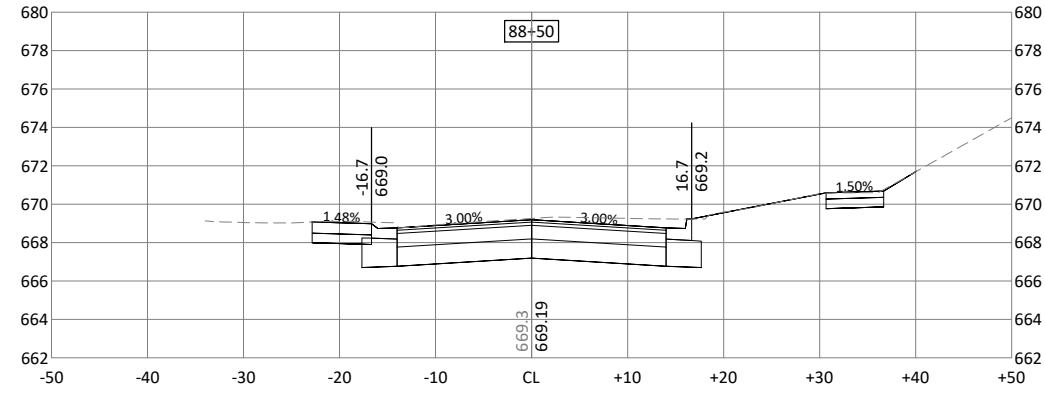
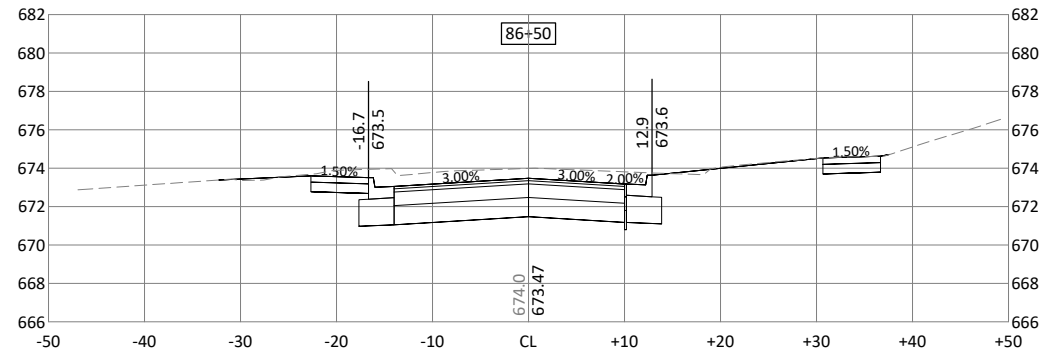
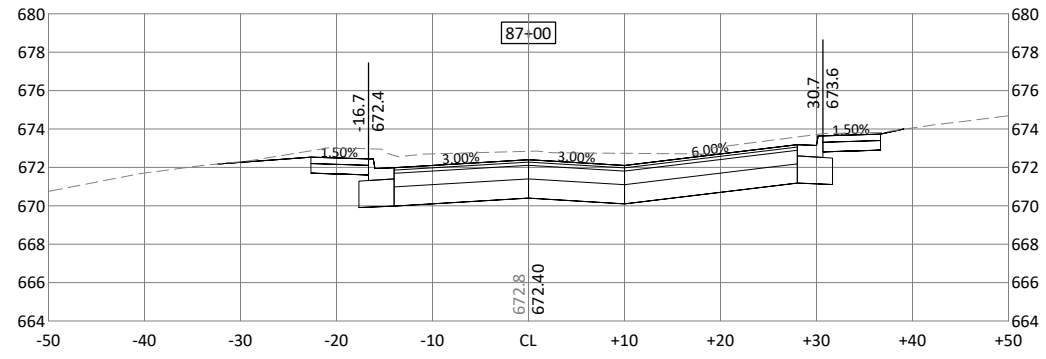
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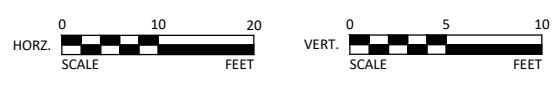
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