CITY OF RAMSEY, MINNESOTA

CIVIL CONSTRUCTION PLANS FOR

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS

CITY IMPROVEMENT PROJECT #18-05

GRADING, AGGREGATE BASE, CURB & GUTTER, BITUMINOUS PAVING, STORM SEWER, AND ADA IMPROVEMENTS

S.A.P. 199-109-006 LOCATED ON: PUMA STREET NW FROM BUNKER LAKE BOULEVARD NW TO 950' SOUTH OF ALPINE DRIVE NW

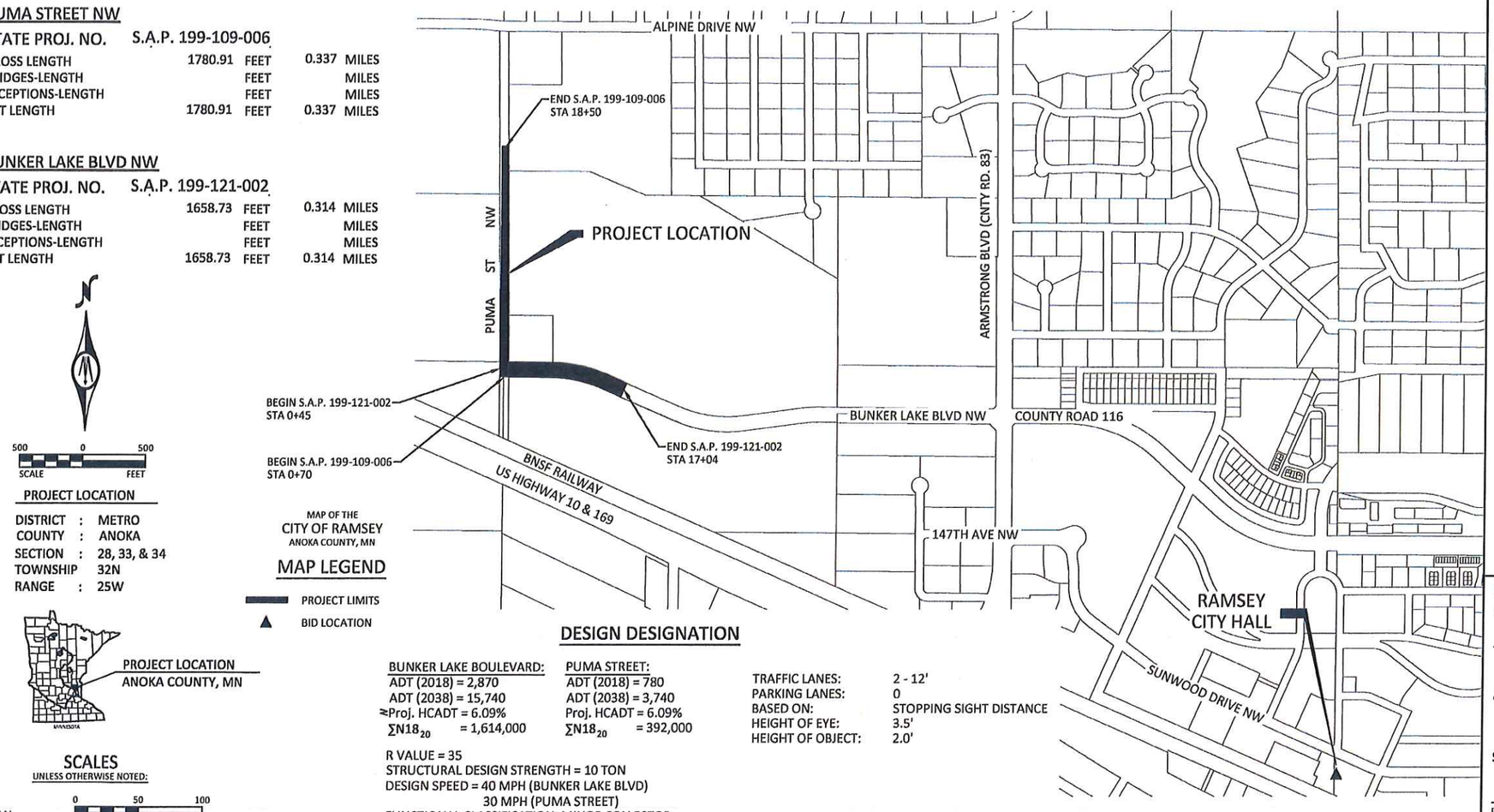
S.A.P. 199-121-002 LOCATED ON: BUNKER LAKE BLVD NW FROM PUMA STREET NW TO 2,400' WEST OF COUNTY ROAD 83

PUMA STREET NW

STATE PROJ. NO.	S.A.P. 199-109-006			
GROSS LENGTH	1780.91	FEET	0.337	MILES
BRIDGES-LENGTH		FEET		MILES
EXCEPTIONS-LENGTH		FEET		MILES
NET LENGTH	1780.91	FEET	0.337	MILES

BUNKER LAKE BLVD NW

STATE PROJ. NO.	S.A.P. 199-121-002			
GROSS LENGTH	1658.73	FEET	0.314	MILES
BRIDGES-LENGTH		FEET		MILES
EXCEPTIONS-LENGTH		FEET		MILES
NET LENGTH	1658.73	FEET	0.314	MILES



PROJECT LOCATION

DISTRICT : METRO
COUNTY : ANOKA
SECTION : 28, 33, & 34
TOWNSHIP 32N
RANGE : 25W

PROJECT LOCATION
ANOKA COUNTY, MN

MAP OF THE
CITY OF RAMSEY
ANOKA COUNTY, MN

MAP LEGEND

PROJECT LIMITS

BID LOCATION

SCALES
UNLESS OTHERWISE NOTED:

PLAN 0 50 100 SCALE FEET

PROFILE HORZ. 0 50 100 SCALE FEET

VERT. 0 5 10 SCALE FEET

DESIGN DESIGNATION

BUNKER LAKE BOULEVARD:	PUMA STREET:
ADT (2018) = 2,870	ADT (2018) = 780
ADT (2038) = 15,740	ADT (2038) = 3,740
≈Proj. HCADT = 6.09%	Proj. HCADT = 6.09%
$\Sigma N18_{20}$ = 1,614,000	$\Sigma N18_{20}$ = 392,000

TRAFFIC LANES:	2 - 12'
PARKING LANES:	0
BASED ON:	STOPPING SIGHT DISTANCE
HEIGHT OF EYE:	3.5'
HEIGHT OF OBJECT:	2.0'

R VALUE = 35
STRUCTURAL DESIGN STRENGTH = 10 TON
DESIGN SPEED = 40 MPH (BUNKER LAKE BLVD)
30 MPH (PUMA STREET)
FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR

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 612-454-0002.

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

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MINN. PROJ. NO.

GOVERNING SPECIFICATIONS
THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

SHEET INDEX

THIS PLAN SET CONTAINS 47 SHEETS.

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

Kevin P.Kielb LIC. NO. 23211 DATE 4/12/18

APPROVED: _____ DATE 4/12/18
CITY ENGINEER, CITY OF RAMSEY

STATE AID APPROVALS:

_____ DATE 4/26/18
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

_____ DATE 4/26/18
STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

City of RAMSEY

PROJECT DATUM:
HORIZONTAL: Anoka County Coordinates (1996 Adjustment)
VERTICAL: NGVD 29

DESIGNED KFB | DRAWN EKD | CHECKED JWC

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE	RECORD DRAWING INFORMATION
			DESIGNER:
			DATE:

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
TITLE SHEET

SHEET G0.01

STATEMENT OF ESTIMATED QUANTITES (A)

TAB INDEX	NOTES	ITEM NO.	MN/DOT SPEC NO.	ITEM DESCRIPTION	UNIT	TOTAL	PARTICIPATING S.A.P. 199-109-006 ROAD	PARTICIPATING S.A.P. 199-109-006 STORM	PARTICIPATING S.A.P. 199-121-002 ROAD	PARTICIPATING S.A.P. 199-121-002 STORM	NON-PARTICIPATING
		1	2021.501	MOBILIZATION	LUMP SUM	1	0.5		0.5		
F		2	2101.501	CLEARING AND GRUBBING	LUMP SUM	1	1				
F		3	2102.503	PAVEMENT MARKING REMOVAL	LIN FT	250			250		
F		4	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	1			1		
F		5	2104.502	REMOVE SIGN	EACH	10			10		
K		6	2104.502	SALVAGE HYDRANT & VALVE	EACH	1					1
F	1	7	2104.503	REMOVE PIPE CULVERTS	LIN FT	32	32				
F		8	2104.503	REMOVE CURB AND GUTTER	LIN FT	174			174		
F		9	2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	85			85		
F		10	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	4491	157		4334		
F		11	2104.518	REMOVE CONCRETE PAVEMENT	SQ YD	59			59		
G		12	2105.507	COMMON EXCAVATION (P)	CU YD	6505	3260		3245		
G		13	2105.507	SUBGRADE EXCAVATION	CU YD	200	100		100		
G, I		14	2105.507	SELECT GRANULAR BORROW (CV)	CU YD	200	100		100		
	2	15	2105.601	SITE GRADING	LUMP SUM	1			1		
I		16	2118.507	AGGREGATE SURFACING (CV) CLASS 5	CU YD	45	25		20		
I	3	17	2211.509	AGGREGATE BASE (LV) CLASS 5 MODIFIED	TON	8895	3790		5105		
I		18	2360.509	TYPE 9.5 WEARING COURSE MIX (2,B) (SPWEA240B)	TON	110	95		15		
I		19	2360.509	TYPE 12.5 WEARING COURSE MIX (3,C) (SPWEB340C)	TON	2360	880		1480		
I		20	2360.509	TYPE 12.5 NON WEARING COURSE MIX (3,B) (SPNWB330B)	TON	1950	1100		850		
J		21	2501.502	15" RC PIPE APRON	EACH	1				1	
J		22	2501.502	18" RC PIPE APRON	EACH	1				1	
J		23	2501.502	24" RC PIPE APRON	EACH	1		1			
J		24	2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	1				1	
J		25	2501.602	TRASH GUARD FOR 18" PIPE APRON	EACH	1				1	
J		26	2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	1		1			
J		27	2503.503	12" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	431		225		206	
J		28	2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	2308		1149		1159	
J		29	2503.503	18" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	193		142		51	
J		30	2503.503	24" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	92		92			
J		31	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1				1	
F		32	2503.602	CONSTRUCT BULKHEAD	EACH	1				1	
K		33	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	1					1
F		34	2504.602	ADJUST GATE VALVE & BOX	EACH	9	7		2		
K		35	2504.602	INSTALL HYDRANT & VALVE	EACH	1					1
K		36	2504.603	6" WATERMAIN DUCTILE IRON CL 53	LIN FT	17					17
J		37	2506.502	CASTING ASSEMBLY	EACH	28		14		14	
F		38	2506.502	ADJUST FRAME AND RING CASTING	EACH	8	4		4		
J		39	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	12		12			
J	4	40	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPEC 1	LIN FT	70		43		27	
J	5	41	2506.602	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPEC 2	LIN FT	53		25		28	
M		42	2511.507	RANDOM RIPRAP CL III	TON	36	12		24		
H		43	2521.518	6" CONCRETE WALK	SQ FT	860	320		540		
H		44	2531.503	CONCRETE CURB & GUTTER DES B618	LIN FT	6125	3199		2926		
H		45	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	85	85				
H		46	2531.618	TRUNCATED DOMES	SQ FT	140	76		64		
		47	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.5		0.5		
		48	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.5		0.5		
M		49	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	0.5		0.5		
M		50	2573.502	STORM DRAIN INLET PROTECTION	EACH	26	14		12		
M		51	2573.503	SILT FENCE, TYPE MS	LIN FT	5275	2451		2824		
M		52	2573.503	SEDIMENT CONTROL LOG TYPE WOOD CHIP	LIN FT	60			60		
G		53	2574.507	COMMON TOPSOIL BORROW	CU YD	660	411		249		
M		54	2574.508	FERTILIZER TYPE 3	POUND	380	160		220		
M		55	2575.505	SEEDING	ACRE	2	0.8		1.2		
M		56	2575.508	SEEDING MIXTURE 25-121	POUND	190	75		115		
M		57	2575.508	HYDRAULIC BONDED FIBER MATRIX	POUND	6470	2690		3780		
L	6	58	2582.503	4" SOLID LINE MULTI COMP	LIN FT	12235	6050		6185		
L	6	59	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	965	425		540		
L	6	60	2582.503	4" DBLE SOLID LINE MULTI COMP	LIN FT	938	532		406		
L	6	61	2582.503	24" SOLID LINE MULTI COMP	LIN FT	285	130		155		
L		62	2582.518	PAVT MSSG MULTI COMP	SQ FT	450	210		240		
L		63	2582.518	CROSSWALK MULTI COMP	SQ FT	480	300		180		

1) ITEM INCLUDES APRON LENGTH
2) DITCH GRADING SOUTH OF BUNKER LAKE BOULEVARD. STA 14+75 TO STA 17+04
3) AGGREGATE SHALL BE SALVAGED FROM CITY STOCKPILE
4) DESIGN 48-4020 WITH A 4022 COVER
5) 2' x 3' CATCH BASIN. SEE SHEET C1.03 FOR DETAIL
6) QUANTITY IS FOR ACTUAL PAINTED LENGTH

TABULATION INDEX (B)

BASIS OF ESTIMATED QUANTITIES (C)

MATERIAL	CONVERSION FACTORS
AGGREGATE BASE CLASS 5	1.8 TON/CU YD
NON WEARING BITUMINOUS COURSE MIXTURE	112 LBS/SY-IN
WEARING BITUMINOUS COURSE MIXTURE	112 LBS/SY-IN
BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL/SY
SEED MIXTURE 25-121	93 LBS/ACRE
FERTILIZER TYPE 3	200 LBS/ACRE
HYDRAULIC MATRIX, TYPE (BFM)	3500 LBS/ACRE

PRIVITE UTILITY OWNERS (D)

UTILITY	OWNER
ELECTRIC	CONNEXUS ENERGY
GAS	CENTERPOINT ENERGY MINNESOTA GAS
CABLE	WINDSTREAM COMMUNICATIONS
TELEPHONE	CENTURY LINK
PUBLIC	CITY OF RAMSEY

STANDARD PLATES (E)

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

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER - 3' X 2' OPENING - FOR USE WITH OR WITHOUT TRAFFIC LOADS
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) – CASTING NO. 715 AND 716
4160D	CURB BOX CASTING FOR CATCH BASIN
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B & V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000J	CHANNELIZERS (3 SHEETS)

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REV	ISSUED FOR	DATE

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KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
STATEMENT OF ESTIMATED QUANTITIES

SHEET G0.02

MISCELLANEOUS REMOVALS (F)

STREET	CLEARING & GRUBBING	REMOVE CURB & GUTTER	REMOVE SEWER PIPE (STORM)	REMOVE PIPE CULVERTS	REMOVE BITUMINOUS PAVEMENT	REMOVE CONCRETE PAVEMENT	REMOVE DRAINAGE STRUCTURE	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	SAWING CONCRETE PAVEMENT (FULL DEPTH)	PAVEMENT MARKING REMOVAL	REMOVE SIGN	ADJUST GATE VALVE & BOX	ADJUST FRAME & RING CASTING	CONSTRUCT BULKHEAD
	LUMP SUM	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	EACH	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH
PUMA STREET	1			32	157			45				7	4	
BUNKER LAKE BOULEVARD		174	85		4334	59	1	364	18	250	10	2	4	1
TOTALS:	1	174	85	32	4491	59	1	409	18	250	10	9	8	1

EARTHWORK SUMMARY (G)

NOTES	ITEMS	UNIT	PROJECT TOTAL	PUMA STREET STA 0+70 - STA 18+50	BUNKER LAKE BOULEVARD STA 0+45 - STA 17+04
	UNADJUSTED VOLUMES BASED ON CROSS SECTIONS				
	EXCAVATION				
1	TOPSOIL (EV)	CU YD	648	151	497
2	REGULAR EXCAVATION (EV)	CU YD	5857	3109	2748
	EMBANKMENT				
3	TOPSOIL REQUIRED (CV)	CU YD	872	375	497
4	EMBANKMENT MATERIAL REQUIRED (CV)	CU YD	450	235	215
	EARTHWORK BALANCE				
	TOPSOIL BALANCE				
5	TOPSOIL REQUIRED (EV)	CU YD	1308	563	746
	TOPSOIL GENERATED (EV)	CU YD	648	151	497
	TOPSOIL BORROW (EV)	CU YD	660	411	249
	GRADING MATERIAL BALANCE				
6	MATERIAL GENERATED (EV)	CU YD	5857	3109	2748
7	EMBANKMENT MATERIAL REQUIRED (EV)	CU YD	585	306	279
8	EMBANKMENT MATERIAL (EV) (EXCESS)	CU YD	5272	2803	2469
	EARTHWORK QUANTITIES TO SEQ				
9	COMMON EXCAVATION (EV)	CU YD	6505	3260	3245
10	COMMON TOPSOIL BORROW (LV)	CU YD	660	411	249
11	SUBGRADE EXCAVATION (EV)	CU YD	200		
11	SELECT GRANULAR BORROW (CV)	CU YD	200		

1 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 4 INCHES OF TOPSOIL THICKNESSS

2 EXCAVATION REQUIRED BELOW EXISTING TOPSOIL AND BELOW PROPOSED AGGREGATE BASE COURSE. INCLUDES EXISTING RECLAIM MATERIAL ON PUMA STREET

3 MINIMUM 4 INCHES OF TOPSOIL PLACED IN ALL VEGETATED AREAS DISTURBED DURING CONSTRUCTION.

4 FILL VOLUMES FROM CROSS SECTIONS.

5 MINIMUM 4 INCHES OF TOPSOIL PLACED WITH A SHRINKAGE FACTOR OF 1.5 APPLIED FROM CV TO EV.

6 REGULAR EXCAVATION BELOW TOPSOIL.

7 MATERIAL REQUIRED UNDER ROADWAY AGGREGATE BASE MATERIAL AND UNDER TOPSOIL IN BOULEVARD AND POND AREAS. SHRINKAGE FACTOR OF 1.3 FROM EV TO CV APPLIED.

8 CONTRACTOR TO SEPARATE TOPSOIL, GRANULAR MATERIAL AND SUITABLE GRADING MATERIAL. GRANULAR MATERIAL TO BE USED UNDER ROADWAY. SUITABLE MATERIAL TO BE USED IN BOULEVARD AREAS.

9 INCLUDES TOPSOIL EXCAVATION AND REGULAR EXCAVATION.

10 TOPSOIL GENERATED ON SITE TO BE USED BEFORE ANY TOPSOIL BORROW IS HAULED TO SITE.

11 QUANTITIES TO BE USED AS DIRECTED BY ENGINEER IF POOR SOILS ARE ENCOUNTERED.

CONCRETE ITEMS (H)

STREET	6" CONCRETE WALK	CONCRETE CURB & GUTTER DESIGN B618	6" CONCRETE DRIVEWAY PAVEMENT	TRUNCATED DOMES
	SQ FT	LIN FT	SQ YD	SQ FT
PUMA STREET	320	3199	85	76
BUNKER LAKE BOULEVARD	540	2926		64
TOTALS:	860	6125	85	140

AGGREGATE AND BITUMINOUS (I)

STREET	AGGREGATE BASE, CL 5	AGGREGATE SURFACING (CV) CLASS 5	TYPE SP 12.5 WEARING COURSE MIX (3,C) (SPWEB340C)	TYPE SP 9.5 WEARING COURSE MIX (2,B) (SPWEA240B)	TYPE SP 12.5 NON WEARING COURSE MIX (3,B) (SPNWB330B)	BITUMINOUS MATERIAL FOR TACKCOAT (INCIDENTAL)
	TON	CU YD	TON	TON	TON	GALLON
PUMA STREET	3790	25	880	95	1100	370
BUNKER LAKE BOULEVARD	5105	20	1480	15	850	355
TOTALS:	8895	45	2360	110	1950	725

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KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
TABULATIONS

SHEET G0.03

STORM SEWER TABLE (J)

STRUCTURE	STREET	STATION, OFFSET	RIM	OUTLET	ASSEMBLY	DRAINS	DOWNSTREAM	PIPE	15" RCP APRON	18" RCP APRON	24" RCP APRON	TRASH GUARD FOR 15" PIPE APRON	TRASH GUARD FOR 18" PIPE APRON	TRASH GUARD FOR 24" PIPE APRON	12" RCP STORM	15" RCP STORM	18" RCP STORM	24" RCP STORM	DESIGN 48-4020	DESIGN SPECIAL 1	DESIGN SPECIAL 2	CONNECT TO EXISTING STORM	NOTES
			ELEV	ELEV		TO	ELEV	GRADE (%)	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	
FES 1	PUMA	14+79.39, 99.18' LT	NA	863.00	NA	NA	NA	NA			1			1									
CB 1	PUMA	14+17.35, 31.13' LT	868.46	863.85	R-3246R	FES 1	863.00	0.92%										92		6.61			2' SUMP
CB 2	PUMA	14+10.35, 31.13' LT	868.46	864.02	R-3246R	CB 1	863.95	1.00%									7			4.44			
CB 3	PUMA	14+17.35, 20.68' RT	868.67	864.31	R-3246R	CB 1	863.95	0.69%							52						4.40		
CB 4	PUMA	14+10.35, 20.68' RT	868.67	864.48	R-3246R	CB 3	864.41	1.00%							8						4.20		
CB 5	PUMA	12+75.49, 20.67' LT	869.36	865.00	R-3246R	CB 2	864.15	0.65%									135			4.36			
CB 6	PUMA	12+75.49, 20.68' RT	869.36	865.35	R-3246R	CB 5	865.15	0.50%							41						4.00		
CB 7	PUMA	9+50.82, 20.67' LT	871.42	867.02	R-3246R	CB 5	865.15	0.58%								325				4.40			
CB 8	PUMA	9+50.82, 20.68' RT	871.42	867.42	R-3246R	CB 7	867.12	0.73%							41						4.00		
CB 9	PUMA	5+99.42, 20.67' LT	879.53	868.88	R-3246R	CB 7	867.12	0.50%								351				10.65			
CB 10	PUMA	5+99.46, 20.67' RT	879.53	875.53	R-3246R	CB 9	874.50	2.50%							41						4.00		
CB 11	PUMA	2+06.16, 20.67' LT	881.98	870.16	R-3246R	CB 9	869.98	0.30%								393				11.82			
CB 12	PUMA	2+06.16, 20.67' RT	881.98	877.98	R-3246R	CB 11	876.95	2.50%							41						4.00		
MH 1	PUMA	1+26.35, 20.67' LT	882.37	870.50	R-2560E	CB 11	870.26	0.30%								80			11.90				
CB 13	BUNKER LAKE	2+50.01, 25.89' LT	880.92	871.87	R-3246R	MH 1	870.50	0.80%								171				9.05			
CB 14	BUNKER LAKE	2+49.59, 26.11' RT	880.92	876.92	R-3246R	CB 13	875.25	3.21%							52						4.00		
CB 15	BUNKER LAKE	5+50.01, 20.78' LT	881.06	876.76	R-3246R	CB 13	875.25	0.50%								301					4.30		
CB 16	BUNKER LAKE	5+49.99, 20.67' RT	881.07	877.07	R-3246R	CB 15	876.86	0.50%							41						4.00		
CB 17	BUNKER LAKE	8+00.00, 20.71' LT	879.83	875.58	R-3246R	CB 19	874.20	0.46%								300					4.30		
CB 18	BUNKER LAKE	8+00.00, 20.67' RT	879.83	875.83	R-3246R	CB 17	875.68	0.37%							41						4.00		
CB 19	BUNKER LAKE	10+98.13, 20.67' LT	878.35	874.10	R-3246R	CB 21	873.15	0.30%								318				4.25			
CB 20	BUNKER LAKE	10+98.13, 20.67' RT	878.35	874.35	R-3246R	CB 19	874.20	0.37%							41						4.00		
CB 21	BUNKER LAKE	14+16.13, 20.67' LT	876.78	873.05	R-3246R	CB 22	872.90	0.37%								41				3.73			
CB 22	BUNKER LAKE	14+16.13, 20.67' RT	876.78	872.78	R-3246R	CB 23	872.70	0.62%								14				4.00			
CB 23	BUNKER LAKE	14+30.58, 20.67' RT	876.70	872.60	R-3246R	FES 2	872.50	0.22%									51			6.10			2' SUMP
CB 24	BUNKER LAKE	14+47.04, 23.86' LT	876.50	873.26	R-3246R	CB 21	873.15	0.37%							31						3.20		
FES 2	BUNKER LAKE	14+76.42, 38.92' RT	NA	872.50	NA	NA	NA	NA		1			1										
FES 3	BUNKER LAKE	16+07.74, 34.54' RT	NA	872.69	NA	EX CB	872.22	0.88%	1			1				14						1	
								TOTALS:	1	1	1	1	1	1	431	2308	193	92	11.9	69.4	52.4	1	

WATER MAIN (K)

STREET	STATION, OFFSET	CONNECT TO EXISTING WATERMAIN	6" WATERMAIN DUCTILE IRON CL 53	SALVAGE HYDRANT & VALVE	INSTALL HYDRANT & VALVE
		EACH	LIN FT	EACH	LIN FT
BUNKER LAKE BOULEVARD	14+03, 18.50' RT	1	17	1	1
TOTALS:		1	17	1	1

SIGNING AND STRIPING (L)

STREET	SIGN PANELS TYPE C (2)	PAVEMENT MESSAGE MULTI COMP (EPOXY)	CROSS WALK MULTI COMP (EPOXY)	4" SOLID LINE MULTI COMP (EPOXY)	4" SOLID LINE MULTI COMP (EPOXY)	4" BROKEN LINE MULTI COMP (EPOXY)	4" DOUBLE SOLID LINE MULTI COMP (EPOXY)	24" SOLID LINE MULTI COMP (EPOXY)	24" SOLID LINE MULTI COMP (EPOXY)
		WHITE	WHITE	WHITE	YELLOW	YELLOW	YELLOW	WHITE	YELLOW
	SQ FT	SQ FT	SQ FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT
PUMA STREET	80	210	300	3900	2150	425	532	25	105
BUNKER LAKE BOULEVARD	88	240	180	3135	3050	540	406	40	115
TOTALS:	168.00	450	480	7035	5200	965	938	65	220

NOTES

1) QUANTITY IS FOR ACTUAL PAINTED LENGTH

2) CITY OF RAMSEY TO FURNISH AND INSTALL ALL SIGNS

EROSION CONTROL AND TURF ESTABLISHMENT (M)

STREET	STORM DRAIN INLET PROTECTION	RANDOM RIPRAP CLASS III	SEDIMENT CONTROL LOG TYPE WOOD CHIP	SILT FENCE TYPE MS	STABILIZED CONSTRUCTION EXIT	SEEDING	SEED, MIXTURE 25-121	FERTILIZER TYPE 3	HYDRAULIC BONDED FIBER MATRIX
	EACH	TON	LIN FT	LIN FT	LUMP SUM	ACRE	POUND	POUND	POUND
PUMA STREET	14	12		2451	0.5	0.8	75	160	2690
BUNKER LAKE BOULEVARD	12	24	60	2824	0.5	1.2	115	220	3780
TOTALS:	26	36	60	5275	1	2	190	380	6470

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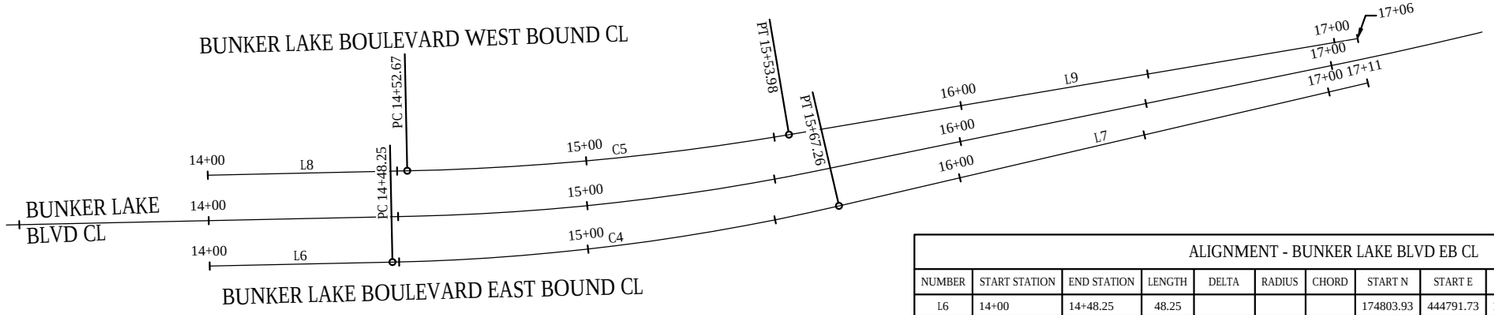
KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
TABULATIONS

SHEET G0.04

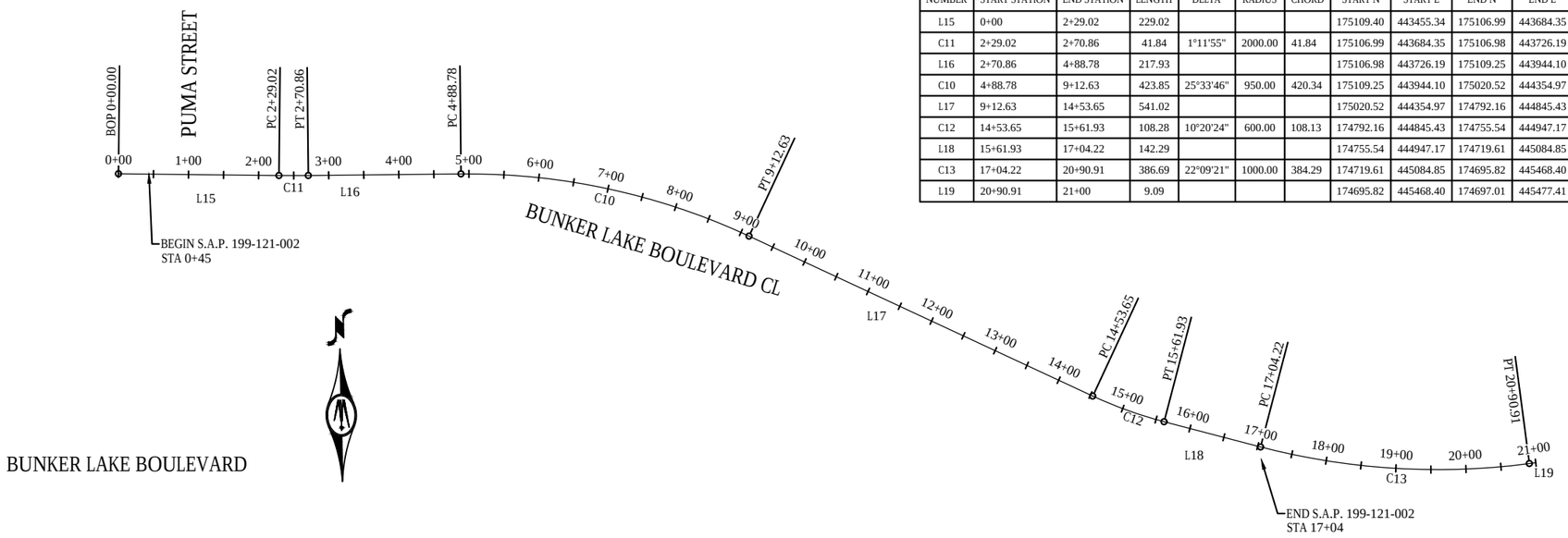


ALIGNMENT - BUNKER LAKE BLVD WB CL

NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L8	14+00	14+52.67	52.67				174825.68	444801.86	174803.45	444849.61	S65° 01' 58"E
C5	14+52.67	15+53.98	101.32	8°21'09"	695.00	101.23	174803.45	444849.61	174767.52	444944.24	S69° 12' 33"E
L9	15+53.98	17+06.17	152.19				174767.52	444944.24	174724.01	445090.07	S73° 23' 07"E

ALIGNMENT - BUNKER LAKE BLVD EB CL

NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L6	14+00	14+48.25	48.25				174803.93	444791.73	174783.56	444835.47	S65° 01' 58"E
C4	14+48.25	15+67.26	119.01	11°51'32"	575.00	118.80	174783.56	444835.47	174744.81	444947.77	S70° 57' 44"E
L7	15+67.26	17+10.57	143.32				174744.81	444947.77	174712.31	445087.35	S76° 53' 30"E



BUNKER LAKE BLVD CL

NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L15	0+00	2+29.02	229.02				175109.40	443455.34	175106.99	443684.35	S89° 23' 50"E
C11	2+29.02	2+70.86	41.84	1°11'55"	2000.00	41.84	175106.99	443684.35	175106.98	443726.19	S89° 59' 47"E
L16	2+70.86	4+88.78	217.93				175106.98	443726.19	175109.25	443944.10	N89° 24' 16"E
C10	4+88.78	9+12.63	423.85	25°33'46"	950.00	420.34	175109.25	443944.10	175020.52	444354.97	S77° 48' 51"E
L17	9+12.63	14+53.65	541.02				175020.52	444354.97	174792.16	444845.43	S65° 01' 58"E
C12	14+53.65	15+61.93	108.28	10°20'24"	600.00	108.13	174792.16	444845.43	174755.54	444947.17	S70° 12' 10"E
L18	15+61.93	17+04.22	142.29				174755.54	444947.17	174719.61	445084.85	S75° 22' 22"E
C13	17+04.22	20+90.91	386.69	22°09'21"	1000.00	384.29	174719.61	445084.85	174695.82	445468.40	S86° 27' 03"E
L19	20+90.91	21+00	9.09				174695.82	445468.40	174697.01	445477.41	N82° 28' 17"E

0 100 200
SCALE FEET

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KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

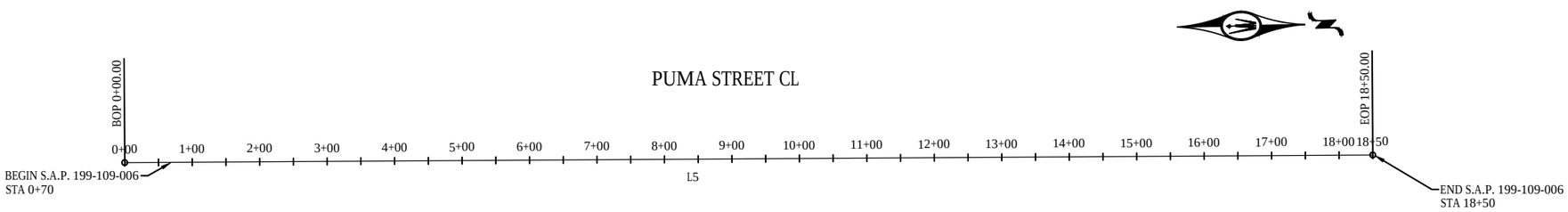
DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

ALIGNMENT PLAN & TABULATION

SHEET
C0.01



PUMA STREET

PUMA STREET											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L5	0+00	18+50	1850.00				175008.35	443555.95	176858.31	443544.58	S0° 21' 07"E

0 100 200
SCALE FEET

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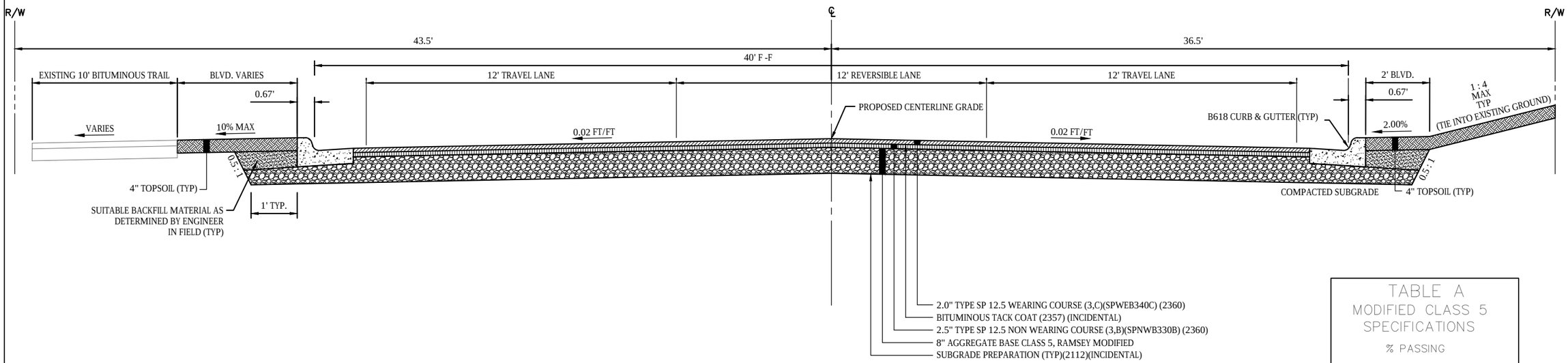
ALIGNMENT PLAN & TABULATION

SHEET
C0.02



STREET TYPICAL SECTION - PUMA STREET NW

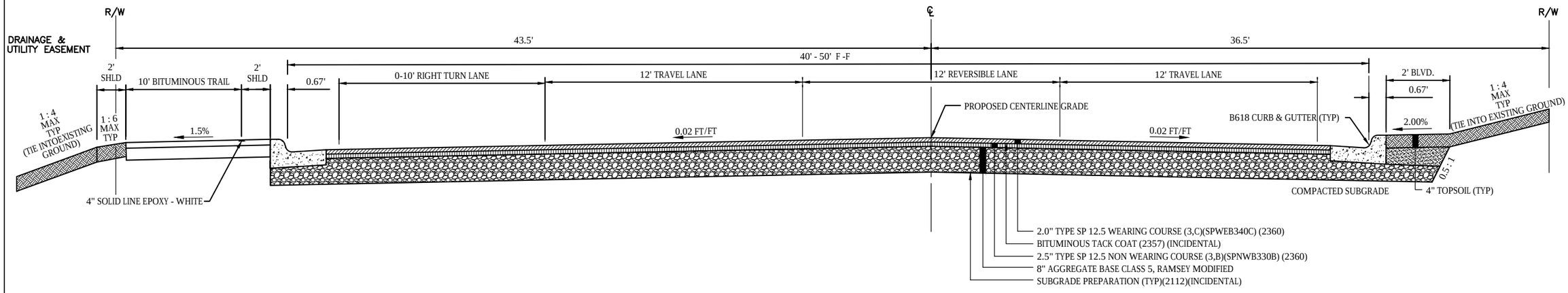
NOT TO SCALE

STATION 1+50 TO STATION 13+50
STATION 16+45 TO STATION 17+60
(TIE INTO EXISTING AT STATION 18+50)

TABLE A
MODIFIED CLASS 5 SPECIFICATIONS

	% PASSING
1"	100
3/4"	90 – 100
3/8"	50 – 80
No.4	35 – 70
No.10	20 – 60
No.40	10 – 35
No.200	5 – 10

NOTES:
1. THE AGGREGATE BASE CONSTRUCTION WILL BE ACCEPTED FOR PAYMENT IN ACCORDANCE WITH THE PROVISIONS IN TABLE A.
2. IF THE AGGREGATE BASE FAILS TO MEET THE REQUIREMENTS OF TABLE A THE MATERIAL CAN BE CORRECTED IN PLACE OR REMOVED AND REPLACED WITH MATERIAL THAT MEET THE REQUIREMENTS OF TABLE A.
3. IN THE EVENT THAT RECYCLED MATERIAL IS USE IT MUST MEET MNDOT REQUIREMENTS FOR RECYCLED BASE.



STREET TYPICAL SECTION - PUMA STREET NW

NOT TO SCALE

STATION 13+50 TO STATION 16+45

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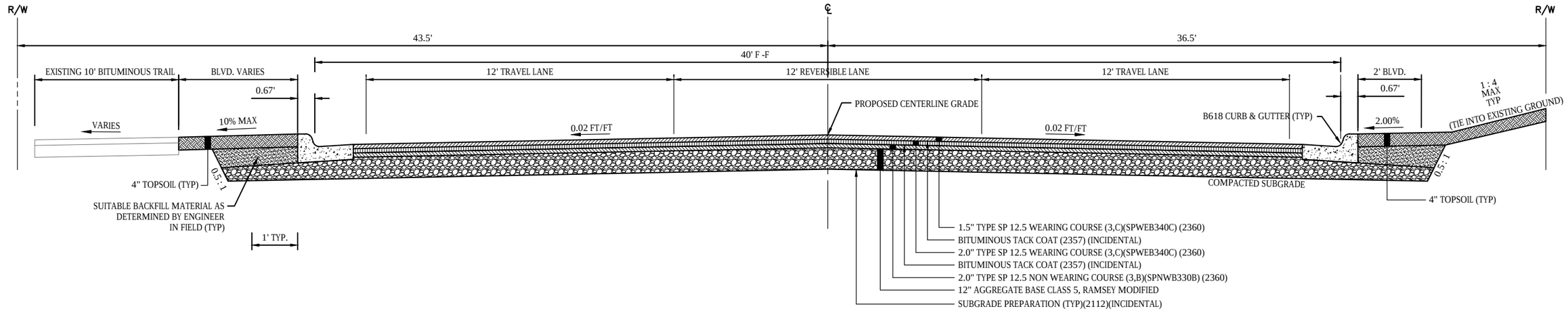
S.A.P. 199-109-006, S.A.P. 199-121-002
TYPICAL SECTIONS

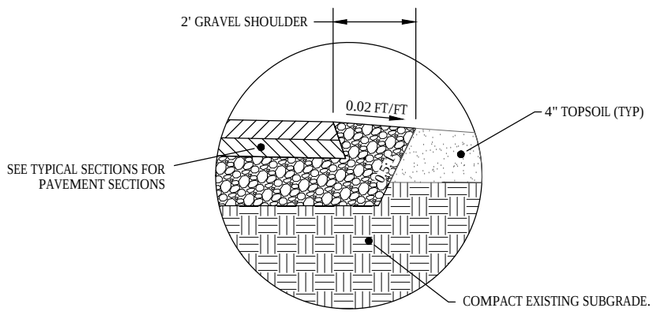
SHEET
C1.01



STREET TYPICAL SECTION - BUNKER LAKE BLVD

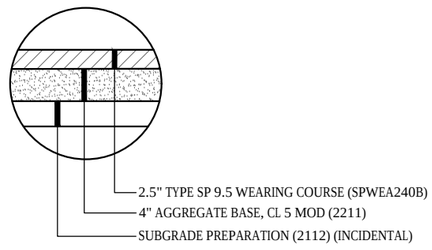
NOT TO SCALE

STATION 1+50 TO STATION 14+34
(TIE INTO EXISTING AT STATION 15+53)



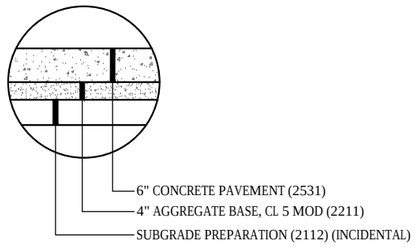
RURAL SECTION/TRANSITION AREA SHOULDER TREATMENT

NOT TO SCALE



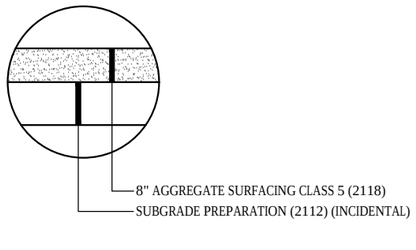
BITUMINOUS TRAIL PAVEMENT

NOT TO SCALE



CONCRETE SIDEWALK PAVEMENT

NOT TO SCALE



AGGREGATE SURFACING CLASS 5

NOT TO SCALE

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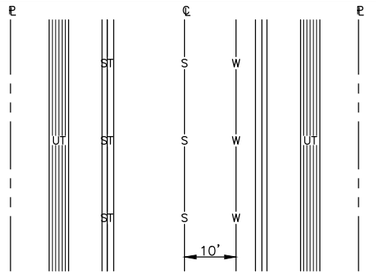
S.A.P. 199-109-006, S.A.P. 199-121-002
TYPICAL SECTIONS

SHEET
C1.02



LEGEND

— S — SANITARY SEWER
— ST — STORM SEWER
— W — WATERMAIN
UT UTILITY TRENCH
℄ PROPERTY LINE
℄ CENTERLINE OF STREET

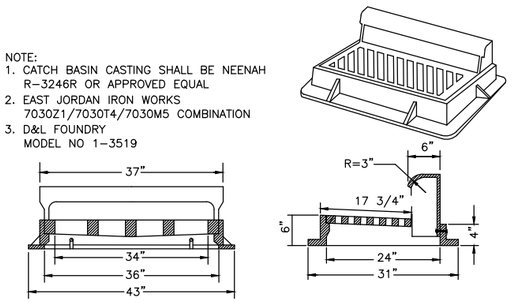
NOTES:

- WATERMAIN SHALL BE LOCATED NORTH & EAST OF CENTERLINE.
- UTILITY TRENCH SHALL BE A COMMON BURY FOR ELECTRIC, GAS, COMMUNICATIONS & CABLE TV.
- THE COMMON BURY TRENCH SHALL BE LOCATED IN THE CENTER OF THE BOULEVARD BETWEEN BACK OF CURB & THE PROPERTY LINE.
- STORM SEWER SHALL BE LOCATED BENEATH THE CURB, PREFERABLY PLACED ON THE STREET SIDE OPPOSITE TO THE WATERMAIN.
- SEE DETAILS FOR MINIMUM DEPTH LOCATIONS.

UTILITY LOCATIONS
N.T.S.

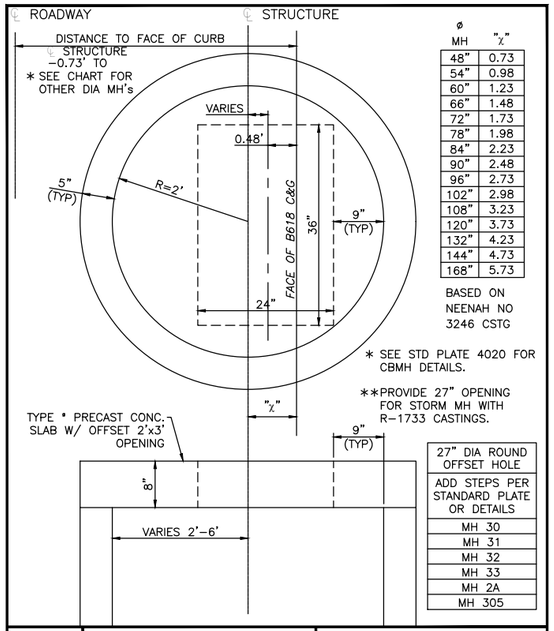
APPROVED		STANDARD DETAILS
DATE 7–96	City of RAMSEY	UTILITY LOCATIONS
		CITY PLATE No. UTL–1

NOTE:
1. CATCH BASIN CASTING SHALL BE NEENAH R–3246R OR APPROVED EQUAL
2. EAST JORDAN IRON WORKS 7030Z1/7030T4/7030M5 COMBINATION
3. D&L FOUNDRY MODEL NO 1–3519



STANDARD CATCHBASIN CASTING
N.T.S.

APPROVED		STANDARD DETAILS
DATE	City of RAMSEY	STORMWATER CASTINGS
		CITY PLATE No.



ø MH	"χ"
48"	0.73
54"	0.98
60"	1.23
66"	1.48
72"	1.73
78"	1.98
84"	2.23
90"	2.48
96"	2.73
102"	2.98
108"	3.23
120"	3.73
132"	4.23
144"	4.73
168"	5.73

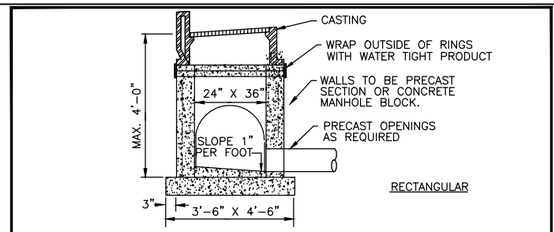
BASED ON NEENAH NO 3246 CSTG

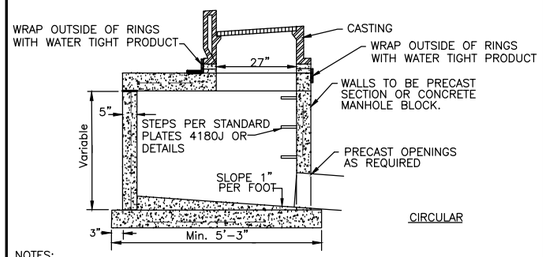
* SEE STD PLATE 4020 FOR CBMH DETAILS.

**PROVIDE 27" OPENING FOR STORM MH WITH R–1733 CASTINGS.

27" DIA ROUND OFFSET HOLE
ADD STEPS PER STANDARD PLATE OR DETAILS
MH 30
MH 31
MH 32
MH 33
MH 2A
MH 305

APPROVED		STANDARD DETAILS
DATE 4–2005	City of RAMSEY	SLAB TOP MANHOLE
		CITY PLATE No. STO–5

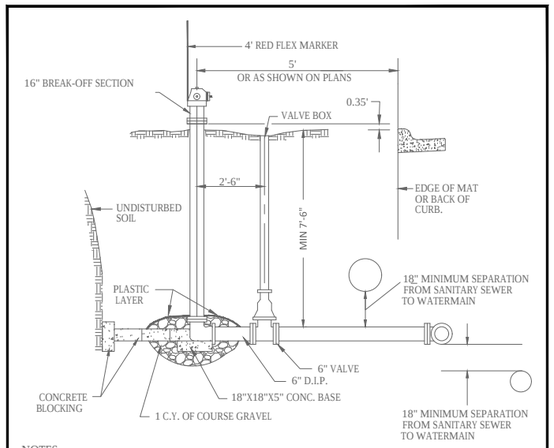




NOTES:

1. MANHOLE INVERT SHALL SLOPED TO PROVIDE A SMOOTH FLOW FROM INLET TO OUTLET
2. CONCRETE BASE SHALL BE 6" POURED IN PLACE OR 5" PRECAST SLAB.
3. CONCRETE ADJUSTING RINGS TO BE INSTALLED MAX.7–2" RINGS, MIN 2–2" RINGS
4. GROUT BETWEEN RINGS
5. SHIMS USED FOR LEVELING SHALL BE METAL OR CONCRETE
6. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
7. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
8. STEPS ARE REQUIRED IF STRUCTURE FROM THE CASTING TO THE INVERT IS GREATER THAN 4 FEET
9. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS

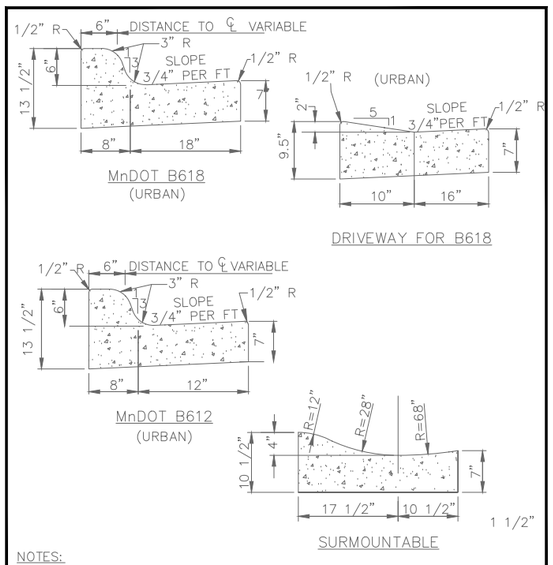
APPROVED		STANDARD DETAILS
DATE 4–2007	City of RAMSEY	CATCH BASIN
		CITY PLATE No. STO–7



NOTES:

1. HYDRANT SHALL BE 5-1/4" WB67 WATEROUS PACER.
2. HYDRANTS TO BE ORDERED FOR 8'-0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANTS EXTENSIONS MAY BE REQUIRED.
3. HYDRANTS SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2-3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
4. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE.
5. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW.
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE.

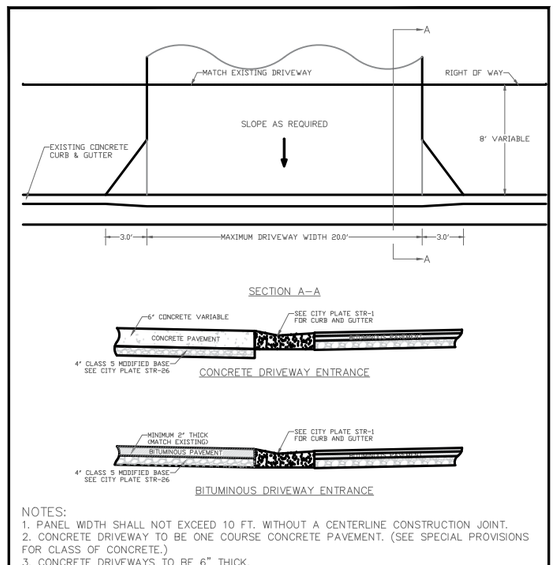
APPROVED: 6 – 2017		STANDARD DETAILS: HYDRANT
	City of RAMSEY	
		CITY PLATE No. WAT–1



NOTES:

1. ON WEAR COURSE MILL THE EXISTING BITUMINOUS 1.5" BY 24" IN FRONT OF THE REPLACEMENT CURB.
2. ON BASE COURSE SAW CUT AND REMOVE EXISTING BITUMINOUS 18" IN FRONT OF THE REPLACEMENT CURB.

APPROVED: 1 – 2016		STANDARD DETAILS: CURB AND GUTTER
	City of RAMSEY	
		CITY PLATE No. STR–1

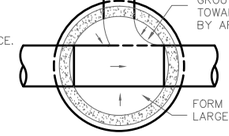


NOTES:

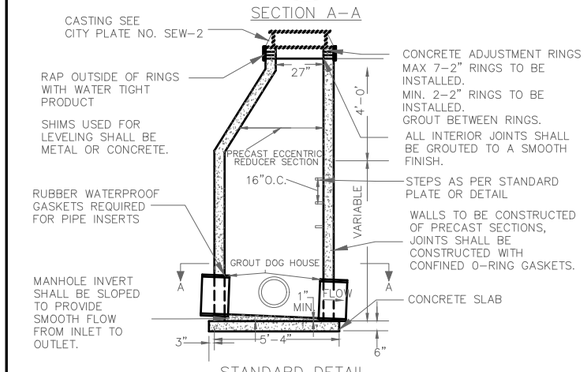
1. PANEL WIDTH SHALL NOT EXCEED 10 FT. WITHOUT A CENTERLINE CONSTRUCTION JOINT.
2. CONCRETE DRIVEWAY TO BE ONE COURSE CONCRETE PAVEMENT. (SEE SPECIAL PROVISIONS FOR CLASS OF CONCRETE.)
3. CONCRETE DRIVEWAYS TO BE 6" THICK.
4. ½" EXPANSION JOINT, ½" PREFORMED JOINT FILLER MATERIAL, AASHTO M 213 (REQUIRED WHEN 2 CONCRETE AREAS ARE POURED SEPERATELY.)
5. BITUMINOUS DRIVEWAYS MINIMUM 2" THICK, MATCH EXISTING BITUMINOUS PAVEMENT THICKNESS.

APPROVED: 1 – 2016		STANDARD DETAILS: RESIDENTIAL DRIVEWAY NO SIDEWALK
	City of RAMSEY	
		CITY PLATE No. STR–30

A 5 FT. GREEN CARSONITE MARKER SHALL BE INSTALLED NEXT TO ALL STRUCTURES NOT IN A PAVED OR HARD SURFACE.



SECTION A–A



STANDARD DETAIL

NOTES:

1. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES.
2. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE.
3. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS.
4. 6" BASE FOR ALL MANHOLES LESS THAN 14 FT. OF DEPTH, INCREASE BASE THICKNESS 2" PER 6 FT. OF DEPTH BEYOND 14 FT.
5. 5" PRECAST BASE MAY BE USED FOR MANHOLES LESS THAN 14 FT. DEEP.
6. ALL INVERTS TO BE 0.10' ABOVE OUTLET,

APPROVED		STANDARD DETAILS
DATE 1–2016	City of RAMSEY	SANITARY MANHOLES
		CITY PLATE No. SEW–1

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City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

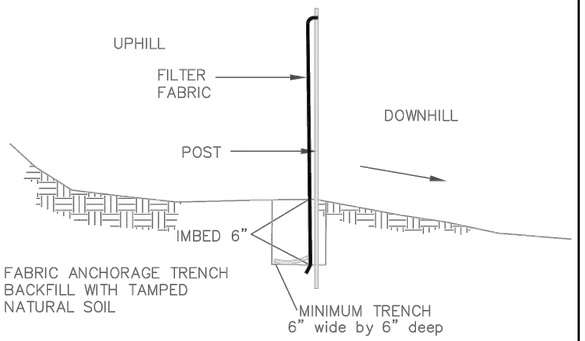
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED	JWC
DRAWN	EKD
CHECKED	KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
CONSTRUCTION DETAILS

SHEET C1.03

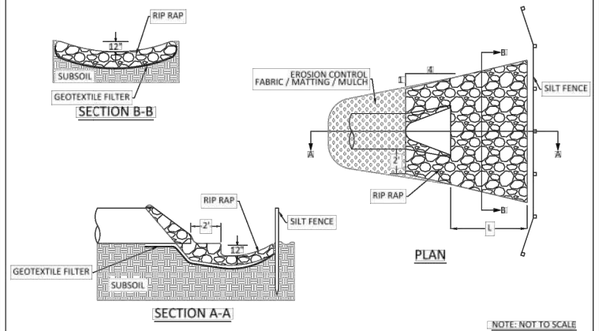


INSTALL AS PER FILTER FABRIC MANUFACTURER'S RECOMMENDATIONS

SILT FENCE DETAIL

NO SCALE

APPROVED:		STANDARD DETAILS:
1 – 2016	City of RAMSEY	SILT FENCE
		CITY PLATE No. ERO–1



NOTE: NOT TO SCALE

NOTES:

1. ON SLOPES 4:1 OR GREATER, ANCHOR OR STRAIGHT DISKED STRAW MULCH, SEEDED NETTING, GABRIC, OR MATTING SUCH AS EXCELSIOR SHALL BE USED TO STABILIZE DISTURBED SOILS. THESE EXPOSED SOILS MUST BE STABILIZED IMMEDIATELY AFTER GRADING OF SOIL IS COMPLETE.
2. A SKIRTING OF EROSION CONTROL FABRIC OR MULCH MUST BE USED TO PROTECT OUTLETS AS ILLUSTRATED REGARDLESS OF SLOPE.
3. RIP RAP IS CLASS III PLACED 18" THICK.
4. FOR PIPE GREATER THAN 48" DIAMETER OR 58" SPAN, QUANTITY OF GEOTEXTILE FABRIC AND RIP RAP WILL BE HANDLED IN A CASE BY CASE MANNER.
5. GEOTEXTILE FABRIC SHALL COVER THE BOTTOM AND SIDES OF THE AREA EXCAVATED FOR THE RIP RAP MATERIAL.

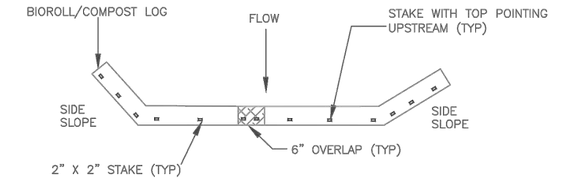
RIP RAP AT RCP OUTLETS

DIA. OF PIPE (IN.)	L (FT.)	GEOTEXTILE FABRIC (SY)	18" DEPTH RIP RAP (CU. YD)
12	8	19.6	4.4
15	8	20.8	4.8
18	10	25.6	6.4
21	10	27.4	7.1
24	12	33.4	9.2
27	12	35.2	9.9
30	14	41.6	12.3
36	16	50.5	15.8
42	18	57.8	18.7
48	20	66.5	22.2

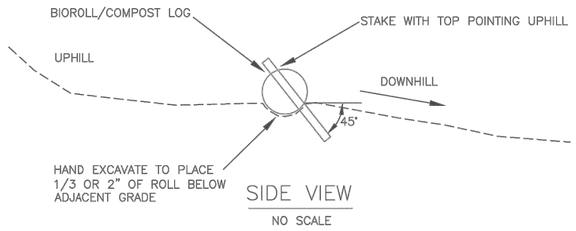
RIP RAP AT RCP-A OUTLETS

SPAN OF PIPE (IN.)	L (FT.)	GEOTEXTILE FABRIC (SY)	18" DEPTH RIP RAP (CU. YD)
22	10	25.6	6.1
28	12	33.2	8.5
36	14	41.5	11.2
43	16	50.5	14.3
51	18	57.5	16.9
58	20	65.2	19.8

APPROVED:		STANDARD DETAILS:
9 – 2016	City of RAMSEY	RIP–RAP
		CITY PLATE No. ERO–3



PLAN VIEW

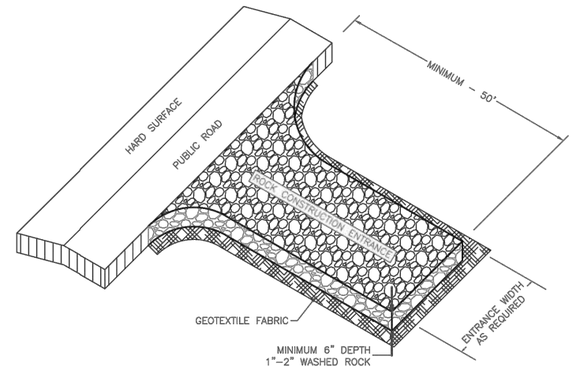


SIDE VIEW

NO SCALE

NOTE:
STAKE INTO GROUND WITH WOOD STAKES DRIVING STAKE 6" INTO GROUND AND PROTRUDING 2" ABOVE LOG
WOOD STAKES ARE A MINIMUM 0.5" X 2" X 16" AND PLACED EVERY 1' UNLESS PRECLUDED BY A ROCK
WHEN MORE THAN 1 BIOROLL/COMPOST LOG IS NEEDED, OVERLAP ENDS A MINIMUM OF 6" AND STAKE
WOOD STAKES ARE DRIVEN THROUGH BACK HALF OF BIOROLL OR COMPOST LOG AT 45° ANGLE WITH TOP OF STAKE POINTING UPHILL

APPROVED:		STANDARD DETAILS:
3 – 2016	City of RAMSEY	BIO ROLL (COMPOST LOG)
		CITY PLATE No. ERO–4



NOTE:
1. MINIMUM CONSTRUCTION ENTRANCE WIDTH EQUAL TO PROPOSED ROADWAY WIDTH.
2. WIDTH OF RADIUS AS REQUIRED TO ENSURE VEHICLES DO NOT TRACK ONTO PUBLIC ROAD.
3. MAINTAINENCE AS REQUIRED TO PREVENT TRACKING ONTO PUBLIC ROADS. THIS MAY REQUIRE TOP DRESSING WITH ADDITIONAL ROCK OR REMOVAL AND REINSTALLATION OF THE ENTRANCE AS NEEDED.

NOT TO SCALE

APPROVED:		STANDARD DETAILS:
1 – 2016	City of RAMSEY	ROCK CONSTRUCTION ENTRANCE
		CITY PLATE No. ERO–5

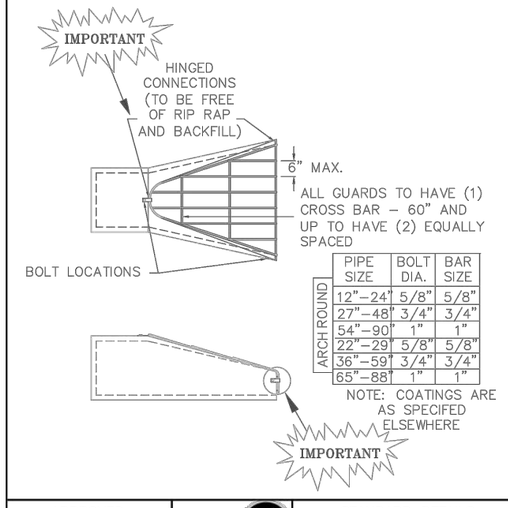
MNDOT 2016 SPEC

MNDOT 2016 SPEC TABLE 3877–1 COMMON TOPSOIL BORROW		
REQUIREMENT	RANGE	TEST METHOD
MATERIAL PASSING THE 3/4 IN [19MM]	100%	ASTM D 422
MATERIAL PASSING NO. 4 [4.75MM]	>85%	–
CLAY	5% –35%	ASTM D 422
SILT	5% – 70%	ASTM D 422
SAND	10% – 75%	ASTM D 422
ORGANIC MATTER	3% – 15%	ASTM D 2974
pH	6.1–7.8	ASTM G 51

NOTE:
1. INSTALLATION OF 4" OF TOPSOIL MEETING MNDOT SPECIFICATION 3877A COMMON TOPSOIL BORROW, MAY BE REQUIRED ACROSS ALL DISTURBED AREAS.
2. A SOIL CERTIFICATION FROM A GEOTECHNICAL FIRM MUST BE PROVIDED VERIFYING THE TOPSOIL MEETS SPECIFICATION ALONG WITH LOAD TICKETS TO VERIFY THE SOURCE OF MATERIAL AND QUANTITY.
3. TOPSOIL MUST COME FROM A CITY APPROVED SOURCE.

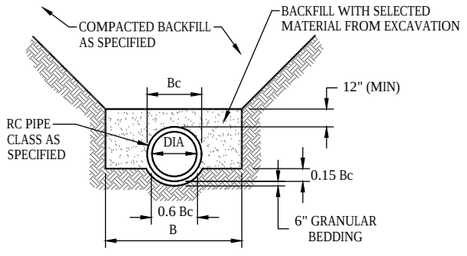
APPROVED:		STANDARD DETAILS:
1 – 2016	City of RAMSEY	TOPSOIL REQUIREMENTS
		CITY PLATE No. ERO–6

NOTE:
GUARDS MUST BE INCORPORATED ON ALL INSTALLATIONS EXCEPT WHERE SPECIFICALLY ALLOWED OTHERWISE BY THE CITY ENGINEER.



ARCH ROUND	PIPE SIZE	BOLT DIA.	BAR SIZE
	12"–24"	5/8"	5/8"
	27"–48"	3/4"	3/4"
	54"–90"	1"	1"
	22"–29"	5/8"	5/8"
	36"–59"	3/4"	3/4"
	65"–88"	1"	1"

APPROVED:		STANDARD DETAILS:
2 – 2006	City of RAMSEY	TRASH GUARD
		CITY PLATE No. STO–8



PIPE DIA	B
36" OR LESS	B + 24"$_C$
42" TO 54"	1.5 X Bc
60" OR OVER	B + 36"$_C$

RC PIPE BEDDING

NOT TO SCALE

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City of RAMSEY
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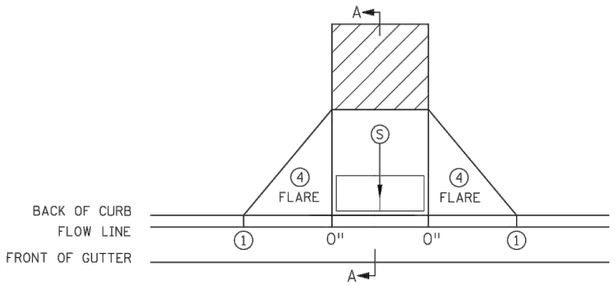
KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

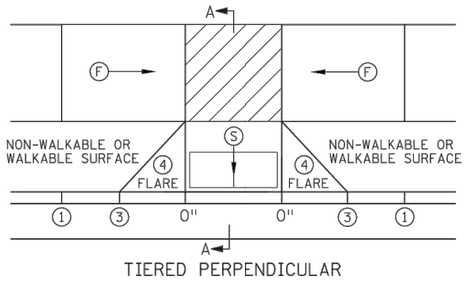
DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
CONSTRUCTION DETAILS

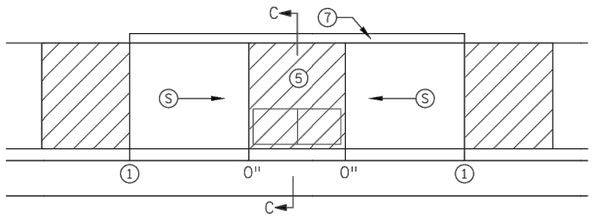
SHEET C1.04



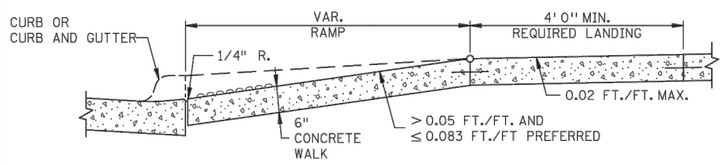
PERPENDICULAR



TIERED PERPENDICULAR

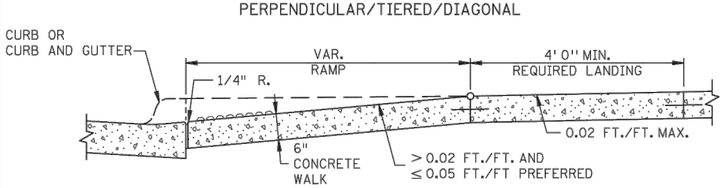


PARALLEL



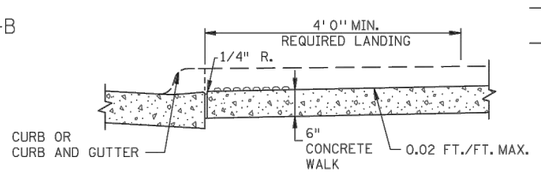
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



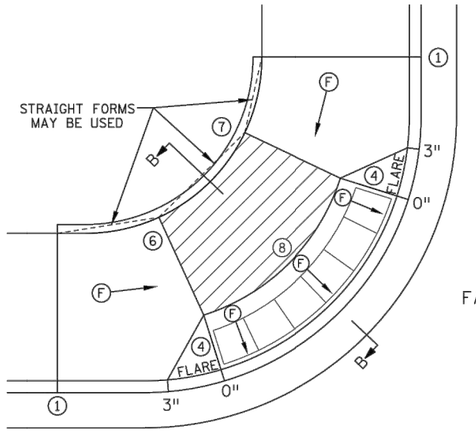
SECTION B-B

FAN

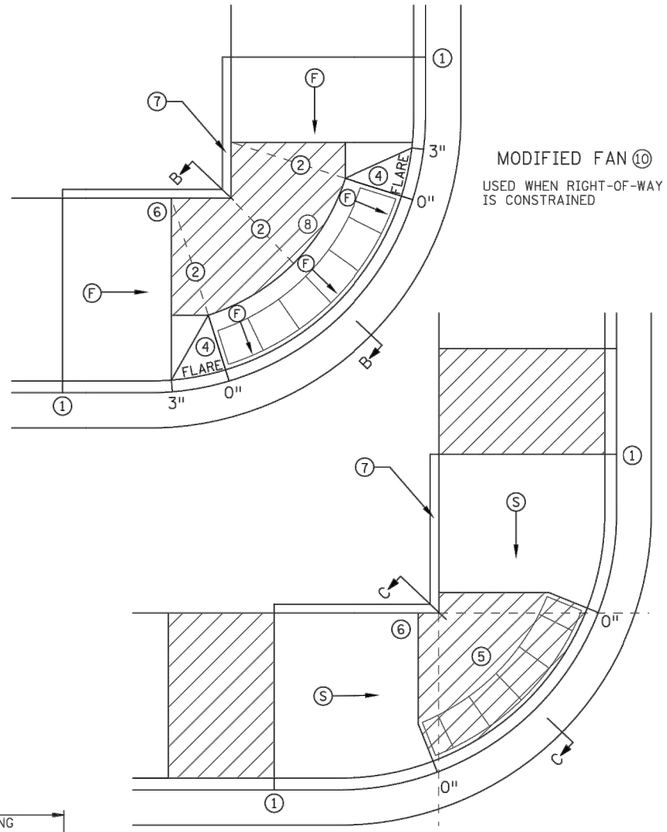


SECTION C-C

PARALLEL/DEPRESSED CORNER



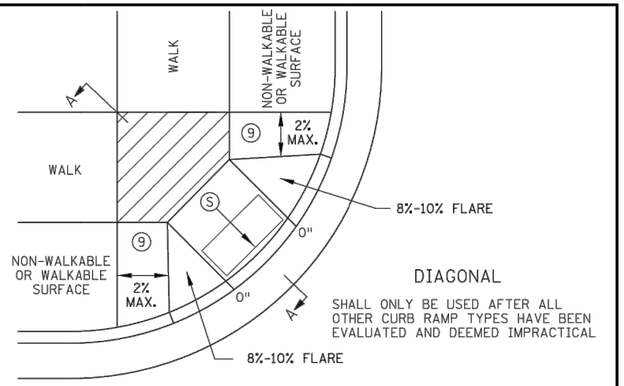
FAN (10)



MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY
IS CONSTRAINED

DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

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.

(1) MATCH FULL HEIGHT CURB.
(2) 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
(3) 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
(4) SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
(5) 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.
(6) 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)
(7) 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.
(8) A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
(9) PAVE FULL WALK WIDTH.
(10) "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%.

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.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED:

STATE DESIGN ENGINEER

1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 6

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City of RAMSEY

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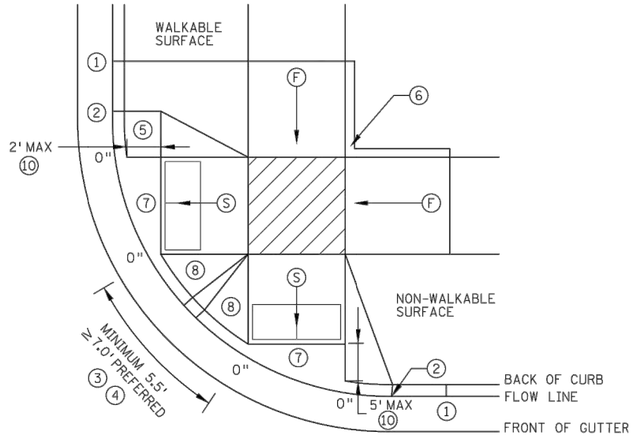
DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

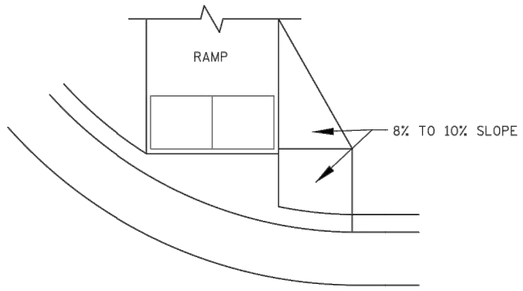
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PEDESTRIAN RAMP DETAILS

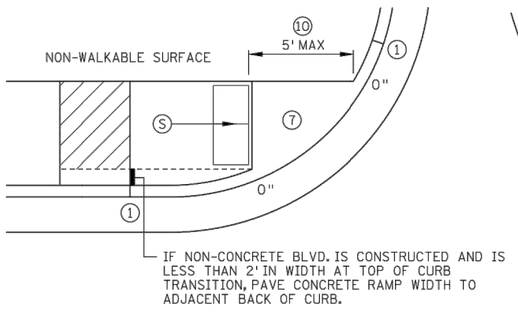
SHEET C1.05



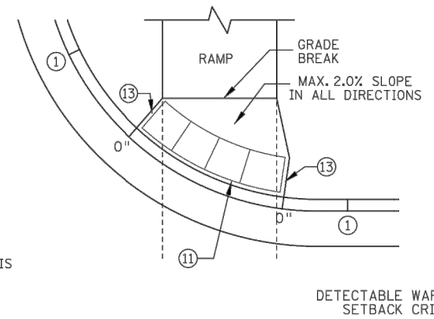
COMBINED DIRECTIONAL ⑨



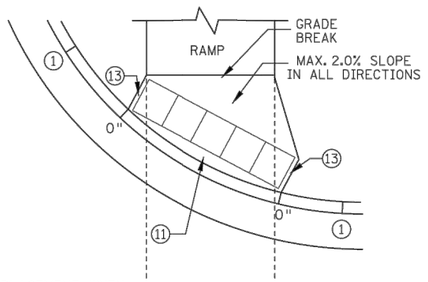
DIRECTIONAL RAMP WALKABLE FLARE



STANDARD ONE-WAY DIRECTIONAL ⑨



ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



NOTES:

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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.

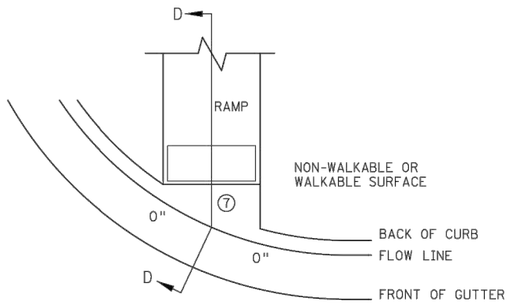
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD 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.

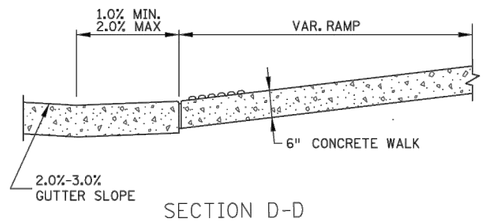
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

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.

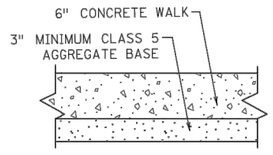
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

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%.

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.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 6

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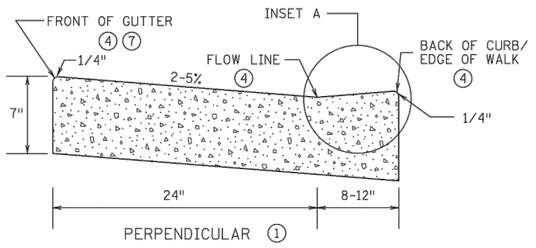
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

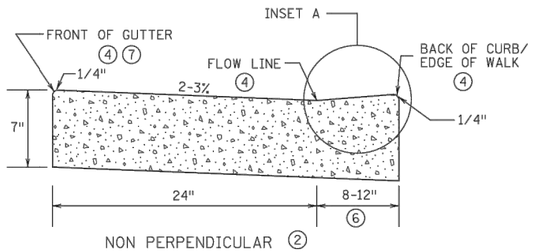
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PEDESTRIAN RAMP DETAILS

SHEET C1.06

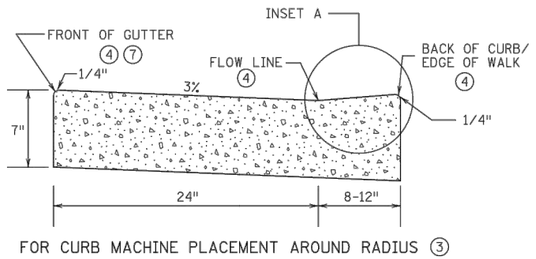


PERPENDICULAR ①

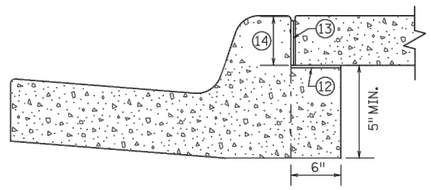


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

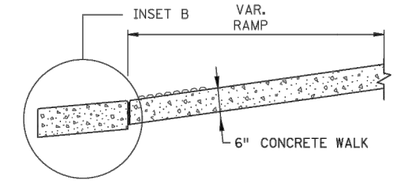


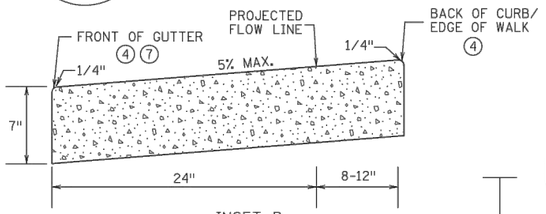
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



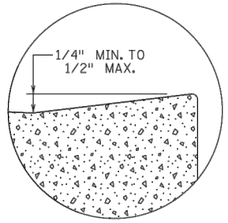
OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

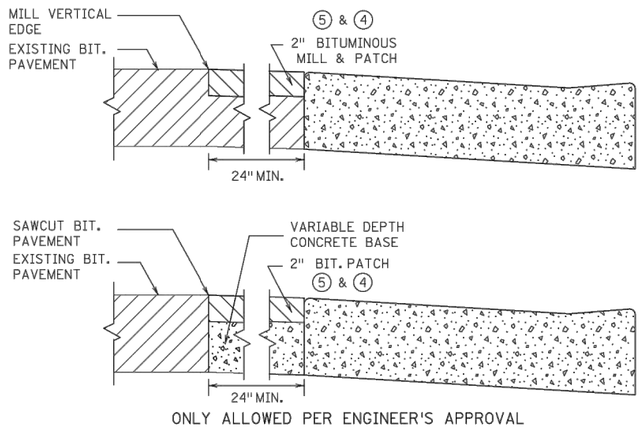




INSET B
OUTFLOW GUTTER ⑧



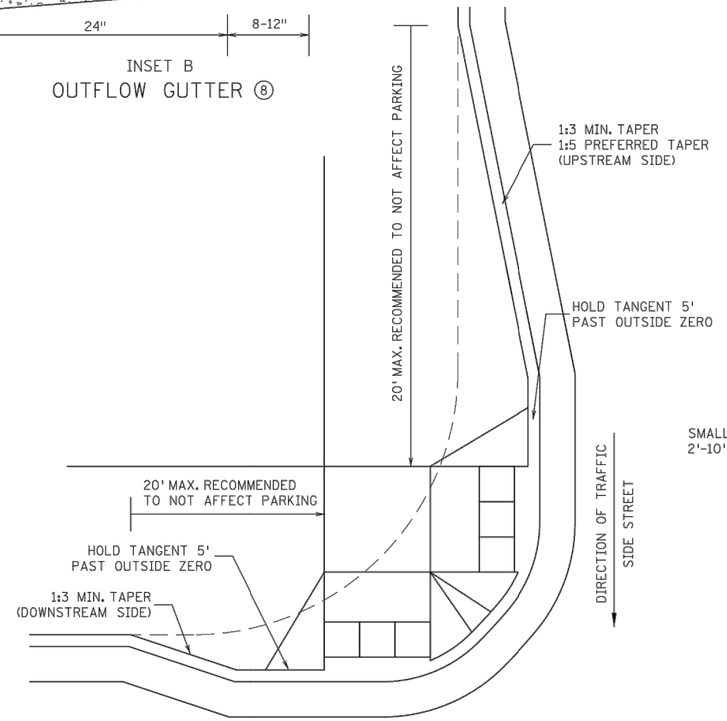
INSET A



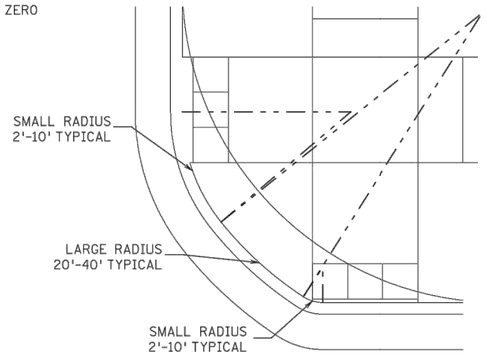
ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL ⑩
(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 RAMPS.

② FOR USE AT CURB RAMPS 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 RAMPS.

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

REVISED:

APPROVED:

STATE DESIGN ENGINEER

1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 3 OF 6

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DESIGNED JWC
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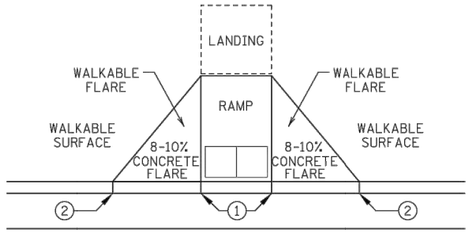
CITY OF RAMSEY, MINNESOTA

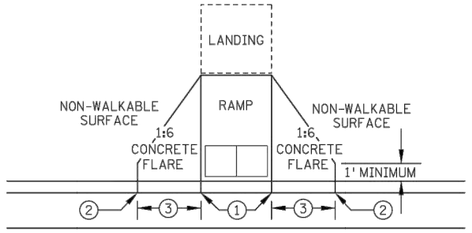
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PEDESTRIAN RAMP DETAILS

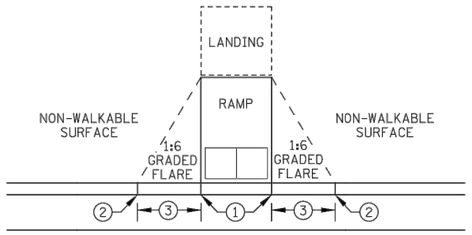
SHEET C1.07



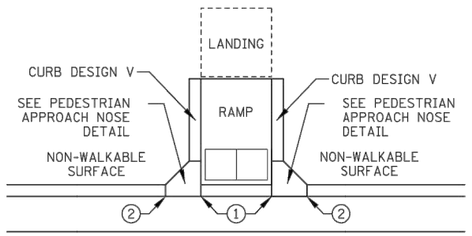
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

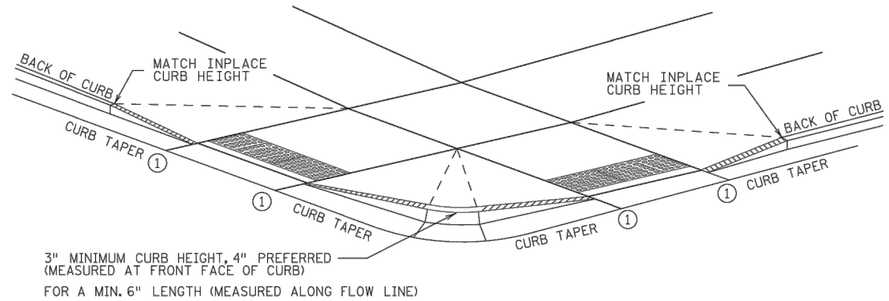


GRADED FLARES

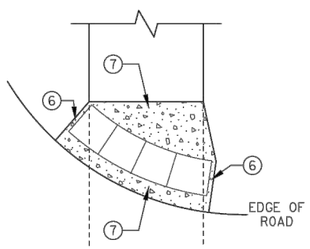


RETURNED CURB ⑤

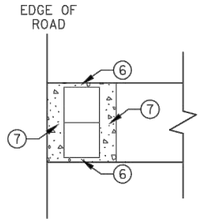
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

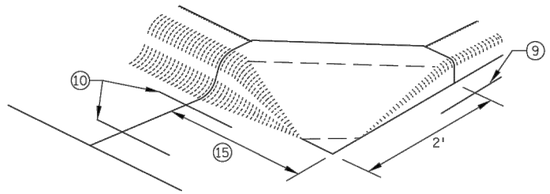


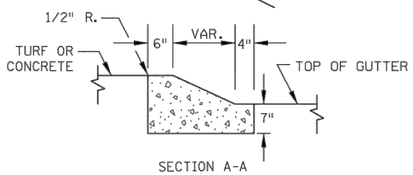
RADIAL DETECTABLE WARNING



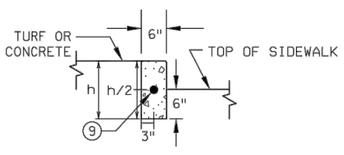
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

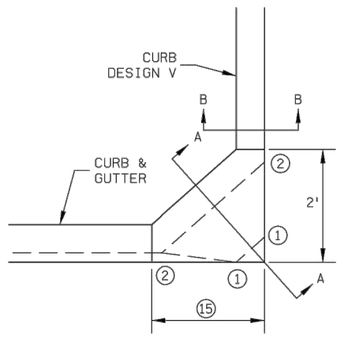




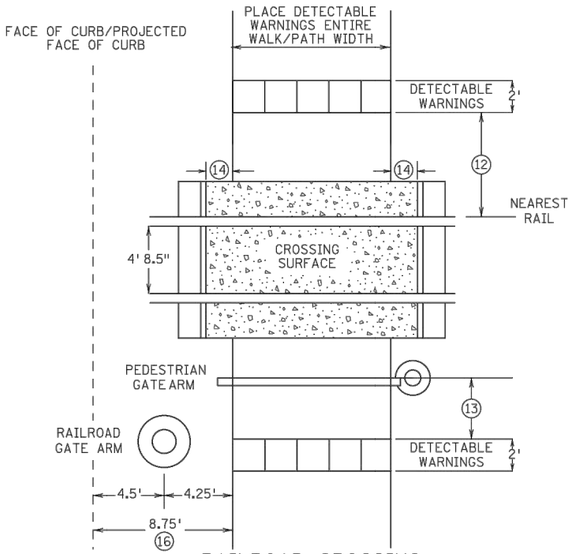
SECTION A-A



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 RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ 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.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ 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.

⑦ 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.

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ 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.

⑩ 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.

⑪ 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.

⑫ 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.

⑬ 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.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ 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.

REVISION:
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OPERATIONS ENGINEER

REVISED:

APPROVED:
1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 4 OF 6

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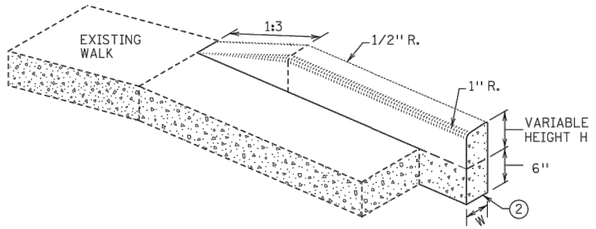
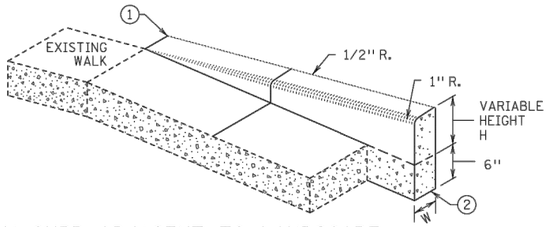
CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PEDESTRIAN RAMP DETAILS

SHEET
C1.08



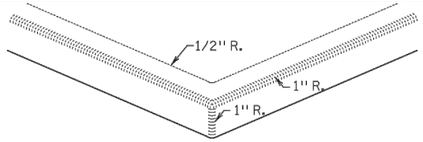
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

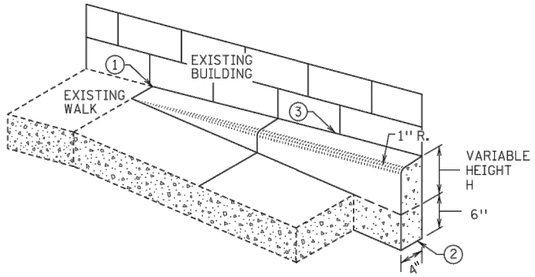


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

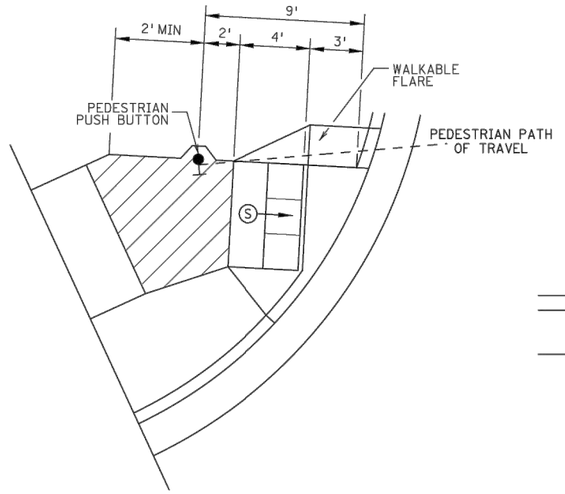


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

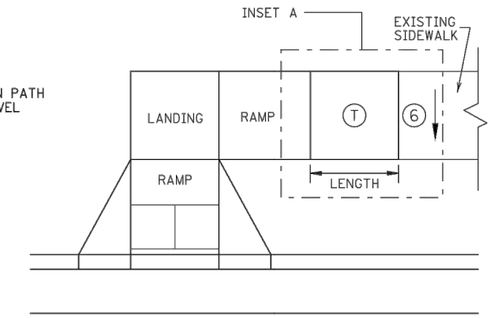
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"

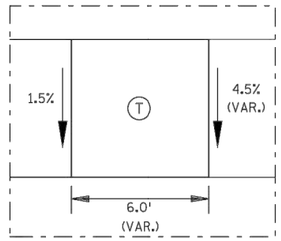


SEMI-DIRECTIONAL RAMP (3,4,9)

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)





TRANSITION PANEL ④⑤

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.

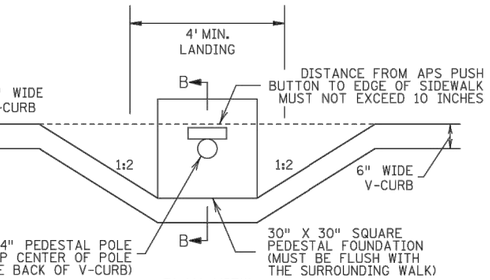
V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

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%.

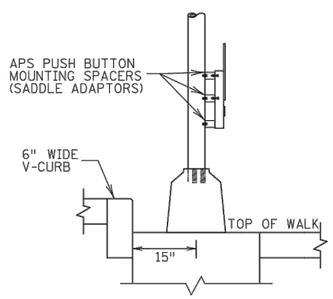
LEGEND

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%.
- 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.
- (T) 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.

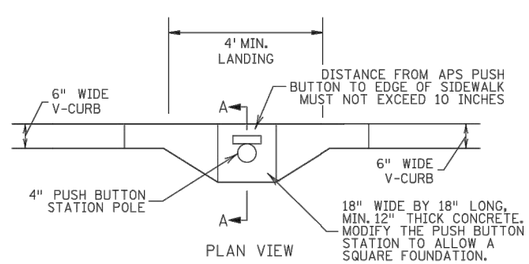


PLAN VIEW

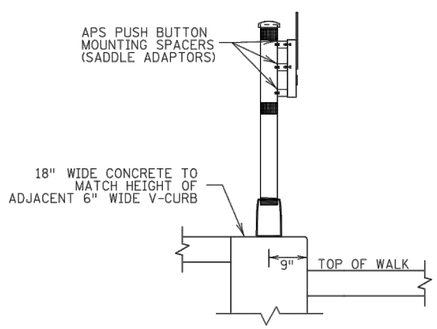


SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



PLAN VIEW



SECTION A-A

PUSH BUTTON STATION (V-CURB)

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 5 OF 6

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City of RAMSEY

BOLTON & MENK

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Email: Ramsey@bolton-menk.com
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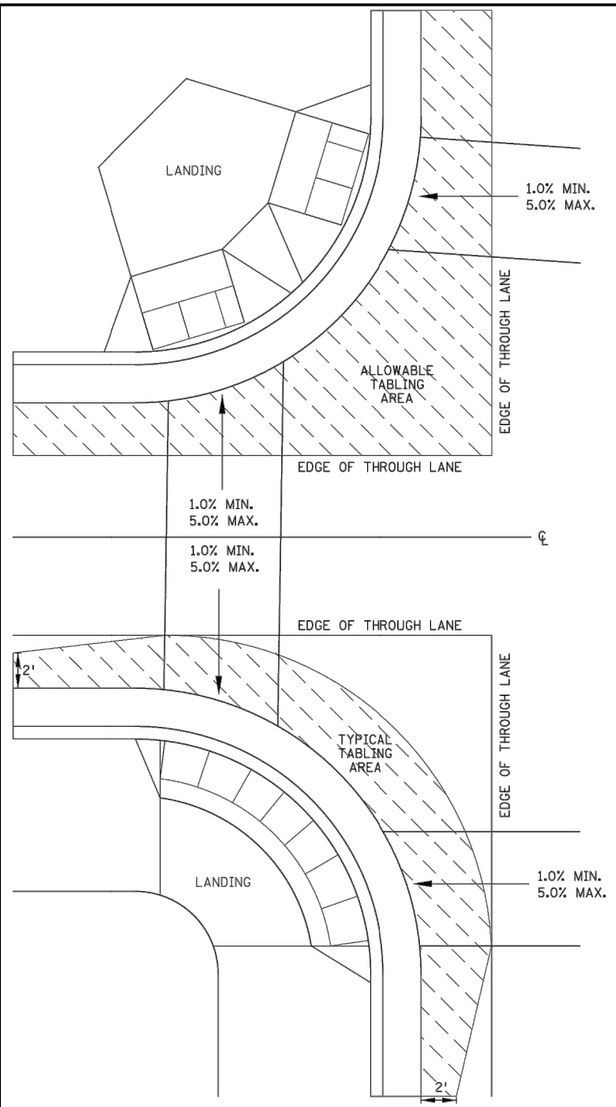
DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

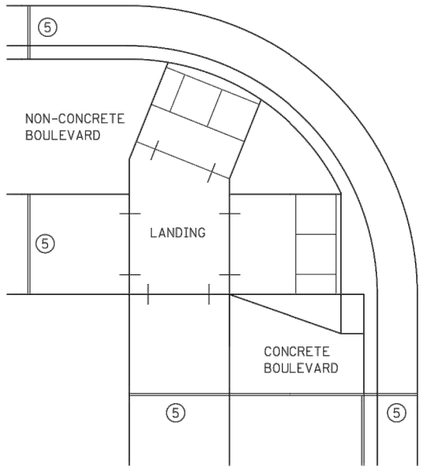
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PEDESTRIAN RAMP DETAILS

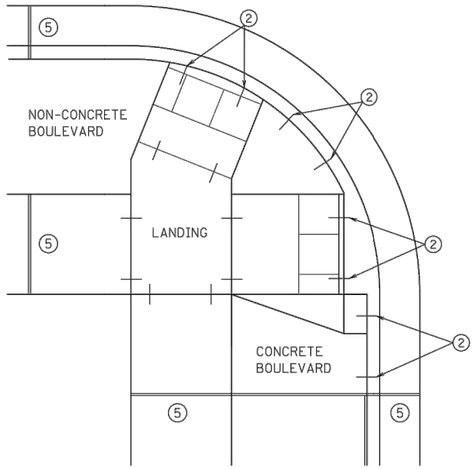
SHEET C1.09



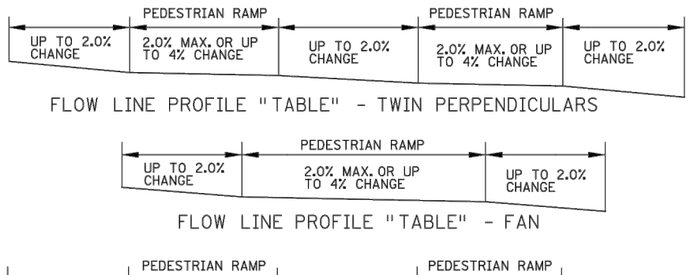
CURB LINE AND ROAD CROSSING ADJUSTMENTS



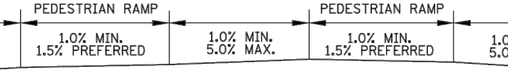
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



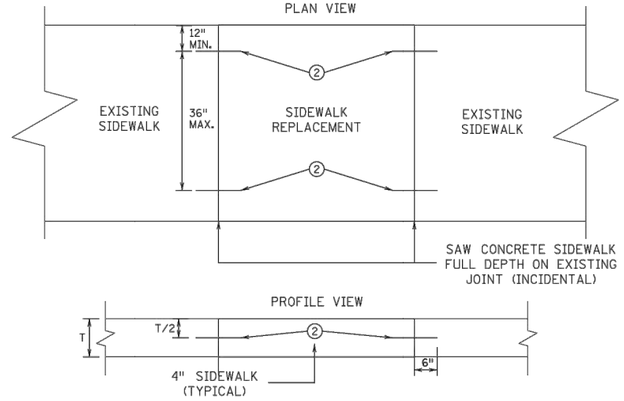
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



FLOW LINE PROFILE "TABLE" - FAN

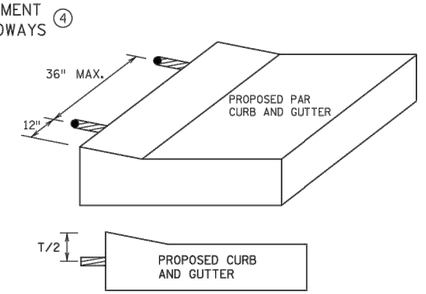
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

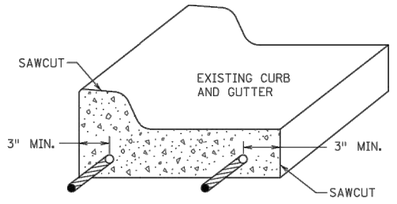
FLOW LINE PROFILE RAISE - FAN



OPTIONAL SIDEWALK REINFORCEMENT

SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

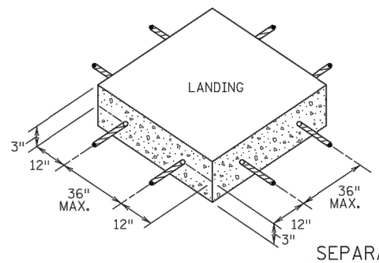


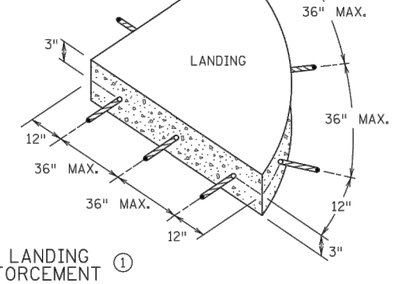


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING POUR REINFORCEMENT ①

"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

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 6 OF 6

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City of RAMSEY

BOLTON & MENK

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DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PEDESTRIAN RAMP DETAILS

SHEET C1.10

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

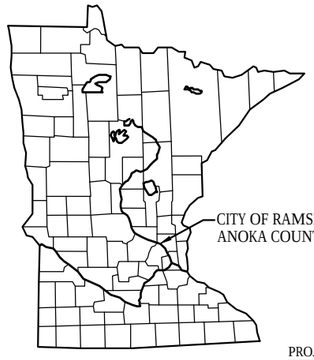
2018 STREET & STORM SEWER IMPROVEMENTS

CITY OF RAMSEY
ANOKA COUNTY, MINNESOTA

UNIVERSITY OF MINNESOTA

JASON COOK

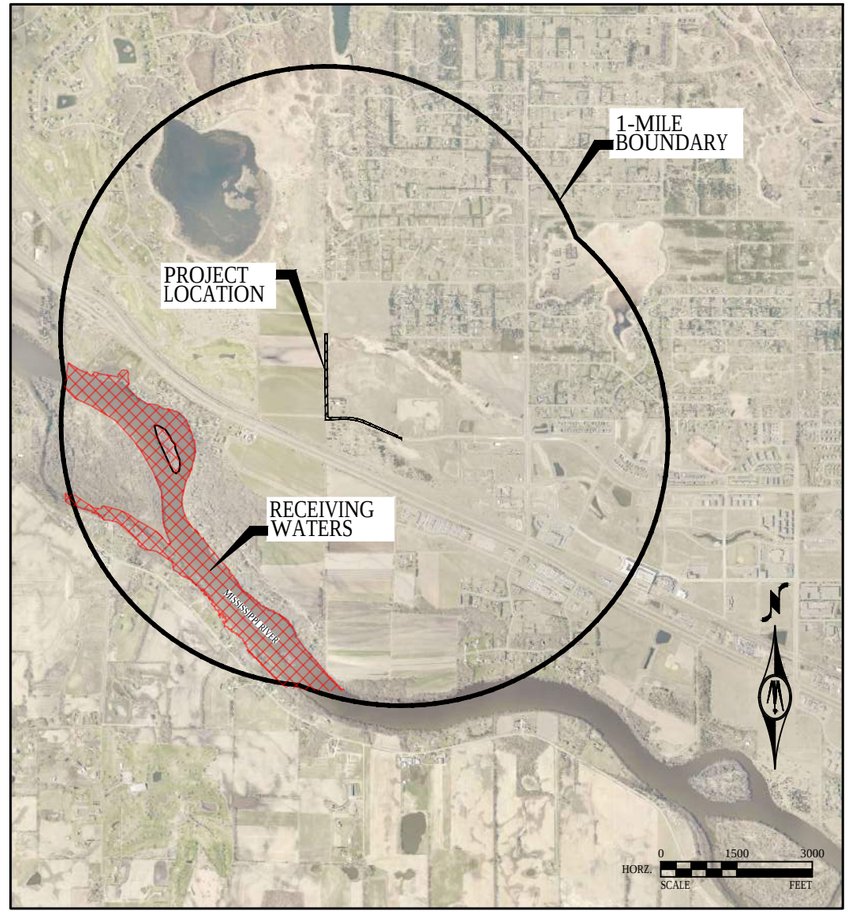
Design of Construction SWPPP (May 31, 2020)



CITY OF RAMSEY
ANOKA COUNTY, MINNESOTA

LEGEND

- 1 MILE BOUNDARY
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- PROJECT LOCATION



PROJECT AREAS:

Total Project Size (disturbed area) =	4.6	ACRES
Existing area of impervious surface =	2.0	ACRES
Post construction area of impervious surface =	3.1	ACRES
Total new impervious surface area created =	1.1	ACRES

Planned Construction Start Date: 06/01/2018
Estimated Construction Completion Date: 11/30/2018

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
X	Regional Pond
	Permanent Storm Water Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
ANOKA	T32N	R25W	S29	45.2335620	-93.4804244

RESPONSIBLE PARTIES:
The Contractor and Owner must apply for coverage under the MPCA's General Storm Water Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program. Coverage under the permit will begin automatically 7 calendar days after the electronic submittal date or after the postmarked date of a complete application. [Longer time frames apply to sites that disturb areas greater than 50 acres.]

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.

The Contractor shall provide one or more trained BMP Installer(s). The BMP Installer will perform and/or supervise the installation, maintenance and repair of BMPS. At least one individual on project must be trained in these job duties.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	City of Ramsey	Bruce Westby	763-433-9825
SWPPP DESIGNER:	Bolton & Menk, Inc.	Jason Cook, P.E.	763-433-2851
CONTRACTOR:	TBD		
CONSTRUCTION SWPPP MANAGER:	TBD		
PARTY RESPONSIBLE FOR LONG TERM O&M:	City of Ramsey	Bruce Westby	763-433-9825

The SWPPP Designer and Construction SWPPP Manager 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 this sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager 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 Storm Water 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.

SPECIAL ENVIRONMENTAL CONSIDERATIONS:

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 disharges to during fish spawning?	NO

GENERAL STORMWATER DISCHARGE REQUIREMENTS
All requirements listed in Part III 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.

BMP SUMMARY	QUANTITY	UNIT
SEDIMENT CONTROL: SILT FENCE	5,275	LIN FT
SEDIMENT CONTROL LOG	60	LIN FT
STABILIZED CONSTRUCTION EXIT	1	LUMP SUM
SEEDING (MIX 25-121, FERT TYPE 3 (22-5-10), HYDRAULIC BONDED FIBER MATRIX)	2	ACRE
RANDOM RIP RAP CLASS III	36	TON
STORM DRAIN INLET PROTECTION	26	EACH

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:
Construction activities include: Storm sewer construction, site grading, bituminous roadway and trail paving, concrete curb & gutter, and permanent erosion and sediment control.

Trunk Storm Sewer network is being added to the Puma Street & Bunker Lake Boulevard corridors. The roadway is to be reconstructed & widened to include a shared left turn lane. Storm water on Puma Street discharges to the existing filtration pond West of Puma Street. The storm water on Bunker Lake Boulevard discharges to the existing ditch system along the south side of the roadway.

Existing drainage patterns and discharges are proposed to remain in pre-construction conditions. All modifications to this SWPPP shall be approved by the Engineer and remain on-site during construction.

DOCUMENT RETENTION
The following documentation will be retained for a period of not less than 3-years from the date of submittal of the NOT in compliance with Part III.E of the Permit.

1. The final SWPPP
2. Copies of all stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. Copies of all permanent operation and maintenance agreements; including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance, and
5. All required calculations for design of the temporary and permanent BMPs.

RECEIVING WATERS:
Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, are identified on the USGS 7.5 min quad map within one mile of the project boundary. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in this permit for special and impaired waters 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.)	Appendix A Special Water?	Flows to Impaired Water Within 1 Mile?	USEPA Approved TMDL?
MISSISSIPPI RIVER	RIVER	YES	YES, NOT FOR CONST	YES, NOT FOR CONST
Impairments: MERCURY				

IMPLEMENTATION SCHEDULE AND PHASING:

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, 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 exits.
3) Add additional temporary BMPs as necessary during construction based on inspection reports and construction activities.
5) Stabilize site.
6) Ensure final stabilization measures are complete.
7) Submit Notice of Termination (NOT) to MPCA within 30 days of final stabilization. The City must be contacted and grant approval prior to filing the Notice of Termination.

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City of RAMSEY

BOLTON & MENK

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RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

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.

KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
STORM WATER POLLUTION PREVENTION 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 Rl0000l 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:
http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/mpca-to-re-issue-construction-stormwater-general-permit.html

SWPPP AMENDMENTS

Permittee must amend SWPPP as necessary to include additional requirements to correct problems identified or address the following situations.

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

EROSION PREVENTION PRACTICES

The location of areas not to be disturbed must be delineated on the project before site work begins.

Disturbance on steep slopes (>33.3%) shall be minimized. Where required, techniques such as phasing and stabilizing practices designed for steep slopes shall be used.

All exposed soils must be stabilized as soon as possible, but in no case later than 7 days after the construction activity has temporarily or permanently ceased.

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.

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.

Stabilization of the remaining portions of any temporary or permanent ditches or swales within 7 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporary or permanently ceased.

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 a temporary or permanent drainage ditch. Refer to erosion and sediment control plan for temporary and permanent stabilization measures for ditches and swales.

Stormwater discharges shall be directed to vegetated areas where feasible. Velocity dissipation devices shall be used at discharge point.

Phased construction will be used to extent practical or as indicated in the plans to minimize exposed soils.

Rapid stabilization shall be of type and quantity indicated in the project specifications. Additional rapid stabilization may be necessary to minimize erosion throughout the duration of the project. Type and quantity shall be determined by the engineer or inspector prior to installation. In extreme cases, the contractor shall use any available rapid stabilization to immediately mitigate erosion, then further remedy the situation with approval by owner or engineer.

SEDIMENT CONTROL PRACTICES

Practices must be established on all down gradient perimeters and be located up gradient of any buffer zones. Perimeter controls must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All sediment controls practices shall be re-installed if they have been adjusted or removed to accommodate short-term activities and replaced immediately after the short term activity has ceased. Short term activities shall be performed as quickly as possible. Sediment control practices shall be re-installed even before the next precipitation event if the activity is not complete.

All storm drains must be protected by appropriate BMPs during construction until all sources to the inlet have been stabilized. Inlet protection may be removed for specific safety concerns identified by the Permittee or jurisdictional authority. The removal shall be documented in the SWPPP and retained on site. Temporary stockpiles must have silt fence or other effective sediment controls and shall not be placed in surface waters or natural buffers.

Vehicle tracking BMPs shall be installed to minimize track out of sediment from the construction site. Method shall be approved by engineer prior to commencement of construction activities. Street sweeping shall be used if vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the street.

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

A 50 foot natural buffer, or redundant BMPs (where a buffer is infeasible) must be maintained when a surface water is located within 50 feet of disturbance activities and site runoff flows to the surface water.

If polymers, flocculants, or other sedimentation treatment chemicals are used on site, 1) conventional erosion and sediment controls shall be sowed prior to chemical placement, 2) chemicals shall be chosen based on soil types, and expected turbidity, pH, and flow rate of stormwater flowing into the treatment system, and 3) chemicals shall be used with accepted engineering practices and dosing specifications.

TEMPORARY SEDIMENTATION BASINS

The temporary sedimentation basin shall be constructed and made operational prior to disturbance of 10 or more acres draining to a common location.

Temporary sedimentation basins are required prior to runoff leaving the construction site or entering surface waters when 10 or more acres of disturbed soils drain to a common location. The basin must provide 3,600 cubic feet of "storage below the outlet per acre drained. If hydraulic calculations are available, the temporary sedimentation basin must provide a storage volume equivalent to the 2-year, 24-hour storm, but in no case less than 1800 cubic feet per acre drained. The temporary sedimentation basin must be constructed and made operational concurrent with the start of soil disturbance up gradient of the pond. The temporary sedimentation basin shall be designed to prevent short circuiting. The outfall shall be designed to remove floatable debris, allow for complete drawdown of the pond for maintenance activities, and have energy dissipation. The emergency spillway shall be stabilized.

Temporary sedimentation basins shall be situated outside of surface waters and any required buffer zone, and must be designed to avoid draining wetlands, unless the impact is in compliance with the requirements of this permit.

Excessive sediment-laden water that is not properly filtered will not be permitted to discharge from site.

DEWATERING AND BASIN DRAINING

Turbid or sediment-laden waters related to dewatering or basin draining shall be discharged to a temporary or permanent sedimentation basin on the project site unless infeasible. The temporary or permanent basin may discharge to surface waters if the basin water has been visually checked to ensure adequate treatment has been obtained in the basin and that the nuisance conditions will not result from the discharge. Discharge points shall be adequately protected from erosion and proper velocity dissipation provided.

All water from dewatering or basin-draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in the receiving channels or on down slope properties, or inundation in wetlands causing significant adverse impacts to the wetland.

If filters with backwash waters are used, the backwash water shall be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into site in a manner that does not cause erosion. Backwash water may be discharged to sanitary sewer if permission is granted by the sanitary sewer authority.

POLLUTION PREVENTION

Building products that have the potential to leach pollutants must be under cover to prevent discharge or protected by an effective means designed to minimize contact with stormwater.

Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover.

Hazardous materials and toxic waste must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism.

Solid waste must be stored, collected and disposed of in compliance with Minn. R. CH 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.

Discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded shall be prevented using drip pans or absorbents. Supplies shall be available at all times to clean up discharged materials and that an appropriate disposal method must be available for recovered spilled materials.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. Runoff from the washing area shall be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. No engine degreasing is allowed on site. Effective containment for all liquid and solid wastes generated by concrete and other washout operations related to construction activity shall be effectively contained. Liquid and solid washout waste shall not contact the ground, and containment must be designed so that it does not result in runoff from the washout operations or areas. 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.

INFESTED WATERS:

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 until such time as an lnfested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at least once every 7 days 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 within 7 days.

All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and records 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. All inspection logs must be submitted to the City. Inspection notes after a rainfall event and weekly notes must be emailed to the City lnspector. The complete history must be submitted prior to finalizing the project.

Where parts of the project site have permanent cover, but work remains on other parts of the site, inspections may be reduced on these areas to once per month.

Where the site has permanent cover on all exposed areas and no construction activity is occurring anywhere on site, the site must be inspected during non-frozen conditions at least once per month for 12 months. Following the 12th month of permanent cover and no construction activity, inspections shall be terminated until construction activity resumes or notification from MPCA has been issued that erosion has been detected at the site.

During frozen ground conditions, inspections may be suspended and shall resume within 24 hours after runoff occurs or 24 hours prior to resuming construction activity, whichever is first.

Inspection and maintenance shall resume until another Permittee has obtained coverage under this Permit or the project has undergone Final Stabilization, and an NOT has been submitted.

All erosion prevention and sediment control BMPs shall be inspected to ensure integrity and effectiveness during all routine and post-rainfall inspections. All non-functioning BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow access.

All perimeter control devices must be repaired, replaced, or supplemented when they become non-functional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or as soon as field conditions allow.

Temporary and permanent sediment basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and sediment removal must be completed within 72 hours of discovery, or as soon as field conditions allow.

Surface waters, including drainage ditches and conveyance systems, must be inspected for erosion and sediment deposition during each inspection. All deltas and sediment deposited in drainage ways, catch basins, and other drainage systems shall be removed. The removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee is responsible for obtaining all applicable permits prior to conducting any work in surface waters.

Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off within 3-hours after notification by the City that sweeping is required.

Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a sufficient frequency to minimize off-site impacts.

All infiltration areas must be inspected 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.

FINAL STABILIZATION

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

1. All soil disturbing activities at the site have been completed and all soils are stabilized by a uniform perennial vegetative cover with a density of 70% of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.
2. Permanent stormwater management system is constructed, meets all requirements of the Permit, and is operating as designed. Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems, and ditches are stabilized with permanent cover.
3. All temporary synthetic and structural erosion prevention and sediment control BMPs have been removed. BMPs designed to decompose on site may be left in place.
4. For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished, temporary erosion protection and down gradient perimeter control has been completed and the residence has been sold to the homeowner. Also, the "Homeowner Fact Sheet" has been provided to the homeowner

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City of RAMSEY

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REV	ISSUED FOR	DATE

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.

KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

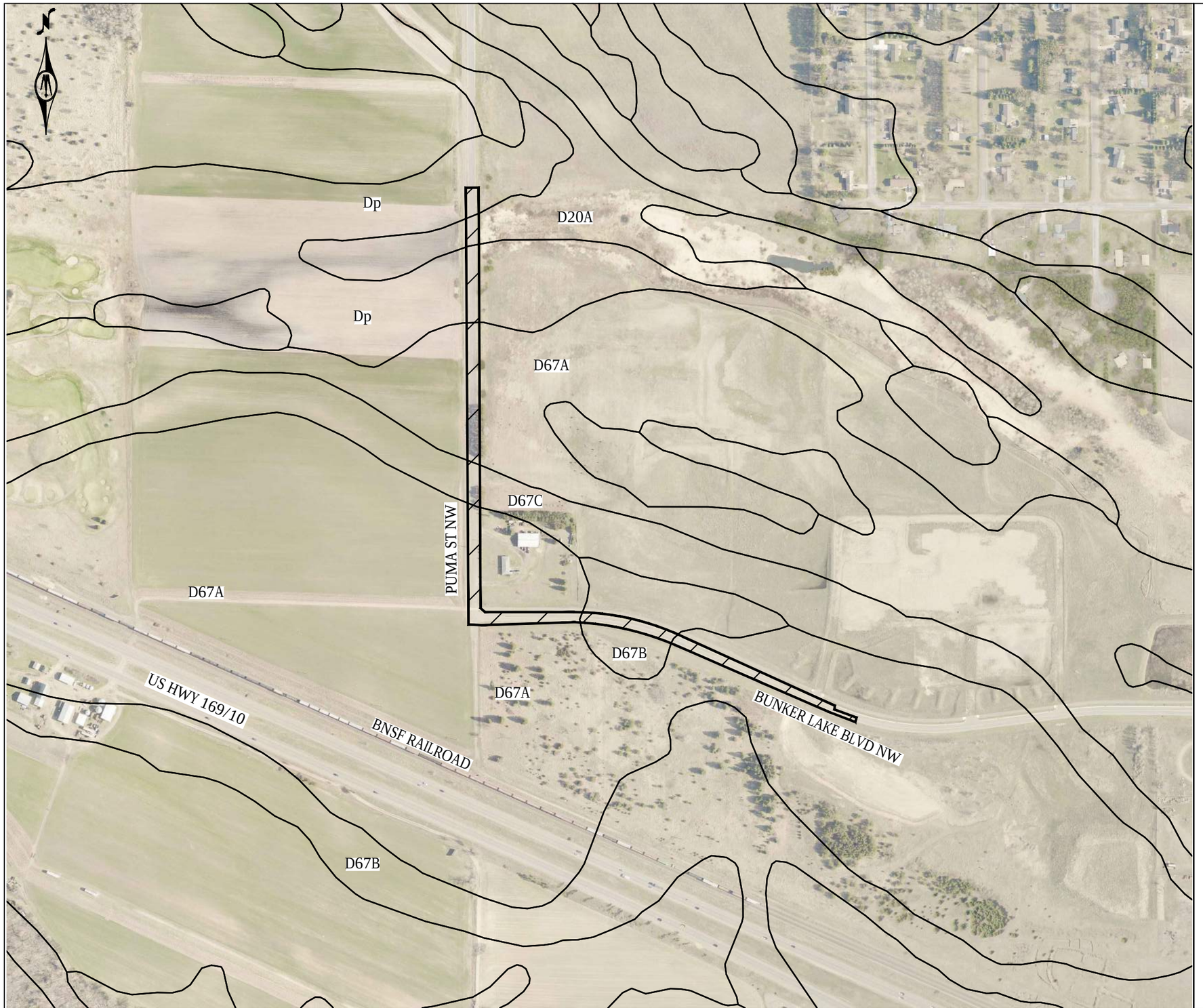
DESIGNED	JWC
DRAWN	EKD
CHECKED	KPK

CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

NARRATIVE

SHEET
C2.02



LEGEND

PROJECT BOUNDARY

D67A — SOIL TYPE AND BOUNDARY

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
MUSYM	MUNAME	HYDGRP	MUHELCL
D67A	HUBBARD LOAMY SAND, MISSISSIPPI RIVER VALLEY, 0 TO 2 PERCENT SLOPES	A	NHEL
D67B	HUBBARD LOAMY SAND, MISSISSIPPI RIVER VALLEY, 2 TO 6 PERCENT SLOPES	A	NHEL
D67C	HUBBARD LOAMY SAND, MISSISSIPPI RIVER VALLEY, 6 TO 12 PERCENT SLOPES	A	PHEL
Dp	DUELM LOAMY SAND, 0 TO 2 PERCENT SLOPES	A	NHEL
D20A	ISAN SANDY LOAM, 0 TO 2 PERCENT SLOPES	A/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	C2.05 - C2.06
FINAL STABILIZATION	C2.05 - C2.06
SOILS	C2.03
EROSION & SEDIMENT CONTROL DETAILS	C2.04
NARRATIVE & NOTES	C2.01 - C2.02

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SCALE FEET

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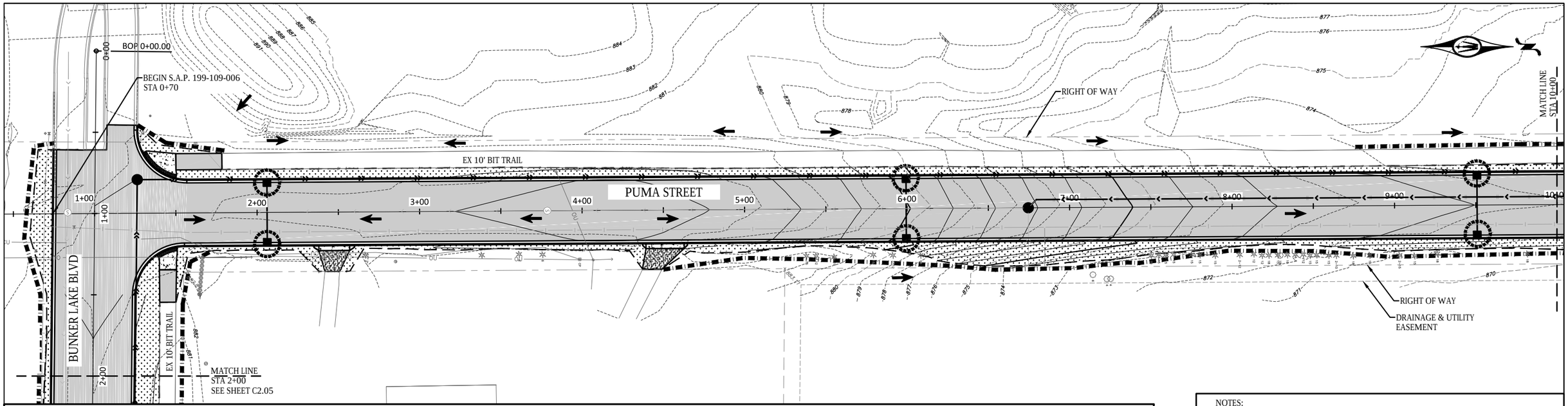
SOILS MAP

SHEET
C2.03

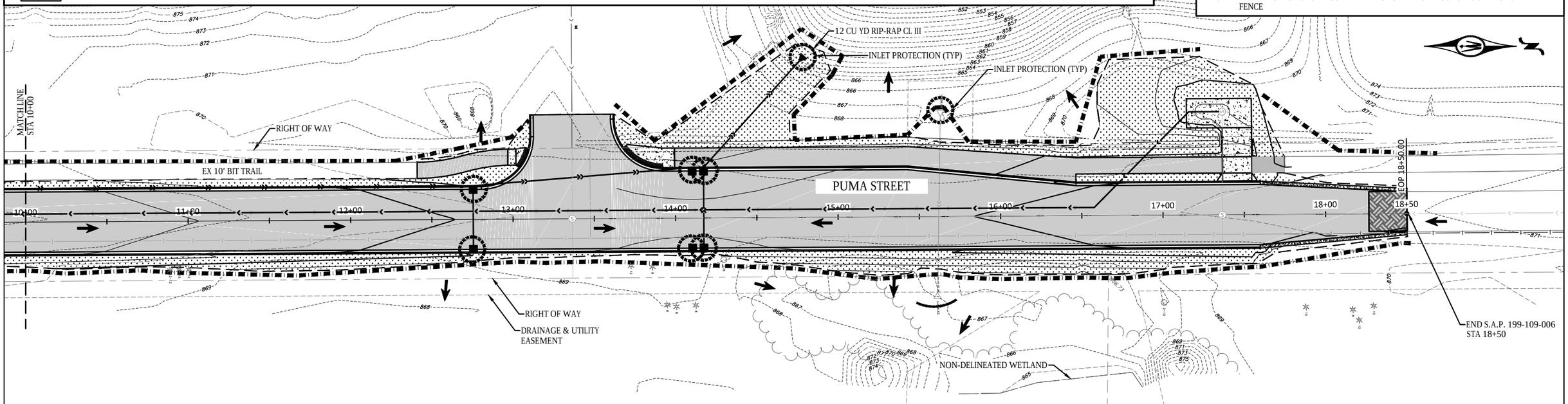


LEGEND

- STABILIZED CONSTRUCTION EXIT
- SEEDING, MIX 25-121, FERTILIZER TYPE 3, HYDRAULIC BONDED FIBER MATRIX
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- SILT FENCE TYPE MACHINE SLICED
- SURFACE FLOW ARROW
- INLET PROTECTION
- SEDIMENT CONTROL LOG TYPE WOOD FIBER
- STORM SEWER FLARED END SECTION
- STORM SEWER CATCH BASIN
- MONUMENT FOUND
- ANCHOR
- APRON
- CP COMMUNICATION PEDESTAL
- HYDRANT
- POST
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- TRAFFIC SIGN
- DECIDUOUS TREE
- CONIFER TREE
- BUSH
- TREE STUMP
- UTILITY POLE
- WATER VALVE
- CU UNDERGROUND COMMUNICATIONS LINE
- OU OVERHEAD UTILITY LINE
- STORM SEWER
- SANITARY SEWER
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- ELECTRIC LINE
- EASEMENT LINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- CONSTRUCTION LIMIT LINE

NOTES:

1. INSTALL EROSION CONTROL MEASURES PRIOR TO COMMENCING CONSTRUCTION.
2. A STREET SWEEPER MUST BE AVAILABLE WITHIN 3 HOURS UPON NOTICE FROM THE CITY THAT THE STREETS NEED TO BE SWEPT
3. ALL SILT FENCE TO BE REMOVED ONCE SEED IS ESTABLISHED.
4. STABILIZED CONSTRUCTION EXIT SHALL INCLUDE A ROCK FILTER BERM AT A MINIMUM TWO FEET IN HEIGHT AND SIDE SLOPES OF 4:1 AT THE SITE EXIT.
5. ALL SEDIMENT TRACKED ON CITY STREETS SHALL BE SWEPT IMMEDIATELY UPON DISCOVERY.
6. INLET PROTECTIONS AT CULVERT APRONS ARE TO BE CONSTRUCTED OF SILT FENCE



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LIC. NO. 23211 DATE 04/12/2018

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DRAWN	EKD
CHECKED	KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PUMA STREET EROSION CONTROL

SHEET
C2.04

PUMA STREET

MATCH LINE
STA 2+00
SEE SHEET C2.04

PC 2+29.02

PT 2+70.86

PC 4+88.78

RIGHT OF WAY

PT 5+12.63

BEGIN S.A.P. 199-121-002
STA 0+45

RIGHT OF WAY

DRAINAGE & UTILITY
EASEMENT

BUNKER LAKE BLVD

END S.A.P. 199-121-002
STA 17+04

PC 13+61.05

PT 15+52.65

12 CU YD RIP-RAP CL III

12 CU YD RIP-RAP CL III

DITCH GRADING

LEGEND

- STABILIZED CONSTRUCTION EXIT
- SEEDING, MIX 25-121, FERTILIZER TYPE 3, HYDRAULIC BONDED FIBER MATRIX
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- SILT FENCE TYPE MACHINE SLICED
- SURFACE FLOW ARROW
- INLET PROTECTION
- SEDIMENT CONTROL LOG TYPE WOOD FIBER
- STORM SEWER FLARED END SECTION
- STORM SEWER CATCH BASIN
- MONUMENT FOUND
- ANCHOR
- APRON
- COMMUNICATION PEDESTAL
- HYDRANT
- POST
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- TRAFFIC SIGN
- DECIDUOUS TREE
- CONIFER TREE
- BUSH
- TREE STUMP
- UTILITY POLE
- WATER VALVE
- UNDERGROUND COMMUNICATIONS LINE
- OVERHEAD UTILITY LINE
- STORM SEWER
- SANITARY SEWER
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- ELECTRIC LINE
- EASEMENT LINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- CONSTRUCTION LIMIT LINE

NOTES:

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6. INLET PROTECTIONS AT CULVERT APRONS ARE TO BE CONSTRUCTED OF SILT FENCE

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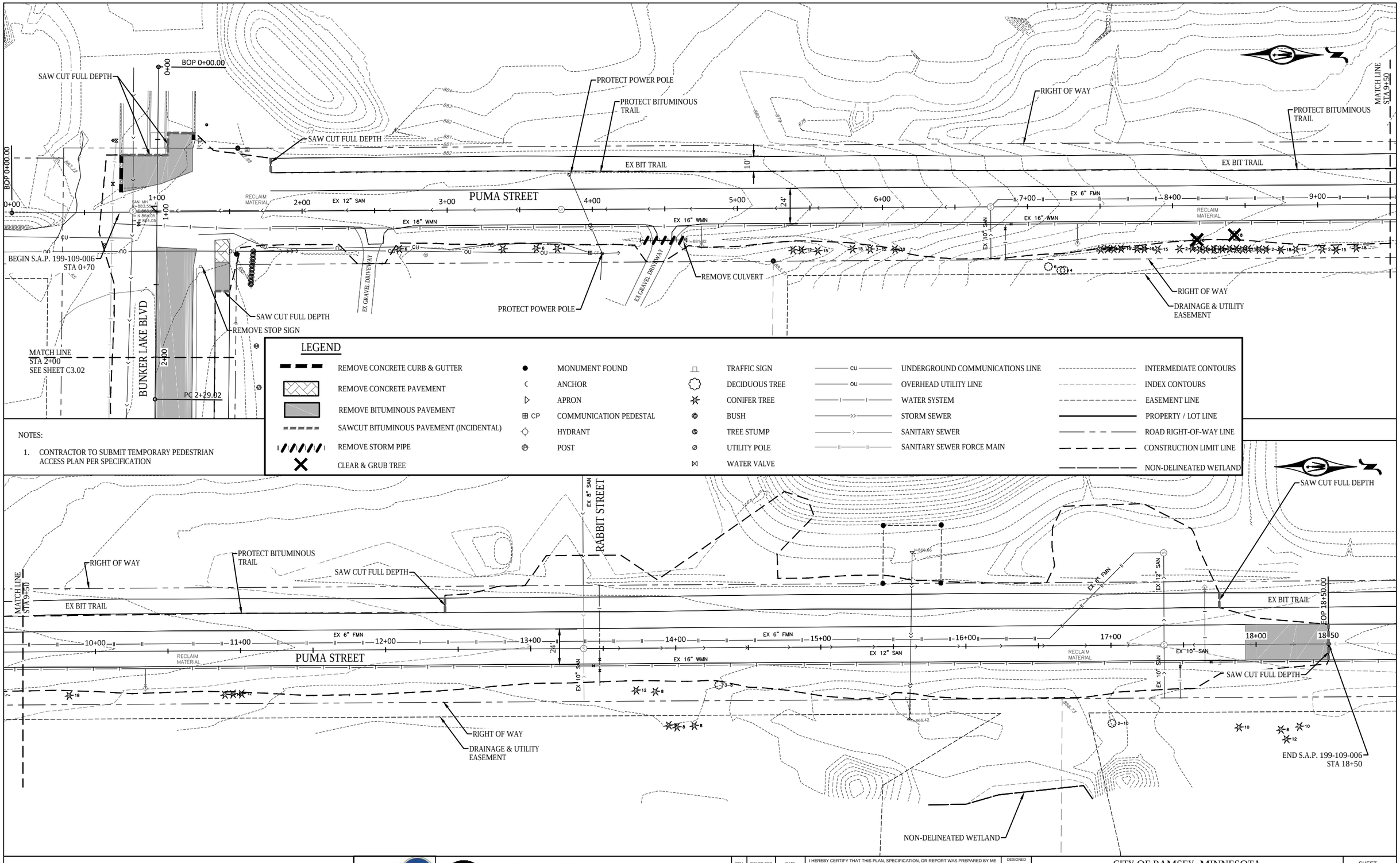
CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

BUNKER LAKE BOULEVARD EROSION CONTROL

SHEET
C2.05



NOTES:

1. CONTRACTOR TO SUBMIT TEMPORARY PEDESTRIAN ACCESS PLAN PER SPECIFICATION

LEGEND

- REMOVE CONCRETE CURB & GUTTER
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- SAWCUT BITUMINOUS PAVEMENT (INCIDENTAL)
- REMOVE STORM PIPE
- CLEAR & GRUB TREE
- MONUMENT FOUND
- ANCHOR
- APRON
- CP COMMUNICATION PEDESTAL
- HYDRANT
- POST
- TRAFFIC SIGN
- DECIDUOUS TREE
- CONIFER TREE
- BUSH
- TREE STUMP
- UTILITY POLE
- WATER VALVE
- CU UNDERGROUND COMMUNICATIONS LINE
- OU OVERHEAD UTILITY LINE
- WATER SYSTEM
- STORM SEWER
- SANITARY SEWER
- SANITARY SEWER FORCE MAIN
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- EASEMENT LINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- CONSTRUCTION LIMIT LINE
- NON-DELINEATED WETLAND

SCALE 0 30 60 FEET

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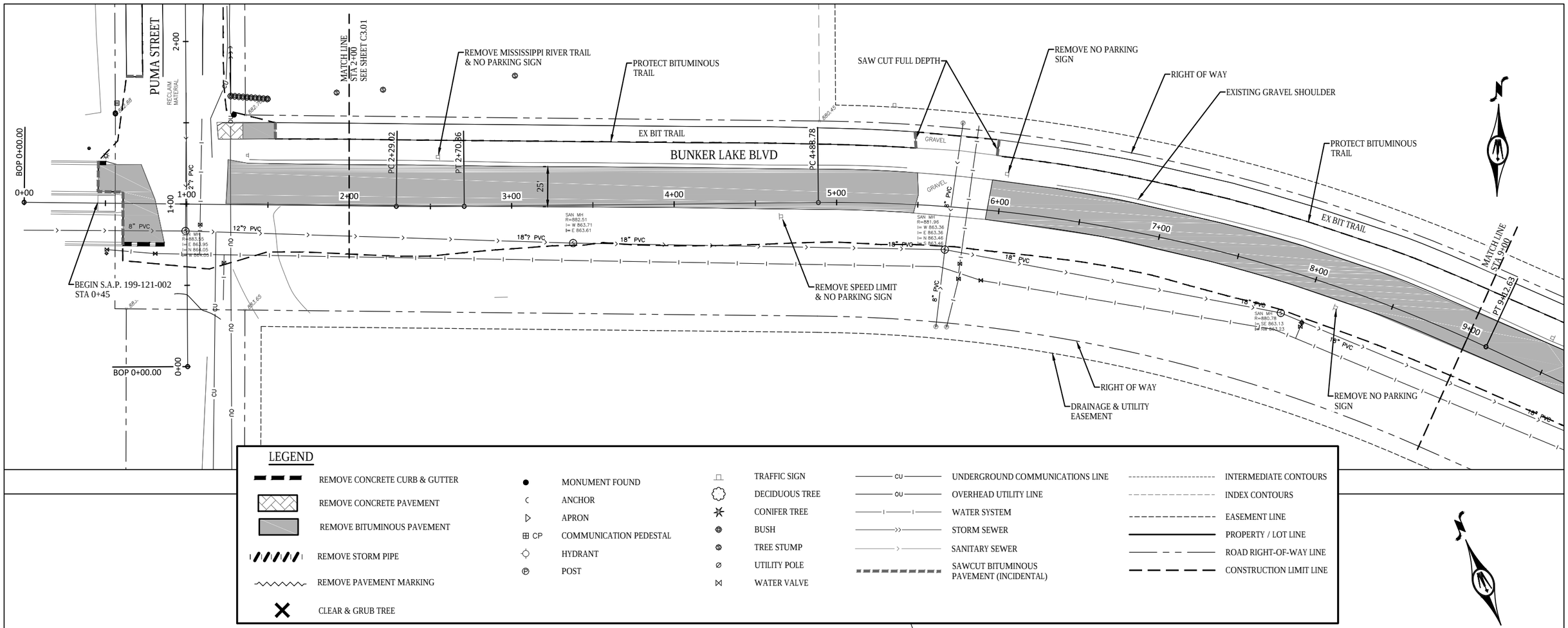
CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PUMA STREET - EXISTING CONDITIONS & REMOVALS

SHEET C3.01



LEGEND

- REMOVE CONCRETE CURB & GUTTER
- REMOVE CONCRETE PAVEMENT
- REMOVE BITUMINOUS PAVEMENT
- REMOVE STORM PIPE
- REMOVE PAVEMENT MARKING
- CLEAR & GRUB TREE
- MONUMENT FOUND
- ANCHOR
- APRON
- CP COMMUNICATION PEDESTAL
- HYDRANT
- POST
- TRAFFIC SIGN
- DECIDUOUS TREE
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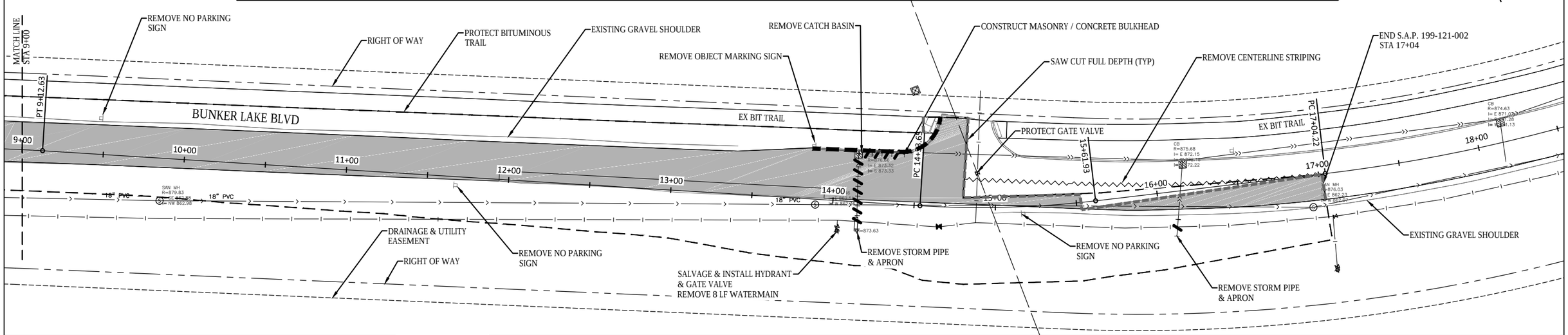
- UTILITY POLE
- WATER VALVE
- CU UNDERGROUND COMMUNICATIONS LINE
- OU OVERHEAD UTILITY LINE
- WATER SYSTEM
- STORM SEWER
- SANITARY SEWER
- SAWCUT BITUMINOUS PAVEMENT (INCIDENTAL)
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- EASEMENT LINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- CONSTRUCTION LIMIT LINE



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City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

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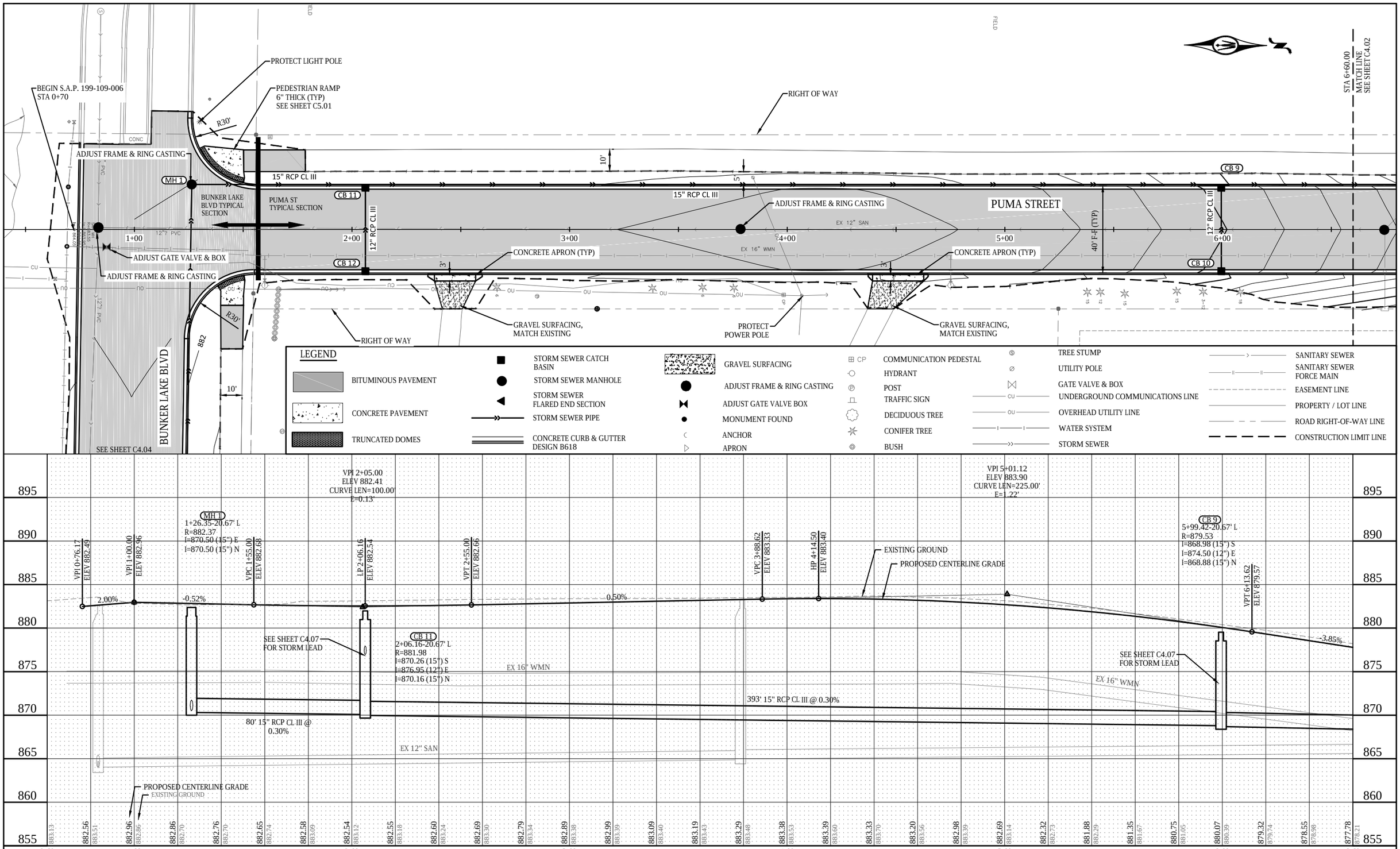
KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

DESIGNED	JWC
DRAWN	EKD
CHECKED	KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
BUNKER LAKE BLVD NW - EXISTING CONDITIONS & REMOVALS

SHEET
C3.02



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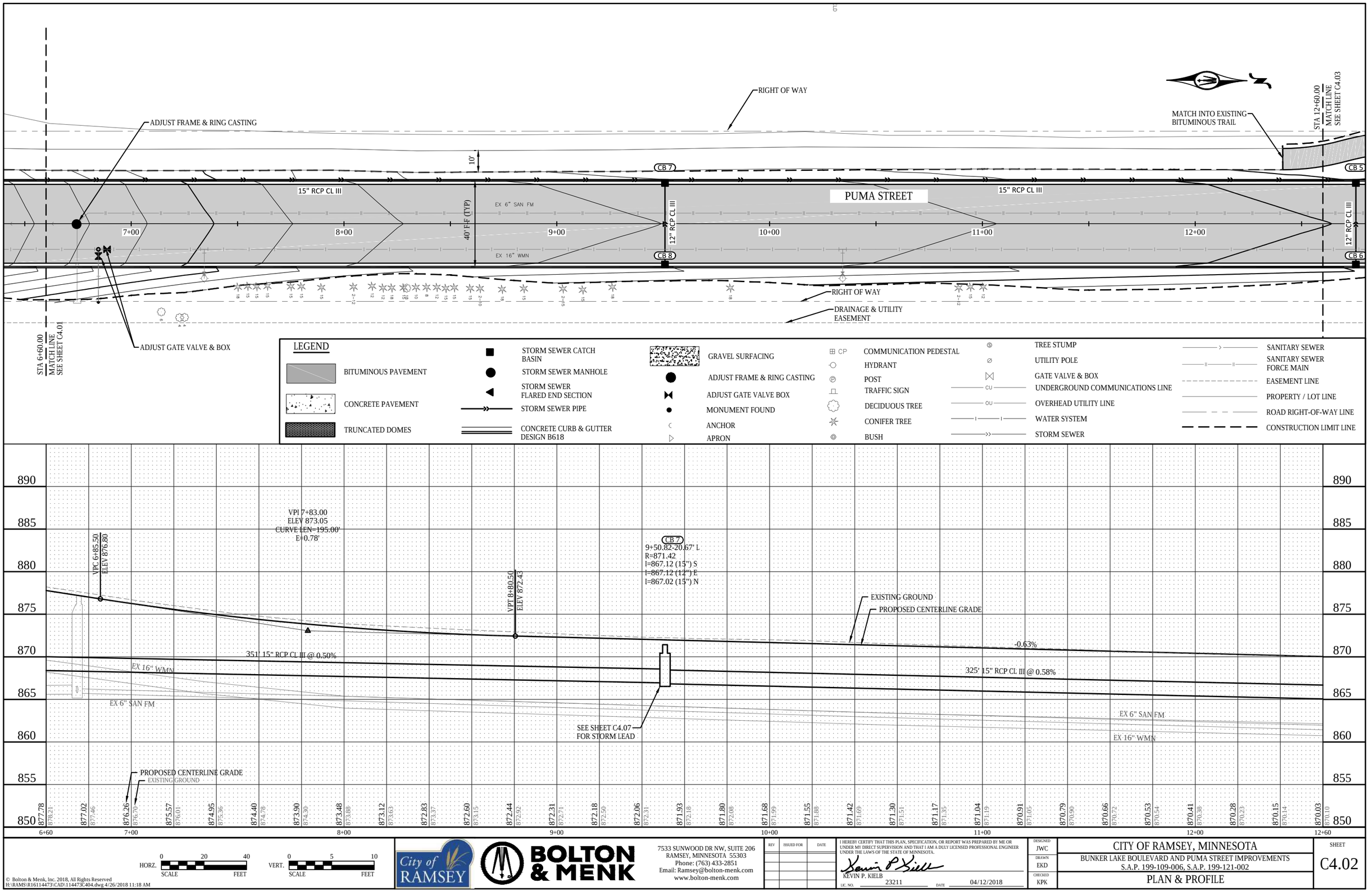
CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PLAN & PROFILE

SHEET C4.01



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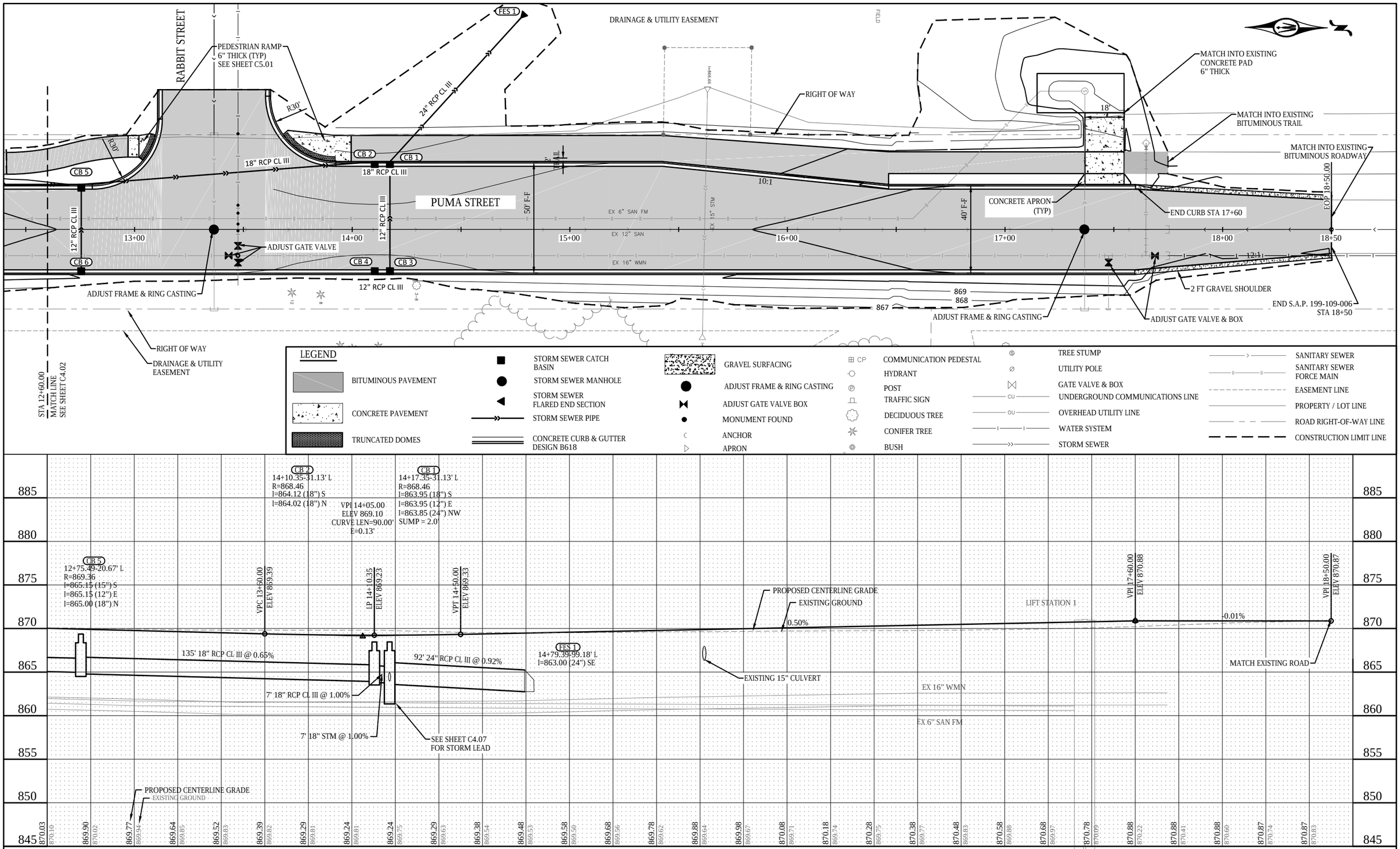
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PLAN & PROFILE

SHEET C4.02



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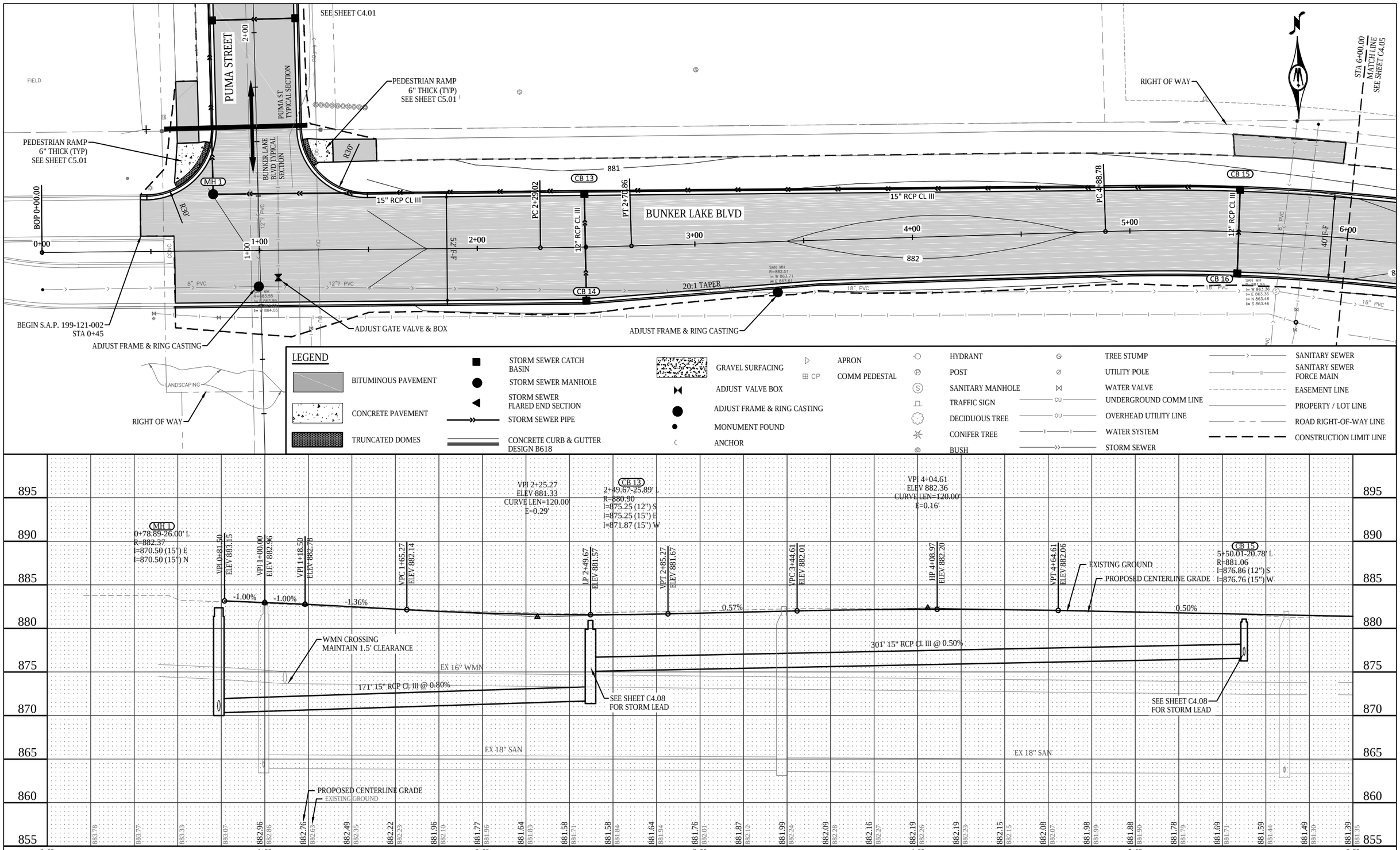
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PLAN & PROFILE

SHEET C4.03



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BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

PLAN & PROFILE

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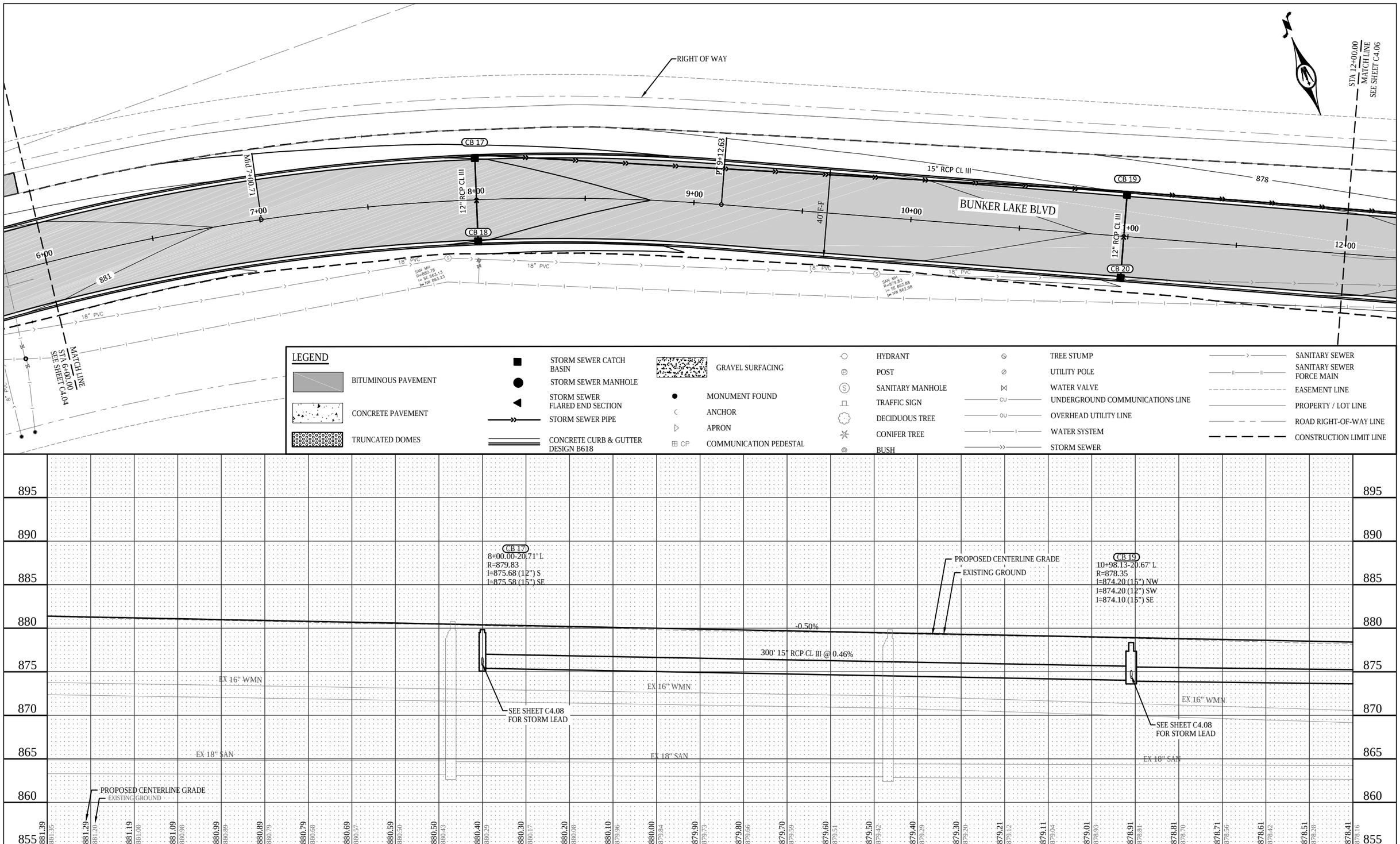

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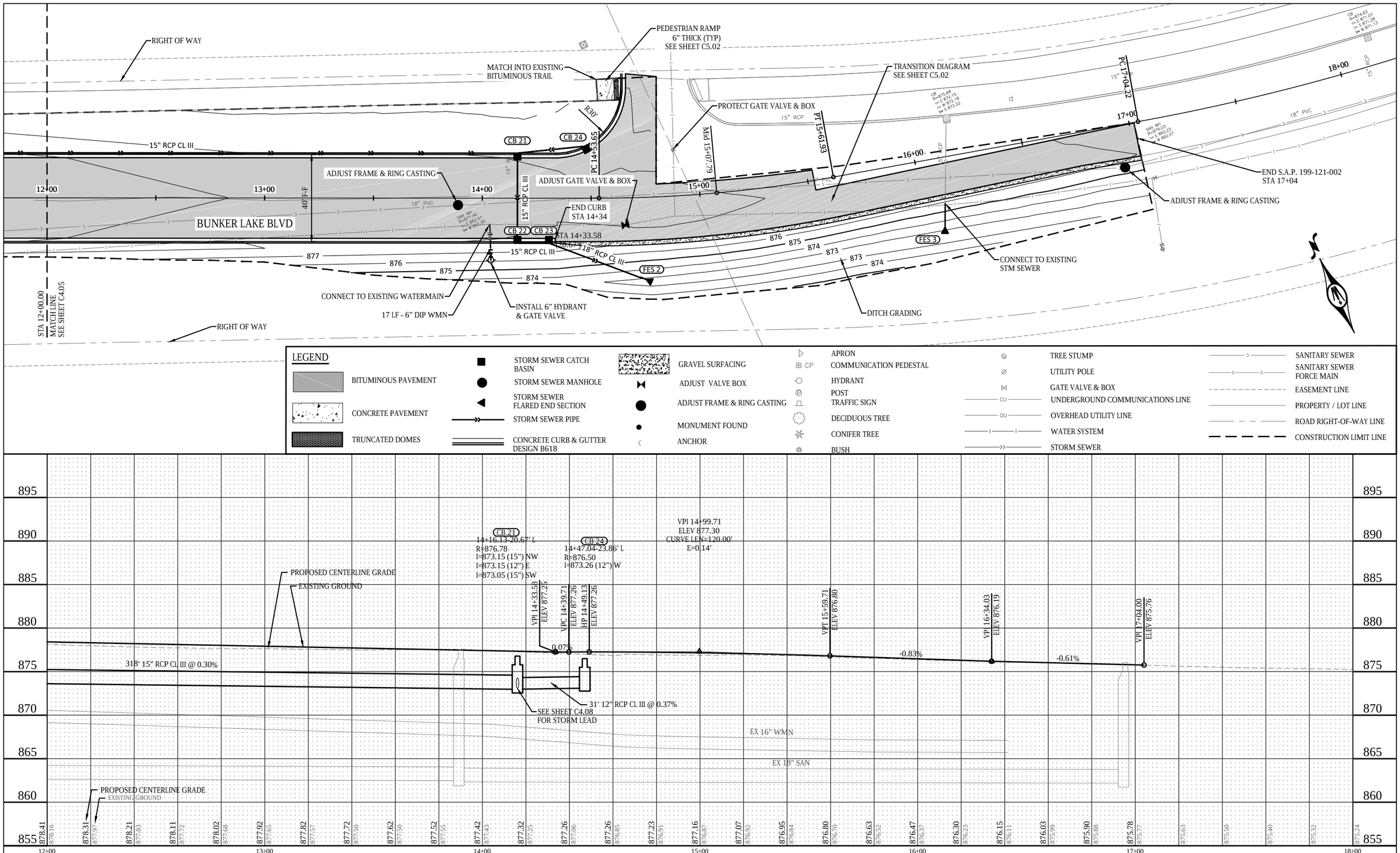
S.A.P. 199-109-006, S.A.P. 199-121-002

PLAN & PROFILE

SHEET C4.05



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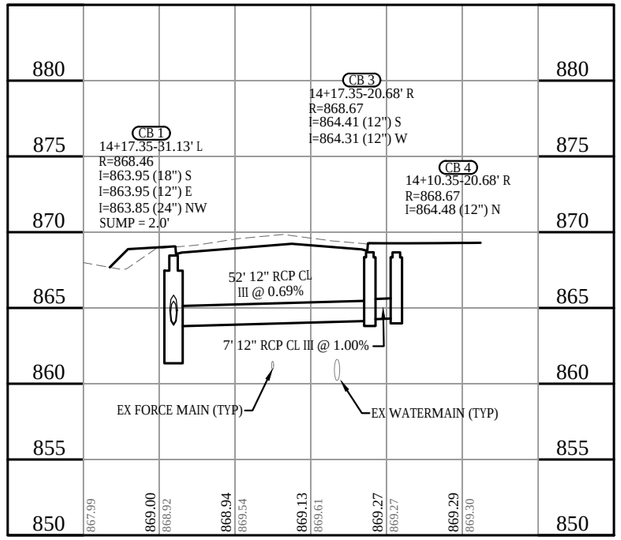
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

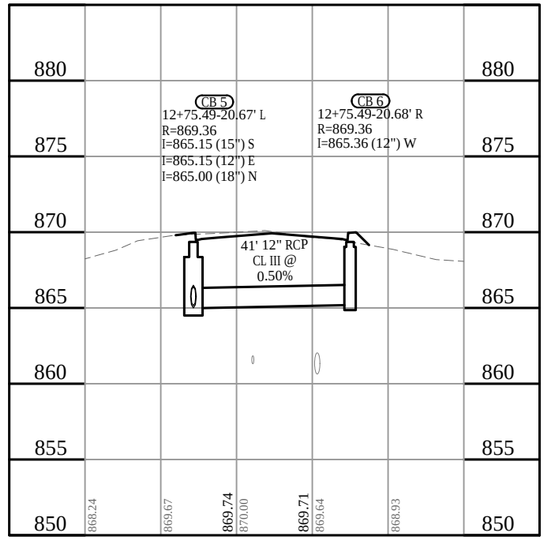
PLAN & PROFILE

SHEET C4.06

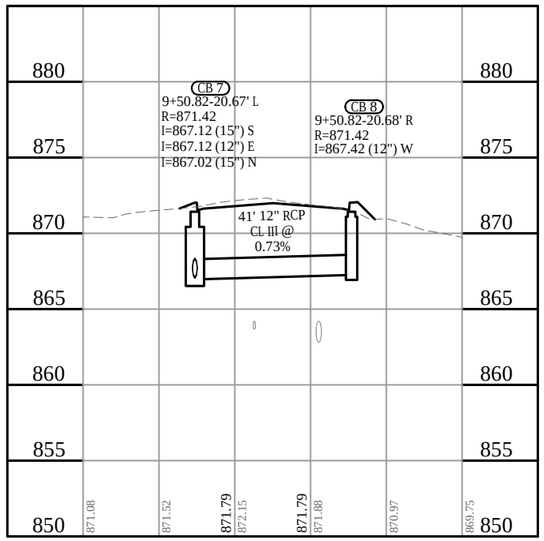
PUMA STREET STA 14+17



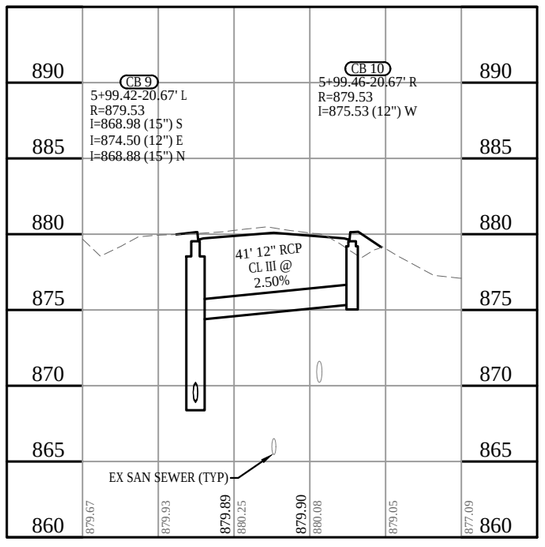
PUMA STREET STA 12+75



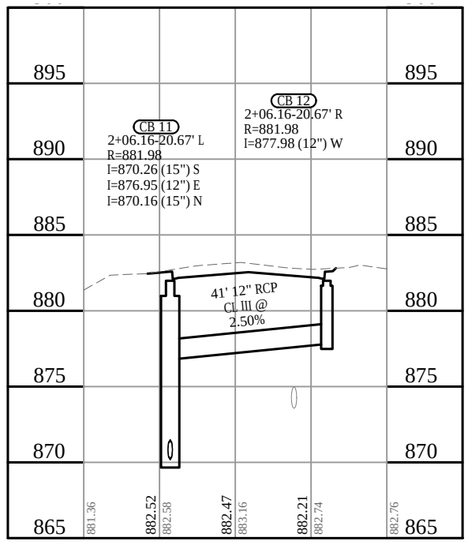
PUMA STREET STA 9+50



PUMA STREET STA 5+99



PUMA STREET STA 2+06



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CHECKED KPK

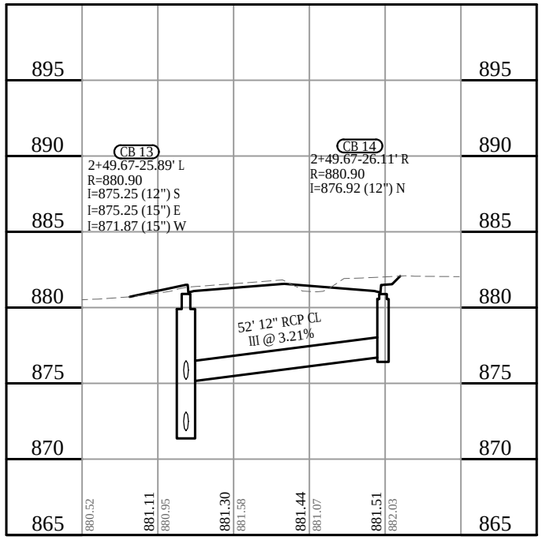
CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

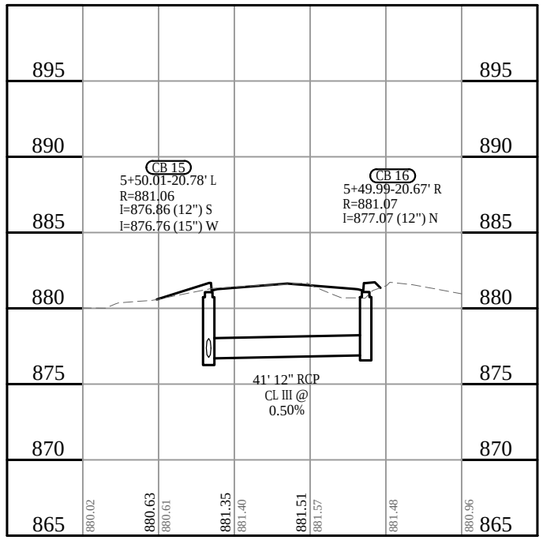
STORM SEWER LEADS

SHEET C4.07

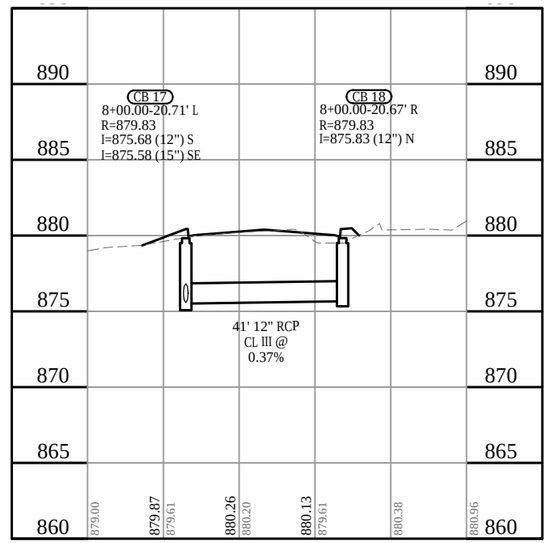
BUNKER LAKE BLVD STA 2+49



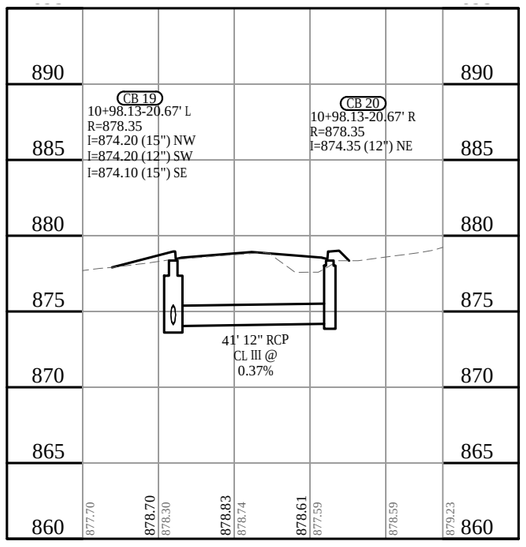
BUNKER LAKE BLVD STA 5+54



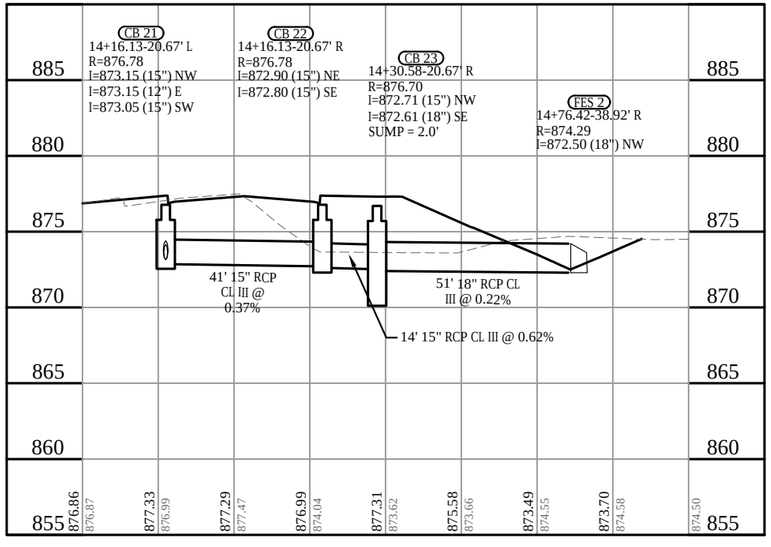
BUNKER LAKE BLVD STA 7+99



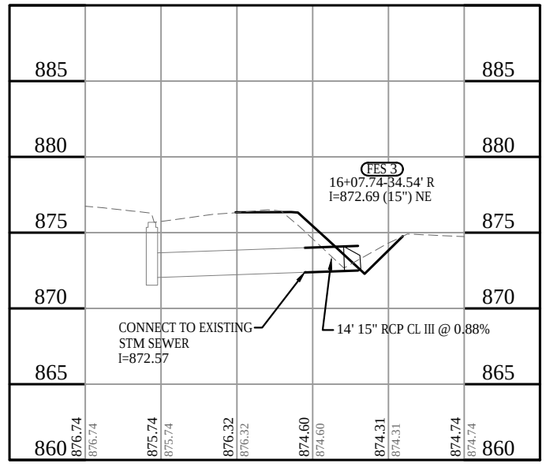
BUNKER LAKE BLVD STA 10+98



BUNKER LAKE BLVD STA 14+16



BUNKER LAKE BLVD STA 16+08



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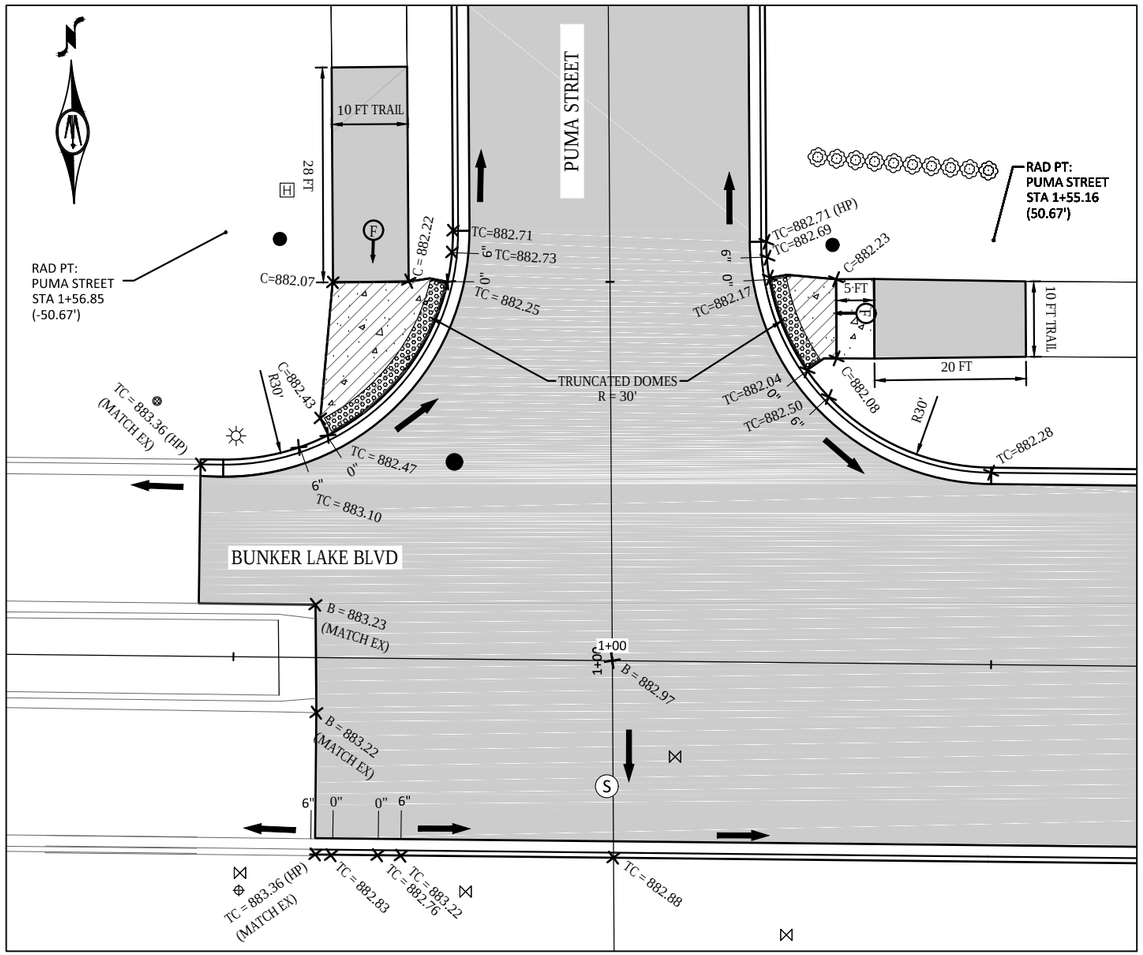
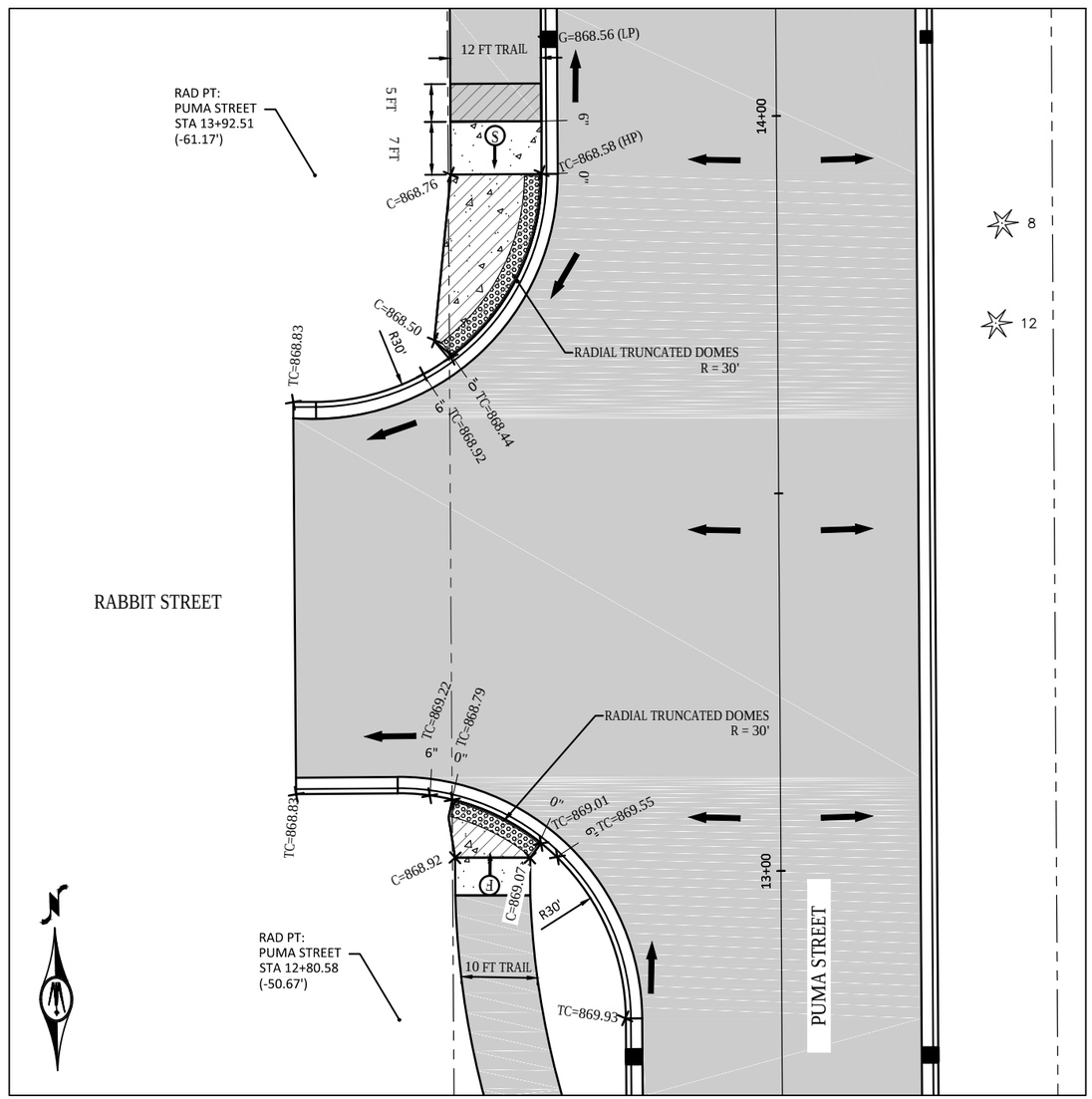
STORM SEWER LEADS

SHEET C4.08



INTERSECTION - PUMA STREET & BUNKER LAKE BOULEVARD



INTERSECTION - PUMA STREET & RABBIT STREET

LEGEND

- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) 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%
- (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%
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- SURFACE FLOW ARROW
- PROPOSED CURB & GUTTER
- X" CURB HEIGHT
- TC=XXX.XX = PROPOSED TOP OF CURB
- G=XXX.XX = PROPOSED GUTTER
- C=XXX.XX = PROPOSED TOP OF CONCRETE
- 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.

INTERSECTION - PUMA STREET & RABBIT STREET

HORZ. SCALE 0 10 20 FEET

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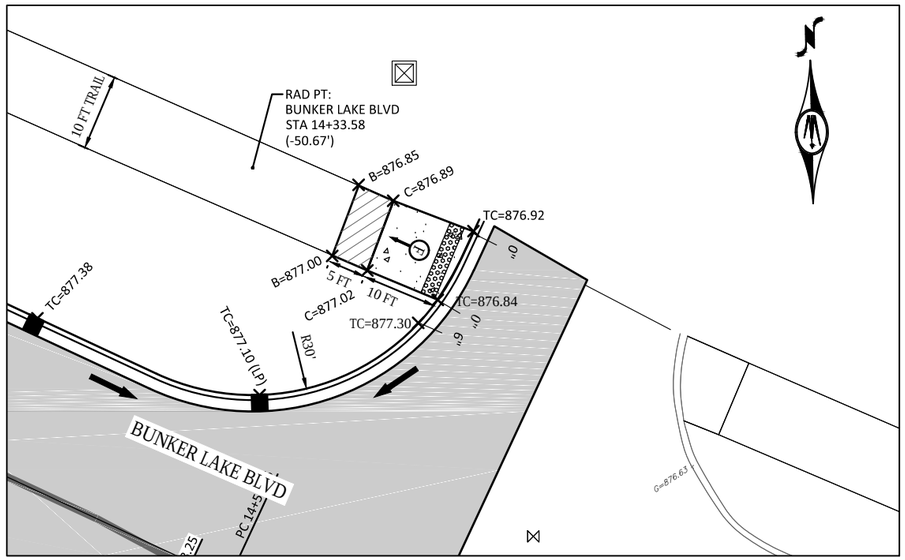
CHECKED KPK

CITY OF RAMSEY, MINNESOTA

BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002

INTERSECTION DETAILS

SHEET C5.01



INTERSECTION - BUNKER LAKE BOULEVARD STA 14+63

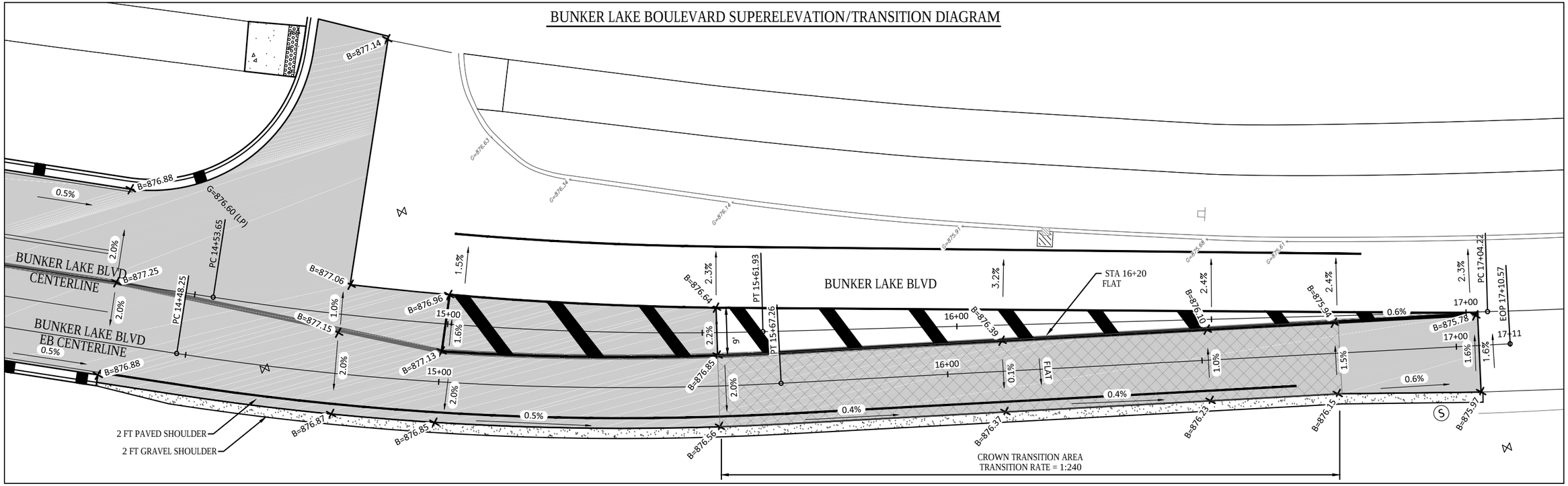
LEGEND

- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- 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%
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- PROPOSED CURB & GUTTER
- X" CURB HEIGHT
- TC=XXX.XX = PROPOSED TOP OF CURB
- G=XXX.XX = PROPOSED GUTTER
- C=XXX.XX = PROPOSED TOP OF CONCRETE
- B=XXX.XX = PROPOSED TOP OF BITUMINOUS
- SURFACE FLOW ARROW
- G=876.26 = EXISTING GUTTER
- ROAD CROWN / PIVOT LINE
- 2.0% PROPOSED SURFACE GRADE
- 1.6% EXISTING SURFACE GRADE
- CROWN TRANSITION AREA

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.

BUNKER LAKE BOULEVARD SUPERELEVATION/TRANSITION DIAGRAM



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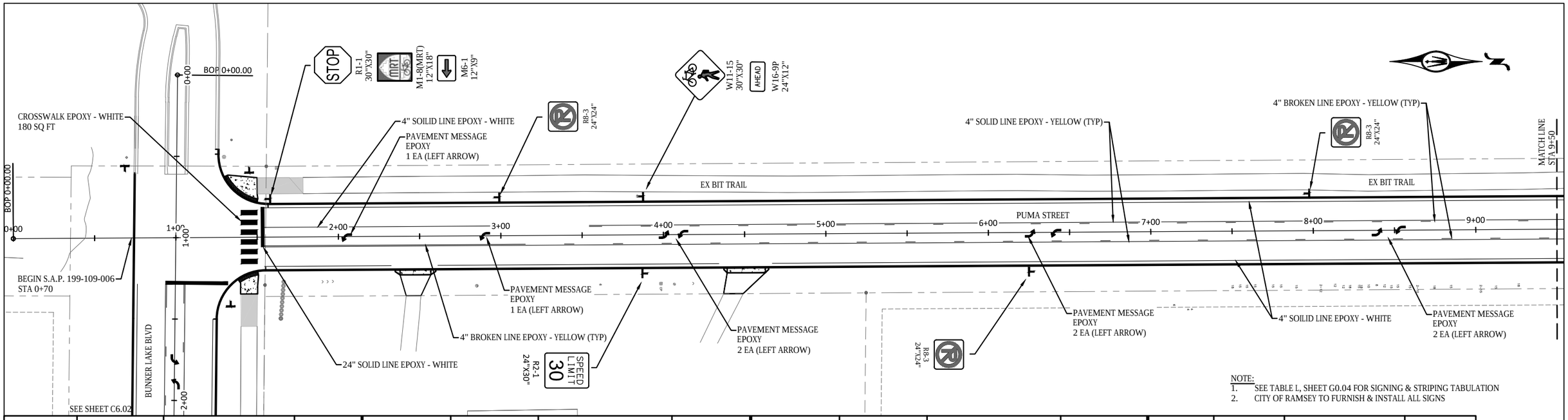
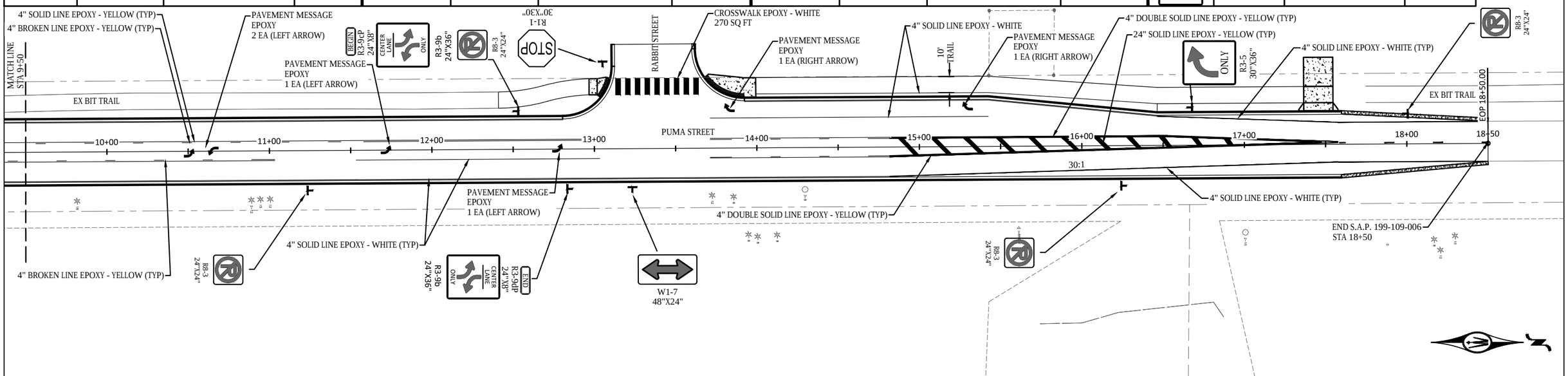
INTERSECTION DETAILS

SHEET C5.02



NOTE:
1. SEE TABLE 1, SHEET G0.04 FOR SIGNING & STRIPING TABULATION
2. CITY OF RAMSEY TO FURNISH & INSTALL ALL SIGNS

SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
STOP	R1-1 30"X30"		2
W11-15 AHEAD	W11-15 30"X30"		1
	W16-9P 24"X12"		1
	W1-7 48"X24"		1
SPEED LIMIT 30	R2-1 24"X30"		1
MRT	M1-8 (MRT) 12"X18"		1
	M6-1 12"X9"	INSTALL M6-1 SIGN ON SAME POST AS M1-8 (MRT)	1
	R8-3 24"X24"		7
BEGIN END CENTER LANE ONLY	R3-9cP 24"X8"	INSTALL R3-9cP & R3-9dP SIGNS ON SAME POST AS R3-9b	1
	R3-9dP 24"X8"		1
	R3-9b 24"X36"		2
ONLY	R3-5 30"X36"		1



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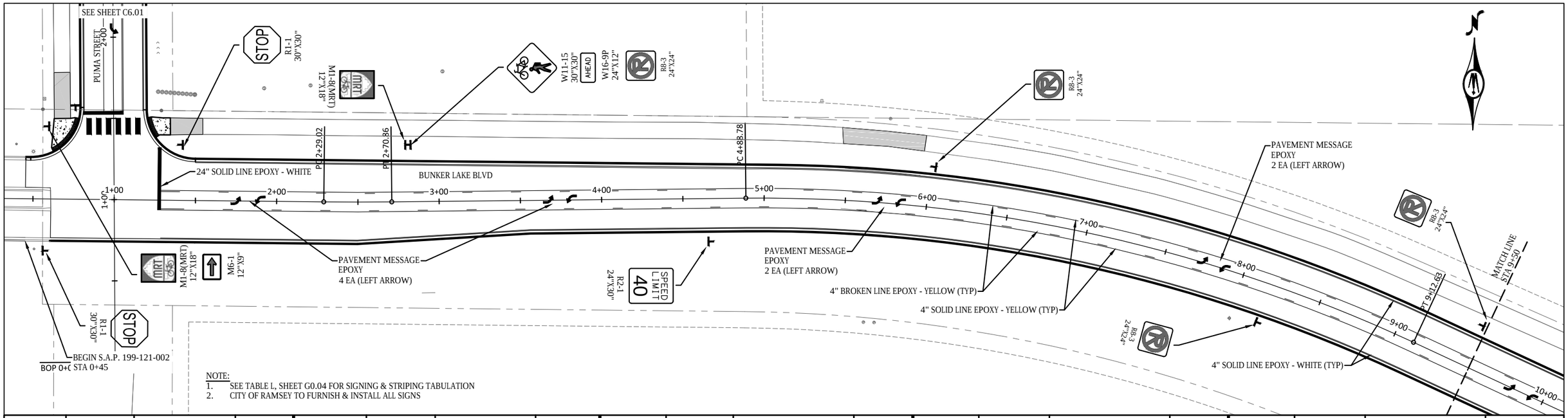
LIC. NO. 23211 DATE 04/12/2018

DESIGNED JWC
DRAWN EKD
CHECKED KPK

CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
SIGNING & STRIPING PLAN

SHEET
C6.01



NOTE:
1. SEE TABLE L, SHEET G0.04 FOR SIGNING & STRIPING TABULATION
2. CITY OF RAMSEY TO FURNISH & INSTALL ALL SIGNS

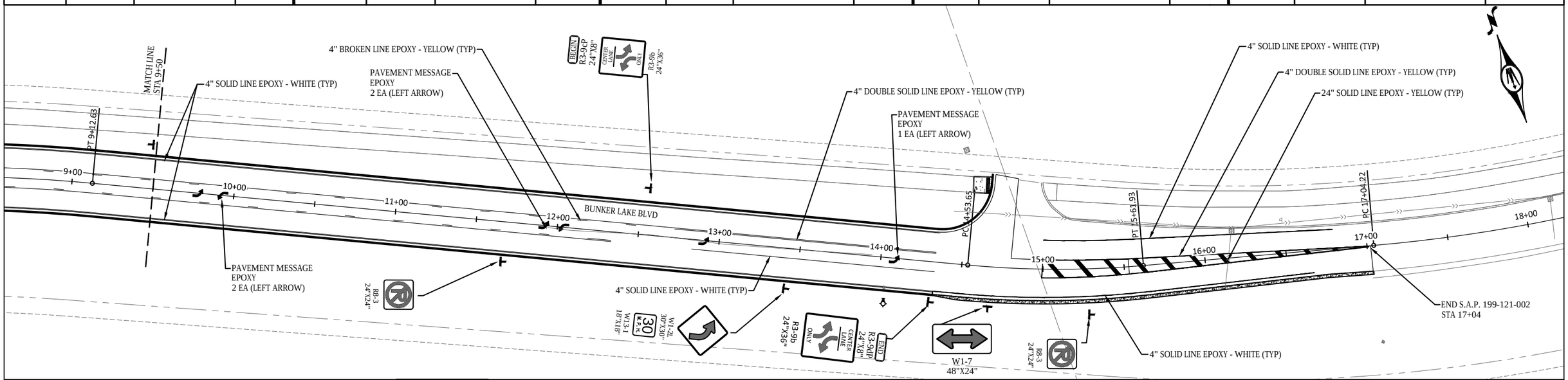
SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
STOP	R1-1 30"X30"		2
AHEAD	W11-15 30"X30"		1
	W16-9P 24"X12"		1

SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
	W1-7 48"X24"		1
SPEED LIMIT 40	R2-1 24"X30"		1

SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
MRT	M1-8(MRT) 12"X18"		2
	M6-1 12"X9"	INSTALL M6-1 SIGN ON SAME POST AS M1-8 (MRT)	1
	R8-3 24"X24"		6

SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
	W1-2L 30"X30"		1
30 M.P.H.	W13-1P 18"X18"	INSTALL W13-1P SIGN ON SAME POST AS W1-2L	1

SIGN LEGEND	SIGN NUMBER & SIZE	NOTES	ESTIMATED QUANTITY
BEGIN	R3-9cP 24"X8"	INSTALL R3-9cP & R3-9dP SIGNS ON SAME POST AS R3-9b	1
END	R3-9dP 24"X8"		1
CENTER LANE ONLY	R3-9b 24"X36"		2



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City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
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Email: Ramsey@bolton-menk.com
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CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
SIGNING & STRIPING PLAN

SHEET C6.02

ALPINE DR

ALPINE DR

PUMA ST

ARMSTRONG BLVD

BUNKER LAKE BLVD

TH 10

END S.A.P. 199-109-006
STA 18+50

BEGIN S.A.P. 199-121-002
STA 0+45

PROJECT AREA

END S.A.P. 199-121-002
STA 17+04

BEGIN S.A.P. 199-109-006
STA 0+70

TRAFFIC CONTROL PHASING PLAN:

1. MAINTAIN STREET OPEN TO TRAFFIC AS MUCH AS POSSIBLE.
2. WHEN ROADWAY MUST BE CLOSED FOR UTILITY AND/OR STREET WORK, MAINTAIN ACCESS TO RESIDENTIAL DEVELOPMENT AND RESIDENCES.
3. UPON COMPLETING UTILITY WORK, RESTORE TO CLASS 5 AGGREGATE BASE AND REOPEN.

NOTES:

1. IN GENERAL THE CONTRACTOR SHALL INSTALL THE INDICATED CONSTRUCTION BARRICADES ONLY IN THE AREA ACTUALLY UNDER CONSTRUCTION. AREAS NOT AFFECTED BY CONSTRUCTION SHALL REMAIN OPEN TO TRAFFIC.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS
3. CONTRACTOR SHALL PLACE ALL TRAFFIC CONTROL DEVICES TO ALLOW ACCESS TO PROPERTIES IN AND NEAR THE PROJECT.
4. CONSTRUCTION ZONE SIGNING SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE BUT NOT BE LIMITED TO, SIGNS FOR LANE CLOSURES, BUMP, DIP, MACHINERY AHEAD, LOOSE GRAVEL, ETC. THE NUMBER AND LOCATION OF THESE SIGNS WILL DEPEND ON THE CONTRACTOR'S OPERATIONS.
5. ALL TRAFFIC CONTROL MATERIAL, ERECTION, MAINTENANCE, AND REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR TRAFFIC CONTROL.
6. CONTRACTOR SHALL MAINTAIN 4 ADDITIONAL TYPE-3 BARRICADES ON PROJECT SITE FOR USE IN AREAS AS DESIGNATED BY THE ENGINEER.

LEGEND

ID.	SIGN ASSEMBLY
1	ROAD WORK AHEAD
2	ROAD CLOSED AHEAD
3	ROAD CLOSED TO THRU TRAFFIC — TYPE III (R)
4	ROAD CLOSED — TYPE III (R)
5	DETOUR
6	DETOUR
7	SIDEWALK CLOSED

HORZ. 0 250 500
SCALE FEET

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CITY OF RAMSEY, MINNESOTA
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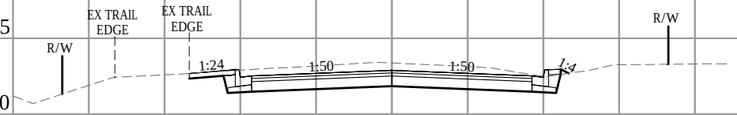
S.A.P. 199-109-006, S.A.P. 199-121-002
TRAFFIC CONTROL

SHEET C6.03

STA 3+00



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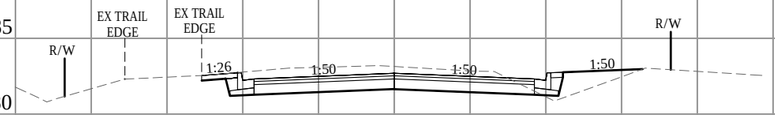
DESIGN EL = 881.85

STA 5+00



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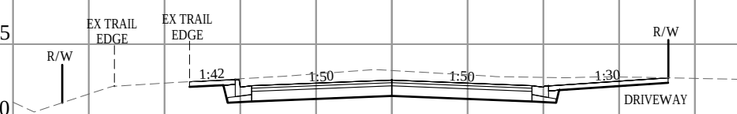
STA 2+47.34



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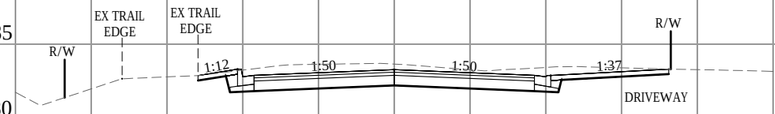
STA 4+43.38



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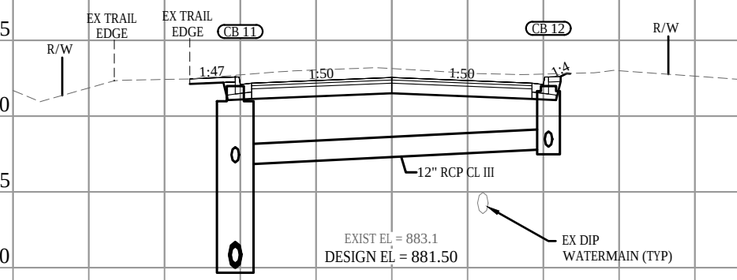
STA 2+06.16
LOW POINT



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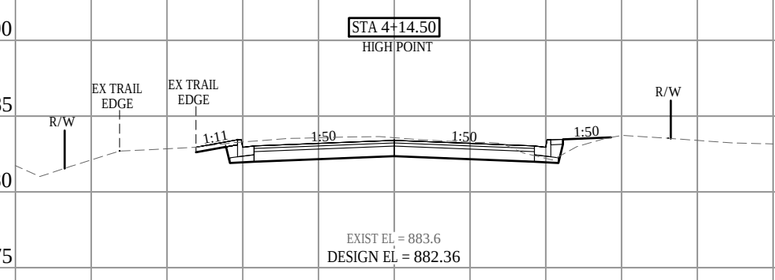
STA 4+14.50
HIGH POINT



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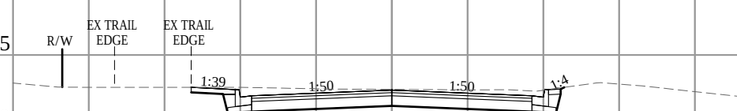
STA 1+55.16



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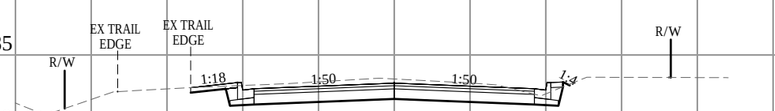
STA 3+50



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DESIGN EL = 882.10

HORZ. SCALE 0 10 20 FEET
VERT. SCALE 0 5 10 FEET

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CHECKED	KPK

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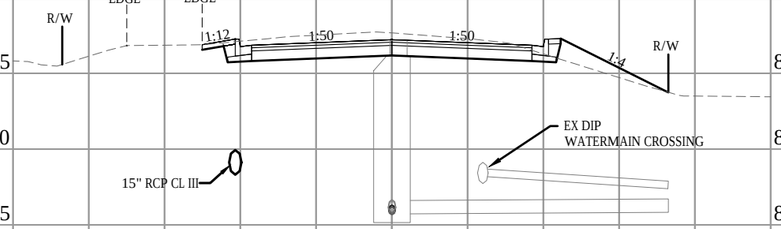
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PUMA STREET CROSS SECTIONS

SHEET
C7.01

STA 6+74.59



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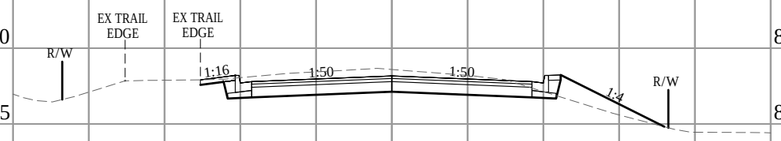
STA 6+50



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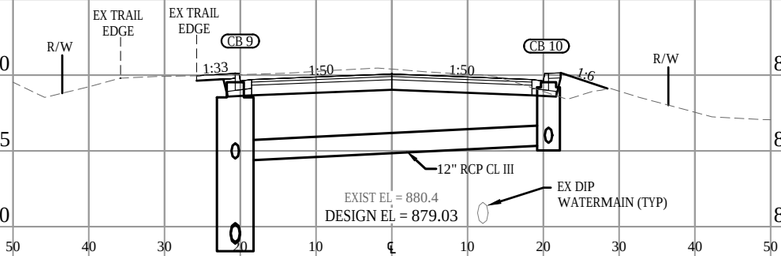
STA 6+00



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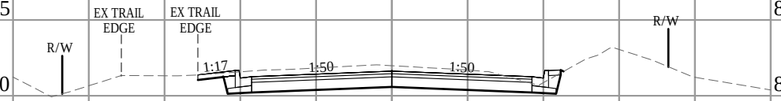
STA 5+50



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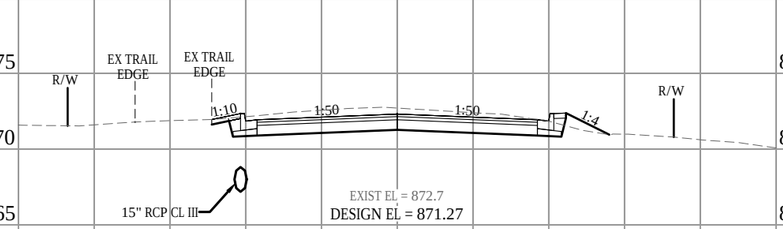
STA 9+00



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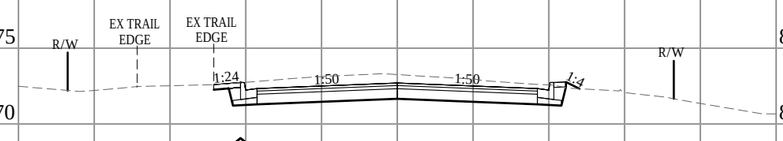
STA 8+50



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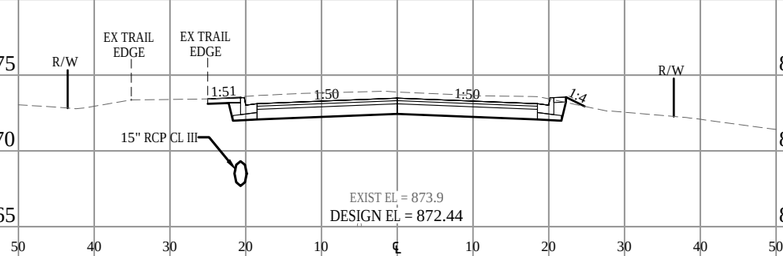
DESIGN EL = 871.66

STA 8+00



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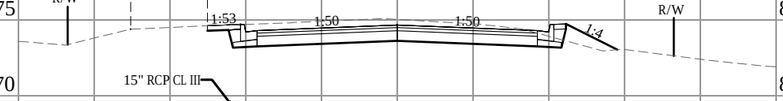
STA 7+50



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KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

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DRAWN	EKD
CHECKED	KPK

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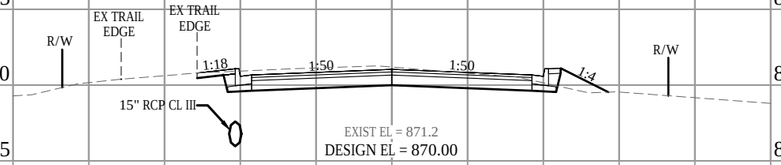
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PUMA STREET CROSS SECTIONS

SHEET
C7.02

STA 11+00



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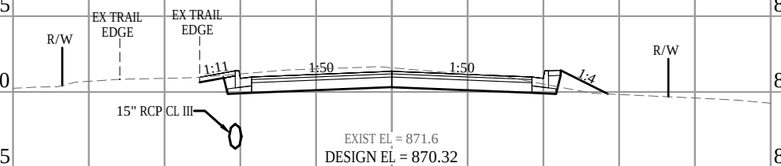

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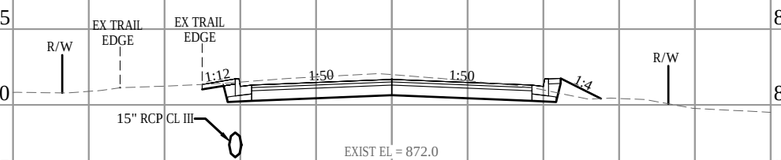

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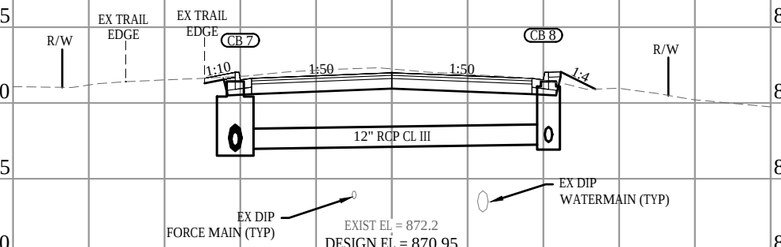

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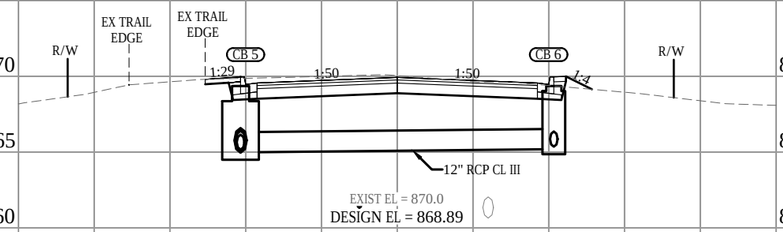

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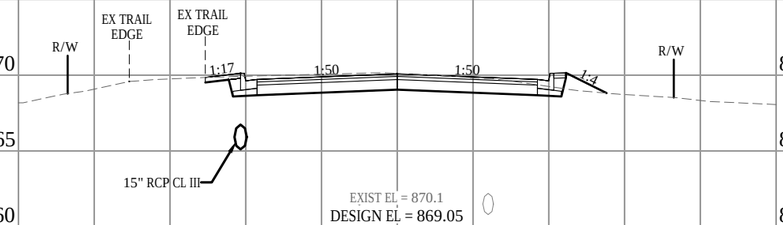

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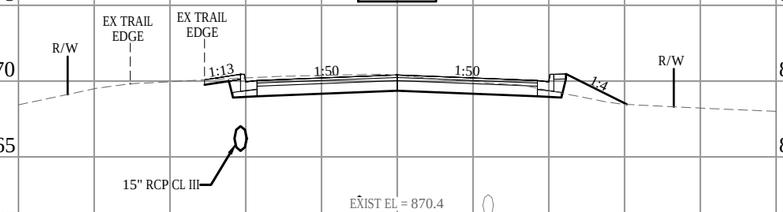

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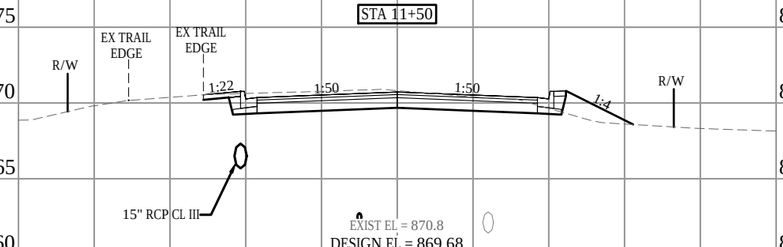

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VERT. SCALE 0 5 10 FEET

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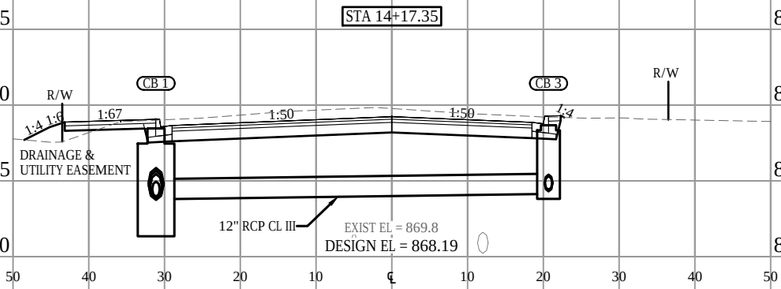
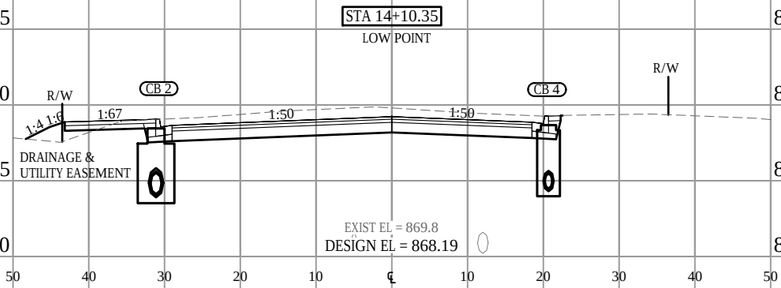
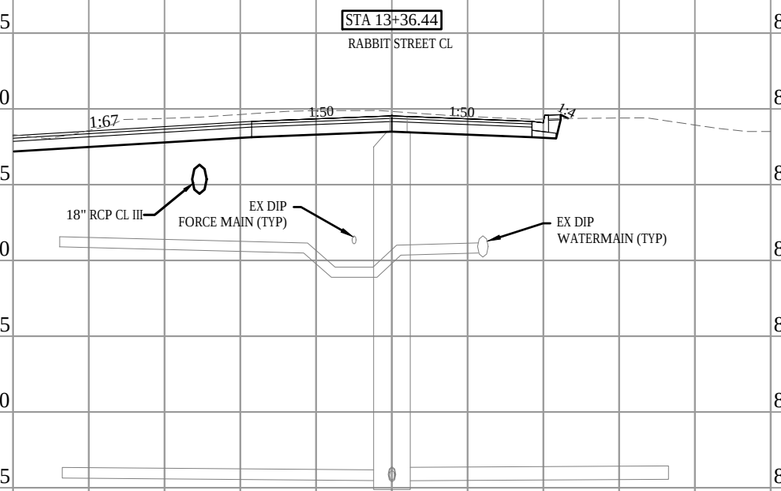
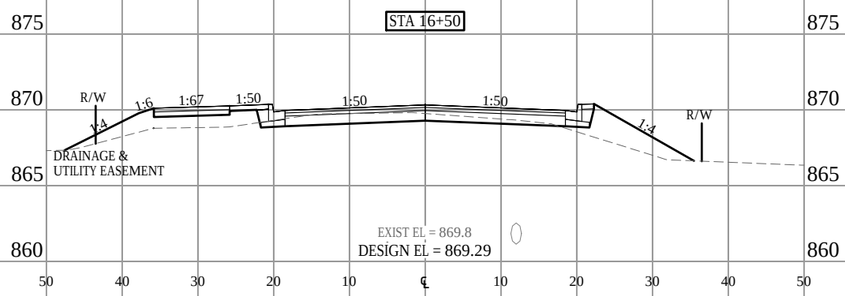
PUMA STREET CROSS SECTIONS

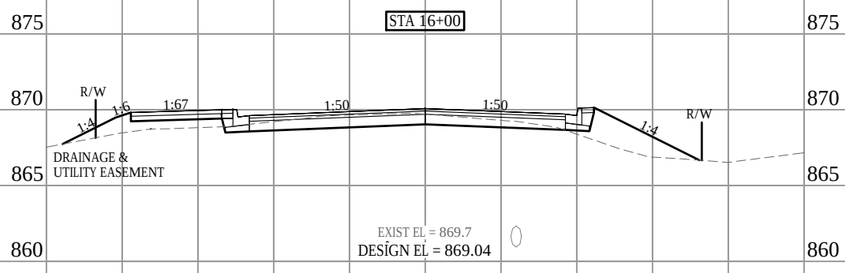
SHEET C7.03

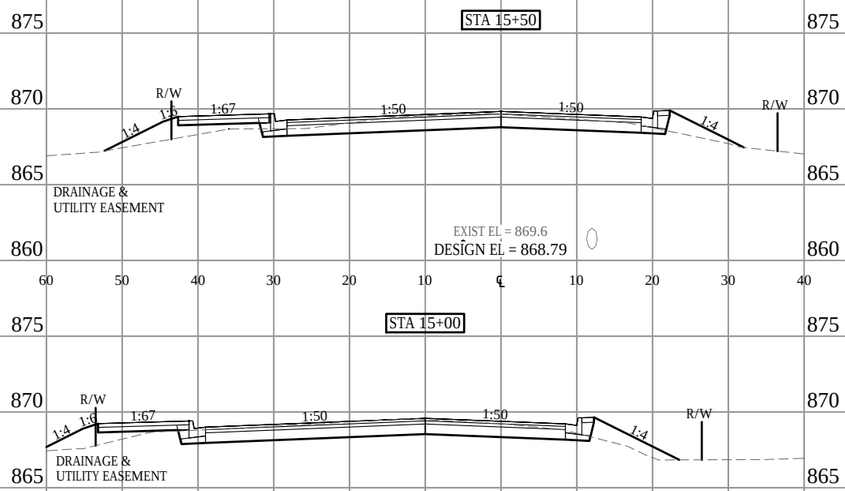


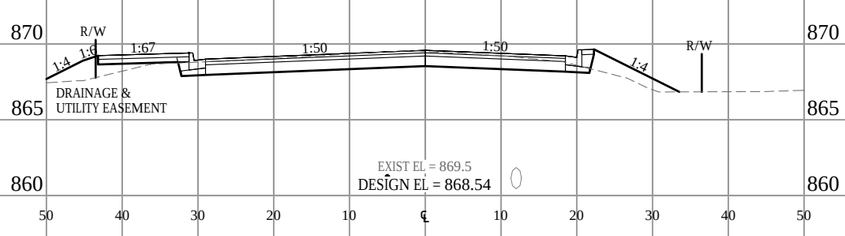












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VERT. SCALE 0 5 10 FEET

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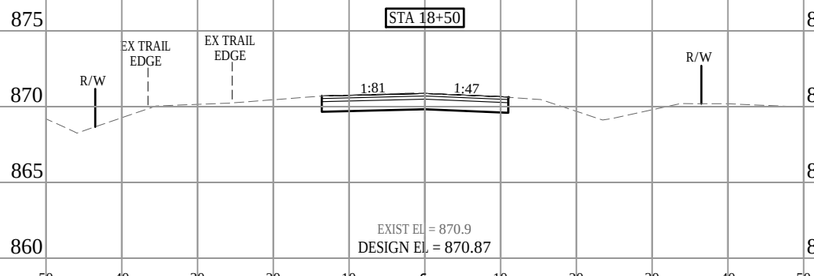
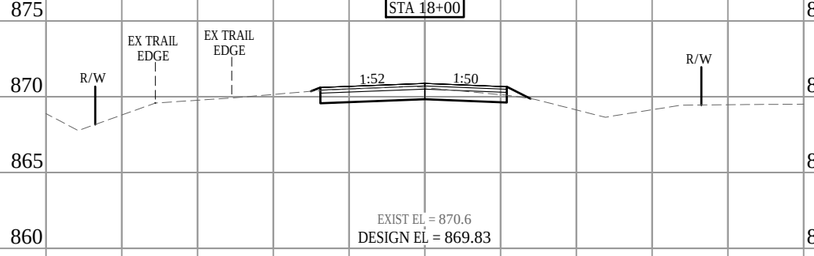
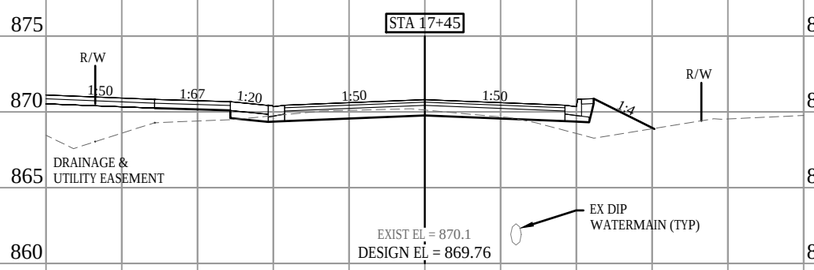
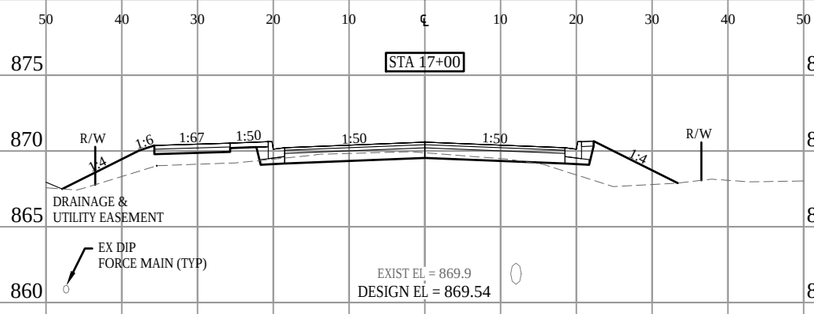
SHEET
C7.04









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VERT. SCALE 0 5 10 FEET

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City of RAMSEY

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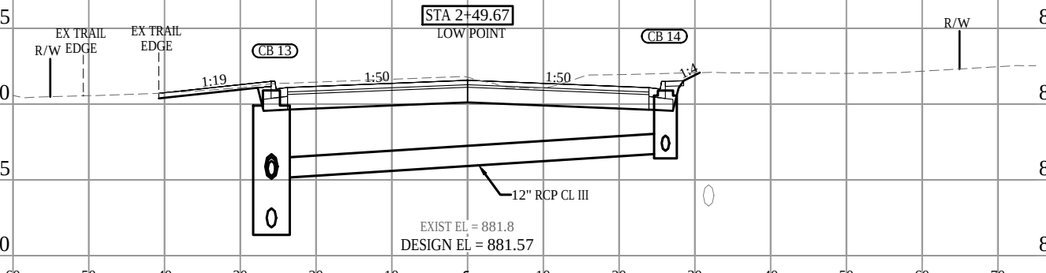
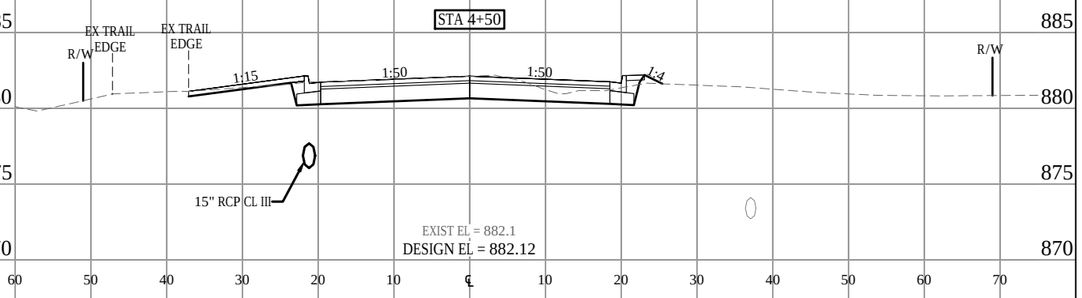
KEVIN P. KIELB
LIC. NO. 23211 DATE 04/12/2018

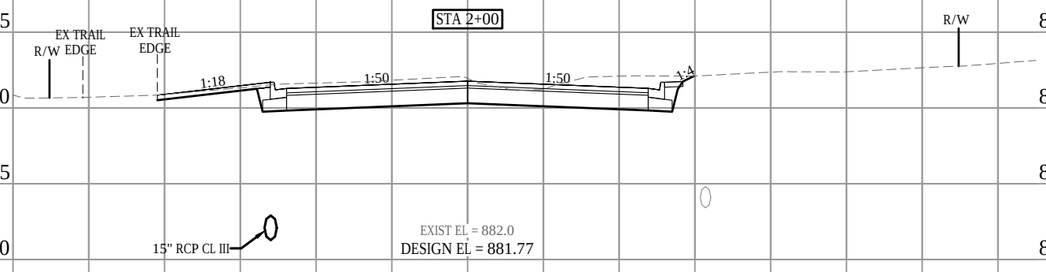
DESIGNED	JWC
DRAWN	EKD
CHECKED	KPK

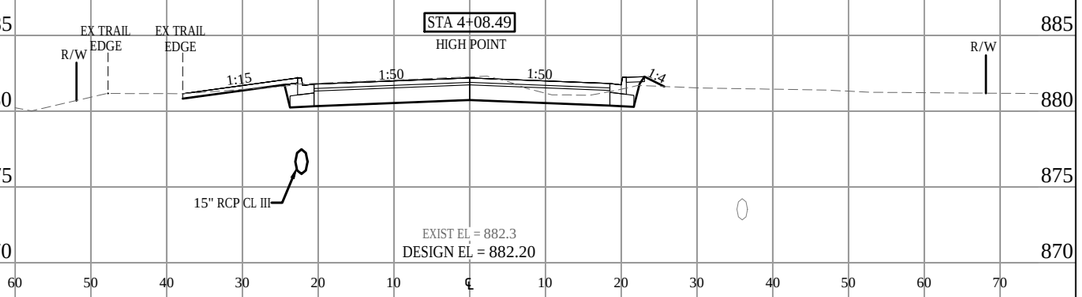
CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
PUMA STREET CROSS SECTIONS

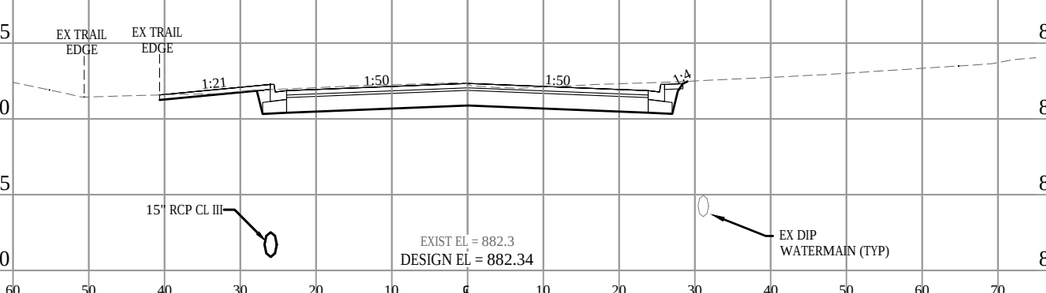
SHEET
C7.05

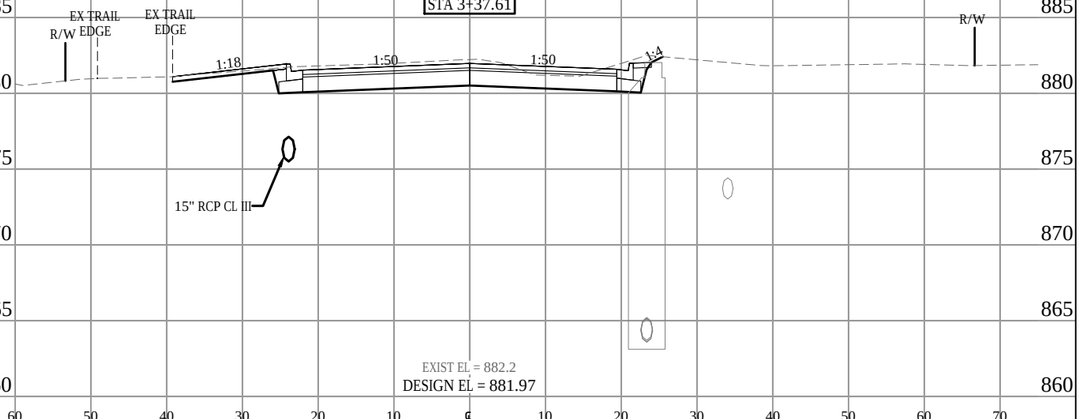


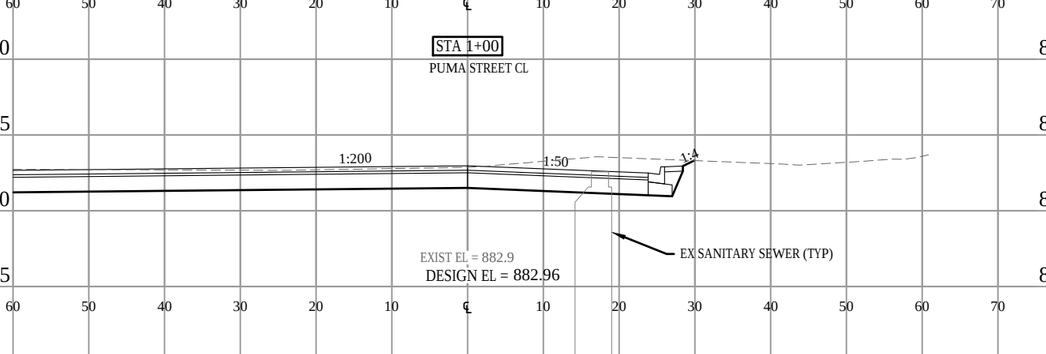


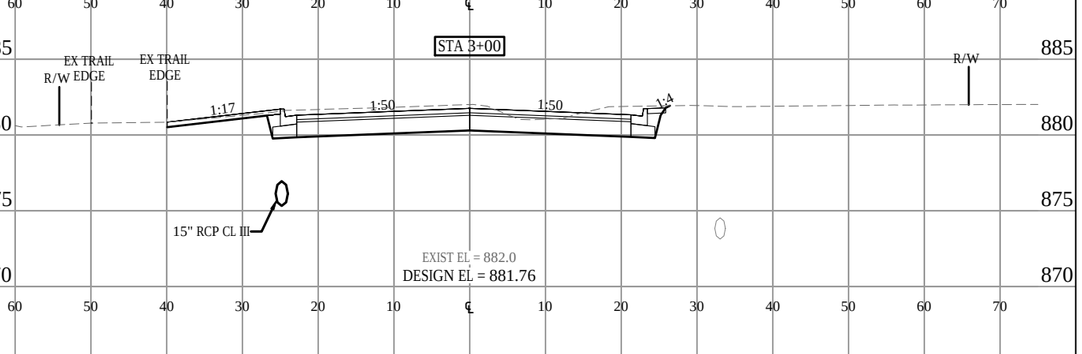












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LIC. NO. 23211 DATE 04/12/2018

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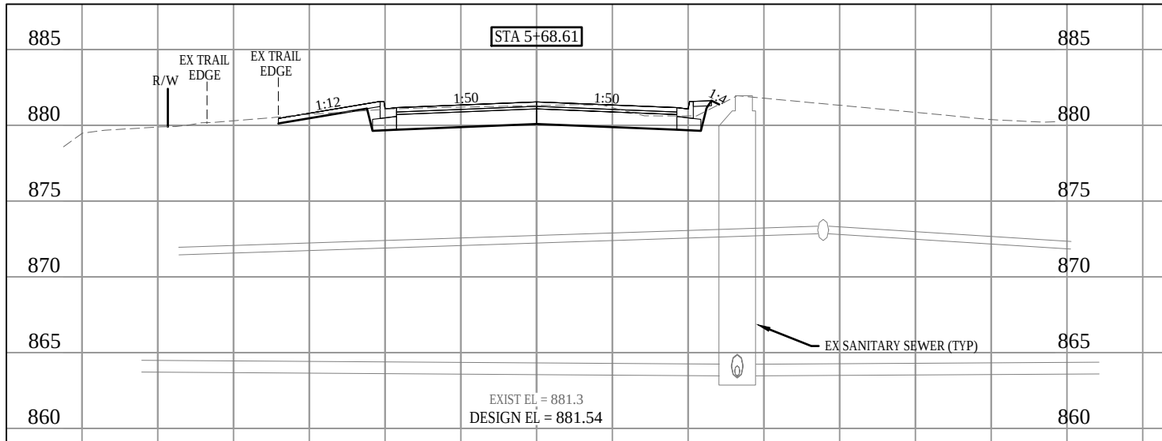
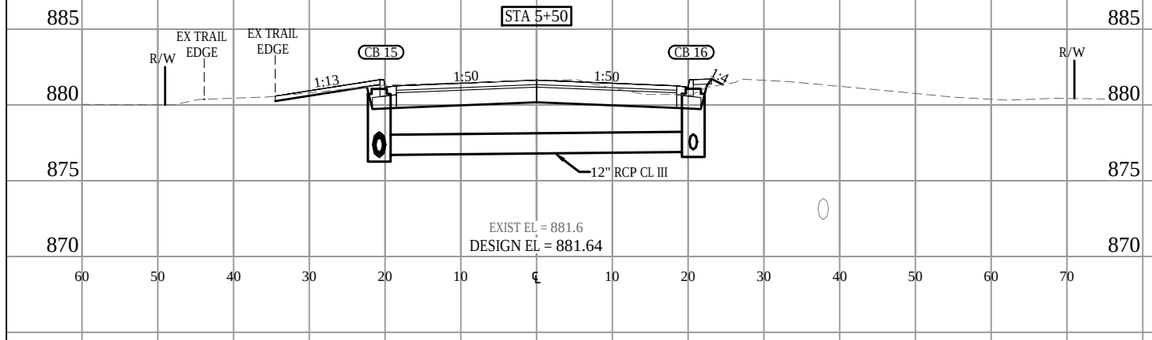
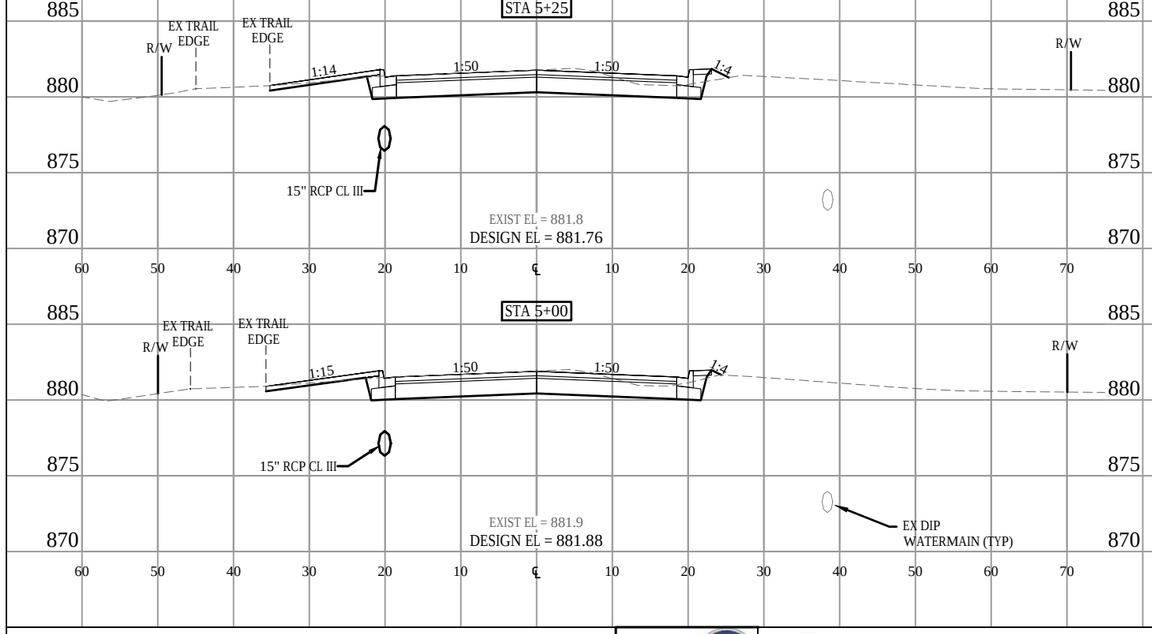
DRAWN	EKD
CHECKED	KPK

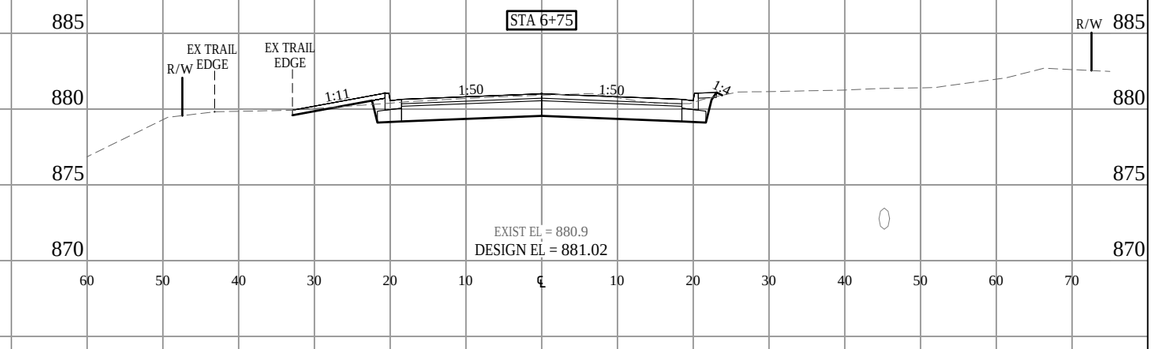
CITY OF RAMSEY, MINNESOTA
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
BUNKER LAKE BOULEVARD CROSS SECTIONS

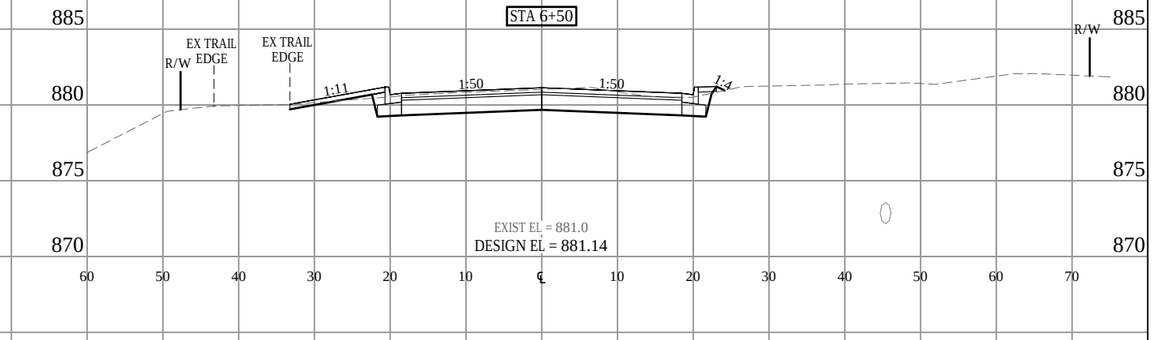
SHEET
C7.06

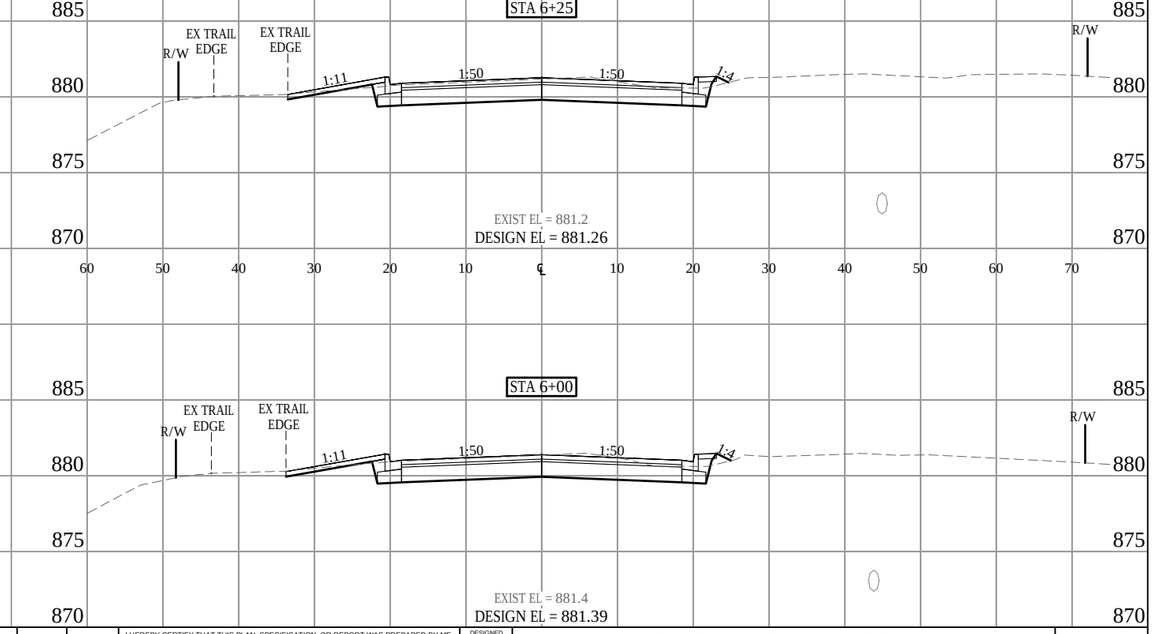












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DRAWN	EKD
CHECKED	KPK

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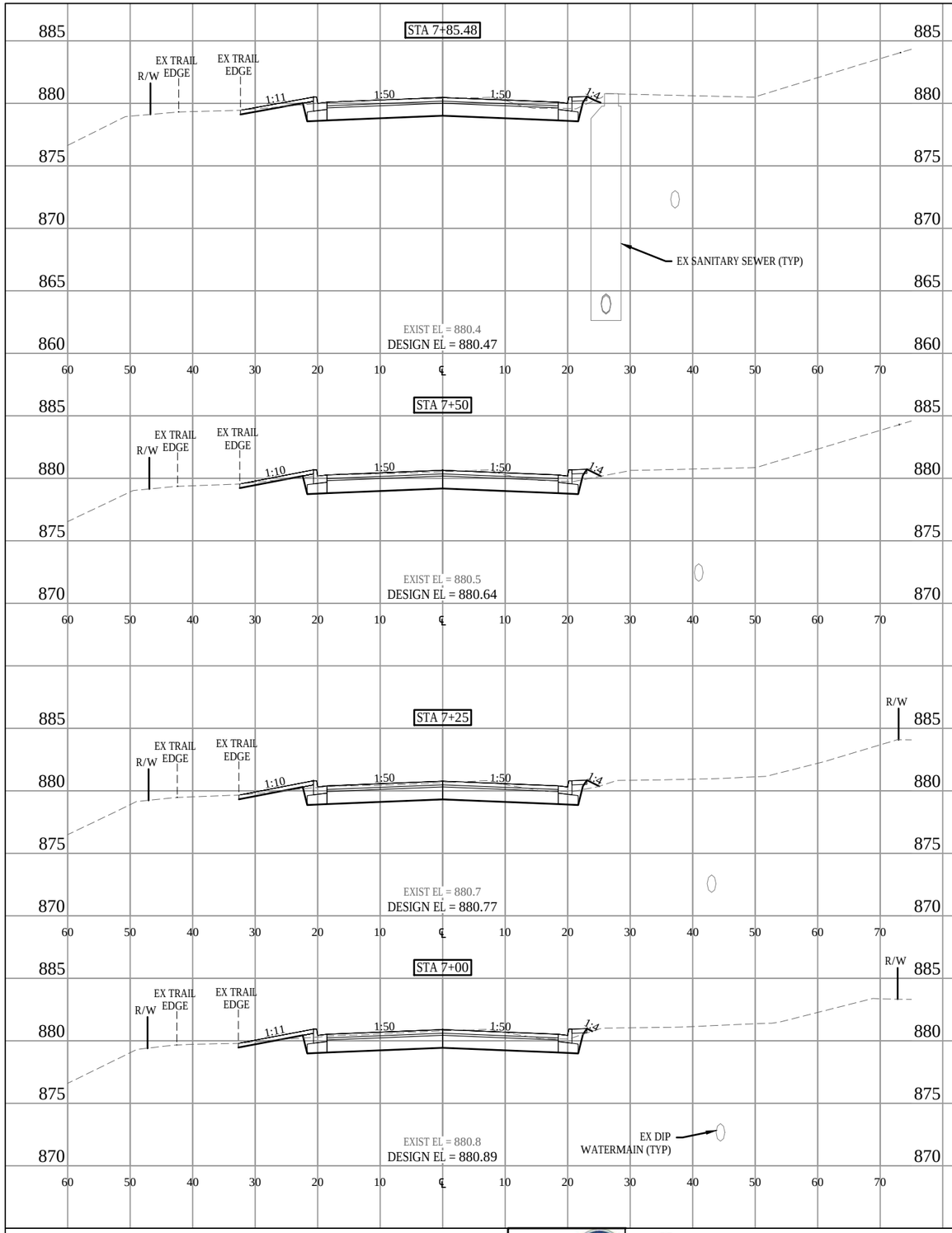
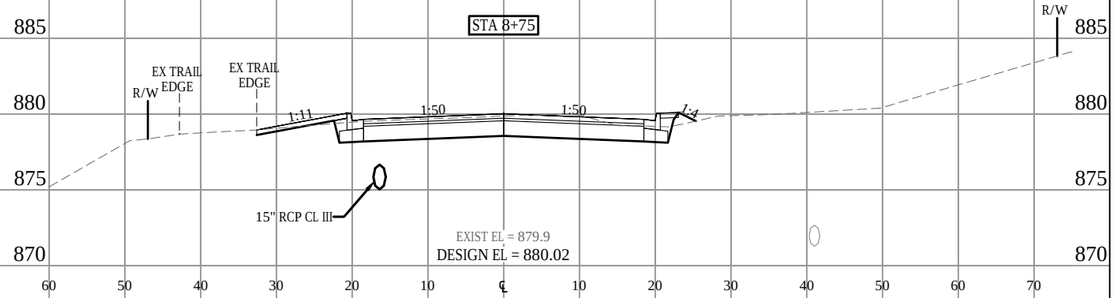
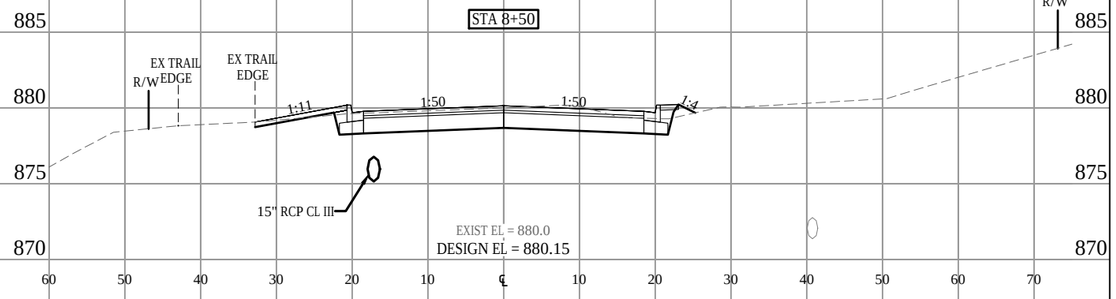
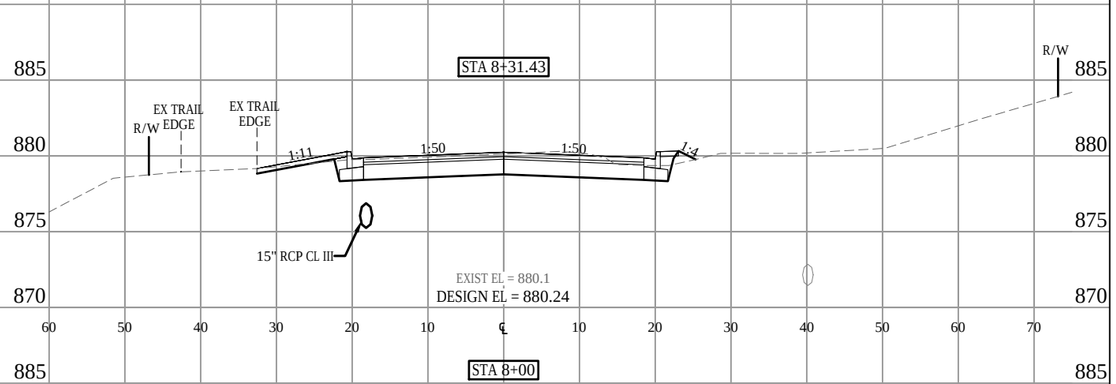
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
BUNKER LAKE BOULEVARD CROSS SECTIONS

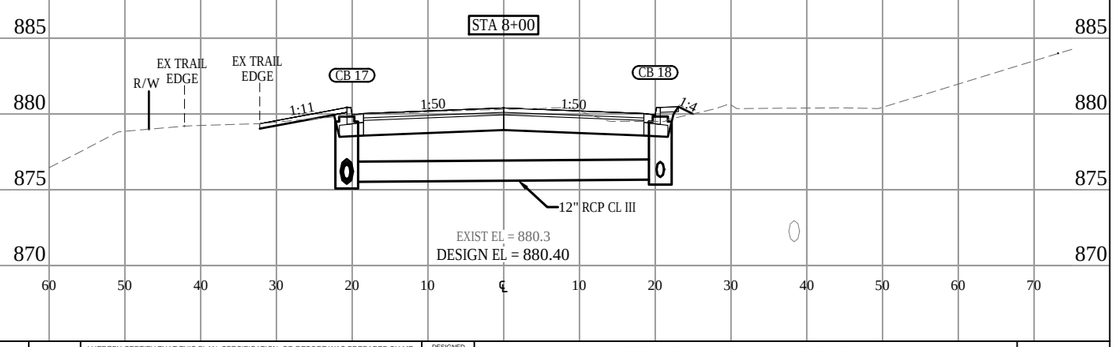
SHEET
C7.07











HORZ. SCALE 0 10 20 FEET
VERT. SCALE 0 5 10 FEET

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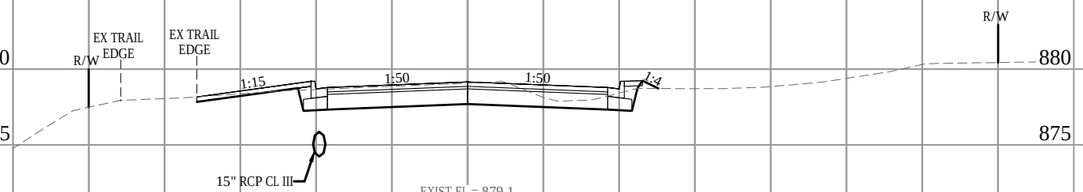
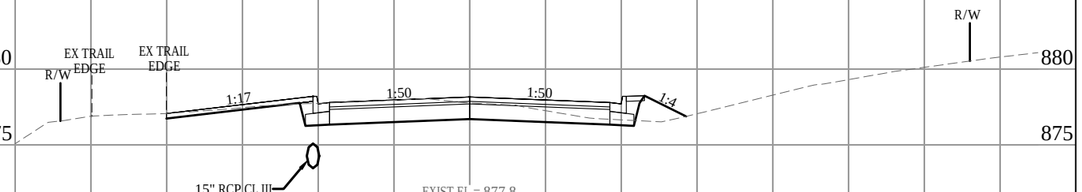
BUNKER LAKE BOULEVARD AND PUMA STREET IMPROVEMENTS
S.A.P. 199-109-006, S.A.P. 199-121-002
BUNKER LAKE BOULEVARD CROSS SECTIONS

SHEET
C7.08

STA 10+50



STA 12+50



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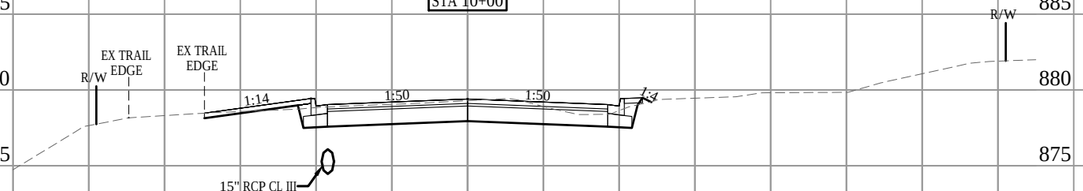

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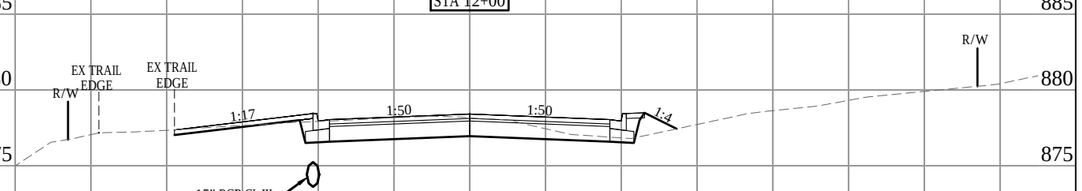

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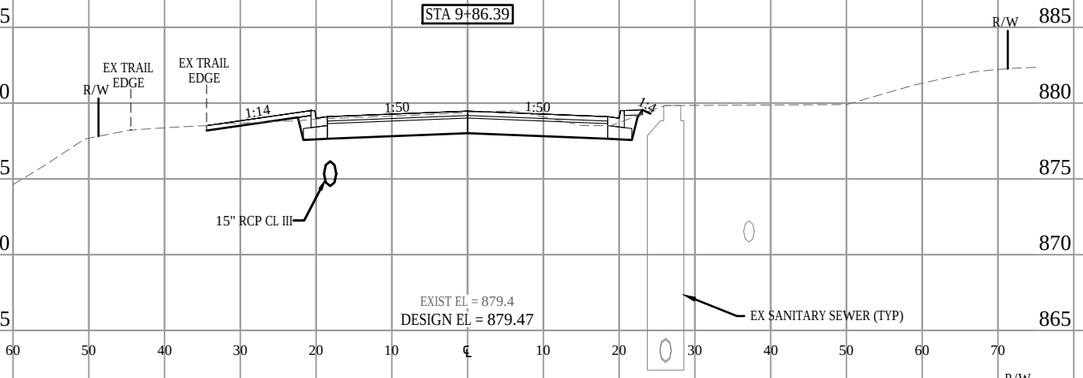
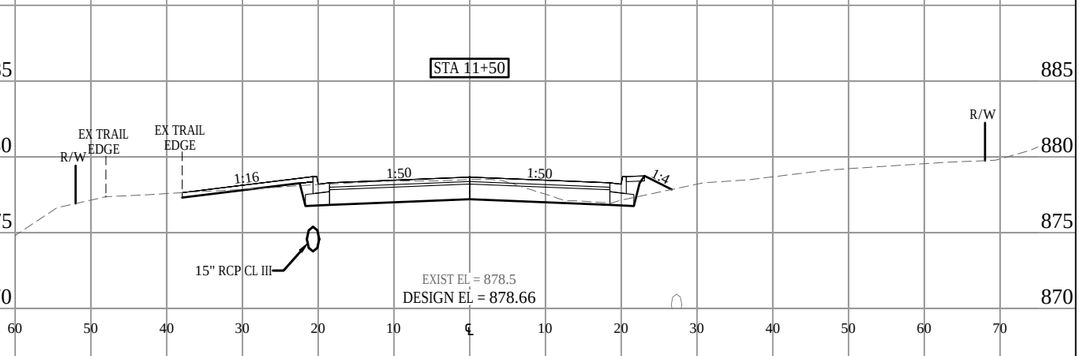


STA 11+50



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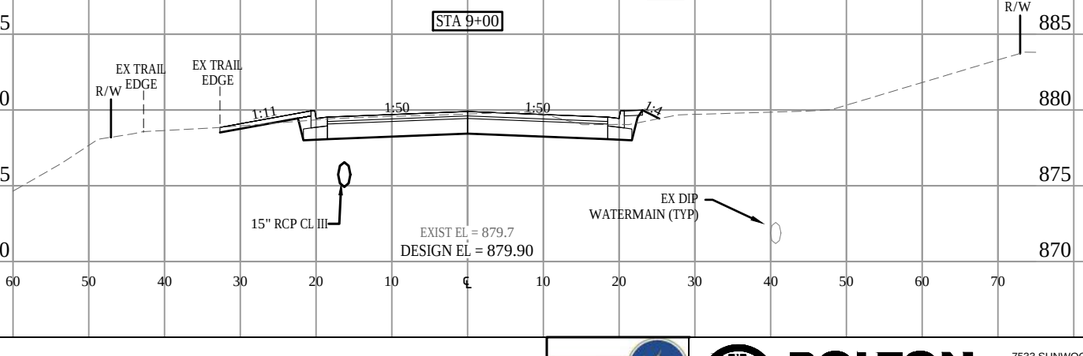
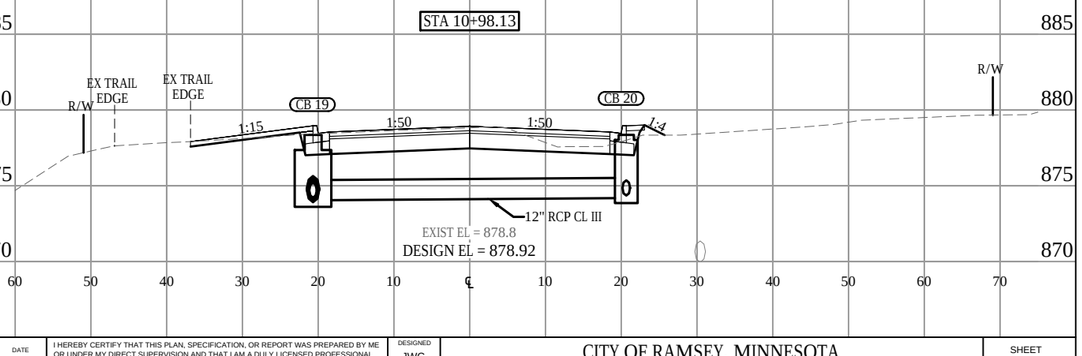


STA 10+98.13



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KEVIN P. KIELB
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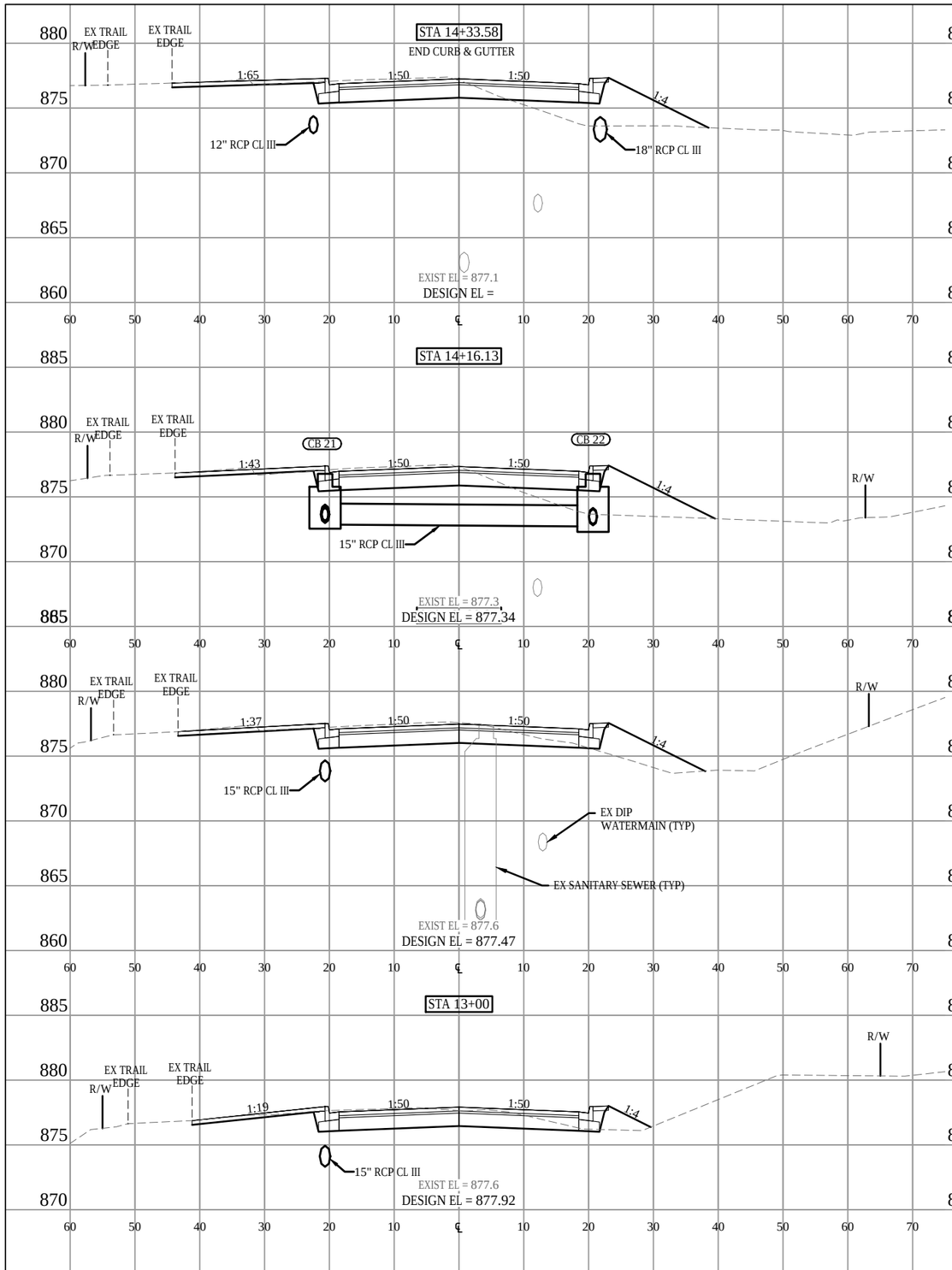
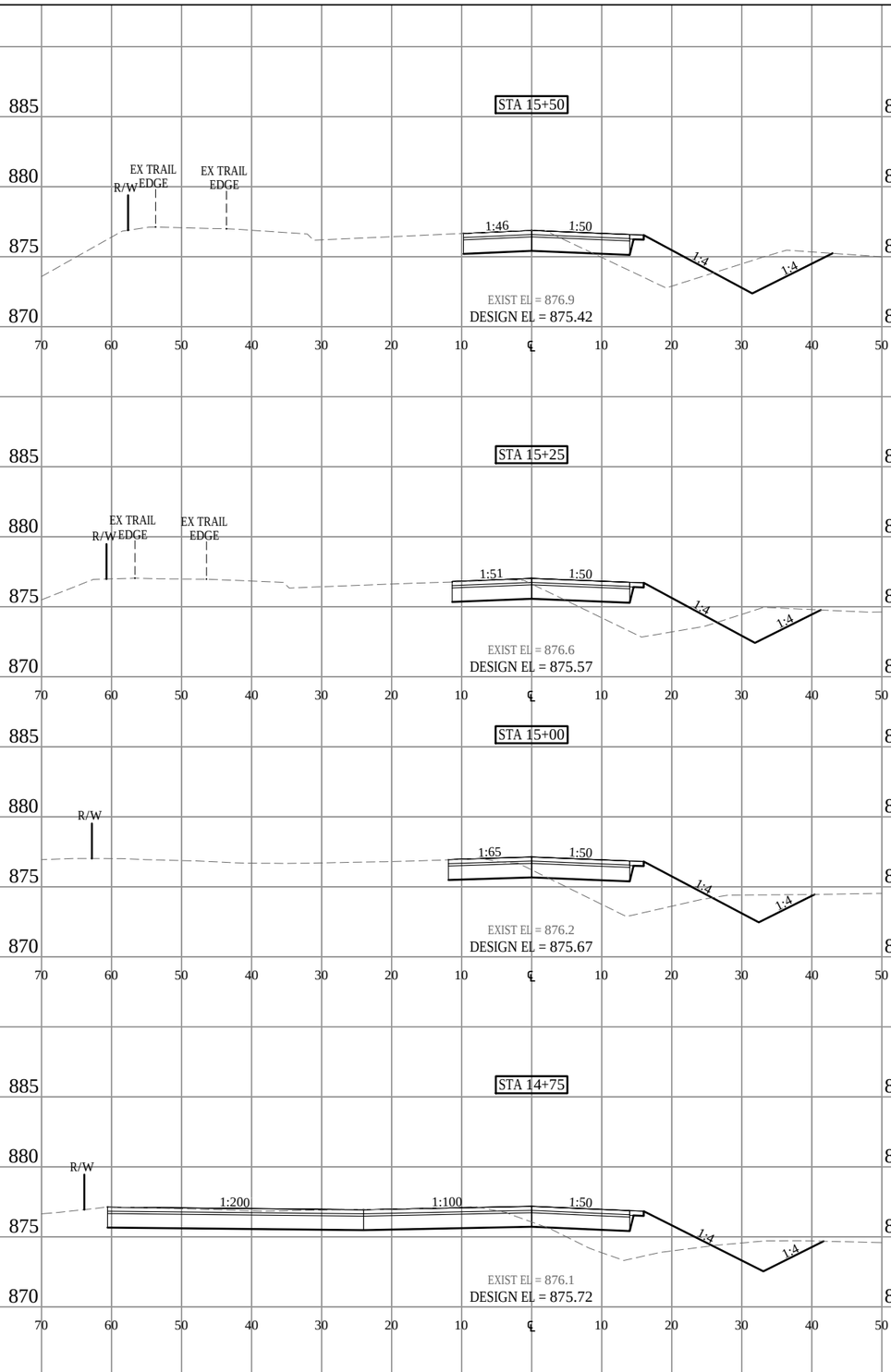
S.A.P. 199-109-006, S.A.P. 199-121-002
BUNKER LAKE BOULEVARD CROSS SECTIONS

SHEET C7.09





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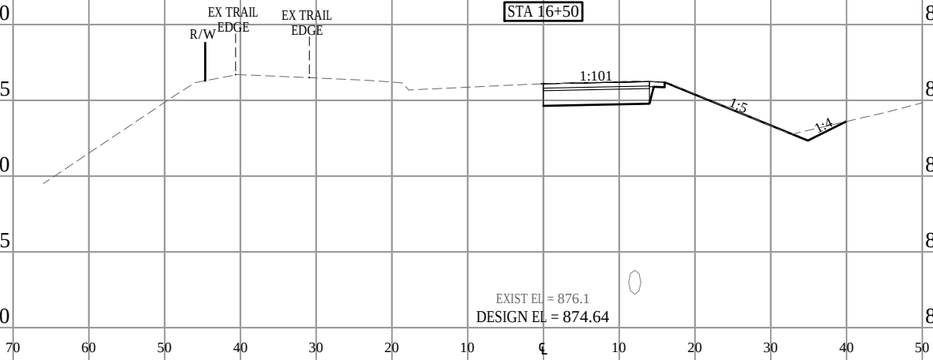
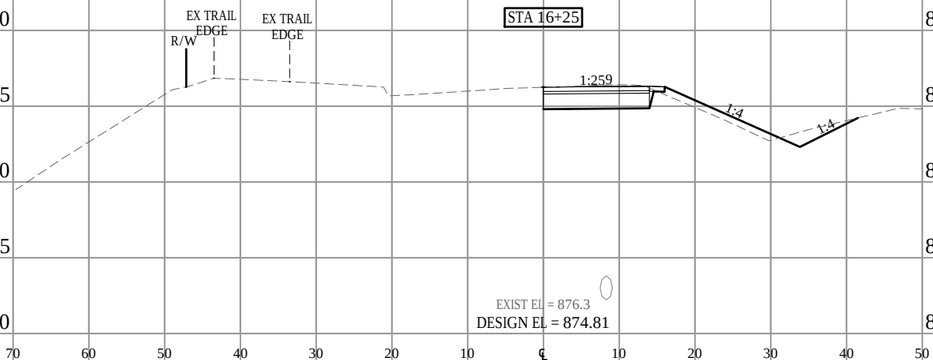
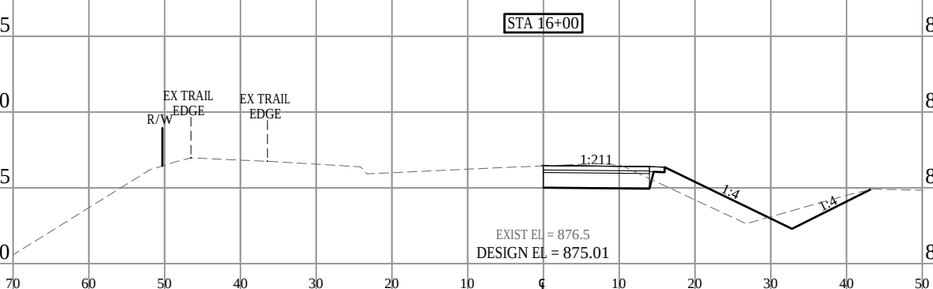
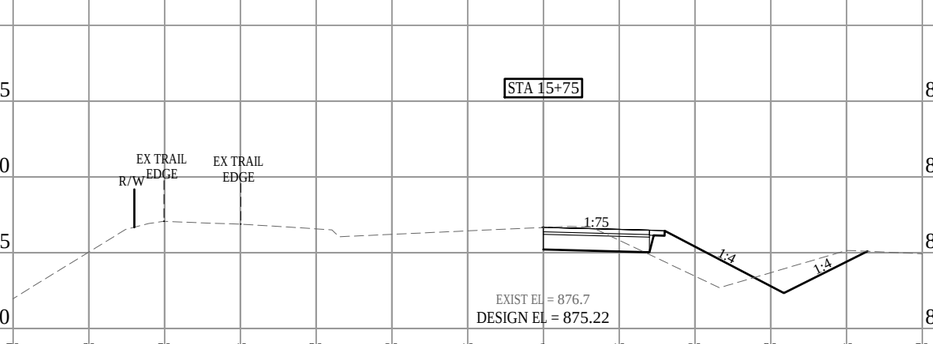
BUNKER LAKE BOULEVARD CROSS SECTIONS

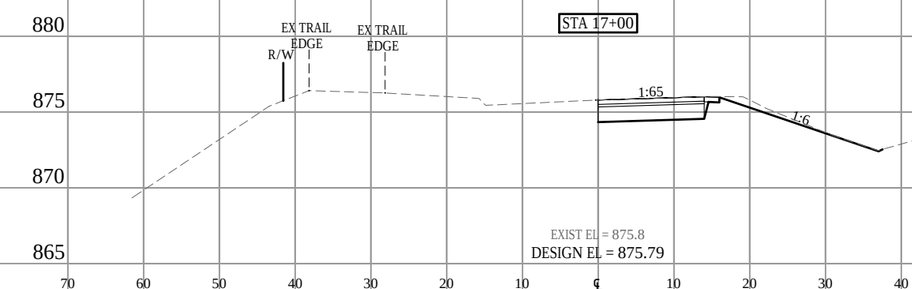
SHEET C7.10

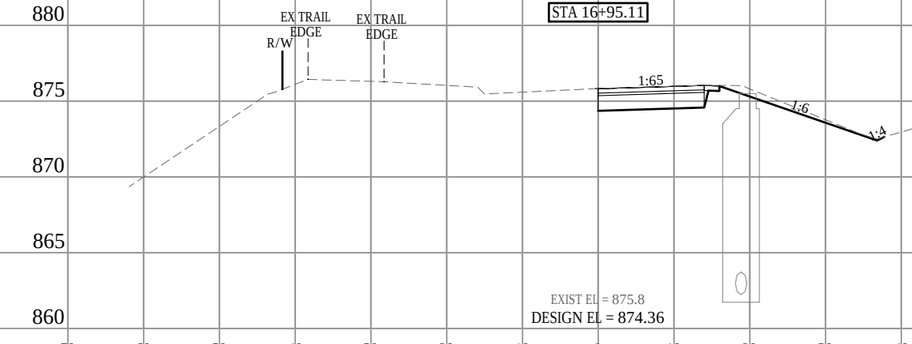












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BUNKER LAKE BOULEVARD CROSS SECTIONS

SHEET
C7.11